Michael P. Devereux
Alan J. Auerbach
Michael Keen
Paul Oosterhuis
Wolfgang Schön
John Vella

TAXING PROFIT IN A GLOBAL ECONOMY

OXFORD

Taxing Profit in a Global Economy

Taxing Profit in a Global Economy

A Report of the Oxford International Tax Group

CHAIRED BY MICHAEL P. DEVEREUX

Authors

MICHAEL P. DEVEREUX, ALAN J. AUERBACH, MICHAEL KEEN, PAUL OOSTERHUIS, WOLFGANG SCHÖN, AND JOHN VELLA

OXFORD
UNIVERSITY PRESS

OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP,
United Kingdom

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide. Oxford is a registered trade mark of
Oxford University Press in the UK and in certain other countries

First Edition published in 2021

Impression: 1

Published in the United States of America by Oxford University Press
198 Madison Avenue, New York, NY 10016, United States of America

British Library Cataloguing in Publication Data
Data available

Library of Congress Control Number: 2020940025

ISBN 978–0–19–880806–0 (hbk.)
ISBN 978–0–19–880807–7 (pbk.)

DOI: 10.1093/oso/9780198808060.001.0001

Printed and bound by
CPI Group (UK) Ltd, Croydon, CR0 4YY

Preface

In 2013, when concerns about tax avoidance by multinational companies were hitting the headlines and the OECD was launching its BEPS project, I thought it was time for a more fundamental review of the way in which business profit was taxed in an international context.

I was inspired by three outstanding reviews that the Institute for Fiscal Studies had commissioned to investigate the structure and reform of taxes over the decades—the Meade Committee in the 1970s, the IFS Capital Taxes Group, led by Malcolm Gammie, in the late 1980s and early 1990s, and the Mirrlees Review, which was completed in 2011. A key feature of these pathbreaking reviews was that they all married modern economic theory with a deep concern for how taxes worked in practice. And they all included economists and lawyers on the review team.

As a member of the IFS Capital Taxes Group, I very much appreciated the benefits of economists and lawyers working together. That has also been my experience in directing the Oxford University Centre for Business Taxation, which has also always employed researchers from both economics and law. So I set out to recruit the very best thinkers from law and economics from around the world to join a new group. To my delight they accepted, and the initial group—which first met in December 2013—consisted of Alan Auerbach and Michael Keen as the other economists, and Michael Graetz, Paul Oosterhuis, Wolfgang Schön, and John Vella as the lawyers. It is hard to imagine a more distinguished group. Unfortunately, Michael Graetz stepped down from the group along the way, but only after he had made an immense contribution to our work and thinking. His ideas and thoughts continue to permeate through this book—though of course, he is absolved from any responsibility for any flaws or outright errors in what it finally contains. In retrospect, our work would also have been helped by the expertise of others, especially from accounting; but the group was well established by the time I realized that.

We summarized the task we set ourselves in December 2013 as follows.

> The BEPS Action Plan aims at evolutionary, rather than revolutionary, changes to the system of international taxation, based on arms-length pricing and a network of double tax agreements. But it is not clear that such an approach will generate an international tax system fit for the 21st century. It is not only the practical working of the system that is in doubt, but—more profoundly—its conceptual

basis. Without a solid conceptual basis, reform will be piecemeal and arbitrary, and it is not clear what the reforms will be a transition to.

We will address fundamental issues of principle and practice in the allocation of profits for the purposes of taxation, paying attention to the interests and circumstances of advanced and developing countries. Specifically, we will:

- analyse the conceptual basis of the existing OECD framework, including the basic allocation of taxing rights, the treatment of interest and royalties, and the methods used in determining transfer prices;
- evaluate potential reforms within the existing framework, especially whether they can be justified on the basis of a clear conceptual basis, rather than as ad hoc measures;
- consider more radical methods of allocating taxing rights, including those based on residence, destination and formulary apportionment. This will involve not only analysis of the conceptual basis of such taxation, but also the extent to which such methods can be implemented in practice, and whether there is a feasible path of transition; and
- make recommendations for reform into the medium term.

The group held a series of meetings, mostly lasting two days and discussing a variety of notes and papers prepared for them, until 2017. Those meetings developed our ideas, although a great deal of work also took place outside the meetings. The group constituted a wonderful and constructive discussion forum; we did not start in complete agreement, and it is probably fair to say that we did not finish with complete agreement either. But along the way, I believe we all learnt a great deal from each other, and I hope those lessons have been reflected (with more clarity than there may have been at the beginning) in the book. The book represents our collective view on how taxes on international business profit should be reformed.

We have presented the ideas in the book on many occasions in the intervening period and, both individually and collectively, the group has written and presented many contributions which have been published along the way. These are generally also reflected in this book. Notably, we presented earlier versions of our two main proposals—the RPAI and the DBCFT—at a pair of conferences in Oxford and Washington DC in June and July 2016, and produced working papers relating to these proposals in March 2019, and January 2017, respectively. Much of the debate about tax reform in the US in 2016 and 2017 was based around the DBCFT. More recently, in 2019 the OECD has begun to pursue proposals that draw on the RPAI proposal—although with some important differences. Being actively involved in these policy debates has not helped us in completing the book in reasonable time.

We are very grateful to the Nuffield Foundation for financial support. Other costs of the group were largely borne by the Oxford University Centre for Business Taxation, the Max Planck Institute for Tax Law and Public Finance in Munich, and

the Robert D. Burch Center for Tax Policy and Public Finance at the University of California, Berkeley. Skadden Arps and the IMF also generously hosted meetings.

As well as learning from each other, the group benefited from comments and advice from numerous people, including Rosanne Altshuler, Reuven Avi-Yonah, Philip Baker, Johannes Becker, Jennifer Blouin, Stephen Bond, Anzhela Cédelle, Kim Clausing, Alex Cobham, Richard Collier, Wei Cui, Rita de la Feria, Ruud de Mooij, Mihir Desai, Dhammika Dharmapala, Joachim Englisch, Judith Freedman, Clemens Fuest, Malcom Gammie, Rachel Griffith, Itai Grinberg, Harry Grubert, Michelle Hanlon, Caroline Heber, Jim Hines, Doug Holtz-Eakin, Mitchell Kane, John Kay, Ed Kleinbard, Kai Konrad, Li Liu, Ben Lockwood, Glen Loutzenhiser, Drew Lyon, Giorgia Maffini, Mark Mazur, Peter Merrill, Will Morris, Christine Osterloh-Konrad, Vicki Perry, Alice Pirlot, Erik Röder, John Samuels, Dan Shaviro, Joel Slemrod, Moshe Spinovitz, Johanna Stark, Martin Sullivan, Eric Toder, Richard Vann, and Al Warren, as well as colleagues and numerous others at various conferences, seminars, and meetings over the last six years. We are very grateful to them for helping us to better understand some of the difficult problems which arise in analysing and re-designing taxes of international business profit.

Finally, please note that the views expressed here should not be attributed to the IMF, its Executive Board, or IMF management.

Michael P. Devereux
November 2019

Acknowledgement

The Nuffield Foundation is an independent charitable trust with a mission to advance social well-being. It funds research that informs social policy, primarily in Education, Welfare, and Justice. It also funds student programmes that provide opportunities for young people to develop skills in quantitative and scientific methods. The Nuffield Foundation is the founder and co-founder of the Nuffield Council on Bioethics and the Ada Lovelace Institute. The Foundation has partly funded this project, but the views expressed are those of the authors and not necessarily the Foundation. Visit www.nuffieldfoundation.org.

Contents

Biographies of Authors

Michael P. Devereux is Director of the Oxford University Centre for Business Taxation, Professor of Business Taxation and Associate Dean for Faculty, Saïd Business School, University of Oxford and Professorial Fellow at Oriel College, Oxford. He was President of the International Institute of Public Finance between 2012 and 2015 and is now Honorary President. He is Honorary Fellow of the Chartered Institute of Taxation, and Research Fellow of the Centre for Economic Policy Research and CESifo. He has served as Research Director of the European Tax Policy Forum since 2004. He was awarded the CESifo-IIPF Musgrave prize in 2018. He has edited *Fiscal Studies* and *International Tax and Public Finance*. He has made a significant contribution to the tax policy making debate in the UK and internationally, including through the EU Commission where in 2014 he was a member of the European Commission High Level Expert Group on Taxation of the Digital Economy, the OECD, and the IMF. He was a Special Adviser to the Economic Affairs Committee of the House of Lords in 2013. He obtained his PhD in Economics at University College London and was Professor and Chair of the Economics departments at the Universities of Warwick and Keele.

Alan J. Auerbach is Robert D. Burch Professor of Economics and Law, Director of the Burch Center for Tax Policy and Public Finance, and former Chair of the Economics Department at the University of California, Berkeley. He is also a Research Associate of the National Bureau of Economic Research and previously taught at Harvard and the University of Pennsylvania, where he also served as Economics Department Chair. He was Deputy Chief of Staff of the US Joint Committee on Taxation in 1992 and has been a consultant to several government agencies and institutions in the US and abroad. He served as an Executive Committee Member and Vice President of the American Economic Association, as Editor of that association's *Journal of Economic Perspectives* and *American Economic Journal: Economic Policy*, and as President of the National Tax Association, from which he received the Daniel M. Holland Medal in 2011. He is currently President of the Western Economic Association International and is a Fellow of the American Academy of Arts and Sciences, the Econometric Society, and the National Academy of Social Insurance.

Michael Keen is Deputy Director of the Fiscal Affairs Department of the International Monetary Fund, where he was previously head of the Tax Policy and Tax Coordination divisions. Before joining the Fund, he was Professor of Economics at the University of Essex

and visiting Professor at Kyoto University. He was awarded the Daniel M. Holland Medal of the National Tax Association in 2018, the CESifo-IIPF Musgrave prize in 2010, delivered the 2012 Chelliah lecture at NIPFP in Delhi, is Honorary President of the International Institute of Public Finance (of which he was elected President from 2003 to 2006), and in 2008 was ranked the world's leading author in public economics journals. He has led technical assistance missions to over thirty countries on a wide range of issues in tax policy, and consulted for the World Bank, the European Commission, and the private sector. He has served on the Board of the National Tax Association in the U.S., and on the editorial boards of *American Economic Journal: Economic Policy*, *International Tax and Public Finance* (of which he was joint founder), *Journal of Public Economics*, the *Review of Economic Studies*, and many other journals. He is co-author of books on *The Modern VAT*, the *Taxation of Petroleum and Minerals*, and *Changing Customs*. Recent publications also appear in the *American Economic Review*, *Economic Policy*, the *Journal of Public Economics*, *Journal of Development Economics*, and the *National Tax Journal*.

Paul Oosterhuis is Of Counsel, and formerly Senior International Tax Partner, in the Washington DC office of Skadden, Arps, Slate, Meagher & Flom. He has had extensive experience in international acquisition and disposition transactions, financing arrangements, and tax planning for US and foreign-based multinational corporations. He frequently represents clients on controversy matters, as well as regulations and rulings proceedings, with the Internal Revenue Service. In addition, he represents clients in inter-company pricing matters, including docketed Tax Court cases and Advance Pricing Agreement negotiations. Paul received his BA from Brown University and his JD Degree from Harvard Law School. After law school he became a Legislation Attorney for the Joint Committee on Taxation, US Congress, and later served as the Committee's Legislation Counsel. He has served as an Adjunct Professor at Georgetown University Law Center, where he taught International Taxation in the Master of Taxation graduate law programme. He has lectured at various professional seminars and institutes, written on a variety of subjects relating to tax matters, and testified before Congressional tax writing committees on various tax legislative issues. He is a member of the bar of the District of Columbia and is admitted to practice in the US Tax Court.

Wolfgang Schön is Managing Director of the Max Planck Institute for Tax Law and Public Finance in Munich and Honorary Professor at Munich University. He served as Chairman of the Board of the European Association of Tax Law Professors (2015–18), Chairman of the Scientific Committee of the German Tax Law Association, as Vice Chair of the Permanent Scientific Committee of IFA (2008–14), and is a Member of the Board of Trustees of the IBFD (since 2003). He was a Member of the Advisory Board to the German Minister of Finance (2003–06) as well as a Member of the Steering Board of the German Lawyers Association (1998–2010). He was Vice President of the Max Planck Society (2008–14) and currently serves as Vice President of the German Research Foundation. He holds an honorary doctorate from the Catholic University of Louvain, an honorary membership with IFA, and is a Member of the Leopoldina (National Academy of Sciences), the Academia

Europaea, and the Berlin Brandenburg Academy of Sciences. He studied law and economics at the University of Bonn where he earned both his doctoral degree in law (1985) and his post-doctoral habilitation (1992). He previously held full professorships at Bielefeld University and Bonn University.

John Vella is Professor of Law at the University of Oxford, Assistant Director of the Oxford University Centre for Business Taxation, and a Fellow of Harris Manchester College, Oxford. He moved to Oxford after completing his studies at the University of Malta (BA and LLD) and the University of Cambridge (LLM and PhD). He has been a Visiting Scholar at the IMF, a Visiting Professor at Bocconi University and a Visiting Researcher at New York and Georgetown Universities. His recent research has focused on the taxation of multinationals, financial sector taxation, and tax compliance and administration. He has given evidence on these issues on a number of occasions both before UK Parliamentary Committees and Committees of the European Parliament.

1
Introduction

This book is about how business profit is, could, and should be taxed, particularly when the activities of the business transcend national boundaries. This may seem a dry, technical topic. For many years it was. However, it has become the subject of heated debate within, and amongst, many countries.

The framework of the existing system for taxing business profit in an international setting dates back to the 1920s. A multinational business earns global profit as a single economic unit operating in many countries. However, for tax purposes, the existing system allocates its profit across countries by treating it as a set of independent separate entities. The taxable profit of each entity within the multinational is calculated on a stand-alone basis through a complex system of rules derived from domestic laws and international treaties. A key preoccupation of this system is to share taxing rights between countries so that the same profit is not subject to tax in more than one country—that is, to avoid so-called 'double taxation'.

But there is a widespread perception that the system is no longer acceptable. A key complaint voiced by governments, international organizations, and tax campaigners in recent years is that the system has instead permitted businesses to escape tax altogether—or at least to have low overall tax liabilities. The Organisation for Economic Co-operation and Development (OECD) 'Base Erosion and Profit Shifting' (BEPS) project, which began in 2013 and proposed important reforms in 2015,[1] was largely aimed at combating tax avoidance through arrangements that served to shift profit to low tax countries.

The BEPS project did not address the more fundamental question of how taxing rights over multinational business profit should be shared amongst countries. But in the world of global politics it is competition amongst governments over these taxing rights—a contest between governments for the revenues—that is more likely than concerns over profit shifting to drive fundamental reform of the system.

Developing and emerging countries have for many years argued that the allocation of taxing rights under the existing system favours developed, industrialized countries. More recently, a number of developed countries have also voiced their dissatisfaction with the existing system, arguing that it did not allow them to collect a 'fair share' of tax on the profits earned by certain prominent highly digitalized businesses. For example, some countries have claimed that domestic 'users'

[1] OECD (2013a, 2013b, 2015a).

Taxing Profit in a Global Economy. Michael P. Devereux, Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella, Oxford University Press (2021). © the several contributors.
DOI: 10.1093/oso/9780198808060.003.0001.

of digital services contribute to the profit of the business, and so some taxing rights should be given to the country where they are located. But over time, this debate has broadened into a much wider battle for the rights to tax international business profit.

This contest for tax revenues may seem ironic, since for more than three decades there have been significant concerns about competition between national governments to attract mobile economic activity. This competition has led to a steep decline in rates of tax on corporate profit and the proliferation of other special tax schemes intended to attract multinationals' business and/or their profit. But there is a crucial difference between this competition and the contest over the allocation of taxing rights: governments have reduced tax rates in countries in which businesses undertake their functions and activities but are seeking to increase their revenue in countries where businesses' customers and users of digital services are found. This is a crucial distinction which plays a key role in our development of proposals for reform.

Beyond these problems of profit shifting and tax competition, businesses are not content either. They have become increasingly concerned over the staggering complexity of the tax system, and the uncertainty over how it is actually supposed to work in practice. This concern is shared by tax authorities, particularly those with significant capacity constraints (and other urgent tax problems to address), as they are faced with an increasingly challenging and costly system to operate. Meanwhile, economists have been concerned about tax-induced distortions to the real economic behaviour of multinational businesses—for example, in their location and investment decisions—which create real economic and social costs.

It has been understood for some time that the problems of the international system of taxing profit at a business level stem from its fundamental structure. This is in large part due to the existing system being based on the presumption that it is feasible, conceptually and practically, to identify with reasonable accuracy the profit arising in each 'separate entity' within the business. But a key problem with this concept is that a multinational business tends to make higher profit *because* it is multinational. That is, it can take advantage of its size and scope to locate its various activities—management, production, research and development, finance, marketing, and many other elements of the business—in the locations that best support those aspects of the business. The synergies between the different units mean that the whole can be greater than the sum of its individual parts; and so the total profit of the business can be higher than the sum of deemed profits earned by the entities within the business.

A second key feature of the existing system also contributes to its problems but is less prominent in policy debates. The existing system taxes business profit in the location of the various activities listed above. But most of these activities are relatively mobile; businesses can and do move them in order to reduce their overall tax liabilities. This causes a vast array of problems for the system. Ultimately, no

amount of tinkering with the system can resolve these fundamental issues; there is a need for major structural reform.

This book sets out to explain the problems underlying the existing system and to consider options for fundamental reform which would be stable in the face of competition for both tax revenue and economic activity. In this Introduction, we begin by exploring how the issues of profit shifting pushed the taxation of business up the international political agenda, and how the political debate was transformed into a contest over the allocation of taxing rights. We explore the different forms of competition between governments and also briefly set out other problems of the existing system. We then describe the approach taken in this book. We step back from the current political debate and start from first principles by asking basic questions, including why business profit is taxed at all. A set of criteria is then developed which can be used to evaluate the existing system and any potential reforms in a comparable, consistent, and comprehensive way. In our analysis we primarily take a global perspective, asking what tax system would be most beneficial for the world as a whole. But there is no world benevolent dictator, nor do governments cooperate—in tax design, or in sharing tax revenues—to the extent that might be mutually beneficial. We therefore have to keep in the forefront of our minds that national governments are likely to act, above all, in the interests of their own country. A central question in considering any reform must therefore be the incentives of national governments to enact it.

In this Introduction we also very briefly set out the directions in which that approach leads us and outline the structure and main themes of the book. The culmination of the analysis we present comes in two proposals for reform that we develop in detail in Chapters 6 and 7. It may seem implausible that there are any solutions that could address the combination of such problems as profit shifting, competition, complexity, uncertainty, and economic inefficiency. The central argument of the book, however, is that such solutions do exist. Fairness is an important issue, but it is also in many ways a much more difficult issue, since—as we discuss at length in Chapter 2—there is no clear basis for how the rights to tax the profit of a multinational business ought to be distributed amongst countries.

The key to the solutions that we consider is that the rights to taxing profit should be allocated to countries on the basis of factors that are relatively immobile, and which are therefore less likely to move in response to the tax. There are a number of possible candidates for these relatively immobile factors which we discuss, including the residence of the owners of the business and the country of location-specific profit. On the grounds that the customers of a business are relatively immobile, we end up by setting out in some detail two proposals for reform based on allocating the rights to tax business profit to the country in which businesses sell their goods and services.

This book is concerned with how to tax profit earned by a business, especially a multinational business that has activities in more than one country. In developing

proposals for reform, an important issue is the scope of any alternative tax regime. In principle, to avoid distortions based on legal form, a tax on profit should apply to all businesses, whatever their legal form—for example, whether it is a company with limited liability, a partnership, or a sole trader. However, by far the most important existing form of taxation of profit—especially in an international setting—is the taxation of the profits of companies, and particularly multinational companies. It is the taxation of multinational companies that has dominated the tax policy debate. In general, then, our discussion of the principles of taxing profit refers to a business, a multinational business, or simply a multinational. However, in describing the existing system, in reporting evidence, or in setting out many examples, we therefore frequently refer to companies, and corporation tax or corporate income tax.

1. Tax avoidance

In recent years the issue of the taxation of multinational business has risen high up the political agenda in many countries, based on the growing belief that multinationals are able to exploit the existing system to reduce their overall tax liabilities. Particularly in the wake of the financial crisis of 2007–08, and the need for fiscal consolidation and the heightened sense of injustice that followed, the idea that large and profitable businesses have not been paying their 'fair share' of taxation touched a chord with politicians and the general public. The idea of 'unfair competition' between large tax-efficient multinationals and small local businesses subjected to the full level of domestic taxation also came to the fore. Businesses deemed not to be paying enough in tax have had their tax affairs splashed over the front pages of newspapers and have been the subject of parliamentary and senate enquiries.

There are many examples. In one, from 2014, a United States Senate enquiry announced that Caterpillar had 'deferred or avoided paying US taxes totalling about $2.4 billion'.[2] The Committee's report begins by declaring that it 'has examined how US multinational corporations have exploited and, at times, abused or violated US tax statutes, regulations, and accounting rules to shift profits and valuable assets offshore to avoid US taxes'. The narrative that large business has been acting immorally in using all and any techniques to avoid taxation was also enthusiastically taken up elsewhere.[3] For example, the UK Public Accounts Committee—ostensibly concerned with overseeing the expenditure of UK government

[2] United States Senate Permanent Committee on Homeland Security and Government Affairs (2014).

[3] A growing academic literature investigates the development of these issues into important political topics. See, for example, Forstater and Christensen (2017).

departments—grilled executives from several businesses deemed to be aggressively avoiding tax. In one case in 2013, the chair, Dame Margaret Hodge, told Matt Brittin, then Google's Vice-President for Sales and Operations, Northern and Central Europe, that his company's behaviour on tax was 'rather devious—if I may say so, calculated—and, in my view, [constitutes] unethical behaviour in deliberately manipulating the reality of your business to avoid paying your fair share of tax'.[4] Professional advisory firms have been regarded in a similar way. Also in 2013, the finance ministers of France, Germany, and the UK issued a joint statement urging a fight against aggressive tax planning by multinational businesses.[5]

Businesses responded in different ways, but certainly became more aware of the reputational consequences of being deemed to be aggressively avoiding tax. Famously, in 2012, Starbucks volunteered to pay additional tax of £20 million in the UK. Kris Engskov, then Managing Director of Starbucks UK, said 'I am announcing changes which will result in Starbucks paying higher corporation tax in the UK—above what is currently required by law … These decisions are the right thing for us to do. We've heard that loud and clear from our customers.'[6]

His statement neatly encapsulates an important issue. If it is true that Starbucks, and other businesses, were already complying fully with tax law in the UK and elsewhere, then it is not clear that the blame for low tax collection from such multinationals should be laid at their door. Tax is not supposed to be voluntary. Persuading Starbucks or other companies like it to make a voluntary tax payment, as if a charitable gift, cannot be a sensible way of implementing taxes. It is up to governments to decide the basis of taxation. They set taxes through legislative bodies, they collect the tax which they enshrine in legislation, and they are often aware of how businesses will respond. It may be true that the lengths to which some businesses have gone to arrange their affairs in such a way as to reduce their tax liability is distasteful; however the solution is not to demonize business, but to design and implement taxes that are less prone to such manipulation. This book attempts to design and evaluate some possible solutions.

Governments also responded collectively. The political pressure resulted in a flurry of changes to the taxation of international business taxation, at both national and international levels. A focal point for such reform was the OECD BEPS project, driven by the G20. This took place between 2013 and 2015[7] and resulted in a series of 'minimum standards' and aspirational recommendations. The OECD is a key organization in developing the structure of international taxation, not least because it is the home of the OECD model tax treaty, which underlies the vast majority of the more than 3,000 bilateral double tax treaties that have been concluded

[4] Public Accounts Committee (2013).
[5] 'We are determined that multinationals will not avoid tax', Osborne et al (2013).
[6] Cited in *The Guardian*, 6 December 2012.
[7] Some aspects of the BEPS project, notably in relation to digitalization, continue.

between pairs of countries, and of transfer pricing guidelines that play a central role in implementing the current system.[8]

We report evidence on the scale of the avoidance of taxes on business profit in Chapter 3. Estimating this is challenging, not least because it is difficult even to define avoidance. Unlike 'evasion', 'avoidance' refers to actions taken to reduce tax liabilities that are consistent with the tax system as laid down in law. But such actions can be many and varied; and most people would not classify them all as avoidance. Indeed some may not classify any as avoidance, considering that the notion itself seems to imply some standard that is not set out in law. It is even more difficult to identify the revenue that would have been raised in the absence of avoidance. As we describe in Chapter 3, there is a wide range of estimates, though certainly at the higher levels these estimates indicate a significant degree of avoidance.

In a sense though, even if the empirical evidence of the scale of avoidance is not strong, perceived avoidance is certainly a very salient issue which has repercussions for people's satisfaction with the existing tax system. The commonly held view that large multinational businesses are able to exploit loopholes in the tax system feeds the broader view that the system is rigged in favour of the rich, which in turn undermines trust in the wider tax system and fuels populism on the left and the right.

2. Competition for economic activity and tax revenue

Very broadly, the OECD/G20 BEPS project sought to stem the flow of taxable profits from countries where real activities took place to low tax countries in which they did not. The former group of countries could largely agree on these measures and the latter countries found it hard to resist politically. But the project explicitly did not address the much more difficult and fundamental question of how to allocate taxing rights among countries where real activities do take place.

2.1 Contest over the allocation of taxing rights

The existing allocation of taxing rights has for many years been criticized as unfair by developing countries which often felt unable to tax to their satisfaction the profits earned by foreign businesses operating within their borders. This is perhaps not surprising given that the foundations of the existing system were put in place at a time when many developing countries were still colonies and had little, if any, voice on the matter. The UN, and others, have attempted to change this allocation

[8] The United Nations (UN) also has a model treaty, most recently revised in 2017, that is intended for adoption between developed and developing countries.

but with limited success. Whilst the OECD/G20 BEPS project was under way, a substantial number of emerging and developing countries urged the OECD to address this issue, but again with no success: the BEPS project was 'not directly aimed at changing the existing international standards on the allocation of taxing rights on cross-border income'.[9]

In the context of the BEPS project, the more fundamental issue of allocating taxing rights instead arose in the context of taxing profit made by certain 'highly digitalized business'. Such profit is widely understood to be even more mobile across countries than that of other businesses. It can be earned with little, if any, physical presence in a country—a key factor in the existing system. Some developed countries felt they were receiving less than their 'fair share' of tax from the activities of certain highly profitable and highly digitalized businesses (including those offering social media, marketplace, search engine, and similar services). They claimed that they should have the right to tax these businesses on the grounds that the businesses benefited from the contribution of users of their services found within their borders, even if the profit-generating transactions may have taken place in other countries.[10]

India presented itself as a 'first mover' when it introduced an 'equalization tax' on inbound digital services. The UK also argued that the existing system's failure to recognize the contribution made by users of digital services posed a 'fundamental challenge to the fairness, sustainability and public acceptability of the corporate tax system'.[11] Together with other countries like France and Italy, the UK favoured altering the current allocation of taxing rights—but only to the limited extent necessary to satisfy their particular concerns with highly digitalized businesses. In 2018, the European Commission also made proposals to tax revenue from digital presence—a 'short term solution' in the form of a special tax on the turnover of certain highly digitalized businesses and a 'long term solution' extending taxing rights under corporation tax on the basis of 'significant digital presence'.[12]

Not surprisingly, others objected—notably the US, given that the main effect would be to increase the rights of the countries proposing the change to tax the profits of US multinationals. But there are other good reasons to object to special treatment for businesses with particular characteristics, even from a global perspective. Conceptually, it is hard to justify this special treatment. Practically, such an approach would require complex—and regularly updated—rules for determining which businesses would be singled out for this special treatment. Such rules would also distort choices by businesses, and competition between them.[13]

[9] OECD (2013b), page 11.

[10] The use of highly mobile intangible assets is also extremely important in the context of these businesses; as a result, businesses have been able to substantially shift profit to low tax countries by transferring intangibles.

[11] HM Treasury and HM Revenue and Customs (2018), page 3.

[12] European Commission (2018c).

[13] For discussion, see Devereux and Vella (2018a) and Schön (2018).

In any case, the debate on the allocation of taxing rights over profits in the digitalized economy expanded to one on the allocation of taxing rights for all international business profit. At the time of writing, this debate is far from resolved.[14] Often, the debate has been less than illuminating, and subject to much obfuscation. Ostensibly, it was guided by the principle that profit should be taxed where value is created. But this principle cannot guide reform as it is not clear where value is created.[15] There is even disagreement on the meaning of the principle among its proponents. It is hard to resist the conclusion that debate on value creation is a respectable façade for inter-governmental haggling over tax revenue. In fact recent materials produced by the OECD's Inclusive Framework in this context have already largely abandoned the concept of 'value creation' as the major benchmark for the international allocation of taxing rights.[16]

2.2 Revenues at stake

This contest between governments might lead an observer to suppose that substantial revenues from taxing business profit are at stake. In fact, the contribution in many countries is fairly small, certainly relative to other taxes such as personal income tax and value added tax. A closer look at the data reveals significant variation in the reliance different governments place on taxes on business profit.

Figure 1.1a examines the extent to which governments rely on taxes on corporate profit—the largest source of tax revenue from business profit in most countries. It shows the median share of total tax revenue accounted for by taxes on corporate profit separately for high, middle, and low income countries, from 1990 to 2017. It excludes countries with significant natural resources, which may make greater use of taxes on corporate profit.

There is a clear pattern to the figure. In the last decade, low income countries have relied more heavily on corporation tax revenues, with around 15% of revenues generated from this source by 2017. That proportion has been climbing steadily since the turn of the century. Middle income countries rely less heavily

[14] In its interim report on taxing digital business in 2018, the OECD stated that: 'These challenges go beyond BEPS and chiefly relate to the question of how taxing rights on income generated from cross-border activities in the digital age should be allocated among countries', OECD (2018c), page 18.

[15] See, for example, Devereux and Vella (2018b) and Hey (2018). Going further back, in 1923, a report to the League of Nations Financial Committee noted the following: 'By production of wealth we mean all the stages which are involved up to the point [of] wealth coming to fruition … The oranges upon the trees in California are not acquired wealth until they are picked, and not even at that stage until they are packed, and not even at that stage until they are transported to the place where demand exists and until they are put where the consumer can use them.' League of Nations Financial Committee (1923).

[16] OECD (2019a, 2019b). On this development see Schön (2019).

Figure 1.1a Corporation tax revenues as percentage of total tax revenues: median of non resource-rich countries, 1990–2017
Source: IMF WoRLD Database

Figure 1.1b Corporation tax revenues as percentage of GDP: median of non resource-rich countries, 1990–2017
Source: IMF WoRLD Database

on corporation tax, and high income countries still less. For high tax countries the median percentage has fallen from around 13% just before the financial crisis to around 10%.

Figure 1.1b shows the same revenues from taxes on corporate profit expressed as a proportion of the country's GDP; again the median for each group of countries

is shown, excluding countries with significant natural resources. On this measure, there is much greater consistency in this measure between high, middle, and low income countries in more recent years—although low income countries in particular have strongly increased their revenues as a proportion of GDP over the period (from 1% to 2.5%). Even so, this suggests that the main reason why low income countries rely more on corporation taxes is not that they are better at taxing profit than richer countries, but because they are less able to use other taxes, especially personal income taxes. Overall, their use of taxes on corporate profit is similar to high income countries; but this is more important for low income countries since they have less opportunity to use other taxes.

This reflects wider difficulties for low income countries in raising revenue more generally. For them—with VATs that are in many cases already under pressure, weak personal income taxation, a need to reduce reliance on customs revenue, and with considerable revenue needs if they are to have any chance of meeting the Sustainable Development goals—reforming business-level taxes could be particularly useful.

2.3 Competition over taxes

National governments have been competing with each other for decades to attract real economic activity which would boost their economies. In the context of the existing system, they have done so by reducing their tax rates, and offering other inducements, to undercut other countries. This may also attract mobile profit with little if any accompanying real activity, through various forms of profit shifting; if this effect is large enough, then in itself it may lead to that country's tax revenue being higher with a lower tax rate. Yet undercutting one's neighbour's tax rate is unlikely to lead to a stable outcome; the neighbour is likely to respond, resulting in a downward spiral.

The last three decades have seen competition over tax rates on corporate profit of this kind. Figure 1.2 demonstrates a common feature for all three groups of countries identified above: the average statutory tax rate has been continuously falling since 1990 (and actually even before then). On average, statutory rates have fallen by around 15 percentage points over this period. This is true of all three groups of countries, although high income countries have maintained tax rates that on average have continuously been around 5 percentage points higher than middle and low income countries. This reduction has apparently not been much slowed by the OECD/G20 BEPS process: indeed closing off avoidance opportunities by which governments have been able to attract inward profit shifting may make tax competition through headline tax rates more intense.

A significant concern is that this competition shows little sign of slowing. Indeed, from 2018, the US cut its corporation tax rate from 35% to 21%, moving it

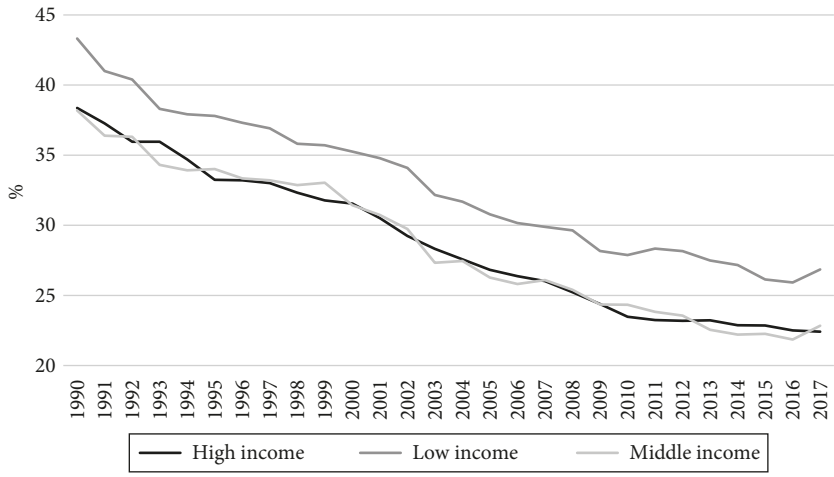

Figure 1.2 Average statutory corporation tax rates: all countries, 1990–2017
Source: IMF FAD Rates Database

at a stroke from one of the highest rates to one of the lowest. It seems likely that this will induce further cuts in other countries. There is therefore a real question as to how effective tax rates under the existing system will develop in the absence of significant reform. At some point the high costs of collecting such taxes may begin to outweigh the benefits in terms of tax revenue.

2.4 Reconciling the two forms of competition

At first sight, these two elements of competition amongst national governments may seem incompatible. At least some governments would like to claim a greater share of taxing rights over multinational business profit. But they are simultaneously inclined to reduce their tax rates to attract business. How can these approaches be reconciled?

The answer is that these contests are based on different locations of taxation. Recent proposals to change taxing rights have been based on taxing the profit of multinational business in the market country in which the business makes a sale to a third party, or alternatively where it has a user. Current tax treaties constrain the right to tax simply because a sale takes place in a country, or because a user is there. They instead allocate taxing rights primarily to countries where the business has its economic activities and a physical presence; imposing a high tax rate on this basis would drive at least some of that economic activity elsewhere.

From a national perspective, governments could take—and indeed some have taken—unilateral action to make a claim to tax business profit on the grounds that

a business has made sales in its country or that it has users there. If, over time, this approach replaced their taxation of profit based on where economic functions and activities are located, this could also be seen as an extreme form of the tax rate competition illustrated in Figure 1.2. Unilaterally giving up rights under the existing system would in effect be like setting the tax rate under existing rules to zero: the ultimate move in the ongoing tax competition game. This would be consistent with the aim of attracting inward investment from other countries. But on its own it would reduce revenue from taxes on business profit under the existing system to zero.

On the other hand, shifting the basis of taxation to the location of sales or users would have major advantages. If taxing rights depended only on the location of sales—or some other relatively immobile factor, such as the residence of owners of the business, or possibly location-specific profit, such as the location of natural resources—and not on the location of the different entities within the multinational business, then the tax would not affect business location decisions. Further, a customer, or a user, is unlikely to emigrate in response to a tax levied on the profit of a business selling to her or providing a digital service to her. So the location of sales would also be unlikely to be affected. Allocating taxing rights solely on this basis would therefore not have any repercussions on the location of economic activity. This would be advantageous both from the perspective of a country making a unilateral reform, and from the perspective of an agreed position amongst all countries. This is a central theme of this book.

Of course, such a major shift would raise issues of both implementation and revenue. Issues of implementation depend on the precise structure of any tax that is levied, and we contrast two alternative approaches in some detail. The attitude of national governments may also depend on the likely consequences for their tax base, which – at least in the short and medium run - may be lower for export-oriented countries.

3. Other problems

The OECD/G20 BEPS project focused on tax avoidance and made proposals that were intended to limit the opportunities for businesses to shift profit to low tax countries. While these proposals may have tightened the system, profit shifting opportunities remain. Furthermore, these proposals may well have worsened other major problems of the existing system.

First are the twin issues of complexity and uncertainty. These result in high compliance costs for business and high administrative costs for governments, but also in real economic costs as business decisions may be affected by uncertainty.[17]

[17] Some empirical evidence on the costs of collecting tax on profit is provided in Chapter 3.

Many aspects of the existing regime are highly complex, and much of this complexity arises because of the difficulties inherent in allocating separate elements of the overall profit of a multinational business to its separate entities in different ways. A succinct account of this existing system is that 'active' income is taxed in the 'source' country, while 'passive' income is taxed in the 'residence' country.[18] Even without starting to get into the definition of these four terms, it is clear that defining and understanding each is crucial in determining where specific profit is taxed.

Take a simple example for illustration. Suppose a business undertook research and development, and developed unique intellectual property (IP), in countries A and B, and used that IP to produce and sell a product in countries C and D. The entities in C and D pay royalties to the entities in A and B for the rights to use the IP. The active profit taxed in C and D would be net of the payments of these royalties, which however, constitute passive profit in A and B. The tax authorities in all four countries therefore have an interest in the size of the royalties paid. But since the IP is unique there is no comparable transaction elsewhere that would give a hint of its value, and hence of the appropriate value of the royalty payments. Transfer pricing specialists—who seek to value such payments—have struggled with this kind of situation for many years without devising simple and straightforward solutions. The business clearly has an incentive to choose royalties that would allocate more taxable profit to countries with the lower tax rates.

This example barely begins to scratch the surface of the mind-numbing complexity of the existing system. Much additional complexity arises because there is an increasing number of anti-avoidance rules built into the system to make it more difficult for businesses to shift profit to low tax countries. These include, for example, transfer pricing rules, interest limitation rules, and controlled foreign company rules.[19] The BEPS project has aggravated this problem. It set out to reduce profit shifting, but the result has been to add further complex and arbitrary rules to the system. But the BEPS project has been just part of the general increase in complexity as governments—unilaterally and collectively—have sought to limit profit shifting.

This situation also creates uncertainty, for a number of reasons. One survey found that the single most significant factor in increasing uncertainty in the taxation of business profit was complexity in the tax code.[20] But other factors are also important, including unpredictable or inconsistent treatment (and poor understanding of the tax code) by the tax authority and frequent changes in the statutory tax system. This uncertainty not only increases the costs of collection; it also

[18] See, for example, Graetz (2001).

[19] The latter are rules that aim to limit the shifting of profit to multinational subsidiaries that are located in low tax countries.

[20] Devereux (2016). See also IMF/OECD (2017).

has real economic costs. For example, the survey found that uncertainty over tax treatment was one of the most important factors in affecting business location and investment decisions.

Of course, the impact of the international tax system on business decisions is not limited to the effects of uncertainty. Any difference in effective tax rates between two locations could affect the decision of a business as to which location to choose for its activity. Suppose, for example, that costs for a business would be lower in country A, but that tax was also higher in country A. That may lead the business to instead choose country B, even though it has higher non-tax costs. Those higher costs in B would represent an economic loss to society as a whole.

The BEPS project focused on cases where profit apparently arose in countries where the business had little, or no, real economic activity, based on the presence of indicators such as capital and employees. An important direction of the project's proposals was to insist that for profit to be allocated to some jurisdiction for tax there must be some real economic activity there. A consequence, however, is that a business that wishes to locate its profit in a low tax country may consequently have to locate real activity there, even if this again involves higher non-tax costs. This translates the problem from one of profit shifting to one of a real economic inefficiency, with consequent economic costs.

There are many other examples of such costs arising due to the existing system for taxing international profit, affecting the scale of investment, whether or not to undertake research and development, the choice of how the business is financed, its legal form, and many other aspects of business behaviour. There is a literature exploring the scale of the economic cost arising from these distortions to economic activity, which we briefly summarize in Chapter 3. Again, many of the distortions arise because of the nature of the existing system.

4. A principled and comprehensive approach

International policy debates about the reform of taxing business profit tend to focus on immediate political concerns. They tend not to start from first principles, nor do they consider the range of problems of the system. This may be dictated by political exigencies, but the result is unlikely to lead to a well-functioning and stable system.

This book takes a different approach. It starts from first principles, identifying what criteria should be desired in a good international tax system. The properties of a 'good tax' have been discussed at least since Adam Smith introduced his four canons in 1776.[21] In Chapter 2 we set out and discuss five criteria which we use to

[21] Smith (1776).

evaluate how alternative forms of business level taxation of profit can raise a given amount of tax revenue. The first four are that the tax should be economically efficient, fair, robust to avoidance, and easily administered. These criteria are well known and largely accepted, although economic efficiency is often underappreciated, and fairness turns out not to offer clear prescriptions for the business level taxation of profit.

Our fifth principle is that the tax should be 'incentive compatible', which we believe is critical in an international context. In this context, a tax would be incentive compatible if an individual country would not have an incentive to undermine any international consensus, imposing costs on other countries, for example, by reducing the tax rate on profit. Imposing costs on other countries is not a necessary feature of taxes levied on international flows; for example, value added taxes typically do not do so (except to the extent that consumers that live close to borders can engage in cross-border shopping). Removing competition between countries in taxes on profit would constitute a distinct improvement over the existing system.[22]

Having identified our criteria we then address the fundamental question of whether there is a good case for a business level tax on profit at all—and if so, what it is. It is true that more or less all countries have a business level tax on profit, so returning to this question may seem unnecessary. But this is not an arid academic exercise; identifying what purpose the tax is intended to serve is a natural starting point to designing a good tax in a principled and coherent way, and understanding what properties it should have.

The case for taxing business profit is not straightforward. Should business profit be taxed by a country as a proxy or backstop for the personal income tax imposed by that country—an 'ability to pay' rationale? Or should business profit be taxed by a country because the business benefits from the publicly provided resources in that country—a 'benefit' principle? It turns out that neither of these rationales fully stands up to close scrutiny—as we explain at length in Chapter 2. They are therefore only to a limited extent useful as guides for the design of a tax on business profit. Instead, we argue that a more general justification for a tax on business profit is that it meets the five criteria outlined above. Any tax that raises revenue while being efficient, fair, robust to avoidance, implementable at reasonable cost to government and companies, and incentive compatible would be a good tax, and well worth considering. These criteria therefore guide our analysis of the existing system as well as options for reform.

In Chapter 4 we set out a comprehensive spectrum of options and systematically evaluate each option against our criteria. We start with a very broad analysis of

[22] Arguments in favour of competition are typically based on the view that governments tend to overspend and should be constrained. But constraining only one form of taxation is in practice likely to put more pressure on other ways of raising revenue. Governments can still choose low tax rates if they prefer, even in the absence of competition.

where it might be possible to tax the profits of a multinational business. It is useful to divide these locations into four groups.

First, there is the place of residence of the owners of the business, who could be shareholders of a company, or partners.[23] A straightforward case for allocating taxing rights to these countries is because that is where those who receive the profit reside—personal income taxes typically aim to tax the worldwide income of residents, and so profit accruing to owners should arguably be taxed in a similar way. In principle, one way of achieving this would be to allocate profit to the owners for inclusion in their personal income tax calculation; but there could also be a tax at the business level with the taxing rights being allocated to countries where owners reside.

Second, there is the place of residence of the parent company or the headquarters of the business.

Third, there is what we call the 'origin' country.[24] This is, very broadly, where the functions and activities of the business take place, including management, production, research and development, marketing, finance, administration, and others. It could also include the location of ownership of assets by the business. These activities may take place in many countries, and a single business is likely to have many 'origin' countries. The existing system of taxing the separate entities of the business is broadly a system of taxing in these 'origin' countries.[25]

A fourth possible location for allocating taxing rights for business profit is the place where a sale is made to a third party—the 'market' or 'destination' country. This option does not currently form part of the existing system, although as noted above, proposals have been introduced to allocate some taxing rights to market countries, which may be defined broadly to include the location of non-paying users of digital services such as search engines and social media platforms. The debates over such proposals have tended to confuse origin and destination counties. If a business has activities associated with sales in a country, or owns assets associated with sales in the same country, then we would consider that to be one of possibly many origin countries. But if sales are made there, that country would also be a destination country. This is an important conceptual distinction, and the origin and destination approaches would justify very different allocations of profit to the country. Importantly, in referring to a destination country, we mean one in which sales are made, irrespective of whether the business also has activities or assets there.

[23] More generally, this could include anyone who receives a financial return from investing in the business.

[24] This is similar to the economics notion of 'source'. But as we explain in Chapter 3, 'source' has a very different legal meaning.

[25] There is a sense in which a parent company's location may also be an 'origin' country if, for example, it provides management to the business there. But we distinguish this from taxing the business solely in the location of the parent simply because it is the parent.

In Chapter 4 we examine a number of options for taxing in each of these four locations. We evaluate each of these by reference to the five criteria we set out. Overall, this approach allows for a comprehensive range of options to be evaluated in a principled, systematic, and comparable manner.

In considering possible reforms, two other important issues should also be noted. The first is that the taxation of business profits ultimately depends not only on taxes levied at business level but also on the taxation of dividends, capital gains, and other possible returns at personal level, possibly through intermediaries. In this book we focus primarily on taxes applied at the 'business level'. This is not because we think personal tax issues are unimportant. However, as we discuss at some length in Chapter 2, there are good reasons to believe that domestic personal taxes are rather less important than business level taxes for the decisions made by businesses which operate in an open economy.

The second is that the definition of the tax base at the business level—that is, what is 'taxable profit'—is important. A key distinction that is made throughout the book is between profit which represents the 'normal' return to investment, and profit which is over and above that normal return, known as economic rent. The 'normal' return can be thought of as the rate of return available on an alternative investment of comparable risk; as such it also represents what should be the 'required' return of the investor (at least in expectation when the investment is made). The effects of taxing the normal return are very different to those from taxing economic rent, and we set out the key differences in Chapter 2.

5. Proposals

The final chapters of the book put forward two proposals for reform. The different strands of thinking which led to these proposals have been introduced in this Introduction and will be expounded in much more detail in subsequent chapters. We briefly summarize the key principles by way of introducing the two proposals.

In Chapter 3 we show that the existing system performs badly under our criteria. It distorts real activity thus causing economic inefficiency, it is susceptible to avoidance, it is extremely complex and thus expensive to administer and comply with, and it is not incentive compatible. A key factor in creating each of these problems is that the existing system seeks to assess the profit earned in each separate entity of a multinational business, and tax it accordingly. This is problematic in concept and in practice since a multinational business may earn additional profit due to the synergies between its different parts. But, in addition, the factors determining profit in the location of these entities—that is in 'origin' countries—are relatively mobile. The business is taxed, for example, where its headquarters is located, where its research and development and manufacturing activity takes place, and where its IP is owned. The relative mobility of these factors is a primary reason for economic

inefficiency—businesses can shift their real activities to low tax countries—and for profit shifting—they can also shift their profit. Voluminous legislation and guidance are used to address the profit shifting opportunities, which contributes to making the system extremely complex. And because businesses have an incentive to move their real activities and profit to low tax countries, countries, in turn, have an incentive to compete through the tax system to attract these activities and profit.

The starting point of our analysis is therefore to identify factors that are less mobile. Almost all activities of a business are relatively mobile. Some may be less mobile, for example the existence of natural resources, and this may provide the basis of special forms of taxation. But identifying and introducing a general tax on location-specific profit is difficult both conceptually and in practice. Individuals also tend to be less mobile: this includes the owners of the business, for example the shareholders of a multinational corporation; they are much less likely to move in order to reduce the taxation on the business profit. In addition, a key element of our proposals is to shift taxing rights for business level profit to the country of the customer—the 'market' or 'destination' country. The customer is particularly likely to be immobile when it is an individual, and where the purchase does not constitute a significant part of her expenditure. It is possible to imagine business customers that purchase from a single and unrelated supplier being willing to change their location to reduce the tax liability of their supplier (and hence the price they are charged), but this possibility seems significantly less important than the forms of mobility that exist under the current system.[26]

The value of basing taxing rights in the country where a sale is made is intuitive. If the tax charge of the business were determined solely where it makes its sales, then the location of its real functions and activities would be irrelevant. Also the opportunities for profit shifting would be greatly diminished, if not eliminated entirely.[27] In turn, this would reduce the need for complex legislation. And finally, countries would not have an incentive to reduce their tax rates as this would not attract real activities or profit, eliminating tax competition.

These arguments equally support the VAT, which is also levied where sales are made. This has emerged as one of the most widespread and stable sources of revenue for governments around the world and which faces considerably less tax rate competition than the taxation of business profit. However, as its name suggests, this is a tax on value added—which is equivalent to the combination of both profit and wages paid by a business. This book instead focuses on taxes on profit only.

We consider two possible directions of reform that build on this insight. These are introduced in Chapter 5, and set out in more detail in Chapters 6 and

[26] Of course, there are cases when other elements in the value chain are relatively immobile—natural resources being an obvious case in point.

[27] Some, but not all, forms of destination-based taxation may be susceptible to a business engineering its sales to arise in a low tax jurisdiction.

7 respectively. Both would move the system towards a destination basis for taxation. And both, we believe, have considerable merit. While they are very different from each other, they share the common feature of moving in part, or entirely, to a destination basis.

The 'Residual Profit Allocation by Income' (RPAI) proposal set out in Chapter 6 has the feature that it would use, to a considerable degree, the rules of the existing system, but would also introduce important reforms that address some of its key weaknesses. It also, as we shall see, has a family resemblance to the system of 'formulary apportionment' that has been proposed by the European Commission and has been advocated more widely by civil society and others.[28] Yet these relatively narrow changes can have a profound impact on how the system works, and how well it meets the five criteria. The RPAI scheme is based on a clear idea of what the principles of the reformed tax are—in this case, a sharing of taxing rights between the country where functions and activities takes place and the country of residence of the independent customer.

The second approach would be to design a new system from scratch. The 'Destination-Based Cash Flow Tax' (DBCFT) is an example of this approach and is set out in Chapter 7. The most obvious problem with such an approach is that there may be very substantial costs of transition moving from the existing system to such a completely new system. Governments are unlikely to be persuaded to implement such a change unless the long-term benefits would clearly outweigh any short-term costs. In following the second approach it is therefore important also to identify the costs and difficulties likely to be encountered as part of the reform. Unlike the RPAI, the DBCFT would give sole taxing rights to the country of destination; this reform would have more radical consequences for revenue in some countries.

Both of these ideas have been developed over several years by the authors, building also on the work of many others. We have presented them on many occasions and have made earlier versions of Chapters 6 and 7 publicly available. These ideas have already permeated into the political and academic debate on reform. For example, the DBCFT was widely discussed in the run-up to the US tax reform in 2017.[29] And the current proposals of the OECD draw on the RPAI.[30] We hope that by setting them out in this book in the context of a fundamental review of business level taxes on profit, their merits will become even clearer.

The analysis in this book suggests that the existing system is not viable in the long run. Waiting for the system to crumble under the weight of its increasing

[28] We discuss this proposal in detail in Chapter 4.

[29] It was also considered much earlier by the President's Advisory Panel on Federal Tax Reform in 2005, which also followed earlier work—see, for example, Bond and Devereux (2002).

[30] The proposals in OECD (2019a, 2019b, 2019c) split profit into routine and residual components and allocate part of the residual to the destination country. While there are differences in the proposed implementation, this is broadly similar to the RPAI proposal although the RPAI allocates the entire residual profit to the destination country and routine profit to the jurisdictions in which functions and activities are performed.

complexity or to wither away under the pressures of economic forces is clearly unsatisfactory. Racing to secure political compromise on a scheme that lacks the coherent rationale surely needed for it to be robust against the unknown challenges ahead is not much better. Instead, this book offers two principled, coherent, and comprehensive reform options that will remain viable and effective for years to come.

2
Key Issues in Taxing Profit

In the Introduction, we set out a case for revisiting the fundamentals of business-level taxes on profit. Rather than simply taking the basic structure of the existing system as given, we argued that any reform aiming to generate a long-term solution to the problems surrounding the taxation of profit in an international setting would need to be based on clear and well-understood principles. Identifying such principles requires stepping back from the immediate political debate, and from measures designed to shore up the existing system. It requires asking afresh whether and why a sensible national and international tax system would include a business-level tax on profit. If we can identify better the rationale for having such a tax, then that should lead us to a deeper understanding of its aims and objectives, and ultimately how it should be designed and implemented.

This chapter begins that process by setting out the key conceptual issues that arise in designing a business-level tax on profit in an international setting. It is in four parts—each addressing a basic question. First, what is meant by a tax on profit? We identify different approaches to taxing profit and compare such a tax with various other taxes. We show that there are a number of equivalences between taxes. Second, what criteria should be used for evaluating a business-level tax on profit in an international setting? We set out in some detail five criteria: fairness, economic efficiency, robustness to avoidance, ease of administration, and incentive compatibility. Third, given these criteria, is a business-level tax on profit a useful addition to the set of taxes that can be employed by national governments? We consider different possible underlying rationales for taxing business profit, especially in an international context. Fourth, is taxation at both the business and the owner level problematic? We consider this question in different settings and whether there is need for relief from this form of 'double taxation'.

The answers given to these questions frame and guide the analysis in the rest of the book. In particular they will be used to answer the central question asked in the book: given the most persuasive rationales for having a business-level tax on profit—and given the existing system and the cost of reform—what is the most appropriate design for such a tax in an international setting?

The main focus of this book is on the international dimension of taxation. Nevertheless, in discussing the properties of a tax in an international context, it is helpful to first set out its properties in a purely domestic context. We broadly take

Taxing Profit in a Global Economy. Michael P. Devereux, Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella, Oxford University Press (2021). © the several contributors.
DOI: 10.1093/oso/9780198808060.003.0002.

this approach and try to identify carefully how the properties of tax change when we move to an international context.

1. What is business profit?

A first issue in thinking about taxing business profit is to point out that—at least for now—we are not considering a tax only on corporate profit. Most countries have a separate tax on profit earned by corporations.[1] In some countries (like the UK), all businesses taking corporate form are subject to a specific 'corporation tax'. In others (like the US or France), only some corporations face such a tax; for others, profit is assigned directly to the owners, and subject to individual income taxation, rather than being taxed at the corporate level—referred to as 'look-through' or 'pass-through' treatment. Also, of course, many businesses do not have legal corporate form. Individuals can own and run their own business, and their returns are typically subject to personal income tax. This also typically applies to much larger firms organized as partnerships—which, for example, are found in professional firms, and also in commercial firms in Germany. In the US, the emergence of the S-Corporation and the Limited Liability Company has given rise to a huge increase in pass-through taxation.[2] For the moment, we aim to keep the discussion of taxing business profit as broad as possible; where appropriate below, we will be explicit about when we are referring only to taxes at the corporate level.

A much broader question is the relationship between different forms of tax. In many countries, businesses remit most taxes—that includes tax on profit, personal income tax and social security contributions on the labour income of employees, sales tax, valued added tax (VAT), and other particular forms of taxation.[3] This raises the issue that, given accounting identities, these taxes are closely linked to each other, and indeed some combinations of taxes are equivalent to others—a point of considerable importance and elaborated on below. We begin by setting out two important dimensions of tax bases that might be considered to be 'profit'. First, we discuss how the total profit of a business might be defined, and, second, how some definitions are closely related to other tax bases. We then discuss how profit is allocated to different countries in which the business operates.

[1] For a comparative overview of this issue, see Ault et al (2019) and Harris (2013).

[2] See, for example, Röder (2018) for a comparative analysis of corporate legal forms being subject to pass-through taxation.

[3] For example, Shaw et al (2010) estimate that in the UK in 2006/7, 88% of taxes in the UK were remitted by business. Milanez (2017) estimates the proportion to be 78.8% for a sample of twenty-four OECD countries. And, in the context of India, Slemrod and Velayudhan (2018) ask 'Do Firms Remit At Least 85% of Tax Everywhere?'.

1.1 Defining 'profit'

1.1.1 The cost of capital, economic rent, and cash flow taxation

Very broadly, we can think of the conventional base for a tax on profit as being equal to sales, less the cost of inputs including labour costs, and less the interest costs of servicing debt. The costs of some inputs are typically 'capitalized', meaning that they are deducted over several periods—for example, investment in fixed assets is typically depreciated over several years.

This form of profit is nominally a tax on the return earned by the owners from their investment in the business; for a corporation this would be the shareholders. This is because the return earned by those who lend to the business is deductible from the tax base. But this does not mean that the owners of the business are the only persons made worse off by the tax, or even that they are made any worse off at all. Depending on the nature of the markets in which the business operates, the burden of the tax may be partly or even wholly passed on to others—for example, consumers in higher prices, or the labour force in lower wages. We return below to the question of who is ultimately worse off as result of a tax on profit—what economists refer to as the 'incidence' of the tax.

For a number of reasons, including comparing taxes on profit with other taxes, two variants of such a tax base are worth noting. The first would deny a deduction for the cost of servicing debt—this would then be a tax on the total return on the investment in the business, rather than just on that part returned to the owners. This option is known as a 'Comprehensive Business Income Tax' (CBIT).[4] Although this is not a common base for taxing business profit, there are numerous examples where interest payments are not deductible. Many countries limit deductions (in particular with respect to interest on shareholder loans),[5] and the OECD/G20 BEPS project proposed limiting such deductions to between 10% and 30% of profit subject to a number of exceptions.[6] A second variant would move in the other direction, and—as well as a deduction of interest payments—would offer a deduction for the opportunity cost of the equity capital that is invested in the business by the owner. This opportunity cost would be the return that the owner could have earned on an alternative investment of comparable risk. This is sometimes known as an 'Allowance for Corporate Equity', or ACE.[7] Permitting such a deduction would mean that the tax base would be reduced to profit over and above the 'normal return', that is the minimum return required by the owner and lender. Profit over and above the normal return is known as 'economic rent', or just 'rent' (see Box 2.1).

[4] US Treasury (1992).
[5] See Blouin et al (2014).
[6] OECD (2015b).
[7] See IFS Capital Taxes Group (1991).

Box 2.1 Normal return and economic rent

We use the term 'normal return' to indicate the minimum rate of return required by an investor, given the risk of an investment. It therefore includes any 'risk premium' required to compensate the investor for risk.[8] US Treasury bonds tend to have a relatively low normal return because they are deemed to be a safe investment, whereas the normal return on an equity investment tends to be relatively high because of the risk involved. But both rates of return reflect the minimum required by an investor to compensate both for the time value of money and the risk involved. An investment that is not expected to earn the normal return, commensurate with its risk, ought not to be undertaken.

In a small open economy, the normal return is generally determined on the world market. The activities of investors, businesses or the government of the small open economy would not affect the 'world' rate of return since each of them forms only a small part of the world market. As a result, the return that residents in such a country require—even on domestic investments—is determined by the rate of return available in the rest of the world on other investments of comparable risk.

The normal return is also known as the 'opportunity cost' of an investment or the 'cost of capital'. Put a different way, the cost of capital reflects the return an investor must expect from an investment for it to be worth undertaking given its risk profile. In this context we can refer to an investment which is expected to earn a normal return as a 'marginal investment'.

'Economic rent' is a return earned over and above the normal return. Under perfect competition businesses only earn a normal return.[9] Generating an economic rent typically requires some market power, or a scare resource, such as intellectual property, that is not easily replicated. A common synonym for economic rent is 'economic profit' (or sometimes, and perhaps confusingly, simply 'profit'). We use the former term here to avoid confusion regarding the concept of profit. Other synonyms include 'supernormal' profit and 'inframarginal return'.

A conventional corporate tax base is composed of the normal return on equity investment and economic rent. The tax base under a CBIT also includes the normal return on debt. The tax base of a cash flow tax or an ACE system is economic rent.

[8] The term 'normal' return is sometimes also used to refer just to the return required on a risk-free investment. When normal return is used in this way, 'profit' is then said to be composed of the 'normal return', the 'return to risk' (or 'risk premium') and 'economic rent'.

[9] We discuss quasi-rents in Section 3.3.2 of this chapter.

Table 2.1 Illustration of properties of a cash flow tax on investment incentives

	Pre-tax cash flows	Tax	Net cash flows
Tax without relief for the cost of finance			
Period 1 purchase of asset	–100	0	–100
Period 2 net receipts	110	–22	
Relief for cost of asset		20	
Period 2 net cash flows	110	–2	108
Economic rent	*0*		*–2*
Tax with relief for the cost of finance			
Period 1 purchase of asset	–100	0	–100
Period 2 net receipts	110	–22	
Relief for cost of asset		20	
Relief for cost of finance		*2*	
Period 2 net cash flows	110	0	110
Economic rent	*0*	*0*	*0*

A simple illustration of these alternative ways of defining profit is set out in Table 2.1.[10] This examines the tax on an investment of 100 in period 1, which yields revenue in period 2 of 110. This therefore represents a return of 10%. Suppose that this is the minimum return required by the investor, commensurate with the risk of the project; the project therefore just breaks even and does not earn any economic rent. We can think of the investment as being the purchase of an asset which has no value at the end of period 2. There is a tax rate of 20%, which applies to revenue less the cost of depreciation of the asset. The tax on the revenue is therefore 22. Relief for the cost of the asset is permitted in period 2, and is worth 20, since the value of the asset falls from 100 to zero.

In the first panel, there is no relief for the cost of finance. This is the case for an equity-financed investment under a conventional tax base. It would also be the case for investment financed by equity or debt under a CBIT. In this case there is a tax charge of 2 in period 2, reflecting the tax on revenue less the depreciation cost of the asset. This implies that the post-tax return is only 8%, or equivalently, that the post-tax economic rent (measured in period 2) is negative, at –2. Given that the required return is 10%, this project should not go ahead in the presence of this tax.

[10] For a comparison between the effects of CBIT and ACE see de Mooij and Devereux (2011).

In the second panel, we allow for tax relief for the cost of finance, at 10% of the initial cost of the asset. The notional deduction for the cost of finance is 10, which reduces the tax liability by 2. This is broadly the situation for debt-financed investment under the conventional system and would be the situation for both debt and equity under a system with an ACE allowance. This tax relief means that there is no tax on this investment. This implies that the investment now breaks even after tax as well as before tax.

A conventional tax on business profit therefore has two effects which are illustrated in the example. First, under conventional tax systems, there is clearly a bias towards the use of debt finance (at least if we leave investor level taxation out of the picture).[11] This bias would be removed under either the CBIT or a tax with the ACE allowance. Second, a tax which gives conventional relief for the depreciation of assets, but which does not give relief for the cost of finance, tends to have a negative impact on investment: some projects which are worth undertaking before tax are not worth undertaking after tax. A tax which gives relief for the cost of finance as well as depreciation of assets is in effect a tax on economic rent; as such it is neutral with respect to investment decisions.

This is not the only way of taxing just economic rent. An alternative approach is a 'cash flow tax'. Such a tax was advocated by the Meade Committee, among others[12]—which named this form of tax as an R-based cash flow tax (for a tax on 'Real' as opposed to 'Financial' cash flows; we also discuss an R+F based tax below). Intuitively, a deduction for the cost of finance compensates for the fact that expenditure on capitalized assets can only be deducted over a number of years. Permitting immediate expensing removes the need for a deduction for the cost of finance.[13] Hence a cash flow tax is also—in net present value terms—a tax on economic rent. This is illustrated in Box 2.2, which extends the example in Table 2.1 to an investment that earns an economic rent.

Box 2.2 Alternative methods of taxing economic rent

Consider the example in Table 2.1 but suppose that revenue in period 2 is instead 120. This means that in the absence of tax it earns an economic rent of 10—the profit over and above the required return of 110.

The first panel in the table included in this Box illustrates the position under a conventional tax with relief for the cost of finance. As in Table 2.1, in period 2, there is tax relief for depreciation of 100, and for the cost of finance of 10.

[11] For a consideration of investor level taxes, see de Mooij (2012). For a comparative analysis of the tax treatment of debt and equity instruments under domestic and international tax law see Schön (2012b).

[12] Meade Committee (1978). See also United States Department of the Treasury (1977). The primary work on this report was undertaken by David Bradford, then Deputy Assistant Secretary for Tax Analysis.

[13] The equivalence was first noted by Boadway and Bruce (1984).

These reduce the tax liability by 20 and 2 respectively. The tax on the revenue of 120 is 24. This leaves a total tax liability in period 2 of 2. In this case, the pre-tax economic rent of 10 has been reduced by 20%, so that the post-tax rent is 8. In effect, this is a tax of 20% on the economic rent earned.

This can also be achieved with a cash flow tax. Broadly, this tax would simply tax all cash flows in each period, whether positive or negative. In this case, the expenditure of 100 in period 1 would result in a negative tax liability of 20. So the net cost to the investor is only 80. In period 2, the entire revenue is taxed without further relief, so that the tax liability in period 2 is 24.

The pre-tax economic rent is again 10. The post-tax economic rent in this case is the return over and above the initial investment of 80, grossed up at the required rate of return of 10%. That is equal to the total income in period 2 of 96, less the required income of 88. This yields an economic rent of 8. This is the same as the outcome as in the previous case. So the cash flow tax also falls solely on economic rent.

	Pre-tax cash flows	**Tax**	**Net cash flows**
Tax with relief for the cost of depreciation and finance			
Period 1 purchase of asset	–100	0	–100
Period 2 net receipts	120	–24	
Relief for cost of asset		20	
Relief for cost of finance		2	
Period 2 total net cash flows	120	–2	118
Economic rent	*10*	–2	*8*
Cash flow tax			
Period 1 purchase of asset	–100	20	–80
Period 2 net receipts	120	–24	96
Economic rent	*10*	–2	*8*

The choice between a conventional profits tax base and a base of only economic rent is one of the underlying themes in this book and raises many issues which will be explored in detail later. A key issue, which we set out in more detail below, is that a tax on pure economic rent should not induce a business to change any of its activities or prices. Because of this, the incidence of the tax generally falls on the owners, rather than being passed on through, for example, higher prices or lower wages. Given the owners are more likely to be in the upper part of the income distribution, this would imply that the tax is progressive.

However, although this is the basis of many contributions that have advocated a tax on economic rent,[14] these arguments do not always hold. One reason is that if a business must choose amongst mutually exclusive options, then it is likely to choose that option which earns the highest post-tax economic rent. If it faces a tax on the economic rent earned under each of the different options, then differences in tax rates between the options may affect the choice between them. An example of this would be taxes on the economic rent associated with mutually exclusive production in different countries. If tax rates differ between countries, then location choice may be affected.[15] This raises the question as to whether it is possible to design a tax that falls on rent that can only be earned in a specific location. More generally, it raises the issue of *where* profit should be taxed. We turn to this issue in Section 1.2 after having discussed equivalences.

1.1.2 Equivalences to other taxes

With this brief summary of alternative tax bases on business profit, we can now identify that some of them are equivalent to other forms of taxation. The clearest example of this concerns the R-based cash flow tax, described above, which in a closed economy—with no exports, imports, or cross-border investment—is a tax on all 'real' net cash inflows in a particular period. Financial flows are excluded, but capital purchases can be immediately expensed and labour costs are also deductible.

This is very similar to a very common tax base—value added—the base for VAT. Although VAT is typically administered in a different way to corporation tax,[16] the base for VAT is identical to the R-based cash flow tax with the exception that labour costs are not deductible under the former.

Value added as defined for VAT is also equal to the sum of economic rent and wage income—in effect, it is the sum of the returns to factors of production, with relief given for the costs of other inputs. It follows that a VAT could be implemented by means of a R-based cash flow tax plus a tax on wage income at the same rate. Alternatively, a tax on economic rent could be implemented by means of a VAT, combined with a subsidy to wage income at the same rate.

[14] See, for example, Meade Committee (1978).

[15] Evidence on this was first provided by Devereux and Griffith (1998).

[16] VAT is normally collected on an 'invoice-credit' method—in this case, tax is assessed each time a business supplies a good or service, and the business is permitted to reduce its VAT liability by a credit equal to the amount of VAT paid on inputs. However, VAT could also in principle be collected on a 'subtraction method', under which a business would subtract the cost of its inputs (excluding wages) from the total value of its sales. The subtraction method is close to the implementation method used for most taxes on business profit.

Box 2.3 Equivalent tax bases in a closed economy

In Box 2.2, we showed that a tax on real business cash flows had the same economic effects as a tax on business profit which included relief for both depreciation and the cost of finance.

Here we show that if such a tax is combined with a flat rate tax on labour income at the same rate, then it is equivalent to a VAT. We use a slightly different example, to distinguish wage costs from other costs. In this case we can compress the example into a single period. A business hires a worker, to whom it pays a wage of 60. It also has other costs of 40, and sales of 150. Its net cash flow before tax is therefore 50.

A R-based cash flow tax at 20% would be applied to each of these cash flows. These net out to a tax payment of 20% of 50, i.e. 10. Suppose that the business also remits personal income tax on behalf of the worker at 20% of her wage. This corresponds to a personal income tax liability of 12. The total tax liability remitted by the business is therefore 22.[17] The worker earns 48 net of tax, and the remaining value of 40 accrues to the owner. (Note that this would be unchanged if the worker had the responsibility for remitting the income tax.)

Another way of identifying the relevant flows is to identify the value added of the business. This is conventionally measured as sales less the costs of inputs. Treating other costs as the costs of inputs, then value added is equal to sales of 150 less costs of 40, with a net value added of 110. This is also equal to the sum of labour income (60) and profit (50). A conventional value added tax would be applied to this value added. This would yield a tax liability of 22, and the net value added is 88. This is the same tax liability as the combination of the cash flow tax and the personal labour income tax, and also leaves the owner and worker exactly as well off as under that combination of taxes.

	Pre-tax cash flows	Tax	Net cash flows
Cash Flow Tax			
Labour costs	–60	12	–48
Other costs	–40	8	–32
Sales	150	–30	120
Net business cash flows	*50*	*–10*	*40*
Personal income tax on wages			
Labour income	60	–12	48
Cash flow tax on business + tax on wages			
Totals	*110*	*–22*	*88*

[17] This is similar to the 'Flat Tax' proposal of Hall and Rabushka (1983). They proposed a cash flow tax at the business level, together with a flat rate tax at the same rate on personal labour income. An important difference from the example given here is that the flat tax would exempt a significant part of personal income from tax; this has the effect of making the tax progressive.

	Pre-tax cash flows	Tax	Net cash flows
Value Added Tax			
Other costs	–40	8	–32
Sales	150	–30	120
Value added	***110***	***–22***	***88***

This equivalence calls into question the traditional distinction between direct and indirect taxation. Broadly, an indirect tax is typically defined as a tax paid on expenditure by consumers, while a direct tax is defined as a tax on the income, profit or property of people or corporations. VAT is therefore normally considered to be an indirect tax, but taxes on business income and labour income are thought to be direct taxes. But as the example in Box 2.3 demonstrates, in simple cases at least, these direct and indirect taxes are equivalent.

The key distinction between taxes levied on income and taxes levied directly on spending is that the former can be adjusted to the characteristics of the taxpayer. For example, a personal allowance can be used for income tax that introduces a degree of progressivity in the personal income tax schedule; this cannot be so easily achieved through taxes on spending.[18] The relevance of this distinction is less clear in the context of business-level taxes on profit. That is because there is no clear rationale for introducing progressivity into a tax on profit—there is generally no reason to require a business earning higher profit to pay tax at a higher tax rate. To consider the fairness of the tax we need to look through the business to make comparisons between individuals that are made worse off by the tax.

It may seem odd to argue that VAT can be economically equivalent to a tax on economic rent and a tax on wages. VAT is typically believed to result in a rise in the price of goods and services sold with the result that the consumers bear the tax burden. By contrast a tax on economic rent should be borne by the owners of the business and a tax on labour income is typically believed to be borne by the workforce.[19] But these effects are equivalent; what matters is the spending power of post-tax income. And this is the same for all agents under a VAT and the combination of a business cash flow tax and personal income tax at the same rate. However, note that the cash flow tax, which falls only on economic rent, would leave spending power out of labour income unaffected, so would fall only on the owners of the economic rent.[20]

[18] For more thorough discussions of these issues, see Atkinson and Stiglitz (1976) and Atkinson (1977). Note that an 'expenditure' tax can also be levied on an individual's income less her saving; this too can reflect characteristics of the individual taxpayer, and was advocated, among others, by the Meade Committee (1978) and Bradford (1986).

[19] Whether these different outcomes would actually occur as described depends on a number of factors, including the response of monetary policy to tax changes and the extent to which wage rates are flexible.

[20] This issue is discussed further in Chapter 7.

1.2 Allocation of profit between countries

The activities of a business may transcend national boundaries in many ways. A second important dimension to taxes on profit is therefore where profit is taxed. This issue is important for the allocation of profit between countries and also between regions that set their own tax rate—for example, US states or Swiss cantons. In this book we focus in particular on the allocation across countries, but essentially the same issues arise whatever the level of government.[21] Chapter 3 sets out in more detail the ways in which the existing allocation between countries is determined. Chapter 4 considers and evaluates four different types of location in some detail. These four locations constitute the broad range of options for allocating taxing rights over business profit; we introduce them briefly here.

We can start with the location of the owners of the business.[22] These individuals ultimately receive the profit or return earned by the business. Their location may be completely different from where all the other activities of the business take place.

One approach that could be taken is not to tax the profit at the level of the business at all, but to tax the owners directly. If residents of a country were taxed on their worldwide income accruing from business profit—wherever that profit arises—then many of the problems of the existing system, set out in detail in the next chapter, would simply not arise. Of course, it is not straightforward to tax a resident of, say, Japan on her share of profit earned in a business in Chile. The Japanese tax authority would need to be able to verify the profit accruing in Chile, even if it were not distributed to Japan. The practical difficulty in doing so is one reason for exploring the taxation of profit at the business level.

The second possible location for tax is the place of residence of the ultimate parent corporation of the business. Suppose, for example, that the Chilean business is a corporation that owns other subsidiaries and has branches around the world. Then, in principle at least, the tax accruing worldwide to that multinational group of companies could be taxed in Chile, on the basis of the Chilean business tax system. This approach would also have challenging information requirements, in this case for the Chilean tax authority. It also depends crucially on the notion and legal definition of the 'residence' of the Chilean company. A mix between the first and the second locations would result if one defines the residence of a parent company by reference to the residence of the majority of its shareholders.[23]

We use the word 'origin' to describe the third possible location. By this we mean the place where the activities and the assets of the business are located.[24]

[21] As income is intrinsically a personal concept and not a spatial concept, there is no 'natural' allocation of profit to a given country; for discussion, see Ault and Bradford (1989).

[22] More generally, we could also consider the location of anyone who supplies funds to the business, for example, creditors.

[23] This has been proposed by Fleming et al (2016b).

[24] Economists typically use the word 'source' to describe this location. We do not use this term, since it has a very different meaning in the legal literature, as we describe in more detail in Chapter 3. The

The activities of the business may include production, financial management, research and development, marketing and sales, administration, and many other aspects of the business. In a large multinational business, these activities may be spread around the world in different parts of the business, which may also have different legal forms. In addition, the business may own assets—both tangible and intangible—in other countries. Very broadly, as described in more detail in Chapter 3, the existing tax system tends to allocate some taxing rights to all of these locations. A key issue under the existing system is therefore how the profit allocated to each country—or more specifically to each element of the business, for example a subsidiary or branch—is determined.

The fourth possible location is the place in which the business makes sales to third parties—which we call the 'destination' country (or 'market' country).[25] This is traditionally the approach that has been taken by taxes on sales of goods and services, such as VAT, but—as of 2020—it has not been used as a location for the taxation of profit.[26] But the equivalence noted above, between a cash flow tax, a tax on wages, and a tax on value added may give pause for thought.

VAT is typically levied on a destination basis. To implement this, VAT is typically not levied on exports, but it is levied on imports. That is, the sales of a business located in country O (the origin country) and exporting to consumers in country D (the destination country) will be subject to tax only in country D, at country D's tax rate. By contrast, these 'border adjustments'—'zero-rating' exports and taxing imports—are not typically applied in taxes on business profit or on labour income and so taxes on profit and wages are typically levied in country O, at country O's tax rate. Under these circumstances then, the direct equivalence of VAT to a tax on economic rent and a tax on labour income would no longer hold.[27]

However, while this is the standard way of implementing these taxes, this is not a necessary feature of them. In principle, it would be possible not to have border adjustments for VAT, so that VAT on exports from O to D would be levied in the origin country. This was the design envisaged by the European Community for its 'final' VAT system in 1993 which has only been abandoned recently when the European Commission—following a public consultation—declared the origin principle to be 'politically unachievable' and stressed the necessity of coherently

term 'origin' is taken from the literature on taxes on cross-border flows of goods and services, which typically distinguish between the 'origin' and 'destination' locations.

[25] Alternatively, we might think of this as the country of residence of the purchaser.

[26] At the time of writing, the members of the OECD/G20 Inclusive Framework are considering allocating some partial taxing rights to the destination country, although some of those advocating this reform argue that this may be justified because the business owns valuable intangible assets there—thereby treating the place of sale as an origin country.

[27] There is a substantial academic literature investigating circumstances in which an origin-based VAT would be equivalent to a destination-based VAT; see, for example, Keen and Lahiri (1998) and Lockwood (2001).

applying the destination principle under EU VAT legislation.[28] Also, it would be possible to introduce border adjustments to a cash flow tax, turning the cash flow tax into one levied on a destination basis.

The location in which profit is taxed is one of the core themes of this book. Given the range of possible locations, where should the profit earned by a multinational business be taxed? The answer may depend on the underlying reason why profit is taxed at all—and in Section 3 of this chapter we explore in some detail alternative rationales for taxing profit, and the implications of each possible rationale for where the profit should be taxed. Before that we turn to considering how to evaluate alternative forms of taxes on profit.

2. Criteria for evaluating taxes on business profit

Many authors—famously including Adam Smith[29]—have set out general criteria for evaluating the design of taxes. There is little dispute about the broad attributes of a good tax system—that is, the set of taxes that a country uses and how it implements them. Here we present and discuss five criteria that we believe are especially relevant to the international taxation of business profit: fairness, economic efficiency, robustness to avoidance, ease of administration, and incentive compatibility.

For the most part, we take a global view of the tax system. That is we apply the criteria in thinking about the social and economic welfare of the world as a whole. But that is unlikely to be the way that individual governments view their objectives; they are rather more likely to assess the criteria from the perspective of the welfare of their own citizens.[30] For some of the criteria, these different approaches need not necessarily conflict. For others they clearly do. For example, from a global perspective economic efficiency is likely to be best served by trying to avoid distortions to location decisions. From the perspective of an individual country, there may be a gain to inducing business activity to move to that country, even though that may create a negative effect on other countries.[31] Including incentive compatibility as a criterion is intended to indicate that tax systems which contain incentives to diverge from a common system, or to undercut the tax rates in other countries, are likely to be unstable and ultimately unlikely to be successful.

In applying these criteria, we should also acknowledge the obvious: that the primary purpose of tax is to raise revenue for the government to pay for public goods, services, and transfers. A tax that meets our criteria but raises no revenue would

[28] European Commission (2011), para. 4.1.
[29] Smith (1776).
[30] This point has been made forcefully by Graetz (2001) and Shaviro (2014).
[31] If the action taken—such as reducing the tax rate—induces other countries to take similar action, the benefit may be short lived.

be useless.[32] A reasonable way of applying these criteria in comparing alternative taxes is therefore to have in mind a revenue requirement for the tax; for a given revenue, which tax option best meets the criteria set out here? This seems a reasonable approach for governments that have the capacity to levy alternative forms of taxation to achieve the same revenue goal.

But there are cases in which governments lack such capacity. In particular, many governments in lower income countries would like to raise a higher share of national income in tax revenue than they have been able to.[33] There are a number of possible reasons.[34] One is the practical constraint of a lack of administrative resources. In terms of our criteria this is a problem of administration. Our basic approach compares alternative forms of taxation that have the capacity to raise the required revenue. However, in some cases, a lack of administrative capacity may be so severe that alternative forms of taxation cannot raise the required revenue. This does not imply that the five criteria set out here do not apply in such settings—taxpayers in such settings should still expect a fair tax system, for example. However, it may well imply that in such settings a greater weight should be given to the costs of administration; in this case these costs would be larger and effectively include falling short of the revenue target.

We discuss the five criteria in turn.

2.1 Fairness

2.1.1 Fair taxation of individuals versus fair taxation of businesses

In the context of a single country, a starting point for designing a tax system is that those individuals who are associated with that country should contribute a reasonable share to the cost of the provision of publicly provided goods and services, including social assistance and support. Most would agree that a 'reasonable share' would entail a progressive tax structure—under which the better off contribute a higher share of their resources (and where the least well off may receive benefits rather than pay taxes). Clearly opinions may differ on how progressive the structure should be. And several issues arise: for example, should taxes be related to ability to pay or benefits received, and should inter-personal comparisons be based on income, wealth, or expenditure? We do not address these questions here. But we do

[32] For a strong emphasis on revenue aspects in comparison to efficiency aspects, see Rosenbloom (2009). Graetz (2015) has argued that the corporate income tax should be maintained for revenue purposes.

[33] The goal of revenue mobilization is an important element of the tax policy debate and has been at the top of the development agenda since at least the 2015 Addis Ababa conference on financing the Sustainable Development Goals.

[34] For an account of the issues arising in taxation in African countries, see Moore et al (2018).

start from the premise that the overall tax and benefit system should be progressive in some form.

That is still very broad. But it does rule out applying the notion of fairness to businesses as entities distinct from the individuals associated with them. Box 2.4 on the effective incidence of tax explains why it makes little sense to think about fairness in the context of the taxation of businesses.

Box 2.4 The effective incidence of taxes on profit

There is a commonly-held view that 'business should pay its fair share of tax'. This is uncontroversial if it means that business should pay the tax due under the law. Beyond that, this view makes little sense. Ultimately, only individuals can be worse off as a result of taxes being levied on business profit, or any other form of taxation. It may be that, in the popular imagination, a business is synonymous with its owners, and therefore that a tax on business profit is borne by the owners of the business.

There are circumstances where that may be true. However, more generally, businesses adjust their behaviour in response to taxation. This has an effect on the prices of the goods and services that it sells, and the prices of the inputs that it uses, including wages paid to its employees. As a result, as prices adjust, the tax can be passed onto consumers in the form of higher prices, employees in the form of lower wages, or other suppliers in the form of lower prices paid for inputs. In a competitive market, for example, where competing businesses earn just the minimum required rate of return, a tax on profit would initially reduce the rate of return below the minimum. Consequently, businesses are likely to raise their prices; but that would reduce total demand and ultimately some businesses would then have to exit the market. The remainder would earn a higher rate of return before tax, but the same rate of return after tax. Meanwhile, the remaining customers would be paying a higher price. The 'incidence' of the tax describes which individuals are actually worse off as a result of the tax being levied.

In practice, the incidence of a tax on business profit is very difficult to identify. We have to imagine the counterfactual of what would have happened in the absence of tax—or perhaps more precisely, the counterfactual of what would have happened if the same tax revenue had been raised from an alternative tax. Since the counterfactual is not observable, there is plenty of room for disagreement on the question of who bears the burden of a tax on business profit, and it is probably fair to say that this question is unresolved. But this is to be expected; given that market conditions vary among businesses, sectors, and countries, it is likely that the incidence also varies.

There is a substantial economic literature investigating this question, which dates back to Harberger (1962). In his early work, he identified a tax on profit in one sector of the economy (for example, levied only on incorporated businesses) as effectively falling on all owners of capital. But the opposite view can be taken in a small open economy, in which there is free movement of capital, but an immobile labour force (Gordon, 1986). In this case, the required rate of return on investment after local taxes is determined in the world market; a tax on profit earned in the small open economy cannot change this, and so would instead have the effect of raising the pre-tax required rate of return, leaving the post-tax rate of return unaffected. In this case, the tax would be borne ultimately by domestic residents. There are several reviews that address both the theory and empirical evidence of the incidence of tax on business profit, which go beyond these two extreme views.[35]

The academic debate on this issue is primarily on the question of the extent to which a tax on business profit is passed on to employees in the form of lower wages. This is at best an indirect answer to the more central question of whether such a tax is progressive or regressive. Given that the owners are more likely to be in the upper part of the income distribution, then if the tax fell on the owners then it is likely to be progressive. But there has also been a marked dispersion in the distribution of wage income, with a greater share going to those at the very top of the distribution.[36] So a central, and largely unaddressed, question is whether—to the extent that taxes on business fall on the labour force—they fall on the upper or lower end of the distribution of wage earners.[37]

A tax on pure economic rent is a special case. Such a tax should not induce a business to change any of its activities or prices. Intuitively, a business seeking to maximize value for its owners chooses activities and prices that maximize economic rent after tax—but if the base of the tax is pre-tax economic rent, then those same activities and prices would maximize pre-tax economic rent as well. This has two implications. First, such a tax leaves the activities and prices (including wage rates) of the business unaffected. Second, since prices are unaffected, the tax cannot be shifted onto other agents—consumers and employees, for example—and hence the incidence of the tax falls on the owners. Given that the owners are more likely to be in the upper part of the income distribution, this would imply that the tax is progressive. As we discuss at length in Chapter 7, a caveat to this is if the tax on economic rent is levied on all goods and services on a destination basis, this would raise nominal domestic prices and wages, leaving the tax incident on domestic residents who consume from the economic rent they receive.

[35] See, for example, Auerbach (2006); Gravelle (2011); and Fuest (2015). More recent papers include Suárez Serrato and Zidar (2016); Fuest et al (2018); and Nallareddy et al (2018).

[36] See Atkinson et al (2011) and Bell and Van Reenen (2013).

[37] It is not completely unaddressed. For example, using state corporate taxes in the US as a setting, Nallareddy et al (2018) find that corporate tax cuts lead to increases in income inequality.

It is worth noting that while the overall fiscal system, including taxes and transfers, should be progressive, that does not necessarily mean that each individual tax within the system need be progressive. For example, a VAT applied at a single rate on all consumer purchases is likely to be regressive relative to income in any given year (although not relative to expenditure) if the better off have a higher savings rate, and so consume a smaller proportion of their income. That does not mean that VAT cannot be an element of an overall progressive tax structure. It does mean that governments have to generate progressivity from other taxes or transfers. So to the extent that an individual tax can contribute to the overall progressivity of the system, then that is a useful attribute.

2.1.2 Taxation according to 'ability to pay'

In the context of taxing business profit, one important consideration for fairness is how the returns to individual savings should be taxed. That is because we can think of business profit being at least partly a return to a financial investment in the business, which is akin to the return to other forms of saving.[38] There are both a fairness and an efficiency case for taxing the returns to different forms of saving in the same way. The fairness case is straightforward. Suppose two otherwise identical individuals A and B save the same amount and receive the same returns but choose different forms of saving. Then on fairness grounds there is no reason to discriminate between them.[39] The efficiency case is also straightforward. Taxing the returns on different forms of savings in different ways is likely to distort the form in which individuals save, creating inefficiency.

In practice, in most countries the returns to savings are taxed in numerous different ways. Some types of return are taxed as ordinary income (e.g. rental income). Some types of return are not taxed at all (e.g. tax-free capital gains on owner-occupied housing). In some cases the return is taxed, but the initial saving receives tax relief (e.g. retirement plans). In these last cases, only the return over and above the required return—the economic rent—is effectively taxed. We discuss the taxation of the returns to saving further in the context of identifying a rationale for a business-level tax on profit below. We will leave to one side any discussion on the fairest way to tax the return to savings by individuals.[40] But the varying treatment of other forms of saving raises difficulties in identifying the appropriate taxation of business profit. In principle, business profit should be taxed in the same way as other forms of saving; but this may give little guidance when there is so much variation in the taxation of other forms of saving.

[38] By 'saving', we include any form in which an individual may hold wealth while deferring consumption; this could include a bank account, pension fund, lending, company shares, or any other asset. When an individual owns a business, the return to such saving may be hard to distinguish from the return to work contributed by the owner.

[39] For further discussion in an international context, see Fleming et al (2001).

[40] For thorough discussions see, for example, Mirrlees et al (2011) and Banks and Diamond (2010).

A special case of such a comparison is between business profit that is treated as part of the owner's income, and is subject to personal taxation, and profit which arises in a business that is not subject to personal taxation as it accrues (though it may be when it is distributed). The former treatment is known as 'pass-through' or 'look-through' treatment of a business, and can apply to sole proprietorships, commercial or professional partnerships, limited liability companies, and also to some corporate entities, for example, S-corporations in the US.

Where a business is a corporation that is too large, or too complex, to allocate all profit to shareholders in this way, it is often argued that a separate corporation tax on the company's profit is needed as a proxy or 'backstop' for the personal income tax. Even if the corporation tax rate is not the same as the personal income tax rate applying to each shareholder, such a tax, it is argued, provides some measure of equal treatment of profit arising in businesses that have different legal forms. We discuss the merits of this argument in some detail below.

In the context of the OECD/G20 BEPS project, the notion of fairness in international taxation has become strongly related to the 'single tax' principle.[41] The idea here is that coordinated efforts around the world would ensure that business profit is taxed exactly once—so there would be no 'double taxation' and no 'double non-taxation'. This principle is widely thought to be linked to the 'ability to pay' concept. But the single tax principle is not a means to further international tax fairness for at least two reasons. First, it leaves open which country has the right to tax some specific profit. Second, it gives no indication of the overall rate of tax applied. Double taxation may be advantageous to a taxpayer if the two rates applied are very low, while single taxation may be disadvantageous if the single rate applied is very high.[42]

2.1.3 Fairness between countries

An alternative approach is to consider fairness between countries[43]—or at least the residents of those countries. In particular, we can ask—on fairness grounds—which country should have rights to the revenue from taxing the profit of a multinational business. A notion of inter-nation equity has been developed to consider this.[44] An argument might be made that the country in which the economic activity took place deserves to receive some of the revenue from taxing profit on the grounds that the business made use of publicly provided goods and services in that jurisdiction. This reflects the assertion of the OECD, that taxing rights should be primarily related to economic substance, or where economic activity takes place.[45]

[41] For a recent overview of the debate see Gil Garcia (2019).

[42] This point has been emphasized by Shaviro (2014).

[43] Or, more generally, jurisdictions that may be at a lower level than a country.

[44] This originated with Musgrave and Musgrave (1972). In the legal literature, this approach has been made most strongly by Vogel (1988a, 1988b, 1988c); for recent accounts, see Infanti (2013) and Escribano (2019).

[45] OECD (2015c).

But we argue below that such considerations do not necessarily justify a tax on profit, as opposed to a fee for the use of such goods and services.[46] And in any case, some use of public goods and services is made in all countries in which a business raises funds, produces, and sells—all of which could be seen as economic activity.

A special case of this argument is where profit is generated by exploiting fixed natural resources. This is rather different, since in this case the profit is directly related to the fact that there has been an extraction of natural resources which would most naturally be considered as being owned by the residents of the country concerned. In general, we would argue that this is both a special and important case which justifies a level of taxation over and above that applied to other profit earned in a country. In this case, the form of taxation may not necessarily or exclusively be a tax on profit; a royalty or user fee may in some cases also be appropriate. A contractual regime, such as a production sharing contract, may also be used.

But in a more general setting, what is an equitable basis of the allocation of taxing rights between countries is debatable. On the basis of fairness, should taxing rights be claimed more by the country of residence of the shareholders, the country where production takes place, or the country in which the final good is consumed? There does not seem to be any clear basis to answer this question. There is no 'scientific' method to identify the 'right' allocation of taxes between countries.[47]

The international question could be framed differently: for example, should greater taxing rights be given to less well-off countries? The underlying logic in this re-framing is to go back to comparing individuals, but in this case, across countries.[48] Many would argue that there is a case for creating a more equitable distribution of wealth amongst all individuals, irrespective of country of residence. But it is not clear that this would be best achieved by allocating more taxing rights associated with business profit to less well-off countries.[49] And even if this were desired, it is not clear how a tax system could be designed that would have this effect. Certainly any such tax system would have to be based on allocation rules that reflected factors unrelated to the nature of the business—indeed, in principle taxing rights could be allocated to the least well-off countries even if the business was not present there.

2.1.4 Competitive fairness between businesses

At the outset, the BEPS project was partly driven by a specific notion of fairness as applied between market participants. It was meant to address the tax planning

[46] For a discussion on this point, see Schön (2009).
[47] See Bird and Wilkie (2000) and Schön (2009).
[48] See Dagan (2017).
[49] See Graetz (2001) and Stark (2019).

employed by large multinationals to shield their profits against any tax burden, a strategy regarded as unfair not only with regard to regular taxpayers but in particular when competing against local business.[50] A much-cited example is of a digital business selling goods and services directly to customers in competition with more traditional businesses. If the digital business is able to arrange its affairs to face a lower effective tax rate on its profit, then it may be treated more favourably. This appears unfair, although that conclusion should really depend on a comparison of the individuals who are made worse off by the taxes on the two businesses. In this setting, the profit of one business may depend on the tax advantage of another business. This is also an efficiency issue, in the sense that one business may gain a competitive advantage over its rivals.

To properly address this problem requires yet another approach—that businesses selling to customers in the same market should face the same tax system. This would ensure that one business did not gain an unfair competitive advantage over another business. This is clearly not the basis on which the international system of taxing profit has developed until now, although it is the basis of value added taxes, employed by the vast majority of countries. Given that a business can supply a market in a different country by exporting to that country, it would require the tax to be set by the market country. We develop this idea in the reforms we discuss in this book.

2.1.5 Conclusions

Ultimately, these notions of fairness are almost impossible to operationalize in designing a business-level tax on profit. We have at least three conflicting notions—that residents of a particular country should be taxed in the same way on all forms of their worldwide income, including any business profit accruing to them; that countries should receive some reasonable amount of revenue from taxes on profit in return for the provision of public goods and services; and that there should be fair competition between businesses operating in the same market. Beyond that, fairness is generally thought to imply a progressive tax system, but how progressive a tax on profit is depends on its incidence, which is very difficult to assess. Finally, we may also consider preferential treatment for countries with lower income levels.

These considerations make a tax on business profit (at least at a business level) a weak instrument in the design of a fair and progressive tax system. In aiming for a fair and progressive tax system, it is less suitable than taxes levied directly on better off individuals—on their income, wealth, or transfers—as long as such taxes are feasible to implement and administer.

[50] OECD (2013a, 2013b).

2.2 Economic efficiency

2.2.1 Fundamentals

The second criterion by which we seek to evaluate taxes on business profit is the extent to which taxes impose a cost on private economic agents—in effect on society as a whole—over and above the value of the taxes collected. All taxes impose a burden on private economic agents equal to the size of the tax payment—since the government appropriates part of their income, or wealth, to fund public goods and services and for redistribution.[51] That is inevitable. The issue here is that most taxes also impose an 'excess burden', representing a cost to society in excess of the tax collected.[52]

The excess burden arises because taxes typically affect relative prices and hence economic behaviour. For example, a tax on sales drives a wedge between the gross price that a consumer must pay for a good and the net price that the seller receives for it. That is likely to affect both the willingness of the producer to sell the product and the willingness of the purchaser to buy it. A tax on labour income drives a wedge between the gross cost to an employer of employing an individual and the net take home pay of the employee. That affects both the demand and supply of labour. The net result in both cases—and many others—is that, by making different decisions in response to different prices, the welfare of economic agents is reduced, and hence there is a cost—the excess burden—on top of the actual payment of tax.

The aim of maximizing economic efficiency is equivalent to minimizing this excess burden. Underlying this aim is a starting point that, without government intervention, an economy would be efficient, in the sense that it would not be possible to make anyone better off without making at least one other person worse off—this is known as 'Pareto efficiency'. Changing the behaviour of economic agents by altering relative prices is likely to move the economy away from Pareto efficiency. As consumption choices and labour demand and supply decisions, for example, would be different, the economy would reach a different equilibrium, one which is not Pareto efficient.

In thinking about the costs of taxation, the assumption that we start with an efficient economy is of course important.[53] There may well be a role for distortionary taxes in a world which is not efficient in the absence of tax. The classic example is

[51] This is known as the 'income effect'.

[52] Also known as the 'deadweight cost'.

[53] The first theorem of welfare economics states that a private market will be Pareto efficient under conditions of perfect competition, no externalities, perfect information, and rational agents. Note that Pareto efficiency says nothing about the distribution of income or wealth; that is why we must consider fairness as a separate criterion from efficiency. In many cases there is likely to be a trade-off between the two.

environmental pollution, where an economic agent may impose costs on others, without taking those costs into account in her own behaviour. In such situations, there is in principle a case for government intervention in the form of distortionary taxes, known as 'Pigouvian taxes', which aim to correct the underlying inefficiency; a tax on carbon emissions is one example of such a tax.

However, most taxes are not designed to correct market failures. They are designed to collect revenue to support publicly provided goods, services, and transfers. We therefore start with a presumption that one important criterion for choosing taxes on profit is that they should be designed as far as possible to minimize distortions to economic behaviour and hence minimize the excess burden.[54]

Before analysing economic efficiency in more detail, we note two final points with respect to economic efficiency and tax revenue. First, in an international setting, the considerations discussed here have no implications for which government receives the tax revenue. The issue at stake is what tax rate each business faces under different circumstances, and how that affects business behaviour and competition. Assuming that businesses are indifferent as to which government keeps the tax revenue, then the revenue allocation between governments is a completely separate issue, and one more closely connected to fairness, as discussed above.

Second, in analysing the economic efficiency of alternative taxes, we abstract from the overall size of government revenue and public spending. We address the question of how to collect a given tax revenue in the most economically efficient way; and in doing so we can compare the efficiency of alternative taxes. This allows us to sidestep the issue of the appropriate level of tax revenue, and to avoid having to make any judgements on the optimal size of government.

In Chapter 3 we describe the existing international corporation tax system and evaluate it according to the five criteria we set out here. In evaluating its performance with respect to economic efficiency we draw on an extensive empirical literature which attempts to identify the impact of business-level profit taxes on business behaviour, and—to some extent—to translate that into measures of the cost, or excess burden, arising from economic inefficiencies. In subsequent chapters, we discuss how alternative reforms of the existing system are likely to affect the costs arising from economic inefficiencies. Here we introduce these ideas by setting out the most important ways in which economic inefficiencies arise due to business-level taxes on profit. In the next subsections we explore what economic theory has to say about how to address these inefficiencies.

[54] We do not address the argument made by Avi-Yonah (2005) that business-level taxation might reduce inefficiencies by reducing the economic and political power wielded by corporate managers, making 'empire building' for them more costly. The validity of this argument depends on a number of assumptions including the legal protection of shareholders, the nature of the business, and the local business culture.

2.2.2 Economic inefficiencies in taxing profit

One form of economic inefficiency arises when a tax on profit deters a business from undertaking a new investment project. The conventional criteria for deciding whether or not to proceed with a new project is whether the economic rent of the project is expected to be positive. If it is, that represents a gain to the business and makes the project worth undertaking. This is generally equivalent to the project being expected to earn at least the normal rate of return, commensurate with its risk. But a tax on profit represents an additional cost for the project. As seen above, for conventional taxes, it is possible that the tax may turn the economic rent from positive to negative; or equivalently that the rate of return falls from above the normal rate to below it. This implies that the tax has the consequence that the business decides not to proceed. Again, this represents an economic inefficiency and cost; the benefits of the project—to the owner, employees, and customers—would be lost. As well as affecting the decision as to whether an investment takes place or not, conditional on an investment taking place, a tax on profit can also affect the marginal decision as to the size of the investment. The same considerations apply, but in this case apply to the decision as to whether to marginally increase the scale of the investment; a tax on profit can make a marginal increment unprofitable and so have the effect of reducing the scale of investment.

There is now a vast literature which attempts to estimate the impact of the existing tax system on investment, which is summarized briefly in Chapter 3. As we noted in Section 1.1, this inefficiency would be avoided by a tax solely on economic rent.

A second form of economic inefficiency is in the type of finance used by a business. As described in Section 1.1, a conventional tax on profit gives tax relief for the cost of debt finance—the interest payment—but offers no comparable relief for the cost of equity finance. As a result, and leaving investor level taxation to one side, the tax creates an incentive for a business to finance its activities by borrowing rather than issuing equity. The economic cost of this inefficiency is less immediate. It relates to the financial fragility of the business. A business has an obligation to repay its debt with interest, and if it cannot do so, then it may default. A business with smaller obligations to lenders is less likely to default. The economic costs arising from default may be significant, especially as a default by one business can impair the financial health of others. The financial crash of 2007–2008—which had enormous economic costs—occurred in part due to extreme levels of leverage of banks, which in turn were—again at least in part—fuelled by the tax advantages of debt.

There are many other potential economic inefficiencies arising from taxes on profit. Indeed, almost any aspect of business behaviour may be affected by taxation, and when that occurs there is likely to be some economic cost. Other important

examples include the legal form of the business, and the decision whether to distribute profit as dividends or retain it in the business.

2.2.3 Economic inefficiencies in taxing international profit

In considering international issues, a starting point is the location of economic activities. If, for tax reasons, a business is induced to choose a more costly location for its activities, then those higher costs reflect a cost to society. Suppose, for example, that a parent company resident in country A may choose whether to manufacture its product in a subsidiary company in country B or country C. Suppose also that, in the absence of taxation, costs are higher in B. Yet suppose that tax levied on the profit arising from production would be higher in C, to such an extent that the business nevertheless decides to locate in B. The additional cost that it faces as a result of that decision represents a cost to society as a whole. The cost is likely to be reflected in higher prices for consumers, lower income for employees, or lower post-tax income to the business owners.

Of course, this cost is hard to measure; it is in principle necessary to identify that the location of production has been affected by the difference in tax, and also to identify the difference in the underlying costs of the two locations. The business may be aware of these, but researchers attempting to identify the size of the economic cost must estimate them from available data. The difficulties in measuring the costs arising from economic inefficiencies may partly help to explain why policy makers who introduce and reform taxes often neglect the issue of economic efficiency.

Note that this economic cost arises because of differences in taxation in the alternative locations for production, B and C. In this example, the inefficiency would be avoided if tax were instead levied only in the residence country of the parent company, A, and therefore did not depend on the location of production. This illustrates that the distortion to the location decision is not an inevitable consequence of tax being collected on profit; the distortion arises in this example because the tax is levied in origin country. We discuss this further below.

On the other hand, if the tax were levied in A, then there could be a different distortion: the location of the parent company may then be affected by taxation. For example, the business could have chosen to be resident for tax purposes in another country, say D—or it may be able to move to D. If the costs associated with being located in D are higher than being located in A, then again there is potential for the profit tax—this time located in the residence of the parent company—to create an economic inefficiency and economic cost. As an example, in recent years, many US companies have sought to move their headquarters out of the US for tax reasons. These so-called 'inversions' often sought to avoid the US treatment of foreign source income, by placing the headquarter company in a more favourable environment. The US responded by introducing ever more stringent anti-inversion rules to try to prevent the inversions taking place.

A third form of economic inefficiency in an international setting is that a tax on profit may distort competition between businesses competing with each other for sales in the same market. This is especially likely to arise in the case of businesses that export to the same market. Suppose, for example, that a shoe manufacturer in London exports shoes to Paris. An Italian manufacturer in Milan does likewise, so that British and Italian shoes are side by side in a shop in Paris. The prices of the two competitors should partly reflect the costs of producing and exporting the shoes; but they may also reflect taxes on profit that the two manufacturers must pay. Suppose, for example, that the Italian manufacturer is obliged to pay much higher taxes in Italy on its profit, compared to lower taxes due from the British manufacturer in the UK. Then the British manufacturer has a tax-induced advantage; it may be able to use that advantage to undercut the Italian manufacturer and gain a greater share of the market. If the Italian has lower costs, or better-designed shoes, then this represents an economic inefficiency and cost.

This example of a potential economic inefficiency does not stem from any form of discrimination. It stems only from the fact that the tax on profit depends on the location of production (or possibly the location of a parent company); and that taxes on profit are not fully harmonized between the UK and Italy. This example again brings to the fore the issue of where taxes on profit could be levied. An attractive option from an efficiency perspective in this example is to levy the tax in Paris—the place of sale to the third party. If both manufacturers were obliged to pay tax only in France, at the French tax rate, then there would be no distortion to the competition between them. By contrast, any other location of taxing the profit could lead to a distortion and an economic cost.

One final point is worth noting: in international tax there is to some degree a trade-off between economic efficiency and profit shifting (which we discuss next). Successfully shifting profit to a lower taxed jurisdiction means that a business pays lower tax. One consequence of that is that the impact of taxes on profit on the real activities of the business are moderated. To return to the location choice example above, if the company were able to shift all of its profit from either B or C to a low tax jurisdiction, then there would no longer be a distortion to location choice. This does not imply that profit shifting is beneficial. But it does imply that reducing profit shifting may increase real economic inefficiencies and costs. We discuss this further in the context of the OECD/G20 BEPS project in Chapter 3.

The OECD/G20 BEPS project aimed to reduce profit shifting. Before this, some tax planning strategies allowed profit to be shifted to low tax countries without having to locate substantial real activity there. After the BEPS project this became much more difficult without also moving real functions and activities to the low tax countries. For example, to achieve desired transfer pricing outcomes, senior decision makers might now have to relocate to low tax countries post-BEPS. Businesses are likely to relocate staff if the tax savings

outweigh the cost. But this would represent the creation of new economic inefficiencies and costs.[55]

2.2.4 Guidance from optimal tax theory

Having made the case for considering economic inefficiencies by the likely size of the economic costs, where does that leave us in thinking about the design of taxes on profit? Almost all taxes affect prices and generate inefficiencies and hence an excess burden. The creation of an excess burden does not therefore necessarily mean that a particular tax should not be used. But then how should we compare alternative taxes in a world that already has such inefficiencies?

A useful starting point in answering this is the production efficiency theorem of Diamond and Mirrlees (1971). This states that even when there is some underlying distortion, we should still aim for production efficiency—which is the condition that the economy cannot increase the output of one good without having to produce less of another. The intuition for this result is that it cannot make sense to produce less than the economy could do, as long as the government has enough instruments to ensure that it can achieve any desired distributional outcome.

The theorem does depend on strong assumptions: that economic rents are either zero or are taxed at a rate of 100%; that there is no restriction on the use of instruments that government can deploy; and that there are no administrative or compliance costs of taxation. In an open economy the principle continues to hold only if there can be transfers of wealth between countries.[56] However, while it is possible to identify conditions under which the theorem does not hold, such conditions do not give a clear prescription for what would be the optimal form of production inefficiency in those cases. In what follows we will therefore have a presumption in favour of the tax system not distorting economic behaviour; deliberate distortions should be justified by an appeal to either existing inefficiencies or distributional issues.

To identify the implications of the production efficiency theorem for the design of business-level taxes on profit we must first make two distinctions. First, in this subsection, we will consider taxes on the normal return to an investment. Such taxes drive a wedge between the pre-tax and post-tax rate of return. In the next sub-section we consider taxes on economic rent, which do not tax the normal return to an investment, and so do not drive a wedge between pre-tax and post-tax rates of return.

Second, we start by interpreting the production efficiency theorem here in a global context. That is we consider the implications of the theorem for the design of taxes which would create the highest possible global welfare. This need not be the same as the implications if considered solely from a national perspective, simply because a national perspective would take into account only the welfare of the citizens or residents of a particular country.

[55] For further discussion, see Schön (2014).
[56] Keen and Wildasin (2004).

With these points in mind, the production efficiency theorem implies that production decisions should not be distorted. That means that intermediate goods in a supply chain should not be taxed. Hence, for example, turnover taxes are inefficient and should be replaced by a VAT or retail sales tax.

Second, the production efficiency theorem implies that the marginal pre-tax (risk-adjusted) rate of return on all production should be equal; if this were not the case, it would be possible to increase total output by shifting resources from an activity earning a low rate of return to an activity earning a higher rate of return. In the absence of tax, we can assume that this will happen as private agents seek to maximize the returns from their saving. But in the presence of tax, private agents will seek to earn the same post-tax, rather than pre-tax, rates of return from alternative forms of saving and investment. The implication for the design of tax is that—in principle, at least—the returns from all forms of saving should be taxed at the same effective rate. This is a strong prescription with implications for the types of inefficiency described above. It implies that a business aiming to earn the same post-tax rate of return on all its activities would simultaneously be aiming to earn the pre-tax rate of return on all its activities, consistent with production efficiency. Further, the same would also apply more generally: different businesses would also be aiming to earn the same pre-tax (as well as post-tax) rate of return. This could clearly be achieved by taxes that were fully harmonized across all countries. But in different settings we examine situations where this is not the case.

One example of this, in an international setting, is that business decisions as to the location of investment should not be affected by taxation.[57] In the discussion above, we considered mutually exclusive location options—whether the company in A would choose to locate production in B or C. But a more general way of thinking about this is that a higher effective tax in one country would induce investors to invest less in that location until the overall pre-tax rate of return was raised far enough to offset the higher tax. Taxes in the origin country—where the economic activity takes place—are likely to affect location decisions unless tax rates are the same in all possible locations.[58]

A second example is that collective output cannot be reallocated between businesses in such a way as to reduce the total costs of its production. In the example of shoe manufacturers above, suppose that the Italian manufacturer has a cost advantage over the UK manufacturer. Then it would be inefficient if the tax system taxed the Italian at a higher effective rate, resulting in a tax-induced competitive advantage to the UK manufacturer. Such a tax could raise overall costs of production since the Italian would have a smaller share of the market, resulting again in

[57] This principle is known as 'capital export neutrality', see Richman (1963).
[58] Or at least that the taxes are fully creditable against other taxes.

a deadweight cost. Production efficiency therefore requires that the tax system should not give one business a competitive advantage over another.[59]

In the absence of harmonization of business-level taxes between countries, these considerations could in principle justify two different locations for taxation. The key is that the location of business activity should not depend on the tax. One is to tax each investor on her worldwide profit in her place of residence—but only if the place of residence were fixed.[60] The other is to tax profit at the business-level in the location of sale (the 'destination' country)—again as long at this location was fixed. In either case, there would be no distortion to business location decisions, nor to competition between businesses resident in different countries but exporting to compete with each other in the same market.

A variant of the competitive advantage example is the case in which two businesses may be competing to acquire a third business, or some other asset. In this case, in principle, the tax should not affect the relative prices that the two firms are willing to pay.[61] If the tax did affect relative prices then a higher-cost firm may be given a tax-induced competitive advantage, which would again result in an excess burden. Requiring the tax to leave both firms with same required pre-tax rate of return would avoid this problem. In the general case, where the normal return to investment is taxed, this requires tax to be levied in the location of the asset being purchased.[62]

Choosing between these options for taxation depends in principle on the excess burden generated by each distortion. For example, is there a greater excess burden from distorting the location of investment or the identity of the investing business? This is ultimately an empirical question and is so far unresolved. A single worldwide tax on all activity and investors would remove the issue, but such a solution requires political will that seems as yet far away. We therefore focus instead on taxes that fall only on economic rent.

Before doing so, though, let us turn to the national perspective. In the case of a small open economy, maximizing the welfare of domestic residents implies a much stronger prescription; that there should not be any tax on the normal return to investment in that country.[63] That is because any small open economy must take the post-tax rate of return required by investors throughout the world on investment taking place in that economy as given. If investors could earn a higher post-tax rate of return elsewhere, they would shift their investment out of the small open

[59] This has been referred to as 'market neutrality'; see Devereux (2008).

[60] Note that while this may be true of individual shareholders, it is less likely to be true for a parent company, which could in principle relocate to a different jurisdiction.

[61] This has been called 'capital ownership neutrality'; see Desai and Hines (2003). The principle that all business operating in a country should face the same tax rate has also been referred to as 'capital import neutrality', see Richman (1963).

[62] However, as set out below, this requirement does not hold if the tax is limited to economic rent; see Devereux et al (2015).

[63] See Gordon (1986). Formally, this prescription requires capital to be perfectly mobile between countries, whilst individual residents are perfectly immobile.

economy until the pre-tax rate of return rose far enough to offset any tax levied on the return to investment located there. Any reduction in investment would reduce the pre-tax income of residents of the small open economy who supply the country's workforce. So in effect the tax would fall on domestic residents, rather than foreign investors. Those residents would be better off if the supply of investment was not reduced by tax. This would be achieved by not distorting the required pre-tax return to investment located there; residents would be better off if taxes were instead levied directly on their income.

2.2.5 Taxing economic rent

This discussion of efficiency has been based explicitly around taxing the normal return to savings and investment. This affects the rate of return earned by the investor, and hence distorts savings and investment decisions. But in Section 1.1 of this chapter, we also discussed the possibility of taxing economic rent. It should also be recalled that the production efficiency theorem formally depends on either businesses not earning economic rent, or on economic rent being taxed at a rate of 100%. There is a small literature that investigates implications for taxing the normal return to capital when this does not hold.[64] However, let us now consider the likely effects of a tax on economic rent at less than 100%.

With a tax solely on economic rent, investment projects that earn just the normal return are not taxed; it follows that the required return on a project—and hence the scale of investment, and the choice between different types of investment—should not be affected by such a tax. A tax on economic rent would also give relief for the marginal cost of finance, whatever the source of finance—whether debt, equity, or some combination. This means that the source of finance would not be distorted by taxation. So in many—especially domestic—situations, a tax on economic rent would be neutral.

However, this is not always the case, especially in an international setting. In particular, even taxes on economic rent can affect the location of production where countries impose rent taxes on the returns to production at different rates.[65] To return to the example above, the company in A can choose to produce in B or C, where costs are lower in C. Even a tax on economic rent could affect the choice of location in this case, as long as the tax is located in the country of production, B or C—the origin country.

This is also relevant from the national perspective of the small open economy. The argument above indicated that the country should not have an origin-based

[64] Keen and Piekkola (1997) consider the case in which rents cannot be fully taxed (so that the Diamond-Mirrlees result fails) and show that capital export neutrality and capital import neutrality are optimal in (respectively) the extreme cases in which savings in each country or the demand for capital in each country are fixed.

[65] See Devereux and Griffith (1998).

tax on the normal return to investment located there. But since origin-based taxes on economic rent can also affect location decisions, then from the perspective of economic efficiency there is also a case against an origin-based tax on economic rent even from the national perspective.[66]

However, a tax on economic rent should not affect competition between businesses in a market. That is because a tax on economic rent should leave prices unchanged; the profit-maximizing prices chosen by businesses are unaffected by a tax on economic rent. That implies that such a tax would not lead to one business reducing its price to under-cut another—hence competition should be undistorted. In our example, suppose that the UK and Italy both taxed the economic rent of their resident businesses. In this case, there would be no distortion to the competition between the two in the Paris market.

As noted above, a tax on the normal return on a residence basis could affect which business purchases an asset in an origin country. However, a residence-based tax on the economic rent accruing from an acquisition in an origin country would be neutral with respect to the purchase of the asset.[67]

Nevertheless, the potential distortion from an origin-based tax even on economic rent to the location of investment and economic activity is potentially serious. In this book, therefore, we explore other locations for a tax on economic rent, which would not have these properties, in particular a tax levied in the destination country.

The central rationale for doing so is that the final consumers, the ultimate purchasers of goods or services, are likely to be relatively immobile. That is, they are unlikely to move to another country because the business selling to them may face a higher tax rate—even if that tax is partly, or wholly, passed on to them in the form of higher prices. However, as we discuss at length, this may be less likely to be true when the customer is another business.

2.3 Robustness to avoidance

Our third criterion against which to evaluate taxes is their robustness to avoidance. The possibility that a business—or any other taxpayer—may reduce its tax liability through avoidance overlaps with our other criteria—on fairness, efficiency, and ease of administration. However, we include it as a separate criterion partly because of its importance in the public debate about the taxation of business profit, especially in an international context. There has been widespread disquiet amongst politicians,

[66] This should be set against the possibility of 'exporting' the tax base with an origin-based tax; see Auerbach and Devereux (2018).

[67] See Devereux et al (2015). The key here is that the ranking of prices that two competitors are willing to pay for the asset cannot be overturned by such a tax as long as the price paid is equal to the maximum price offered by the lower bidder (as is the case in most auctions).

civil society organizations, academics, the media, and the general public about the extent to which some multinational companies shield their profit from taxation.[68] Where people feel that a section of the taxpayer community is avoiding the tax due, this can undermine general compliance with taxation.

This public disquiet led to the OECD/G20 BEPS project. This was aimed squarely at addressing problems of profit shifting by multinational companies, which it identified as 'gaps and frictions among different countries' tax systems that were not taken in account in designing the existing standards and which are not dealt with by bilateral tax treaties'.[69] We discuss the BEPS project and its recommendations in more detail in Chapter 3.

As is clear from the name of the OECD/G20 initiative, avoidance by multinational companies typically takes the form of shifting profit from a high tax jurisdiction to a low tax jurisdiction, and there are many ways that such shifting can occur, as described in Chapter 3. There is a growing academic literature on the scale of profit shifting by multinational companies, although there is as yet no clear consensus on the scale of such activity. We summarize the empirical estimates of the degree of profit shifting under the existing system in Chapter 3.

2.3.1 What constitutes international tax avoidance?

Part of the problem in identifying the scale of avoidance is that the term is not well defined. 'Avoidance' is typically distinguished from 'evasion' on the grounds that avoidance is thought of as being within the law, whilst evasion is illegal. However, this distinction is not sufficient for at least two reasons. First, it is not always clear whether a particular activity should be thought of as avoidance or evasion; pushing at the boundaries of what might be within the law may take a taxpayer beyond the law. Second, it is very difficult to define avoidance in a satisfactory way;[70] if activities comply with the law, then by 'avoidance' we must have some alternative in mind.

Avoidance has no fixed meaning and is used by different people to mean different things. Matters are often complicated but not usually clarified by the addition of adjectives such as 'aggressive', 'abusive', or 'unacceptable' to the term. Terms such as not complying with the 'intention of Parliament' or the 'spirit' of the law have also been used,[71] but they do not get us very far since we then have to define these terms instead. In many countries, courts go beyond the letter of the law to take into account the 'intention of Parliament' or the 'spirit of the law' when

[68] As noted in the Introduction, prominent amongst the political debate on these issues have been the UK Public Accounts Committee, chaired by Margaret Hodge and the US Senate Permanent Committee on Investigations. Both of these have investigated the tax affairs of prominent multinational companies. For an account of the rise of these concerns in the public debate, see, for example, Forstater and Christensen (2017).

[69] OECD (2013b), p. 9.

[70] See Devereux et al (2012).

[71] OECD (2017a).

interpreting a statute; however, these notions can have a narrower meaning in this context to that found in political and public debates.[72] International tax planning is often aimed at benefitting from disparities between tax legislation in different jurisdictions, a phenomenon commonly known as 'tax arbitrage'. It can be debated whether the exploitation of these disparities can be called avoidance at all, given full compliance with the involved countries' tax laws.[73] Given these difficulties, empirical research has tended to try to measure actual tax receipts relative to some benchmark that a company would otherwise have paid.

In the context of evaluating potential tax reforms, however, it is necessary to consider the opportunities that businesses would have to shift profit to low tax jurisdictions. Take three examples. First, currently, multinationals can shift profit to low tax jurisdictions by owning intangible assets there and charging a royalty to other affiliates of the multinational in high tax countries. In general, and subject to anti-abuse rules, the multinational would receive tax relief in the high tax country at the expense of tax charge in the low tax country. Second, a similar arrangement can be achieved by the affiliate in the low tax country lending to an affiliate in a high tax country. Third, sales and services between companies belonging to the same multinational group have to be priced. These are subject to control under the 'arm's length principle', as set out in Chapter 3. But this is not a mechanical exercise, and transfer pricing allows some discretion for businesses which permit them to adjust the shares of the different affiliates in the overall profit of the business.

These activities use the existing international tax rules to take advantage of differences in tax rates between jurisdictions. While the question of 'where' the multinational has made its profit is unclear, we simply ask the extent to which a reformed system would leave itself open to this kind of activity—or any other activity which would permit multinational companies to 'avoid' tax.

Multinational businesses may, of course, take advantage of differences in tax rates between countries by locating real activity, such as manufacturing plants, in low tax countries. But this would generally be considered a real response rather than avoidance. Tax avoidance is generally taken to involve strategies that allow a business to pay less or no tax without changing its real activities or changing them nominally or marginally. It allows tax liabilities to be reduced whilst broadly pursuing the real activities which would have been pursued in the absence of the tax. Real responses can also lead to a reduction of tax liabilities, but only as a result of pursuing different real activities to those that would have been chosen in the absence of the tax or pursuing the same activities in a different location. Both tax

[72] The public debate on tax avoidance is often confused with the larger issue of 'corporate social responsibility' which addresses the fundamental issue of whether shareholder value should be the ultimate focal point of management behaviour. For discussion, see Avi-Yonah (2008) and Schön (2008).

[73] For opposing views, see Kane (2004) and Rosenbloom (2000).

avoidance and real responses entail transaction costs, but the latter also entails real costs associated with taxpayers not pursuing their preferred course of action.

It may be difficult to draw a line between a real response and avoidance. If a tax strategy involves moving a senior management team to a low tax country, that could be seen as a real response or tax avoidance. There is no generally applicable distinction between the two. Instead there is a grey area where tax strategies may have elements of both.

These considerations call for a 'continuity approach' whereby similar types of income would be taxed in as similar a way as possible; and differences in taxation should be justified on grounds of fairness, efficiency, or costs of collection.[74] Unfortunately, and as described in more detail in Chapter 3, in the context of existing taxes on international business profit, there are numerous cases where this principle does not hold. In some cases these reflect the broad problem that national tax authorities attempt to tax a share of international business profit; differences in tax rules and rates between countries can lead to distortions to business decisions and to international arbitrage opportunities. In others, the problem lies more with the existing set of international tax rules which, for example, frequently treat income differently depending on legal form.[75] Others reflect common elements of national tax systems, such as the distinction between debt and equity finance. The use of hybrid financial instruments makes this distinction increasingly difficult to draw; and in any case it is doubtful whether there is a good economic reason why the two forms of finance should be treated differently.

2.4 Ease of administration

It is inevitable that there should be some cost to collecting taxes—even the simplest tax would require some computation as to the amount to be paid. The fourth criterion we use for evaluation is that the tax should be collected with minimal direct costs to the taxpayer and the government. Such costs can be substantial. They include the entire costs of tax administrations around the world, and the costs of all those professionals in business and practice, in short, the costs of all work that involves preparing, checking, and auditing tax returns, collecting revenue, and where necessary resolving issues in court. These costs vary considerably between taxes. The administrative costs of governments of collecting corporation tax are considerable. Estimates of compliance costs for taxpayers vary substantially, with

[74] See Schön (2009). This view does not exclude the necessity of resorting to hard 'line-drawing' where the administrative advantages of simplification exceed the material benefits of a continuous treatment of different economic options; see Weisbach (2000) and Goldin and Fox (2020).

[75] For example, whether an activity is carried out by a subsidiary or permanent establishment.

some estimates identifying corporation tax as a very expensive tax relative to revenue generated.[76]

A principle of tax design to minimize costs should take into account administrative and compliance costs as well as the deadweight costs discussed above in the context of economic efficiency. In principle, the total administrative and compliance costs of a range of taxes would be minimized if the marginal cost of raising an extra dollar of revenue from each tax was the same; in that case, there would be no possibility of reducing total costs by switching between taxes.[77] Administrative and compliance costs depend on the design of the tax. Where similar types of income are taxed at different rates, there are additional costs for taxpayers of identifying between the different types of income, and for the authorities in enforcing the distinction. More broadly, the compliance and administrative costs entailed by a tax system increase with its complexity.

These considerations emphasize the need to put administrative and compliance costs firmly in the picture in designing a tax system.[78] This is especially true for taxes on international business, where sophisticated taxpayers and their advisers are able to take advantage of arbitrary distinctions in tax law. Profit shifting by multinational companies could result in smaller or greater economic inefficiencies and deadweight costs—as some companies may take less account of the formal tax system in their decision making, but also as competition between companies may be distorted. But the costs of such profit shifting to companies and the costs of combating it to tax authorities both represent costs to society. We therefore take the costs of administration and compliance to be an important factor in considering the design of taxes on international business profit. This is a particular problem for developing countries which, despite capacity building, have not yet established resources to be able to deal adequately with the taxation of business profit at a domestic level, let alone when multinational businesses are involved.[79]

A final issue on costs of compliance and administration is the potential costs that may be incurred in tax reform. Systems for compliance and administration are already set up for existing systems, and practitioners already have knowledge and experience of existing tax systems. Marginal changes from existing tax

[76] Some estimates of administration and compliance costs under the existing system are provided in Chapter 3.

[77] See Slemrod and Yitzhaki (1996) for a formal statement of this principle. Tax authorities should not invest in tax collection up to the point at which their marginal costs are equal to their marginal revenue, since the costs are a true resource cost to the economy, while revenue generated is purely a transfer from the private sector; see Slemrod and Yitzhaki (1987). Note also that the costs to society are lower for $1 of compliance costs paid by the taxpayer compared to $1 of administrative costs paid by the government. That is because the administrative costs are generally financed from taxation which itself incurs a deadweight cost.

[78] An emerging literature has emphasized the importance of these costs for tax design; see, for example, Slemrod and Gillitzer (2013) and Keen and Slemrod (2017).

[79] The challenges posed by BEPS to developing country tax administrations are discussed by Lennard (2016).

systems may induce relatively small additional costs. More fundamental reform may incur much larger costs, depending on the nature of the reform. But of course, in evaluating fundamental reform, it should be remembered that specific costs of change should be incurred only once; any changes in ongoing costs are incurred continually.

2.5 Incentive compatibility

Incentive compatibility is not commonly among the list of desirable features of a tax system. But it should be, especially in the case of the taxation of international business profit, where the existing system is far from incentive compatible.

In broad terms, the idea of incentive compatibility is that each individual economic agent can achieve her best possible outcome while following the norms established by a group of agents. This implies that there can be no gain to failing to cooperate with other agents.

In the context of business-level taxes on profit, tax competition illustrates the absence of incentive compatibility. Suppose two countries, A and B, both have identical tax systems with tax rates of 25% on profit from activities taking place in each country. If A then reduces its tax rate, it will create an incentive for businesses to move their real activity to A, and also to shift profit to A. Both of these impose a cost on B—known a 'negative spillover' in economists' jargon. A likely response from B is to reduce its tax rate as well. This is the essence of the tax competition problem which has been internationally active since at least the mid-1980s when the UK and the US both reduced their corporation tax rates, but which has also been well-known in federal countries like Switzerland for many decades. The resulting reduction in tax rates around the world has been well-documented and is illustrated in Chapter 1.[80] Such competition can take many forms—a reduction in the statutory tax rate, but also more generous provisions, for example, for deductions for interest.

There are two key points here. First, that each individual country has an incentive to undercut the other. But, second, the ultimate result of doing so is to potentially make both countries worse off—since they end up with tax rates below those they would prefer.[81]

It is debatable where we now stand in the tax competition game being played out between governments. But it seems unlikely that any snapshot of the distribution of tax rates across countries is an equilibrium outcome. It seems more likely that the process of adjusting tax rates is slow and cumbersome and has not yet reached

[80] More specifically, there is evidence of a competitive process, in that countries respond to changes in the tax rates of other countries: see, for example, Devereux et al (2008); Altshuler and Goodspeed (2015); and the review by Devereux and Loretz (2013).

[81] For the potential impact of tax competition on the welfare state, see Avi-Yonah (2000).

a final point. There may be factors that prevent countries setting taxes on corporate profits to zero (such as trying to maintain a backstop for taxes on personal income, to exploit quasi-rents from 'sunk investment' or to create equal treatment for businesses with different legal forms), but this is certainly one plausible outcome of tax competition.[82]

Note that this process of tax competition is being played out despite there also being significant cooperation between countries. The existing tax treaty network is a key example of cooperation, but the extent of cooperation is increasing markedly, partly as a result of greater exchange of information and other factors contained in the OECD/G20 BEPS recommendations. This cooperation limits double taxation, helps tax administrations, and is increasingly designed to counter 'double non-taxation'. But it does not currently significantly limit the powerful economic forces which drive strategic national tax policy making.

A key aim of any reform of the taxation of international business profit should be to reduce or eliminate this incentive for countries to compete with each other and hence undermine the international tax system. A good system would exhibit incentive compatibility. In this context, if one or more countries operated a particular tax system, then other countries would have an incentive to join that tax system, rather than stay apart from it. For a country operating the system, there should be no incentive to undermine it by setting lower rates than other countries that operate the same system. The same should apply to the first mover—in principle, an incentive compatible tax system would be one worth undertaking even unilaterally. Incentive compatibility is important for creating stability. In turn, stability reduces uncertainty and thereby supports investment and economic activity.[83]

Competition is not a necessary feature of international tax. Competitive pressures to reduce tax rates are much more powerful for origin-based business-level taxes than for other taxes. For example, there is very little pressure for a country to reduce VAT rates to match lower rates in other countries. The reason is clear. VAT is levied in the country of the sale—the destination country. Businesses cannot easily move the place of sale to reduce their tax liability; as a result, governments do not need to reduce their VAT rates to attract business. There is also generally little pressure to reduce tax rates on worldwide personal income because of lower personal income tax rates in other countries. These differences from business-level taxes reflect the location and the mobility of these tax bases and suggest that tax competition—and the resulting instability—may not be an inevitable feature of taxes on profit.

[82] For a review of the theoretical literature on tax competition, see Keen and Konrad (2013).

[83] There is a growing literature on measuring uncertainty, and the impact of uncertainty; see, for example, Baker et al (2016) and Bloom (2014). There is relatively little on the effects of uncertainty about taxation, although recent surveys that document these effects are Devereux (2016) and IMF/OECD (2017).

3. Possible rationales for business-level taxes on profit

Having discussed the criteria that should be used to evaluate taxes, especially business-level taxes on profit, we now consider related questions: should there be any such taxes, and if so, why? In this section we consider four possible rationales for business-level taxes on profit.

We start in Section 3.1 by analysing the argument that such taxes are necessary to support the personal income tax—as it applies to labour income and capital income. The argument is that in the absence of business-level taxes, individuals may be able to shelter their income inside a business without paying tax. Even if there were a tax on distributions from the business to the owners, the owners could gain by deferring tax from the time the profit accrues until the time it is distributed. This is probably the most commonly advanced rationale for a separate business-level tax. For example, in a recent review, Gordon and Sarada (2019) take this as given, stating that: 'the problem that the corporate tax was designed to solve is the more favourable treatment of income accruing within the corporate sector under the personal income tax'. In the same vein, Boadway (2015) considers the corporate income tax as a complement to the personal income tax: 'a withholding tax to prevent shareholders from sheltering their income indefinitely within the corporation'.[84]

However, it is far from clear that existing business-level taxes do very well in meeting this aim—this is particularly true when we consider cross-border investment between open economies. Furthermore, it is not easy to see how they could be redesigned to meet this objective. There are several strands to this argument. We examine them closely, since the optimal design of a separate business-level tax depends crucially on whether its primary aim should be to support the personal income tax.

We begin by distinguishing between the role of a business-level tax in a closed economy and an open economy. There is a reasonable argument for a business-level tax on profit as a backup to the personal income tax in the case of a closed economy. In an open economy setting, where the investor and the business are located in different countries, we have to distinguish two forms of personal income tax: one based on the worldwide income of residents, and the other an origin-based tax on the income derived in the country but accruing to a non-resident. The latter may apply, for example, to a foreign private investor owning real estate in the origin country, a foreign sole trader who carries on his business through a local permanent establishment, or a foreign resident being a partner in a domestic commercial or professional partnership. Most countries employ both forms of the

[84] This backstop function is also related to it being easier to enforce the tax at the business-level, see Bird (2002).

personal income tax. We therefore have to ask whether there is a case to establish a business-level tax on profit to support either form of personal income tax.

We argue that the case for a business-level tax on profit is most precarious viewed from the perspective of the investor's country of residence. Here, consistent with the 'ability to pay' principle, an individual generally pays income tax in her country of residence on all her income wherever it is earned. But existing business-level taxes do not mirror this; in practice they are normally levied on an origin basis, where the economic functions and activities of the business take place. This undermines the case for a business-level tax on profit as a backup to the personal income tax in this context. On the other hand, there is a case for a business-level tax as a backup to personal income tax if the latter is levied on an origin basis, although the case for levying personal income taxes on this basis can itself be questioned.

The second rationale we consider in Section 3.2 is that a business-level tax on profit is justified on the basis of the 'benefit principle'. As set out above, the benefit principle holds that individuals or businesses should contribute to the costs of providing public goods and services in the country in which they operate and earn income or profit. It may be argued that this principle justifies taxing personal income or business profit on an origin basis. While this may be persuasive in a general sense, we argue that this principle does not justify a tax on personal income or business profit per se, since the level of profit may be a poor guide to the use made by the business of publicly provided goods and services.

The third rationale we consider in Section 3.3 is that such a tax can be designed to meet well the criteria of a good tax set out above. Chapter 3 argues that the existing system does not match the criteria well. However, it may be that a reformed tax could do much better; we set out a broad approach that would do so.

The fourth rationale we consider in Section 3.4 is that particular countries may not have alternative means for raising the tax revenues they require. As noted above, in general we use our criteria to choose between alternative ways of raising a given tax revenue. But where the capacity of tax administrations is weak, then it may not be possible to reach a desired level of revenue. In this case, the focus may be rather more on the issue of administration than the other criteria. In particular the criteria are primarily designed to aid governments in choosing between alternative taxes that could raise the required amount of revenue. But in lower income countries the problem for governments is more that they are unable to collect as much revenue as they would like. A very important factor for such countries is then simply whether a specific tax would indeed be successful in raising revenue. In this context, applying taxes to businesses can be a successful strategy, since businesses tend to have formal records which aid tax collection. Even then, however this need not imply that the business-level tax base should be profit, as opposed to a tax base that might be more easily observed. And this approach does not mean that the other criteria do not also remain relevant.

3.1 Business-level tax as a backup for personal income tax

We consider the case for a business-level tax as a backup for personal income tax in two settings: a closed and an open economy.

3.1.1 Closed economy

A closed economy implies a domestic setting in which the owner, the business, and all of its activities and sales are in the same country.[85] As the personal income tax traditionally covers both income from labour and income from capital, it is necessary to consider both dimensions.

We start with the problem of sheltering labour income inside a business, partly by describing it as capital income. This is typically a problem of relatively small, owner-managed businesses, and we argue it can largely be dealt with by specific personal income tax rules for such cases.

We then continue with the problem of sheltering genuine capital income in a business, which is more general and could apply to any size, and legal form, of business. The key problem here is that, in the absence of a business-level tax, funds could be accumulated inside the business tax-free. The extent to which that is a problem depends on whether the returns to saving—that is, the capital income of the owner—both should be, and actually are, taxed under the personal income tax if they accrue outside a business.

3.1.1.1 A backup for personal tax on labour income

An individual who both owns and manages a business has a choice as to whether to take her remuneration in the form of a wage, as compensation for her labour, or profit, as a return to her investment.[86] Even as a matter of principle, it can be extremely difficult to draw a dividing line between these two forms of income. An owner-manager typically both provides a labour input and a capital input into the business; the capital input may include retained earnings from previous periods. If there is a tax advantage of one form of income over the other, then there is a clear incentive for the owner-manager to choose the lower-taxed form of income. This most commonly applies to small businesses but can also apply to very large businesses that are largely owned by the original founders who continue to manage the business.[87]

The possible role for a business-level tax in this case stems from a personal income tax treating profit and labour income differently. This could be because the

[85] Such a domestic setting could also apply to an individual business in an open economy, as we discuss below.

[86] The issues discussed in this section apply equally to most businesses in an open economy. Typically—although not necessarily—if the owner is also employed by the business she will be both resident and working in the same country.

[87] This problem has been discussed most intensely in the context of the 'Dual Income Tax' introduced in some Nordic Countries in the early 2000s. See Birch Sorensen (2010).

two forms of income are taxed at different rates, though that is not a structural problem of the tax system. Labour income represents a payment to the owner-manager as a worker, which is straightforward to tax. But profit can be kept within the business and not distributed to the owner. In the absence of a business-level tax, this may mean that tax on the profit earned inside the business can be deferred until it is distributed to the owner. This represents a gain to the owner, relative to taxing the profit as it accrues inside the business, as we describe further below.

This gain could, in principle, be exploited by any individual employee. The individual could set up a business, arrange a contract between that business and her employer regarding the labour contract, and have a fee paid to the business for her labour services. This fee could then be treated as profit inside the business. If it were not immediately paid to the owner, then there would be a benefit through deferring the personal tax. As a practical matter, however, this seems to be unrealistic for the vast majority of employees for whom the option—even if feasible—would also probably take away worker protection under social security law and employment law.[88]

On the grounds of fairness, personal income tax should be protected from such avoidance schemes. But it is not clear that having a separate business-level tax is the most efficient way to close this loophole. Most business-level taxes create significant costs, both direct and indirect, as is emphasized throughout this book, partly because they apply not just to owner-managed businesses, but also to huge multinational companies. Are those costs justified in return for closing this loophole?

There are other options in the case of an owner-managed business; and most countries already have anti-avoidance rules to prevent the most obvious ways of sheltering employment income as business-level capital income. One approach for an owner-managed firm would be 'pass-through' treatment, under which the profits of the business would be attributed to shareholder and taxed as personal income. This can be difficult for a complex business, where ownership changes regularly, but is relatively straightforward for a small business, owned by relatively few individuals, which are the main focus of this issue.[89] In this case, there would be no need for a further tax on distributions from the business to the owner. Of course, there would be many practical difficulties if this approach were to apply to all business-level profit, as we discuss in the next section and in Chapter 4.

3.1.1.2 A backup for personal tax on capital income

An investment in a business is simply one form of saving that an individual may undertake. In the absence of a business-level tax, the profit earned—representing

[88] See Batchelder (2017) and Adams et al (2018).

[89] This is the treatment of S-corporations in the US, which can have a maximum of 100 shareholders. This seems more than enough to deal in most cases with the ambiguity of labour and capital income, since labour income will be paid to an individual while profit belongs to all the owners.

the capital income of the owner—may again not be taxed until it is distributed to the owner. The individual would then benefit from deferral of the tax. This benefit may be available for investment in any business, of any size, and so represents a more significant problem than simply sheltering labour income.

As an example of the value of sheltering income in a business, suppose that an individual saves 1,000 for ten years, and earns a rate of return pre-tax of 10% a year. In the absence of tax, this would be worth 2,594 at the end of ten years. Suppose that the funds were invested in a business that did not face tax as the income accrued, but that the saver paid tax at a rate of 20% on the eventual return of 1,594.[90] Then she would pay tax of 319 and be left with a total of 2,275. Compare this to the case in which the income is taxed each year at 20% as it accrues. Then in effect the post-tax rate of return is only 8%, and the value at the end of ten years would be only 2,159. The difference of 116 in these values reflects the gain from deferring tax.

Whether this is a significant problem depends on whether capital income—as a return to savings and including both the normal return and any economic rent—should be taxed as a matter of principle. It also depends on whether it is in fact normally taxed. If both are true—that there is a good case for taxing capital income, and that forms of capital income arising outside a business are generally taxed—then there may be a case for a business-level tax to put the taxation of that form of saving in line with others. We first address the case for taxing capital income. We then go on to examine whether a business-level tax on profit would be a useful component of a tax on capital income.

Is there a good case for taxing capital income, and is capital income taxed in practice? The question of whether capital income —including the normal return—should be taxed is controversial and has been the subject of healthy debate.[91] Based on efficiency grounds, the classic results from economic theory suggest the answer is 'no'.[92] However, the theoretical literature has investigated many cases where the assumptions underlying the classical results do not hold.[93] The Mirrlees Review (2011) identified several situations where the optimal capital income tax rate might be positive. They include cases where: there is a positive

[90] That is, the value distributed of 2,594 less the initial investment of 1,000.

[91] For recent contributions, see, for example, Mankiw et al (2009); Banks and Diamond (2010); and Diamond and Saez (2011).

[92] The basic idea is that a tax on the normal return creates a wedge between the pre-tax and post-tax rate of return on saving, and hence a disincentive to save and consume in the next period instead of this period. Over time, due to compounding of the rate of return, this wedge grows at a constant rate. In order to avoid tax compounding that grows without limit as the horizon extends, the optimal rate must go to zero, strictly asymptotically: see Chamley (1986) and Judd (1985). However, this result is disputed by Straub and Werning (2020). In a two-period model, Atkinson and Stiglitz (1976) show that, given various assumptions about preferences, a tax on the normal return is redundant in designing an optimal tax structure.

[93] See Banks and Diamond (2010) for an excellent review of this literature.

correlation between earnings capacity and willingness to save to consume at a later date; there is underinvestment in human capital due to borrowing constraints; and if earnings are risky, then individuals save more, and those with a good outcome end up with too much wealth relative to their intention. These theoretical arguments do not give a clear prescription for the rate at which capital income should be taxed—or even in some cases whether it should be positive or negative. It is certainly not the case that this literature necessarily supports the view that capital income should be taxed at the same rate as labour income.

There are of course also arguments based on fairness and issues of implementation. On fairness grounds, it may seem straightforward to some that those who rely more on capital income (who, in any case, tend to be the better off) should not escape tax on that income. However, there are counter-arguments. An individual who is willing to defer consumption from this period to the next will expect to earn a normal return to her saving that compensates for the delay in consumption. Hence her spending will be higher in the next period, but in net present value terms, taking account of the delay, the consumption is the same. Indeed over a lifetime, total income (including gifts and inheritances received) must equal total expenditure (including gifts made and inheritances left). In principle, the fairness of a tax system could therefore be based on either total income or total expenditure. In this context, it is not necessary to tax the normal return to saving to create a fair tax system—though it would be necessary to tax gifts and inheritances appropriately.

A more practical issue is whether it is feasible to tax all forms of capital income at the same effective rate (as would be required to achieve production efficiency). One of the motivations for the Meade Committee's (1978) proposals for an expenditure tax for individuals is that it would result in the same marginal tax rate on all forms of capital income: in their case, zero. It is much more difficult—and arguably impossible—to apply the same effective positive tax rate to all forms of savings and investment—among other things, this would require an appropriate depreciation for capital assets, effective accrual-equivalent taxation of capital gains, and appropriate treatment of inflation and relative price changes.

Against this, a practical issue in some countries is that governments have a much smaller range of choice of feasible tax instruments. In this case, the more relevant factor for governments is that some revenue is raised to support public spending. If capital income of some individuals can be taxed, then it may be optimal to do so. Another practical issue, as we discussed above, is that the fuzzy borderline between labour and capital income is a practical argument in favour of taxing capital income at the same rate as labour income, at least at the margin.

As well as asking whether capital income should be taxed in principle, we should also ask whether it is taxed in practice. It is one thing to design a business-level tax on profit on the grounds that capital income should be taxed; but if it is not generally taxed, then the practical case for taxing business profit is much weakened.

From the perspective of an individual saver, there are many forms of saving, and almost as many forms of taxation of the return to saving. It is customary to identify three elements of the taxation of saving:[94]

- Is the saving made out of taxed, or untaxed income?
- Is the return to saving taxed as it accrues?
- Is the payment of the return (and possibly the repayment of the initial saving) to the saver taxed?

Different forms of saving have different treatment in these three respects. For example, saving in a bank account is generally out of income that has already been taxed. The interest accruing may be taxed on accrual, or it may not be taxed at all. Generally, there is no tax charge on withdrawal of funds. As another example, saving through a pension fund is typically permitted from income before tax, and the return at the level of the fund is not taxed as it accrues. However, the eventual payment to the individual is taxed.[95] All three elements of the tax need to be taken into account in determining an effective tax rate on the capital income generated. For example, the pension fund treatment is akin to a cash flow tax, which is equivalent to a tax on economic rent.

But there is also a deeper issue here. A bank earns its profit by borrowing from a depositor and lending the funds, with a mark-up on the interest rate. The ultimate return that the depositor receives may therefore depend not only on her own tax, but also on the taxation of the bank and the taxation of the person or business that borrows from the bank. Similarly, savings in a pension fund do not stay in the fund—otherwise they would make no return. They are mostly invested in businesses that use the funds to undertake real activity on which they earn a profit.

So it is not possible to determine the appropriate taxation of business profit by comparing it to, say, the taxation of the returns in a pension fund. In principle, we would have to compare the taxation of business profit with the taxation of returns that ultimately did not arise in a business—for example, purchasing a property or lending to the government.

Where does that leave us? A full review of the literature on the optimal taxation of capital income is well beyond the scope of this book. So is a full review of the actual tax treatment of capital income—including all the relevant levels of taxation. That makes the appropriate treatment of the taxation of profit at the business-level difficult to determine.

We therefore take a short cut. Instead of opining on whether capital income should indeed be taxed, at what rate, and whether it is in fact taxed, we address an easier question. Let us assume that there is a good case for taxing capital

[94] See, for example, Mirrlees et al (2011).
[95] A much more detailed account is given in Mirrlees et al (2011).

income and that it is in fact taxed: then what are the implications for business-level taxation of profit? In particular, assuming we want to tax capital income, is a business-level tax on profit a useful and cost-effective component of the ways of doing so?

Can a business-level tax on profit be a useful element of a tax on capital income? Recall that in this section we are considering the case of a closed economy; we consider an open economy below. In this setting we would aim to tax all forms of capital income at the same rate. This would be fair, in comparing individuals who choose different savings instruments. It would also be economically efficient in not distorting the choice between alternative savings instrument. So, the system should have the aim that individuals could not avoid personal income tax on their capital income by sheltering it in a business. In this setting, there is therefore a plausible case for taxing the profit of the business as it accrues. If there is more than one marginal tax rate in the personal income tax system, then it is not possible to tax the profit at the rate of all possible owners simultaneously. Nevertheless, a tax on business profit may be a useful approximation to the personal income tax.

A business-level tax on profit is not the only possibility, though. Anti-avoidance rules, or pass-through treatment, might achieve this. But either approach is probably more difficult in the case of genuine capital income, compared to labour income masquerading as capital income. For example, pass-through treatment may work well for a business in which there are not frequent changes of owners. However, there are clearly problems in using such an approach for a widely owned business, especially one that is listed. Suppose for example, that one shareholder of a company bought shares mid-way through the accounting and tax year, and then held those shares until the year end. It would be necessary to identify the profit made in the remaining part of that year to attribute to that shareholder. Of course, this could be done on a pro-rata basis, but that may not adequately reflect the profit that should accrue to the shareholder. In larger corporations, then there may be additional problems with multiple classes of stock and information problems. There is also an issue of liquidity; pass-through treatment would apply a tax to an individual shareholder even if the income were still held by the company as retained earnings.[96]

Where taxing on a pass-through basis is not feasible, an alternative might be to modify existing taxes on personal income and capital gains. For listed companies, for example, it may be possible to cut through this problem by identifying the period-by-period capital gain attributable to the owner by tracking movements in

[96] These issues are discussed in more detail in US Treasury (1992).

the share price.[97] An alternative approach—as in Auerbach and Bradford (2004)—is to adjust the effective rate of taxation so that it rises with the period of the investment, to offset the gain from deferral. These ideas are discussed in more detail in Chapter 4.

One further point should be noted. We are presuming here that there is a tax on the normal return to capital for other forms of savings and investment. That raises the question of whether any tax at the business level should also fall on the normal return. This would not be the case for a tax falling only on economic rent, for example.[98]

3.1.2 Open economy

We next consider an open economy, and in particular the cross-border situation in which the residence state of the investor and the state where the business entity is active are different. Does it make sense to introduce a business-level tax in such cases in order to complement the individual income tax? This is a more complicated question, since under existing systems, personal taxes are both levied on a worldwide basis—an individual resident in country A is taxed in A on income derived anywhere in the world following the concept of 'unlimited tax liability'—and on an origin basis following the concept of 'limited tax liability' of foreign residents as regards income derived on a territorial basis. We must therefore examine separately the rationale with respect to residence-based income taxation and with respect to origin-based income taxation.

3.1.2.1 Worldwide taxation by the residence country

As we have seen, in a closed economy, with a personal tax on capital income, a tax on profit at the business-level may serve as a backup to the personal income tax. But a more difficult problem arises when the domestic investor owns shares in a non-resident company that may not have any connection with the domestic country.

To proxy for the personal tax on the worldwide income of domestic residents, the domestic tax authority would in principle have to tax the retained earnings of any company in the world in which a domestic resident owned shares. It is subject to debate whether the domestic tax authority would have the jurisdiction to apply a tax to such non-resident companies. Further, such an approach would of course entail being able to collect and audit information on any such company. And to do

[97] This approach has been proposed by Toder and Viard (2014), and we discuss it in more detail in Chapter 4.

[98] Other proposals for fundamental reform have taken a different approach. For example, the Meade Committee (1978) and Hall and Rabushka (1983) effectively proposed forms of an expenditure tax at the individual level, which would not fall on the normal return to capital. This fits with cash flow tax treatment at the business-level, since such treatment also does not tax the normal return to investment. It is sometimes argued that taxing only economic rent at the business-level is only compatible with expenditure tax-type treatment at the individual level, for example, see Mintz (2015). In this section we argue otherwise.

this, it would in principle be necessary to look through all domestic savings vehicles such as mutual funds and pension funds, to identify each resident's claim to retained earnings arising in each foreign company. Without very substantial automatic exchange of information among countries it is difficult to see how this could be achieved on a universal scale.[99] More likely it would need to rely on information provided by foreign tax authorities on the income of domestic shareholders. It is, of course, possible for the domestic government to tax flows of income that are repatriated. But that is akin to taxing dividends from a domestic company to its shareholders; that does not amount to a tax on all capital income as it accrues.

It might be objected that outbound portfolio investment is a relatively small problem; that home bias in investment and savings portfolios means that in many countries the bulk of corporate profit due to domestic shareholders is still generated in companies that are also resident domestically. This argument has typically been made in respect of the US. However, Rosenthal and Austin (2016) estimate that even in the US foreign investors directly owned around 26% of US corporate stock in 2015; the equivalent percentage for UK listed companies for 2018 is 55%.[100] For outbound investment, UK data from 2015 on the holdings of mutual funds indicate that 56% of their holdings of corporate securities were in overseas securities. In any case, in considering fundamental tax reform, we should take the long view. The current system for taxing international profit originated in a very different world in the 1920s. If we want to consider lasting fundamental reform now, we need to imagine what the global economy will look like in the future. And it seems inconceivable that the economy will be anything but more global. Designing a tax system in the hope that not too many residents will directly or indirectly purchase shares in foreign companies in future years is unlikely to provide a base for a stable tax system.

Outbound portfolio investment is not the only problem. To support a residence-based worldwide income tax, a domestic tax on business profit would in principle need to tax the accruing worldwide profit of any business owned by domestic residents. That is, it should also include profit earned—whether or not distributed—in foreign affiliates of any domestic business. On the whole, the international tax system has been moving away from taxing the profit of foreign affiliates even when it is repatriated.[101] The 2017 US tax reform did introduce the 'Global Intangible Low-Taxed Income' (GILTI) provision to tax foreign-source intangible income of US resident companies, calculated as profit in excess of a 10% rate of

[99] However, exchange of information among counties has grown very significantly in recent years, and the US has been remarkably successful in collecting information of this form under its Foreign Account Tax Compliance Act (FATCA), enacted in 2010 to target non-compliance by US taxpayers using foreign accounts.

[100] Office for National Statistics (2019).

[101] Practice varies across countries. China, Brazil, and India do seek to tax repatriated profit. Most other major countries currently no longer do so.

return to investment on tangible capital. A 'minimum tax' based on the location of the parent company is also currently under active consideration by the OECD's Inclusive Framework.[102] However, neither the GILTI provision, nor the proposed minimum tax, are limited to businesses owned by domestic residents.[103] They therefore cannot be easily justified as a means of taxing the worldwide capital income of domestic residents. We discuss in more detail the prospect of taxing businesses on their worldwide income in Chapter 4. For now, we can just point out that to the extent to which the business-level tax on profit does not tax outbound direct investment on the same basis as outbound portfolio investment by individuals and domestic investment by individuals, then it provides a poor proxy for a residence-based personal tax on worldwide capital income.

It might be argued that there could be a balance at a macro level. That is, suppose that country A taxes the profit of a business resident in A but owned by residents of B. And country B taxes the profit of a business resident in B but owned by residents of A. If the scale of cross-ownership and profitability between the two countries were roughly balanced, then the origin-based business-level taxes on profit collected in A and B would be similar, and might then represent a rough proxy for the residence-based personal income taxes in A and B. However, that is a rather big 'if'. There is no particular reason why the cross-ownership of profit should be balanced in this way.

These drawbacks of the business-level tax on profit in this setting are severe. As we discus below, in a small open economy, an origin-based business-level tax on profit would be a poor proxy for a residence-based personal income tax.

3.1.2.2 Taxation of non-residents by origin country

This leaves the question as to whether there is a case for a business-level tax on profit as a proxy for a personal income tax levied on an origin basis. In answering this question, we set aside, for now, whether there is a case for countries to levy personal income tax on an origin basis. We return to this question in Section 3.2.

Policy makers should act consistently. If the tax system in the country of origin maintains the concept of 'limited income tax liability' for foreign residents, it is reasonable to safeguard that concept by establishing a business-level tax for incorporated businesses. Consider an example. An individual resident in country A who rents out a property that she owns in country B may be taxed on the rental income in country B. This is much more akin to an origin-based tax on business profit. If country B does tax the rental income as it accrues to the owner, then it would also make sense to tax the same income if the property were owned through a corporation resident in B. In this sense, a business-level tax in B on the income would be a reasonable backup to the origin-based income tax in B.

[102] OECD (2019a, 2019b, 2019d).

[103] For the conceptual background of GILTI-style taxes see Shay et al (2015).

3.1.3 Conclusions

In this section, we have discussed the case for using business-level tax on profit as a backup for personal income taxes. There is a plausible case for a business-level tax on capital income in a closed economy. There is also a plausible case for such a tax in an open economy as a backup to a personal income tax levied on an origin basis, although we have not yet discussed the case for taxing personal, or business, income on an origin basis.

However, it is virtually impossible to see how an origin-based business-level tax could usefully support a tax on the worldwide income of domestic residents where there is both international portfolio and direct investment. One might hope that there could be some balance in tax revenues; under existing systems, countries collect origin-based taxes on business level profit, but do not collect personal income tax on all worldwide income as it accrues. It would be a leap of faith to suppose that these two factors offset each other.

3.2 Benefit principle

As has been described above, existing taxes on business profit are not generally levied in the place of residence of the investor. They are typically—very broadly, and with many exceptions—levied in the origin country in which the economic activity generating the profit takes place. In more technical terms, they are levied where the functions and activities of the business take place, or assets are held.

In searching for a rationale for a tax levied on this basis, some have argued for the benefit principle, that it is fair on the grounds that the business makes use of publicly provided goods and services in the place in which it does business.[104] This could include a wide range of goods and services from infrastructure to the ability to enforce law. On the face of it, this seems reasonable—to the extent that the business does make use of such goods and services, then it may seem fair that it contributes to their cost.

But there are three problems with the claim that this contribution should be based on the profit earned in that jurisdiction. The first two apply generally to the notion that a tax on business profit should reflect the benefits received from publicly provided goods and services. The third concerns the international allocation of profit.

The first problem returns us to the issue of who effectively bears the cost of the tax. We cannot simply leave it as a tax 'borne' by the business—all taxes must ultimately be borne by individuals. The benefit principle argument seems to make some sense if the tax is borne by the owners of the business. This seems consistent

[104] See, for example, Vogel (1988a, 1988b, and 1988c).

with the principle—that those who make use of publicly provided goods and services should contribute to their cost (even if they are not personally resident). This is perhaps less obvious if the tax is passed on to consumers in higher prices or workers in lower wages. It is possible to argue, though, that both consumers and workers benefit from the business and so it is fair for these groups to bear the cost of the business' contribution. In this way, if the tax is seen as representing the cost of producing the good or service purchased by the consumer, for example, then it may be thought reasonable for this cost to be treated like any other cost; initially paid by the business, even if ultimately passed on in higher prices or lower wages.

The second problem is related. Different businesses make very different use of publicly provided goods and services. And profit also varies considerably between businesses. But there is not necessarily much correlation between the two.[105] Think of a large factory, employing a substantial workforce, making a great deal of use of available transport facilities, and for good measure polluting the atmosphere. But it may well make very little profit. By contrast, take a business developing software. This may be extremely profitable yet use only a fraction of the resources of the factory. On the benefit principle, we should be seeking to relate tax liabilities to the use of publicly provided goods and services. That suggests some kind of fee for their use—in our example, with a larger fee being paid by the factory than the software business. It does not suggest a tax on profit, and certainly not a tax of the kind that is currently used in most countries.

The third problem requires us to go a little deeper into how the profit of a multinational company is allocated to different countries. Active business profit is largely taxed in the place in which economic activity takes place. But a significant part of profit relates to passive income—for example, interest and royalty payments—which is typically taxed in the place in which the income is received, that is where a loan is made, or where an intangible asset is owned. The benefit principle seems much weaker in applying to such income since, for example, owning an intangible asset in a country may make relatively little use of publicly provided goods and services. Of course, there are some benefits—for example, in the legal protection of property rights—but these benefits would apply much more widely to where the company has activities. Indeed, one form of property rights is patent protection, which is most relevant in the place in which the good or service is sold.

These considerations do not rule out an appropriate fee for the provision of public goods and services. But they do raise a question as to whether a tax on business profit is the best proxy for such a fee. There is an overlap with other considerations here. Other ways of charging a fee may also create problems of economic efficiency, although—depending on how they are levied—they may also be easier to collect and be less susceptible to avoidance and evasion. The balance between

[105] See, for example, Schön (2009).

these considerations may vary between countries and the strength of its tax administration. It is clear, for example, that the existing methods of allocating profit between countries are very complex; and are likely to become more so. Developing countries in particular that have relatively small and less sophisticated tax authorities may find that the balance of these factors favours a simpler approach, even though it may induce greater economic inefficiencies.

These points need also to be related to the role of a business-level tax as a complement to personal income taxation. This goes to the heart of 'limited tax liability' as applied to foreign resident individuals who are subject to individual income taxation on an origin basis. The arguments against basing business-level taxation on the benefit principle also apply to individual income taxation. If a foreign resident owns real estate in the country of origin or carries on a business through a permanent establishment, the notion that local income taxation works as a *quid pro quo* for public benefits received should also be challenged. To put it differently: the persuasive force of the benefit principle does not depend on whether income is derived by a local business entity owned by a foreign resident or directly by that foreign resident. Therefore, whilst we argued—in Section 3.1.2—that if a personal income tax is levied on an origin basis then an origin-based business-level tax is necessary as a backup, we note that the case for an origin-based personal income tax is not easily made on the strength of the benefit principle.

3.3 The possibility of a tax that meets the evaluative criteria

A third possible rationale for a business-level tax on profit is that it could meet the criteria that we set out above for evaluating taxes. That is, if some form of the tax could be fair, economically efficient, robust to avoidance, with reasonable costs of administration, and incentive compatible, then it would be a good tax. We argue in Chapter 3 that existing business-level taxes on profit do not do well in meeting these criteria. But that leaves open the possibility that some form of such a tax could meet these criteria. If a tax which met these criteria could be designed, then meeting them would provide a sufficient rationale for the tax.

We now consider this possibility. We do not set out detailed proposals for such taxes here—this is left to Chapters 6 and 7. Instead we simply make the case that such a tax would be justified and begin to consider what it might look like. In this section we focus primarily on economic efficiency and fairness; we leave issues of avoidance, implementation, and incentive compatibility to the more detailed discussion.

3.3.1 Taxation of rents

A starting point is to consider taxes on economic rent. We know from the analysis above that a tax that was levied only on economic rent, and which therefore

permitted the owner to receive the minimum required rate of return free of tax would not affect the decision to undertake an investment project. This would be true if investors undertook all investments that yielded any economic rent. In many circumstances then, a tax on economic rent would not generate any excess burden; it would be efficient. We will return to cases where this may not be true in a moment.

But before doing so, it is worth recalling from Box 2.4 that a tax on economic rent would also generally be progressive. In general, we have argued that it is very difficult to determine the incidence of a business-level tax on profit; the tax may be passed on in higher prices to customers, in lower wages for employees, and lower prices to suppliers. It is therefore difficult to say whether a business-level tax on profit is progressive or fair. But a tax on economic rent is a special case. If the assumption that businesses aim to maximize economic rent holds, then the decisions they make will be unaffected by a tax on economic rent; maximizing pre-tax economic rent will require the same behaviour as maximizing post-tax economic rent. This is the basis for the claim that the tax would be efficient. But it also has implications for incidence. In particular, it implies that the prices at which the business transacts with customers, employees, and suppliers will not be affected by the tax; that is, the prices which maximize pre-tax rent are the same as the prices which maximize post-tax rent. That has the important implication that the burden of the tax cannot be passed on to customers, employees, or suppliers; it must be borne by the owners of the business.

That is a striking claim, with strong implications for fairness. If we take the additional step of claiming that business ownership is predominantly seen amongst the better off, then taxing the economic rent earned is likely to be progressive. In many discussions of tax policy there is thought to be a trade-off between efficiency and fairness; this is an exception. A tax on economic rent can be both efficient and fair.[106]

A caveat is in order here. A tax based on economic rent as it accrues inside a business will generally fall on the owners of the business at that time. But owners of a business can also receive what amounts to an economic rent in anticipation of future profit. Suppose for example, that an oil company discovered a new and highly profitable well. We would expect the value of that company to increase immediately, reflecting the higher stream of profit in the future that is now expected. That amounts to an immediate gain for the current shareholders. If it were taxed it would fall on those current shareholders, rather than the shareholders at the time the income is eventually earned. But that does not detract from the likelihood that the tax would be progressive.

[106] Note that this does *not* generally apply to a tax on the normal return earned by a business, since this is likely to be at least partly passed onto customers, employees, and suppliers. In that case we cannot be sure whether the tax is progressive.

However, we must be more careful in our claims of efficiency. As we have already discussed, there may be circumstances in which investors have to choose between two alternative investments each of which is expected to earn an economic rent. The classic example is where the two locations are in different countries and would be subject to different tax rates on the economic rent earned in each. In this case, even a tax on economic rent could affect location choices, and so not be efficient.

3.3.2 Location-specific economic rent

One response to this problem is to consider economic rent that can be earned only in one location: 'location-specific economic rent'. Then in principle that location-specific rent could be taxed by the government of the country in which it is earned without affecting any business decisions. From a national perspective, it is natural for a government to seek to tax economic rents that are specific to its jurisdiction. But this is also efficient from a global perspective, since by definition, the activity cannot go elsewhere, and so there are no negative spillovers onto other countries. There may be many sources of such location-specific economic rent.[107] Here we briefly review the possibilities.

One obvious possibility is natural resources. For example, diamonds can only be mined where they already exist underground. It is true that they are underground in several countries but given the overall restriction in the world supply of diamonds, it seems plausible to suppose that opening a new diamond mine could result in earning economic rent. That economic rent, at least in part, can be located in the place where they are mined.

Location-specific rents can in some cases also be attributed more generally to the place where economic activity takes place. For example, there is a well-known phenomenon of geographical clustering of businesses in the same sector—for example, hi-tech software businesses in Silicon Valley, or financial companies in the City of London. Such clustering appears to bring benefits to the businesses that locate there. Those benefits should ultimately be reflected in higher profit—and that higher profit is location-specific. A location-specific rent may arise in a place of economic activity in any instance where the business has access to a resource where the cost of that resource is less than its value to the business. In the case of a cluster of businesses in the same sector, that may, for example, reflect access to a specialist, highly-skilled workforce. There are many other examples.

One interesting case is where a business can exploit the fact that the local labour force may be willing to work for a low wage—this is the basis of much offshoring, where a business moves production from a high wage country to a low wage country. It is certainly the case that the business may raise its profit by moving production in this way (subject to other costs incurred), and this suggests the presence

[107] For further discussion see, for example, Boadway (2015).

of a location-specific rent in that country. But while that rent might only be earned in low-wage countries, it may not be the case that it can only be earned in a specific low-wage country. It is more likely that there are many countries equally able to supply labour at the same low wage. If so, then the rent is not specific to a single country. As a general point, then, the location-specific rent in one country depends on circumstances arising in other countries.

An important issue related to production-based location-specific rents is the taxation of income from activities that are already established in a location. Suppose, for example, that a business has invested a considerable sum in a new production facility and is now earning a stream of income from it. Such income is typically referred to as a quasi-rent: it appears to reflect rent earned by the facility, but at least part of it reflects the normal return to the original capital cost. Because that cost has already been spent, it is possible that the government may be able to tax the quasi-rent without there being any effect on the behaviour of the business. But this would not be true in the longer run. The prospect for future investors of the government seeking to tax quasi-rents may induce them not to undertake the investment in the first place.

A third source of location-specific rent may be the place in which the final good or service is sold. This generally depends on there being some form of imperfect competition which the business can exploit by reducing the supply of its product to the market in that country, thereby enabling the price to rise, generating an economic rent. The classic example of this is a monopolist, who earns a rent by restricting supply and pushing up the price. This is likely to be enabled by some barriers to entry. For example, there may be proprietary products, products that are protected by patent, intangible assets associated with past purchases, or a number of other factors. By contrast, under perfect competition, businesses take the market price as given, and so this form of location-specific rent in the place of sale would not exist. The existence of this form of location-specific rent also depends on what other markets are available to the business. If the final good to be sold is fixed in supply, and if consumers in many countries would like to buy the good, then the business may have a choice as to where to make the sale; in that case, there may be no location-specific rent in the country in which the good is sold since that rent could also be earned elsewhere.[108]

Another form of rent may not be specific to any location in which the business operates, but is nevertheless associated with a particular business. This can reflect the return to any asset owned by the business which was acquired for less than its

[108] A variant of the case in which location-specific rent arises in the country of the customer is the case in which a business may earn the rent in the country of an immobile 'user' of its services. A customer purchasing, say, an advertisement directed towards the user may be located anywhere, but the advertisement is in effect delivered to the user's screen. This is the basis of where digital services taxes are levied, although they are typically based on revenue, rather than economic rent. For further discussion on these issues in the context of cross-border digital services, see Cui (2019); Shaviro (2019); and Schön (2019).

value for the business. For example, suppose the research and development division of a multinational business invents a process that reduces the cost of production. The cost saving can be achieved in production wherever the business chooses to produce. And although the research and development took place in a single location, it could have equally taken place elsewhere. This cost saving represents a rent to the business but is not location-specific.

Even in this case, it could be argued that all rent has an element of being location-specific, because the business is ultimately owned by relatively immobile residents of a particular country; this suggests that there is a sense in which even that rent is specific to the location of the owners. So if the governments of the countries of residence of the owners could observe that rent, then they could levy an efficient tax on it—unless residents choose to relocate to a different country where they would pay a lower rate of tax.

In principle, then, it might be feasible to consider efficient taxes based on location-specific rent. That could be based on rents specific to the location of resources, production, consumption, or ownership. However, there are at least three difficulties in designing taxes to achieve this.[109]

First, we are interested in designing a general tax to apply to all business profit earned within a single country. We are not attempting to design a specific tax that applies only to a sector or group of businesses that generate a location-specific rent. That means that the tax base would in principle need to be designed in such a way that although it applies generally, in practice it falls only on location-specific rent. An alternative approach would be to argue that the existence of location-specific rent allows the government to engage in a trade-off. Introducing a general tax on economic rent may affect the location of some businesses (for whom the rent is not location-specific), but not those with a location-specific rent. Such a tax would not be efficient, but it may be more efficient than some other taxes. That judgement, however, depends on the proportion of rents that are location-specific.

Second, and crucially, the forms of location-specific rent that we have identified are not exclusive. For example, a business that extracts a resource in one country may have market power in another country, where consumers have a particular desire for that resource. Or a business may rely on more than one form of production-related rent; for example, production of an engine may depend on knowledge encapsulated in two patents that were generated in two different research laboratories, each using location-specific factors. In these cases—and this may apply to many examples, including natural resources—the extent to which one country can tax the economic rent depends on the tax levied by the other country.

[109] In some cases, it may be more practical for the government to auction the rights to produce, or sell, specific goods or services within its jurisdiction. In this case, the value of the location-specific rent may be revealed through auction. Since this would apply only to specific activities, it does not face the same problems as a general tax on profit.

And of course, in both cases, there is also an element of economic rent in the country of residence of the shareholders.

Third, the existence of a unique, location-specific rent does not mean that the rent is easily measured for the purpose of taxation. For example, even if Silicon Valley is the location of vast rents, measuring these is difficult, not least because of the internal transfer pricing companies use to influence the rents' reported locations.

These considerations suggest that, although a tax targeted at location-specific rent would have attractive properties in terms of efficiency, in most cases it would be extremely difficult to implement. If the tax authority had perfect information, it could in principle levy a tax that depended on economic conditions and the actions of other governments. But to implement a general tax would in most cases include taxation of economic rent that was not location-specific. In the end, a country levying a tax on the overall profit of a business would simply rely on an educated guess about the share of the profit representing the location-specific rent.

Perhaps the best opportunity for introducing tax on location-specific rent would be a tax on natural resources. The problems in doing so are similar to those in other circumstances; it may be, for example, that the developer of a natural resource could instead exploit resources elsewhere. However, it seems plausible that a greater share of economic rent generated would be location-specific, and so the trade-off with creating distortions is probably weaker. But this observation suggests that countries with natural resources should use a separate resource rent tax; this need not be part of the general system of taxing business profit.

3.3.3 Other location-specific factors

We have concluded that a key problem of identifying location-specific rent is the non-exclusivity of the location specificity. But we could also consider a more general form of location specificity, based on the immobility of certain factors. As we argue throughout this book, levying a business-level tax on profit in the place in which economic activity takes place is prone to economic inefficiency since that economic activity can move elsewhere. It may do so even if there are only origin-based taxes on economic rent, since the tax rates may differ between jurisdictions.

But other factors—notably individuals—are rather less mobile. One option would be to levy the tax on economic rent in the place of destination or market—where the good or service is sold. The value of immobility is that individual customers are unlikely to move to another country to help the business avoid the tax levied on the economic rent.[110] Thus, suppose a business wanted to sell its product

[110] As we set out in more detail, especially in Chapter 7, the destination-based tax on economic rent will fall on consumers in the market country; so customers may have an incentive to move—but they are likely to be much less mobile than, for example, production factors.

to individuals in the UK. It could produce the product in a number of countries, and its headquarters may be in any country, but its customers are in the UK. This gives the UK the opportunity to tax the economic rent earned by that business without distorting its behaviour.

Note that this is the same principle under which VAT and other sales taxes operate. VAT is seen as a tax on sales in a particular jurisdiction; exports are zero-rated, and imports are taxed. But the same approach could, in principle, be applied to the taxation of business profit, and economic rent.

This argument could also be applied to support taxing large digital companies in the location of their users. Even if the business model used is that revenue is derived from advertisements that appear on users' screens, paid for by other businesses in any location, there is still a sense in which the economic rent could be taxed by the country in which the user is located (subject to issues of implementation). In this sense, as noted above, we might think of the country of the user as being the 'destination' of the sale by the digital business.[111]

We distinguish the argument here from the case of identifying and taxing location-specific economic rent. That is because it does not depend on the economic rent arising exclusively in the market country. For example, we could imagine a medicine developed in a research and development laboratory in country A, and sold to customers in country B. It might reasonably be claimed the economic rent generated from this was created in country A, although this is arguable since the business still requires customers to pay a premium price for the medicine, and they are in country B. Nevertheless, and irrespective of the position taken on whether there is a true location-specific economic rent in this case, a tax could be levied on the economic rent in country B without distorting the behaviour of the business.

In Chapters 6 and 7 we develop in detail two proposals which draw on the insight that taxing profit in the market country can be economically efficient.

3.4 Absence of alternative sources of revenue

So far, we have assumed that the policy maker faces a choice between alternative forms of taxation. We have implicitly or explicitly assumed that other forms of taxation are available, so that the target for total tax revenue is attainable. The question is then which is the best combination of taxes to achieve that revenue target, taking into account our criteria of fairness, efficiency, robustness to avoidance, the costs of administration, and incentive compatibility. This seems a reasonable characterization of the problem in high income countries.

[111] For more detailed discussion of these issues see Devereux and Vella (2017, 2018a); Cui (2019); Schön (2019); and Shaviro (2019).

But it is less clear that this is the case in lower income countries. As set out in Chapter 1, revenue raised in these countries tends to be a much smaller proportion of national income, and revenues from corporation tax tend to make up a larger share of total revenues. That is not typically directly by choice—governments of such countries would generally prefer to raise additional revenue from taxation, and 'revenue mobilization' is a key aim. The reasons for lower tax revenues in these countries stem from a number of factors, including lack of information and lack of resources in the tax authority.

In this context, the arguments that apply to high income countries tend to be less relevant. For example, we should not necessarily be debating the relative efficiency of alternative forms of taxation. Rather, we should be attempting to identify a means of raising tax revenue that is not so costly that it is not worth introducing at all. In this context, too, the role of business is important, especially businesses that are not very small. That is because businesses tend to have better records, keeping better accounts—and so problems of information and implementation are smaller. This is especially true of larger business, and even more so of multinational companies.

This may be an additional reason for a tax on business profit in countries that face problems in raising enough tax revenue. However, note that the benefits identified in taxing business occur here because the business itself is a useful tool in tax administration, and can be required to undertake the role of tax collector. But this feature of taxing businesses is independent of the tax base. It would apply, for example, whether the tax base were sales, the stock of capital, or the income of employees, as well as profit.[112] The choice between these alternative bases therefore needs to be based on considerations other than that the business is a useful element of tax collection. This returns us to some of the considerations above. If governments that seek to increase tax revenues identify advantages to using businesses to collect taxes, then they subsequently need to choose amongst alternative tax bases associated with businesses.

4. Business-level and investor-level taxes

It is commonly believed that a business-level tax on profit combined with a personal-level tax on dividends (and capital gains) represents 'double taxation' and should be avoided. As a result, most countries offer some relief against this double taxation—but relief is often restricted to domestic taxes paid.[113] However,

[112] Best et al (2015) explore the options of taxing business profit or sales in the context of Pakistan.

[113] For example, in Australia and the US dividends from domestic businesses are treated more favourably than dividends received from foreign businesses. In the European Union, this distinction is no longer accepted, which has led to a widespread abolition of imputation systems and their

a simple framework for thinking about these issues suggests that there is no need for such relief; and that restricted relief is likely to create distortions to investment portfolios.

To see this, suppose first that there is a single effective rate of tax that applies to the worldwide personal capital income of each individual.[114] To maximize income, the investor should aim to equalize the post-tax risk-adjusted rates of return on all available forms of investment. If these rates of return were not equal, then she could increase her post-tax income by shifting investment from an asset with a low rate of return to one with a higher rate of return. But if the tax rate were the same on all forms of investment, then this is equivalent to equalizing pre-personal tax risk-adjusted rates of return. Then the tax would not affect the portfolio choice of the investor; she would choose the same portfolio even in the absence of tax.[115]

Further suppose that the investor resides in a small open economy. By 'small' we mean that economy is small relative to the rest of the world. By 'open', we mean that there are no restrictions on flows of capital, or goods or services, between that country and the rest of the world. Under such conditions, activities in the economy will have no impact on the pre-personal tax rate of return available to domestic residents, since that return is determined on world markets. Investors resident in the economy must take the 'world' rate of return (commensurate with the risk of the asset) as given. This characterization reasonably describes all but the very largest open economies, notably the US and China. To a reasonable approximation it would include the UK, for example, which in 2019 had the world's sixth largest GDP, but only a little over 3% of the total world GDP.

In this setting, a rise in the effective tax rate faced by the investor would have the effect of reducing her post-tax rate of return; the incidence would be on the investor. Individual investors and companies would take the rate of return as given even if they are in a large open economy. The difference as the economy becomes larger relative to the rest of the world is that changes in tax rates in the large economy may affect the 'world' rate of return. This would reduce the power of the general argument made here but would not negate it.

Now consider companies that raise finance on world markets (or from financial institutions that themselves raise finance on world markets). In a small open economy, companies would take the required rate of return to the provision of finance as given. Any origin-based business-level tax to which they are liable in the

replacement by different shareholder-relief systems which apply even-handedly to domestic and foreign underlying corporate income tax. In the UK, for example, the same tax rates apply to dividends from both sources.

[114] This is unlikely to be true in practice, but it serves as a useful simplification for understanding the argument.

[115] This is essentially the same as the case for residence-based taxation to achieve capital export neutrality, described above.

countries in which they undertake business would need to be matched by a higher pre-tax rate of return, so that the post-business-level tax rate of return is sufficient. Then the post-business-level tax rate of return must be the same as the 'world' rate of return earned by individuals before personal taxes. In this setting, a rise in the effective tax rate faced by the business would have the effect of increasing the required pre-tax rate of return to investment in that business. In this case, shareholders do not bear the incidence of the business-level tax—the tax must be passed on in higher prices or lower wages, for example.[116]

The typical argument against combining these two forms of taxation is that they represent double taxation: the underlying profit is taxed once at the corporate level and taxed again at the personal level when it is distributed. And a conventional response is that there should be some relief against such double taxation. Many forms of such relief have been used—for example, a lower corporate-level tax rate for distributed earnings and a lower personal tax rate on dividends received than on other forms of capital income. Broadly, such forms of relief are known as integration of the personal and corporate levels of tax.

There is some truth in the fact that—in the absence of any relief—the income has been taxed twice. However, in an open economy these taxes have very different effects, and they have a very different incidence. That is, as just argued, in a small open economy the residence-based personal tax is borne by the investor—given a pre-personal tax rate of return on world markets, personal taxes reduce the return to savings and investment. But in a small open economy the origin-based business-level tax does *not* fall on the investor; rather, by increasing the required pre-tax rate of return it must fall on others—such as customers and workers.

These effects would be moderated somewhat for a large open economy that can affect the world rate of return on its own. For example, a rise in the tax rate on business-level profit in a very large open economy would also tend to depress the world rate of return, implying that business owners everywhere would see a reduction in their post-tax rate of return. This is because there would be a large outflow of capital from the large economy following a rise in the business-level tax rate. Not all of this capital could earn the same rate of return elsewhere, and so the equilibrium world rate of return would fall.

Taking this perspective—at least from the perspective of the small open economy—implies very different prescriptions for taxation.

First, the two levels of taxation do not really imply double taxation in the sense that a single person is made worse off by both taxes. A reduction in the business-level tax would reduce the rate of return required by the business but would not affect the return to owners of the business. A reduction in the personal-level tax

[116] See Gordon (1986). Note that this would be true even if the location of the business-level tax for a multinational were the location of the headquarter company or the destination country. The key issue here is that the tax is not levied in the place of residence of the ultimate investor.

would increase the post-tax income of the owners but would not affect the rate of return required by the business.

Second, common attempts to integrate personal and business-level taxes may result in distortions to economic choices by both savers and businesses. In practice, many systems of personal and corporate tax integration only operate for domestic taxes—that is only domestically earned business income distributed to domestic owners receives the benefits of integration. For example, shareholders may receive a tax credit on dividends from domestic companies, but not from foreign companies—an issue widely discussed in the European Union and subject to a strand of jurisprudence by the Court of Justice of the European Union.[117]

Suppose a government introduced such a form of integration that reduced the personal tax rate on returns from domestic businesses only.[118] In this case, the post-tax rate of return earned by domestic individuals from investing in domestic businesses would rise. Consequently, they would aim to switch their portfolio of investments away from other assets towards the tax-favoured domestic businesses. Assuming they started with a well-diversified portfolio, then as they made such a switch their post-tax rate of return would rise due to the lower tax. But their risk would also rise since the benefits of diversification would be lessened. At some point they would reach a new balance, owning more shares in domestic businesses, with a higher expected rate of post-tax return (due to the lower tax rate) but also with higher risk. The world rate of return would be unaffected, and hence investment by businesses located domestically would be unaffected. The main effect of introducing such a form of integration would therefore be to distort the portfolio choices of domestic individual investors.[119] This is set out in more detail in Appendix 1.

It has been pointed out that an integration system of this form may help to prevent profit shifting by multinational companies.[120] That is because the benefits of integration typically apply only to domestic profit. To the extent that a company acts in the interests of domestic shareholders, then in order to allow them to benefit from the integration scheme, the company must earn (or at least declare) a sufficient share of its worldwide profit domestically. Hence it is less likely to shift profit abroad—and indeed may deliberately shift profit to the domestic parent. But this incentive also applies to real activity as well as profit shifting; domestic companies would have a disincentive to undertake outbound foreign direct investment, since such investment may face a higher effective tax rate if it does not benefit from the integration system. More generally, this approach is unlikely to be consistent with

[117] This jurisprudence is heavily criticized by Graetz and Warren (2007); for a comparative view on cross-border integration see Vann (2003a).

[118] This would not now be permitted within the European Union.

[119] Evidence supporting this view is provided by Bond et al (2007), for example, based on a model of Brennan (1970).

[120] For a discussion, see Graetz and Warren (2016).

maximizing the market value of a company, which is determined by the much larger group of non-resident (potential) investors. Non-resident investors do not receive the benefit of the preferential personal tax regime and would continue to benefit from shifting profit to a lower taxed jurisdiction. The integration system therefore creates a difference between the interests of domestic and non-resident shareholders.

Third, this perspective also gives insight into the appropriate taxation of the returns to owning, or providing finance to, either domestic or non-domestic business. The insight here is that in principle all such businesses should be required to earn the 'world' rate of return, commensurate with their risk, and importantly after business-level tax but before personal level taxes. We should also expect the required rate of return on other assets to be the same—again commensurate with their risk—before personal tax. This includes investment in government bonds, housing, and—crucially—also businesses that do not face any business-level tax, for example, pass-through businesses (e.g. S-corporations in the US, and mostly unincorporated businesses elsewhere). To avoid personal taxes distorting the choice between these different investment options, any individual should face the same effective tax rate on all such investment opportunities. Then pre-personal tax rates of return are equalized, as well as post-tax rates of return.

It should be noted that this is a very different prescription from that commonly advocated. It implies that origin-based business-level taxes should be ignored when comparing personal taxes on different forms of investment. It implies that personal taxes on the returns from business ownership should be no different from the personal taxes on other assets—so there should be no integration of business and personal taxes. It also implies that, in the cross-border setting discussed here, it is not correct to aggregate business-level and personal level taxes in a comparison with other personal taxes. Rather, the personal taxes levied on pass-through businesses should be equated with the personal level taxes on businesses that face a business-level tax. Again, these strong claims need to be moderated somewhat in the case of a large open economy (or a closed economy).

It might be objected that this analysis may apply to international businesses and international investment, but not to a purely domestic business, even one operating in an open economy. After all, in a purely domestic context the distinction between residence-based and origin-based taxes does not appear to be relevant. However, while there may be some truth in this objection, it is open to challenge. The issue is whether an individual owning a purely domestic business makes decisions based on a required rate of return (or, equivalently, the net present value). Basic investment theory would suggest that she should. That is, if she can earn a rate of return of 10% on some other investment of comparable risk, then she should require the same rate of return from her own business. If she can only earn, say, 7% from her own business then she would be better off investing her money elsewhere. But—as long as she resides in an open economy—the 10% rate of return she can

earn elsewhere is almost certainly determined by the equilibrium rate of return on world markets. In this case, her investment decision would still be determined by the world rate of return even if her investment is purely domestic. And the 10% should be the equilibrium after business-level taxes on profit.

Of course, it may be the case that individual business owners do not make such calculations. Some may simply prefer to own, and work for, their own business, as long as they receive a reasonable income.[121] In that case, the precise rate of return earned may not be relevant, and the analysis here is not relevant. There may well be such business owners. But it is hard to analyse the effects of a profit tax in such cases, since we do not have any good understanding of how they make decisions. For example, we cannot simply revert to assuming that we should consider a business-level and a personal-level tax on the profit earned to be an unfair form of double taxation on the owner, since the incidence of either tax is still unclear.

5. Conclusions

This chapter has explored some of the fundamental issues that should be considered before moving to a more detailed design of a business-level tax on profit in an international setting. We have discussed four broad issues.

First, in very general terms, we have considered the definition of profit as a tax base. We distinguished three possible tax bases: a conventional tax base, which constitutes the total return to the owner of the business; a broader tax base which would also include the return to other financiers of the business; and a narrower tax base of economic rent, representing the return to investment over and above the normal rate of return. We set out the advantages to a tax on economic rent for both economic efficiency and fairness. A caveat to the advantages for economic efficiency is that even a tax on economic rent which is levied where functions and activities take place may affect the location of economic activity. That draws us to considering other locations for taxation. A second element of the choice of the tax base is therefore the location of rights to tax business profit.

Second, we set out in some detail the criteria that we believe are suitable for evaluating alternative ways of levying a business-level tax on profit. We identified five: fairness, economic efficiency, robustness to avoidance, ease of administration, and incentive compatibility. We believe that these should be relatively uncontroversial, although the inclusion of incentive compatibility is uncommon. The idea of this criterion is that a stable worldwide tax system would be one in which there was no gain to governments from undermining that system, and imposing costs on other countries. This can be achieved only if the best policy from a national perspective

[121] Even in this case, they may be debt financed and they need to earn enough to pay their creditors—and the return that creditors demand is determined by world markets.

coincides with the best policy from a global perspective. Then governments have no incentive to deviate from that policy. As we discuss further in Chapter 3, this is clearly not the case under the existing system, which leads to competition between governments.

Third, we reviewed the case for having a business-level tax on profit at all. Even if governments have no intention of giving up such taxes, if we can identify good reasons for having such a tax, then that should help to identify the best design of the tax. The two most commonly advocated reasons are that a business-level tax acts as backup to personal income tax and the benefit principle. But we also argued that a business-level tax on profit would be justified if it met our criteria. We also considered the case for using business as a tool for the collection of taxes because of the benefits in terms of implementation.

The argument that a business-level tax on profit is useful in supporting a personal level tax on capital income has some force in a closed economy, where there is no cross-border investment. But in an open economy, the argument is not persuasive. In particular, in a small open economy, a origin-based business-level tax on profit simply cannot support a residence-based tax on the worldwide capital income of domestic residents. The case for such a tax is stronger as a backup to an origin-based personal income tax levied on non-residents. However, the rationale for levying such a personal income tax is itself not very persuasive. We are also unconvinced by the benefit principle argument. It may be reasonable that businesses should contribute to the costs of publicly provided goods and services. But it is not clear that such a contribution should be proportional to profit, rather than to the benefits received by the business.

Fourth, we have considered whether taxation at both the business and owner level should be a matter of concern. We argued that in the context of a small open economy a worldwide personal income tax on resident investors and an origin-based tax on businesses would not constitute double taxation, as the incidence of the former is likely to fall on the investor and that of the latter is likely to fall on other factors such as consumers or labour.

The considerations set out in this chapter do not rule out a business-level tax on profit altogether. There is a case for a business-level tax on profit if the tax could be designed that does well in meeting our five criteria. Two elements of such a tax are likely to be that it falls only on economic rent and that it is located in a jurisdiction from which the underlying taxable profit cannot easily be moved. We explore these ideas in more detail in this book.

3
The Current International Tax Regime

This chapter describes and evaluates the current regime for taxing the profit of companies in an international setting. The question immediately arises whether we can speak of a single 'regime' given the clear differences in the way countries tax companies. There can be considerable differences in detail even when countries tax companies in a similar way. But, taking a step back, it can be seen that countries' existing rules for taxing companies in an international setting do follow a common broad framework which we set out in very general terms here.

As we noted in Chapter 1, this book as a whole is concerned with the general question of taxing the profit earned by a business—whatever the legal form of that business. However, it is the taxation of the profit of companies, and in particular multinational companies, that has dominated the tax policy debate. In describing the current international tax system, this chapter will therefore focus on the taxation of company profit, and in particular corporation taxes.

Section 1 introduces the current international tax regime. It explains its basis in domestic law and international treaties and sets out three of its distinguishing features: the distinctions between residence and source, between active and passive income, and its basis of separate accounting. Section 2 briefly outlines how companies are taxed within the regime. At the time of writing the existing regime is undergoing a sustained period of review and reform. So far this has resulted primarily in the introduction of a number of new rules and a tightening of existing rules to address base erosion and profit shifting under the OECD/G20 BEPS (Base Erosion and Profit Shifting) project, but these have not changed the underlying framework of the regime. These changes are described in Section 3. Section 4 evaluates the regime as it currently stands against the five criteria set out in Chapter 2.

Section 5 briefly considers further reform proposals that are currently being considered and how they would affect the performance of the resulting regime against these five criteria. These reform proposals, if agreed and implemented, could be more significant than those resulting from the BEPS project, in that they could include elements that depart from the fundamentals of the existing regime. However, these elements would be relatively minor and would be bolted on top of the existing regime, which would still remain in place. Section 6 concludes.

Taxing Profit in a Global Economy. Michael P. Devereux, Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella, Oxford University Press (2021). © the several contributors.
DOI: 10.1093/oso/9780198808060.003.0003.

1. An introduction to the current regime

1.1 Sources

1.1.1 Domestic law and international treaties

The international tax regime is not a neat or perfectly coherent body of law designed following clear first principles; it could hardly be so given its sources and the manner in which it developed. It is the product of a multitude of national laws, international treaties, and soft law.[1]

From a legal perspective, the starting point is that under public international law each country is entitled to tax persons—natural or legal—or taxable events with which it has a sufficient 'nexus'.[2] Countries generally tax companies either on the basis of their 'residence' (i.e. country A can tax profit earned by companies resident in country A for tax purposes—whether the profit arises in country A or elsewhere) or on the basis of the 'source' of their profit (i.e. country A can tax profit arising in country A—whether earned by companies resident in country A or elsewhere). The notions of 'residence' and 'source' are far from straightforward, as we set out below. In the context of cross-border activity, two or more countries might have a sufficient nexus and thus the right to tax. Each country can unilaterally decide whether and how to exercise this right. Unless further action is taken, the uncoordinated nature of individual countries' domestic tax systems might result in the same profit being taxed by more than one country. For example, a company resident in country A earning profit in country B could be taxed by A on the basis of its residence and by B on the basis of the source of its profit.

Traditionally, concern over this type of double taxation has been at the heart of policies shaping the international tax regime. This double taxation is addressed in two ways. First, countries address it, at least to some extent, through unilateral measures in their domestic laws. In our example, A, the residence country, might allow a deduction, or grant a credit , for the tax paid in B, or it might choose not to tax the income at all (e.g. France does not tax foreign corporate income under a strictly territorial approach). Depending on the nature of the income, B, the source country, might impose a low tax on the income paid to the foreign company or even exempt it altogether (e.g. Germany does not tax outflowing interest). Second, two countries can also address double taxation through coordination with one another, primarily through a bilateral double tax convention (DTC). DTCs allocate taxing rights over certain types of income between two countries; that is, the contracting countries agree on which of the two is to waive its right to tax particular

[1] Soft law includes, in particular, guidance to the interpretation of treaties like the Commentaries to the OECD Model Tax Convention or the OECD Transfer Pricing Guidelines. For a closer analysis of soft law in the area of international taxation, see Vega (2012).

[2] For a recent account see Gadzo (2018).

types of income or to exercise this right in a limited fashion. There are also some limited examples of multilateral treaties—the most significant recent addition is a major multilateral instrument which has arisen from the OECD/G20 BEPS project, which facilitates the amendment of existing bilateral treaties between pairs of countries.[3]

It is worth re-emphasizing that—within the limits imposed by public international law,[4] international treaties such as the European Treaties,[5] and World Trade Organization (WTO) agreements like the GATT and the GATS[6]—in a cross-border situation countries are free to choose what to tax and how to tax it. They are also free to choose whether and how to provide relief from double taxation; they are under no obligation to address the potential for double taxation either unilaterally or bilaterally. Each country may make these decisions on the basis of its own particular set of interests and concerns. But difficult trade-offs arise: for example, the benefit of raising revenue by taxing the corporate income of foreign companies on a source basis has to be set against the impact such a tax would have on the country's competitive position for attracting capital, real economic activity, and mobile tax bases.

As the international tax regime is made up of individual countries' domestic laws and an extensive network of DTCs, it is not surprising that it can be rather incoherent. However, when viewed as a whole, common concepts, principles, and practices, and indeed a common underlying framework, do emerge. This is partly due to the fact that countries deal with some issues on a unilateral basis in a broadly similar manner. But it is also because the majority of DTCs closely follow a small number of model treaties, which themselves are relatively similar to one another.

Countries have addressed the double taxation of cross-border activity through DTCs since the end of the nineteenth century. There are now over 3,000 DTCs and their primary, though not sole, function is to allocate taxing rights between the two contracting countries, in order to remove or reduce double taxation. DTCs are not meant to create new charges to tax. And because DTCs merely allocate a right to tax between two contracting countries, each country retains a choice as to whether or not to exercise, through domestic law, a taxing right allocated to it under a treaty. Many countries choose not to levy taxes on some forms of income even though they are entitled to do so under a particular DTC.

Most DTCs follow the OECD Model Treaty ('OECD Model').[7] This was first produced in 1963 and was revised most recently in 2017. However its genesis can

[3] OECD (2017c).

[4] See Gadzo (2018).

[5] See Section 1.1.2.

[6] This concerns both prohibitions on tax provisions discriminating against foreign goods and foreign service providers and tax provisions conveying export subsidies. For an overview see Schön (2004).

[7] OECD (2019e). The OECD Model is accompanied by a detailed Commentary which assists in its interpretation and is frequently cited by courts. This influential Commentary, like the OECD Model

be traced back to the work of the League of Nations in the 1920s. The main features of this original model can still be found in the current version. The US produces a Model Treaty that is similar to the OECD Model but departs from it in some respects.[8] A third Model Treaty was produced by the United Nations in 1980—and most recently revised in 2017—that is intended for adoption between developed and developing countries.[9] Again, this treaty bears considerable similarity to the OECD Model, but contains some important differences. In particular, as we describe below in more detail, it favours a greater retention of 'source country' taxing rights, which, it is thought, is of specific importance to developing countries. For example, unlike the OECD Model, the UN Model allows source countries to tax outbound royalty payments. In this book we focus primarily on the OECD Model as it is the most influential of the three.

1.1.2 The impact of EU law

European Union (EU) law has had a considerable impact on the domestic international tax law of its Member States. This impact comes from two sources. First, Member States' international tax law must comply with EU legislation in the field of direct taxation. For example, the Interest and Royalties Directive[10] forbids Member States from introducing withholding taxes on cross-border payments of interest and royalties between associated companies within the EU (subject to a 25% minimum shareholding requirement). The Parent/Subsidiary Directive,[11] amongst other things, abolished withholding taxes on payments of dividends between associated companies within the EU (subject to a 10% minimum shareholding requirement). As the adoption of such measures requires unanimity amongst Member States—which has proved difficult to achieve—only four directives had been passed by the early 2000s and they were limited in scope. However, the political and public forces that propelled the BEPS project forward also injected fresh impetus into the EU direct tax legislative machinery. As a result, part of the BEPS Action Plan was implemented in the EU through the 2016 Anti-Tax Avoidance Directive.[12] It remains

itself, is produced by the Committee on Fiscal Affairs , a body composed of senior government officials from each OECD member state. The OECD has been accused of undertaking substantive changes through changes in the Commentary rather than the OECD Model itself. The OECD also produces Transfer Pricing Guidelines, which are equally influential.

[8] United States Department of the Treasury (2016). For example, unlike the OECD Model, the US Model does not permit the exemption method of relief.

[9] United Nations (2017).

[10] Council Directive 2003/49/EC of 3 June 2003 on a common system of taxation applicable to interest and royalty payments made between associated companies of different Member States.

[11] Council Directive 90/435/EEC of 23 July 1990 on the common system of taxation applicable in the case of parent companies and subsidiaries of different Member States.

[12] Council Directive (EU) 2016/1164 of 12 July 2016 laying down rules against tax avoidance practices that directly affect the functioning of the internal market, as amended by Council Directive 2017/952 of 29 May 2017.

to be seen how far this impetus will carry the EU Commission's legislative designs in this area in the future.

The second source are the fundamental freedoms of the Internal Market as fleshed out by the jurisprudence of the Court of Justice of the European Union (CJEU), which, to date, has been of greater consequence to the domestic tax systems of Member States.[13] In a series of cases starting in the mid-1980s the CJEU found important features of domestic international tax regimes to be incompatible with the fundamental freedoms that underpin the EU Internal Market, and thus had to be dismantled. Three strands of this jurisprudence deserve to be mentioned here. In a famous line of judgments which impacts the topic of this book, the CJEU forced Member States to adapt their tax systems in order to achieve neutral treatment of cross-border dividend payments.[14] Another set of judgments constrained the options for Member States to apply special anti-avoidance rules to controlled foreign companies.[15] Last, but not least, a number of cases dealt with issues of special rules on cross-border intra-group transactions under the heading of 'thin capitalization'[16] or the 'arm's length standard'.[17] This case law has created an important constraint on EU Member States' freedom in designing their domestic international tax regime although the Court seems to be currently less inclined to interfere with national tax sovereignty.[18]

1.2 Three central features

Despite the multiplicity of sources—domestic legislation and treaties—and the diversity of rules, it is possible to discern a basic framework underlying the existing regime. This framework has a number of features which combine to produce its particular character. We here focus on three central features: (i) the residence/source dichotomy; (ii) the distinction between different kinds of income; and (iii) the treatment of affiliates within a group of companies as separate entities.

[13] For a critical assessment of the jurisprudence of the Court in the area of non-discrimination, see Schön (2015).

[14] For a critical assessment of this jurisprudence see Graetz and Warren (2007).

[15] Case C-196/04, *Cadbury Schweppes*, judgment of 12 September 2006; Case C-201/05, *Test Claimants in the CFC and Dividend Group Litigation*, judgment of 23 April 2008; Case C-135/17, *X GmbH*, judgment of 26 February 2019.

[16] Case C-324/00, *Lankhorst-Hohorst*, judgment of 12 December 2002; Case C-524/04, *Test Claimants in the Thin Cap Group Litigation*, judgment of 13 March 2007; Case C-105/07, *Lammers & Van Cleeff*, judgment of 17 January 2008.

[17] Case C-311/08, *Société de Gestion Industrielle (SGI)*, judgment of 21 January 2010; Case C-282/12, *Itelcar*, judgment of 3 October 2013; Case C-382/16, *Hornbach Baumarkt*, judgment of 31 May 2018.

[18] For further discussion, see Schön (2015).

1.2.1 Residence and source

In Chapter 2 we set out four possible locations where multinational companies might in principle be taxed: the location of its shareholders, parent companies, affiliates, or customers. International corporation tax regimes adopt one or more locations, and this choice strongly influences the performance of a regime under our evaluative criteria. Under the existing regime, multinational companies are taxed primarily in the third location, but also in the second: namely, that of their affiliates and parent company respectively. This is achieved through the concepts of residence and source, which are thus central to the regime.

Under the existing regime, companies may be taxed on the basis of their 'residence' or the 'source' of their income. The international dimension of countries' current corporate tax systems addresses whether and how to tax the foreign source income of domestic resident companies, and the domestic income of foreign resident companies. Companies can be—and at times are—taxed multiple times on the same income. But domestic legislation and DTCs tend to result in tax being levied—or at least, primarily levied—in either the country of source or residence.

Despite their central importance to the international tax system, the terms 'residence' and 'source' are used in different ways in tax debates and literature. This is discussed further in Box 3.1.

Box 3.1 The different meanings of 'residence' and 'source'—and introducing 'origin' and 'destination'

The terms 'residence' and 'source' can cause considerable confusion in public, academic, and tax policy debates, because they can be used with different meanings.

From a legal perspective, a country taxes on a residence basis when it taxes companies that are resident in that country for tax purposes on income arising in that or in another country. A country taxes on a source basis when it taxes companies that are not resident in that country for tax purposes on income deemed to arise in that country.

A subsidiary has a legal identity that is separate and distinct from that of its parent; and its residence is equally distinct from that of its parent. Suppose that company P, resident in country A, has a wholly-owned subsidiary, S, resident in country B. From a legal perspective, country B may then tax income accruing to S on a residence basis since S is resident in B, whether that income arises in B or elsewhere.

From a legal perspective, source taxation would arise when company P operates directly in country B rather than through a subsidiary. For example, if P operates in B through a branch, B can tax the income generated by the branch (and this income could in principle be identical to the income that would have been generated if the entity in B had been a subsidiary). But in this case, this

would be regarded as source taxation, since B would be taxing the income of P, a non-resident company, as the branch is not a separate legal entity. As discussed below, countries tend to tax non-resident companies on a source basis when the companies' activities in their territory meets a certain threshold, for example, the Permanent Establishment (PE) threshold. A branch meets the PE threshold.

Source country taxation would also arise, from a legal perspective, when subsidiary S pays a dividend to the parent P (or, more broadly makes specific payments, including interest or a royalty payments, to a non-resident) and country B levies a withholding tax on the payment. Since the recipient of the payment is not resident in country B, but the source of the payment is deemed to be B, then from a legal perspective this too is regarded as a form of source country taxation.

Economists and policy makers tend to take a broader perspective. Whatever the legal form of the affiliate in B, the *ultimate* beneficiary of the income generated is the parent company, P, resident in A.[19] Economists therefore tend to regard residence taxation of the underlying income as meaning that it is taxed by A. Any tax levied by B on income arising in B would then be a form of source country taxation, even if the income is earned by a subsidiary resident in B.

Note that part of the distinction here is the use of the term 'income'. In the economists' sense, income arising in S is part of the accrued income of P, irrespective of whether S actually makes a dividend payment to P. So any taxes levied outside the country of legal residence of the parent company (i.e. A) would then be considered as source country taxes, and it would not matter whether a payment was made by S, the entity in B.

For consistency, in this book we have tried to use the terms 'residence' and 'source' according to their legal meaning. Where we have not done so, we have made this clear.

We also make use of two different terms, taken from the academic literature on VAT: 'origin' and 'destination'. We use the term 'origin' to refer broadly to the location in which economic activity resulting in the production of the good or service takes place.[20] We use the term 'destination' to refer broadly to the location where a sale takes place. For example, suppose that the entity in country B—whether a subsidiary or a branch—undertakes some activity and exports the resulting good or service to another country, C.[21] Then we call B the 'origin' country and C the 'destination' country.

[19] Strictly, we should view the ultimate beneficiaries as the shareholders of P, who may be resident anywhere. However, thinking of residence in this sense in not common usage.

[20] For a thorough account of the 'origin' concept in the concept of tax treaties, see Kemmeren (2001).

[21] This is intended to be quite general. For example, suppose a lawyer in B provides advice by phone to a client in C; then B is the origin country and C is the destination country. However, even this distinction may not be clear-cut—for example, if the lawyer flies to C to provide the advice face-to-face, before returning home to B. Such distinctions may become important in designing taxes on a destination basis, as we discuss further in Chapters 6 and 7.

Note that a country can be simultaneously both an origin and a destination country. If the entity in B opens a shop in C selling goods to customers there, C would be an origin country due to the location of the shop, and a destination country due to the location of the customers. Under the existing system, taxing rights are not allocated to destination customers. In other words, the sale of a good or service in a country does not—in and of itself—lead to the allocation of taxing rights to that country. Such countries are only allocated taxing rights under the existing system if they also happen to be origin countries, as in this example.

1.2.2 Categories of income

A second feature of the framework is that the tax treatment afforded to a particular item of income often depends on its type.[22]

As a first step, it is helpful to distinguish between 'active' and 'passive' income (sometimes referred to as 'business' and 'investment' income). Passive income is defined by the OECD as '[i]ncome in respect of which, broadly speaking, the recipient does not participate in the business activity giving rise to the income, e.g. dividends, interest, rental income, royalties, etc'.[23] Active income, on the other hand, entails participation by the recipient in the business activity giving rise to it.[24] Whether a country is entitled to tax the domestic income of a foreign company or the foreign income of a domestic resident company under a DTC, and whether it does so under its domestic law, typically depends on whether the income falls in one category or the other. Each type of income can be—and generally is—subject to further distinctions. For example, the distinction between the returns to debt (interest) and equity (dividends) is also very important and has far reaching consequences for the international tax regime.

As explained below, very broadly, under the existing regime active income tends to be primarily taxed in the country of 'source' and passive income tends to be taxed primarily in the country of 'residence'.[25]

1.2.3 Separate accounting

A third key feature of the framework is that subsidiaries within a multinational group are treated as if they were independent entities. This has profound

[22] It should be noted that the OECD Model Treaty is entitled the 'Model Tax Convention on Income and on Capital'—rather than on 'profit'. To follow the OECD convention this chapter therefore frequently refers to 'income', rather than 'profit'. We use these terms interchangeably.

[23] OECD Glossary of Tax Terms.

[24] For an active business which earns revenue and pays a royalty, a licence fee, interest, or some other payment, then the notion of 'active income' is income net of these payments, which can be regarded as costs of the active business. Active income should be considered to be gross of dividend payments, however.

[25] See, for example, Avi-Yonah (1996) and Graetz (2001).

consequences. It means that even though multinationals operate as a single economic entity, when one part of a multinational transacts with another in a different jurisdiction, then for tax purposes they are treated as different entities. The contractual arrangements between them are recognized, subject to anti-avoidance legislation described below. As a result, the source/residence distinction and related rules are applied to them as if they were independent entities—again, subject to some modification. This is important: the contractual allocation of asset ownership, financial funds, and business risk to specific entities within a group therefore has major consequences for the allocation of taxing rights.

To see some of the consequences of this approach, suppose a parent company (P), resident in country A, pays interest to a wholly-owned subsidiary (S), resident in country B. From B's perspective a resident company (S) has received passive foreign source income which it is likely to tax under its domestic law. From A's perspective a resident company (P) has made a payment of interest; it is likely to allow P to deduct the interest from its taxable profits (although this could be limited under anti-avoidance rules). Furthermore, from A's perspective, domestic source income (the interest) is paid to a foreign company (S), which it might tax by means of a withholding tax. A DTC between A and B may limit or eliminate the withholding tax imposed by A.

For present purposes, the main point of this example is that transactions among subsidiaries have real tax consequences. One can easily see the profit shifting opportunities this presents. If A is a high tax country and B a low tax country, P can set up S in B for planning purposes. It can finance S through the purchase of new equity (which has no tax consequences), which then returns the same funds to P as a loan, thus completing a circular flow of funds. Careful tax planning can ensure that the interest is deductible from P's tax base and that A applies no withholding taxes on the interest payment. If this were successful, the multinational would have shifted profits from a high to a law tax country through relatively uncomplicated tax planning.[26]

As we shall see below, much effort has been expended in recent years in closing, or at least narrowing, such planning opportunities, but fundamentally the problem arises because of this third feature of the regime. The ability of multinationals to set up affiliates all over the world and to create any number of cross-border within-group transactions among them—possibly with little or no economic consequence from the multinational's perspective, but with a real and significant tax consequences—is at the heart of many of the problems faced by the existing regime.

[26] Since S is a subsidiary of P, it may pay the interest that it receives from P back to P as a dividend. This may in principle be subject to a withholding tax in B, and a tax on the receipt in A.

2. General trends in the current regime

Having set out some of the key features of the current regime, we can now describe it more directly. This is not intended to be a detailed description—if it were, it would take up many books rather than just a section of a chapter. Rather, it is intended to outline the main elements of the existing regime in enough detail to identify and understand its key problems. We begin with the basics of source-based taxation and residence-based taxation. We then describe some important elements of the regime that arise in response to two fundamental—and to some extent—conflicting policy goals. On the one hand, policy makers need to use a set of complex anti-avoidance rules to prevent profit being shifted to low tax countries. We describe some of the most important anti-avoidance rules: transfer pricing rules, interest deduction limitations, and controlled foreign company rules. On the other hand, policy makers concerned with real economic activity taking place in their country may also compete with other countries for inward investment. They may do so in various ways, as explained below, including reducing corporate tax rates and weakening anti-avoidance rules. Countries have to carefully negotiate the balance between these competing objectives.

2.1 Source-based taxation

Income deemed to arise in a country and accruing to a non-resident, may be taxed by that country on a source basis. In considering source-based taxation, we need to distinguish between the treatment of active and passive income. Active income is generally taxed in these circumstances only if the level of domestic activity producing it meets a specified threshold. For example, a company resident in country A is generally not directly taxed in country B on its active income arising in country B unless it has more than a minimal amount of activity there. The level of activity required and the nature of the test setting out the threshold varies from country to country under domestic law. Examples include carrying on a business activity in a country and having a 'permanent establishment' (PE) there.

The OECD Model uses the PE concept as a threshold—meaning that active income is allocated to the source country only if a non-resident company operates there through a PE. Following the OECD Model's traditional definition, this PE threshold is based on the degree of physical presence. This is typically met in countries where the taxpayer has a production unit (e.g. a manufacturing or research and development facility) or a distribution unit (e.g. a sales office). But simply selling goods or services in country B does not—following the OECD Model—in and of itself create a PE in country B and, therefore, it does not give rise to corporate taxation in country B. Whether the threshold is met or not determines in

which country (and therefore at which tax rate) income is taxed. As a result, much tax planning has traditionally taken place around the threshold.

This threshold test has been criticized for being inadequate for many years, in particular by developing countries claiming taxing rights on income from inbound sales and services. Academics have long noted a slow but constant 'erosion' of the PE concept.[27] This tendency has been reinforced in the context of an increasingly digitalized economy. A company located in country A can now sell significant quantities of goods and services—digital as well as physical—to consumers in country B without having any physical presence in the latter. The lack of physical presence—and hence a PE—in country B prevents B from taxing the foreign company on a source basis. This has led to calls for a revision of the PE threshold. Some have called for a 'digital' PE;[28] others for change that would grant taxing rights to market countries in a more general fashion—even in the absence of a physical presence there.[29]

Under both domestic law and the OECD Model, once the necessary threshold is met, for example by a non-resident company establishing a branch in a particular country, complex rules are then necessary to determine how much income is attributable to the branch. Source taxation of income arising in a PE is restricted to taxing the share of the overall profit that can be attributed to the specific function (e.g. manufacturing or distribution) performed by the PE. For example, the opening of a sales office in a market country does not lead to the allocation of the overall business profit arising from these sales to that country. Rather, the principle is that the market country is entitled to tax the profit that can be attributed to the functions performed by the sales office.

The relevant rules for attributing profit to a PE under the OECD Model extend the third feature of separate accounting identified above.[30] For profit attribution purposes, PEs are treated as if they were separate entities, even if—from a legal perspective—they are not. Take the example of P, resident in country A, which opens a shop (and, therefore, has a PE) in country B. Country B can tax P—a foreign company—on the profit earned in country B on a source basis. Income is attributed to the PE in B by broad analogy with the income which an independent enterprise engaged in the same or similar activities under the same or similar conditions, would have earned taking into account the functions performed, assets used, and risks assumed by the enterprise through the PE. The UN Model Treaty, which attempts to serve the interest of developing countries, diverges from the OECD's approach to profit attribution.

[27] See Skaar (1991).
[28] Hongler and Pistone (2015).
[29] Devereux and Vella (2014).
[30] For a critique of these rules see Collier and Vella (2019).

A different approach typically applies to 'passive' income. Passive income earned by foreign companies may be taxed by source countries through withholding taxes. That is, dividends, interest, or royalties paid by a company resident in country A to a resident in country B may be taxed by A through such taxes. The extent and detail of withholding tax regimes for passive income vary considerably from country to country, and different types of passive income may be treated differently. There is also a need to determine what the source of the income is, and source rules—which determine when such income is deemed to 'arise' in that particular country—also differ amongst countries. For example, some countries might deem royalties to arise where intellectual property (IP) is held, and others where the IP is used.

The OECD Model restricts source countries' taxing rights over passive income. It allows source countries to impose withholding taxes on gross dividends and interest paid to non-residents but only subject to limits. Contracting countries may, and in practice often do, agree to lower withholding taxes below the limit permitted by the OECD Model or waive their right to impose withholding taxes on such items of passive income altogether. The OECD Model does not permit source-based taxation of royalty payments—but the UN Model does, with the aim of shifting taxing rights to developing countries which benefit from technology transfer from industrialized countries.

2.2 Residence-based taxation

2.2.1 Corporate residence

A country may also tax companies' income on the basis of their residence. Much can thus turn on the tests for determining corporate residence. These tests fall into two broad categories. The first rely on formal legal criteria, such as the country of a company's incorporation. The second rely on substantive criteria, such as the place of 'management and control' or the place of the 'primary business location'. For example, the US relies exclusively on a place of incorporation test, but many countries, including the UK and Germany, now use both types of tests. To apply DTCs one must first establish in which country the relevant companies are resident; under the OECD Model this is done by reference to the domestic law of each contracting country.

Both types of test have clear limitations.[31] Formal tests can be easily avoided or even satisfied by 'false claimants', thus requiring further legislation to address both concerns. Substantive tests ought to be harder to avoid. However, they often boil down to a number of subtests or factors that can also be met at a manageable cost. The place of 'management and control' often ultimately translates into the place where the board of directors meets, meaning that this test can be satisfied by the mere expedient of jetting directors to the country of choice a number of times a

[31] See, for example, Shaviro (2011b) and Schön (2009).

year, ensuring that decisions are 'taken' at these meetings, and keeping a careful set of board minutes.

As a result of disparate domestic legal tests, companies might find themselves resident in more than one country, or none. A company incorporated in country A but having its central management and control in country B might be resident in the former under the domestic law of A, and resident in the latter under the domestic law of B. The opposite problem has also arisen where a company was deemed not to be tax resident in either country.[32] Some countries address the problem of dual residence through their domestic law. This may also be addressed through DTCs—previous versions of the OECD Model provided a tie-breaker: if a company was resident in both contracting countries according to their domestic laws, the company would be deemed to be resident in the country in which the company's 'place of effective management' was situated. Some existing treaties employ different tie-breakers, and others do not provide one at all. In the latter case, there is often another clause in the treaty that sets out that the two countries must or shall endeavour to reach an agreement using the 'mutual agreement procedure' (MAP). This approach has been adopted in the 2017 version of the OECD Model.[33]

2.2.2 Residence tax on foreign source income

Under the existing regime, countries may either tax or exempt resident companies' foreign source income. In the former case, the country may provide relief for the tax paid in the source country by allowing it to be credited against the tax due in the country of residence.[34] In practice, many countries adopt a mixed approach: taxing but allowing a credit for some forms of foreign income (mostly passive income) and exempting others (mostly business income, dividends from foreign direct investment, employment income, and income from immovable assets).

Depending on the tax rates in the two countries, a credit can wipe out the tax to be paid in the residence country altogether, meaning that the residence country will not actually collect any tax on certain items of foreign source income. The credit is typically not allowed to exceed the underlying tax due in the country of residence. Systems for providing credit can be extremely complex. Detailed rules are generally in place, for example, limiting the credit, setting out which foreign

[32] This was the case for an important subsidiary of Apple, see Ting (2014).

[33] The OECD Model provides the MAP as a mechanism for resolving differences or difficulties regarding the interpretation or application of the Convention on a mutually agreed basis. See OECD (2015d).

[34] Less commonly the tax paid in the source country can be deducted from the tax base in the residence country. Relief through deduction is less generous than through credit. Consider the following example. Company P, resident in country A, earns 1,000 of income in country B. The tax rates in A and B are 30% and 20% respectively. P pays 200 in tax to B. Under a credit system, P pays an additional 100 in tax to A (300 [1000 @30%] less a credit of 200); under a deduction system P pays an additional 240 in tax to A (1,000 less a deduction of 200 taxed at 30%).

taxes may be credited, whether credits may be pooled off-shore or on-shore, and whether they can be carried back or forward and used within a group.

In principle, exemption systems ought to be simpler—creating lower compliance costs for companies and administrative costs for revenue authorities—than a credit system. However, complexity is usually introduced in exemption systems because built-in protections are necessary to address concerns about profit shifting. 'Subject-to-tax' provisions and 'switch-over' clauses in treaties and domestic legislation make exemptions increasingly dependent on the tax treatment of commercial income derived from PEs, and other categories of income in the source country.

The widespread exemption of dividends from cross-border direct investment can also be exploited. For example, parent company P resident in country A could take advantage of an exemption system in A by setting up and financing through new equity a subsidiary S in low tax country B. S uses these funds to acquire IP and enters into licensing agreements with P for use of the IP. Royalty payments from P to S would normally lead to a deduction in A and a low tax payment in B. The income earned in this way can be returned to P through dividends that A will not tax under its exemption system. As noted above, a similar strategy may seek to strip income out of A through interest payments made to subsidiaries in B. Exemption systems often seek to guard against profit shifting opportunities of this kind through exceptions—such as limiting the application of the exemption to active foreign income—which invariably add complexity to the regime. They can also address such concerns through anti-profit shifting legislation, such as controlled foreign company rules, which are discussed below.

Countries are frequently said to operate either a *worldwide* or a *territorial* system of taxation. Of the thirty-four OECD countries, seven are said to operate a worldwide system, and twenty-seven a territorial system.[35] Countries could be understood to have worldwide systems if they tax resident companies on their domestic and foreign income, and countries could be understood to have territorial systems if they tax resident companies only on their domestic income. However, these terms can be very misleading, because categorization as one or the other often depends on whether a country taxes resident companies on their foreign source dividends.[36] To be more specific, this refers to a large extent to the issue of whether dividends from foreign subsidiaries are fully exempt or only convey an 'indirect tax credit' with regard to the underlying corporate tax paid in the subsidiary's country

[35] Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the UK, and the US operate a territorial system. Chile, Greece, Ireland, Israel, Korea, Mexico, and Poland operate a worldwide system; see Business Roundtable (2011)—as amended following the 2017 reform of the US corporate tax system.

[36] Although the term 'worldwide' is frequently used to mean that dividends received from foreign subsidiaries are taxed on receipt by the parent, it could also have a broader meaning that foreign income is taxed as it accrues, whether or not the income is repatriated to the parent.

of residence. The UK, for example, is usually said to operate a territorial system. It exempts (most) foreign source dividends and profits of foreign branches; however, it taxes other foreign source income, including interest and royalties (providing a credit for foreign tax paid). Categorizing the UK system as territorial is thus somewhat of a misnomer.

This is not to say that the treatment of foreign source dividends is not important—it clearly is. But note also that in practice exemption and credit systems can produce tax results that are substantially similar. Under exemption systems, if a company sets up a subsidiary in a foreign country, income earned by the subsidiary will not be taxed by the parent's country of residence, either when it is earned by the subsidiary or when it is paid up as a dividend. Under credit systems, such dividends will be taxed by the parent's country of residence only when they are distributed to the parent—and then a credit will generally be given for taxes paid in the subsidiary's country of residence. This may—depending on the expectations of tax rates in both countries—create an incentive for the foreign subsidiaries to delay paying dividends back to the parent.[37] Prior to its 2017 tax reforms, the US employed a 'worldwide' system with deferral. Under this system, profits paid by foreign subsidiaries to their US parents as dividends were subject to US tax. As a result, US multinationals delayed dividend payments and instead held trillions of dollars in foreign subsidiaries. In terms of US tax revenue, this approach therefore produced substantially similar tax results to an exemption system.

Both credit and exemption systems give multinationals incentives to hold passive income-generating assets, such as IP, in low tax countries. Under exemption systems, subsidiaries can simply pay the income earned by such foreign subsidiaries to the parent as exempt dividends. Under credit systems multinationals may keep the income generated by such assets in the offshore subsidiaries, although they might be able to make use of it creatively. For example, the parent may be able to borrow domestically against the retained earnings held by foreign subsidiaries, although many countries have sought to address this issue, with varying degrees of success, through anti-avoidance rules. Some supporters of worldwide systems argue that deferral should be eliminated, and parent companies should tax the income of foreign subsidiaries on an accrual basis. This would constitute a significant change from the broad parameters of the existing system, although a form of taxation of accrual has now been implemented in the US with its GILTI provision, and the OECD/G20 Global Anti-Base Erosion (GloBE) proposal would also introduce taxation on accrual. We consider this reform option in Chapter 4.

[37] Strictly, if the company believes that tax rates will not change, and that profit can only be paid to the parent through a taxed dividend, then there is no incentive to delay dividend payments, since the value of the dividend paid will always be reduced by tax at the same rate. If, however, the company believes that the tax rate may fall, then there is an incentive to delay. See Hartman (1985).

2.3 Broad patterns

A broad pattern emerges when taking a step back and viewing individual countries' domestic international corporate tax rules as a whole. Active income tends to be (primarily) taxed in the source country once a threshold of activity is met. There is less clarity on the taxation of passive income. Some countries impose withholding taxes on passive income paid to non-resident companies; however, others do not tax certain forms of passive income or tax it at a low rate. As noted above, for example, EU directives eliminate this type of taxation amongst associated companies of EU Member States under certain conditions. Countries tend to tax foreign-source interest and royalties received by resident companies—and give a credit for taxes paid in the source country—but an increasing number of countries exempt (at least some) foreign source dividends and active income generated by overseas PEs.

A clearer overall pattern emerges, both in terms of consistency and universality, once DTCs are overlaid onto domestic tax regimes, particularly as they uniformly tend to limit the scope of source-based taxation of passive income. Broadly and generally, treaties tend to allocate active income to the source country and passive income (primarily) to the residence country. However, this is not to say that there are no differences between treaties; treaties do depart from the OECD Model. Furthermore, there are many pairs of countries that are not covered by a bilateral treaty.

2.4 Anti-avoidance rules

The fundamental structure of the existing system makes it susceptible to avoidance. A system employing the separate entity approach, where the tax paid by a multinational group on its global profit depends on the terms of the transactions between different entities within the same group, clearly requires significant policing to limit manipulation. Over the years, countries have adopted reams of anti-avoidance legislation, often of mind-boggling complexity.

By way of example, this section describes three prominent anti-avoidance rules: rules regulating transfer pricing, controlled foreign company (CFC) rules, and rules limiting the deductibility of interest payments. Many countries have operated such measures—domestically and through treaties—for a number of years. The OECD/G20 BEPS project—discussed further below—sought to bolster existing measures and to increase the number of countries operating them.

2.4.1 Transfer pricing rules

As seen above, a separate accounting approach is used for international tax purposes meaning that tax rules are applied separately to each company within a

multinational group, even when these companies are transacting with one another. If, for example, a company (P) in country A pays a royalty to a wholly-owned subsidiary (S) in country B, A is designated as the source country and B as the residence country and the latter is broadly allocated the right to tax the royalty income. This system is manifestly susceptible to manipulation because these companies are under common control. Profits can be shifted from one country to the other by creating and mispricing within-group transactions. In our example, inflating the royalty payment reduces taxable income in country A and increases it in country B, which benefits the multinational if the tax rate in the former is higher than in the latter.

This opens the door to extensive problems, which the OECD Model seeks to address through the arm's length principle (ALP). The basic premise of the ALP, which is also adopted by many countries in their domestic legislation, is that within-group prices should be aligned with the prices that would have been charged between independent parties. The underlying rationale is that the prices charged by independent parties are determined by market forces and thus untainted by manipulation. This simple principle may seem both justified and straightforward to operate. In fact it is neither.

The approach is not necessarily persuasive at a conceptual level, largely because companies within a group differ from independent parties in a number of respects.[38] For example, a multinational group can choose whether to produce an intermediate good used in production through a wholly-owned subsidiary or a joint venture, or to buy it from an independent party. In principle, the multinational would choose the most profitable approach. As long as the overall profit earned differed amongst the three approaches, the 'true' price of the intermediate good is likely also to be different. Another, well-understood, example is that synergies arise from running a business through an integrated multinational group.[39] That is, in some cases the multinational can make higher profit because it is multinational. Transactions between subsidiaries are not necessarily the same as transactions between unrelated parties.[40]

But even if the ALP is thought to be a reasonable approximation, it can be difficult to apply in practice. The OECD thus produces guidelines (Transfer Pricing Guidelines) that are extremely—and increasingly—complex to expound its operation. At their core are five recommended methods for reaching an arm's length price: the comparable uncontrolled price (CUP), resale price minus, cost plus, profit split, and transactional net margin method. The CUP approach employs the price charged on comparable transactions between independent parties and thus reaches what can be easily understood as an arm's length price. The other

[38] See Vann (2010) and Schön (2012a).
[39] This point is elaborated in Kane (2014).
[40] For a fuller discussion see, for example, Keuschnigg and Devereux (2013).

methods are deemed to be reasonable alternatives when a CUP cannot be found since certain types of transaction or classes of assets, intangibles being a notable example, are simply hard to value. But these methods clearly move away from the principle of an 'arm's length' price. For example, the profit split approach[41] is based on estimating a reasonable level of profit in each of the transacting parties; in practice, this comes much closer to allocation by formula rather than by an arm's length price.[42]

In practice, the ALP approach can justify wildly varying prices, thus creating uncertainty and undermining its legitimacy. Overall, it is fair to say that the ALP does not provide a satisfactory answer to the transfer pricing problem.[43]

The treatment of risk under the ALP provides an instructive example of its inherent conceptual difficulties and limitations.[44] Risk is an important factor in determining the expected return required by independent parties when contracting. If a party assumes a high risk, she generally requires a higher expected return as compensation for the greater risk borne. In a contract between separate parties, the party taking on more risk would generally therefore require a higher rate of return to compensate for the higher risk. However, this reasoning does not carry over to the context of contracts between entities in the same group. It is simply not economically meaningful to speak about risk being allocated to one or the other wholly-owned affiliate in such a case (certainly as long as third parties, such as creditors or insurers are not involved). Ultimately risk is borne by the shareholders of the multinational, and this does not change by locating risk in one subsidiary over another.

Unsurprisingly, multinationals have used this feature of the regime for tax planning purposes. Profits of successful businesses could relatively easily be located in low tax countries by contractually allocating risk to affiliates in these countries. Indeed, in the years preceding BEPS risk allocations were 'at the heart of much tax avoidance planning'.[45] The BEPS Action Plan attempted to address this issue by allocating profit, at least in part, to the location of the people within the multinational group 'controlling' risk, rather than the location of the contractual risk.[46] We discuss the issues this approach raises below.

2.4.2 Interest deduction limitation rules

Within-group debt provides another significant tax planning channel. As seen in the examples given above, profit can be shifted from a high to a low tax

[41] OECD (2018d).
[42] Formulary apportionment is described and evaluated in some detail in Chapter 4..
[43] See, for example, Avi-Yonah (1995); Avi-Yonah and Benshalom (2011); and Collier and Andrus (2017). For empirical evidence see, for example, Lohse and Riedel (2013).
[44] For a more detailed discussion, see Devereux and Vella (2014); and Schön (2014).
[45] Durst (2012), page 285.
[46] OECD (2015c).

country through an interest payment from an entity in the former—for which it receives a deduction—to an entity in the latter—where it is taxed. Limitations on interest deductibility are found in many countries to address this profit shifting channel. Under these rules, interest deductions can be limited by reference to a variety of tests, for example, ranging from the ALP to fixed ratios such as equity to debt, interest to assets, or interest to EBITDA[47] ratios. These limitations are commonly known as 'interest barriers' or 'thin capitalization' rules.[48]

2.4.3 Controlled foreign company rules

CFC rules were first introduced by the US (known as 'Sub-Part F') in the 1960s and have since been adopted by many other countries. Under these rules the (generally passive) income of subsidiaries located in low tax countries can be taxed in the hands of domestic parents, even if such profits have not been distributed to the parents in the form of dividends or realized in the form of capital gains. CFC rules could address, for example, a strategy based on locating IP in low tax countries. If parent company P, resident in high tax country A, transfers its IP to subsidiary company S, resident in low tax country B, robust CFC rules could allow A to tax the income from royalties received by S in B on accrual, thus defeating this profit-shifting strategy. CFC rules vary in their breadth, partly to reflect the international tax policy of the country in question.[49] Action 3 of the OECD/G20 BEPS Action Plan urged countries to introduce CFC legislation, and the EU's Anti-Tax Avoidance Directive has turned this recommendation into an enforceable mandate in Member States. Yet CFC legislation has its own constraints, even in the EU: according to a consistent jurisprudence of the CJEU, CFC legislation has to focus on clearly abusive structures, so-called 'artificial arrangements', which does not include shifting real investment abroad.[50]

2.5 Competitive features of a corporate tax regime

Countries balance conflicting goals when setting their domestic international tax policies. On the one hand, they seek to raise revenue from taxing cross-border income and to clamp down on perceived avoidance activity. On the other hand, they seek to attract real economic activity—and mobile profit—by competing along

[47] Earnings before interest, taxation, depreciation, and amortization.

[48] As we discuss below, there is empirical evidence that thin capitalization rules affect choices about internal and external debt. See, for example, Büttner et al (2012) and Blouin et al (2014).

[49] Evidence on the impact of CFC rules is provided by Büttner and Wamser (2013); Egger and Wamser (2015); and Clifford (2019).

[50] Case C-196/04, *Cadbury Schweppes,* judgment of 12 September 2006; Case C-201/05, *Test Claimants in the CFC and Dividend Group Litigation,* judgment of 23 April 2008; Case C-135/17, *X GmbH,* judgment of 26 February 2019.

a number of dimensions with one another, including cutting tax rates, allowing their tax bases to be eroded and facilitating the erosion of other countries' bases. Countries strike this balance in different ways; some countries appear to move aggressively in both directions simultaneously.

The most visible source of international competition is the headline corporate tax rate, which has fallen steadily in many countries over time, as shown in Figure 1.2 in Chapter 1. Countries also compete through tax rates for particular types of income. Patent box regimes, for example, essentially offer reduced tax rates on income generated by IP and were the subject of much attention during the BEPS process. Both the OECD and EU countries agreed on the 'nexus standard' which tries to link the preferential tax treatment of intangible income to 'real' activities in the field of research and development.[51]

However, the terrain over which countries compete also includes substantive rules affecting the tax base such as capital allowances, and, perhaps less obviously, anti-avoidance rules. Strong anti-avoidance rules can weaken a country's competitive position by raising the effective tax burden on activities operating within its jurisdiction. This is particularly true when countries compete for 'headquarters functions', trying to attract the seat of the parent company of a multinational enterprise. As a result, some countries either do not introduce certain common anti-avoidance rules (e.g. CFC rules) or introduce weak versions. This might be to the detriment of other countries too. For example, in 1997 the US introduced 'check-the-box' rules which substantially weakened its Sub-Part F (CFC) rules as applied to certain types of passive income, thus allowing US multinationals to set up structures, such as the notorious Double Irish Dutch Sandwich, to shift profits to favourable jurisdictions. Similarly, the UK Finance Company Partial Exemption regime introduced in 2013 as part of the reform of the UK CFC rules, facilitated the shifting of profits by UK multinationals from high to low tax countries.[52] Whether the BEPS project marks a sea change in countries' willingness to compete along this dimension is discussed further below.

2.6 Resulting allocation of taxing rights

This section has described the basic structure of the existing system in relatively simple terms. But the system is not simple, and this description constitutes a mere starting point in understanding its operation. Many of the rules mentioned above are tremendously complicated, and their detail is unknown to all but those who engage with them on a regular basis.

[51] OECD (2015c).
[52] On these rules see Devereux and Vella (2014).

Ultimately, the tax due by a multinational on its profits, and its allocation among different countries, is determined following the combined application of several of the rules described above, and many more. An example makes this point. Suppose a multinational enterprise has its headquarters and parent company in country P; shareholders in country S; a manufacturing subsidiary in country M; owns intangible assets in a subsidiary situated in a low tax jurisdiction L; and sells products to consumers in country C.

Under the existing system, the company may pay tax on its profit in some or all of countries P, M, L, and C—and shareholders may pay additional tax in S — depending on the precise nature of the arrangements and the specific rules (domestic and treaty—based) in force. Different outcomes are possible depending on these two factors.

The subsidiary resident in M would generally pay tax in M on the profits it generates. However, suppose that the manufacturing subsidiary paid a royalty to the subsidiary in L owning the intangible asset—this could be for IP used in production, for example. This would allocate profit from M to L, since the royalty would be deductible in M and taxable in L. On the other hand, transfer pricing rules might restrict the impact of such profit re-allocation. If the IP had been developed in a country other than L—say P—there might also have been tax paid on the transfer to L, and again transfer pricing rules would attempt to police the within-group price charged. If P operated robust CFC rules, the profits arising in the subsidiary resident in L might then be taxed in the hands of the parent in P.

As there is no subsidiary in C, the subsidiary in M sells products directly to consumers in C. The question then becomes whether the subsidiary in M is operating in C through a permanent establishment (PE), which in turn depends broadly on the physical presence of the company's employees in that country. If M's operations in C do constitute a PE, then part of the profit of the manufacturing subsidiary in M would be allocated to C for tax purposes. If not, C does not tax any of the profits arising from the sales.

Finally, if a dividend is paid to the parent company in P, then there may also be a withholding tax levied in M on the dividend from M, as well as a tax on P on the receipt of that dividend, usually after receiving a credit for taxes paid elsewhere.

The allocation of taxing rights thus depends on the specifics of the arrangements and the particular rules governing them. Taking a step back, however, can we provide a high-level picture of how a multinationals' overall profit is divided among countries? As a starting point, and as noted above, we can see that out of the four possible locations for taxing multinationals' profit set out in Chapters 1 and 2—the locations of the ultimate shareholders, parent company, affiliates, and customers—the existing system primarily allocates rights to tax the profit of the multinational to the origin country, where the affiliates are located. The country where the parent company is located also might be allocated taxing rights through the application of CFC rules. Note that while taxing rights might be allocated to the country where

customers happen to be located (the market or destination country) this would only be because an affiliate (PE) is located there. The mere presence of customers does not lead to the allocation of taxing rights to that country.

How then are taxing rights allocated amongst the countries where the parent and the various affiliates are located? One could start by saying that income is allocated among countries where the activity generating the income takes place—either because the multinational operates there through a company or through a PE. But the limits of this descriptive statement are easily shown.[53] As seen above, countries can tax resident companies on their foreign (passive) income even if no real activity takes place in the country of residence. And this simple picture may be further complicated, even undone, through careful planning. A substantial portion of a multinational's profits may be allocated to a low tax jurisdiction even if little real activity takes place there. Anti-avoidance rules had for some time sought to counter this outcome. However, by 2013 they had been deemed to be insufficient, leading to the OECD/G20 BEPS project. That large-scale project did, in fact, narrow some important loopholes in the regime, but did not eliminate the problem. It is to the BEPS project that we now turn.

3. The BEPS project

The OECD/G20 BEPS project was heralded in 2015 as the 'first substantial—and overdue—renovation of the international tax standards in almost a century'.[54] However, and despite reference in its early documentation to the importance of revisiting 'some fundamentals',[55] the project ultimately had the relatively limited goal of addressing the perceived excesses of multinationals' tax planning. It did not aim to alter the existing system's fundamental framework; neither was it 'directly aimed at changing the existing international standards on the allocation of taxing rights on cross-border income'.[56]

But its failure to address countries' discontent over the current allocation of taxing rights—which ultimately is the main purpose of the international tax system—was bound to re-open the question of reform. Soon after the conclusion of the BEPS project the OECD noted that 'BEPS measures do not necessarily resolve the question of how rights to tax are shared between jurisdictions, which is part of the long term issue'.[57] Unsurprisingly, further reform proposals were put forward and are currently being considered. These proposals do alter the allocation

[53] See Section 3.2.
[54] OECD (2015e), p. 3.
[55] OECD (2013a), p. 8.
[56] OECD (2013b), p. 11.
[57] OECD (2018a), p.1.

of taxing rights among countries, if only to a limited extent. At the time of writing, it is not clear whether these proposals will be adopted, and if so, what their precise content will be. We discuss this further in Section 5 of this chapter. Here, we look at the BEPS project and the changes it brought.

3.1 The road to BEPS

The history of the BEPS project can be traced back to the OECD's report on 'harmful tax competition' published in 1998.[58] In that report, the OECD went beyond its traditional remit of technical work on double taxation and addressed the interaction between tax competition amongst countries and corporate tax planning. The OECD drew a distinction between what it perceived to be two types of tax competition. It argued that 'harmful' tax practices include those that are either operated by 'tax havens' or 'ring-fenced'[59] in favour of foreign investors and which grant preferential treatment to highly mobile tax bases like financial assets and services. On the other hand, a country's strategy to create a generally friendly tax environment that even-handedly benefits foreign and local investors and does not distinguish between different kinds of taxable activity was considered to be acceptable as part of sound tax competition.

This distinction between 'good' competition for substantial activity and 'bad' competition for purely tax driven arrangements was taken up elsewhere, in particular in the tax policy work of the European Union.[60] The EU Member States agreed on the 'Code of Conduct for Business Taxation' in 1998 which introduced both a standstill and a rollback of 'harmful tax measures', where the assessment of whether a measure was harmful depended on (among other things) 'whether advantages are granted without any real economic activity and substantial economic presence within the Member States offering such tax advantages'.[61] Similar references can be found in the jurisprudence of the CJEU on the Member States' right to fight abusive tax planning. And in recent years, the European Commission has extended this mission for 'good tax governance'[62] to non-EU countries.

The idea that tax competition between countries to attract economic activity is in some way 'good' is highly questionable. To the extent that lowering the tax rate in one country reduces economic activity in another, then that creates a negative impact—what economists call a 'negative externality'. This represents a social cost of the policy which is generally not taken into account by the tax-cutting

[58] OECD (1998).
[59] OECD (1998), para. 62.
[60] The legal perspective of tax competition in Europe is laid out by Schön (2000).
[61] European Council (1997), para. B.3.
[62] European Commission (2009).

government. The result of such competition is that tax rates on corporate income are lower than governments would otherwise choose. Unless one believes that governments would otherwise systematically choose tax rates on corporate income that are too high, this constraint on government choices is unlikely to be 'good' or 'sound'. It is hard to escape the conclusion that at the time there was simply not enough political will to address this issue, which would have required considerably greater coordination between countries; and so the OECD and EU actions focused on low tax jurisdictions.

However, there is little doubt that what the OECD and the EU regard as 'harmful' tax competition is indeed also harmful to other countries. The opportunity to shift profit to a low tax jurisdiction where there is little or no economic activity undermines the tax base in other countries. This is, of course, a direct result of the very structure of the international tax system, where the overall tax paid by a multinational depends on intra-group cross-border transactions. We described this structure in broad outline above. As long as it is possible—for example—to set up affiliates in low tax jurisdictions which license IP, lend, or assume other business risks in relation to other affiliates, then the basic rules will identify profit as arising in such jurisdictions. Given this fundamental approach, it becomes difficult to prevent profit being located in those jurisdictions. Yet this is precisely what the BEPS project aimed to do.

3.2 BEPS: target, guiding principle, and actions

The BEPS project was launched in 2013 in response to the public and political clamour over the tax planning activities of multinationals. Unprecedented press coverage of these activities and campaigning struck a chord at this particular point in time; possibly because of broader factors, including perceptions of fairness in a period characterized by the lingering effects of the 2007–08 global financial crisis and increased awareness of rising inequality among income groups.

In its 2013 BEPS Action Plan the OECD reached the conclusion that:

> Fundamental changes are needed to effectively prevent double non-taxation, as well as cases of no or low taxation associated with practices that artificially segregate taxable income from the activities that generate it.... A realignment of taxation and relevant substance is needed to restore the intended effects and benefits of international standards, which may not have kept pace with changing business models and technological developments.[63]

[63] OECD (2013b), p. 13.

The guiding principle adopted by the BEPS project—and which, to some extent, harked back to the OECD's earlier work on harmful tax competition—was that 'profits are taxed where economic activities generating the profits are performed and where value is created'.[64] Guided by this principle, the substantive actions produced by the BEPS project sought to address specific tax planning channels (hybrid mismatch arrangements, debt contracts, patent boxes, treaty abuse, planning around the PE threshold, and transfer pricing) to better align taxing rights and value creation.

In a remarkably short space of time, the principle that taxing rights should be aligned with value creation has become widely accepted as the guiding principle for taxing business profit in an international setting. The OECD, the EU Commission, some Finance Ministries, academics, and even multinational companies regularly repeat the mantra that profits should be taxed where value is created. The principle has popular appeal, perhaps because it appears to follow an intuitive understanding of fairness. In Chapter 2 we set out the difficulties in using fairness as a criterion for designing a system to tax business profits in an international setting. We here set out five additional reasons to question this principle.[65]

First, the existing system does not follow the principle. As we have discussed, under the existing system countries tax foreign profits earned by resident companies, for example, even if value is not created in the country of residence. Perhaps the issue here is that the BEPS guiding principle did not properly track the specific problem BEPS was designed to address: 'no or low taxation … when it is associated with practices that *artificially* segregate taxable income from the activities that generate it'.[66] Note that this implies that that taxable income can be segregated from the country where it is generated—for example through the payment of cross-border royalties or interest, as long as it is not done 'artificially'. Of course, this requires a workable distinction between 'real' and 'artificial', which can be difficult, even impossible, especially in the context of within-group finance and other types of business risk allocation. Long-standing allocation rules with regard to 'passive income' do not follow the 'value creation' concept and have never done so.

Second, BEPS did not seek to redesign the existing system following this principle; it simply adopted rules that—in some cases—better aligned the system with the principle. Tax planning has not become impossible or useless, but it has largely become more costly in terms of the 'frictions' confronted by taxpayers.[67] The result has been an even less coherent and principled, and more complex, system.

[64] OECD (2014a), p. 4.
[65] See the discussion in Devereux and Vella (2014, 2018b) and Hey (2018).
[66] OECD (2013b), p. 10 (emphasis added).
[67] The concept of legal 'frictions' which make tax planning more costly, has been developed by Schizer (2001).

Third, the principle focuses exclusively on the supply side; no value is deemed to arise in the market jurisdiction. This reflects the operation of the existing system; it ignores the market and is based, instead, 'on a determination of how different activities *by the firm* contribute to [the multinational's] profits'.[68] In Chapter 4 we question the rationale for allocating taxing rights over a multinational company's profit only to countries where its functions and activities take place. Here we merely note that a notion of 'value creation' that ignores the market is not sufficiently comprehensive. The corporate profit being taxed requires a market just as it requires the various parts of a supply chain. The profit is dependent on the price charged at the point where supply and demand meet; it simply would have not arisen in the absence of a market.

Fourth, even when it is possible to identify the countries where activities creating value take place, it is extremely difficult to establish *how much* value is created in each country.[69] But the latter is necessary for setting up and operating a tax system that follows this principle. This is true of companies operating in the traditional economy, but it is even more so in a digitalized economy. As the EU Commission explained: '[i]n a digitalised world, it is not always very clear what that value is, how to measure it, or where it is created'.[70] It is therefore not surprising to find strong disagreement among countries, and even businesses, as to whether certain factors generate value, let alone how much. But it does seem surprising that despite this, the EU Commission—and the OECD—persist with this principle to guide the design of a tax system in the age of digitalization.

It might be argued that the principle should be understood as providing a negative prescription: that profit should *not* be taxed where *no* value is created, or no real activities take place. In this case, the point of the principle is to deny that profit is generated in low tax jurisdictions which have little or no real activity. This may be a reasonable point, but it is a different principle. Its proponents frame the value creation principle in positive terms to provide guidance on sharing profit among countries where value is deemed to be created. Proposals by the EU Commission and the UK Treasury for taxing highly digitalized businesses, for example, explicitly sought to allocate taxing rights over these businesses' profit in proportion to the value created by their users.[71]

Fifth, for the reasons discussed in previous chapters and also further below, a system which taxes profit where value is created—or where economic activities take place—distorts the location of activities; in turn this intensifies competition, is not incentive compatible, and hence is unstable in the long run.

[68] OECD (2019a), p. 12 (emphasis added).
[69] For further discussion see, for example, Devereux and Vella (2017) and Schön (2018).
[70] EU Commission (2017), p. 7.
[71] HM Treasury (2017, 2018) and EU Commission (2018c). See also the Gaspar Committee (2014).

3.3 BEPS and the allocation of taxing rights

Despite not being directly aimed at doing so, BEPS changed the allocation of taxing rights among countries *to some extent*. In particular, consistent with its aims, it made it harder for low tax countries to be allocated taxing rights over income in the absence of real activity.

The BEPS Action Plan attempted to water down the relevance of concepts like 'ownership', 'contracts', 'funding', and 'risk' for within-group profit allocation.[72] Under pre-BEPS rules, as set out above, profits could be shifted through careful contracting, including locating the ownership of assets and risk in particular affiliates, and within-group funding. BEPS actions sought to alter the system so that taxation more closely follows 'real activity' and 'value creation' instead, thus reducing the allocation of taxable income to low tax jurisdictions where no, or little, 'economic substance' is to be found.[73]

The policy can be seen in play in a number of BEPS Actions. Action 2, for example, addressed hybrid mismatch arrangements (HMA), which were used by companies to exploit arbitrage opportunities arising from differences in countries' tax rules. HMA generated deductions that could 'artificially' shift profits away from the countries where the value creating activities were deemed to take place. Action 4 proposed interest limitation rules, which limit companies' ability to use 'excessive' interest payments to shift profits away from countries where value creating activities were deemed to take place. Action 5 addressed patent box regimes that offered lower tax rates on income generated by patents resulting from research and development (R&D) undertaken in a different country. This proposal sought to align taxing rights over the patent income with the activity (R&D) that created it.

This policy is most clearly visible in the work on transfer pricing under Actions 8–10 of the BEPS Action Plan. Post-BEPS the real allocation of assets and the actual performance of business functions and the control of risk by real people on the ground has become a key factor for international tax allocation. Consider the case, for example, in which a multinational subsidiary resident in a low tax country assumes risk on a contractual basis, for example by funding R&D activities performed by another group company in a high tax jurisdiction, and where the return earned by the company undertaking the R&D is determined as a simple mark-up on costs. According to the relevant OECD/G20 BEPS report, the resulting income should not be allocated to the low tax subsidiary simply on the basis that this entity funds the activity, owns the relevant assets, and bears the financial risk of failure.[74] Instead, the BEPS project moved towards the allocation of income being based on the active performance of tasks, for example, the presence of people obliged

[72] OECD (2015e) Annex A, p. 15.
[73] Saint-Amans and Robert (2015).
[74] OECD (2015c).

and able to 'control' the risk in a meaningful manner.[75] Practically speaking, there has to be a sufficient number of 'experts' present in the low tax country to justify the assumption of risk by the local subsidiary.[76] It is very clear that this approach will frequently clash with the within-group allocation of asset ownership and financial risk to separate subsidiaries under property law and contract law. Against this background, current OECD work favours an intensified policy to partially recharacterize or even completely disregard existing contracts and asset allocations between affiliated companies.[77]

This incremental change of paradigm has met with a lot of support among the governments of OECD countries, and has recently been strongly endorsed by the European Commission,[78] but it is itself subject to major criticism.[79]

First, it undermines the fundamental approach of the international tax system based on separate entity. This is clearly based on the notion that a subsidiary of a multinational company should be treated as if it were an independent entity. In this case, factors like ownership, funding, contracts, and risk are important in determining the taxable income of the subsidiary—consistent with defining income in terms of ownership and contracts, and not from 'activity'. Of course, as already identified, this approach does offer multinationals the opportunity to organize the contractual relationships between their affiliates in such a way as to make profit appear in low tax jurisdictions. It would therefore perhaps be reasonable to acknowledge the problems of the basic system and define a new set of principles; but this is not the approach of the BEPS project. Instead, it sought to layer a new principle, and new rules, on top of existing principles in, what is in effect, a pretence that there had been no change.

Against this background, criticism should not go against the value of concepts like ownership, contracts, funding, and risk for international income taxation in general. It should be accepted that between independent parties these legal relationships are central in determining the allocation of profit. Rather, it makes sense to doubt the value of these concepts for the tax treatment of within-group relationships of multinational enterprises in particular. But this is not the result of the work done on BEPS.

To give a simple example outside the context of multinational enterprises: nobody would seek to tax an agent on income produced by her work on behalf of her principal simply because the agent performs the 'real activity' while the principal simply 'funds' the activity and 'owns' the resulting income.[80] This is because

[75] See Bilaney (2016).

[76] Verlinden et al (2016), p. 111, rightly note that 'control' in this sense is regularly scattered among different levels in the hierarchy of the firm.

[77] See Hickman (2016). For a critical view see Schön (2014); Verlinden et al (2016), p. 113; and Wittendorff (2015), p. 461.

[78] European Commission (2015).

[79] IMF (2014), para. 59 fn.79.

[80] See Boidman and Kandev (2015).

the income is in no way related to any 'activity' as such and rather relies on the ownership of the underlying capital assets and the receipt of the resulting income. Instead, it is natural to tax the principal on the income that she receives.

To make one last point in this context: business profit may be derived from a combination of capital and labour. The return to labour is generally taxed where labour is performed. It does not follow (as the BEPS Action Plan seems to suggest) that the remuneration for the provision of capital flowing to the capital owner should be taxed in the same place—simply due to the fact that this is where the 'real activity' is performed by the labour force. The same can be said for an allocation of the capital income on the basis of where 'real' assets are used. Thus, a new standard for profit allocation based on the central notion of 'economic activity' is evidently out of sync with long-standing treaty practice and does not provide a solid basis for future international tax reform.

4. Evaluating the current regime

In Chapter 2 we set out five criteria to evaluate different systems for the international taxation of corporate income: economic efficiency, fairness, robustness to avoidance, ease of administration, and incentive compatibility. We now turn to an evaluation of the current regime based on these criteria. In subsequent chapters we evaluate a number of reform proposals using the same criteria.

4.1 Economic efficiency

In Chapter 2 we set out the main issues regarding the economic welfare costs arising from economic inefficiencies in both the domestic and international taxation of business profit. As we noted there, the existing international corporate tax regime distorts corporate choices in a number of dimensions—and these distortions are likely to create a reduction in economic welfare for global society as a whole. For example, if, for tax reasons, a business is induced to choose a more costly location for its activities, then those higher costs reflect a cost to society; they are likely to be reflected in higher prices for consumers, lower income for employees, or lower post-tax income to the business owners. Similarly, projects that are worth undertaking in the absence of tax may become uneconomic in the presence of tax; the value of those projects would then be lost to society.

4.1.1 Measuring economic inefficiencies

Policy makers may reasonably ask how important economic inefficiencies are—what estimates are there of the size of economic cost (the 'excess burden' or 'deadweight loss' of the tax) and hence its importance relative to, say, distributional

concerns. There is now a considerable body of economic evidence that the existing tax system affects the choices of business. In general, the more sensitive behavioural choices are to prices and taxes, the higher is likely to be the excess burden.

A starting point for evaluating the excess burden resulting from distortions to different types of business decision is that taxes on profit tend to raise the cost of capital—the required rate of return on investment—and as a consequence they depress the level of investment, and hence, ultimately, the size of the economy. Research on the extent to which taxes depress investment goes back over half a century at least to Hall and Jorgensen (1967). Recent work has tried to distinguish different aspects of the tax regime on investment—for example, contrasting the role of the tax rate and the permitted depreciation rate for tax purposes. This recent literature has tended to find large effects of taxation. For example, estimates of the elasticity of investment with respect to the net of tax cost of an asset (that is, the percentage fall in investment in response to a 1% rise in the net cost of an asset, after taking into account tax allowances) range from around 1.6 to as high as 14.[81] These elasticities are very high, but the implied elasticity of the size of the long-run capital stock with respect to the net cost of investment is lower.[82] These estimates are hard to translate directly into a measure of the excess burden, but they suggest an important role for taxation in determining the size of the business sector, and hence the economy.

A second form of distortion is to the location of investment and economic activity more generally. There is also a large empirical literature investigating how flows of investment between countries, and location decisions by businesses, are affected by differences in taxes between countries. There are numerous complications in estimating the effects of taxation, not least in determining the relevant form of taxation for different elements of investment decisions. However, a recent survey of the literature reports that the median semi-elasticity of flows of foreign direct investment (FDI) with respect to an effective tax rate (that is, the percentage change in FDI in response to a one percentage point change in the effective tax rate) is around 2.5.[83] This is again a large effect, indicating that the location of economic activity is very sensitive to differences in tax between countries.

[81] For recent evidence, see House and Shapiro (2008); Zwick and Mahon (2017); Ohrn (2018); and Devereux et al (2019). These estimates are much higher than in an earlier literature summarized by Hassett and Hubbard (2002). Zwick and Mahon (2017) offer three explanations. First, recent studies include more small and medium-sized firms than have been previously available; evidence suggests that these are more responsive to taxes. Second, recent studies have used tax return data, thereby avoiding significant measurement error which arises with accounting data. Third, more recent studies have focused on the impact of depreciation incentives; these might be expected to have a larger impact on investment than other elements of taxation.

[82] That is because ultimately it is the size of the capital stock that should be influenced by taxation. Investment represents additions to that stock. A reduction in tax, for example, may induce a moderately higher capital stock in the long run; but that may require a substantial increase in investment in the short run.

[83] Feld and Heckemeyer (2011). See also De Mooij and Ederveen (2008).

A third form of distortion is between the use of debt and equity finance. The tax advantage to the use of debt may lead business to borrow more, and hence raise the probability of default, although the effects of this may depend also on investor-level taxation. Again, this has been the subject of empirical investigation for decades. A recent survey and meta-analysis of the literature has estimated that, on average, a ten percentage point rise in the tax rate would raise the share of debt in the total funds of a business by 2.7 percentage points.[84] However, this masks a large variation in estimates and there is evidence that this rate of response is rising over time. A more recent study using detailed tax return data found much larger effects, with a ten percentage point rise in the tax rate raising the share of debt in the total funds of between seven and fourteen percentage points.[85] The effects are particularly important in the financial sector. One study finds that eliminating the bias to debt finance would increase banks' use of equity capital in the long run by more than 50%, which would be significant in terms of the fragility of the financial system.[86]

Another decision that may be affected by taxation is the choice of legal form, and in particular whether to incorporate. Again, recent studies have found that the differences in taxes between unincorporated and incorporated businesses have an economically significant impact on this decision.[87] There are many other margins of business decisions which are affected by taxation, and we will not summarize all of the empirical literature here. Other margins include the choice between different methods of production—for example, between using more labour or more capital, or between different types of asset; whether to retain earnings in the business or to distribute them to the owners; whether to outsource or insource intermediate goods and services in the supply chain; and how aggressively to seek to minimize tax liabilities by shifting income to lower taxed jurisdictions. In addition to affecting these behavioural choices, taxes can also distort competition between businesses, if one business faces a higher effective tax rate than another.

Whilst all of these distortions due to taxation imply the existence of an excess burden, estimating the excess burden itself is more difficult, because it may be difficult to assess the cumulative impact of multiple, interacting distortions. However, under certain conditions, the excess burden of a tax can be inferred from an estimate of the sensitivity of the taxable profit to changes in the tax rate.[88] Intuitively, this is because at the margin, the agent should aim to equalize the marginal cost of raising her pre-tax profit with the marginal benefit of the additional post-tax profit. A marginal change in the tax rate affects the pre-tax profit, and the

[84] Feld et al (2013).
[85] Devereux et al (2018).
[86] De Mooij and Keen (2016). The very largest banks appear to be much less responsive to taxation.
[87] See de Mooij and Nicodème (2008); Liu (2014); and Devereux and Liu (2016).
[88] This approach is originally due to Feldstein (1995, 1999). Strictly, these are the *marginal* deadweight costs—that is, the effect on these costs of a small change in the tax rate. For a review, see Saez et al (2012).

impact of this on the choice of pre-tax income can be used to estimate the marginal excess burden.

This approach has been used primarily in the context of determining the optimal marginal rates of tax on personal income. However, the approach has also been applied to taxes on the profit of small businesses in the UK with an estimate of a substantial marginal deadweight cost of up to 29% of tax revenue.[89] Even if this is a high estimate, and even if it is smaller for larger businesses, this does suggest that policy makers should take economic efficiency into account in choosing tax policies.

We should note, though, that these distortions to economic behaviour create costs which are borne by society as a whole. In an international context, an individual country may nevertheless benefit from a distortion. For example, if country A induces a business to relocate from country B to A by reducing its taxes, then A may gain, even if costs of production are higher in A and therefore there is an excess burden for the world as a whole. This potential conflict between global and national welfare maximization underlies our concern that the tax system should be incentive compatible, as discussed in Chapter 2.

4.1.2 Economic efficiency and tax avoidance

The changes brought about by the BEPS project do not address these distortions; that was not the project's goal. On the contrary, it is likely that distortions to real activities will *increase* as a result of BEPS. Before the BEPS project, certain planning strategies allowed profit to be shifted to low tax countries without having to locate substantial real activity there. As we have seen, post-BEPS, the same broad strategies may be available but only if a greater level of functions and activities is located in the low tax countries. For example, to achieve desired transfer pricing outcomes, senior decision makers might have to relocate to low tax countries post-BEPS. One can predict that companies will meet such requirements if the tax savings outweigh the costs.

Certain planning strategies may simply not be available following the implementation of the BEPS project proposals, resulting in companies having to move their real activities to achieve the same tax result. An example arises from Action 5 of the BEPS Action Plan which addresses patent box regimes. These regimes essentially offer preferential rates on returns generated by IP. Action 5 seeks to counter situations where IP is produced through R&D activity undertaken in country A, but is subsequently transferred to country B, which offers a patent box regime. The aim of the BEPS measure was to align taxing rights with economic activity (the R&D). But this means that businesses will have an incentive to move their R&D facilities to the country offering the patent box.

[89] Devereux et al (2013).

More broadly, to the extent that the changes brought about by BEPS have made the tax regime more robust to profit shifting, multinationals that wish to lower their global tax charge may have to do so by relocating their real activities to low tax jurisdictions. As the regime becomes more robust to profit shifting, it is likely to create greater distortions to real business decisions.

4.2 Fairness

Fairness dominates public, political, and even some academic debates on international tax reform. In Chapter 2, we set out the difficulties in evaluating corporation tax systems on the basis of fairness. We do not repeat these points here; instead, we make two broad observations on criticisms of the existing system that have been made based on 'fairness'.

First, some strands of criticism are compelling, but are more accurately or usefully formulated in terms of other criteria used in this book. For example, companies are often criticized for not paying their 'fair share of tax' because they lower their tax payments through tax avoidance. It is more useful to reformulate this as a criticism of the existing system for not being sufficiently robust to tax avoidance. Another example is that the existing system unfairly allows multinationals to pay lower rates of tax than small domestic businesses, and highly digitalized businesses to pay lower rates of tax than traditional businesses. The EU Commission, for example, argued that '[t]he system is unfair and there's no level playing field as traditional companies tend to carry a heavier tax burden than digital ones'.[90] The quintessential example here is of the small local bookshop paying a higher tax rate than large multinationals selling books online. The Commission's criticism is formulated both in fairness and efficiency terms; however, the latter is less vague and, to our mind, more useful. By allowing large digital multinationals to pay lower rates of tax than small domestic traditional businesses, the existing system creates a real economic distortion. Whether this is unfair depends on the incidence, and ultimately the progressivity, of the tax.

Second, although, as noted in Chapter 2, 'fairness' does not provide a very useful guide for allocating taxing rights among countries, there certainly is a politically powerful belief that the allocation under the existing system is 'unfair'. Indeed, the OECD itself recognized at the start of the BEPS project that 'a number of countries have expressed a concern about how international standards on which bilateral tax treaties are based allocate taxing rights between source and residence countries'.[91]

[90] EU Commission (2018a).
[91] OECD (2013b), p. 11.

This criticism is often focused on the regime favouring developed over developing countries—at times classified as 'residence' and 'source' countries. The UN Model, which is intended for adoption between developed and developing countries, was drawn up with this in mind. This model 'generally favours retention of greater so called "source country" taxing rights under a tax treaty—the taxation rights of the host country of investment—as compared to those of the "residence country" of the investor. This has long been regarded as an issue of special significance to developing countries … '.[92] It should be noted that the terms 'residence' and 'source' appear to be used here in a broad economic meaning; the idea seems to be that relatively wealthy investors located in a developed country may be financing economic activity in a developing country. A perceived emphasis on residence country taxation in the existing system (through the treatment of passive income) then favours the developed country over the developing country. Of course, this is only partially true, given the ability of many multinational companies to ensure that their passive income arises in low tax jurisdictions. In this case, neither the 'source' nor 'residence' country is able to fully tax the underlying income.

As noted, the BEPS project was not meant to—and did not—address perceived problems of fairness. However, the procedures followed in drawing up the BEPS recommendations furthered perceptions that the design of the regime was led by a small group of developed countries and was thus unfair. Some steps were taken for non-OECD/G20 countries to input their views while the BEPS recommendations were being developed, and they were invited to join the project—through the Inclusive Framework—once the final reports containing the recommendations had been drafted. But developing countries were invited to join the project *after* the rules had been agreed by a group of countries with different concerns and needs. This criticism has been addressed in the latest round of possible reforms—current proposals are being discussed among more than 130 countries that constitute the Inclusive Framework and the goal is to achieve a consensus-based solution. This is clearly an improvement; however, due to resource constraints, there are concerns about the extent to which many of the countries that currently participate in the Inclusive Framework can do so in an adequately informed and meaningful manner.

A more recent line of criticism—with a number of strands—has arisen following the advent of digitalization. One strand is that market countries are not receiving their 'fair share' of tax revenue because in the digital age companies are able to sell to consumers located in a country without incurring corporation tax liability there. Another strand is that 'fairness' demands that countries where digital users are located should be allocated some taxing rights over the profit of certain highly digitalized businesses which are in part generated by exploiting users' contributions. This issue is discussed in Section 5.

[92] United Nations (2017), para. 3.

4.3 Robustness to avoidance

Concern over the regime's susceptibility to tax avoidance is long standing and most eloquently evidenced by the incessant waves of anti-avoidance legislation adopted by countries over the years. Anecdotal evidence of the tax avoidance strategies employed by multinationals abounded in the run up to the start of the BEPS project, and some arcane strategies even made it into the mainstream media. There have also been a number of empirical estimates of the scale of profit shifting, as well as how far it could be attributed to specific channels, such as within-group debt.[93]

The OECD/G20 BEPS project put the scale of BEPS at between 4% and 10% of worldwide corporation tax revenues—between $100 billion and $240 billion.[94] A paper from the International Monetary Fund (IMF) put the estimates somewhat higher, at around 1% of GDP for OECD countries and 1.3% of GDP for developing countries.[95]

Two recent papers reviewed the academic literature estimating the size of the avoidance by multinational companies.[96] They both emphasize the difficulties in identifying the scale of such avoidance, and describe the different techniques that have been used, based on both macroeconomic and firm level data. They also report considerable uncertainty about the scale of such activity; Riedel (2015) reports a wide range of estimates from 5% to 30% of taxable profit and concluded that '[i]t is thus too early to draw final conclusions on the quantitative importance of international tax avoidance activities'. That conclusion still holds.

Another recent paper conducted a meta-analysis of twenty-seven empirical studies that have been undertaken.[97] An important part of this analysis was to identify how and why estimates differed between studies, and between different types of business and profit shifting. Notwithstanding the variation in estimates, however, overall, taking into account the influences of study design and confounding factors, the average effect identified was a semi-elasticity of pre-tax profit of about -0.8. That is, reported profits decrease by a little under 1% if the international tax rate differential increases by one percentage point.

A still more recent paper used UK tax return data to investigate the differences in corporation tax paid by UK affiliates of non-UK multinational companies and comparable domestic companies, and found that the former group

[93] See, for example, Desai et al (2004).

[94] OECD (2015f). But this BEPS Action 11 report—showing empirical foundations for assumptions about tax planning—was vague in its conclusions. Tørsløv et al (2018) estimate worldwide revenue loss to be at the top of this range, at 10%.

[95] Crivelli et al (2016).

[96] Dharmapala (2014) and Riedel (2015). See also Beer et al (2018).

[97] Heckemeyer and Overesch (2017).

had on average a twelve percentage point lower ratio of taxable profit to total assets.[98] 60% of this difference was explained by the fact that a much higher proportion (50%) of the former group report zero taxable profits compared to the latter group (20%).

The uncertainty around these estimates is neatly illustrated by an academic debate ongoing at the time of writing. Blouin and Robinson (2020) have argued that some estimates of profits shifting are significantly overstated due to researchers' misunderstanding of the accounting treatment of indirectly owned foreign affiliates in the US international economic accounts data. They suggest a correction to address this misunderstanding which, in one example, reduces an estimate of US corporate tax revenue lost to profit shifting from 30–45% to 4–8%.[99]

At first glance some of these figures might appear underwhelming, thus making the extensive political and media attention given to this issue appear disproportionate. They should also caution politicians against inflated revenue expectations from tightening the existing system. However, these estimates ought to be treated with great caution due to the inherent difficulty in both defining avoidance and measuring the revenue loss it generates.

Whatever the overall empirical estimates, however, tax avoidance remains of critical importance. First, the revenues lost might be significant for particular countries—such as developing countries—that rely more heavily on corporation tax than others. Second, weakness to avoidance has a negative impact on a tax system's overall performance under the other criteria set out here. It creates a significant welfare loss as highly trained individuals, in both the private and public sectors, engage in a never-ending, unproductive cat and mouse game; it leads to escalating complexity and administrative and compliance costs; and it undermines public confidence in the tax system as a whole. The costs of a porous international tax system thus go significantly beyond the direct revenue loss.

Profit shifting ought to have become harder as a result of the proposals emanating from the BEPS project and other contemporaneous unilateral measures. Anecdotal evidence appears to confirm this, as a number of prominent multinationals are reported to have changed their tax structures in response to these measures.[100] Reports by the OECD,[101] the EU Commission,[102] and others[103]

[98] Bilicka (2019).

[99] See Clausing (2020) for a response.

[100] See, for example, 'Facebook, in Accounting Change, Could Pay Millions More in British Taxes', *New York Times*, 4 March 2016.

[101] OECD (2018b), Chapter 3.

[102] EU Commission (2018b), pp. 26–7.

[103] HM Treasury (2017), para. 3.3: 'The significance of the BEPS project should not be underestimated. There is clear evidence that its recommendations, along with the unilateral action undertaken by the UK through the Diverted Profits Tax, are having a discernible impact on multinational groups' behaviour and the viability of complex tax planning structures that unfairly reduce UK tax receipts.'

have also claimed that these measures have had an impact, albeit some reports acknowledged that it is still 'early days'[104] and that 'implementation gaps' do exist.[105]

But the critical question is *how much* more robust the system has become as a result of these changes. Have the changes made a moderate or a significant difference? It is too early to answer this question empirically and doing so through persuasive empirical work will be extremely difficult anyway. However, there are reasons to believe that the existing system remains somewhat vulnerable to tax avoidance.

First, there are implementation gaps; thus far the measures proposed in BEPS have not been adopted in full universally. Second, countries retain discretion in implementing the measures proposed in BEPS and, therefore, even when measures are implemented they might take a weak form. Third, certain new or enhanced anti-avoidance rules knowingly allow a degree of profit shifting. For example the BEPS proposed interest deductibility rules cap—but do not forbid—deductions for interest payments. Fourth, critical features of the system remain deficient—notably transfer pricing rules.

The continued weakness of transfer pricing rules is implicitly acknowledged by the introduction of rules—such as the 'modified nexus approach' introduced through Action 5 of BEPS—that would be unnecessary if transfer pricing rules were trusted fully. It is also acknowledged expressly by the OECD with respect to some issues. For example, the OECD recently noted that:

> An increasingly heavy reliance on intangibles may also pose challenges to the existing tax framework. The BEPS Project has significantly contributed to realigning income from intangibles with value creation, notably by putting greater emphasis on real economic activities (e.g., Action 5, Actions 8–10), and by taking a more holistic approach to the review of cross-border transactions. Nonetheless, it may still often be very difficult to determine how to allocate income from intangible assets among different parts of an MNE group.[106]

Fifth, a number of countries have sought to respond to tax planning through separate taxes, such as the UK's and Australia's Diverted Profits Taxes. The increasing resort to digital services taxes can also be partly explained by the difficulties faced by countries in taxing certain highly digitalized businesses. Searching for solutions outside the framework of the existing system betrays the difficulty in finding a solution within the system.

[104] OECD (2018c), p. 90.
[105] EU Commission (2018b), p. 27.
[106] OECD (2018c), p. 170.

Finally, soon after the completion of the BEPS project a fresh set of proposals were put forward, partly to address profit shifting opportunities.[107] At the time of writing, these proposals are being considered by the OECD/G20 Inclusive Framework. The main objectives of the Global Anti-Base Erosion (GloBE) proposal, in particular, include curbing profit shifting (and tax competition). The BEPS project clearly did not satisfactorily address profit shifting, and it is not clear that this round of reforms will do so either. These proposed reforms are discussed further in Section 5.

It is worth emphasizing again that the existing system's vulnerability to avoidance is a direct consequence of its fundamental structure. Cross-border within-group transactions are still the building blocks for determining the overall tax paid by multinationals, and these are by their very nature open to manipulation. The vulnerability of the system also arises from another of its fundamental features. It taxes companies where mobile factors are located, including where its internal lending is made and its IP is held. The number and strength of anti-abuse rules to address the consequences of these fundamental features of this regime can be increased. But they can only be addressed comprehensively by changing the fundamental features directly.

4.4 Ease of administration

The existing regime imposes high compliance costs on businesses and collection costs on tax authorities.[108] Many aspects of the regime are highly complex. This complexity partly results from rules that are necessary to implement the particular features of the regime. For example, the concept of the permanent establishment is fundamental for the source-based tax that is permitted under the existing system, but this requires complex profit attribution rules.

Significant complexity also results because of the need to address tax avoidance under the existing system. The plethora of complex rules that are necessary for this purpose include transfer pricing rules, interest limitation rules, and CFC rules. It is worth reiterating that this ever-growing body of rules is not the product of overly active rule makers—it is necessary to address avoidance opportunities arising from the fundamental structure of the existing system. A system in which cross-border within-group transactions—that are easy to create and manipulate—determine

[107] OECD (2019a).

[108] For the UK in 2018–19, HMRC estimate the cost of collecting corporation tax to be 60 pence for every £100 collected in revenue. This has fallen gradually from 78 pence in 2013–14. The comparable cost of personal income tax was 72 pence in 2018–19, mainly for self-assessed income, down from 93 pence in 2013–14. The cost of collecting VAT fell slightly from 60 pence in 2013–14 to 58 pence in 2018–19. See HM Revenue and Customs (2018/9) and earlier years. Shaw et al (2010) cite alternative estimates of compliance costs for corporation tax. These are considerably higher than HMRC costs, ranging from 1.5% to 2.2% of revenue collected.

the overall tax paid by a multinational, requires extensive anti-avoidance rules to police it. The constant need to add to, and update, these rules increases complexity, administrative and compliance costs, and makes the system increasingly uncertain.

The BEPS project appears to have aggravated the problem. For a start, in some countries, the BEPS Actions have been implemented through extraordinarily complex legislation. The UK, for example, implemented Action 2 on hybrid mismatch arrangements through legislation which is seventy pages long and which is accompanied by 390 pages of guidance, and it implemented Action 4 on interest deductibility through legislation which is 156 pages long, accompanied by 489 pages of guidance.

More broadly, the necessity to take a closer account of economic reality (and the necessity to take into account tax treatment in other countries) will greatly burden the players, in business and in tax authorities. Under the pre-BEPS regime there was—at least theoretically—the option for a country to tax the local subsidiary of a large multinational on the basis of what it does and earns in its country. Under the post-BEPS regime it seems necessary to establish a worldwide network of information and enforcement, starting with exchange of information between tax authorities and detailed country-by-country reporting by multinationals.

The costs imposed by the increasing complexity of the system should not be underestimated. There is a real danger that the system comes crashing down under the weight of rules that increase in length and complexity year after year. Anecdotal evidence suggests that even well-resourced countries struggle to apply certain rules that are integral to the system, including profit attribution and transfer pricing rules. But an international tax system should also be judged on how poorly-resourced countries are able to run it. Due to its complexity, few would argue that this system is fit for use by such countries (including some EU Member States). As will be seen in the next section, the complexity of the system is likely to increase rather than decrease in coming years.

4.5 Incentive compatibility

In this chapter we have seen that under the existing regime companies are taxed where mobile factors are located, including, for example, where production takes place and where IP is located. They thus have an incentive to shift their real activities (e.g. production) and profit (e.g. that generated by IP) to low tax countries. In turn, countries have an incentive to attract real activities and profit by lowering their tax rates but also through other measures, including narrowing their tax base and weakening their anti-avoidance rules. The fundamental structure of the existing system thus creates the conditions and incentives for countries to compete

with one another. Overall, this destabilizes the system itself and threatens its long-term viability.

The impact of competition among countries can be seen most clearly in the fall in headline corporate tax rates over time, illustrated in Figure 1.2 of Chapter 1. This fall is dramatic, but it tells only part of the story. Competition is even more intense among countries over factors that are particularly mobile, including IP. This has resulted in the proliferation of patent box regimes offering lower tax rates for income from IP. IP is clearly more mobile than other factors, which explains why competition over this factor is even more intense.

Competition through other measures is less clear. Many countries have broadened their base in recent years through less generous depreciation allowances, thus worsening their competitive position. But some countries also improved their competitive position by narrowing their base through structural measures, for example by moving from a 'worldwide' to a 'territorial' system of taxation (or, more precisely, by exempting certain forms of foreign source income), which is particularly important when it comes to attracting headquarter functions and by introducing notional interest deductions (these are similar to deductions under the Allowance for Corporate Equity, discussed in Chapter 2).

Countries also compete by not introducing common anti-avoidance measures or introducing lax versions. For example, countries may improve their competitive position for attracting headquarters by maintaining weak corporate residence tests and not introducing (or introducing lax) CFC and interest deduction limitation rules. Countries' ability to compete through this channel may be more limited following the BEPS project and related developments. For example, EU Member States are obliged by the Anti-Tax Avoidance Directive to adopt exit taxes, CFC rules, switchover rules, interest deduction limitation rules, and general anti-avoidance rules.[109] However, to the extent that countries maintain some discretion in the implementation of these measures, competitive factors create an incentive to implement them—and BEPS measures more broadly—in the weakest manner possible.

Clearly, countries have competed along some dimensions but not others, and they have competed with different intensities. The UK provides an interesting example here. It has competed aggressively by slashing its headline tax rate, introducing a patent box regime, exempting foreign source dividends and foreign branch profits, introducing favourable features in its CFC regime, and—for many years—operating limited rules restricting interest deductibility. On the other hand, it introduced the Diverted Profits Tax, a unilateral anti-avoidance measure that had a negative impact on its competitive position and at the time of its introduction

[109] Council Directive (EU) 2016/1164 of 12 July 2016 laying down rules against tax avoidance practices that directly affect the functioning of the internal market, as amended by Council Directive 2017/952 of 29 May 2017.

was unique to the UK. It was also a front-runner in adopting BEPS measures, including interest deductibility rules, despite having previously advertised the absence of such rules as a competitive advantage.

So even countries that are openly willing to compete do not compete consistently through all channels. Does this mean competitive pressures do not actually threaten the viability of the existing system? Some broader issues have to be addressed to answer this question.

First, it is sometimes argued that the fall in the headline corporation tax rate should not be a concern given that revenues from corporation tax have remained relatively stable. However, revenue in previous years is not a meaningful target in itself. A stronger formulation of this argument is that the corporation tax is still capable of raising significant revenues despite falling rates. A number of factors might explain the stable revenues, including an increase in corporate profitability and an expansion of the tax base.[110] But the ability of the corporation tax to raise significant revenues if these other factors change does not detract from the negative impact competition has on the tax's revenue-raising ability. To continue raising significant revenues for years to come in the face of falling rates, profitability has to keep rising or the tax base has to keep expanding. The latter can occur through definitional changes, though eventually a point will be reached when it can no longer be regarded as a tax on profit.

Second, it might be argued that public and political preferences will prevent corporate tax rates falling beyond a certain point. But countries with such preferences would suffer the consequences of being at a competitive disadvantage for investment from a tax perspective. Countries can choose not to give in to the competitive pressures generated by the existing system, but they cannot extricate themselves from them. Some countries are better placed to weather such a disadvantage than others, but in the long run, it seems unlikely that many countries could withstand the economic forces generated by competition.

Third, it might be argued that competition on rates will be curtailed at some point because the benefit of moving real activity and profit to low tax countries decreases when the differences in rates between traditionally high tax countries and low tax countries become relatively small. If, in the extreme case, companies can shift their profits to jurisdictions with a zero tax rate on profit, then the relevant difference is just the tax rate avoided in the high tax country. As this high tax rate falls, then the gains from shifting to the tax haven fall. This would to some extent relax the downward pressure on the tax rate in the high tax country.

Furthermore, the gains of moving to a low tax country might at some point be outweighed by the costs, including, higher compensation for managers who would have to relocate, higher monitoring costs, less robust legal systems, lower skilled

[110] For contributions on this question see, for example, Devereux et al (2004); de Mooij and Nicodeme (2008); and Creedy and Gemmell (2010).

work forces, and even higher political and reputational risk. Tax competition clearly does not take place in a vacuum, and, therefore, account should be taken of the non-tax factors that also contribute to a country's ability to attract investment. As long as a country's non-tax benefits outweigh the disadvantage of its higher tax rate it should be able to maintain its higher tax rate.

This suggests that an equilibrium could be reached where some countries maintain positive tax rates, to some extent offsetting the benefits of the non-tax factors they offer. However, three points caution against such a conclusion. First, the non-tax factors would have to be unique to a single country to prevent competition among countries also enjoying similar non-tax factors; that is, the profit would need to be location-specific. Second, it seems more plausible that some countries would be able to maintain taxes on specific activities—such as software development—in which they could offer such non-tax factors. But we are concerned with a general tax, which could affect businesses that did not make use of such factors. Third—and critically, given the discussion in the preceding section on ease of administration—as rates drop, at some point revenues may be outweighed by the high administrative costs of running such a complex tax. At this point countries would have an incentive to simply abandon the tax altogether, at least in its current form.

Finally, it might be argued that coordination could halt—or at least slow down—this competitive process. The BEPS project showed that some coordination is possible, but it also showed it can have limits. Coordination was not achieved over certain actions—most notably CFC rules and the response to digitalization—even among the limited and relatively homogenous group of countries in the OECD/G20. And some countries broke ranks during the process itself by implementing unilateral measures with similar goals—the UK and Australia's Diverted Profit Taxes being obvious examples. Most importantly, certain fundamental issues were not even on the table for discussion: modifying the allocation of taxing rights among residence and source countries and, of course, tax rates.

The partial coordination achieved by the BEPS project might even intensify competition in other dimensions. To the extent that the BEPS project narrowed certain profit shifting opportunities, companies may have to move their real activities to favourable tax jurisdictions to obtain their desired tax outcomes. But then countries may compete even harder through the tax system to attract real activities because of the positive spillovers they can bring. Furthermore, to the extent that countries' ability to compete through the tax base—through no, or weak, anti-avoidance rules—have been curtailed by the BEPS project, countries that wish to compete may have to do so even more aggressively through their tax rate instead.

At the time of writing there is renewed optimism towards countries' willingness to coordinate, even going considerably beyond the coordination achieved in the BEPS process. The GloBE proposal mentioned in Section 4.4 is being considered,

partly to slow down or stop tax competition among countries. Of course, if countries agree not to compete and adhere to this agreement then competition—by definition—will be stopped. But reaching and maintaining such an agreement requires significant political and technical challenges to be overcome. The next section discusses this and the related reform that is currently being discussed.

5. Post-BEPS reform

5.1 Proposed reform

The goal set for the BEPS project was challenging but also politically attainable: making it harder for profit to be shifted to low tax jurisdictions if no real economic activities were located there. Countries where real activities are located could largely agree on measures to achieve this, even if, as seen above, the measures agreed upon are now deemed not to have been sufficiently effective

Addressing dissatisfaction over the existing allocation of taxing rights is much harder. It requires agreement amongst countries that believe they have claims to tax the income in question. The BEPS project left this 'long-term issue' open, and it was not surprising that some countries sought further reform so soon after the BEPS project was concluded. It was also not surprising that this arose in the context of digitalization, as digitalization exacerbates and exposes even more clearly the problems plaguing the existing system.[111]

Consensus was not reached on how to address the challenges posed by digitalization under BEPS Action 1. Work continued on this issue after the BEPS Final Report was published in 2015, but an Interim Report in 2018 revealed that—despite the opposition of influential countries—the debate had opened to include consideration of reforming the system as a whole.[112] The outline of the proposed reform became clearer in later documents, published in February, May, October, and November 2019, respectively.[113] Reform is being considered under two pillars. Pillar I consists of a change to the allocation of taxing rights to allocate more rights to 'market countries'; that is, where consumers—and possibly users of services provided by some highly digitalized businesses—are located. Pillar II—the GloBE proposal—'focuses on the remaining BEPS issues and seeks to develop rules that would provide jurisdictions with a right to tax back where other jurisdictions have

[111] See Devereux and Vella (2017).

[112] One group of countries argued against further reform and another, including the UK and France, argued for reform targeting certain highly digitalized businesses. A third group, which included the US, argued that: 'the ongoing digital transformation of the economy, and more generally trends associated with globalisation, present challenges to the continued effectiveness of the existing international tax framework for business profits. Importantly, for this group of countries, these challenges are not exclusive or specific to highly digitalized business models.' OECD (2018c), para. 391.

[113] OECD (2019a, 2019b, 2019c, 2019d).

not exercised their primary taxing rights or the payment is otherwise subject to low levels of effective taxation'.[114] This Pillar consists of an income inclusion rule (a minimum tax) and a tax on base-eroding payments.

5.2 Comment

At the time of writing, these proposals are being considered by the OECD/G20 Inclusive Framework, with a view to reaching a consensus-based solution by 2020. We do not consider these proposals at length here,[115] not least because it is not at all clear whether any agreement will be reached, and, if it is, what it will be. We limit ourselves to some general comments.

First, much will turn on the exact nature and detail of the agreed reform. This will determine how the resulting system performs under our five criteria.

Second, the proposals under Pillars I and II would be overlaid on top of the existing system. This is not a proposal to reform the existing system in a coherent and comprehensive manner. Instead, the existing system with its problems and complexity will be kept in place and these reforms—which will be complex in their own right—will be bolted on top. It is safe to predict that this programme of reform will increase the system's overall complexity.

Third, the proposed move towards a destination basis of taxation under Pillar I could—in theory—bring benefits in terms of efficiency, robustness to avoidance, and incentive compatibility, as discussed in Chapter 4. However, the move in this direction is very partial and it is not part of a comprehensive and coherent reform. Both these factors mean that the overall impact of this reform in practice is hard to predict with confidence.

Fourth, Pillars I and II move the existing system in two opposite directions, possibly simultaneously. We have set out four possible locations for taxing multinational companies: the residence of shareholders, the residence of the parent company, and the origin and destination countries. As explained in this chapter, under the existing system multinational companies are primarily taxed in the origin countries, though may also be taxed in the location of the residence of the parent company. The BEPS project, which embraced the value creation principle, moved the system more firmly towards an origin basis. Pillar I would now move the system towards the destination country, whilst Pillar II would move it towards the location of residence of the parent company. The combined reform would leave the system in an even more incoherent and unprincipled state than it currently is.

[114] OECD (2019b), p. 6, and OECD (2019d).

[115] For comments on the 'Programme of Work', see Schön (2019). For comments on Pillar II see Devereux et al. (2020).

Fifth, Pillar II seems to depart quite dramatically from the principles and policy expounded throughout the BEPS project. Throughout this process it was explained that 'no or low taxation is not per se a cause of concern, but it becomes so when it is associated with practices that artificially segregate taxable income from the activities that generate it'.[116] Pillar II is clearly premised on the view that no or low taxation *is* a cause of concern.

Consider BEPS Action 5 which addressed patent box regimes. Agreement on this action was found, first by the UK and Germany and then the other participants in the BEPS process, on the understanding that taxing revenues from IP at the favourable patent box rate was unobjectionable as long as the revenues were taxed in the country where the IP was developed (the 'modified nexus approach'). The principles underlying Pillar II are in direct opposition to this understanding; indeed, under these principles low taxation is per se a cause of concern even if the income being taxed arises from real economic activity. It might be possible to introduce carve outs for patent box regimes that comply with the modified nexus approach, but this would not be consistent with the principle of Pillar II, and it would threaten the robustness and integrity of the regime.

Also, as intimated in the previous comment, taxing in the location of the parent company does not align with any reasonable notion of the 'value creation' principle. This is a surprising and an apparently unprincipled *volte face* given the fervour with which many involved in the debate repeated that taxing in the location in which value is created is, and should be, the principle that underpins the international tax system.

Sixth, its proponents believe that Pillar II could slow down or even stop tax competition, at least for effective tax rates below an agreed threshold.[117] However it would require very robust and highly coordinated rules (including on a tax rate) to be agreed universally.[118] One problem is that countries might ask for carve outs that allow them to use the corporate tax system to support specific industries. But—as noted above—carve outs would substantially weaken the system. A more general problem is that Pillar II seems inconsistent with incentive compatibility. Countries would not have an incentive to agree to such coordination if they believe they can gain by refusing to cooperate. Of course, arms can be twisted politically to force (certain) countries to join, or other consideration could be offered in return for a cooperation on this issue. However, cooperation of this kind makes it even more important to design robust and highly coordinated rules. Otherwise, countries that have agreed to cooperate might still find ways of undermining these rules when implementing or administering them domestically. Furthermore, incentives to defect by leaving the agreement will remain and might be enhanced at some

[116] OECD (2013b), p. 10.
[117] See, for example, Englisch and Becker (2019).
[118] See Devereux et al. (2020).

point in the future by domestic economic and political considerations. It is not clear if it is possible to design a system that can be robust to one, or a group, of defectors. Overall, bringing competition to a halt and stabilizing the existing system through Pillar II appears to be a tall order.

Seventh, Pillar I also appears to be unstable. In future years, countries that are currently pressing for taxing rights to be allocated to market countries may feel unsatisfied with the allocation reached under this reform. If they believe it is in their interest, they might reopen the allocation question or they might take unilateral action to enhance their taxing rights as a market country, for example through taxes on the revenues earned by certain businesses in their own market.

6. Conclusions

This chapter has argued that the existing system for taxing international profit is economically inefficient, susceptible to avoidance, extremely complex, and hence very costly to run. Furthermore, competition continues to put downward pressure on effective tax rates, thus threatening the system's viability in the long run. Even given its extensive deficiencies, simply allowing the system to waste away under the influence of competitive forces is not a good outcome. Recognition of these deficiencies should instead be followed by clear-headed and principled reform.

At the time of writing reform is in fact being considered. If this package of reform is agreed, much will depend on its precise design. It could potentially lead to a system that constitutes an improvement under our criteria relative to the existing system. On the other hand, this package of reform will be layered on top of the existing system and is thus likely to come at the expense of even more complexity. Furthermore, countries may have an incentive to undermine the post-reform system through unilateral action.

The long-term viability of the existing system is not guaranteed, even if agreement is reached amongst countries engaged in the current process of reform. All in all, it would be preferable to move to a more coherent and principled international system of taxation that is not incapacitated by complexity. And it would also be preferable to move to a system that countries acting in their own interest, have an incentive to join, rather than undermine, through unilateral defection. We examine two such systems in Chapters 6 and 7.

4
Fundamental Reform Options

So far, this book has set out principles for the taxation of profit and described and evaluated the existing regime. As set out in the previous chapter, the existing tax regime is beset by problems. In response to such problems, many proposals have been made for reform. In this chapter, we turn to examining options for fundamental reform.

In broad terms, there are two dimensions to designing a tax on business profit: defining the base of the tax, and the location of the tax.[1] The main choices in defining the tax base for business profit are whether to tax all income before any deductions of the cost of finance, income after the cost of debt is deducted, or income after the cost of debt and equity finance are both deducted. The last of these would be a tax on economic rent. These distinctions were set out and discussed in Chapter 2 and we do not focus on this issue in this chapter.

Instead we focus on the location of the tax. We introduced the principles of choosing different locations in Chapter 2, in the context of identifying the reasons for a tax on profit. Here we consider reasons for and against choosing alternative locations in more detail, and partly in the context of specific proposals that have been made; these we group together according to where the tax on profit would be levied. In broad terms, the profit of a business could be taxed in one of four locations. First, it could—in principle, at least—be taxed in the location of the owners of the business. A second option is the location of the parent company or business headquarters. A third option is the location where the business undertakes its functions and activities, or where its assets—defined broadly to include financial assets—are held.[2] We refer to this location as 'origin'. And finally, a business could be taxed in the location of its customers. We refer to this location as 'destination'.

Each of the activities taking place in these four locations might be thought to be necessary, but not sufficient, for the generation of profit—the initial investment by owners, management by the parent company or headquarters, all of the functions, activities, and assets of the business, and eventually sales to third parties. In principle, then, they would all also generate a nexus which would justify

[1] While much of the analysis in this chapter applies to all business profit, for ease of exposition this chapter primarily refers to corporate profit, which constitutes the bulk of business profit in an international setting.

[2] Technically, a multinational's subsidiaries are taxed on the basis of their own residence as they are taxpayers in their own right. But—as discussed in Chapters 2 and 3—we refer to a country as the place of 'origin' if this is where the function and activities, or assets, of the business are located.

Taxing Profit in a Global Economy. Michael P. Devereux, Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella, Oxford University Press (2021). © the several contributors.
DOI: 10.1093/oso/9780198808060.003.0004.

the government in each location—legally and politically—to have some claim to taxing the profit.

The specific options within each location have strengths and weaknesses. In choosing among these options, the factors that we have in mind are the criteria set out in Chapter 2: economic efficiency, fairness, robustness to avoidance, ease of administration, and incentive compatibility. In some of the main proposals described and discussed below, we explicitly address each of these five criteria. For brevity, in other cases we do not explicitly do so, instead just focusing on the main issues raised. In all cases, though, we highlight the key issues for each option, in the light of these criteria.

We now turn to a discussion of fundamental options under each of the four possible locations. We begin with 'origin' countries. First, we consider general arguments for locating taxing rights in these countries. We then consider in some detail one commonly-advocated reform option, unitary taxation and formulary apportionment. We then turn to the other possible locations: that of the parent company; the owners; and the customers.

1. Origin country

Under the existing system for taxing corporate profit, companies are taxed primarily in the third of the locations set out above: the country of origin.

1.1 Fundamentals of the origin basis

Before evaluating this as a basis of taxation, it is worth recalling a point made in Chapter 3. A country can fall under more than one of the four possible locations set out above. For example, a country can be both an origin as well as a destination country. If a company in country A sells goods through a shop in country B, country B is both a country of origin and destination. The fact that country B would tax part of the company's profits under the existing system does not mean that taxes are levied on a destination basis under the existing system. The tax would be imposed by B because of the presence of the shop—a PE—and, therefore, it is imposed on an origin basis.

Similarly, the country where a parent company is located can also be an origin country. Under an origin basis of taxation, the country where a parent company is located may tax part of the profit of the multinational because the entity there—which happens to be the parent company—carries out functions and activities and, possibly, holds assets. The parent company is thus treated like any affiliate within the multinational group under an origin-based tax. This should be distinguished from the second option set out above, where the profit of the multinational is taxed

in a particular country specifically because the parent company is located there. Under a pure form of the second option, the country where the parent company is located would tax a multinational's worldwide profit on an accruals basis.

We have been very critical of the existing international system. But to assess the possibility and desirability of moving towards a better structure within an origin-based system, we should distinguish problems that arise inevitably in an origin-based system from the more specific problems of the existing system.

1.1.1 Origin and the separate entity approach

An origin-based system can be implemented using a separate entity approach, as under the existing system. But it can also be implemented using a unitary approach, as explained below. The problems inherent in the separate entity approach are not, therefore, an inevitable feature of an origin-based system.

Similarly, it is also worth noting that some problems within an origin-based system employing the separate entity approach are inevitable, but others, found in the existing system, are not. In any system in which profit is to be allocated amongst one or more affiliates of a multinational, there have to be rules which govern that allocation. The key approach of the existing system is that the allocation is based on the value of transactions between two members of a multinational group. As set out above, this is done under the principle of arm's length pricing. An inevitable consequence of this approach is that differences in tax rates among jurisdictions will create an incentive for the multinational group to manipulate the prices used in those transactions to reduce its overall tax liability. Policing this within-group trading is likely to create complexity and higher costs of administration.

But other problems of the existing system do not arise inevitably in origin-based systems employing the separate entity approach. Rather they depend on the different treatment of 'active' and 'passive' income. Important examples of these problems are the treatment of royalty payments, licence fees, and interest from one part of the group to another. The fact that these flows generally receive relief in the country in which they are paid and are taxed in the country in which they are received creates significant incentives for groups to hold intangible assets in, and to lend from, low-tax jurisdictions. But this is not an inevitable part of taxing the multinational group on an origin basis following the separate entity approach. It may therefore be possible to conceive of reforms that leave taxation still broadly in the origin countries using the separate entity approach, but which do not suffer from all of the problems of the existing system. For example, one relatively easy way to combat profit shifting through the use of internal debt would be simply to deny relief for within-group interest payments, or to levy an equivalent withholding tax.[3]

[3] Dealing with ownership of intangibles is more difficult. Under an origin approach, profit arising from ownership of an intangible asset would be attributed to the country where that asset was created. Suppose it was created in country A, and the intangible asset was then sold to a subsidiary in country B for a fair price, with tax paid in A on the gain made from the sale. Then there would be no need to levy

But origin-based taxation need not employ the separate entity approach at all. A much more radical approach to origin-based taxation would be to avoid altogether basing the allocation of taxable profit between countries on the value of transfers between them. A unitary taxation and formulary apportionment method would instead divide the worldwide profit of the multinational group among countries on the basis of some agreed formula incorporating measures of the degree of local origin such as 'assets' or 'payroll'. Avoiding the need to value transactions between members of a multinational group clearly would have considerable advantages in terms of complexity and probably profit shifting. As a result, this proposal has received considerable attention, most prominently in the Common Consolidated Corporate Tax Base (CCCTB) proposals of the European Commission.[4] This is clearly an important option for international reform, and we therefore discuss it in more detail below.

1.1.2 Fundamental inefficiencies under the origin principle

Some problems are, however, inevitable under origin-based taxation. A broad problem with allocating taxing rights on an origin basis—whatever the precise system of doing so—is the incentive it gives businesses to move functions and activities, or assets, to low tax countries. This in turn gives countries an incentive to compete with one another.

Trade-offs arise between profit shifting on the one hand, and distortions to real economic activity and tax competition amongst countries on the other. If businesses can shift profit from countries where their real activities are located to low tax jurisdictions, then their incentives to move their real activities are reduced. Suppose, however, that the existing system could be reformed to significantly minimize the shifting of profit to low tax jurisdictions or suppose a formulary apportionment system could be introduced which also largely prevented such profit shifting. In these cases, differences in tax rates (and possibly tax bases) among countries may induce real economic activity to move instead. If real economic activity moves purely in response to tax differences, then this is a tax-induced distortion which is likely to create a welfare cost to the business and society at large. For example, production may move from a low cost location to a high cost location if the latter has a lower tax rate. Increasing the likelihood of moving real economic activity also seems more likely to stimulate tax competition amongst governments.

An example arises in the context of the BEPS Action Plan. Under the previous set of rules, it was possible to shift intangibles to a low tax jurisdiction without the

further tax on the royalty income subsequently received in B, since the underlying value would already have been taxed in A. But if the ownership was shifted to B without tax being paid in A, then in principle A would need to tax the subsequent royalty income arising in B.

[4] For similar proposals see, for example, the Independent Commission for the Reform of International Corporate Taxation (ICRIT) (2018).

need to create a fully-fledged business activity there. Under the new rules, however,[5] the allocation of royalty income to the subsidiary in the low tax jurisdiction requires moving personnel in order to exercise 'control' over the intangibles.

These types of problems seem inevitable if we aim to allocate a multinational group's profit on an origin basis. They therefore create a powerful reason for considering alternative locations for the taxation of profit. But in general, the costs arising from driving away economic activity must be set against the costs imposed in any other system that might be considered. Conversely, the benefits of any improvement in economic efficiency and reduction in avoidance must be set against any new costs that are introduced by a reform, as well as the costs of transition. We should therefore also consider arguments for nevertheless keeping at least some part of the tax base on an origin basis. We consider four such arguments.

1.1.3 Origin and the benefit principle

First, perhaps the most powerful rationale for taxing profit on an origin basis is that the economic activity makes use of publicly provided goods and services in that jurisdiction. The benefit principle—as set out in Chapter 2—would imply that the recipient of those goods and services should make some contribution to the costs of their provision. That does not necessarily imply that the business itself should make a contribution; for example, in principle a contribution could be required from anyone that benefits from the business—that could include the owners, employees, customers, and suppliers. But it would generally be much more convenient simply to levy a charge on the business itself.

The main counter-argument to using profit as a base for such a contribution is that, as noted in Chapter 2, there is not necessarily a correlation between the use of publicly provided goods and services by the business and the profit generated by the business; and this would be true even if there were no problem in identifying where profit was located. The benefits of publicly provided goods and services associated with economic activities in any jurisdiction are many and varied; as well as the use of infrastructure, the business may benefit from, for example, the rule of law, or the education and health provision for its workforce. So actually identifying the value of the benefit associated with economic activities in any jurisdiction would be extremely difficult in practice.

If the aim is to make a reasonable charge for publicly provided goods and services, a question that arises is whether there could be a base for such a charge that is more amenable to measurement than the contribution of the activity taking place in that jurisdiction to the worldwide profit of the business. Possibilities could include, for example, the value of the assets used in that jurisdiction, or the number of employees or their total remuneration. These are factors that are typically used

[5] See OECD (2015c).

in formulary apportionment systems. And some—such as remuneration—are already typically the base of other taxes.

The point of considering such an alternative tax base here is not that these measures are closely correlated with profit earned in that jurisdiction; rather it is that they may arguably provide a reasonable, if ad hoc, way of charging a fee for publicly provided goods and services. But, of course, they also have problems. Any tax charge based on the volume of economic activity which varies amongst countries may affect the allocation of those economic activities among countries. So, even if we can potentially avoid the problems of profit shifting associated with a tax on an origin basis, it is unlikely that we could avoid distortions to the location of real economic activity.

1.1.4 Origin and ability to pay

A second argument for maintaining a tax on an origin basis might be as a protection for the domestic personal income tax. This is an 'ability to pay' argument, also set out in Chapter 2. There are two elements to such personal income: income which might be regarded as remuneration for labour, and capital income. The basic idea here has been discussed in Chapter 2: if there were no separate business-level tax on profit, then (a) there would be an incentive for an employee to trade as a business, so that her labour income was not subject to personal income tax; and (b) the capital income of an individual represented by retained earnings in a business would not be taxed, at least as it accrued. Here we focus on the location of the profit generated by cross-border activities of a business.

As set out in Chapter 2, the first of these problems arises when the owner of a company also provides an input of labour, so that the distinction between the wage and profit earned is blurred. A typical corporation tax helps to counter the incentive to declare labour income as profit, since the profit would be subject to corporation tax—depending on the relative tax rates there may be an incentive to declare income as wage or profit. Neutrality in tax rates between these two sources of income is difficult to achieve, partly because income declared as profit may be taxed again as a dividend, or as a capital gain, in the hands of the shareholder. But, given the possibility of retaining profit in the company, a corporation tax at a rate that does not exceed the personal income tax rate would reduce the incentive to declare income as profit rather than labour income.

The key question for our purposes here is whether the need for corporation tax to counter the incentive to declare income as profit implies a particular location for the taxation of profit. In general, the owner will compare the taxation of a possible wage with the taxation of a possible profit; this does not necessarily imply that both the wage and the profit need to be taxed in the same jurisdiction. However, from the perspective of the government of the owner's place of residence, it is natural for that government to ensure an appropriate incentive by taxing profit, as well as the

wage, in its own jurisdiction. This is clearly satisfied by an origin-based tax. But taxes in other locations may achieve this as well.[6]

The second of these two problems would be best addressed by a tax levied in the place of residence of the shareholders. This is because personal income taxes—to the extent that they tax capital income at all—typically tax the worldwide capital income of domestic resident individuals. A tax that is a useful proxy for such a personal income tax would ideally also have that property. That is clearly not the case under an origin-based system, since a shareholder in country A who owns a company making profit in country B would not, in general, be taxed in A on profit accruing in B. Below we consider whether such a tax is feasible. For now, we simply note that, in the presence of cross-border investment, an origin-based corporation tax is not a very good proxy for a personal income tax on capital income.

1.1.5 Tax exporting

A third argument for maintaining a tax on profit on an origin basis is that the ultimate cost of the tax may at least partly fall on non-residents; this is known as 'tax-exporting'. This is clearly a consideration for national governments acting in their own interest, rather than a consideration for the world as a whole. It is perhaps most likely in the case where the tax is effectively borne by shareholders; that is, if a company in country A is owned by shareholders in country B, then any tax imposed in A might reduce the net income of those shareholders in B. Other things being equal, that would improve the welfare of A's residents at the expense of B's residents.

We should be clear, though, that the extent to which this may happen depends on market conditions and on the nature of the tax itself. As discussed in Chapter 2, in the standard economic model in which A is a small open economy and where capital is mobile and labour is immobile, a tax in A would push up the required rate of return in A until the post-tax rate of return to shareholders in B would be unaffected; only then would the investors in B continue to invest in A. In this case, the tax would actually be borne by the labour force or other immobile factors (such as land) in B.[7] But there are other possible cases. The opposite would occur if the company generated an immobile economic rent and the tax base in A was only that economic rent. If the company aims to maximize economic rent, then the tax should have no effect on the prices which it charges or pays to its suppliers,

[6] For example, the Destination-Based Cash Flow Tax set out in Chapter 7 also has this property. The choice for an owner who also worked for a company would be to declare, or not declare, income as a wage. If it is declared as a wage then it would be subject to personal income tax and be deductible at the domestic corporation tax rate. If it is not declared as a wage, then there would be a reduction in allowances for corporation tax, the value of which would again depend on the domestic corporation tax rate. The incentives under the Residual Profit Allocation by Income set out in Chapter 6 are more complex, since any reduction in the amount declared as a wage would reduce the mark-up for routine profit and raise the residual profit; incentives may then depend to some extent on tax rates in other jurisdictions.

[7] See Gordon (1986).

including wages. In this case, the tax should indeed fall on the shareholders in B.[8] In general, it is likely that at least part of the cost of an origin-based tax on profit would fall on the shareholders, and A can export part of its tax burden if shareholders in its companies include non-residents.

1.1.6 Location-specific rents

In principle, it might be possible to identify and tax only that profit that could not be earned elsewhere. We discussed in Chapter 2 the notion of location-specific economic rent which in principle the government could tax away without inducing the business to move the activity elsewhere. In principle, this could include both pure rents and quasi-rents (income from 'sunk' investments). Some have advocated taxation in the origin country by reference to such location-specific rents.[9]

However, as we noted there, this idea is not easily compatible with a general corporation tax. If there was a general origin-based tax on economic rent, but only some economic rent was location-specific, then the tax would still be expected to drive away some economic activity. This is similar to the usual problem that an origin-based tax on profit can be expected to drive away economic activity. In the end, countries would have to consider a trade-off between the benefits of additional revenue from taxing economic rents that were more location-specific and the costs of driving at least some economic activity elsewhere.

1.1.7 Transition costs

Another argument for maintaining at least some element of an origin-based system is that we currently have one; moving away from this would give rise to transition costs. It is possible that these costs might be greater than those associated with the problems of profit shifting and distorting the allocation of real activity which characterize the existing system—even though these latter costs are likely to be permanent while transition costs are a one-off. However, even if we maintained an origin-based system, we would propose that it needs to be reformed. The important question is then the size of transition costs from the existing system to any potential new system. Maintaining some element of an origin-based system may keep transition costs lower, but this depends on the nature of the reform and the alternative possible reforms. Our proposal for a Residual Profit Allocation by Income in Chapter 6 is intended to address the key existing problems with profit shifting and to reduce economic distortions, whilst still partly in the context of an origin-based tax. However, as a general matter, to the extent that a tax is levied on an origin basis it is likely to continue to affect the location of real economic activity.

[8] See Auerbach and Devereux (2018).
[9] See, for example, Kane (2016); Shaviro (2019); and Schön (2019).

1.2 Unitary taxation and formulary apportionment

We now turn to consider the principle alternative approach to the existing system for taxing profit in a way that is consistent with an origin principle, the commonly advocated approach of unitary taxation and formulary apportionment.[10] The idea here is in principle to assess the worldwide profit of a business, and then to allocate shares of that profit to individual countries on the basis of a formula. If that formula broadly reflects where the economic activity of the business is located then we might think of this also as a form of origin-based taxation.

1.2.1 US Practice, the OECD approach, and the CCCTB project

Formulary apportionment has been on the agenda of international tax reform for many decades.[11] The basic approach used in formulary apportionment is to identify the total taxable profit of a single multinational business arising in a number of jurisdictions using a broadly common definition of profit, and then to allocate a share of the total profit to each jurisdiction based on the location of particular factors, traditionally the assets, workforce, and sales of the business. Each jurisdiction then applies its own tax rate to its allocated share of total profit.

This approach is used at the level of state taxation in the US as the inter-state allocation of the corporate tax base is performed on a formulaic basis treating corporate groups as a single unitary enterprise.[12] In the US the rules on the measurement of profit for taxation are broadly common, being largely derived from the set of rules governing the federal corporate income tax. However, each state is entitled to apply its own formula for allocation. These formulae were initially based on a number of factors. By 1978, forty-three out of forty-five states had adopted the three-factor formula consisting of assets, labour force, and sales.[13] But the leeway granted to states on what formula to apply has consistently led both to taxing the same profit in more than one state, and also to tax competition which is barely constrained by the US Constitution.[14] Over the years—and consistent with one of the main themes set out in this book—this competition has led to an ever stronger tendency to move the formula towards the 'sales factor'—that is, taxation on a destination basis—which avoids taxation in the origin state. In 2019, out of forty-six states that implement a corporation tax, thirty-seven use only sales in their allocation formulae.[15]

[10] In this section, we refer to this approach simply as 'formulary apportionment'.

[11] See, for example, Bird and Brean (1986). For a recent collection of articles on formulary apportionment see Krever and Vaillancourt (2020).

[12] See Hellerstein et al (2016).

[13] See Hellerstein (2018).

[14] See US Supreme Court in *Comptroller of the Treasury of Maryland v. Wynne*, 135 S. Ct. 1787 (2015), aff'g sub nom., 64 A.3d 453 (Md. 2013), and Knoll and Mason (2017).

[15] US Federation of Tax Administrators (2020); Suarez Serrato and Zidar (2016), Figure 3, show the evolution towards sales apportionment across the years 1980, 1990, 2000, and 2010.

Many commentators have argued for an extension of formulary apportionment to the international arena.[16] However, the OECD has consistently rejected the concept in order not to endanger its precarious 'consensus' for the arm's length pricing approach, but also because it has traditionally rejected the notion that the transfer pricing methodology is in the deplorable state that critics claim.[17] Neither the UN nor the IMF have advocated a formulary apportionment approach either. However, the OECD has embraced a limited influence of formulary elements on the 'evolution' of the arm's length standard.[18] In its most recent draft guidance on the 'profit split', the OECD has integrated a formulary approach into the world of separate accounting and arm's length pricing:[19] when there is a highly integrated value chain involving hard-to-measure unique contributions (e.g. intangibles) by separate entities within the group, a 'transactional profit split' is advised. This involves profit being split between locations based on 'profit splitting factors'[20] which are largely the same as the traditional factors applied under formulary apportionment. Still, there remains a difference between an all-embracing concept of formulary apportionment covering the whole corporate group and its activities at large and a transactional approach which limits the impact of factor attribution to individual transactions. However, significantly, such an approach is being considered at the time of writing. The OECD's Pillar I proposal that is being considered by the Inclusive Framework has an element of formulary apportionment.[21]

A major reform proposal for grand-style formulary apportionment has been put forward by the European Commission: the 'Common Consolidated Corporate Tax Base' (CCCTB). Starting in 2001,[22] the European Commission worked on this project for a decade and produced a fully-fledged draft directive in 2011. Since then, two major developments impacted their work. First, it became clear that not all Member States of the European Union were willing to support this proposal.[23] It was then referred to the 'enhanced cooperation' procedure under which a limited number of Member States is entitled to enact a European directive having effect only for this group of countries.[24] Second, the nature of the CCCTB was shifted from a voluntary instrument (under which multinational firms would be permitted to choose whether to employ the CCCTB or to continue with the current system) to a mandatory instrument (which is intended to reduce the leeway for companies to allocate corporate profits at will within the European Union).[25]

[16] See, for example, Avi-Yonah and Benshalom (2011) and Picciotto (2016). Others disagree—see, for example, Fleming et al (2014). See also Krever and Vaillancourt (2020).
[17] OECD (2017a).
[18] Although it is debatable whether formulary apportionment could ever be described as 'arm's length'.
[19] OECD (2018d).
[20] OECD (2018d), Section C.5.1.
[21] OECD (2020).
[22] European Commission (2001).
[23] Tax directives in the EU can be passed only with the unanimous agreement of all Member States.
[24] See Vella and Yevgenyeva (2016).
[25] European Commission (2015).

This is the baseline for the most recent proposal which was published by the Commission in mid-2016. The proposal aims at a two-step procedure. In a first step, the rules on measuring taxable profit would be harmonized for all entities that are part of a corporate group above a threshold of a consolidated turnover of €750 million. This first step might be useful to reduce compliance costs, to reduce the possibility of arbitrage of differences in tax rules across countries by multinational companies, and to prepare the field for further integration. But it would not affect fundamentally the allocation of profits among business units and taxing rights among countries. In a second step, there would be full consolidation within the EU of profits and losses of the multinational group, with the overall profit being allocated to jurisdictions under a formula composed of fixed assets, payroll or number of employees, and sales.

1.2.2 Evaluation of formulary apportionment

1.2.2.1 Definitional issues

Formulary apportionment has the support of many commentators on international tax issues. Does it meet the criteria which we outlined in Chapter 2? Below we assess formulary apportionment against these criteria. We do not explicitly focus on the European Commission's proposal but consider the idea more generally. In doing so, we must also distinguish the case in which there is a universal adoption of formulary apportionment from the case in which only a group of jurisdictions adopt it. Clearly, even if all EU Member States adopted the CCCTB, this would still represent only partial adoption globally.

Before explicitly evaluating formulary apportionment against the criteria, it is worth discussing two general points which affect the evaluation under more than one of the criteria.

The first is the nature and definition of a multinational business. Formulary apportionment presupposes that there is a clear-cut division between independent businesses and integrated groups. This assumption is far from evident.[26] There are many mixed situations, for example, when individual subsidiaries have to comply with the interests of minority shareholders or when two separate multinationals engage in joint venture companies. Against this background, the legislator has to decide which entities qualify as a member of the 'group' for the purpose of consolidation under the new tax system. This would probably be based on ownership, rather than the level of integration. For example, the European Commission proposed a two-pronged test: 50% of voting rights and 75% ownership rights. Such a 'bright line' distinction effectively invites businesses to organize their affairs to be just on the more favourable side of the line.

[26] This criticism also applies, albeit with less force, to the Residual Profit Allocation by Income (RPAI) proposal set out in Chapter 6. It has less force in that context since in that case the formulary apportionment applies only to a limited type of costs—non-allocable costs.

Such a test has little or nothing to do with economic integration. The economic reality is that there is a whole spectrum of commercial arrangements between full integration and independent action. In recent times, more and more successful enterprises have set up highly integrated business models including routine manufacturers which operate outside the common control of the corporate group. In these cases, businesses reduce their own functions to head office, research and development, branding, and distribution (these have been called 'factoryless goods-producing firms').[27] With formulary apportionment, there may be a distinct tax advantage to incorporating—or not incorporating—these routine contributions into the multinational group. We discuss this further below in the context of economic efficiency.

The second general point relates to the apportionment factors. How should these be chosen?[28] The traditional approach may seem to be a rough and ready way of identifying different factors affecting profitability and allocating some taxable profit to jurisdictions hosting these factors. But it is worth noting that the traditional factors are very different from the factors that implicitly determine the allocation of profit under the current system. Most obviously, the traditional OECD framework gives no role to the destination of sales, yet that is increasingly the most important factor for state level taxes in the US.[29] By contrast, the location of intangible assets plays a very significant role in the allocation of profits under the existing regime, but is entirely absent from the traditional formulary allocation factors. Of course, there are good reasons why intangibles are excluded from the traditional factors: both their value and location are very difficult to determine. Yet it could be argued that the jurisdiction where high-value intangibles are created but not shown in the books and in the formula will lose out to jurisdictions where highly staffed production units perform routine functions with high capital investment and limited returns on capital, or where sales are undertaken at low margins. Then again, under the existing regime countries where high-value intangibles are created could also lose out to low tax jurisdictions if intangibles are transferred there.

More generally, the question arises whether formulary apportionment systems can allocate profit in proportion to the profit earned or value created in each country. Critics of formulary apportionment systems partly dismiss it on the ground that it fails to do so[30]—even if some proponents of the system put this forward as their goal.[31] The better view is that numerous factors contribute to the

[27] See Bernard and Fort (2015).

[28] On this point see the discussion in Agúndez-García (2006).

[29] Although, as discussed in Chapter 3, a move in this direction is being discussed at the OECD's Inclusive Framework at the time of writing.

[30] See, for example, OECD (2017a), paras 1.25 and 1.29.

[31] See, for example, CCCTB Working Group (2006) and Picciotto and Bertossa (2019). The principle adopted by the EU Commission for its CCCTB proposal, for example, is to 'assign[s] a proportionate share of the company's or associated companies' corporate tax base to the state by reference to a factor or factors that reflect (or are deemed to reflect) the underlying income-producing activities within the state'.

profit of a business and it is hard, even impossible, to reflect their contribution in a formula of general application.[32] In general, we do not believe that systems for taxing business profit in an international setting should be judged on whether they allocate profit in proportion to value creation.[33] Hence formulary apportionment systems should not be criticized on these grounds. A better method to evaluate formulary apportionment—and indeed any system—is to ask whether it satisfies reasonable criteria for the evaluation of taxes on profit in an international setting. We now address this.

1.2.2.2 Economic Efficiency

There are at least two ways in which a formulary apportionment system could affect business location decisions, even in the case in which all countries agreed to move to a formulary apportionment system, and used the same definition of the tax base, and the same allocation formula. First, and most clearly, if any of the factors used reflects the economic activities of the business—whether production, finance, management, marketing, research and development, or any other factor—then locating that activity in a lower taxed country would tend to reduce the overall tax liability of the business.[34] In this sense, formulary apportionment would still primarily be an origin-based tax, and as such, differences in tax rates between jurisdictions would affect location decisions.

More subtly, using the destination of sales as a factor may also affect location decisions, if the sales are to mobile businesses. If business A purchases materials or intermediate products from business B, and B's tax depends on the location of the sale—in effect the location chosen by A—then A may be able to reduce B's tax liability, and hence potentially the price paid by A, by locating in a lower taxed jurisdiction.[35] This effect reinforces the first effect; both induce A to locate its purchasing activities in a lower taxed jurisdiction.

Whether the distortion to location decisions would be greater or worse than under the current system would depend on the economic circumstances of each case.[36] But under formulary apportionment, these distortions are aggravated by

[32] See, for example, Hellerstein (2005); Hines (2010); and Vella (2020). Hines' empirical study on this issue led him to conclude that, based on the data used, traditional formulae 'significantly misattribute income, since employment and other factors in which they are based do a very poor job of explaining a firm's profits. For example, the magnitude of property, employment and sales explains less than 22% of the variation in profits between firms.' Hines (2010).

[33] Hellerstein (2005) and Vella (2020).

[34] Gordon and Wilson (1986) demonstrated that for a three-factor formula based on the location of property, payroll, and sales could be examined as, in effect, three forms of distortionary taxation. See also Riedel (2010).

[35] This problem also affects the RPAI proposal described in Chapter 6, but not the DBCFT proposal described in Chapter 7.

[36] In a simulation model that examines the allocation of capital under both separate accounting (SA) with profit shifting and various versions of formulary apportionment (FA), Altshuler and Grubert (2010) find that 'even when we assume a great amount of shifting under the current system, FA does not seem to have any notable advantage over SA. FA causes a greater widening in the disparities in marginal effective tax rates that result from tax differentials across countries' (p. 1166).

other factors. For example, it may be advantageous for a business to over-invest in a low tax jurisdiction, in order to get the benefit of a higher allocation of its profit to that jurisdiction. A highly profitable R&D company resident in a high tax country might be induced to acquire shares in a routine manufacturing firm in a low tax country in order to allocate as much profit as possible to the low tax jurisdiction. Examples could also be given where it would be more profitable to break up a multinational business in order to reduce the aggregate tax liability. Other factors reflect the scope of the multinational, as outlined above.[37] This holds particularly true for the asset factor and the labour factor as the location of the underlying assets and employees can easily be influenced by the group management. Such a move might drive down the tax burden on profits which are effectively 'generated' in a high tax country.[38]

Neither would a formulary apportionment system necessarily treat similar businesses in the same way. Suppose business A in country A and business B in country B were competing to purchase another business C in country C. The tax rate faced by A and B on the profits subsequently earned in C would generally depend on the tax rates in countries A and B, as well as on the ratio of profit to the factors included in the formula. The same applies to the case if A and B were competing to sell to consumers in country C—even if the only factor were based on the destination of sales. For example, if A had 99% of its sales in C, whereas B had only 1% of its sales in C, then a marginal increase in sales in C would be taxed at a different rate for A and B.

Again, though, this does not necessarily imply that these distortions are greater or smaller than under the current system. That would depend on the circumstances of the individual case: in any particular case, the distortions could be greater or smaller. But this does mean that there is not a *prima facie* case for a formulary apportionment system based on economic efficiency, even in the case where the system was agreed by all countries.

If only a group of countries introduced formulary apportionment, then the distortions to location and ownership decisions are likely to be even greater. That is because there could be examples where a business would be taxed on its profit in more than one country. For example, a business producing outside the formulary apportionment group of countries would pay tax on its entire profit in the origin country; if it sold into a country using formulary apportionment and including sales as a factor, then it could also be liable to tax in the market country. A high effective tax rate overall could create a powerful incentive to switch location. Similar considerations would arise if—as for US states—all countries operated a formulary apportionment system but differed in the factors used to apportion profits.

[37] See IMF (2014), para. 69.
[38] These examples may also be taken to reflect opportunities for avoidance.

1.2.2.3 Fairness

The basic structure of the tax base would not change under formulary apportionment—at least any change in the tax base would not be a necessary feature of the tax. The key difference from the existing system is rather the allocation of taxing rights among jurisdictions. So from the taxpayer's perspective, apart from the possible incentive to shift real activities, the key difference is the possible restriction in tax planning opportunities and saving on compliance costs, both discussed below. Any restriction in planning opportunities may result in more tax being paid; this may be more in line with what governments intended in setting a tax on business, although for the reasons set out at length in Chapter 2 it is not clear whether this would be more or less 'fair'.[39] For this reason, or simply because of the different allocation of profit across jurisdictions, a taxpayer may face a difference in the effective rate applied to the consolidated profit, and the ultimate incidence may also change.

The more significant effect from a fairness perspective is that the allocation of taxable profit among countries would likely be different under formulary apportionment. Exactly how it would be different would depend on the factors used in the allocation: using the destination of sales would favour market countries while ignoring intangible assets would reduce the share of taxable profit going to countries where such assets are owned (which may or may not be the countries where research and development takes place). Either of these factors—a greater allocation to market countries, and a smaller allocation to where assets are owned—might be taken to represent a fairer allocation than the existing system. However, again as we have argued in Chapter 2, it is also difficult to identify what would be a fair allocation among countries.

1.2.2.4 Robustness to avoidance

Many proponents of formulary apportionment do not emphasize its benefits with respect to economic efficiency or fairness. Rather they emphasize the benefits with respect to avoidance and the costs of implementing the tax. In these dimensions, formulary apportionment certainly has advantages.

Key problems of the current system involve locating valuable intangible assets in low tax jurisdictions, within-group lending from such jurisdictions, and the difficulties in determining an appropriate price at which members of a group transact with each other. If all countries adopted the same formulary apportionment system, this would at one stroke do away with such problems. In this case, only the consolidated taxable profit would be relevant. There would simply be no benefit from making taxable profit appear in one affiliate or another. Since the allocation

[39] It might be argued that formulary apportionment is also more likely to achieve a single level of tax on business profit. However, we have argued in Chapter 2 that this is less important than the overall effective rate levied.

of profit among countries would no longer depend on the value of transactions within a multinational business, the entire set of transfer pricing rules which support the existing allocation of profit across countries could therefore be scrapped. This would undoubtedly be a major benefit of a common formulary apportionment system. Any formula which largely relies on payroll, real assets, and/or sales therefore virtually excludes low tax jurisdictions where no real economic activity takes place from participating in the global tax base. Intra-group games relating to the allocation of debt or the choice of specific transfer prices which make profit shifting and base erosion possible under current rules would largely disappear.[40]

That does not mean that there would be no tax avoidance however, even with a common system across countries. That would remain possible, for example, by manipulating which aspects of the business are consolidated. As noted above, moving from one side of the threshold for consolidation to the other may affect the overall tax liability of a group of integrated businesses, as would routing sales through an independent distributor located in a low tax country, thus manipulating the sales factor. Other strategies may be devised.

But, beyond this, greater problems may arise when the system is not common across all countries, either because some countries maintain a conventional system, or the definition of the tax base , or the allocation formula, differs among countries.[41]

Suppose a group of countries introduced a common formulary apportionment system. There are two main options for these countries. The first option—Option A—allocates the profit earned by a multinational within the participating group of countries. The allocation of profit to each participating country is in proportion to its share of specified factors within that group of countries. For example, under a traditional three-factor formula, the profit allocated to each participating country is proportionate to its share of assets, labour, and sales in the participating countries as a whole.

Under Option A, one needs to establish how the profit consolidated within this group of participating countries would deal with transactions with the multinational's affiliates outside this group of countries. The current approach could be used for such transactions; this is what is envisaged in the European Commission's CCCTB proposal, for example. But if this is the case, then many, if not all, of the current opportunities for avoidance would continue. Suppose there remain low tax jurisdictions outside the formulary apportionment group. Then there would continue to be an incentive to locate valuable intangible assets in those jurisdictions, and to undertake within-group lending from them. These opportunities for planning would be closed down only within the group of countries, not outside it. Shifting profit outside the countries adopting formulary

[40] For further discussion, see IMF (2014), para. 67.
[41] For further discussion, see Schön (2007).

apportionment may still be possible. This could seriously undermine the advantages of becoming a member of a group of countries introducing a common formulary apportionment system.

The second option—Option B—is that a group of countries (or a single country) could implement the formulary apportionment system independently of the rest of the world. That is, any single country—call it X—could implement a formulary apportionment system independently. It would define the tax base of a multinational company as a share of its worldwide profit, where that share is country X's proportion of whatever factors are in the apportionment formula. Country X could define profit using its own rules, or it could simply rely on international accounting standards, and use the multinational's consolidated group profit. Implementing such an approach would not require valuing any transactions of the multinational. In addition, for example, if the formula was based on assets, labour income, and sales, it would simply require information on the aggregate of each of these in country X and in the whole world. Option B would certainly be more robust to tax avoidance strategies than Option A. Such a system would also appear to be much more straightforward to implement than the existing system.

Of course, either approach would move decisively away from a system aimed at sharing worldwide profit in an agreed way, whether by arm's length pricing or by worldwide formulary apportionment. If all other countries maintained their existing system, then it is very likely that some of the multinational's profit would be taxed twice—by X and another country—or not at all. We have argued in Chapter 2 that the principle of single taxation should not be a key determinant in designing an international tax system, but the differences in the overall effective tax rate faced by a multinational on its different activities are likely to lead to economic inefficiencies.

1.2.2.5 Ease of administration

The second main advantage of formulary apportionment is closely related. Neither the taxpayer nor the tax authority would need to identify profit earned in any particular jurisdiction. As a result, the relevance of concepts such as 'ownership', 'contracts', 'risk', and 'funding' would be greatly diminished under formulary apportionment. This is the second and related reason why many commentators regard formulary apportionment as offering a convincing alternative to the world of separate accounting and arm's length transfer pricing. Formulary apportionment requires a consolidation of the individual accounts of all entities belonging to a corporate group, thus doing away with the need to deal with the key factors in the OECD transfer pricing guidelines.

These benefits depend on there being a uniform—or near uniform—tax base; if different countries used different definitions of taxable profit, then they would—in principle, at least—each need to identify a separate measure of worldwide consolidated profit.[42] In this case, there could be significantly higher compliance

[42] This issue also arises in the context of the RPAI proposal in Chapter 6.

costs—relative to a uniform tax base—for multinational businesses that would be required to file different tax returns and income statements with regard to their worldwide profits for each individual country and its tax authorities.

If there is less than universal adoption of a common formulary apportionment system, then these benefits would depend on whether Option A or B, set out above, is followed. The benefits should follow if Option B is followed. However, if Option A is followed then the benefits would be greater the larger the size of the group adopting the agreed formulary apportionment system. Tax authorities in the adopting group of countries would need to maintain a system which identifies whether profit is earned inside or outside of the group of countries. Multinational companies would probably be present both inside and outside the common formulary apportionment area, and so tax authorities would continue to have to cope with the overlap and arbitrage options between the old regime (separate accounting and transfer pricing) and the new regime (consolidation and factor formula). Multinational groups would have significant leeway to structure their intra-group activities and entities in order to live in the 'best of both worlds'. Whether the benefits in terms of reduced compliance and administration costs would be outweighed by this effect would depend on the precise rules implemented and hence on the opportunities for tax planning.

A further advantage of the system is that, within the adopting group, only one tax authority would need to be responsible for auditing the tax return of an individual taxpayer. In principle, that could be a separate tax authority acting at a supra-national level. In practice (and as envisaged by the European Commission) it would be more likely to be the tax authority of one of the members of the group of countries implementing the system. However, that requires a high level of trust within the group; tax revenue in country Y would depend on the competence of officials in country Z. The officials in Z could well have little incentive to protect the tax base of country Y.

A related issue is the need to monitor the definition of the tax base. In most countries there is continual development of the definition of the tax base to combat planning and avoidance and to correct aspects that do not work well. It is likely that this need to develop the tax base would have to continue in some form. There would therefore need to be some mechanism within the adopting group to allow for agreement of such developments, and to ensure that countries that may lose out from the proposed change are not able to block it without good reason.

A final, and important, issue of implementation is the extent to which the current treaty network would become redundant. This depends both on the territorial and the personal scope of the formulary apportionment system. The treaty network would have to be applied (in a modified form) when taxpayers' economic activities stretch beyond its territorial scope (e.g. when taxpayers resident in the European CCCTB area do business in the US, or China). The recent proposals of

the European Commission in this regard include a large number of specific provisions dealing with 'third-country' relations of the CCCTB area.[43]

1.2.2.6 Incentive compatibility

Would individual countries have an incentive to switch to a formulary apportionment system? And if they did join, what incentives would they have to compete over the tax rate, or to leave? The EU's experience is not promising with regard to the first of these questions. Part of the reason may be due to political factors—for example, the view that agreeing to enter into formulary apportionment would imply giving up some sovereignty over tax matters. But there may also be economic reasons.

Any country considering whether to switch to a formulary apportionment system should analyse whether it would be likely to gain or lose as a result. Such an analysis should take into account both the real economic consequences and the tax revenue consequences of such a switch.[44] It is clear that any specific country might gain or lose from such a switch, depending on its current tax system and its economic situation. That would depend on the extent to which the country hosted the principal factors in the formula used, which in turn would determine its share of worldwide profit.

Once again, if the system is adopted by a group of countries rather than worldwide, then the method of implementation becomes critical. If Option A, described above, is followed, then the analysis is complicated by the question of which other countries would also join. That is because the gain or loss for any individual country would depend on which other countries were members of the adopting group. The decision-making process then becomes complex. In the EU context, for example, suppose that fifteen out of twenty-seven Member States decided that they would gain if all countries joined. But if only those fifteen joined, the calculations of gains and losses would be different, and some of those fifteen may then lose. At that point, some of these Member States might pull out, reducing the number still further. On the other hand, some of the other twelve countries might seek to join. Such a decision-making process could go on ad infinitum. The same issues would apply to any country that initially joined a formulary apportionment group and sought to analyse whether it would be better off by leaving. On the other hand, if Option B is followed, then the size and composition of the group will not matter. Under this option, the profit allocated to each country within the group is based on that country's share of worldwide factors.

More narrowly, within any discussion of a new formulary apportionment system, countries could negotiate both over the definition of the tax base and over

[43] For a detailed discussion of these issues, see Lang et al (2013).

[44] This type of analysis has been carried out with respect to the CCCTB—see, for example, Bettendorf et al (2010).

the apportionment factors. There would clearly be differences between countries in their preferred factors. The treatment of labour within the formula proposed by the European Commission illustrates this issue. The contribution of labour could be measured by the total wages paid to employees or the number of employees (or a combination of the two). The former approach would tend to benefit high wage economies, and the latter would tend to benefit low wage economies. The current EU compromise on this issue is to split the labour factor evenly between these two approaches.

Within a group of countries that had decided to switch to a common formulary apportionment system, there would be no—or at least very limited—opportunity to compete for inward investment through a more generous definition of the tax base (e.g. on depreciation allowances, restrictions on relief for interest payments, international anti-avoidance rules, and many other factors). Whilst under the current system, countries are able to compete both by adjusting the tax base and reducing the tax rate, under a common formulary apportionment system, they could compete only by lowering the tax rate. This could lead to more intense downwards pressure on the tax rate thus bringing into question the long-term viability of the system. Of course, in the absence of an agreement on the apportionment factors, they could also compete on these; the evidence from US states—consistent with the arguments set out in this book—suggests that there would be a move towards countries basing their formula on their relatively immobile markets, through giving a greater weight to sales.

1.3 Conclusions

This section has considered the advantages and disadvantages of an origin-based system for the allocation of rights to tax the profits of multinational companies. Although the existing system is largely implemented on an origin basis, there are alternative approaches that could be used whilst remaining broadly in an origin-based system. Specifically, an origin-based system need not necessarily be based on separate accounting and the arm's length principle. In this section we have therefore focused more on the general features of an origin-based system, rather than on the existing system.

Within this framework, the main alternative to a system of separate accounting is one based on formulary apportionment, and this approach commands wide support in the policy debate. We have therefore discussed this option at some length. On balance, we are not persuaded by a move to a formulary apportionment system that relies substantially on origin-based factors, such as the traditional three-factor formula of assets, labour, and sales. It is certainly true that there would be significant advantages in abandoning the complexities of separate accounting within a group of countries introducing a formulary apportionment system. These

advantages relate to the costs of implementing the system and the marked reduction in avoidance opportunities. These are major benefits, although they could be markedly reduced if formulary apportionment system is adopted by a small group of countries, depending on how this is done. But it is not clear that a formulary apportionment system would reduce the problems of economic efficiency seen in the existing system. There are also significant problems in terms of a lack of incentive compatibility and competition. The experience of the European Commission's CCCTB proposal suggests that it would be very difficult to persuade a group of countries to introduce such a reform. And if such a reform were successfully implemented by a group of countries—even with a common tax base and common factors for the apportionment—there would still be an incentive to compete on tax rates in order to attract economic activity, thus bringing into question the long-term viability of the system. That problem would exist for any system based on the 'origin' of profit.

Overall, then, it seems worth thinking about more radical reforms that are not origin-based. We turn now to discuss other possible locations for taxing international profit, beginning with the residence of the parent company or business headquarters.

2. Country of residence of parent company or business headquarters

A second option is to tax business profit in the location of the parent company or the business headquarters. Under a pure form, in a corporate setting, the worldwide profit of a multinational group of companies would be taxed in the parent company's country of residence on an accruals basis. But there could be many variants of such a system. For example, profit could be taxed in the country of residence of the parent company only when it is distributed to the parent, rather than as it accrues. And features of this system may be introduced by countries alongside origin-based taxes, as explained below.

2.1 Reform options

A distinction should be made between a universal shift to taxing multinationals exclusively in the location of the parent company, and the adoption of such a tax by a limited group of countries. In the former case, the profits of multinationals would be taxed once in the country of residence of the parent company. But in the latter case, with some countries retaining their origin-based tax systems, the question arises whether the parent company's country of residence should give relief for the tax paid in origin countries. A few options are available then, including a credit or deduction

being offered by the country of residence of the parent company.[45] A variant of this option is that the tax in the country of the parent could act as a minimum tax on worldwide income, where the country of the parent imposes a minimum rate on foreign income as it accrues, with a credit given for taxes paid in other countries.[46]

There is a literature which compares credit and deduction systems for the treatment of foreign taxes. Most commentators assume, or argue in favour of, a limited credit system; that is, foreign taxes should be creditable against the home country tax, but that this credit should be limited to reducing the home country tax liability to zero.[47] However, from the home country perspective, this implies that a domestic parent company should be indifferent as to the level of tax paid abroad since it can be credited against home country tax on a one-for-one basis. It has been claimed that this is not optimal from the perspective of the home country, since the multinational has no incentive to reduce foreign taxes paid. Shaviro has therefore argued in favour of deducting foreign taxes in determining the home country tax base but adjusting the tax rate applied to foreign income to keep it the same as would have been paid under a credit system.[48] This addresses the tax planning problem from the perspective of the home country, conditional on the location of both the parent and the subsidiary. But it does not address the broader issues raised below about economic efficiency.

The idea of taxing worldwide profit in the hands of the parent company is perhaps a natural consequence of the 'ability to pay' approach set out in Chapter 2. Personal income taxes generally tax individuals resident in a jurisdiction on their worldwide capital and labour income.[49] To the extent that an individual owns shares in a domestic business that earns profit in the rest of the world, then the notion of the separate tax on business as a 'backstop' to the personal income tax naturally suggests that the profit (especially that not distributed to the owners) taxed by the domestic jurisdiction should also be defined as that arising worldwide. This is the basis of claims that taxing the worldwide income of a business in the hands of its parent company is a natural starting point to considering the international taxation of business profit.[50]

Based on this starting point, some commentators, especially in the US, have long shared the view that any 'deferral' of taxation for foreign-source income (i.e. taxing foreign profit only when it is distributed back to the parent) presents an irregularity which has been accepted in the past somewhat grudgingly in order to support the 'competitiveness' of foreign subsidiaries of domestic companies operating in

[45] Most OECD countries now have a territorial system; the US moved largely in this direction in the tax reform of December 2017, although as discussed below, it also introduced a new provision for taxing foreign income as it accrues.

[46] The OECD is currently considering such a minimum tax. See OECD (2019a, 2019b, 2019d).

[47] See, for example, Fleming et al (2016a).

[48] See Shaviro (2011a, 2014) and Clausing and Shaviro (2011).

[49] Although there are exceptions to this rule.

[50] See Shay et al (2015) p. 678 *et seq*.

foreign markets and to lower the administrative burden when it comes to the measurement of foreign income and to the enforcement of the resulting tax claim.[51]

Several proposals have been made—typically within the context of the US—to extend the reach of the US tax system to incorporate different forms of worldwide income. Some of these proposals are in the form of a minimum tax; that is, a tax liability would arise only if tax liabilities in other countries were low enough. Clausing et al (2016) proposed a tax on the worldwide economic rent earned by US parent companies without deferral, but with a credit for foreign taxes paid.[52] Shay et al (2015) proposed an 'interim minimum tax' of 15% on the active income of controlled foreign corporations subject to a low tax rate in the host country.[53] The Obama Administration, in its 2016 budget (building on the 2012 'President's Framework for Business Tax Reform' and on work by Grubert and Altshuler, 2013), took yet another twist. The main characteristic of this proposal was the introduction of a 'minimum tax' of 19% on current profits derived by all foreign establishments and subsidiaries.[54, 55]

This latter proposal is similar to a provision introduced in the 2017 US tax reform. One of the main thrusts of the 2017 reform was to move the US away from a worldwide system, permitting US parent companies to receive dividends from their non-US subsidiaries free of US tax. But a new provision—using the acronym GILTI (Global Intangible Low-Taxed Income)—introduced a tax on foreign-source income of US resident companies as it accrues, calculated as the excess over a 10% rate of return on investment in tangible assets.[56]

As noted in Chapter 3, at the time of writing, a broadly similar approach is also being considered by the Inclusive Framework ostensibly in the context of reforming the taxation of the profits of businesses in the digital economy.[57] The OECD's 'Pillar

[51] Against this background, in 1962 the Kennedy Administration introduced 'CFC legislation' for passive income thereby abolishing deferral for subsidiaries in low tax jurisdictions insofar as these entities receive interest, royalty, and portfolio dividend income. In the decades which followed, CFC legislation spread all over the world and has also been recommended as an anti-avoidance device both in the context of the BEPS Action Plan (Action 3) and by the European Commission, although its compatibility with double taxation treaties is in doubt and its scope under EU law appears rather limited.

[52] Clausing et al (2016), p. 22 *et seq*. They also consider a less fundamental reform which would include a minimum tax based on foreign source economic rent, with a credit for foreign taxes, p. 28 *et seq*.

[53] Shay et al (2015), p. 705 *et seq*.

[54] Senator Camp also proposed a 'Tax Reform Act of 2014' which involved an extension of the existing CFC Regime ('subpart F') to 'foreign intangible income' and 'related-party sales income' (Section 4103 of the Draft) whenever the foreign tax burden went below 15%.

[55] The BEPS Action Plan included a couple of recommendations which involve an extension of worldwide taxation. One example is the 'defensive' rule on hybrids under Action 2, which requires the country of residence to tax cross-border capital income which is treated as deductible expenditure in the country of source. Another example is Action 3, which urges countries to introduce or expand CFC taxation in order to ensure the 'single-tax-principle'. But the BEPS Action Plan sees worldwide taxation only in a 'supporting role' with the primary role allocated to the source country.

[56] The tax rate starts at 10.5% and rises to 13.125% in 2026. This is effectively an expansion of the US's CFC rules and would permit a foreign tax credit to some extent.

[57] OECD (2019a, 2019b, 2019d).

II' proposals seek to introduce a minimum worldwide tax on profit. Although the details are yet to be finalized, the basic idea would be for countries to agree a threshold effective tax rate—say 10%. If a multinational business has a subsidiary in a country which levied an effective tax rate of less than this threshold, then the country of the parent would levy a tax up to that threshold.[58]

2.2 Evaluation

The US GILTI provision incrementally extends US residence taxation on top of the foreign source tax levied by host countries with respect to profits derived by foreign subsidiaries of US corporations. The OECD Pillar II provisions would have a similar impact, although they are likely to be implemented differently if agreement is reached. To the extent that a credit is permitted against foreign taxes, then these reforms would not fundamentally change the structure of the international tax system, which would remain something of a compromise between notions of 'source' and 'residence'.

Rather than examine the US GILTI provision and other specific proposals here, we focus on the broader picture. We evaluate a pure form of taxation in this location: worldwide taxation at the level of the parent company on an accruals basis. But we also consider some measures which extend taxing rights to the country of residence of the parent company in a more limited fashion.

What are the merits of replacing origin country taxation with a worldwide tax in the location of the parent? On the face of it, such a tax has considerable merit; it should not affect location decisions of multinational companies (except the location of the parent), and if it replaced origin taxation, there could be a considerable simplification compared to the existing system. Further—conditional on the location of the parent company—it would greatly ease problems of tax avoidance and profit shifting. Let us turn to examining these issues in greater detail, using the criteria set out in Chapter 2.

2.2.1 Economic Efficiency

In its pure form, a tax on the worldwide profit in the country of residence of the parent company would have some attractive properties from the perspective of economic efficiency. If profits are taxed at the same effective rate wherever economic activity takes place, then—conditional on the location of the parent company—tax should not affect the location of economic activity. This could be achieved either if there were no origin-based taxes on profit at all, or if such origin-based taxes were fully creditable against the residence-based tax. Note that since this would imply a negative tax liability in the (home) country of the parent company in the event that

[58] See Schön (2019); Englisch and Becker (2019); and Devereux et al (2020).

the tax rate in the origin country exceeded that in the home country, advocates of a tax on worldwide profit in the home country typically propose only a limited credit system.[59] A limited credit system would not remove the impact of taxation on the choice of location of a subsidiary by a parent company, at least if one possible location had a higher tax rate than the home country. By contrast, taxing foreign-source income at the same rate as domestic income, but with only a deduction for origin-based taxes, implies that domestic businesses must earn a higher pre-tax rate of return on outbound investment.[60]

But there remains one other major problem with respect to economic efficiency (and other criteria, as we discuss below): the treatment introduced by these proposals relies fundamentally on the taxable residence of the parent company in question. If introduced only in the US for example, there would be no US worldwide tax for parent companies whose tax residence is located outside of the US. This would generate enormous pressure on US companies to 'invert' or to 'emigrate' in order to leave behind the constraints of the US tax. That is, there would be an incentive for a US parent company to merge with a company in another country, which becomes the ultimate parent; restructuring the business would allow it to effectively move the location of the parent company and avoid the US worldwide tax. This incentive already existed in the US prior to the 2017 reform, and the response of the US authorities was to create a series of new anti-inversion rules, in an attempt to limit inversions from the US. The same incentive would arise for new businesses. The introduction of a worldwide tax in the US would create a strong incentive to set up the parent company of a new business outside the US. The same would apply to any other country seeking to introduce a tax in the country of residence of the parent.[61]

Given that the location of parent companies is inherently mobile, increasing the tax liability based on the location of the parent would substantially increase those incentives, and put considerably more pressure on such rules. There is no particular reason why the parent company has to be located in the country of residence of its shareholders. Employees and directors can either be moved to other countries, or the company can hire new employees and directors in the country in which it chooses to locate. If such a tax were introduced in the US or elsewhere—even as a minimum tax—then that country would need to create sufficiently strict anti-avoidance rules to prevent existing companies from shifting the location of

[59] See, for example, Shay et al (2015). This would not permit negative tax liabilities in the home country and is the basis of most forms of credit system in practice.

[60] In principle, this should lead to equating the post-foreign tax rate of return on outbound investment with the pre-tax rate of return on domestic investment (Feldstein and Hartman, 1979), which should maximize the total income of the home country.

[61] The aim of the OECD's (2019d) Pillar II proposal is that all countries would agree to implement the minimum tax. If this happened, depending on how it is done, it could reduce the incentive to move the residence of the parent company. But it is not clear why this would be incentive compatible: there would be an incentive for countries not to implement the proposal, in order to gain a competitive advantage.

the parent company.[62] And arguably, that would advantage companies that were originally registered outside the US.

Of course, all of these effects would be diminished if only features of this system were introduced in the form of a minimum tax, or, as in the case of the US 2017 reform, introduced only for an 'excess' return on intangibles. The equality of treatment across all locations would no longer hold, so that taxes would again affect business location decisions; but there would be less pressure to invert relative to a pure system. In proposing a reform similar to the US 2017 reform, Grubert and Altshuler (2013) argued that such a system combined two useful features. On the one hand, normal returns earned abroad by affiliates of US multinationals would be taxed in the same way as other businesses in those jurisdictions, possibly improving the competitiveness of US companies relative to the pure worldwide system. On the other, it would be harder for US multinational companies to shelter economic rents, or residual profits, in low tax jurisdictions.[63] However, such an approach is not able to reconcile two aims of economic efficiency: not distorting competition with other companies, while at the same time being neutral with respect to location choices.

2.2.2 Fairness

We have argued that a tax on the worldwide income of a parent company can perhaps be most easily justified as a proxy for a tax on the worldwide income of resident shareholders and business owners. But that case is only strong where the parent company is wholly owned by domestic shareholders, so that the business level tax could reasonably be a proxy for taxing the capital income of domestic residents. Where this is not true, it is hard to see why giving taxing rights to the country of residence of the parent company represents a fair allocation amongst countries.

The nature and scale of cross-border ownership of business is important here. Consider a company resident in country A that has sales and activities all over the world and is wholly owned by a shareholder in country B. A case could be made on fairness grounds for allocating taxing rights on an origin basis to some or all of the countries involved (on the benefit principle), or for simply allocating the taxing rights to the owners of the company in B (on the ability to pay principle). But it is hard to make a case based on fairness among jurisdictions that country A should be the sole beneficiary of tax on worldwide profit. The company may (or may not) be managed from A, but there may be very little activity taking place in A—perhaps only meetings of the board of directors, for example—and the business is not

[62] See IMF (2014), para. 65 and Graetz (2001), p. 137 *et seq*. and ch. 4, p. 212.

[63] Shay et al (2015) have criticized this approach on two grounds (p. 711 *et seq*.). First, a low 'final' taxation on an accruals basis leaves no room for a further tax on repatriation which they regard to be necessary to provide for equal treatment of domestic and foreign income. Second, they consider taxing only economic rent arising abroad as contradicting a requirement that income measurement should follow the same rules for domestic and foreign profits.

owned by residents of A.[64] To allocate all profit to A would be an arbitrary allocation that would have to be defended on other criteria: such as economic efficiency, robustness to avoidance, ease of administration, and incentive compatibility.

It is then important to identify the correlation between the location of parent companies and the location of shareholders. The data suggest that, even though there is some home bias in the allocation of individual investments, this has shrunk considerably over time. In addition, the share of personal savings held in tax exempt accounts has increased. As discussed in Chapter 2, Rosenthal and Austin (2016) report that foreigners directly owned around 26% of US corporate stock in 2015; the equivalent percentage for the UK for 2018 was 55%—up from 7% in 1963;[65] and in Germany, the average percentage of foreign shareholders among the top DAX 30 corporates amounts to 56% and has shown a high degree of volatility between companies and between years.[66] Rosenthal and Austin also estimate that the share of US corporate stock held in personal taxable accounts fell by nearly three-quarters over the last fifty years, from 84% in 1965 to 24% in 2015. For the more open economy of the UK, the share of listed company stock held directly by domestic individuals fell from 54% in 1963 to 12% in 2014.[67] So, where there is international portfolio investment, the link between the location of shareholders and parent companies breaks down. Of course, there is still variation among countries, but this link is generally becoming weaker over time.

There is reason to believe that this link would become much weaker still under a tax based on the residence of the parent company. That is because that place of residence of the parent company would become much more important than it is under the existing tax system. The mobility of parent companies was already an issue in countries, such as the US until 2017, which do tax worldwide income—even though that is only when the income is repatriated, and only with a credit for taxes paid in other countries.

The interests of origin countries depend on how the tax is introduced. If the parent company tax is levied only after a credit for origin countries, then from the perspective of origin countries, there may be little change from the existing system. The same would be true if the tax were implemented as a minimum tax on 'excess returns', similar to the 2017 US tax reform. As long as origin countries have the opportunity to tax the returns arising within their jurisdiction, then they can continue to collect tax as under the existing system. The pressure on them to compete with each other would be lessened as the total amount of tax paid by a multinational business would not depend on the tax rates in the origin countries. This would not be true if foreign taxes were only deductible.

[64] In this case, it is hard to make a fairness case for *any* taxing rights to be allocated to the country of the parent.

[65] Office for National Statistics (2019).

[66] Ernst & Young (2019).

[67] Office for National Statistics (2019).

2.2.3 Robustness to avoidance

In principle, taxing foreign source income as it accrues could have substantial advantages with respect to avoidance and tax planning. But the extent of that advantage would depend on how it was administered, and in particular whether origin-based taxation continued.

If there were no origin-based taxation at all, then the need for tax purposes for separate accounting of each of a multinational's affiliates would disappear. There would be tax only at the level of the parent company. As a result, there would be no incentive for a multinational to report income in a low tax jurisdiction, since that income would in any case be taxed in the country of the parent company. This would remove the incentive to move financial or intangible assets to a low tax jurisdiction.

If origin-based taxation remained and was creditable against the tax due in the parent country, then this advantage would be diminished. That is because it would remain necessary to identify the location of taxation for the purposes of the origin-based tax. And if the tax rate in the parent country were lower than the tax rate in the origin country, then with a credit system there would be no tax at the parent level of foreign source income, and hence separate accounting would be decisive, as is largely the case under the existing system. This is also more likely to be the case if the tax at the parent level is a minimum tax, where the rate levied by the country of the parent is lower than the normal rate. It would also be the case under a deduction system; in this case, the overall tax paid would always depend on the tax paid in the origin country, since that tax would only be deductible against the parent company tax.

As noted above, taxing foreign source income would put considerably more pressure on the definition of the 'residence' of the parent company. Countries use a number of tests for residence which differ with respect to their malleability. If residence is simply built on incorporation, residence is easier to move than if residence is built on substantive tests such as 'management and control', but the latter are also open to manipulation.

The issue of residence is therefore clearly important for the implementation of a tax at the level of the parent company. Recognizing the problems of existing definitions of residence, and that taxation at the level of the parent is most easily justified as a proxy for the taxation of the shareholders, Fleming, Shay and Peroni (2016b) propose that the definition of corporate residence be linked to the residence of the shareholders, suggesting that a company would be tax-resident in the US if at least 50% of its shareholders were resident in the US. This would be a radical change to the definition of corporate residence, in an attempt to more closely align the taxation of the parent company with the location of its shareholders. In that sense, the proposal might be thought to be closer to one that would levy tax on profit in the location of the shareholders.

At least three issues arise with this proposal. First, it is necessary to identify who is the shareholder. There is a conceptual issue here, where the ownership is held

by an intermediary such as a mutual fund. Should we seek to locate the mutual fund, or to look through the mutual fund to the ultimate shareholder? Especially in the latter case, this could be very complicated in practice. Second, the 50% threshold—or any other threshold chosen—would be likely to become very important, depending on whether other countries also adopted such a system and what their tax rates were. Suppose, for example, the system were adopted in the US, but not elsewhere. Then there could well be an advantage for US-resident shareholders who wholly own a company resident in the US to sell 51% of the shares to non-residents. Both sets of shareholders could then gain at the expense of tax paid to the US government.

Third, resident shareholders would have an incentive to hold shares in non-resident companies who were not subject to the tax on worldwide income. The authors do have a response to this problem. They propose that domestic residents who own shares in a non-resident company (i.e. through outbound portfolio investment) should face an additional tax on the resulting income to the extent that the foreign tax borne is lower than would be borne if that company had been resident in the US.[68] This is broadly similar to systems of integration between corporate and personal tax, where it is common for relief to be given only to domestic shareholders on domestic income earned by a domestic company. But as we saw in Chapter 2, taxing outbound portfolio investment at a higher rate than domestic portfolio investment in order to offset the business level tax on domestic investment would be unlikely to achieve parity between domestic and foreign investment. For small open economies, businesses in any one country would be owned by investors from all over the world, and the personal taxes levied on those investors in their home country would be unlikely to affect the required rates of return post-business-level tax. The net effect of levying a higher rate of tax on outbound portfolio investment would therefore be to make it less attractive to domestic investors than domestic portfolio investment. Even for the US, a large country, the required rates of return after business level taxes (whether origin-based, or levied only on the parent company) and before personal taxes, would be determined in the world markets at least partly by the actions of non-US investors.

2.2.4 Ease of administration

Introducing a tax on worldwide profit as it accrues would give rise to at least three types of problems of administration. These are all related to the issues already outlined. First, it would be necessary to implement and administer robust rules on residence. We have already discussed options as to how to define residence. But, given that this concept would become an even more crucial aspect of the tax system, then rules determining residence would become even more

[68] Shay et al (2015), p. 719 *et seq*.

important than under the current system. Second, and related to this, it would be necessary to implement and administer strict rules regarding inversions—or any other ways in which resident companies may move their residence elsewhere. The difficulty faced by the US in creating anti-inversion rules is an illustration of this problem.

Third, and perhaps most importantly, taxing worldwide profit even when it is not repatriated requires having a mechanism for identifying and auditing the foreign activities of resident businesses—primarily the subsidiaries and branches of resident parent companies. Taxing only repatriated profit is relatively straightforward in that there would be flows of income into the domestic country. But consider a small resident company in country A owned by a non-resident shareholder, and which has a subsidiary in a foreign jurisdiction, country B. In principle, the tax authority in A would need to administer a tax on the profit of the subsidiary in B. That would be easier with the cooperation of the tax authority in B. For a large and powerful country such as the US, it may be possible to require the foreign country to cooperate, following the model established by the Foreign Account Tax Compliance Act (FATCA) legislation. But it is by no means clear how smaller countries—certainly if acting individually—would be able to achieve this. Small, low income countries find it hard enough to tax income arising within their own jurisdiction. It seems inconceivable that they could ever implement a tax on profit arising on the other side of the world on an accruals basis. They could perhaps start with the worldwide consolidated financial statements of the parent, but there could be significant difficulties in auditing such statements. It seems likely that this is why no countries apart from the US have seriously considered this option.

If the tax on worldwide profit were implemented as a minimum tax (as under the US GILTI provision discussed above), then it could be necessary to run two kinds of taxes in parallel: the current corporate income tax (possibly with a tax on foreign source income, but with deferral of taxation until repatriation) and the minimum corporate tax (at a lower tax rate, but including accrued profit). This could lead to substantial costs, both on the side of the tax authorities and on the side of the taxpayer. This burden might be slightly compensated to the extent that the necessity to allocate income to foreign and domestic entities would lose some of its relevance; nevertheless, as long as there exists a tax wedge between the full corporate tax on domestic profits and a lower minimum tax on foreign profits, the requirement to exercise existing controls on transfer pricing and controlled foreign corporations, for example, will not go away.

2.2.5 Incentive compatibility

What incentives are there for a country to implement a tax on the worldwide income of its resident parent companies?

If the tax replaced any origin-based taxation in that country, then this would be a radical move in the tax competition game. That is, suppose that country A unilaterally replaced the existing system with such a tax. Then the resident subsidiaries of non-resident multinationals would not be taxed in country A. That would have two profound effects. First, it would make country A an extremely attractive location to undertake productive activity. But, second, it would place its own resident companies at a competitive disadvantage, since they would continue to be subject to tax.

This disadvantage suggests that this is unlikely to be the choice made by country A. Rather, it is more likely that the worldwide tax would be combined with a tax on an origin basis. If the tax on worldwide profit simply supplemented the existing origin-based tax, then there would be no competitive gain with respect to inward investment. But there would be a different trade-off. On the one hand, country A would address possible problems arising from profit shifting to low tax jurisdictions and hence raise additional revenue from its own resident multinational companies. But, as a consequence, it would raise the tax liabilities of its own resident multinationals relative to non-resident businesses. This would be a disadvantage to domestic multinationals competing in markets around the world with non-resident businesses.

From the perspective of other countries, the worldwide tax in country A would give their own resident companies an advantage over multinational companies with parents in A. If A were a large enough country, with substantial outbound investment—the US, for example—then this may affect the choice of tax rates in other countries. Specifically, if country A offered a credit for taxes paid in other countries, there would be an incentive for those countries to capture as much revenue from affiliates of multinationals resident in A, up to the point that they would not pay any further tax in A. This would simply represent a transfer of tax revenue from country A to other countries. Of course, the merits of this strategy would depend on the extent to which other countries depended on inward investment from country A.

However, to the extent that other countries did follow such a strategy, the main gain from introducing such a system would be the higher revenue achieved by other countries. Country A would in effect be introducing a minimum tax, which would underpin the taxes on profit levied in other countries.[69] Those countries might also gain, to the extent that companies resident in A would seek to move elsewhere. The appropriate response of other countries to country A introducing a tax on the worldwide profit of its resident companies, with a credit for taxes paid in other countries, would therefore be a note of thanks to the government of country A.

[69] Note that this would not be true if country A offered only a deduction for foreign taxes.

2.3 Conclusions

At the time of writing, there is some support for the idea of a tax imposed in the country of residence of a parent company on the accruing foreign income of that company. The US introduced a provision to do so in its 2017 reform, and members of the OECD/G20 Inclusive Framework are also considering the idea in the form of a minimum tax.

The strongest argument in favour of such a system is that it would be the best way of supporting a personal tax levied on the worldwide capital income of domestic residents. In the absence of outbound, and inbound, portfolio investment, and hence cross-ownership across countries of multinational businesses, this would be a convincing argument. But in the modern global economy, with cross-border portfolio investment, it is not necessarily the case that parent companies are owned primarily by domestic shareholders. This is especially true in smaller and more open economies. But even in larger economies, such as the US, the direction of travel is clearly for there to be more cross-border portfolio investment. That means that the link between resident individuals and resident businesses has weakened and is likely to continue weakening over time.

In practice, it is quite possible for a business resident in country A to be owned by shareholders in country B, have almost all of its activities in country C, and sell to residents of country D. In such a situation, the case for basing the international tax system on the fact that the ultimate parent is in A is not persuasive. It is hard to see a case for such an allocation of taxing rights based on fairness, when countries B, C, and D would seem to have a stronger claim. It would create economic distortions in that businesses would seek to locate their parents in countries with low tax rates, or in countries that did not comply with this approach. Governments may seek to prevent existing companies switching the residence of parents (although this has proved to be hard in practice and adds complexity to the system), but new businesses would be likely to locate elsewhere.

And there is a problem of incentive compatibility: the incentive for countries that seek to compete with each other would be not to introduce such a system for fear of deterring parent companies from locating in their jurisdiction. If such a system were already in place, then these countries would have an incentive to undermine it, by reducing their tax rates or abandoning the tax on foreign income. It is therefore hard to see how this could possibly be a stable system for the long term.[70]

[70] For a policy analysis of the minimum tax being considered by the Inclusive Framework at the time of writing see Devereux et al (2020).

3. Country of residence of owners

A much more radical reform would be based on attempting to tax business profit as it accrues, but in the hands of the ultimate owners.[71,72] In principle, this fits well with the aim of the tax system being to support the taxation of capital income under the personal income tax. Broadly, this mirrors the fact that personal income taxes are typically levied in the residence country of the individual, on worldwide income. Where that income accrues inside a business, it is natural to assign that to the owners, whether or not the income is actually distributed. A business level tax on profit would then be unnecessary, or it could be used as a withholding tax which is creditable against personal taxes.[73]

A major advantage of such an approach would be that the location of tax on profit would be identified as the location of the owner of the business. While individuals are not immobile, they are certainly much less mobile than the key elements of a multinational business.[74] Locating the taxation of business profit—of a multinational, or a business resident only in one country—in the place of residence of the owner, would therefore have a considerable advantage for reducing or even eliminating both profit shifting and distortions to the location of real economic activity. Since the ultimate location of tax would depend only on the country of residence of the owner, there should be no profit tax considerations at the business level.

Where the owner and business are resident in the same country, then—as noted in Chapter 2—to some extent business level taxes serve the purpose of supporting the personal tax on capital income. In this case, a business level tax can be seen as a proxy for the personal income tax of the shareholder.[75] This is generally known

[71] Conceptually, business profit may also be taxed in the location of businesses' owners through a formulary apportionment approach. Under this approach, the worldwide profit of a business would be allocated to countries in proportion to the share of owners in that country. See the discussion in Cui (2018), who sets out the administrative difficulties entailed in such an approach.

[72] Conceptually, too, profit could be taxed as it accrues in the hands of all suppliers of finance—both equity and debt. In this section we limit our analysis to suppliers of equity finance, that is shareholders of companies.

[73] The United States Treasury (1992) and Warren (1993) both examined a 'shareholder allocation' proposal that used a business level tax as a withholding tax.

[74] Throughout the discussion which follows, it should be borne in mind that multinational enterprises with widely-owned shares are unlikely to be able to shift their shareholders to low tax jurisdictions to lower their overall tax liability. However, if the shares are held by a small number of (wealthy) shareholders, there is perhaps a greater likelihood of such a shift. In such cases, corporation taxes levied in the shareholders' residence provide a further incentive—beyond incentives created by personal taxes—for these shareholders to move their residence to low tax jurisdictions.

[75] Three taxes may be levied in this case: corporation tax on the corporate profit as it accrues, personal income tax on dividends when the profit is distributed, and capital gains tax on an increase in value of the company. Note that any such increase in value may reflect any profit that the company has made and not yet distributed; but it may also reflect a rise in anticipated future profit. There have been numerous ways in which relief has been given to reduce the double taxation of corporate profit and dividends, from an explicit tax credit to a lower tax rate on dividend income.

as *pass-through* treatment—broadly business profit is allocated to shareholders who for tax purposes include their share of profit in their personal income. This is broadly how commercial and professional partnerships are taxed around the world and how some closed companies (e.g. S-corporations and LLCs in the US) are taxed in some countries on a mandatory or elective basis.

What about cases in which the shareholder and company are not resident in the same country? Returning to the example above, suppose an individual in country B purchases shares in a company in country A. An origin-based tax would tax the profit of the company in A. It could be argued that this is still a proxy for the personal income tax that B would like to collect on that profit; but—as we have discussed in Chapter 2—unless A remits the tax revenue to B, then the government of B is likely to feel that it is not a very good proxy, since it will not receive the revenue necessary to provide public goods and services. Even in an international context, then, it is worth considering whether the profits of a company could be allocated to its shareholders for the purposes of including those profits in the taxable income of the shareholder.

In principle, there could be two broad ways in which profit is taxed in the hands of the owners of the business. One approach—which is used for commercial and professional partnerships and for S-corporations in the US, for example—would be to allocate all profit to owners and ignore any dividend payments or other flows of profit from the business to the owner. The other approach is simply to tax flows of dividends (and possibly other forms of remuneration). This would allow the tax on the underlying profit to be deferred until it is remitted to the owners.

In the pass-through case, in principle, in any tax year for the individual, the individual would need to declare in her tax return her share of any profit accrued within companies which she has owned within that year.[76] Note that 'her share' would depend on the proportion of each company that she owned during the year, and complications arise when that changes during the year. For example, suppose that she began the year owning 10% of company X, but after four months she purchased a further 50%, and then after eight months she sold 20%, meaning that by the end of the year she owned 40%. For a precise allocation of profit to this shareholder, it is generally supposed that the profit accruing in each of these periods would need to be calculated, so that the correct proportion could be allocated to the shareholder for each part of the year.[77] In practice, and as an approximation to this, the shareholder could be allocated a share of the total annual profit of the year

[76] There is a problem of matching the year end of the company and the tax year of the shareholder. It is more straightforward to rely on the financial year of the company, and to allocate a share of retained earnings at this point in time to be included in some subsequent tax return of the shareholder.

[77] If the shareholding changed more frequently, then in principle the profit would need to be calculated on a daily—or hourly, or minute-by-minute, or even second-by-second, basis.

based on her average shareholding during the year.[78,79] Problems mount if pass-through treatment is applied to more complex businesses, with a large number of owners (some of them corporate, tax exempt, or non-resident), possible continuous trading in the shares, and multiple classes of stock.[80]

A second option would be to tax only the dividends and capital gains received by a shareholder, which could again in principle mean that the corporate level tax could be abolished entirely or used as a withholding tax. Note, however, that as the capital gains received by a shareholder may partly reflect expected profit, this option would not be a strict tax on business profit as it accrues. Different versions of such an approach have been proposed. In the 1990s a number of US scholars proposed taxation of securities in listed companies according to 'mark-to-market' in order to capture undistributed changes in the corporation's value, sometimes combined with a pass-through approach for closely held entities.[81] Toder and Viard (2014) proposed that non-listed businesses should be taxed on a pass-through basis, broadly as described above. Shareholders of listed companies would be taxed on the dividends and also on the accrued capital gain on the value of their shares, on a mark-to-market basis. Grubert and Altshuler (2016) made a similar proposal, also in a US context, with dividends and capital gains being taxed as personal income. The main difference is in the determination of the capital gains. Grubert and Altshuler proposed to tax capital gains on realization, but to introduce an interest charge to offset the gain from deferral of taxing accrued gains.[82] In this case there is no need to observe the current market price, and so the system could be applied to all businesses. A problem with both of these proposals is that—in the US context, at least—they would raise less tax revenue. Grubert and Altshuler therefore proposed to keep the corporation tax, but at a much lower rate, and a later paper from Toder and Viard (2016) proposed the same.

One complication arises here that was discussed in the context of taxing parent companies above: how to treat ownership of shares through financial intermediaries such as mutual funds. The principle is that the tax should be allocated to the ultimate shareholders. But that calls into question the taxation of intermediaries. For example, suppose that pension funds do not pay tax on the accumulation of their

[78] For S-corporations, where stock is sold mid-year the default rule is that the selling shareholder is allocated a pro-rata share of the annual profit. So, for example, if a shareholder sells a 50% share of the business six months into the year, she would be allocated 25% of the company's annual profit. But shareholders can also agree to elect that they close the books at date of sale, with a profit allocation being made up to that date.

[79] This is not necessarily the only, or best, way to proceed. The price at which shares in the business are transacted should depend on the future profits and taxation of the business. For example, the proceeds from selling a share should reflect the post-tax stream of profit that is expected to arise within the business. If the purchaser of the shares were liable to a tax which matches her share of the income (that is, on the total income accruing in that financial year), then it is not clear that the seller of those shares needs to face further tax at the end of the financial year.

[80] For a discussion of these issues, see United States Treasury (1992) and Warren (1993).

[81] See, among others, Bankman (1995), Dodge (1995) and Knoll (1996).

[82] This is based on the proposal by Auerbach (1991).

returns, as is common. Then should we view the pension fund as being the shareholder, or should we look through the pension fund to identify the beneficiaries—who may not receive their pensions for many decades to come? If there is a deliberate policy of providing a tax advantage to pensions, then looking through the pension fund would undo this advantage. This would suggest treating the pension fund as the shareholder, which would certainly be a simpler approach. However, taking this approach is also problematic, in that the financial intermediary is likely to be mobile, and able to locate in a low tax jurisdiction. This is similar to the problem of the relocation of parent companies discussed in the last section.

A key question for our analysis, however, is how either of these two broad ways of passing the tax on business profit to the owners of the business deals with the international problems with which we wrestle in this book. Let us consider them in turn.

The first option of passing through profit to owners does not really address the problems of the taxation of multinational companies, since that approach is silent on how to identify and locate profit. The options for identifying that profit are therefore those that are considered elsewhere in this chapter—it could be based on an origin basis, the residence of the parent company, or a destination basis. But unlike the current system which is based on separate-entity taxation of corporations it leaves open the option of fully allocating all profits to the owners of the corporations wherever they are resident on a current basis.

It might be natural to think of applying this option to the worldwide profit of the business, based on the residence of the parent company, since that is the company in which the ultimate owner directly owns shares. Where the shareholder is resident in the same country as the parent company, this would be an effective way of taxing the worldwide income of the shareholder. But this does not easily deal with international portfolio investment, such as the case when a shareholder in country B owns shares in a company in country A. In principle, the profits accrued in A should be allocated to the shareholder in B, and taxed by the government of B.[83] This is an approach taken by many countries in the context of 'controlled foreign corporations' and 'passive foreign investment companies'—but this does not reflect the treatment of the overwhelming majority of cross-border business holdings.

There would be one very significant problem with a cross-border implementation of this option: enforcement. The tax authority of the country of residence of the shareholder would require information from all companies (or other businesses) in which a domestic resident has an interest. That might be acquired from

[83] This problem is avoided for S-corporations in the US, since they are not permitted to have non-resident shareholders. And US shareholders of non-resident companies do not receive pass-through treatment either. S-corporations are permitted to own non-resident subsidiaries, but those subsidiaries are treated as C-corporations and hence are liable to US corporation tax.

the resident shareholder, but then responsibility for information collection is passed to the shareholder. Otherwise the tax authority could collect information from the company directly. It might just be conceivable for a large country such as the US to impose such a requirement on non-US companies. It is hard to see many other countries being able to impose such a requirement, especially small low-income countries on companies all over the world. Another alternative would be for the tax authority in the residence country of the company to collect the information and distribute it to all countries that have individuals who own shares in that company. This would require a dramatic increase in cooperation among tax authorities; although there has certainly been a sharp increase in recent years in cooperation among tax authorities through exchange of information, and country-by-country reporting, such exchange has not yet reached the levels that would be required here. Each tax authority would in effect be helping other countries to collect a residence-based tax on the foreign shareholders of local companies; it is not clear that they would have an incentive to do so.[84]

The second option described above bypasses the first of these problems. If we take the approach in its pure form, of abolishing the business level tax of profit, and relying solely on taxes on dividends and capital gains of the owners, then we no longer have the problem of identifying the relevant profit of a multinational in any particular jurisdiction. In effect, we would be taxing the worldwide profit of the business directly owned by the individual. Note, though, that tax on dividends may be deferred from the time at which profit accrues, and tax on capital gains may reflect profit that is expected to accrue in the future.

However, even with this option, there remains the problem of dealing with international portfolio investment, when a shareholder in country B directly owns shares in a company in country A. In principle, if the aim is to tax the owner of the business on the accrued income from owning that business, then it is natural to aim to do this for worldwide accrued income. Toder and Viard (2014) propose to tax the accrued capital gains of any company listed on a domestic or foreign exchange; but they would not tax the income of non-listed, non-resident, companies owned by domestic residents. Against this background, others have proposed to combine 'pass-through' treatment for closely held companies with mark-to-market treatment for shares in listed companies (Dodge, 1995).

Grubert and Altshuler (2016) do not address the problem of international portfolio investment. However, the enforcement problems for taxing dividends and realized capital gains of non-resident businesses may be less significant than taxing the profit of the business directly; at least the shareholder is presumably aware that she has either received a dividend or realized a capital gain, even if these are derived from non-resident businesses. If an interest charge is also levied to effectively

[84] It remains to be seen to what extent the current plans to implement a worldwide minimum tax on corporate profits will address these issues and ramp up international assistance in tax matters.

convert the tax on realized capital gains to a tax on accrued capital gains, then it is plausible that the shareholder could be taxed on her worldwide income from her ownership of businesses at a rate equivalent to her personal income tax rate. There may of course be problems of evasion, but these are similar to those for any other form of foreign income that the owner may seek to hide from the tax authorities. Again, this problem could perhaps be addressed with suitable agreements on exchange of information.

A final point to note, however, is that it is no coincidence that these proposals have been made in the context of a large country such as the US. While it is conceivable that the US, and perhaps other large and developed countries, might be able to identify and tax all dividends and realized capital gains from the worldwide holdings of US citizens, that seems unlikely for many other countries. In particular, low income countries tend to rely much more on taxes on business for the administrative reasons that businesses are more likely to have financial records and to be registered with the tax authority. Moving away from taxing the business to taxing the owners of the business would be problematic where tax administrations lack resources.

But then the number of residents in low income countries that own shares in foreign companies is likely to be small. While this may help if such a reform were introduced, it also illuminates one likely consequence of such a reform. Ownership of companies worldwide is heavily biased towards high income countries. So moving towards a system in which corporate profits are taxed in the place of residence of the shareholders could have a substantial negative impact on revenues in low income countries.

4. Destination country

A fourth broad location to which the rights to tax multinational profit could be allocated is the market country. This is at the opposite end of the spectrum of a multinationals' activities: where it makes sales to third parties. There may be different forms of taxes on a destination basis, and we discuss two of these at length in Chapters 6 and 7.

But before analysing possible mechanisms for allocating some, or all, profit to the market country, we must first examine the rationales, costs, and benefits of doing so. We distinguish two bases for allocating taxing rights to the market country. These correspond to whether we think of the market country as one of several 'origin' locations, or as a distinct location in its own right simply because sales are made there. In the latter case, borrowing again from the literature on VAT, we call this the place of 'destination'. It may seem that identifying the conceptual basis for taxing profit in the market country is a purely academic exercise, which can be ignored by practical policy makers. We disagree; the basis for allocating

taxing rights to the market country—and indeed the reasons for doing so—should be important in determining whether and how to do so.

4.1 Market countries as countries of origin

First, taxing rights can be—and are—allocated to market countries because some economic activity and possibly ownership takes place in these countries.[85] In other words, taxing rights can be allocated to market countries on an origin basis. At the time of writing, such a reform is being discussed by the OECD/G20 Inclusive Framework. The justification for doing so could be that the activities—defined broadly—of foreign businesses in market countries are not taken into account, or not given sufficient weight, under existing rules. For example, a foreign business' investment in a market country may create valuable intangible assets that generate a return not fully taken into account under existing rules.

The jurisdiction of 'the market' is where what valuation experts describe as 'customer-based intangibles' reside. Such intangibles are an important part of the value of many successful multinational enterprises. In many technology businesses, for example, technological advances lead to customers installing a particular company's hardware, software, or both. Once that base of customers is established, the company has a competitive advantage for subsequent generations of products and services independent of any technological superiority. Similarly, in many businesses one successful product, whether based on technology, identification of consumer tastes, or some blend of both, can give a favourable image to a company, which can help to sell other products in the future. The intangibles that reflect these elements of value are often described as an 'installed customer base' or 'customer relations' or even 'goodwill'. Once developed they can have value far in excess of any specific technology that fuelled their initial creation. Arguably, these intangibles are inherently located in the jurisdiction of final purchaser for the product or service, which is the market jurisdiction, because that is where the customer is. In the recent debate on taxation of the digital economy, the concept of taxation on the basis of 'digital investment' is built on this approach.[86]

In addition, new products and services are typically protected by patents, trademarks, and/or copyrights—and these clearly also constitute an important element in generating returns to a business. Within the logic of an origin-based tax—such as it is—there is an argument for sourcing these returns to the market jurisdiction: the value of these products is determined in substantial part by the legal protections offered through patent, trademark, copyright, and other laws in the market jurisdiction itself. A patent-protected drug cannot generate profit in a

[85] For discussion, see Schön (2009).
[86] See Schön (2018, 2019).

market that readily permits generic products to be sold without regard to patent rights. Similarly, a handbag maker cannot readily earn profit if fake versions of the product are readily available. It is predominantly the law of the market country that protects these elements of value.

A tax on profit in the market country can therefore be seen in part as a return to several sources of profit, related to the country of the customer. In this sense, the market country is simply one of a number of 'origin' countries. Even if the tax system were to continue to be based primarily on an origin basis, then the market country should be considered as a source of profit, alongside other countries, such as the location of production, or R&D. On the other hand, there are considerable difficulties in measuring the return to 'marketing intangibles' and other such factors that are being used in the current debate to justify enhancing taxing rights of market countries on an origin basis.

4.2 Market countries as countries of destination

However, there is a second and distinct basis for allocating at least some taxing rights to the market country—as the 'destination' of sales. Under this basis of taxation, taxing rights would be allocated to a market country by mere virtue of sales in that country—even if the foreign business making the sale has no other economic presence in the market country. This basis of taxation is not followed under the existing regime. But it does form the basis of value-added taxes.

The case for a destination basis of taxation may be made on two grounds. The first is that the market creates value in and of itself. This may be thought to justify taxation in the market country even if a foreign business sells remotely and has no economic activity there. It may be argued that if taxing rights are allocated according to the principle of value creation, then they should be partly allocated to market countries, as the creation of value requires both a supply and a demand side. Without customers to purchase the goods produced by a business there would be no business profit to allocate. This view has supporters and detractors.[87] However, more generally, and as discussed in Chapter 3, we do not believe that taxing rights can or should be allocated on the basis of value creation. We therefore move on to the second and more persuasive reason for taxing on a destination basis.

A key advantage of taxing profit in the destination country is similar to that of using the country of residence of the shareholders; individual customers are relatively immobile. At least in most cases, we would not expect an individual customer to change her location in order to reduce the tax charge of the multinational

[87] See, for example, the discussions in Schön (2018); Hellerstein (2018); and Devereux and Vella (2018b).

from which she buys a product.[88] Thus, unlike an origin-based tax, or a tax in the location of the parent company, it would be hard for the multinational to affect the location of the tax levied on its revenue.

In principle, the relative immobility of the place of destination has significant advantages in terms of economic efficiency, robustness to avoidance, and incentive compatibility. As we have discussed elsewhere, the existing system creates significant distortions to the location of economic activity, and the ownership of assets within a multinational, because under an origin basis these factors determine the location of the tax base. But where a multinational sells its product to a third party depends on the location of that third party. In principle, a tax based on the destination of sales would avoid such location distortions.

A similar argument applies to profit shifting: if income is taxed in the place of destination, then it is very hard for a multinational to manipulate the source and hence the location of taxation of that income, or indeed the amount of income. As a result of these two factors, competition among countries should also be curtailed. If country A lowers its destination-based tax rate, that should attract neither economic activity nor tax revenue from country B, since the taxable income depends on sales in A.

These are powerful reasons for exploring a tax based on the place of destination. But what of our other criteria? In particular, could a tax on profit in the place of destination be said to be fair? It could perhaps be argued that having a tax based solely on the destination of sales is rather arbitrary. Under the existing system, we are used to the concept that the return from an activity should be taxed in the place of the activity (even if the existing system does not always achieve that); thus, in principle say, the return from undertaking research and development (R&D) should be taxed in the place where the R&D is undertaken. A system based solely on the destination of sales would not achieve this. And so arguably, there may be a problem in terms of the fairness of the allocation of the tax base among countries.

However, as we set out in Chapter 2, it is difficult to employ the concept of fairness in relation to taxes on profit. To compare the effects of such a tax on individuals, we need to look though the company or business to identify which individuals are worse off as a result of the tax. In general, that depends not just on the location of the tax, but also on the base of the tax and the market conditions in which the multinational operates. In some circumstances we can be more precise. For example, in principle a tax on economic rent in the destination country—such as the destination-based cash flow tax (DBCFT) described in Chapter 7—should fall on consumption out of non-wage income by residents in the destination country. That is likely to be progressive in that since spending out of wage income is unaffected, the tax falls only on other forms of income, notably capital income. However, this

[88] As we discuss in detail in Chapters 6 and 7, this is more likely if the customer is a business, depending on the precise form of the destination-based tax.

leaves the welfare of the multinational's owners, likely to be resident in other countries, unaffected by the tax.

There is also a question about fairness among governments; a destination-based tax would allocate taxing rights to the country of destination, rather than any other location in which the multinational operates.[89] Switching from an origin-based tax to a destination-based tax, the effect on the distribution of taxing rights depends (amongst other things) on the balance of trade. Under a DBCFT, for example, moving from an origin to a destination basis would mean that each country would forego tax on its exports, but collect tax on its imports. Where trade was balanced, these effects would net out. In the short and medium term, and ignoring all other factors, a country with a trade deficit would see a rise in its tax base, whilst a country with a trade surplus would see a fall. Note that it would be wrong to assume simplistically that countries with 'small' markets would 'lose out' in a move to a destination basis of taxation. First, countries with 'small' markets may have limited real activities that attract taxing rights under the existing origin-based regime. Second, less revenue should be lost to profit shifting under a destination basis of taxation than is currently lost under the existing origin-based regime. Looking to the future, in an origin-based regime, countries with 'small' markets will continue to face competitive pressure to cut rates to attract real activity. This will make it increasingly difficult for these countries to raise revenue on this basis. These pressures would be reduced or even eliminated under a destination-based tax. We discuss these issues in more detail in the context of more specific proposals in Chapters 6 and 7.

But identifying gainers and losers may tell us little about whether the system is more or less fair. For that we have to rely on principles of how taxing rights should be fairly allocated among countries. However, despite considerable writing on the notion of 'inter-nation equity', these principles are not clear.

One possibility is to return to the notions of ability to pay and the benefit principle. As we set out in Chapter 2, the 'ability to pay' case for a business level tax on profit is not strong. But in this context, the issue is whether a destination-based tax would be useful as a support for a personal income tax—either for taxes on labour income, or for taxes on worldwide capital income. As we noted above, in the context of origin-based taxation, a destination-based tax can provide support for taxes on labour income, as long as remuneration paid to employees is deductible from the tax base in the country of the employee, as it would be under a DBCFT. And a DCBFT would also fall on the owners of capital, albeit in the destination country rather than the country of the owners of the business.

[89] Although this is not a necessary feature of such a tax; in principle, the destination country could share tax revenues with other countries. Clearly this would need some international agreement.

The benefit principle approach is most closely associated with origin-based taxation, although the link between the benefit of publicly provided goods and services in a country, and the profit made there, is unlikely to be strong. The 'benefit principle' case for a tax in the market country would probably need to rely on the argument that the market country is also a source of profit, and that the size of the contribution to profit is affected by the provision of publicly provided goods and services. This does not add up to a strong case on fairness grounds, but that is also true for origin-based taxes on profit.

So, although there may be questions about fairness, these are rather more general than applying only to destination-based taxes. As argued above, the case for a destination basis instead is based on its performance with respect to the criteria of economic efficiency, robustness to avoidance, and incentive compatibility.

That leaves the costs of administration as the remaining criterion. In principle, there could be many forms of taxation on a destination principle; these are likely to differ in how well they meet the criteria of low costs of administration. The cost of administration of alternative destination-based taxes depends on what form the tax takes. Chapters 6 and 7 outline in detail two options—and refer to other related taxes—that are either wholly, or partly, based on the destination principle. The Residual Profit Allocation by Income (RPAI) identifies the worldwide residual profit of a multinational and allocates that to jurisdictions based on third party sales in each jurisdiction. The DBCFT is more akin to a VAT, zero-rating exports but taxing imports. Each raises several important issues of administration, including for example, the treatment of remote sales into a country. However, these issues are relatively detailed, and we defer further discussion to Chapters 6 and 7.

5. Final thoughts

This chapter has explored four options for the allocation of the rights to tax the profits of multinational businesses amongst countries: the origin country, the residence countries of the ultimate business parent and of the ultimate owners, and the destination country. For each of these four locations, there are different options for the form of taxes that could be levied. This chapter is not intended to be an exhaustive account of all possible options. Rather we have tried to identify the key issues arising with taxes in each of these four locations. We have examined each in the context of the five criteria we set out in Chapter 2: economic efficiency, fairness, robustness to avoidance, ease of administration, and incentive compatibility.

Of the four locations, one may not represent a business level tax at all—instead it would allocate all profit earned by the multinational to the ultimate individual owners of the business, and tax it in the hands of those owners—full pass-through treatment or taxation on the basis of dividends and (unrealized) capital gains. This approach scores well on most of the criteria. The real issue is whether it could be

successfully implemented; if so, there would arguably be no need for a business level tax on profit at all. On the basis of current—and at the least the short-term future—levels of information collection and provision, full pass-through is unlikely to be possible and mark-to-market taxation seems feasible only with regard to shares in listed corporations. But information levels have risen dramatically over the last twenty years or so and are likely to continue to improve; so this option should not be ruled out indefinitely.

The approaches by origin and by the residence of the business parent perform particularly badly on the grounds of economic efficiency and incentive compatibility. And the problems are fundamental with respect to these locations, rather than being a feature of particular forms of taxation. In particular they apply both to the separate accounting approach and to most forms of formulary apportionment. That is because there is a clear problem for national governments: raising tax revenue on either of these bases tends to drive away real economic activity. Tax competition between countries to attract real economic activity (but also taxable income) has driven down effective tax rates and would be likely to continue to do so with taxes based on either of these locations.

The performance of these locations with respect to robustness to avoidance and the costs of administration depends on the form of the tax. Here there are clear differences between, for example, separate accounting and formulary apportionment. One issue which we discuss in more detail in the next chapter is the cost of transition. The existing system—with all its faults—is based on separate accounting. Undertaking radical reform away from this system would have transition costs and also uncertainty about how well any reformed system would work in practice. Before undertaking a reform, it is reasonable to require a good case that the benefits of any reformed system would outweigh these costs.

The fourth location is the destination country—where sales are made to third parties. This has not traditionally been part of the international system for taxing profit, although of course value added taxes and sales taxes are levied in this location. The relative immobility of the customer creates significant advantages with respect to economic efficiency, robustness to avoidance, and incentive compatibility. These advantages may well be strong enough to justify reform in the direction of allocating taxing rights to the destination country, as long as a suitable form of tax can be implemented, and the transition costs are not too large. The remainder of this book sets out options for reforms which move in this direction.

5
Basic Choices in Considering Reform

The previous chapters of this book set out principles for the taxation of profit and described and evaluated the existing regime and options for structural reform. We now turn to considering more specific options. We develop two of these, which we label the 'Residual Profit Allocation by Income' (RPAI) and the 'Destination-Based Cash Flow Tax' (DBCFT). These have some common features, but also differ from each other in a number of ways.

Before setting them out in detail, in this chapter we explain both the broad approach that we have taken and why we have settled on the key features of these two options. We first discuss the extent to which international coordination would be required, or desired; this depends in part on the nature of the reform, and whether a reformed regime can be designed that eliminates, or significantly reduces, the incentive for countries to compete with each other. We then consider the issue of transition to a new system. In broad terms, we can compare incremental reforms which are based on the existing structure, with more fundamental reforms that more radically change that fundamental structure. Here there is a trade-off: more radical reforms could be designed that have more desirable long-run properties, but it is likely that there would be significantly greater costs of moving towards such longer term solutions. We also discuss what should be required in terms of revenue requirements, and as part of this discussion consider the likely redistribution of revenues among countries.

We then discuss two issues which are common to the two options. First, we discuss the scope of the tax—which businesses should be liable to the tax. This question includes both the type of legal form of business, and whether small businesses would be exempt from the tax—and if so, how they would be identified. Second, since both proposals include at least an element of taxation in the 'destination' country, we discuss the concept and definition of destination. In this case, we draw heavily on existing experiences with Value Added Taxes (VATs). More detailed analysis for each of the two options is given in the next two chapters.

In evaluating the two options, we use again our five criteria; economic efficiency, fairness, robustness to avoidance, ease of administration, and incentive compatibility. We have set these out at length in Chapter 2, and used them in Chapters 3 and 4. In any reform, we would aim for a significant improvement on the existing tax system in at least some of these five dimensions, whilst not significantly worsening the performance in other dimensions. That may lead to some trade-offs depending on what are perceived to be the most serious problems of the existing system.

Taxing Profit in a Global Economy. Michael P. Devereux, Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella, Oxford University Press (2021). © the several contributors.
DOI: 10.1093/oso/9780198808060.003.0005.

One factor is noteworthy for not being included in our list of criteria for evaluating reform: the political acceptability of any reform. We do acknowledge the importance of political acceptability—any successful reform must appeal to politicians, policy makers, and the general public. Public debate about tax reform is often shut down by the claim that one group or another would not accept the reform. But second-guessing the reaction of any group to a particular reform is hazardous. Public opinion about taxes on profit may be driven by many factors, not all of which are consistent with a balanced and evidence-based analysis of the pros and cons of any option. We therefore see our task as being to set out as clearly as possible a rigorous analysis of the properties of alternative reform proposals—whether those properties may be deemed to support the proposal or not. We hope that such a clear analysis will generate greater understanding of the issues, and that such greater understanding can ultimately sway public opinion.

1. What degree of coordination is required?

A starting point for considering tax reform is how far reform needs to be undertaken in a coordinated way by a group of countries, as opposed to being undertaken by a single country. There are two aspects of this question. First, what are the legal constraints to unilateral action? Second, would it be in the interests of a single country, or group of countries, to act unilaterally?

Reform will require changes to laws but it is clear that some laws are easier to change than others (and that the capacity to change laws relating to the taxation of profit may be greater in some countries than in others). At one level there is purely domestic law, typically set by a national legislative body (or possibly a regional or state level legislative body). Where no other country is involved or has a say in that law, then it can be relatively straightforward to change according to the decision of the national government, although this varies from country to country.

But even a single country acting unilaterally must consider law that requires agreement among two or more governments, which is necessarily more difficult to reform. There are many examples of such law. Double tax treaties between two countries are one example. These can be undone or reformed by agreement. Or in some countries, such as the US, they can be overturned unilaterally by the national government. Underlying most individual treaties is the OECD Model Treaty (OECD Model) and its commentaries. This is a 'soft law' instrument. In some countries changes to it are automatically incorporated into domestic law and administrative practices.[1] While countries could change this automatic incorporation, it

[1] For a detailed account of the OECD Model as an instrument of soft law see, for example, Grinberg (2016).

would be much more difficult for them to engineer a change in the OECD Model or the commentaries. Clearly such a change would require significant international agreement. Of our two proposals, the RPAI would be likely to require some alteration to existing treaties and the OECD Model; whether the DBCFT is consistent with existing treaties and the OECD Model depends on whether or not it is treated as a tax on income. We return to these issues briefly in Chapters 6 and 7.

Another example is the law of the European Union which typically overrides the national law of the EU Member States. There have been many examples of national tax laws being effectively set aside by the Court of Justice of the European Union (CJEU). Any reform—or aspects of reforms—that is found by the CJEU to conflict with the EU's fundamental freedoms cannot be kept in place by Member States. Changing EU law on taxation requires the unanimous agreement of the Member States. A similar situation applies to other countries that are also members of regional blocs.[2]

A third example are agreements made at the World Trade Organisation (WTO). These constrain treatment of both imports from other countries and exports to other countries, for example in the form of subsidies. Although they concern trade rather than taxation, they are relevant for the design of taxes where those taxes may discriminate against foreign goods or services or where they act as a restraint on imports or a subsidy to exports.

In considering reform options we do not rule out any on the grounds that a change in the law may be difficult to achieve. However, we do acknowledge that, for example, there is a particular problem with reform proposals that may be deemed to be contrary to EU or WTO law, which are multilateral agreements and thus particularly hard to change.

What then of the incentives for individual countries to undertake unilateral reform? Under the existing system, there is an uneasy compromise between coordination and competition. In many ways, countries coordinate with each other through the international aspects of law just described, for example through the many detailed provisions in the OECD Model and the commentaries, and through mechanisms for resolving disputes including between tax authorities. Yet it is generally agreed that countries are also engaged in competition with each other—for real economic activity and also for tax revenue. This process of tax competition seriously undermines the international tax system, with ever lower rates of tax levied on business profit.[3] Those countries that would wish to tax profit at a high rate may

[2] For example, the members of the West African Economic and Monetary Union (WAEMU) and the Central African Economic and Monetary Community (CEMAC).

[3] Some have argued that competition to keep down rates of tax on business profit is beneficial. That could be true if one is not persuaded by the arguments in favour of such a tax set out in Chapter 2. But the case made more frequently is one based on competition constraining the size of government. In high income countries that is generally not the case; governments in those countries have other means by which to raise tax revenue. So a constraint on taxing business profit would typically

face significant disadvantages if they try to do so; in effect low taxes elsewhere act as constraint on the rates that any government can in practice charge. Businesses would be likely to respond by trying to shift profit out of such higher rate countries to others offering lower tax rates. Where they were not able to do so, they would face an incentive to move their real economic activity. In this way, countries with lower tax rates impose costs on countries that would otherwise choose to have higher tax rates. Such competition can take many forms—a reduction in the statutory tax rate, but also more generous provisions, for example, for interest deductibility or preferential regimes for particular activities.[4]

But competition is not a necessary feature of international tax. Competitive pressures to reduce tax rates are much more powerful for origin-based taxes, as discussed in Chapter 4. For example, there is very little pressure for a country to reduce VAT rates to match lower rates in other countries, since VAT is generally levied on a destination basis. These differences reflect the location and the mobility of the base of these taxes and suggest that tax competition may not be an inevitable feature of taxes on profit.

One key aim of any reform option should be to reduce or eliminate this incentive for countries to compete with each other and hence undermine the international tax system. As we have set out in Chapter 2, one of our criteria for evaluating taxes on profit is 'incentive compatibility'. That is, in this context, if one or more countries operated a particular tax system, then other countries would have an incentive to join that tax system, rather than stay apart from it. For a country operating the system, there should be little or no incentive to undermine it by setting lower rates than other countries that operate the same system. The same should apply to the first mover—in principle, an incentive compatible tax system would be one worth undertaking even unilaterally.

This would have profound implications for the need for coordination in implementing a tax system. Coordination is problematic for a variety of reasons. To be most effective, coordination would require a high number of countries to participate, but, of course, reaching agreement among countries with different needs and preferences is challenging. It is likely to involve compromises that lead to sub-optimal outcomes. From a political perspective, there is also concern that weaker countries are pushed into agreeing to systems without proper consideration, or which are not clearly in their interests. Furthermore, even if countries agree to coordinate, there remains the hanging threat of defection.

mean higher taxes on other income or spending. It may be more true in low and middle income countries. But a general consensus is that such countries collect too little in tax revenue, rather than too much.

[4] Keen and Konrad (2013) provide a comprehensive review of the theory of tax competition. Devereux and Loretz (2013) survey the evidence and Devereux and Vella (2014) discuss different forms of competition.

A tax system that was incentive compatible would reduce or eliminate competition and would make coordination both easier and less necessary. Incentive compatibility is important for creating stability, and hence reducing uncertainty. In turn, this supports investment and economic activity.[5] A system that significantly reduced, or eliminated, competition among countries should also be more stable. Under the existing system, most countries continuously reform their laws, to maintain or improve a competitive position relative to other countries. A system that did not provide an incentive to compete would remove this incentive for reform, and hence be more stable over time.

Of course, fundamental reform can worsen the problem of uncertainty in the short term, especially if there is doubt over the extent to which a single country has a legal commitment to international agreements. That is an example of a problem of transition, to which we now turn.

2. Transition

Any tax reform involves costs. There is the direct cost to countries of designing the new system, drawing up legislation and guidance, implementing new procedures, and training officials. There may be a need to collaborate with other countries in confirming that the reform is compatible with double tax treaties or if necessary seeking to amend them. The same applies to other international laws agreed with other countries. There are also direct costs to the taxpayer to learn and understand a new system and for businesses to implement their own procedures with appropriate training for their staff.

In principle these are one-off costs of setting up a new system. However, reform is rarely so clean-cut; it is likely that adjustments would be made to any new system to cope with unforeseen circumstances. On the other hand, the same could be said of the existing system which is constantly being adjusted to combat perceived avoidance opportunities.

There are also indirect costs. A reformed tax system may create significantly different incentives for business, which may lead to business needing to change its activities—for example, the extent and location of investment and employment, and its financial policy. It is possible that even discussion of reform could be costly if it creates greater uncertainty which can harm business investment.

[5] There is evidence from macro data that countries with greater uncertainty experience lower growth rates; see, for example, Ramey and Ramey (1995) and Engel and Rangel (2008). At the micro level, Leahy and Whited (1996) and Bloom et al (2007), for example, find a negative relationship between uncertainty and investment. There is less evidence that uncertainty specifically about taxation affects investment; however, in a survey of large businesses, Devereux (2016) found that respondents considered uncertainty about taxation to have a significant impact on investment.

Most of these costs tend to be greater the more fundamental is the reform. At one extreme, simply changing the rate of tax is relatively straightforward. At the other, perhaps, changing the tax base and the location of tax is likely to prove more costly in transition.

These transition costs need to be taken into account to set against any perceived benefits of a reform proposal. Of course, if transition costs are greater than the potential gains, then the reform should not go ahead. But three points should be noted. First, as already mentioned, transition costs are generally one-off, whereas the potential gains from reform should arise in every subsequent year, at least as long as the new system survives. Second, it is likely to be harder to estimate the benefits of any reform than to identify its transition costs. This is partly because those benefits may be rather intangible. For example, a reform may give rise to an improvement in economic efficiency through better allocation of resources among activities or among countries. These may be real and sizeable benefits, but they are not as easily measured or understood as immediate transition costs. Related to this, the size of any benefits is likely to be uncertain. By contrast, transition costs must be paid up front, and are likely to be much more salient to the policy makers and tax administrators who would have to undertake the reform. Third, the distribution of benefits among individuals and even among countries is even harder to assess. We return to the problems generated by changing the distribution of costs and benefits below.

The reform options in the next two chapters take different approaches to the scale of change. The first, an RPAI, is intended to remain as close as possible to the existing system whilst addressing the most significant problems. The idea here is that significant gains could be made by identifying and changing some elements of the tax system; but that by not deviating too far from the existing system, transition costs would be kept to a minimum. The second proposal, for a DBCFT, is more far reaching, and would require much more substantial reform; in this case the potential benefits are in theory likely to be greater, but transition costs are also likely to be more substantial.

We believe that both reforms could meet the basic threshold of requiring the benefits to outweigh the costs. It is worth noting, though, that these two proposals move in a similar direction—towards a destination basis. The RPAI retains some origin-based taxation as well as introducing more destination-based taxation. The DBCFT moves directly to a destination base, effectively abolishing origin-based taxation, at least for the taxation of business profit.

The question remains as to whether reform should be implemented all in one go, with a 'big bang' approach, or whether it should be implemented gradually. This is hard to judge and would depend on the nature of the reform. But to take the example of the DBCFT, a key element of the proposal is to zero-rate exports and to tax imports (this is what changes the system to a destination basis). But, even if that were the ultimate aim, it might be possible to implement such a reform

gradually—for example, partially zero-rating exports and partially taxing imports as a start. That would clearly push any benefits associated with the full destination basis further into the future. But it may also reduce transition costs. We discuss this further in the context of the actual proposal below.

3. Revenue neutrality and distributional issues

A common approach to analysing a tax reform proposal is to consider the case in which it aims to be revenue-neutral—that is, that the new system should be expected to raise the same amount of revenue as the old system. Given an overall revenue target, combined with alternative options available for meeting this target, this is a sensible starting point. The focus of the analysis can then be on the characteristics of the proposed tax, and how well it meets the desired criteria, given a revenue target.

Without revenue neutrality, the revenue required from other elements of the tax system would have to change, or the aggregate revenue target would have to change. In either of these cases, the basis of reform would be much wider; what would be the consequences, for example, of raising the foregone revenue from some alternative tax? In principle, that would require the costs of raising such revenue in this way to be taken into account. To sidestep this issue, it is therefore natural to consider a revenue-neutral reform.

That is not to say that the size of revenue generated from any existing tax is necessarily optimal. Neither does it imply that actual reforms are not intended to increase or lower revenue. The OECD/G20 BEPS project, for example, aimed to increase the revenue from taxing the profit of multinationals. But it is worth pausing to consider what the benefits of raising more revenue in this way may be.

For example, do the benefits arise because other—less efficient—taxes can be reduced? The optimal balance between a tax on business profit and all of the other elements of typical tax systems is a complex question. It is one that we considered in Chapter 2, but it is not one that we attempt to answer. As we discussed in Chapter 3, it is certainly arguable that corporation tax as traditionally structured imposes greater costs than most other taxes and should therefore contribute a smaller proportion of total tax revenue.

Or do the benefits of raising additional revenue from taxing profit arise because some countries are unable to meet an aggregate revenue requirement, in which case almost any additional revenue is beneficial? We have argued that lower income countries especially tend to rely more heavily on taxes on business profit because of the administrative difficulties in collecting other taxes, such as personal income taxes. But this does not generally apply to higher income countries.

Or do the benefits arise because there is a sense that the system would then be fairer? That is a more difficult question, as we discussed in Chapter 2. This is

a question where other taxes are relevant; it makes sense to think about the fairness of the tax system as a whole, and not just the taxation of profit. For considerations of fairness, then, revenue raised—ultimately from individuals, and across all taxes—is relevant.

For a given distribution of pre-tax incomes, a revenue-neutral reform is almost certain to create gainers and losers—otherwise the reform would have had no effect on tax payments. Offsetting this, a successful reform may generate greater economic activity and higher pre-tax incomes. That makes it at least possible that all taxpayers might be better off. However, there is no guarantee that this would be the case, and—in the absence of side payments between gainers and losers—the gains would have to be very significant and fairly distributed for this to be even close to being true. And even if it were true, at the time of reform there would be considerable uncertainty. As a result, it is understandably extremely challenging to generate political acceptability for a revenue-neutral reform. This is why, to compensate losers, reform is often accompanied by a reduction in tax revenue (the BEPS project being an exception to this).

This problem also arises to a certain extent in an international setting where there is concern about the distribution of tax revenues amongst countries. This relates to the earlier discussion about incentive compatibility. An attempt to organize a tax reform which is coordinated across a large number of countries is likely to be difficult since at least some countries may perceive that they may be worse off under a reformed system (unless those losing out have weak political power).

But an incentive compatible system would in principle not need such large-scale international agreement; even those countries worse off under a reformed system might choose to adopt it, finding the alternative of retaining the previous system to be even worse if other countries chose to reform. That is not to say that we are unconcerned about the distribution of tax revenues among countries; this is an important issue which we address in the context of the two detailed proposals in the next two chapters.

4. Scope of the reformed taxes

Any tax on business profits has to contend with a number of questions relating to its scope. These include specifying which legal forms of business are to be subject to the tax, whether there is to be a minimum threshold below which businesses would be exempt, and how such businesses would then be taxed. In setting the scope of either the RPAI or the DBCFT, a number of efficiency considerations arise. In principle, the tax should have a minimal impact on the choice of legal form, size of the business, or competition between different businesses. It should also in principle not affect the choice of owner-managed businesses to take remuneration in the form of labour income or profit. Of course, most existing systems

create some forms of distortion in these dimensions, which partly arises whenever there are different rates for personal and business income.[6] It is also important to consider the administrative and compliance burden on small businesses and revenue authorities.

Under existing systems, the scope of the tax on business profits varies between countries. In most, corporation tax is applied to all incorporated businesses. But this is not universal. In the US, for example, 'S-corporations' are subject to pass-through treatment, under which profit is allocated to individual shareholders and is subject to personal income tax.[7] By contrast, VAT is normally applied to all businesses over a certain size threshold, almost always defined in terms of turnover; the smallest businesses are not required to register for the tax because for them administrative and compliance costs would be disproportionate to the revenue at stake and potential distortions from their exemption.

Ultimately, the key choice here is that of the threshold between those businesses (whether or not they are incorporated) that would be subject to a separate tax on business profit, and those that would not be. The latter could most probably be subject to pass-through treatment. Two questions arise in choosing the threshold. First, what should the nature of the threshold be? Should it be specified in terms, for example, of having a certain number of investors, earning some level of profit or (like most VAT systems) having turnover above some level?[8] Second, at what level should that threshold be set?

The appropriate level of threshold has been most extensively studied in relation to the VAT. This literature points to three main considerations.[9] First, as might be expected, a lower threshold tends to raise more revenue. Second, and acting in the opposite direction, administration and compliance costs rise the more businesses lie above the threshold. A third, though somewhat less clear-cut, consideration is that the competitive distortions among different types of businesses are likely to increase with the number of businesses that do not face a separate tax on business profit.[10] Businesses that are not subject to a separate tax but are subject to

[6] Crawford and Freedman (2010) and Mirrlees et al (2011) propose to maintain the corporation tax for incorporated businesses only, but to introduce the combination of a rate of return allowance at the personal level, an allowance for corporate equity at the corporate level, and an alignment of rates to limit shifting between personal and corporate taxes.

[7] There are restrictions on which businesses can elect for S corporation status. For example, S-corporations are allowed a maximum of 100 shareholders, who must be US citizens or residents and must have a single class of equity shares.

[8] It is worth pointing out that one can cover most business activity, or at least the activity of large businesses that operate in a manner similar to corporations, without covering most businesses, given the size distribution of the business sector. For example, according to Auerbach (2010), in 2007 in the US, 90% of all S-corporations, accounting for 58% of all net income of S-corporations, had at most two shareholders. Only 0.2% of the sector's returns, accounting for less than 8% of the sector's income, came from S-corporations with more than twenty shareholders. So limiting the reform in the US to those S-corporations with more than a few shareholders would probably have a minor impact on the sector as a whole.

[9] See Ebrill et al (2001); Keen and Mintz (2004); and, on empirical evidence, Liu et al (2021).

[10] Further considerations arise when noncompliance is accounted for; see Kanbur and Keen (2014).

pass-through treatment may be better or worse off than businesses subject to the separate tax, depending on the relative rates of tax.

On balance, the best option may well be to follow the same approach as is standard under the VAT and apply a separate business tax to all businesses over a certain (modest) size, measured by domestic sales. Indeed, an obvious and simple approach would be to set the threshold at the same level as the VAT threshold.[11, 12]

The question also arises as to whether businesses outside whatever scope is determined should be allowed to register for the tax voluntarily. Efficiency considerations argue that they should be; but this may need to be tempered by the costs and risk of including taxpayers who are a call upon, rather than contributors to, public funds.

5. Identifying destination

A central element in the implementation of the RPAI or the DBCFT would be making operational the relevant notion of 'destination'. For the RPAI this is key to identifying where residual profit is taxed. For the DBCFT, it is key to identifying 'exports' to be taken out of tax and 'imports' to be brought in. In thinking about this, the design of either tax can usefully draw on experience under the VAT, for which notions of destination have been most fully discussed and developed.[13]

The OECD VAT/GST Guidelines define the destination principle as when 'tax is ultimately levied only on the final consumption that occurs within the taxing jurisdiction' (OECD, 2017b). The Guidelines recognize the difficulties in identifying where business use or final consumption actually takes place, since VAT must in principle be charged at or before the time when the supply is made available for business use or final consumption. VAT systems therefore generally use 'proxies to determine the jurisdiction of taxation, based on features of the supply that are known or knowable at the time that the tax treatment of the supply must be determined'.[14]

The use of proxies is a near-universal feature of VAT systems, recommended by the OECD as an appropriate way in which to establish destination. The complexity

[11] See though Kanbur and Keen (2014), who show there can be disadvantages in aligning thresholds for distinct taxes (in aggravating the bunching of taxpayers just below them).

[12] In the case of the DBCFT, aligning it with VAT would bring the two routes to implementing a DBCFT (discussed in Chapter 7) closer together. As part of their credit-invoice method VATs, approximately two-thirds of OECD countries allow small businesses to elect to be exempt from VAT. Because small businesses exempt from the credit-invoice method VAT cannot claim input credits, and purchases from small businesses do not provide input credits, exempting small businesses generally does not provide a significant advantage to those businesses.

[13] It has to be said, however, that there has been endless scope for confusion in the VAT context in both the usage of the term 'destination' and the notion of 'consumption': see Hellerstein and Keen (2010).

[14] OECD (2017b).

of this approach varies. For example, the European VAT system has been particularly complex, with determination of the place of taxation of any specific transaction depending on such issues as: whether the supply involved goods or services; the identity of the acquirer, in particular whether she is a VAT registered person; the timing of the supply; the location of the supply; and the nature of the goods or services supplied.[15]

The general principle set out by the OECD, that the tax should be levied in the place of final consumption is not quite the same as the principle set out in this book. Our fundamental principle underlying the idea of a 'destination' basis is not that the tax should be levied in the place of consumption per se, but that the tax rate that is ultimately decisive should be determined by the location of a factor of relative immobility. In principle, a more immobile location than the place of consumption is likely to be the place of residence of the consumer, rather than the place of consumption.[16] In principle, then, in considering cross-border shopping, for example, the RPAI and DBCFT should be applied to the residence of the consumer, rather than the place in which they made a purchase. However, in many cases, tracing the residence of individuals may not be practical, and so the place of purchase may have to serve as a proxy.[17]

Two distinctions are important in practice for implementing a tax on a destination basis. The first is between the taxation of goods as opposed to services. The OECD generally regards the taxation on a destination basis of cross-border sales of goods as being straightforward in theory and effective in practice, on the grounds that a physical good must cross borders, and therefore at least potentially subject to border controls. VAT on imported physical goods is generally collected at the same time as customs duties, although it may be postponed until declared on the importer's next VAT return. But this does not apply to sales of services and intangibles. The VAT Guidelines focus on the latter. There is therefore a considerable body of experience to draw on for practical implementation of a destination basis, even for services and intangibles, summarized in the VAT Guidelines.

The second distinction is between sales to businesses ('business to business', or 'B2B', transactions) and sales to consumers ('business to consumer', or 'B2C', transactions). The VAT Guidelines make clear that B2C transactions should be taxed in the place of consumption; but this is less easily identified for B2B transactions.

[15] See de la Feria (2009).

[16] In the context of discussing the implementation of a DBCFT, de la Feria and Devereux (2014) analyse in some detail the use of proxies for 'destination' in VAT. This discussion also applies to considering the nature of destination for the RPAI. Taking into account the aim of having a relatively immobile tax base, they recommend the use of the customer location proxy, defined as 'the location, residence, or place of business of the customer, the person to whom the seller has a contractual legal obligation to supply the goods'.

[17] This will be the case where the supply of services requires the physical presence of both the supplier and the customer in some way, such as restaurant services, concerts, and sports events.

As an example, consider a business that has a purchasing subsidiary that buys office furniture for its subsidiaries around the world. In principle the furniture should be sold on to each of the subsidiaries and so the ultimate place of consumption would be where the furniture was eventually used. In this case, there is no problem for VAT. However, if there were no formal transactions within the multinational group, with the furniture simply allocated to different subsidiaries, then it would appear that the destination of the entire purchase would be the location of the purchasing company. Of course, such an approach would not be consistent with the arm's length principle. The same issue arises in respect of the DBCFT, which uses the same border adjustment as VAT. However, as we explain in detail in Chapter 7, one way of dealing with B2B imports under the DBCFT is simply to ignore them. No tax would be paid on the import but equally there would be no credit against the tax eventually due on income earned. This is a considerable simplification relative to keeping track of purchases and sales through a multinational business.[18] But this would not be a suitable approach for the RPAI. In the case of the RPAI, the business agreement between two businesses in a B2B transaction should enable a proxy based on the customer location to work reasonably well in most cases, although this would not avoid the incentive of the purchasing business to locate purchases in a low tax jurisdiction where services or intangibles are used by multiple related-party recipients located in multiple jurisdictions under an internal recharge arrangement. We discuss these issues in more detail in the subsequent chapters.

B2C transactions in cross-border services create difficulties for administrative obligations, especially when the selling business does not have a presence in that country by, for example, selling over the internet or through catalogues and distributing the goods through third party or related-party logistics providers. The destination principle requires the tax authority in the market country to collect tax, even if the seller does not have a physical presence there. The considerations here differ depending on the nature of the tax. The DBCFT would tax the value of the import, while the RPAI seeks only to tax the residual profit of the selling business. These raise different considerations, which are discussed in the separate chapters on the RPAI and the DBCFT. This implementation issue would also arise under the Pillar I proposal currently being discussed by the Inclusive Framework. It might be noted that countries which have recently proposed a Digital Sales Tax have not seen this as a problem. For example, the UK Treasury has stated that it has 'significant experience of collecting tax from businesses with no physical presence in the UK in areas such as VAT' and concluded that it 'does not therefore see collection as a significant issue'.[19]

[18] For further detail on why a DBCFT cannot be gamed by placing a purchasing subsidiary in a low tax jurisdiction see Devereux and Vella (2018c).

[19] HM Treasury (2018).

But in principle it would be necessary for the business to register for tax in the country into which it is exporting the good or service; this is difficult to administer for relatively small exporters, particularly when the good or service can be downloaded electronically, or where there are no customs operations at borders. The exporter must also identify the location of its customer. The tax authority must identify businesses from around the world that export to its country, and—again in the case of the DBCFT—also guard against any opportunities for fraud if final consumers pretend they are businesses. For this purpose, gathering information from intermediaries such as credit card and other payment companies is likely to be an important enforcement tool.[20]

6. Final thoughts

In sum, international tax reform is difficult to achieve. It is likely to mean revising, or unilaterally withdrawing from, existing international agreements. There would be significant transition costs. There would very likely be taxpayers who would be worse off, certainly without taking into account any consequential improvement in economic conditions. There will certainly be a revenue shift between countries the magnitude of which—in particular in the long-term—is hard to predict. And the benefits of reform in terms of an improvement in economic efficiency are likely to appear abstract and uncertain. It is little surprise then that we have a system that in its essentials has been unchanged for a century.

But the analysis in Chapter 3 suggested that the existing system is in dire need of reform. Indeed, at the time of writing there appears to be a general consensus in favour of reform—the question is what form it should take. Our preference is for a principled, coherent, and comprehensive reform that performs well under our five criteria. The next two chapters present two reform options of this kind.

[20] One innovation in the EU that could be applied amongst cooperating countries in implementing a DBCFT is a 'one stop shop', as described in Chapter 7. However, this approach would not be easily applied to the RPAI, since the tax base in the market country is more complex.

6
Residual Profit Allocation by Income

1. Introduction

This chapter and the next chapter present and evaluate two alternative regimes for taxing international business profit, each of which we believe has significant advantages compared to the existing regime. The focus in this chapter is on the Residual Profit Allocation by Income (RPAI).[1]

The RPAI is one of a family of Residual Profit Allocation (RPA) regimes that divide international business profit for tax purposes across countries into two parts.[2] In the first step of any such RPA scheme, all business functions and activities within a multinational business—research and development (R&D) activities, manufacturing, general and administrative activities (G&A), sales and marketing activities, and others—would be allocated a 'routine profit' and taxed in the countries where these functions and activities are performed. In a second step, the remaining 'residual profit'—the multinational's total profit less the sum of routine profit across all countries—would be apportioned across countries according to some mechanical rule.

Options within this family of regimes vary most significantly in the manner in which routine profit is calculated for the first step, and, perhaps especially, in the choice of location and apportionment rule for the second step. An important option, first proposed by Avi-Yonah, Clausing, and Durst,[3] calculates routine profit through a fixed mark-up over costs and apportions residual profit to the market, or destination, country entirely by sales.[4] The RPAI proposed in this chapter calculates routine profit using existing transfer pricing techniques. It also apportions residual profit to the destination country, however it does so using as an apportionment factor not sales but 'residual gross income' (RGI), defined as sales to third parties less costs attributable to those sales.

[1] An earlier version of this chapter was published as Devereux et al (2019).

[2] See Andrus and Oosterhuis (2017), p. 102 *et seq*. and Oosterhuis and Parsons (2018).

[3] Avi-Yonah et al (2009); see also Avi-Yonah (2010); Avi-Yonah and Benshalom (2011); and Benshalom (2009).

[4] Luckhaupt et al (2012), p. 107 *et seq*. put forward a similar model.

Taxing Profit in a Global Economy. Michael P. Devereux, Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella, Oxford University Press (2021).
DOI: 10.1093/oso/9780198808060.003.0006.

1.1 The RPAI's appeal

The RPAI offers important improvements over the current regime, and, in some respects, also over the Destination-Based Cash Flow Tax (DBCFT) discussed in Chapter 7. It also offers improvements over other RPA proposals.

The RPAI, like other recently proposed RPA regimes, allocates taxing rights over residual profit to destination countries—that is, the country of a third party purchaser of goods or services. It therefore partly harnesses the benefits of destination-based taxes discussed in Chapter 4. Below we assess the RPAI against the five criteria set out in Chapter 2 that we use to evaluate any system for taxing international business profit. By way of introduction, however, we note two major advantages relative to the existing system: it would be less susceptible to tax avoidance, and it would have a smaller distorting influence on real economic decisions.

These advantages stem primarily from the relative immobility of the third party purchaser. This is particularly true when the purchaser is an individual consumer, but in many cases it is also true when the purchaser is an independent business. By apportioning residual profit to the destination country, the place of taxation becomes both more transparent and less mobile. The greater transparency arises because there is a transaction with an independent third party, as opposed to between affiliates of the same multinational; the value of the transaction is therefore observable, which greatly diminishes, though, as will be seen, does not eliminate, the opportunity to shift residual profit to a tax-favoured jurisdiction. The relative immobility of the destination country should also mean that the location of the activities of the multinational will be less sensitive to differences in taxation between countries. For example, given the option of producing in one jurisdiction and selling in another a tax in the place of sale should not affect the location of production.

As discussed below, the RPAI should also create less economic inefficiency and be less susceptible to tax avoidance than other RPA schemes, including that proposed by Avi-Yonah et al, although this does come at the price of greater complexity. The DBCFT does—in principle, at least—have more attractive efficiency properties and goes further in eliminating profit-shifting opportunities and the scope for tax competition. But RPAs also have an important advantage over the DBCFT and other pure destination-based options, such as a sales-based formulary apportionment, that vest taxing rights exclusively to the destination country. That is because RPAs allocate some taxing rights to all countries involved in the generation of a multinational's profit. This reduces the advantage from locating the tax in the destination country but gives RPAs a practical appeal since they accord more readily with a common perception of fairness and depart less dramatically from current arrangements in the allocation of taxing rights.

As a result, the basic structure of RPA schemes should be more familiar to tax practitioners than that of pure destination-based options. In fact, the distinction

between routine and residual profit, which is at the heart of RPAs, is the basis for most profit splits under existing transfer pricing rules. RPAs can thus be viewed as a significant expansion and modification of an existing transfer pricing mechanism.

The RPAI in particular would require a less dramatic departure from the existing system than other RPA schemes, since it uses familiar transfer pricing methods to calculate *routine* profit. Moreover, as explained below, the implied apportionment of *residual* profit can also be achieved by using transfer pricing methods and concepts familiar to practitioners. The RPAI thus achieves fundamental reform, addressing many of the problems left outstanding by the BEPS project and developments since, but does so in a way that is readily comprehensible to today's tax practitioners.

The design of the RPAI is thus guided by two principles. The first is that significant benefits follow from allocating taxing rights on a destination basis, but this is tempered by, second, a principle of minimal reform. Whilst the RPAI moves towards a destination basis of taxation, it does so whilst remaining as close as possible to the existing system.

1.2 More on the RPAI

The RPAI has the appeal of a hybrid: it uses familiar transfer pricing methods to achieve what they are generally thought to (or could) do relatively simply and effectively (in calculating the *routine* profit), and it reaps the benefits of a unitary approach where they do not (in allocating the *residual* profit). Even in the latter case, however, it partly uses well-known transfer pricing methods and concepts. This requires some further explanation.

Under the RPAI *routine* profit is determined using well-established transfer pricing methods. The right to tax this routine profit is allocated to the country in which the multinational's functions and activities take place. The concept of routine profit is familiar to transfer pricing specialists.[5] It is the profit a third party would expect to earn for performing a particular set of functions and activities on an outsourcing basis, in which the third party is essentially a service provider that does not share in the overall risk of the business. Typically, routine profit for functions and activities in a particular country can be calculated as a mark-up over (certain) expenses incurred,[6] where the mark-up is based on the rate of profit earned by comparable service providers, although other transfer pricing techniques could also be used. But the key to the use of these methods in this context is that they aim to identify only the *routine* element of profit, and not to include any *residual* profit.

[5] See OECD (2017a), Annex II to Chapter II, p. 433.

[6] In principle a mark-up should not be given for expenses incurred in purchasing intermediate goods, as this would result in double counting. This is discussed in more detail below.

The right to tax the remaining *residual* profit is allocated to the countries in which sales to independent third parties are made: the 'destination' (synonymously, for our purposes, with 'market') countries. The allocation of residual profit among destination countries can be undertaken in two ways, which generate exactly the same results.

The first approach (which we label 'bottom-up') draws more closely on existing techniques and is in two steps.

In the first step, the RGI in each destination country is calculated as sales revenues in that country less all 'allocable' costs (by which is meant costs incurred in any country that can be directly allocated to the goods or services sold), and less the routine profit associated with those costs. Where costs are incurred in another country, the allocable cost in the destination country is based on a transfer price from that other country, composed of the initial cost plus the associated routine profit.

In the second step, residual profit in each destination country is determined as RGI, calculated as above, less a share of the multinational's total 'non-allocable' costs (by which is meant those costs that cannot be directly allocated to any specific sales, e.g. R&D costs general and administrative costs and global sales and marketing costs) and the routine profit associated with those costs. The share of the non-allocable costs allocated to each destination country is equal to its share of the multinational's total RGI.

The alternative approach (which we label 'top-down') is to first calculate the multinational's total residual profit, as its total profit less its total routine profit. This total residual profit can then be allocated amongst destination countries in proportion to their RGI. This yields identical results to the first approach.[7]

The 'bottom-up' approach to the RPAI is likely to appeal most naturally to practitioners steeped in the use of transfer prices to allocate profit. The 'top-down' approach may appeal more to economists and others familiar with the concept of formulary apportionment. But it is important to emphasize that the two approaches yield the same outcome.

Countries then tax, potentially at different rates, the routine profit and the residual profit allocated to that country.

We should note, at the outset, the changed role of Permanent Establishment (PE) rules—one of the cornerstones of the existing system—under the RPAI. Existing PE rules retain a role for the purposes of determining *routine* profit. A multinational's functions and activities in a particular country are allocated a routine profit only if existing PE thresholds are met. The RPAI aims to be neutral in its treatment of subsidiaries and PEs. For this reason, once the PE threshold is met, the profit allocated to the PE ought to be the same as the profit that would be

[7] This is shown in Appendix 2.

allocated to a local subsidiary. This again suggests using transfer prices for the sale of a good or service based on its cost plus any routine mark-up associated with that cost.[8] PE profit attribution rules could also be used for these purposes, but the goal, again, would be that of attributing only a routine profit to the functions and activities undertaken by the PE.

The RPAI abandons existing PE rules for *residual* profit purposes. Destination countries are allocated a residual profit once revenues from third party sales meet a set threshold level. Under the RPAI, therefore, it is immaterial whether a multinational sells its goods or services to consumers in a particular country through a subsidiary, a branch, or remotely without having any physical presence there. Residual profit is calculated in the same way in each of these settings, meaning that the RPAI does not distort behaviour along this margin.

An example, which we label the 'entrepreneurial model', may help to illustrate important similarities and differences of the RPAI with the existing system. Under traditional transfer pricing rules many multinationals are able to centralize their risks, and to some extent their global or regional functions and activities, in an entity, sometimes described as the entrepreneur affiliate, resident in a tax-favoured jurisdiction.[9] Imagine then a manufacturer and seller of products that finances its R&D internally from an entrepreneur affiliate in a tax-favoured jurisdiction. It also either manufactures its products in a low cost or tax-favoured jurisdiction or engages third party contract manufacturers that provide manufacturing services. Finally it sells its products to limited-risk distribution affiliates around the world, who then sell to local affiliates, who sell to third parties. Its R&D activities are funded under a cost-sharing basis, or on a cost-plus basis, under a research contract so that the R&D-performing affiliate is deemed to earn no more than a cost-plus 'routine' return. Any third party contract manufacturers that provide manufacturing services also receive a cost-plus routine return on investment; alternatively, an internal transfer price would be arranged so that the manufacturing affiliate would also earn a cost-plus routine return. Finally, the limited risk distributor affiliates again earn a cost-plus routine return. In this case, the entrepreneur affiliate earns the entire *residual* profit (and suffers any loss) reflecting its role as the deemed 'risk taker' (in addition to whatever functions and activities it performs) within the multinational.

The BEPS Action Plan fully recognized the tax planning opportunities presented by current tax arrangements and tried to address them by a new approach

[8] Under the existing system, profit is attributed to PEs following a specific set of profit attribution rules (Article 7 of the OECD Model Tax Convention). These are separate from transfer pricing rules (Article 9 of the OECD Model Tax Convention). Using transfer pricing rules to attribute profit to a PE thus constitutes a departure from the existing system. However, the profit attribution rules have moved closer to transfer pricing rules under the Authorised OECD Approach (AOA) introduced in 2010. Admittedly, the take up of such rules has been somewhat limited. See Collier and Vella (2019).

[9] OECD (2017a), Chapter IX: Transfer Pricing Aspects of Business Restructurings.

to risk allocation within corporate groups. This looks into the financial capacity of an affiliate to assume risk as well as the personal capacity of its directors and employees to control and monitor risk.[10] This approach is unconvincing, partly because it still allows profit shifting, albeit at the higher cost involved in moving some real activity, but also because, following the OECD's own guiding principle for the existing system (i.e. aligning profit with value creation), the mere increase in personnel controlling and monitoring risk in a jurisdiction is not logically linked to the generation of a profit in that jurisdiction.[11]

The RPAI system mimics the outcome just described, in which most affiliates of the multinational are deemed to earn only a routine return for tax purposes—except, crucially, that the residual profit would no longer be allocated to an entrepreneurial affiliate in a tax-favoured jurisdiction. Instead, it would be allocated to destination countries. This is the key shift that drives the strengths and appeal of the RPAI.

The RPAI is not perfect. A number of weaknesses are acknowledged in this chapter, and some issues certainly merit more consideration. But we believe that the RPAI constitutes a significant improvement over the existing system, performing better on all five of our criteria. It therefore offers some promise as a system for taxing business profit for years to come.

1.3 Chapter structure

This chapter is structured as follows. Section 2 provides context to the RPAI proposal by briefly describing the current movement of the OECD Transfer Pricing Guidelines towards transactional 'profit splits'. Section 3 describes the RPAI in more detail; it sets out, at some length, each aspect of the calculations it requires and the rationale underlying them. It also briefly compares the RPAI with a limited number of alternative RPA proposals. Section 4 evaluates the RPAI proposal against the criteria set out in Chapter 2. Section 5 discusses issues of implementation. Section 6 concludes.

2. The gradual move towards profit splits

The distinction between routine and residual profit, which is at the heart of RPA approaches, is familiar to practitioners because a similar distinction is made under an

[10] OECD (2017a), Chapter I.D.1.2.1, para. 1.56 *et seq*.; for business restructurings see Chapter IX.D.2, para. 9.43 *et seq*.; for an analysis of this new approach see Bilaney (2016); Verlinden et al (2016).

[11] For further discussion, see, for example, Andrus and Oosterhuis (2017), p. 89 *et seq*., and Schön (2014), p. 280 *et seq*.

existing—OECD-approved—transfer pricing method: profit splits. Moving from the existing system to an RPA would be a very significant change for the reasons discussed below. However, this similarity makes the move evolutionary rather than a complete rupture. Indeed, in some respects, it would be a further step in the direction of travel the international tax regime has been on for some time.

2.1 Profit splits under OECD guidelines

Since the publication of the OECD Transfer Pricing Guidelines in 1995, there has been a constant drift towards profit splits and other formulary methods in the allocation of the profit associated with particular transactions (or related sets of transactions) among affiliates of a multinational.[12] This development reflects practical difficulties that are rooted in underlying conceptual difficulties with the arm's length principle, as discussed in Chapter 3.

At a practical level it has been acknowledged that traditional transfer pricing methods—looking for comparable uncontrolled prices or applying a cost-plus test or a resale-minus test—increasingly fail to deliver satisfactory results.[13] This outcome is inevitable given the increasing tendency of businesses towards tailor-made production chains, close economic integration, and the decisive relevance of proprietary intangibles.

These practical difficulties are predicted by theory, given that it is the combination of different production factors (involving input from all parts of the integrated business) that justifies the very existence of businesses; and that in the case of multinationals these factors can be spread across the world. More precisely, the operation of a worldwide value chain under common ownership generates profit that goes beyond the sum of the profit that would be derived by the individual group entities in an open-market situation.[14] These synergies (and the economic rents generated by them) are not only hard to capture in practice—there is not even in principle any unique way of allocating them to specific corporate units or geographical locations.[15]

Moreover, this fundamental practical and theoretical indeterminacy at the heart of traditional transfer pricing brings about options for profit shifting between members of the corporate group. Given the mobility of proprietary intangibles and the difficulty faced in valuing them, intra-group transactions involving intangibles

[12] See Vann (2003b), p. 152 *et seq*. and Wittendorff (2016). For recent materials see OECD (2014a, 2014b, 2017a). For a historical analysis of the secular movement towards profit splits see Li (2002), p. 857 *et seq*.

[13] For further discussion, see, for example: Avi-Yonah (1995); Rosenbloom (2005); Couzin (2013).

[14] For discussion, see: Avi-Yonah and Benshalom (2011), p. 378 *et seq*.; Elkins (2017), p. 158 *et seq*.; Li (2002), p. 832 *et seq*.; Schön (2010), p. 231 *et seq*.; Luckhaupt et al (2012), p. 100 *et seq*.; Vann (2003b), p. 139 *et seq*.; Vann (2010), p. 321 *et seq*.

[15] See Keuschnigg and Devereux (2013); Kane (2014).

have been at the very centre of the profit shifting activities targeted in the BEPS project and initiatives since.

Against this background, in 2018 the OECD put forward the 'Revised Guidance on the Application of the Transactional Profit Split Method'[16] (OECD Revised Guidance) which is the latest in a series of moves towards formulary methods. This emphasizes the necessity of introducing further formulary elements into transfer pricing—although without changing the international consensus on the value of the arm's length standard as a guiding principle—and applied not to the unitary profit of a multinational but to specific transactions (or related sets of transactions).

This results in a two-step approach. In a first step, traditional transfer pricing methods are applied as far as possible. This means that for 'routine functions' within a multinational, the pricing of intra-group dealings will be built on 'comparable uncontrolled prices', the 'cost-plus' method, or the 'resale-minus' method.[17] Taking into account the activities of an affiliate—the functions it performs, the assets it uses, and the risks it assumes—this would most probably result in a 'routine profit' that can be allocated to that entity. But it is also clear that this 'routine profit', corresponding to the earnings of an outsourced provider of that sole function, cannot logically include the profit derived from the synergies generated by the business as a whole.

In a second step, those functions within the multinational come to the fore, which—due to their highly integrated nature[18] or due to the influence of unique and valuable intangibles as key sources of profit[19]—are not amenable to traditional transfer pricing examination. The same is true of entities within a multinational which contractually share in the overall business risk of the business.[20] For these functions (and the group entities performing these functions) the OECD Revised Guidance proposes a limited profit split.

This approach does not involve a pre-ordained allocation rule as under statutory formulary apportionment, but instead looks at integrated businesses on a case-by-case basis. The main basis for the allocation of the residual profit is the relative value of the 'contributions performed by the separate affiliates within the firm—either asset-based or cost-based'.[21] This reflects the underlying assumption that all locations where the business is present contribute to the residual profit and thus justify taxation.[22] The allocation of profit amongst these locations will involve

[16] OECD (2018d); this revised guidance replaces Section C, Part III, Chapter II of the OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations.

[17] OECD (2018d), paras 2.127, 2.152; see also, in a similar vein, Avi-Yonah (2010), p. 16 *et seq*.

[18] OECD (2018d), paras 2.120, 2133 *et seq*.

[19] OECD (2018d), paras 2.119, 2.130.

[20] OECD (2018d), paras 2.121, 2.139–2.142.

[21] OECD (2018d), paras 2.114, 2.150 *et seq*., 2.169 *et seq*., 2.179 *et seq*.; for a similar proposal see Schön (2010), p. 246 *et seq*.

[22] For a theoretical argument for this kind of profit split see Vann (2010), p. 321 *et seq*.

a close examination of the nature of the relevant business functions, the level of expenditure incurred by the participating entities, and—to a more limited extent post-BEPS—the contractual arrangements between the involved affiliates. This exercise is meant to fully allocate the business profit to the involved entities insofar as it exceeds the routine profit assigned to the entities in the first step.

The OECD approach appears to create a fundamental de facto distinction within the corporate group between limited risk affiliates (which are assigned a routine profit) and entrepreneurial affiliates (which participate in the residual profit of the overall enterprise). For the entrepreneurial affiliates this method will result, in most cases, in a higher return on investment (given the existence of synergy rents within the business), but also in a higher volatility of net results (given the necessity to allocate residual losses in the same fashion as residual profit).[23]

According to the OECD guidance, the division between limited risk and entrepreneurial entities will be derived by testing whether an affiliate's functions as well as its contractual relations with other group members are amenable to traditional transfer pricing analysis, for example whether information on comparable uncontrolled transactions is available.[24] The more integrated a business is and the more hard-to-value its intangibles are, the less it seems possible to resort to those traditional methods and the more prevalent becomes the need to apply a profit split.

2.2 OECD profit splits and RPA schemes: similarity and differences

The distinction between routine and residual profit is at the heart of both profit splits and RPA schemes. But there are also significant differences between the two, and especially between the OECD approach and more formulary approaches, such as the RPA proposed by Avi-Yonah et al. We briefly identify these as a means of introducing some of the choices made in developing the RPAI.

First, the basic approach of RPA schemes is to calculate residual profit at the level of the multinational as a whole, or within the multinational on a product line basis. By contrast, profit splits aim to allocate profit in more limited circumstances, between a limited number of affiliates within a multinational. The RPAI is aligned more closely with RPA schemes, in that it takes a systematic approach to allocating residual profit for the whole multinational. However, it does leave open the possibility of allocating residual profit on a 'product-by-product' basis, within a multinational.

Second, RPA schemes apply to all multinationals (defined broadly), while profit splits are applied only to multinationals with certain characteristics, such as

[23] OECD (2018d), para. 2.115.
[24] OECD (2018d), para. 2.143.

high-integration and strong reliance on hard-to-value intangibles, and even then they apply differentially among affiliates of such multinationals. In the latter case, the OECD Revised Guidance distinguishes between entities that are assigned routine profit and entities that are assigned the residual profit.[25] The OECD's approach has the weakness that the level of a subsidiary's integration within the overall value chain of a multinational is not a binary matter; rather, it is an incremental matter subject to a sliding scale. There is no 'discontinuity' in the level of integration on which a sharp contrast in tax treatment can be built. In particular as far as synergy rents are concerned, these rents derive from the overall set-up of the multinational and not only from the interaction within a subset of affiliates.

Third, unlike the OECD approach, RPA schemes may not apply the full transfer pricing methodology to identify the routine return. For example, the RPA proposed by Avi-Yonah et al sets a fixed return on expenditure incurred by the entity in question irrespective of the functions performed and the risks assumed.[26] This distinction introduces an important trade-off. A fixed return offers simplicity over the OECD approach. However, among other things, this may drive a wedge between in-sourcing and out-sourcing and therefore makes taxation more relevant in determining the boundaries of the business. By using the full complement of transfer pricing methodology, the OECD approach—and, in relation to routine profit, the RPAI approach set out here—seeks to approximate the tax treatment of dependent and independent businesses, which is the basic rationale for the arm's length principle.

The benefit of doing so becomes clear when comparing a multinational's choice whether to allocate manufacturing functions to a subsidiary or to an independent contractor. In principle, this choice should not be distorted by the application of a transfer pricing approach allocating only 'routine profit' to individual entities to the extent that these closely approximate the profit an outside contractor would earn. As long as only routine profit is allocated to the manufacturing subsidiary, the tax burden on the remaining part of the multinational would remain largely unchanged irrespective of the outcome. It would not even be necessary to establish an overall concept of which entities belong to the 'group' as such (an important point as regards the treatment of joint ventures or subsidiaries with minority shareholders). The 'make or buy' decision which lies at the heart of the overall business model of the firm would be subject only to genuine business considerations.[27]

Fourth, while the OECD approach allocates taxing rights over residual profit on an asset or activity basis—albeit in a rather unprescriptive manner—the RPAI

[25] For a critical view see Robillard (2015), p. 448 *et seq*.

[26] Avi-Yonah et al (2009); Luckhaupt et al (2012), pp. 110, 114.

[27] The distortions created by formulary allocation of profit within a business as opposed to the allocation of profit to independent contractors are highlighted by Hines (2010).

and other RPA schemes allocate taxing rights over these profit to destination countries. As discussed in general terms in Chapter 4 above, and more specifically below, allocating the residual profit to destination countries brings benefits in terms of improved economic efficiency, less profit shifting, and improved incentive compatibility.

3. The RPAI in outline

3.1 An example and some terminology

In order to explain the RPAI proposal as clearly as possible, we will make use of an ongoing example. We set out this example first in Table 6.1, and then describe how the tax would be applied.

Table 6.1 Basic example: third party costs and revenues

	Affiliate in:			**TOTAL**
	A	**B**	**C**	
Sales				
Quantity sold	96	24	80	200
Price per unit	10	10	15	
Revenues	**960**	**240**	**1200**	**2400**
Costs				
Allocable costs incurred by each affiliate				
Purchase of intermediate goods		200		200
Other cost of goods sold		340[1]		340
Sales & Marketing: Local	200	40	180	420
Total allocable costs	*200*	*580*	*180*	*960*
Non-allocable costs incurred by each affiliate				
Sales & Marketing: Global	200			200
General and Administrative (G&A)	100			100
Research and Development (R&D)	300			300
Total non-allocable costs	*600*	*0*	*0*	*600*
Total Costs	**800**	**580**	**180**	**1560**
Global Profit				**840**

1. This reflects per unit costs of 2 per unit for the variant sold in C, and of 1.5 for the variant sold in A and B.

We consider a multinational with three affiliates located in different countries, A, B, and C. Each affiliate sells a single finished good to local consumers. In total, ninety-six units are sold in A, twenty-four units are sold in B, and eighty units are sold in C. To allow for variation across countries, we assume that the product specification sold in C is of higher quality than that sold in the other two countries. As a result, it sells for a higher price: 15 in C, and 10 in A and B. The finished goods are produced by the affiliate in B. B purchases one unit of an intermediate good at a price of 1 for each of the 200 units of the finished good produced, at a total cost of 200. In addition, and in line with the higher price charged for the product in C, it has costs of 2 per unit for the specification sold in C, but of only 1.5 per unit for the specification sold in A and B; for an additional total cost of 340. The total manufacturing cost incurred in B is therefore 540.

In addition to the costs of manufacturing, which are incurred in country B, the multinational has other costs: local sales and marketing costs, which are incurred where goods are sold; and costs of global sales and marketing, general and administrative (G&A), and research and development (R&D), all of which are incurred in country A. We briefly define these terms in Box 6.1.

All of these costs relate to purchases from third parties—they do not include any purchases from other affiliates. Overall, the group has sales of 2,400 and costs of 1,560, implying a total profit of 840.

We now describe in more detail the calculation for this example of routine and residual profit under the RPAI, and how each is allocated to each country.

Box 6.1 Some definitions of costs

Allocable costs: Costs that can be allocated directly to specific goods and services sold. The costs may be incurred in any country but—for the purpose of identifying residual profit in each country—they are 'allocated' to the country in which the sale to an independent purchaser is made. In our example, these costs include the cost of goods sold and local costs for sales and marketing.

Non-allocable costs: Costs that cannot be allocated directly to specific goods and services sold. In our example, these include general and administrative (G&A), research and development (R&D), and global sales and marketing costs.

Cost of Goods sold: Direct costs attributable to the production of the goods or services sold. These costs may include the purchase of raw materials and other intermediate goods,[28] labour costs, and the costs of storage, shipping, and depreciation.

[28] By intermediate goods we mean goods incorporated in other products typically either by transformation (e.g. chemical processing) or assembly (e.g. installing semiconductors in a circuit board).

General and Administrative (G&A) costs: Operational costs that cannot be directly related to the production of any specific goods or services, including some or all costs relating to rent, utilities, insurance, and managerial salaries.

Sales and Marketing costs: Costs related to selling, promoting, and delivering a product; these are not included in the costs of goods sold. Such costs can be incurred in and for a specific market (which we label a local cost, and which are an allocable cost), or they could be general costs not for a specific market (which we label a global cost, and which are a non-allocable cost).

3.2 Routine profit

3.2.1 What is routine profit?

As set out above, the concept of routine profit is familiar to transfer pricing specialists.[29] It can be defined as the profit a third party would expect to earn for performing a particular set of functions or activities essentially on an outsourcing basis. In this 'outsourcing model' the third party does not share in the overall risk of the multinational, and earns no return based on the overall success or failure of the product or business to which its activities relate. It functions essentially as a service provider. By employing this concept of routine profit for an affiliate undertaking a similar activity, the tax system would not generally discriminate between activities that are undertaken within the business as opposed to outsourced to an independent business.[30]

Such third party outsourcing businesses appear to exist for most functions and activities of multinational groups, in the form of contract manufacturers, researchers, logistic providers, and marketers. Their returns reflect the value of any expertise in performing their activities and functions plus their capital investments. The returns also reflect their own risk—including the risk inherent in attracting sufficient customers to maintain a profitable business. But these risks do not include the underlying risks of the businesses that use their services.[31]

The concepts of routine and residual profit are broadly related to—but are not equivalent to—the economic concepts of 'normal' returns and 'excess' returns or 'economic rents' which were introduced in Chapter 2. Box 6.2 discusses the

[29] OECD (2017a), Annex II to Chapter II, p. 433.

[30] Note that the notion of a routine profit is not inherently linked to that of a 'routine activity' often encountered in discussions of transfer pricing. The RPAI does not distinguish between routine and non-routine activities.

[31] It is possible that the risks of the service provider may, in general, depend on the risks associated with the general market conditions for the final goods and services to which its inputs contribute, though in principle not on the unique risks of the specific multinational to which it sells its intermediate goods or services.

similarities and differences between routine profit and the normal return, and between residual profit and economic rent.

Box 6.2 Is residual profit equivalent to economic rent?

Suppose a multinational business wants to undertake an investment project and could undertake it directly or pay an independent contractor to undertake it. The contractor would require a normal return on its investment which reflected only the risks faced by the contractor. These risks would not include the general risks faced by the multinational employing the contractor.

The routine profit of the multinational for the purposes of the RPAI is the normal return the contractor would require. It may differ from the normal return required by the multinational had it undertaken the investment itself—as this should also reflect the underlying risk of its entire business. The residual profit of the multinational for the purposes of the RPAI is profit earned in excess of this routine profit.

Consider, for example, a pharmaceutical company that requires research into a potential new medicine. It could subcontract that work to an independent contractor, who is paid irrespective of the outcome of the research. Or it could undertake the research itself directly. The routine return for the purposes of the RPAI for the latter approach could be evaluated by comparison with such an independent contractor. This may differ from the normal return to the multinational, which should reflect the entire risk borne by the multinational, which will depend also on whether or not the research is successful.

The risk of the multinational business is likely to be greater than that of the independent contractor; and in this case the multinational's routine profit for the purposes of the RPAI will be lower than its normal return, and its residual profit will exceed its economic rent. However, this is not inevitable, since the relevant measurement of risk is how the returns of a project are expected to covary with returns from other projects; so it is also possible that residual profit could be less than economic rent.

In practice there may be many reasons why the ex-post rate of return of a contractor may differ from its expected ex-ante normal return. For example, higher rates of return may incorporate an element of economic rent, to the extent that the contractor has some market power. In this case a multinational using such a contractor as a comparable for the purposes of identifying its routine profit for the RPAI may include an element of economic rent. While an adjustment could in principle be made to remove any component of economic rent, this would be difficult in practice.

3.2.2 Where is routine profit deemed to arise?

Routine profit is in principle deemed to arise in the country where functions and activities take place. This is also the case if inputs are purchased from or in a different country. In our example, the multinational undertakes R&D activities in country A. Routine profit in A can be calculated as a mark-up on its relevant costs—subject to the availability of data from comparable businesses.

3.2.3 Measuring routine profit under the RPAI

In the RPAI system, routine profit is measured following existing transfer pricing practice that relies on public third party comparable outsourcing data. The primary approach we discuss in this chapter is the cost-plus approach, which requires there to be a comparable business with a relevant rate of mark-up on its costs that can be applied to the costs of the multinational.

An important preliminary question is which costs should be eligible for a mark-up to determine routine profit. To begin to answer this question, we start from the perspective of economic efficiency, which implies that trade between businesses along a supply chain should not be taxed. This is a basic principle arising from the 'production efficiency' theorem of Diamond and Mirrlees (1971), described in Chapter 2. The reason is intuitive; suppose that intermediate goods and services, bought and sold along a supply chain, were subject to a tax on the value of the sale. Then the impact of the tax would cumulate—or 'cascade'—along the supply chain, creating potentially large economic distortions.[32]

This problem could also potentially occur within the RPAI. An example is presented in Table 6.2. Suppose that a good is produced in a three-part production process. Each part uses labour at a cost of 100. Within a combined business, the costs are therefore 300. Suppose the required rate of return for this business is 10%; in a competitive market, this implies that the business must sell the good for 330 and earn profit of 30.

Now suppose that the three parts of the production process are divided into separate entities along a supply chain. Business X uses 100 of labour to create an intermediate good that it sells to Y. Y uses that input, together with 100 of labour, to produce a second intermediate good that is sells to Z. Z uses the input from Y, also together with 100 of labour, to produce the final good. In a competitive market, the total profit that X, Y, and Z can earn together must be 30. If Z tried to charge more than 330 for the final product then it could be undercut

[32] This problem does not arise with VAT—or the DBCFT analysed in the next chapter—as long as at each stage of the supply chain the purchasing business can claim back the VAT (or DBCFT) that has been charged in the business' inputs.

Table 6.2 Establishing routine profit

	No tax	RPAI with routine profit of 10	RPAI with mark-up of 10% on all costs
Labour costs in X	100	100	100
Profit in X	10	10	10
Rate of return on total costs in X	*10%*		
Taxable profit in X		10	10
Tax in X		2	2
Price of sale to Y	**110**	**112**	**112**
Labour costs in Y	100	100	100
Profit in Y	10	10	10
Rate of return on total costs in Y	*4.8%*		
Taxable profit in Y		10	21.2
Tax in Y		2	4.24
Price of sale to Z	**220**	**224**	**226.24**
Labour costs in Z	100	100	100
Profit in Z	10	10	10
Rate of return on total costs in Z	*3.1%*		
Taxable profit in Z		10	32.62
Tax in Z		2	6.52
Sale price to customer	**330**	**336**	**342.76**

by another business operating as a single unit. The prices of the intermediate goods should therefore reflect the final sales price of 330 and a profit of 10 for each business, representing an even distribution of the total profit of 30 between the three businesses.

The resulting transfer prices between X and Y, and between Y and Z, are shown in Table 6.2. In the absence of tax, X sells its intermediate good to Y for 110 and Y sells its intermediate good to Z for 220. In each case, the business earns a rate of return of 10% on its labour costs. But note that for Y and Z this is a lower rate of return relative to its total costs. That is because Y has labour costs of 100 but must also purchase the intermediate good from X for 110, so that its total costs are 210. For Y, profit of 10 therefore represents a rate of return on total costs of only 4.8%. Z earns profit of 10 on total costs of 320, representing a rate of return on all costs of only 3.1%.

Now consider the application of the RPAI to determine routine profit in each business. Since this is a perfectly competitive market, economic theory would

predict residual profit to be zero. So routine profit in each business should be 10. The second column illustrates this, using a tax rate of 20%. Each business has routine profit of 10, and therefore pays tax of 2. With a fixed wage rate, we would expect this tax to be passed on in a higher price. So X would sell its intermediate good to Y for 112, and Y would sell its intermediate good to Z for 224. Finally, Z would sell the final good for 336. This price is higher by 6 than would be the case in the absence of tax, which reflects the tax of 20% on the total profit of 30. This is therefore the same outcome as for a unified business taxed on the whole profit of 30.

The third column illustrates the problem of cascading. This would occur if the routine profit of each business were calculated by applying a mark-up on total costs of 10%. This makes no difference to X, which only has labour costs. But total costs in Y are 212; applying 10% to this would result in a routine profit being measured as 21.2 and a tax of 4.24. If this tax were passed on in the price to Z, total costs in Z would be 326.24, imply routine profit of 32. 62 and tax of 6.52. In this case, Z would need to charge a price of 342.76 for the final product. This is clearly higher than a unified business would charge.

Note that for businesses that earn a residual profit the effect of this cascading may be only to increase the proportion of profit labelled as routine, and correspondingly reduce the proportion labelled as residual. Whether or not a business has residual profit, however, this cascading can create economic inefficiencies and opportunities for tax planning.

Note that this problem of cascading does not arise in the existing regime. Consider Y, for example. Under the existing tax system, Y would be taxed on sales net of all costs. Based on column 2, with sales of 224 and total costs of 212, its profit before tax is 12. Charging tax of 2 reduces the profit to the required amount of 10. (Note that this implies a tax-inclusive rate of 16.67%, instead of 20%; this is because the tax rate is applied to the value of the sale, which includes the impact of the tax.)[33] The problem of cascading potentially arises because routine profit is determined by reference to costs incurred.

There are two ways to avoid the cascading problem within the RPAI framework. The first is to apply the rate of mark-up of 10% only to costs excluding any intermediate goods—labour, in our example. Since labour costs are 100 in each business, then applying a 10% mark-up yields routine profit of 10. The second is to apply the rate of return that yields the 'true' profit of 10. This is 4.8% for Y and 3.1% for Z.[34]

[33] The tax inclusive rate is $t/(1 + t)$ where t is the tax-exclusive rate of 20%.

[34] These rates are slightly lower in the presence of tax, since the costs of the intermediate goods is higher in the presence of tax.

Which of these approaches is more feasible depends on how the choice of mark-up is made. Under a fixed mark-up for all businesses, such as that proposed by Avi-Yonah et al (2009), it is not possible to distinguish businesses at different stages of the supply chain. A fixed mark-up should therefore in principle only be applied to costs that do not already reflect the tax on the routine profit of the seller—labour costs, in our example.

Instead the RPAI sets the mark-up by reference to financial data available for third party comparable businesses operating on an outsourcing basis. In principle, at least, such a comparison should reflect the relevant stage in the supply chain. For example, if the three businesses in our example were subsidiaries in a multinational, the comparison for Z should reflect the performance of an independent business at the third stage of this particular supply chain. Comparing it to a business at the second stage, say, would be likely to yield too high a rate of mark-up.

Two other conditions are also important. First, it is also crucial that the mark-up of the comparable business should be calculated with reference to the same set of costs as will be used in the multinational subsidiary. Second, this approach is always likely to be approximate, in that the balance of costs of intermediate goods and other costs may differ between even otherwise quite similar businesses. Suppose for example, that the comparator to Y had labour costs of 50 but paid 162 for intermediate goods (so that its total costs were also 212). But if the true profit is 10% of the labour costs, then the rate of mark-up in the comparator would be only 2.4%. Using this rate would underestimate the true profit in Y.

Making such comparisons is of course likely to be difficult in practice and this process is far from being a precise science. Nevertheless, this is broadly how the arm's length principle works. To the extent that it is feasible to do so, then the cascading problem could be minimized by carefully matching the cost bases of the business receiving the mark-up and the comparable business and selecting an appropriate mark-up. However, it should be acknowledged that this exercise is always likely to be somewhat rough and approximate, thus possibly allowing some degree of cascading.

The more precise approach is to leave the costs of intermediate goods out of the base for a cost mark-up, and to apply a mark-up which reflects the routine return as a proportion of other costs. We propose that this approach is taken where possible. Where it is not possible, because of deficiencies in the data of comparable businesses, it will be necessary to use the entire cost base and the best available measure of an appropriate mark-up.

Two other factors should be noted. First, purchases from other affiliates of the same multinational business are more open to tax planning. If X, Y, and Z were affiliates of the same group, for example, then if a routine mark-up on costs were

given at all stages of the supply chain then not only would residual profit be understated, there would also be a significant opportunity for the business to manipulate its supply chain to allocate different amounts of routine and residual profit in different countries. So there is a strong case for ignoring purchases from other affiliates where the price already reflects the routine profit of the selling affiliate. But second, treating within-business purchases differently from purchases from independent businesses may affect how the multinational chooses to organize its activities across countries.

Returning to our ongoing example, set out in Table 6.1, there are purchases of goods from B by A and C, which are then sold in the markets in those countries. It is common for distribution entities to be able to exclude the costs of these goods from a routine profit calculation; in our example, we assume that this applies to all within-multinational transactions, and so the purchasing entity does not include those costs in the case for calculating routine profit. Also, B purchases intermediate goods from third parties. We also assume that data exist to enable these costs to be ignored in the calculation of the routine profit in B. All other purchases are included in the base for the calculation of routine profit.

The cost-plus method is used to calculate routine profit in our example. Note that other transfer pricing approaches can also be used. However, whatever approach is used, its aim should be that of identifying only routine profit. This is important in ensuring that the RPAI complies more closely with the criteria for evaluating taxes set out in Chapter 2. For example, using a transfer pricing approach to identify only routine profit limits both the incentive and opportunity to shift profit to a low tax jurisdiction. It also diminishes the distortions to any real location choices of the multinational. We discuss these issues further below.

There are many problems with the current transfer pricing system. But whilst it is clearly often inadequate in dealing with certain transactions, such as payments for the use of intangibles, we believe it is relatively uncontentious in dealing with functions and activities where the only risk taken into account is the overall level of business activity of an independent subcontractor. We propose using current transfer pricing practices to determine routine profit because they tend to work relatively well in this context.[35]

In many cases, data exist on relevant aspects of businesses that may be considered comparable. For example, whether the activity is services (e.g. performing

[35] It is true that finding comparables within specific geographic areas, particularly in developing countries, can be a challenge given limitations on the number of public companies operating principally in those jurisdictions. In such cases data on companies operating in broader markets may be the best that can be found. But even in these cases useful benchmarks of profitability can be determined consistent with the current application of the arm's length standard. In June 2017, the Platform for Collaboration on Tax (2017) issued 'A Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses' which is particularly aimed at assisting the tax authorities of developing countries.

R&D[36] or marketing services[37]) or manufacturing,[38] data from independent public companies in such businesses are typically available in the US that illustrate the cost structure and range of profitability that can be expected for such activities. In the European Union, even closely held companies are obliged to disclose their annual accounts and profit statements to the general public.[39]

A large number of these types of companies are public and, thus, their financial statements can be accessed through various commercial databases. These financial statements can be utilized to estimate 'routine' returns to multinational functions and activities. As a general matter, for service activities, an appropriate allocation can be based on the ratios of operating profit to total operating costs of the comparable companies.[40] For manufacturing the analysis can be similar except that often adjustments may be appropriate for differentials in capital investment, in which case the rate of return on capital for the comparables can be employed as an adjustment.

While we label this profit as 'routine', it can in fact be quite significant and is not only related to 'routine' functions in the sense of standardized functions performed on a low-cost or a low-technology basis. The key is that the profit to be allocated is based on what a third party would earn where that third party's compensation is not dependent on the success of the specific products sold or services provided by the multinational.

As noted above, unlike the OECD approach, the RPAI does not draw a line between subsidiaries that receive a routine profit and those that receive a residual profit. Rather, all functions and activities performed within the group by affiliated entities are attributed a 'routine profit' based on comparable functions and activities performed by outside contractors. This applies to all functions and activities, whether they involve allocable costs or non-allocable costs.

Whatever the specific mechanism for applying the available comparable data to estimate a routine return, the transfer pricing disputes that arise in these situations under the existing system are as a general matter relatively manageable. A goal of

[36] Independent research organizations (including e.g. software development contractors and drug clinical testing organizations) exist around the world and provide useful data on the returns earned by those activities in the marketplace independent of the financial risks of product development.

[37] Independent marketing companies (including e.g. major advertising or market strategy companies) and logistics companies provide useful data on the returns attributable to marketing and distribution activities separate from the risks of developing and marketing a particular product.

[38] Independent manufacturers (so-called 'contract manufacturers') provide relatively robust data on the returns earned for manufacturing activities where the manufacturer is not funding the development or marketing of the product being manufactured.

[39] Article14 lit.f Directive (EU) 2017/1132 of the European Parliament and of the Council of 14 June 2017 relating to certain aspects of company law is critical to this wide-reaching approach to disclosure; see Schön (2006).

[40] Or, stated another way, the ratio of operating profit to revenues, since revenues minus operating costs equal operating profit.

the proposal would be to limit future transfer pricing disputes to these types of matters.

If over time these transfer pricing disputes proved in fact to be troublesome or costly, the determination of routine profit could be made more formulaic, for example, by implementing 'safe harbours' or even mandatory mark-ups on specified costs[41] or rates of return on investment to determine routine returns without reference to specific comparables. This would bring the RPAI system closer to the RPA proposed by Avi Yonah et al, although differences would remain on other aspects of the system. Such a move could be attractive for developing countries which have in the past promoted equivalent 'safe harbour' rules which allocate a fixed return on business functions performed on their territories.[42] Note also that in recent years, the OECD Transfer Pricing Guidelines have started to accept, somewhat reluctantly, the value of those safe harbours which 'involve a trade-off between strict compliance with the arm's length principle and administrability'.[43]

But—at least as an initial step—there would seem to be no need to move away from traditional arm's length pricing in determining routine profit as this would risk driving an unwarranted wedge between insourcing and outsourcing of business functions. And, in terms of familiarity to practitioners, there is some further merit in not doing so.

Returning to our example, Table 6.3 shows routine profit for the business described in Table 6.1. Recall that in our example routine profit is set through the cost-plus method. As noted above, we assume in our example that the cost of the intermediate goods purchased by the manufacturing affiliate in B can be excluded from the base for calculating routine profit. Those costs do not therefore qualify for a further routine profit in B. Similarly, the purchases of A and C from B can also be excluded. However, all other costs are used in the base for the routine profit, based on a cost-plus mark-up.

We assume that there are two different rates of mark-up. Manufacturing—reflected in the cost of goods sold—and R&D are assumed to have a 10% mark-up, while other costs are assumed to have a 5% mark-up. These rates are set arbitrarily to illustrate the case in which rates of mark-up differ between different types of costs. The affiliate in B therefore applies a mark-up of 10% to its costs of goods sold of 340, resulting in a routine profit of 34. The affiliate in A has a high routine profit of 55, reflecting the fact that it undertakes all of the functions and activities giving rise to non-allocable costs, including R&D which also has a mark-up of 10%. The affiliate in C has low routine profit of only 9, since

[41] For example, mandatory mark-ups could be imposed only on labour costs thus avoiding the double counting problem altogether.

[42] See Schoueri (2015), p. 705 *et seq*.

[43] OECD (2017a), Chapter E, para. 4.112.

Table 6.3 Routine profit

	Affiliate in:			TOTAL	rate of mark-up (%)
	A	B	C		
Other cost of goods sold (excluding intermediate goods)		34		34	10
Sales & Marketing: Local	10	2	9	21	5
Sales & Marketing: Global	10			10	5
G&A	5			5	5
R&D	30			30	10
Routine profit	**55**	**36**	**9**	**100**	

it only undertakes functions and activities that give rise to local sales and marketing costs.

Note also that no routine profit is allocated to the affiliates in A and C for the costs incurred in purchasing goods from B. For these affiliates the purchase of the finished goods from B represents the purchase of intermediate goods, the price of which already reflects the routine profit in B. Note also that no routine profit is allocated to the affiliates in B and C for the costs incurred in A for the Global Sales & Marketing, G&A, and R&D activities.

3.3 Residual profit

Residual profit is profit earned by the business in excess of routine profit. As outlined in Section 1 there are broadly two ways in which the residual profit can be calculated under the RPAI: a bottom-up and a top-down approach. The two are equivalent. We begin with the bottom-up approach.[44]

3.3.1 A bottom-up approach

Under a bottom-up approach, there are two basic steps.

a. The first is to calculate the residual gross income (RGI) in each market country. This starts with the revenues from specific goods or services sold to third party customers (individuals or businesses) located in each country, perhaps determined separately on a product-by-product or product line

[44] For those who prefer algebra to examples, Appendix 2 formalizes the discussion that follows, and provides a proof of the general equivalence between these two approaches.

basis.[45] The affiliate in the market country[46] then deducts all allocable costs which have been incurred in the provision of those goods and services. For purchases from third parties, these are based on the actual price paid. For purchases from related parties, these are based on a deemed transfer price, which is equal to the relevant costs and any associated routine profit of the affiliate that is selling to the affiliate in the market country. The market country affiliate also deducts a routine profit associated with its own direct costs, such as its sale and marketing activities.[47] Deducting allocable costs and any related routine profit from revenues in each market country yields the RGI in that country.

b. The affiliate in the market country also deducts a share of the multinational's total non-allocable costs and related routine profit. The share is equal to its share of the worldwide RGI of the multinational.

The hybrid nature of the RPAI can be seen clearly in these two steps. Existing transfer pricing techniques are used for costs that can be attributed to a particular product (step a), and an apportionment system is used for costs that cannot be attributed (step b).

Subject to a *de minimis* exception, a multinational's residual profit is allocated to a destination country following this calculation whether it sells goods or services through a local legal entity, local branch, or remotely. With respect to the calculation of residual profit, the RPAI thus departs from existing PE threshold and attribution rules. We discuss this further below. For ease of illustration, the multinational in our example has affiliates (a subsidiary or a branch) in each country where third party sales are made. But the same calculation would be made if there were none.[48]

Another important point is whether the calculation of residual profit is carried out at the level of the multinational as a whole, or separately for specific products or product lines. Many multinationals keep profit and loss statements by product or product lines for non-tax purposes. Thus, for example, a pharmaceutical company is likely to measure the profitability of each of its drugs that materially contribute

[45] We envisage that changes in the value of inventories are not used in the identification of residual profit, but that the value is included only when the item is sold, and the location of the customer is revealed.

[46] We discuss implementation issues below for the case in which there is no affiliate in a market country.

[47] Dividing the profit in the market country into its routine and residual components is important in determining RGI in that country, and hence the allocation of non-allocable costs to that country and to other market countries. It may also matter if the market country chooses to tax the routine and residual components at different rates.

[48] If in our example goods were sold from country B remotely to consumers in D, RGI in D would be calculated as: revenues from third-party sales in D less the deemed transfer price for the deemed purchase of goods from B. This calculation is made even if no goods were actually sold to an affiliate in D. A share of non-allocable costs would then be deducted to produce the residual profit to be taxed in D.

to overall profitability. A consumer goods company is likely to measure the profitability of each of its substantial branded products or product lines. There may be advantages to undertaking the calculation of the residual profit on a product-line basis; we discuss this further below.

We now discuss each of these steps in more detail, using the ongoing example set out above, in which a multinational develops and manufactures products that are sold to third party customers. Of course, the system would also apply to other situations, most importantly the provision of services to third party customers. But the sale of tangible goods most easily illustrates how the system could work.

3.3.1.1 Residual gross income (RGI)

The starting point in any determination of residual profit with respect to the sale of products is actual third party revenues arising in a particular market. These are set out in Table 6.1.

We next need to deduct the allocable costs associated with the sales of goods and services by each affiliate. These include costs of goods sold and local sales and marketing costs.

- For transactions with third parties, these costs are based on the prices paid.
- For (actual or deemed) transactions with related parties, these costs are based on deemed transfer prices. These prices are set when calculating the routine profit earned by the affiliates providing the goods or services to the affiliate in the market country. In our example the manufacturing cost is incurred in B. The routine profit mark-up on (part of) this cost constitutes the routine profit to be taxed in B. The mark-up has a second use: it is added to the cost to provide the price at which A and C are deemed to purchase the goods from B.

The cost of goods sold is determined under standard accounting principles. Thus, for example, if a local sales and marketing affiliate earned revenues attributable to three products manufactured in a number of different affiliate-owned factories, it would determine its cost of goods for each product based on the transfer price it is deemed to have paid to each factory affiliate.

The deemed transfer price used in determining the value of purchases from a related party would be based on the costs of the related party, plus the routine profit allocated on the basis of those costs. In our example, recall, the per unit total cost of goods sold is higher in country C (3) than it is in countries A and B (2.5). This cost is made up of the purchase of an intermediate good in all three cases at a price of 1 per unit, and additional costs of 2 per unit for goods sold in C, and 1.5 per unit for goods sold in A and B. The routine mark-up on the additional costs is assumed to be 10%, which determines a deemed transfer price per unit of 2.65 for sales in A and B, and a transfer price per unit of 3.2 for sales in C.

Table 6.4 Within-group transactions of goods: cost of goods sold

	Affiliate in:			TOTAL
	A	B	C	
Quantity sold to third parties	96	24	80	200
Quantity transacted between affiliates	–96	176	–80	0
Allocable costs of intermediate goods	96	24	80	200
Other allocable costs	144	36	160	340
Associated routine profit	14.4	3.6	16	34
Total allocable costs incurred	254.4	63.6	256	574
Value of transfer	–254.4	510.4	–256	0

Table 6.4 sets out the value of transfers from B to A and from B to C for the goods produced in B. For example, the total value of the transfer of ninety-six units to A consists of the costs of intermediate goods purchased by B (of 96), plus additional allocable costs incurred by B of 144[49] and the routine profit associated with those other costs of 14.4. The transfer value is therefore 254.4, equal to ninety-six units at a price of 2.65 per unit. Table 6.4 shows the similar calculation for sales to the affiliate in C, and also the allocable costs which remain in the affiliate in B.

For the affiliate in B, the allocable cost of goods sold can be calculated in two ways. First, it can be built up from the underlying allocable costs, as shown in Table 6.4, which yields a total allocable cost of 63.6. Alternatively, it can be calculated as the total manufacturing costs incurred by B of 540, plus the associated routine profit of 34, less the value of the transfers to A and C of 254.4 and 256 respectively, which again yields 63.6.

The final step in determining RGI in each destination country is to deduct the routine profit allocated to each affiliate in a market country on its direct costs, which in the example consist of local sales and marketing functions. In our example this routine profit is calculated as a 5% mark-up on local sales and marketing costs. With local sales and marketing costs of 200, 40, and 180 incurred in countries A, B, and C respectively, this yields routine profit from these activities of 10, 2, and 9 respectively, as shown in Table 6.3. The sum of these costs plus the associated routine profit—which are 210, 42, and 189 in

[49] Calculated as 144=1.5×96.

Table 6.5 Calculating residual gross income (RGI)

	Affiliate in:			TOTAL
	A	B	C	
Third party revenues	960	240	1,200	2,400
Less allocable costs:				
Cost of goods sold	254.4	63.6	256	574
Sales & Marketing: Local	210	42	189	441
Residual Gross Income (RGI)	495.6	134.4	755	1,385
Proportion of RGI in each affiliate	*35.8%*	*9.7%*	*54.5%*	*100%*

countries A, B, and C respectively—are also deducted from third party revenues in calculating RGI.[50]

We are now in a position to calculate the RGI in each country and affiliate, by subtracting from sales revenue those costs allocable to those sales (inclusive of their routine returns where this is applicable). Table 6.5 combines these elements to derive the RGIs in each country.

In our example, total RGI is 1,385. There is a significant contrast to the allocation of routine profit (shown in Table 6.3). Whereas the affiliate in C accounts for only 9% of the multinational's aggregate routine profit, its RGI of 755 accounts for 54.5% of the total, reflecting the greater profitability arising in C due to the higher price that can be charged for goods to third party customers there. The affiliate in A has RGI of 495.6 (35.8% of the total), reflecting the large number of units that it sells, albeit at a lower rate of profit per unit. The affiliate in B sells a relatively small quantity, which is reflected in RGI of only 134.4 (9.7% of the total). The shares of RGI are important in determining the apportionment of non-allocable costs, as we now describe.

3.3.1.2 Non-allocable costs

We must next account for costs (and any associated routine profit) that cannot be attributed to any specific outputs or sales. Since these costs are by definition not attributable to specific outputs, they are shared between affiliates in market countries on the basis of an apportionment formula. This approach can be applied to each of the material categories of non-allocable costs: general sales and marketing, general and administrative, research and development, and interest expense. In effect all such costs of a multinational group would be charged out to the affiliates

[50] Note that tax paid on routine profit is *not* deducted in determining RGI. That is because the taxes on routine and residual profit apply to different bases, so there is no need for deduction or crediting.

in the market jurisdictions that sell products to third parties. Under the RPAI the apportionment factor is RGI, but as discussed below other factors could be used, including sales.

General and administrative (G&A) costs by definition do not relate to specific products or product lines. For non-tax purposes multinationals often do not include them when analysing the contribution of specific products or product lines to overall profitability. OECD transfer pricing guidelines and the rules of most countries permit affiliates incurring such costs to charge them out to other affiliates only in circumstances where the purchasing affiliate directly benefits from the G&A cost. Thus, multinationals may end up deducting a substantial portion of these costs only in the country where the original cost is incurred. However, given that these costs benefit broad categories of income generated by multinationals in different jurisdictions, it would seem more appropriate that they be allocated to those jurisdictions.[51] As with other costs, any routine profit associated with these costs must also be apportioned to market affiliates and deducted in the determination of residual profit; without such deduction, that element of profit would be included both under routine and residual profit.

Like G&A costs, research and development (R&D) costs cannot typically be identified with particular products or product lines because much of the costs relate to potential new products (including products that ultimately fail) and not just new versions of existing products. Consequently, it may be appropriate that R&D costs, together with the related routine profit, should be apportioned among market affiliates according to products and product lines. For multinationals that are conglomerates or otherwise have different lines of businesses in terms of their research intensity (e.g. pharmaceutical companies that sell over the counter consumer products as well as patented prescription drugs), tax authorities and the taxpayer may agree to apportion R&D costs separately for different lines of business. But in other cases, synergies between different businesses may dictate that R&D costs be apportioned over all the lines of business of a multinational. This may give some scope for businesses to choose a split between lines of business that brings some tax advantage. While this cannot be ruled out, the principle here is that for the cost to be apportioned to a particular line of business, there must be some genuine connection with that line of business.

In determining the R&D costs to be charged to an affiliate, it is important that all costs, including for example, employee incentive compensation (e.g. stock

[51] This allocation could be made to the income of all affiliates including those that earn only routine returns. But that would add unnecessary complexity without changing the result. If G&A costs and a mark-up on those costs are allocated, for example, to a manufacturing affiliate or an affiliate providing logistics services, that would increase the prices they are deemed to charge to selling affiliates by the amount of the cost. Charging G&A costs directly to the selling affiliates achieves the same result more simply.

Table 6.6 Apportionment of non-allocable costs with mark-up, by RGI

	Affiliate in:			TOTAL
	A	B	C	
Total non-allocable costs, including routine profit				645
Proportion of RGI in each affiliate[1]	*35.8%*	*9.7%*	*54.5%*	*100%*
Apportionment to each affiliate	230.8	62.6	351.6	645

Note: 1. From Table 6.5

options), be taken into account in some manner.[52] It may be that the routine profit on R&D activities is higher than that for, for example, marketing or G&A activities, given the value of the activity. But even for 'cutting edge' research, independent research organizations can usually be identified that are engaged in those activities on a services basis. Thus, the routine profit should reflect the financial data of the most comparable independent research organizations.

Table 6.6 illustrates the apportionment of non-allocable expenses in our ongoing example. We start with the total non-allocable costs taken from Table 6.1, all of which (600) are incurred by the affiliate in country A. We then add a routine profit for these activities calculated as a mark-up on these costs (45, taken from Table 6.3). This total is then apportioned in proportion of RGI in each country, as derived in Table 6.5. Since the affiliate in C has the highest share of RGI, it is allocated the highest share of non-allocable costs.

As with the case of allocating the cost of goods sold to the affiliate that undertook the expenditure, it might be noted that there are two ways of calculating the apportionment of non-allocable costs for the affiliate undertaking the expenditure. In our example, this is the affiliate in A. An alternative approach to that in Table 6.6, and one that is closer to a transfer pricing approach would be (i) to deduct the entire costs of the expenditure in A (600), together with the associated routine profit (45), and (ii) to charge the other two affiliates their share of the costs—in this case (in line with the RGI shares in Table 6.6) 62.6 from B and 351.6 from C. This yields the same charge to A of 230.8.

The residual profit in each market affiliate is now straightforward to calculate. In our example, we begin with RGI as derived in Table 6.5, and simply deduct the apportionment of non-allocable costs and related routine profit from Table 6.6. As in the case of allocable costs, the tax paid on the routine profit allocated for functions

[52] This could be an area of some difficulty to the extent that the tax treatment of stock-based compensation differs among countries. But the presumption should be that the costs of stock-based compensation should be charged out like other employee compensation.

Table 6.7 Residual profit

	Affiliate in:			TOTAL
	A	B	C	
RGI	495.6	134.4	755	1,385
Less apportionment of non-allocable costs	–230.8	–62.6	–351.6	–645
Residual Profit	264.8	71.8	403.4	740
Proportion of RGI and residual profit in each affiliate	*35.8%*	*9.7%*	*54.5%*	*100.0%*

Table 6.8 Residual profit using the 'top-down' approach

	Affiliate in:			TOTAL
	A	B	C	
Total Residual Profit				740
Proportion of RGI in each affiliate	*35.8%*	*9.7%*	*54.5%*	*100%*
Residual Profit	264.8	71.8	403.4	740

and activities relating to non-allocable costs is *not* deducted from sales revenues when calculating residual profit in market countries.

The result is shown in Table 6.7. Since non-allocable costs are apportioned according to the proportion of total RGI in each market affiliate, it follows that the proportion of residual profit allocated to each affiliate is the same as the proportion of RGI.

3.3.2 A top-down approach

An alternative approach to identifying the residual profit in each market affiliate is a 'top-down' approach. Under this approach, the total residual profit of the multinational is first calculated, and then apportioned between the relevant market affiliates.

Under the RPAI, the apportionment is based on the RGI. This means that the first step in the 'bottom-up' approach—calculating RGI in each market country—is also necessary in the 'top-down' approach.

In our example, residual profit is 740. This can be calculated simply by deducting total routine profit of 100 (Table 6.3) from total profit of 840 (Table 6.1). Table 6.8 applies the proportion of RGI in each affiliate to total residual profit. The resulting apportionment is identical to that in Table 6.7, following the 'bottom-up' approach.

Table 6.9 Routine and residual profit

	Affiliate in:			TOTAL
	A	B	C	
Routine Profit	55	36	9	100
Residual Profit	264.8	71.8	403.4	740
Total Profit	319.8	107.8	412.4	840

3.4 Further issues

Although we have set out the basic mechanics of how the RPAI would operate, a number of further design issues arise. We discuss these issues here. Further implementation issues are discussed in Section 5.

A first question concerns the rates at which residual and routine profit will be taxed. It is of course straightforward to aggregate routine and residual profit (as shown for our example in Table 6.9). It may indeed be that a country chooses to apply the same tax rate to both elements of profit, in which case it would make sense for that country simply to aggregate the two into a single tax base. This would also make it easier to set-off residual losses against routine profit. However, it is possible that countries may choose to apply different rates to routine and residual profit. It might be, for instance, that functions and activities generating routine profit are readily relocated in relation to tax considerations, whereas the allocation of residual profit largely on a destination basis provides a less mobile tax base that can support a higher rate. The separation of routine and residual profit in the way described here offers countries the opportunity to use different tax rates.

A second issue concerns the definition of the tax base, and in particular whether a harmonized definition of the tax base is required for use in all countries participating in the RPAI. This is clearly an important issue in the EU Commission's consideration of its CCCTB proposal, which is based on a formulary apportionment approach. Indeed, its 2016 proposal consists of two steps: coordination of the tax base in the first step, and consolidation in the second. There is not a common definition amongst states in the US, which also operate a formulary apportionment approach, although many states refer to the federal tax base. The transfer pricing interpretation of the RPAI suggests that perfect harmonization is not required. As long as the routine profit is based on a reasonable definition of the tax base in the country in which functions and activities take place, then transfer prices determining the allocation of residual profit to other countries can also be based on those definitions. Where a country seeks to offer an inducement to greater expenditure—for example by offering an incentive to undertake

R&D—these should in principle operate outside the system described here. We discuss this issue further in Section 5.

We now turn to discussing three other important issues in more detail: splitting total profit into its routine and residual components in the case of remote sales; the allocation of interest expense; and the treatment of losses.

3.4.1 Routine and residual profit in the case of remote sales

Where a multinational has a local affiliate—either a subsidiary or a branch—in the market country, then the residual profit in that market country can be calculated as described above, and assigned to that local affiliate. However, there are many cases in which a business may make a direct sale to a customer in a different country, without there being a local affiliate. This is especially important for digital sales, whether or not the good or service is provided digitally.

Currently, if the multinational does not have a subsidiary or permanent establishment (PE) in the market country, then the profit associated with the sale is attributed to the selling entity; there is no allocation to the market country.[53] The RPAI by contrast would seek to assign residual profit to the market country, subject to a *de minimis* rule. If, under the RPAI, residual profit on direct exports was not taxed in the market country, this could lead to a significant distortion to the structure and location of multinationals, which would need to choose whether to pay tax on residual profit in the market jurisdiction (by maintaining a local affiliate) or elsewhere (by not maintaining a local affiliate).

It is therefore important to apply the principles of the RPAI also to remote sales across countries. This is a significant departure from current practice,[54] albeit along the lines of proposals being discussed at the time of writing. For example, suppose that a German business sells remotely only to French consumers, without any taxable presence in France. Currently, the profit on the transaction would be taxed only in Germany. However, the RPAI would allocate routine profit to Germany and residual profit to France, according to the calculations set out above. The references to deemed transfer prices above therefore go beyond their traditional role of allocating profit amongst subsidiaries of the multinational. In effect the RPAI requires the use of deemed transfer prices to calculate the residual profit in a market country whether the provision of goods or services in that country is made through a local subsidiary, a local branch, or remotely.

Of course, it is also necessary to implement this requirement in practice; the remote seller may wish to evade any tax in the market country. To induce the seller to

[53] As discussed in Chapter 3, at the time of writing proposals are being discussed at the OECD/G20 Inclusive Framework that would allocate some taxing rights to the market country.

[54] As discussed below, this departure from current practice would require changes to existing double tax treaties. However, it would not breach customary international law. Customary international law requires that taxing rights are based on a genuine link (nexus) between the taxpayer, the taxable event, and the taxing jurisdiction. This genuine link can be personal or territorial. Selling into a market is deemed to provide a genuine link between the foreign business being taxed and the market country for these purposes.

declare and pay tax on the residual profit, the tax authority in the market country could perhaps charge a withholding tax on sales, which would be creditable against any tax collected on the residual profit.

This element of the RPAI clearly adds some complexity relative to the existing system.[55] We discuss some more practical issues relating to this in Section 5. However, it is worth repeating that references in this chapter to transfers amongst affiliates of a multinational should be taken also to include deemed transfers in cases where there is no subsidiary or any physical presence whatsoever in market countries.

3.4.2 Interest expense

We have not yet discussed how to deal with interest expense, and we have left interest out of our base case example. Since the intention of the RPAI is to match the existing system as closely as possible, whilst removing its most significant problems, it seems natural for the RPAI tax base to permit a deduction for interest payments in determining both routine and residual profit.

In today's world interest expense is one of the principal tools of tax planners.[56] Because multinational affiliates can adopt a wide variety of capital structures consistent with local tax and corporate law, third party debt is disproportionately located in high tax countries and within-company debt is used to erode the tax base of even relatively low tax jurisdictions. Reflecting this reality, limiting interest deductions was considered in detail by the OECD in the BEPS project.[57] One option considered by the OECD was to limit the deductions of third party and inter-company interest expense based on a ratio derived from the multinational group's aggregate third party interest cost divided by a measure of income or assets.[58]

In a system that imputes routine returns to functions and activities and residual returns to market countries, it seems reasonable to allocate third party interest expense on a group ratio basis much as specified by the OECD in this option. But if the intention is to allocate third party interest expense within the multinational, there seems no reason also to permit a deduction for within-company interest expense.

The OECD did not recommend a direct allocation provision (i.e. a direct charge-out to affiliates of third party interest costs) because many countries were uncomfortable granting an interest deduction in their jurisdiction for an expense incurred by other affiliates in other jurisdictions. Instead, the OECD proposed a limitation on the amount of third party and inter-company interest incurred by an

[55] Although, note again that similar issues arise under the DBCFT, recently implemented digital services taxes and the Pillar I proposal being discussed at the time of writing by the Inclusive Framework.
[56] See the discussion in Chapter 3.
[57] OECD (2015b).
[58] OECD (2015b).

affiliate that can be deducted by that affiliate but supplemented this with 'a group ratio rule' that permits higher net interest deductions, based on the financial ratio of its worldwide group. However, the RPAI system requires overcoming that discomfort more broadly, with G&A, R&D, and global sales and marketing expenses being apportioned among market jurisdictions as described above. As a result, allocating third party interest expense to each affiliate of the multinational addresses the debt-shifting problem in a way that is congruent with the general design of the RPAI. This solution is also conceptually appealing given that money is fungible, and, therefore, interest paid on third party debt is best seen as benefiting all affiliates of a multinational group.[59]

That leaves open the basis of the allocation of third party interest expense. One option would be to base the allocation of interest according to the location of the tangible assets of the business.[60] This could be on the grounds that the third party debt is essentially used for the purposes of purchasing assets. Compared to basing the allocation on income or sales, this would have the merit of being relatively stable, and less prone to fluctuations due to market conditions. On the other hand, the exclusion of intangible assets raises some concerns. Furthermore, there is considerable merit in basing the allocation on the same factor as the allocation for the purposes of residual profit of non-allocable expenses, namely RGI. This would mean that it would not be necessary to identify and value all of the tangible assets on a worldwide business, as well as its RGI. Then again, it could be argued that the countries which earn only a routine profit should also bear some of the interest expense, which would suggest an allocation based on total taxable income—that is routine profit plus residual profit, rather than just RGI. Having gone through the steps set out above, that could be readily calculated within the context of the RPAI.[61]

3.4.3 Taxable losses

Of course, not all multinationals generate positive residual profit in all destination countries. Three types of loss need to be considered—losses arising when:

- Total residual profit of the multinational is positive, but RGI, and therefore allocated profit, is negative in at least one jurisdiction, and positive in other jurisdictions;

[59] Note that relief should be given for net interest payments only; if relief were given for gross interest payments, then it would be possible to reduce taxes by borrowing from, and lending back to, the same party.

[60] This was proposed by Graetz (2008), although that paper also noted the possibility of basing the allocation on income; in a similar vein, see Hey (2014). Desai and Dharmapala (2015), p. 663 *et seq*. note that this proposal does not satisfy 'capital ownership neutrality' as the tax effect of new investment would depend on the overall asset distribution of competing investors in a multinational setting.

[61] Since routine profit is determined based on operating income, which is determined without regard to interest expense of either the relevant affiliate or the comparables, allocating some interest expense to affiliates earning routine profit would not require any adjustment to their transfer prices with other affiliates.

- Total worldwide profit is positive, but less than the sum of routine profit, so that total residual profit is negative; and
- Total worldwide profit is negative.

It is necessary to identify a strategy within the RPAI to deal with all three types of loss.

We begin with the first, where the multinational makes a positive total residual profit. To illustrate this case, suppose that there are two destination countries, X and Y, with tax rates of 20% and 40% respectively. Suppose further that RGI in the two countries is –50 in X and +100 in Y, giving a total RGI of +50. Finally, suppose that non-allocable costs are 40, implying that residual profit is 10.

Following the procedures set out above, the weight for apportioning non-allocable costs to country X is –1 (i.e. –50/+50) and the weight for country Y is +2 (i.e. 100/50). RGI in X would therefore be *increased* by 40, to reach a residual profit in X of –10. RGI in Y would be *reduced* by 80, to reach a residual profit in Y of 20.

Another way of thinking about this is that the effective rate of deduction for non-allocable costs is a weighted average of the tax rates in the destination countries. In cases where all destination countries have a positive RGI, then the weighted average tax rate applied for deducting non-allocable costs would lie within the tax rates in each country (e.g. if X and Y both had RGI of 50, the weighted average tax rate would be 30%). However, when RGI is negative in one country, this no longer holds. In the example in the previous paragraph, there is a negative weight of –1 for apportioning non-allocable costs to X, and a weight of +2 for apportioning non-allocable costs to Y. Specifically, in this example then, the weighted average effective rate of deduction for non-allocable costs is 60%.

This creates potential problems. First, the taxable residual loss in X becomes, perversely, smaller the higher are non-allocable costs. This is at the expense of the residual profit allocated to Y, which in effect gives relief for more than 100% of non-allocable costs. Second, the effective rate of deduction of non-allocable costs is very high, and it is possible to construct examples where the effective rate of deduction exceeds 100%. This may induce unnecessary spending on non-allocable costs and could potentially generate profit shifting opportunities.

Two alternative approaches are possible. One would be to apportion non-allocable costs only between destination countries that have a positive RGI. In our example, that would mean that all non-allocable costs would be apportioned to Y. Y would then have residual profit of 60, and X would have a residual profit of –50. This would be a taxable loss that could in principle be carried forwards (or backwards) to offset against a positive residual profit in other years. If there

is routine profit in X, then the residual loss could also be set against the routine profit.

A second approach would be a top-down approach in which total residual profit is only apportioned to countries with a positive RGI. In this case in our example, X would be treated as having zero residual profit, and the total residual profit of 10 would be apportioned to Y. In our example, this might be seen as a more extreme outcome than simply applying the usual approach with negative weights, since in this case the taxable loss in X has in effect been transferred entirely to Y.

In the discussion so far, we have not considered any adjustment to routine profit in the presence of losses. However, in the second and third cases identified, total profit is less than measured total routine profit. This requires us to consider whether the allocation of routine profit should be adjusted in such circumstances. In considering this, a starting point is to ask what principle should be applied as to where losses should be identified for tax purposes.

When residual profit is high, the market country has a higher tax base. When residual profit is negative, then arguably the destination country should give relief, while the origin country, where expenditure is undertaken, still collects tax on the same routine profit. Based on this argument, that would be the case whether or not the business had made an absolute loss, or merely failed to cover its routine taxable profit. This approach would follow the logic of the arm's length principle that the risk of loss should be allocated to the jurisdictions where the residual profit would be allocable if such profit were to exist. That would aid certainty and ease of administration because a taxpayer would know its income taxable in jurisdictions earning routine returns based, for example, on local cost projections alone, without regard to the level of global profit for the relevant products. But—if losses are not immediately rebated in the market country—such a rule could lead to multinationals being taxed on amounts that exceed global profit, possibly over long periods of time.

In any case, this is perhaps to go too far. If the rate of mark-up used to determine routine profit approximates the risk-free rate, then the argument that the origin country should always be able to tax the routine profit—whatever the level of profit—makes sound economic sense. But to the extent that the routine profit includes some element of aggregate risk, in profitable times the origin country may have a higher tax base to reflect that risk. It should therefore be expected to accept part of the risk that the business does not earn at least the routine profit.

A reasonable conceptual position might therefore be that the total routine profit is limited to the actual total profit earned by the business. Where total profit is positive but less than the level normally calculated for routine profit, then total routine profit should be reduced to be equal to total profit, and the

Table 6.10 A potential allocation of the tax base with low profit and with a loss

	Positive profit	**Negative profit**
Revenues	1,600	1,400
Costs	1,500	1,500
Aggregate profit / loss	100	–100
Routine profit if positive residual profit at 10% mark-up	150	150
Routine profit	**100**	**0**
Residual profit	**0**	**–100**

market country should have a zero tax base. In this case routine profit subject to tax would not exceed the total profit of the multinational group for that particular product. Where total profit is negative, the tax base in the origin country should fall to zero, and a loss should be recorded in the market country. In that way the losses allocable to market countries would be limited to each such country's share of overall group losses.

This approach is illustrated in Table 6.10. In the first column, the multinational earns revenue of 1,600; in the second it earns revenue of 1,400. In both cases, it has total costs of 1,500. Assuming a 10% mark-up on costs, that would imply a routine profit of 150 in both cases. However, given revenues, total profit is 100 in the first column, and -100 in the second column. In both cases, routine profit as normally calculated exceeds actual total profit. The approach suggested here would be to reduce routine profit in the first column to total profit, of 100. Residual profit in this column is therefore zero. In the more extreme case of the second column, the routine profit is reduced to zero, and the loss is attributed to the market country through the residual profit.

Even if this approach were followed, however, several questions remain. First, although this may give an overall assignment to routine and residual profit, it does not necessarily identify the tax base in each country. Should the routine profit be reduced proportionately in every origin country, or should that reduction reflect the nature and reason for the loss? For example, suppose that the product saw declining sales and prices only in market country X, which was predominantly supplied from country Y. Should the routine profit in Y therefore be disproportionately reduced?

Second, the mechanism for reducing the routine profit in any country is not clear. Under the basic RPAI, origin countries would not need to have information on the profit of the multinational as a whole, but only on costs incurred in that jurisdiction. If the approach set out here were to be followed, then each origin country would also need to collect information about the overall profitability of each business which had costs within that country.

Third, suppose that there is not an immediate rebate for losses, but that losses must be carried forward to set against future profit arising in the same country. Then timing differences might yield asymmetric outcomes: the location of sales and RGI in loss years may be significantly different than their location in excess profit years. That problem could potentially be dealt with by providing a priority allocation of residual profit in later years to jurisdictions of earlier year losses, effectively 'recapturing' those losses. It is not clear whether such additional complexity would be worthwhile.

Another option would be that origin countries identify and carry forward the shortfall in the routine profit. In the example, this would amount to a carry forward of 50 in column 1 of Table 6.10, and 150 in column 2. When the total profit of the business is sufficiently high, the origin countries would not tax routine profit until the carried forward shortfall had been exhausted. Residual profit would be defined to be net of such additional routine profit in any year. This would mean that the market countries would wait longer until a tax paying position is resumed. Again, while this is defensible conceptually, it is not clear whether the additional complexity required would be worthwhile.

3.5 Comparing the RPAI with other approaches

The RPAI described above has similarities with, but also important differences from, other proposals for a reformed international tax architecture. This section compares the RPAI with some of these prominent proposals and with some further options within the RPA family of tax regimes.

Options within the RPA family of regimes differ on a number of key design features, including: the calculation of routine profit, the locations to which residual profit is allocated, the formula used in that allocation, and whether the regime is applied on a product-line or a business-wide basis. Section 3.5.1 discusses other options for allocating residual profit, both the jurisdiction to which it is allocated, and the formula used for that allocation. Section 3.5.2 specifically comments on other proposed RPA regimes, in particular, those proposed by Avi-Yonah, Clausing, and Durst (2009), and by Luckhaupt, Overesch, and Schreiber (2012). It also discusses sales-based formulary apportionment, which is a further step from the RPAI, but which bears some similarity to it given its formulary features and its use of the destination principle. Finally, it also discusses a proposal by Schreiber and Fell (2017) for what is effectively a minimum tax in the destination country, which also has similar properties.

3.5.1 Alternative allocations of residual profit

The RPAI allocates residual profit according to the share of the multinational's aggregate RGI attributed to each market jurisdiction. But one can conceive of many

Table 6.11 Allocation of residual profit by different factors

	Affiliate in:			TOTAL
	A	B	C	
Proportion of RGI in each affiliate	*35.8%*	*9.7%*	*54.5%*	*100%*
Apportionment using RGI	264.8	71.8	403.4	740
Proportion of sales in each affiliate	*40.0%*	*10.0%*	*50.0%*	*100%*
Apportionment using sales	296	74	370	740
Proportion of costs in each affiliate	*51.3%*	*37.2%*	*11.5%*	*100%*
Apportionment using costs	379.5	275.1	85.4	740

other ways in which residual profit could be allocated.[62] We here discuss allocating the residual profit by sales revenue, costs, and other factors, including users of digital products. We also briefly discuss allowing countries to negotiate how to divide the residual profit.

Note that for residual profit to be allocated in proportion to sales revenues, costs, or other factors, the allocation must be done through a top-down approach. This is because, as we discuss below, the top-down and bottom-up approaches are not equivalent if the allocation is not based on RGI.

Table 6.11 reports the outcome of allocating the residual profit in our basic example according to RGI, sales, and costs using the top-down approach. Routine profit is not affected by this comparison.

3.5.1.1 Allocation of residual profit by sales revenue

One obvious alternative is to allocate residual profit by sales revenue, taking full advantage of the relative immobility of the location of final sales. This gives the same allocation of residual profit as by RGI if the ratio of the final selling price to the allocable cost per unit (including the routine profit) were the same in all countries. But in general—and in our example—this is not the case. In our example, while both the allocable cost per unit and the selling price per unit are higher in C than in A and B, the proportionate difference in price is greater than the proportionate difference in costs. C is therefore more profitable per unit, implying that it has a higher proportion of RGI than of sales. Countries like C, with higher profitability—in the sense of a higher ratio of sales to allocable

[62] Altshuler and Grubert (2010) consider the case where 50% of residual profit is allocated to the parent. In their simulation model this substantially reduces distortions relative to a standard formulary apportionment approach.

Table 6.12 Bottom-up approach: allocation of residual profit by sales

	Affiliate in:			TOTAL
	A	**B**	**C**	
RGI	495.6	134.4	755	1,385
Proportion of sales in each affiliate	*40%*	*10%*	*50%*	*100%*
Apportionment of non-allocable costs by sales	258	64.5	322.5	645
Residual Profit	237.6	69.9	432.5	740
	32.1%	*9.4%*	*58.4%*	*100%*

costs—thus benefit from an allocation by RGI compared to allocation by sales revenue.[63]

Allocation by RGI and sales revenue both bring the benefits that accrue from a partial move to a destination basis of taxation, discussed in Chapter 4. But allocation by RGI offers a number of advantages over allocation by sales. First, allocation by RGI has some intuitive appeal over allocation by sales because it rewards countries with higher profitability. For example, if a country has relatively high prices for drugs compared to other countries and hence higher RGI, it could be argued that that country's tax revenues should reflect those higher prices. Similarly, if a country does not protect patent or trademark rights so that local profit margins are relatively low, it could be argued that that country should not benefit from the higher margins in other countries with stricter protections.

Second, the bottom-up approach can be used to allocate residual profit in proportion to RGI but not sales. More precisely, a bottom-up approach that shares non-allocable costs across countries in proportion to sales does not give the same final allocation of residual profit as a top-down approach that simply allocates the residual in proportion to sales. For our example, this can be seen by comparing the results of such a bottom-up sales-based approach, shown in Table 6.12, with the result of an allocation of residual profit by sales using a top-down approach in Table 6.11.

Clearly the top-down and bottom-up approaches do not give the same result when using sales revenue as the apportionment factor. This is because under the bottom-up approach only non-allocable costs are allocated by sales,

[63] This is so whatever the cause of the higher profitability. Sales in country Y can be more profitable than sales in country Z because: (i) higher prices can be charged in Y than in Z on the sale of goods having the same cost; (ii) because goods can be sold at the same price in Y and Z even if the goods sold in Y have a lower cost; or (iii) as in our basic example, goods sold in Y have a higher price and higher cost than those sold in Z, but the ratio of price to cost in Y is greater than that in Z.

while under the top-down approach *all* costs are allocated by sales. The bottom-up approach thus cannot be used to allocate residual profit in proportion to sales.[64]

A bottom-up approach—and hence allocating residual profit by RGI rather than sales—has practical appeal because its operation is closer to the existing system than the top-down approach. Practitioners, revenue authorities, and others steeped in the existing system may well thus find the bottom-up approach more familiar, intuitive, and perhaps even palatable, than the top-down approach.

Third, allocation by sales revenue can lead to instances of economic inefficiency that do not arise under allocation by RGI. This can be seen in the following example. To begin with we set out the case with RGI as the apportionment factor.

Suppose that a business is operating in country A and faces the RPAI in A at rates of 20% on both its routine and residual profit. It produces 100 units of a good at a cost of 10 per unit and is able to sell the goods for 18 per unit. The routine profit on its production activities is calculated as a 10% mark-up on costs. It therefore makes a pre-tax total profit of 800, of which routine profit is 100, and residual profit is 700. In total it pays tax of 160.

It now considers producing and selling in country B, which also operates the RPAI, at a rate of 30%. Specifically, it could produce 200 units in B, also at a cost of 10 per unit. However, it can only sell these additional units in B at a price of 11 per unit. Suppose that the business is willing to go ahead with this project if it earns an after-tax profit of at least 7% (equivalent to the rate of routine mark-up less tax). The project yields a pre-tax profit of 200. Routine profit in B is 200, on which tax is due of 60. Residual profit, and RGI, are both zero. If residual profit is allocated by RGI, there would therefore be no impact on the tax position in A. After tax, the business would make a profit of 140 in B, a rate of return of 7%. The project would therefore go ahead under the RPAI in both countries.

Now suppose that residual profit is allocated on the basis of sales on a top-down basis. Total residual profit is 700. Total sales are 4,000: 1,800 in A and 2,200 in B. Hence the allocation of residual profit is 315 to A and 385 to B. This leads to a tax liability on residual profit of 63 in A, and a tax liability of 115.5 in B, in addition to the tax on routine profit of 20 in A and 60 in B. The total tax liability is therefore now 258.5—an increase of 98.5 due to the project in B being undertaken. This means that the post-tax profit from the investment in B is only 101.5, a rate of return of only 5.1% on the costs of 2,000 incurred in B—and less than the required rate of return of the business. In this case, the project would not go ahead.

This example illustrates a broader and important point. Allocating residual profit by sales can clearly shift taxable profit earned from sales in one country (in the example, country A) into another (in this case country B). In the example, part

[64] Non-allocable costs could be allocated by sales rather than RGI under the bottom-up approach as done in Table 6.13, but this would result in an allocation of residual profit that is neither in proportion to sales nor RGI. It is not clear what benefits this would bring over the allocation of non-allocable costs by RGI.

of the residual profit (385) initially earned in A is effectively transferred to B for tax purposes. Because the tax rate in B is higher, this made the new project in B uneconomic. On the other hand, a lower tax rate in B could have turned an uneconomic project into one worth undertaking, as we show in the example below. The general point is that allocation by sales can affect real economic decisions, including basic investment decisions of the kind in this example.

Fourth, allocation by sales appears to give rise to tax planning opportunities that are not available under allocation by RGI. Admittedly, one can also think of tax planning opportunities that benefit from allocation by RGI over allocation by sales, but such planning appears to be easier to address. We start by considering two tax planning strategies that are available under allocation by sales but not allocation by RGI.

The first strategy starts with the previous example, but now let us suppose that the tax rate in B is zero. Under an allocation by sales, there would be an aggregate tax saving of 77 relative to the case of not undertaking the investment in B, as the 385 of residual profit transferred to B now escapes tax at a 20% rate in A (leaving to one side the zero tax on routine profit in B).[65] Clearly in this case there would be an incentive to undertake the investment in B even if it were loss making.[66]

The second strategy is straightforward. Allocation by sales revenues, unlike allocation by RGI, can be manipulated by increasing sales revenues in low tax countries with low margins and hence little economic impact. This could be done by purchasing a high-turnover, low-profit margin business in a low tax jurisdiction. Consider an example where company A manufactures goods at a cost of 100 in country X and sells them to consumers in country Y for 220. Assuming a routine profit of 10% in X, this leaves a residual profit of 110 in Y. Assume now that Y is a high tax country, and company A would like to shift profit to Z, a low tax jurisdiction. Under an allocation by sales, the company could shift profit away from Y to low tax jurisdiction Z by purchasing company B, which manufactures goods at a cost of 200 and sells them for 220 to consumers in Z. Under a sales-based allocation, 50% of the residual profit initially in Y would be relocated to Z.[67]

However, this strategy would not work under allocation by RGI. In this case, there would be no change to the routine or residual profit in X (since there are no non-allocable costs), and company A would continue to have routine profit of 110 in Y, but no residual profit in Z. An RPA using allocation by sales would be somewhat more robust to this strategy if it was adopted on a product line basis as this

[65] Tax on residual profit in B would be zero, on residual profit in A would be 63, and tax on routine profit in A would be 20.

[66] This example could clearly be made more extreme by allowing the business to make a loss on its sales in B, and it would be possible to construct an example in which the loss is more than offset by lower tax in A. We chose an example where RGI in B is zero in order to avoid any complications arising from losses.

[67] It is 50% because sales in Y and Z are equal, at 220 in each country.

would require company B to manufacture and sell goods in the same product line as company A for the strategy to succeed. However, alternative strategies which exploit the same weakness could be used; for example, company A could switch from selling goods to consumers in Y at a high mark-up to selling to consumers in Z at a low mark-up.

Both these examples lie in the grey area between tax planning and real economic responses.[68] They may be purely tax driven, but they require the taxpayer to undertake real economic activities at a real cost to achieve a more substantial tax advantage.

Tax planning strategies can also be found which benefit from allocation by RGI rather than by sales. Consider an example where a manufacturing business creates goods at a cost of 100 in country A, and sells these goods to consumers, also in country A, for 150. The tax rate in country A is 30%. Assuming routine profit to be a 10% return on costs, routine and residual profit in country A are 10 and 40 respectively and its total tax liability is 15.

As a second step consider the case where the manufacturing business sells its goods for 149 to an independent distributor in a low tax jurisdiction, L.[69] The distributor then sells the goods to the same consumer in A for 150. Assume that the tax rate in L is zero and that the distributor has no costs there. Whether residual profit is allocated by RGI or sales, this planning strategy would result in a lowering of the manufacturer's tax liability. It now has routine profit of 10 in A taxed at 30% (3) and residual profit of 39 which is untaxed. The distributor has no routine profit in L but has a residual profit of 1 in A taxed at 30% (0.3).

As a final step consider the case where the distributor sells the goods back to the manufacturer for 150, which in turn sells them to the same consumers for 150. In this case allocating residual profit by RGI or by sales does make a difference. If residual profit is allocated by RGI, A's residual profit of 39 is untaxed in L;[70] but if it is allocated by sales it is split roughly equally between L and in A.[71] In this case, therefore, allocating residual profit by RGI rather than by sales produces a better tax outcome for the manufacturer.

Countering tax planning of all types is challenging. But it appears to be more challenging the more real economic activity and cost the taxpayer has to undertake to achieve the desired tax result. And it appears to be less challenging if it involves circular transactions with no real, or very minimal, economic costs, as in the last example described above.

[68] Examples under the existing system include inversions out of the US and moving people functions for profit attribution and transfer pricing purposes.

[69] The difficulties that can arise as a result of the use of third party distributors are discussed further in Section 4.1.2.1.

[70] A's RGI is 39 (149–110) in L and 0 in A (150–150).

[71] A has sales of 149 in H and 150 in A. The proportion of total sales in each country is thus approximately 50%.

3.5.1.2 Allocation of residual profit by costs

Allocating residual profit by either RGI or sales might be felt, however, to allocate too little taxing right to origin countries. If so, one alternative would be to allocate the residual, or a portion of the residual—along the lines of the OECD's transactional profit split—on the basis of the functions and activities taking place in different countries.[72] One somewhat crude way of doing this would be to allocate residual profit (or a portion of the residual profit) instead to where third party costs are incurred (an alternative would be to base the allocation on routine profit). The final panel of Table 6.11 shows the outcome under an allocation based on costs. Clearly this change in allocation factors creates a very significant switch in the allocation of profit away from country C (which has 54.5% of the total RGI and 50% of revenues, but only 11.5% of the costs incurred) to country B (which has only 9.7% of RGI and 10% of sales, but 37.2% of costs) and A (which has 35.8% of RGI and 40% of sales, but 51.3% of costs). As a result, the allocation of residual profit in B rises from 71.8 (by RGI) or 74 (by sales) to 275.1, that in A rises from 264.8 (by RGI) or 296 (by sales) to 379.5, while the allocation of residual profit to C falls from 403.4 (by RGI) or 370 (by sales) to 85.4.

While such an allocation by cost may have some appeal in allocating the tax base on something approaching an origin basis, as discussed in Chapter 4, the more the system is based on where functions and activities take place, the more it would leave the system open to the existing problems of economic inefficiencies and tax competition. This is because the improvement brought by the RPAI on these two fronts, relative to the existing system, stems from the allocation of the residual profit to the market country.

3.5.1.3 Allocation of residual profit by users of digital services

There are of course many other ways in which residual profit could be allocated, including by combining several factors. Building on the notion developed by the UK Treasury, for example, one might consider allocating some part of residual profit to countries where users of services offered by certain highly digitalized businesses are located (HM Treasury, 2018).[73] Within the broad framework of an RPA, this could be justified on the grounds that users, like consumers, are relatively immobile. Note that this is a quite different rationale to that given by the UK Treasury, which justified its proposal on the grounds that users create value. Allocating part of the residual profit in this way would involve a number of conceptual and practical difficulties, not least defining 'users' and 'digital businesses'.

Note that taxing rights can be allocated to countries where users of certain digital services are located under the RPAI, and therefore residual profit is

[72] For the allocation of the residual profit on the basis of a contribution analysis see: OECD (2018d), para. 2.150 *et seq*.; Schön (2010), p. 235 *et seq*.; Couzin (2013), p. 175 *et seq*.

[73] For a critical evaluation of this proposal see Devereux and Vella (2018a).

allocated by RGI (the same would be true of allocation by sales). This could be done by deeming sales of advertising services to take place in the location of users on whose devices the adverts appear, rather than the location of the buyer or seller of the advertising services. Deeming the sales to take place in the location of the users would thus achieve an allocation of taxing rights to countries where users of certain digital services are located in line with the policy preferences of countries such as the UK.[74]

3.5.1.4 Allow countries to negotiate the allocation of the residual profit

It is possible that countries would take different positions on these issues. That is, while they may agree in principle to the RPA approach, they might differ in where they would prefer residual profit to be taxed. Countries could conceivably test their 'market power' in this regard. If and to the extent that the profit represents location-specific rents or quasi-rents, the origin country may be able to keep a corresponding share of the tax base. If and to the extent that the profit is generated by mobile factors, the origin country will probably lose parts of the tax base due to tax competition.

This could lead to some countries preferring to apportion residual profit by where functions and activities take place, as described above, or by some combination of this location and the market country. Alternatively, countries could perhaps negotiate bilateral arrangements with partner countries, though it is difficult to see how the apportionment could be permitted to vary between taxpayers. If there is no agreement between countries, that raises the prospect of the residual profit potentially being taxed twice, though of course this may also happen if one or more countries introduce the RPA unilaterally or if countries adopt the RPA universally but with different tax bases. This issue is also raised by the proposal put forward by Schreiber and Fell (2017) set out below.

3.5.2 Other RPA proposals

3.5.2.1 Avi-Yonah et al and Luckhaupt et al

As noted above, proposals similar to the RPAI have been made by Avi-Yonah et al (2009) and Luckhaupt et al (2012). They proposed splitting total profit into a routine component and a residual component. However, their proposals differ from the RPAI in a number of ways.

Both proposals move further away from the existing system, in that routine profit would be determined by giving a mark-up for all expenses in a relatively arbitrary way, without comparison to the level of routine profit that might be expected

[74] This is an application of the broader rule that the destination or market jurisdiction for services is the country of the service recipient not the service provider. In this case, magazine advertisements should be sourced to the country of readers and advertisements on digital services should be sourced to the country of users of the service.

Table 6.13 Applying the Avi-Yonah, Clausing, Durst approach to our example

	Affiliate in:			TOTAL
	A	B	C	
Routine profit @ 7.5% of costs	60	43.5	13.5	117
Residual profit using sales apportionment	289.2	72.3	361.5	723
Total profit	349.2	115.8	375	840

for specific activities. Avi-Yonah et al proposed setting the rate of mark-up on expenses to 7.5%; Luckhaupt et al did not specify a particular rate. Clearly there is a trade-off here: a single rate of mark-up applied to all expenses has the merit of simplicity, but the disadvantage is that it is not able to distinguish cases where there might be legitimate differences in the appropriate rate of mark-up.[75] It also gives rise to the double counting issue discussed above.

Moreover, the separate accounting approach used by the RPAI presented here can apply at the product or product line level and can separately identify revenues and costs specifically attributable to those products in specific countries. The same approach is taken in the proposal by Luckhaupt et al. In contrast, the proposal by Avi-Yonah et al simply allocates all residual profit on the basis of sales. They do not trace through the allocable costs for units sold in any particular market. As seen above, this can make an important difference if the ratio of the final selling price to the allocable cost per unit (including the routine profit) is not the same in all countries. The proposal by Luckhaupt et al is closer to the RPAI in that it effectively follows a bottom-up approach to determine RGI in each market jurisdiction, albeit using an arbitrary mark-up to determine routine profit. However, this proposal does not address the issue of how non-allocable costs should be allocated between more than one destination country to determine residual profit.

Simply to illustrate its mechanics, we apply the approach proposed by Avi-Yonah et al to our example in Table 6.13. The first line identifies routine profit in each location, using a 7.5% mark-up on all expenses incurred in that jurisdiction, including on intermediate goods. In total, routine profit is 117, 7.5% of total costs of 1,560. That leaves a residual profit of 723 to be apportioned by sales (on a top-down approach).

[75] The rate of mark-up would in effect be a policy parameter; for example, it could in principle be set higher in low income countries, to expand their tax base. However, that would raise the question of whether other countries would accept transfer prices based on a rate that was deliberately set higher than comparables. A higher rate of mark-up could also act as a disincentive to locate functions and activities in those countries.

3.5.2.2 Formulary apportionment

Formulary apportionment systems have been discussed in Chapter 4. A standard form of formulary apportionment which has been employed by most US states in the past[76] and which is also championed by the European Commission[77] would allocate profit to jurisdictions based on the location of three factors: labour, capital, and sales.

In recent years, more and more US states have moved towards a one-factor system which uses only the point-of-sale as the decisive factor for the application of the sharing mechanism.[78] A main reason for doing so was to avoid the disincentives for locating assets and payroll in a state, inherent in the use of those two factors in the apportionment formula. This system has also been discussed for the international arena.[79] Taking a closer look, this model—sales-based formulary apportionment—bears some relationship to the RPAI but there are fundamental differences.

First, and most fundamentally, traditional formulary apportionment allocates *all* of the unitary profit of a multinational group by means of weighting factors; RPA schemes, on the other hand, allocate only residual profit in this way, with routine profit allocated to the jurisdiction in which functions and activities take place. Under sales-based formulary apportionment a multinational's total profit is allocated by sales; there is no allocation of routine profit to countries where functions and activities take place. This means that formulary apportionment is undeniably a simpler approach, which should reduce compliance and administrative costs. But it also risks what some might see as a disproportionate allocation of revenue away from jurisdictions in which activities take place.

Second, as discussed above, allocation by RGI rather than sales takes into account the cost of goods sold in the market country; so the RGI approach apportions a smaller share of total profit to market affiliates with a relatively high cost of goods sold.

Third, conventional formulary apportionment allocates the overall profit of the whole business. The RPAI on the other hand, as we have noted, could be applied on a profit or product line basis, providing a finer application of the underlying logic and limiting risk of distortions to the choice of product lines within the multinational. Of course, a pure formulary apportionment approach could also be undertaken on this basis.

Fourth, formulary apportionment does not permit the bottom-up approach described above that aligns RPAI closely with familiar transfer pricing ideas.

[76] See Hellerstein (2013).
[77] Article 28 of the Draft CCCTB Directive.
[78] See Mazerov (2001).
[79] For an analysis of different proposals see Morse (2010); Roin (2008).

Table 6.14 Formulary apportionment based on sales

	Affiliate in:			TOTAL
	A	B	C	
Total profit allocated by sales	336	84	420	840

Table 6.14 illustrates how a pure formulary apportionment system using only the location of sales would apply in our base case example.[80] The total global profit of 840 would be calculated and simply allocated to each affiliate and country according to where sales are made.

Note that in our example, residual profit is much larger than routine profit. And since the RPAI approach allocates residual profit to market countries, the difference between this and pure formulary apportionment based on sales is relatively small. Nevertheless, as would be expected, country B fares relatively badly under the sales-based formula apportionment approach since it is primarily the country where manufacturing takes place, rather than where sales are made.[81]

3.5.2.3 Minimum tax in destination country

There are also some similarities between the RPAI and a recent proposal of Schreiber and Fell (2017).[82]

All of the aforementioned proposals—those in the RPA family of proposals as well as fully-fledged formulary apportionment—divide the total profit of an international business among the involved jurisdictions in an exclusive manner. That is, no element of a multinational's profit should arise in more than one jurisdiction, as long as the jurisdictions coordinate to agree the same approach. The Schreiber and Fell proposal instead allocates the overall profit associated with the relevant transactions of a multinational to both the origin and market countries. Specifically, it has three elements. First, all jurisdictions would levy an origin-type tax by application of conventional transfer pricing methods.[83]

[80] Under the RPAI, the allocation of total profit is amongst origin and destination countries, like the traditional three-factor formula. However, the allocation under the RPAI is based on a very different calculation; there is no particular reason to expect the RPAI to generate an outcome similar to the three-factor formulary apportionment method.

[81] Aggregating through the economy, the difference in outcomes from basing the allocation on origin and destination depends primarily on the balance of trade.

[82] See also Fell (2017) and Schreiber (2018).

[83] While the mechanism for calculating origin country tax under Schreiber-Fell remains somewhat unclear, it appears to rely on traditional transfer pricing methods, looking to assets and functions, whereas under RPA source country tax is specifically related to routine returns on purchase from third parties.

Second, each market country would tax a certain share of the overall profit of the multinational (calculated either on a transactional basis following product lines as proposed here or calculated on the basis of a group-wide profit split).[84] Third, the market country would give a tax credit for the conventional origin taxes paid elsewhere.[85]

This arrangement effectively makes the tax in the market country a minimum tax. In a simple two country example, if the tax in the country of production is lower, the total tax liability is equal to that in the market country; where tax in the country of production is higher, there is an excess credit and no tax is paid in the market country. In this way, the scheme reduces or eliminates any gain to the multinational from shifting profit from the origin country to low tax jurisdictions. As a result, it mitigates what under an RPA might be an incentive to set low tax rates of routine profit to attract activities. At the same time, however, it creates an incentive for origin countries to set tax rates sufficiently high to soak up any potential liability in the market country.

A key difference between this proposal and the RPA family of proposals is the incentive of market countries to introduce such a scheme. Under RPA proposals, market countries would be guaranteed revenue conditional on the existence of residual profit. But under the Schreiber Fell scheme, they would in effect raise revenue only to the extent that origin countries were unable (or chose not) to prevent profit shifting. It is not clear why a market country would be prepared to provide a minimum tax back-up for an origin country, except under a degree of international coordination.[86]

3.5.2.4 OECD Secretariat's proposed 'Unified Approach' of October 2019

Chapter 3 has already briefly described what is, at the time of writing, ongoing work in the OECD for a form of RPA.

The basic approach proposed under Pillar I—the 'Unified Approach'—is to identify the residual profit of a multinational business using its worldwide consolidated financial accounts. It would apply a fixed percentage mark-up to determine its routine profit, and any additional profit above this would be considered to be the residual profit. The OECD proposes to allocate part of that residual profit to countries in which the multinational business has sales to independent parties—the allocation would be based on the value of sales in each country. But note that this may be a relatively small part of the measured residual profit. Unlike the RPAI, it is not intended to allocate all residual profit to market countries. The OECD's rationale appears to be that the market country is, in a sense,

[84] The two different approaches are laid out by Schreiber (2018), p. 265 *et seq*.

[85] Specifically, they propose that a credit is given for a share of conventional taxes, calculated as the worldwide tax liability multiplied again by the share of sales in the market country.

[86] This is acknowledged in Schreiber (2018), p. 268 *et seq*.

deemed to be an origin country—even if the business has no physical presence there, it may have intangible assets associated with marketing and sales which could be deemed to be located in the market country. But those intangible assets are not deemed to be important enough to allocate the entire residual profit to the market country.

This allocation of part of the residual profit would be in addition to the normal operation of the existing system. That raises the question of how the proposal would avoid double taxation. It must be the case that part of the measured residual income allocated to market countries would be deducted from taxable profit in other countries. Currently, the proposal is unclear on exactly how that would be achieved.

4. Evaluating the RPAI

We now turn to an evaluation of the RPAI. We do so under two settings. In the first setting, which we discuss in more detail, we consider the case in which the RPAI is adopted universally, though with countries retaining the right to set different tax rates. In the second setting we consider the case in which the RPAI is adopted unilaterally by one country, or a subset of countries. The latter is important for identifying whether individual countries would find it in their own interest to adopt the RPAI or whether it requires significant agreement between countries; whether they would want to maintain it if other countries were using it; and whether it would be subject to tax competition.

We evaluate the RPAI against the five criteria set out in Chapter 2: economic efficiency, robustness to avoidance, ease of administration, fairness, and incentive compatibility.

Throughout this analysis, it should be noted, we assume that tax revenue remains with the country in which liability arises. It would be possible, for example, to identify the tax liabilities exactly as is done above, but for the market country to share the resulting revenue with the countries in which functions and other activities were undertaken. The effects of the tax on business—for example, on the location of its real activity and tax planning—should not be affected by any such re-allocation of revenue between countries. It might be argued, for example, that under the RPAI the allocation of taxing rights between the market countries and origin countries was too much in favour of the market countries, and was therefore contrary to the interests of origin countries. If this view were taken, then it would be possible to re-allocate tax revenues to counteract this effect. Such revenue-sharing arrangement could then in principle ease adoption of the tax. But, in practice, cross-border revenue sharing seems unlikely, and so we consider the RPAI in the absence of any such re-allocation.

4.1 Universal adoption

4.1.1 Economic efficiency

4.1.1.1 The tax base

As described above, the RPAI is a tax on business profit as defined under most existing corporate tax bases. It is not intended to radically reform the tax base—for example, constraining it to fall purely on economic rent, as under the destination-based cash flow tax (DBCFT) discussed in the next chapter. Instead it taxes the return to equity investment, whilst giving relief for the cost of external debt finance. This choice of tax base is designed to keep it as close as possible to the existing systems. But it is not a fundamental feature. The key features of the RPAI concern the international allocation of profit among countries. It would be perfectly possible to use other tax bases—including one based on economic rent, or using a different treatment of interest[87]—whilst applying the same principles for the allocation of taxing rights across countries. That leaves open the extent to which the tax base would need to be harmonized across countries which implemented a common RPAI system. We discuss that issue in Section 5.3.

By design, then, the RPAI fails to remove two forms of inefficiency that have been described in Chapters 2 and 3.

First, because the return to equity investment is taxed, then there would be a distortion to decisions as to the level of investment. That is—for a given required post-tax rate of return on an investment—the tax would tend to raise the required pre-tax rate of return. Investment projects which would have met the required threshold rate of return in the absence of tax may not meet that threshold in the presence of tax. Note that as long as the combination of both elements of the tax—on routine and on residual profit—uses a conventional tax base, then together they typically (though not necessarily) have the effect of raising the required return on investment and hence creating a disincentive to investment. The total effect of the tax must therefore take both into consideration.

Second, because the cost of external debt finance—interest payments to third parties—remains deductible, the tax creates an incentive to use debt finance rather than equity finance. This is, of course, common under existing tax systems, and has been the subject of much academic investigation, and different proposals have been made to remove the incentive.[88] We should here distinguish the general bias in the tax system in favour of debt finance, and the use of debt to shift profit

[87] For example, the RPAI could in principle have cash flow as a base, as in the DBCFT proposal in Chapter 7, or an allowance for corporate equity (ACE), as is now part of the European Commission's CCCTB proposal. Combining an ACE with interest deductibility in effect gives relief for the cost of finance and means that the tax base is effectively only economic rent. Alternatively, it could also limit interest deductibility. These options have been set out in Chapter 2. Here we focus on the international aspect of the RPAI.

[88] See the discussion in Chapter 2.

to lower tax jurisdictions. Restricting relief to the cost of borrowing only from independent parties—and not for within-company debt—is intended to address the profit shifting issue but leaves open the general bias in favour of debt.

However, the RPAI deliberately mirrors as closely as possible existing tax systems. Not surprisingly, then, some of the distortions that are observed under existing systems would be maintained under the RPAI. It would be perfectly possible to modify the tax base of the RPAI to avoid these distortions.

4.1.1.2 Location decisions

The impact of taxation on the location of economic activity has been the subject of considerable research, which tends to show that the existing regime has a very significant impact on location decisions.[89] This is a clear inefficiency, which has the effect of raising overall social costs, as businesses choose locations for tax reasons rather than for commercial reasons. One aim of the RPAI is to limit the impact of taxation on the location choices of multinational businesses.

In making a decision as to where to locate various functions—for example, production, R&D, administration, financial, marketing—the most relevant part of the RPAI system is the tax on routine profit. Such location choices would not generally be affected by the tax on the residual profit, since that arises in the market country. The tax advantages of moving functions and activities are therefore broadly limited to the taxation of routine profit. As a result, the incentive structure for locating real activities in tax-favoured jurisdictions will be changed, because only the routine profit on those activities will be subject to tax in those jurisdictions. In most circumstances there are significant costs to moving functions and activities to tax-favoured jurisdictions and to maintaining them there as well. Those costs might be justified where substantial residual profit follows to that jurisdiction. But the comparison of costs and benefits is very different when only routine profit follows.

A simple example can illustrate this point. For service activities, a routine profit will often be in the range of 5% to 10% of revenues, implying an operating margin on costs from 6% to 12%.[90] Moving activities with 100 of costs to a tax-favoured jurisdiction to obtain a low tax rate on 12 of income is only attractive if the move does not materially increase the relevant cost base. Suppose a business was considering moving activities with costs of 100 from a country with a high tax rate of 35% to a country with a low tax rate of 12.5%. The tax saving on income of 12 would be 2.7 (i.e. 22.5% of 12). It follows that a 3% increase in costs because of the move would wipe out the tax savings.

It should be acknowledged that identifying a routine profit is not an exact science; so that there may be opportunities for the taxpayer to exaggerate the routine

[89] Again, see the discussion in Chapters 2 and 3.

[90] 100 of costs marked up by 12%, for example, is equivalent to revenues of 112 less costs of 100 yielding an operating margin of 12 or close to 10% of revenues.

return if the relevant tax rate in the country of the routine profit is lower than that in the market country. Nevertheless, the additional incentives to shift activity to a particular location are not likely to be affected greatly by such manipulation. Suppose, in the example above, the routine profit was mistakenly identified at 15 instead of 12: this would raise the tax gain only to a little under 3.4. Again, a 3% rise in costs would almost wipe out the tax gain.

As far as R&D activities are concerned, the RPAI follows a straightforward approach: the entities performing R&D will be assigned a routine profit along the lines of what an outside contractor would earn. Any additional profit derived from the exploitation of the IP right will be taxed in the destination countries. There would be no tax benefit in shifting IP rights to low tax countries as these countries will not have taxing rights any more (unless they can show that functions and activities performed on their territory deserve a routine profit or that the final product is sold there).

Of course, many current regimes have special treatment for R&D activity, including the combination of patent box regimes and the modified nexus approach introduced by BEPS and described in Chapter 3. These can give a sizeable incentive to locate R&D in a country with a special regime. It seems reasonable to argue that such regimes should lie outside the RPAI system. That is, any explicit benefit provided by a government for R&D (or any other activity that the government wishes to support) should be independent of the working of the RPAI, and hence have no impact on the tax revenues collected by other countries. The key to achieving this is for transfer prices and values to be independent of such an explicit benefit; ultimately the benefit would then not affect the determination of residual profit (or routine profit) in other jurisdictions. Of course, a lower tax rate on some forms of income, as is typically found in a patent box regime, would also have no direct impact on the liabilities in other countries. The same should apply to other provisions such as an R&D tax credit. An implication of this is that governments may continue to seek to compete with each other over tax provisions that are not fixed as part of the RPAI.

4.1.1.3 Intermediate businesses

One other location decision may be affected by the RPAI—the location of a business buying intermediate goods.[91] A central motivation for considering taxing profit in the market country is that individual consumers are relatively immobile; they are unlikely to move their location to save tax on the profit of the business supplying them with a good or service. But this does not necessarily apply in all cases to businesses.

[91] See Andrus and Oosterhuis (2017), p. 99.

Suppose an independent business—company X—buys raw materials, capital goods, and other intermediate goods, and also services from a range of other profitable businesses. These purchases can range from oil and commodities to machines, knowhow and IP, and legal services. The businesses selling to company X will have at least part of their residual profit in the country in which X makes the purchase. In extreme cases, if X purchases the entire output of some business, then that business will have all of its residual profit in that jurisdiction. In all of these cases, the aggregate tax bill of the selling businesses would be lower under the RPAI if X is located in a low tax jurisdiction. Note that X would also receive a routine profit on its activities in the low tax jurisdiction. If X merely purchases intermediate goods in the low tax jurisdiction, which it then transfers to affiliates in other locations, it will only receive a (limited) routine profit on its centralized purchasing activities.

To the extent that the tax levied on the profit of the businesses selling to X is passed on to X through a higher price, then X may benefit from lower input prices if it locates in a low tax jurisdiction.[92] This may result in an economic inefficiency due to a distortion to the location of X; if X would have lower costs elsewhere but its location decision is affected by this factor, then there would be an economic inefficiency. Of course, it is hard to measure the scale of this inefficiency. It does not arise under existing treatment, at least at an international level, since taxes on profit are not generally levied in the market country. There is no empirical evidence on the issue of which we are aware. It is likely that the impact will depend on the nature of competition in the industries the output of which X purchases, and the extent to which the selling businesses adjust their sales prices between countries depending on the tax rate on residual profit.[93]

Note also that this issue does not arise under the DBCFT, as explained in Chapter 7. Briefly this is because of the border adjustment in the DBCFT; imports are taxed in any country—interposing an intermediate country does not therefore affect the tax on imports in the final country in which a sale is made.

4.1.2 Robustness to avoidance

4.1.2.1 Avoidance opportunities addressed by RPAI

When adopted in all countries, the RPAI addresses three important channels used by multinationals to shift profit to low tax jurisdictions: lending from a low tax

[92] Note that the tax could affect the price, even if the tax base of residual profit is equal to economic rent, because X can choose the location of purchase in order to affect the seller's tax liability.

[93] Mention should be made of the purchase of capital goods that are used in cross-border transportation, principally ships and airplanes. The taxation of the income from these goods is problematic today because much of the income is attributable to services performed outside the boundaries of any particular country and the owner of the goods is often resident in a tax-favoured jurisdiction. These problems would remain in identifying the location of routine and any residual profit.

country to a high tax country, locating intangible assets that earn a royalty or licence payment in a low tax jurisdiction, and manipulating transfer prices. Let us examine each of these in turn.

Debt shifting First, the RPAI would not give relief for the cost of interest payments on within-company debt. So a multinational that lends from an affiliate in a low tax jurisdiction to an affiliate (or parent) in a high tax country would simply not receive relief in the high tax country. Further, under the existing system, business is much more likely to borrow from third parties in high tax countries, since that raises the value of tax relief. Under the RPAI, however, third party interest costs would be allocated—as discussed in Section 3.4.2—throughout the business, on the basis of income or assets. Shifting, say, income to a high tax country would then increase the value of the interest deduction; but it is also likely that it would increase the overall tax liability. The capacity to use debt finance to shift profit between jurisdictions would therefore be largely eliminated.

Locating IP in low tax countries Second, under the RPAI it would no longer be the case that a large element of profit could be deemed to be a return to intangible assets held in a low tax jurisdiction. Countries in which R&D is undertaken would earn a routine rate of return on their activities. They would not share in any residual profit earned by the multinational; that would be allocated to the market countries. Within-company royalty payments from an affiliate using the IP to an affiliate that undertook the R&D would not affect the tax revenue in either jurisdiction, being ignored for tax purposes.

Transfer pricing Third, the key element of the existing transfer pricing regime that would be incorporated into the RPAI would be the identification of routine profit. It is the value of routine profit that determines the tax base in the country where functions and activities take place, and the deemed transfer price to other affiliates in the group.[94] There is therefore no need to try to identify a comparable price for a purchase from an affiliate where that price is intended to reflect both routine and residual profit. Under the bottom-up procedure described above, the transfer price would instead be based on the costs incurred undertaking the activity plus the routine profit associated with that activity. It is not based on the price charged to a third party. In this respect, the RPAI diverges from the pure arm's length principle. But it is this divergence that means that

[94] In the case of remote sales by a business to a purchaser in another country the routine profit is similarly used to calculate the business's residual profit in the market country—see Section 3.3.1.

the RPAI is much less susceptible to profit shifting through the manipulation of transfer prices.

4.1.2.2 Remaining or new avoidance opportunities under the RPAI

In sum, the RPAI would create significant advantages over the current system in terms of its robustness to avoidance. Many of the issues addressed in the OECD/G20 BEPS project would no longer be relevant. However, no tax system is perfectly robust to avoidance. We now turn to some areas where problems may remain or would be introduced.

Third party distributors One important issue for the RPAI is the determination of the location of the sales to a third party customer. That is the location of the 'market' for determining where the residual profit would be taxed. Suppose now that a business, B, aimed to sell to customers resident in country H, a high tax country. Instead of selling directly to customers in H, the business might instead sell to an independent third party distributor, D, located in a low tax jurisdiction L. The distributor, D, would in turn sell the product on to the final customers in H. In doing so, D would face the high tax rate of H on its residual profit. But under this arrangement, D is likely to earn only a routine profit, and is therefore unlikely to pay very much tax in H, if any. By contrast, the original business, B, may be highly profitable, but would be able to locate its residual profit in L, the low tax jurisdiction.

This is essentially the same as the inefficiency problem just noted above, in that businesses may choose to locate their purchases in low tax countries if that would reduce the price that they have to pay to suppliers. However, here we may imagine that (at least in respect of goods, among neighbouring countries) the costs of the distributor do not vary between locations, so that there is no economic inefficiency. There remains though the problem of avoidance: if the ultimate customers were resident in L, then the arrangement with the independent distributor would not be necessary. This issue is also related to the more general difference in the treatment of supply chains that are all part of a single multinational compared to those that are not. If D and B were part of the same group, then the residual profit would still be liable to tax in H. It is only because they are not part of the same group that the avoidance opportunity arises.

The most obvious solution for this appears to be for the 'market' country of residence of the ultimate consumers, H, to look through the independent distributor, D, to tax a share of the profit of the original producing business, B. This would involve a significant additional extension to the taxing rights of the market country. The market country would be taxing the original producing business, B, without it having a physical presence or even direct sales in that country. A question arises as to whether there would be a genuine link between country H and B in this case,

as required by customary international law for the exercise of a taxing right. But the exercise of this right would also not be straightforward in practice. To induce B to declare and pay tax on the residual profit, the tax authority in H could perhaps charge a withholding tax on sales made by D, which would be creditable against any tax collected on the residual profit of B. D may then be expected to pass the withholding tax on to B by offering a lower price for the goods. B may then have an incentive instead to declare its residual profit in H.[95]

Even if this was successful in practice, however, there remains an issue of identifying any contribution made by the distributor D. For example, D may change the nature of the good in some way—anything from changing the packaging, to adding a brand name, to more important modifications. Then the value of these changes would need to be addressed. But the RPAI approach would give a way of identifying the value attributable to D. That is, the aim of the look-through approach would be to treat D and B as if they were part of the same multinational group. In that case, D would be taxed on its routine profit in the low tax jurisdiction, L. Any residual profit arising from the activities of D and B together would be liable to tax in H. How much of the residual profit is attributed to each would depend on the original price paid by D to B. There would remain an issue of defining the circumstances in which two businesses were to be deemed as being in the same group. But such an approach might address the most egregious cases of this type of avoidance.[96]

Product versus product line composition Another area in which businesses may be able to make choices that affect their tax liabilities under the RPAI is in the aggregating or disaggregating of products and product lines. Whether to determine routine and residual profit separately for each product or together for multiple products—perhaps all of a multinational's products—could materially alter the amount of tax allocable to any particular country. Giving taxpayers discretion over such grouping could therefore be problematic.

For example, suppose that one product is highly profitable and is sold in a high tax country. Another product is less profitable and is sold in a low tax country. Then combining these two products into one product line for tax purposes may affect the allocation of residual profit in the two countries, depending on how non-allocable costs are split between the two products if they are kept separate for tax purposes.[97] There is a trade-off here. If these two products are quite different from each other, then it could be argued that the tax bases in each of the countries ought to be kept separate from each other. On the other hand, if both products are sold by

[95] This may also put H in conflict with L.

[96] Note that this problem may also arise in the context of the OECD Pillar I proposals.

[97] As discussed in Section 3.5.1.1, this is a more serious issue when sales are used to apportion residual profit.

the same multinational, then there could be some benefit in reducing complexity and tax planning opportunities by combining the product lines.

While some tax planning is probably inevitable, the scope for such tax planning may be relatively limited in practice. The base for determining routine and residual profit should be the underlying management financial statements that a multinational uses for non-tax purposes and which have been audited by independent external experts. The design and maintenance of these accounting systems involve business judgements by multinationals as to the level of detail that is relevant for non-tax purposes. Of course, one would expect tax considerations to have some impact on these management systems under an RPAI. Tax authorities can garner some protection by holding taxpayers to a requirement of consistency over time in the level of aggregation or disaggregation of products, as well as the basic requirement that expenses can only be set against sales in which there is some connection, although that may depend on the capacity of the tax authority.

4.1.2.3 Conclusions

Relative to the current system, several aspects of the RPAI should significantly reduce the number and magnitude of controversies over transfer pricing or income allocation issues. No doubt many issues will remain: disputes over how to measure the appropriate routine returns will continue as they do today; new disputes will arise over what transactions are treated as local sale transactions; disputes will also arise over whether a particular product is a component or intermediate product versus a final product, or whether two products should be regarded as in the same product line.

The RPAI would also introduce new scope for disputes in the case of remote selling, where taxing rights would be allocated to the market country in a way that is not done at present. It would also be likely to introduce greater multilateral disputes since the routine profit in one country could affect RGI, and hence the allocation of non-allocable costs, in a number of other countries.

But overall it is difficult to see that the number and magnitude of these disputes will come close to the levels under the existing system—in the case of transfer pricing particularly after the emphasis in the new OECD guidelines on allocating income to the jurisdiction where the management of risk occurs.

Moreover, once adopted, if disputes were problematic, there would be the option of making the RPAI system more mechanical. For example, it would be possible to move further towards the route taken in the proposal by Avi-Yonah et al (2009), by specifying routine returns on the basis of fixed mark-up on costs and/or return on assets employed rather than having those returns be based on third party comparables. But as noted above, the aim here is to examine how a system can be designed that is as close as possible to the existing transfer pricing system, yet avoid

its most significant problems. Any further refinements that are necessary to reduce the level of disputes could be introduced after its implementation.

4.1.3 Ease of administration

We examine detailed issues of implementation in Section 5. Here we simply outline the main features that differentiate the RPAI.

The RPAI should reduce the administrative burden associated with applying and keeping under constant review certain anti-avoidance rules. In particular, the RPAI should eliminate the most difficult transfer pricing issues, including those relating to the pricing of intangibles.

It is the case that the RPAI involves allocating profit between jurisdictions for remote sales when this is not currently required. This will certainly add to the administrative burden relative to the existing regime. However, the burden of collecting tax on routine profit does not appear to be particularly high. As noted above, transfer pricing disputes may arise when setting routine returns; however, these ought to be relatively manageable. Furthermore, if this exercise becomes too burdensome, one could move to more mechanical pricing systems, as noted above. This might be a particularly attractive option for low income countries or countries with limited resources and/or expertise.

Taxing residual profit presents tougher administrative challenges. Recall that for a country to measure residual profit under the bottom-up approach it must obtain information:

(i) to review transfer prices on purchases by local sales affiliates (or, in cases where the multinational operates in a market country through a PE or if it sells remotely into a market country, information to construct deemed transfer prices) including the allocable costs incurred in other jurisdictions and, where relevant, the routine profit associated with those costs; this enables it to identify the RGI of the local sales affiliate;
(ii) on the worldwide RGI of the multinational, for the apportionment of non-allocable costs; and
(iii) on total non-allocable costs, and the associated routine profit, of the multinational.[98]

Obtaining such information in a timely manner, reviewing, and possibly challenging it may involve considerable administrative effort. However, there have already been significant moves in this direction with the introduction of country-by-country reporting, as set out in the OECD/G20 BEPS Action 13 report.[99]

[98] Less information is required under a top-down approach: worldwide residual profit, worldwide RGI, and domestic RGI.

[99] See Schreiber (2018), p. 268 *et seq*.

4.1.4 Fairness

In Chapter 2 we noted the problems which arise when seeking to evaluate taxes on international business profit through the lens of fairness. And in Chapter 4 we discussed the grounds for taxing residual profit in the market country. Without repeating that discussion in detail, it is worth distinguishing fairness between individuals, and fairness between countries.

Let us start with individuals. With a conventional tax base, such as that used for the RPAI, the incidence of the tax may fall on a number of groups of individuals: shareholders, customers, employees, and suppliers. In principle, which of these groups is worse off because of the tax—and the extent to which they are worse off—depends on the market conditions in which the business operates—for example, the product market and the labour market. As these vary according to circumstances, it is likely that the incidence of the tax on business profit also varies. There have been many attempts to estimate the extent to which the tax is passed on to employees, but despite efforts over the last half century, there is still no definitive answer to this question—at least partly because it is likely to differ between businesses.[100] It is therefore extremely difficult to say whether a tax on business profit is likely to be progressive.

In evaluating a switch from a conventional tax to the RPAI, the key characteristic is that there is a change in where the tax is levied, even if there is no change in the aggregate tax base—for example, wages would be still deductible, capital expenditure still subject to depreciation provisions, and interest also still deductible. However, changing—in part—the location of the tax is likely to affect its incidence. Taxing on an origin basis tends to drive mobile capital away from high tax countries, leaving immobile factors in those countries to bear much of the incidence of the tax. Partially replacing a tax on an origin basis with a tax on a destination basis (through residual profit) will diminish these effects. However, it is more likely to lead to part of the incidence being borne by consumers in the market country. The RPAI is therefore likely to have a different incidence than a conventional origin-based tax; but this reflects changes in the incidence between individuals located in different countries. It is difficult to say whether these effects are more or less fair compared to the existing system.

In comparing the position of countries, the RPAI allocates taxing rights over residual profit to market countries, which—in the absence of 'presence' that meets current PE criteria—have no taxing rights at present. By contrast, existing systems allocate taxing rights to countries where production and development activities take place, where the RPAI would tax only routine profit realized, but not—except to the extent that final sales also occur there—the residual profit. It is not clear how one answers the question whether this makes the RPAI more

[100] For recent studies see Suárez Serrato and Zidar (2016); Fuest et al (2018).

or less fair than the existing system. That said, to the extent that multinationals are currently able to follow the 'entrepreneurial model', by declaring a routine profit in places where they have real economic activities and costs, and a residual profit in tax-favoured jurisdictions, then the revenue loss to non-market countries would be less pronounced.

Further, compared to pure destination-based options—such as a formulary apportionment system based on the destination of sales, or the DBCFT described in the next chapter—the RPAI does offer some compensation in the form of taxing rights for routine profit related to product development activities and other activities. This may arguably make the RPAI more clearly aligned than pure destination systems with a more traditional view of fairness in the international allocation of taxing rights.[101]

Also, compared to these other options, the more traditional approach of the RPAI alleviates concerns about reallocating profit from established jurisdictions to new market jurisdictions. Under sales-based formulary apportionment, for example, the development costs of products aimed at new markets would effectively be offset against revenues from existing products in existing markets. Under the RPAI the higher costs and potentially lower unit revenues incurred in a new market country would be borne by that country rather than spread to all markets. The impact of new markets is discussed further in Section 5.5.

Beer et al (2020) present empirical evidence of the magnitude of residual profit and the distribution of tax revenues among countries if such profit was taxed on a destination basis. They find that around 70% of the profit of the largest multinationals are residual, which implies that the tax treatment of residual profit is important. They also find that these profits are highly concentrated in multinationals that are headquartered in a small number of countries.[102] Moving to a general destination-based RPA would increase global corporation tax revenue by around 8%, since residual profit would then tend to be taxed at higher rates. Low income countries would gain revenue; not necessarily because they have trade deficits, but because they lose a greater share of their potential revenues under the existing regime. In fact, for many countries, even routine profits exceed their existing tax base, which suggests there are potentially significant gains also from a better treatment of routine profit.

4.1.5 Incentive compatibility

We now consider the incentive compatibility of the RPAI in the context of its being universally adopted. Specifically, we address the question of whether, if all countries maintained the RPAI, there would be an incentive for countries to reduce

[101] See Schreiber (2018), p. 259 *et seq*.

[102] They also find that many multinationals have negative residual profit, which raises the issue for the RPAI of the tax treatment in these cases, which we address in Section 3.4.3.

their tax rates, or to engage in other forms of tax competition that would undermine the tax base.

These questions are difficult to answer since governments typically must consider two factors that point in opposite directions. Typically, they would like to raise more revenue from business taxation, or at least not to raise less revenue. That involves keeping tax rates relatively high and attempting to combat tax planning that shifts profit elsewhere to tax-favoured jurisdictions. Yet they would also like to make their jurisdictions more attractive to multinationals that may locate their real activities, and possibly also their profit, there. Under the existing system, countries have followed both strategies—closing loopholes to make profit shifting more difficult, but also reducing tax rates and relaxing the definition of taxable profit to make their countries more attractive to inward investment. The RPAI adds more complexity to these questions since there are two levels of taxation, with countries potentially choosing to tax routine and residual profit at distinct rates.

To begin with, the base for the taxation of residual profit under the RPAI is designed to be relatively immobile, by allocating it to the market country. It is reasonable to suppose that individual consumers are relatively immobile—businesses cannot generally choose to 'move' them to low tax countries. This suggests that countries can set their tax rates on residual profit without concerning themselves too much with the rates set by other countries. However, some caveats are in order. As noted above, where the customer is a business, it may be more mobile. That may be the case for a bona fide business that seeks to reduce its cost by locating in a low tax country, and thereby reducing the taxes on residual profit of its suppliers. It may also be the case that businesses attempt to use tax planning strategies such as sales through unrelated distributors which, unless countered successfully, would mean that they could benefit by making use of low tax jurisdictions. This suggests that the location of real economic activity, as well as profit, could still depend on the taxation of the residual profit in the market country. In turn and as a result, there would be some downward pressure on rates applied to residual profit. However, it seems likely that such downward pressure would be much weaker compared to the existing system.

The other element of the RPAI is the taxation of routine profit where functions and activities take place. As noted above, the benefits to multinationals of moving activities to countries with a low tax rate on routine profit are limited, because the relevant tax is based only on the routine profit. This could suggest that the incentives for countries to compete for these activities would be weaker than under the existing system (although that depends on the extent to which businesses already shift residual profit to tax-favoured jurisdictions). On the other hand, countries which are interested in attracting economic activity would have to compete even more aggressively through their tax rate to make it economically attractive for businesses to move such activities.

While neither tax rate, on residual or routine profit, is likely to be as important to location decisions—of real economic activity and of profit—as under existing tax systems, it seems likely that the tax rate on residual profit would matter less than the tax rate on routine profit. This would suggest that countries may choose a higher rate for residual profit than routine profit. In the extreme, if competition drove down tax rates on routine profit to zero, then the resulting tax system would purely be a tax on residual profit on a destination basis.

Another element of the tax system which may be at least partially controlled by the tax authorities or legislators is the determination of routine profit on a multinational's functions and activities. If this is set as envisaged, by reference to comparables, then tax authorities may have little impact on the routine profit. However, there are incentives for governments, depending on the relative tax rates in countries of routine profit and residual profit, to manipulate this routine profit. On the one hand, they would like to recognize a high routine profit for activities taking place within their jurisdiction. That is likely to raise overall tax revenue—at the expense of a lower residual profit being recognized in the market jurisdiction. This is likely to be particularly attractive for low income countries with limited tax capacity. Such countries are more likely to prefer to specify a fixed mark-up, and a relatively high mark-up,[103] to ensure a reasonable collection of tax on routine profit.[104] Further, if the tax rate on the routine profit is lower than the average rate that a business will face on its residual profit, then tax authorities and the business may have an incentive to collude to raise the routine profit;[105] that would result in higher tax revenue on its functions and activities, but a lower overall tax liability for the business.

Overall, given these conflicting objectives, and the fact that location responses to changes in tax rates are likely to be smaller, it seems likely that there would be less downward pressure on tax rates and tax bases under the RPAI than under the existing system—especially in relation to the taxation of residual profit.

4.2 Unilateral adoption

We now consider the properties of the RPAI if it were introduced in only one country, or a subset of countries. It is important to analyse the properties of the tax in this situation partly because it is perhaps more likely to be introduced in this way, rather than by all countries agreeing to move to it simultaneously. But it is also

[103] They may alternative choose a higher tax rate on routine profit, although this may be more salient to businesses.

[104] This is in line with the increased pressure by developing countries to introduce safe harbours for the taxation of local activities of multinationals discussed in Section 3.2.3.

[105] This depends also on any loss in tax that the country would levy on the residual profit of that business being smaller than the gain from the additional tax on the routine profit.

important to assess the incentives for governments to adopt the RPAI on a unilateral basis, and to either join or leave a group of countries that may already have adopted it. We are therefore interested in the effects both on countries that adopt the RPAI and on those that do not. We do this by evaluating the RPAI in these circumstances against the same five criteria used above: economic efficiency, robustness to avoidance, ease of administration, fairness, and incentive compatibility.

4.2.1 Economic efficiency

For domestic activities within a country that adopts the RPAI, the impact on investment and financial decisions will be broadly the same as if all countries had adopted it. As discussed in the previous section, if the RPAI keeps the same tax base as the existing systems, then there will continue to be a negative impact on the incentive to invest, and a bias towards the use of debt finance. However, the key issue to address here is the impact of the RPAI on the location of real economic activity.

To think through the implications of only one (or a group) of countries implementing the RPAI, consider three countries. Suppose that A introduces the RPAI, while B and C maintain their existing conventional systems. Suppose that the tax rates in the three countries are the same, and also the same in each country for both routine and residual profit; this allows us to focus on the differences in the tax base between the countries.

Suppose first that a business wants to produce and sell goods to consumers in C. It expects to earn a high rate of profit, over and above a routine return. The consumers are immobile, so that the sales must be made in C. But the business can choose to produce in any country, and (if necessary) export directly to consumers in C. If the business produces in A, then it will face tax on the routine profit earned in A. There would be no further tax in C (assuming that the business does not have a PE in C), since C does not tax on a destination basis. Whether this creates a lower tax liability than if the business produced in B depends on how it would organize its tax affairs if it produced in B.

In the simplest case, the entire return would be taxed in B. If A and B have the same tax rate, the business would therefore face a higher tax liability in B than in A, and so would have a tax incentive to locate in the RPAI country, A. It is possible, though, that by using a variety of tax planning techniques, the business can divert its residual profit from B to country H, a jurisdiction with no tax on business profit. This would be consistent with the 'entrepreneurial model' described in Section 1.2. In this case, the business would face the same tax in A and B—a tax solely on routine profit. This probably represents a lower bound on the tax due in B. If so, and as long as the tax rates in A and B are equal, then the tax liability from producing in A is unlikely to be higher than that arising from production in B. Apart from the extreme case in which the business is able to shift its entire residual profit to a low tax jurisdiction, country A would become a more attractive location for

production by introducing the RPAI. In general, therefore, and subject to differences in tax rates, businesses would have an incentive to move their real functions and activities to countries that unilaterally adopt the RPAI given that they will only be taxed on their routine profit there.

What about other scenarios? If the consumers were in B then the same argument would apply. What if the consumers were in A? In this case, A would levy a tax on residual profit earned on sales in A, as set out above. If A applied the RPAI, then it would define the residual profit as net of the routine profit earned in the country of production. In this case then there could be an element of double taxation.[106] Suppose, for example, that the business produced in B and did not plan its tax affairs to leave its residual profit in H. Then it would face a tax on its entire profit in B, and also potentially face a tax on its residual profit in A since the tax authorities in A and B would not necessarily agree on the appropriate transfer price of within-business sales from B to A. By contrast, if it produced in A, its aggregate tax base would be its total profit. At the extreme, if the business—for tax purposes in B—shifted its residual profit to H, then the double taxation would be avoided.

This then yields the same outcome in terms of incentives as if the consumers were in C; A is generally a more favourable location for production unless the business could shift its entire residual profit from B or C to a tax haven. There is one difference from the previous case though. If production is in A and consumers are in C, then only routine profit is taxed, so the advantage to locating in A is because not all profit is taxed. But if production is in B and consumers are in A, then the advantage to locating in A is that residual profit may be taxed twice if production is in B.

To the extent that not all businesses shift their residual profit to a low tax jurisdiction (not least because of the recent developments in anti-profit shifting measures), then the country introducing the RPAI would become a more attractive location to undertake production. This is clearly because introducing the RPAI would be akin to a move in the tax competition game among countries.[107] The RPAI taxes only routine profit in the country of production, instead of potentially taxing all profit. For a given set of tax rates, that makes the country introducing the RPAI a relatively tax-favoured location for production and other economic activities.

Note that the tax on residual profit in the market country should not affect location choices as long as consumers are immobile. However, businesses that purchase capital goods, intermediate goods, and component products from other businesses may face an incentive to locate outside the RPAI country. That is because businesses selling into the RPAI country would face the tax on their residual profit in that country (in addition to any tax they pay in the non-RPAI country), which may

[106] Under the proposal in Schreiber and Fell (2017), A would give a credit for taxes paid in B. However, this would not generally be true under the RPAI.

[107] For a similar argument see Avi-Yonah et al (2009), p. 519 *et seq*.

be reflected in the price charged to the buyer. If a country unilaterally adopts the RPAI, businesses would therefore have an incentive to purchase such goods in affiliates located in states which did not introduce the RPAI. This would offset the benefits of locating in the RPAI country.

Note that although we have used the example of 'production' in discussing the implications of the RPAI, the discussion applies to all functions and activities, which would be subject to tax under the existing system, including sales and marketing R&D, and G&A.

Broadly, in sum, introducing the RPAI unilaterally would generally make that country more attractive for location decisions. This is essentially because it is effectively a step in the tax competition game, reducing the tax bases in locations where economic activity takes place, and replacing them with a tax base in the destination country. Yet in terms of worldwide economic efficiency, since unilateral adoption would be more likely to affect multinational location decisions, it could result in higher social costs. How far this happens depends on the extent, and speed, to which other countries follow suit; we discuss that further in Section 4.2.5.

4.2.2 Robustness to avoidance

We have already discussed the robustness of the RPAI if all countries adopted it. The difficulties discussed above with respect to third party distributors, and other issues, would continue to be important if a single country adopted it. However, two of the main advantages relative to the existing system would have less force, and indeed may make avoidance a more difficult problem for other countries.

Recall that the RPAI ignores within-company flows of debt. A single country introducing the RPAI would benefit from this advantage. However, other countries might be disadvantaged. Suppose again that country A introduces the RPAI, but that country B does not. Then a multinational may lend from its affiliate in A to its affiliate in B. B may continue to give tax relief for the interest paid to A. But if A did not tax the inflow of interest (because related party debt is ignored for tax purposes under the RPAI), then it would create an incentive to undertake such a loan, to strip profit out of B. This potentially creates a disadvantage for B—and other non-adopters of the RPAI. How serious a problem this is depends on whether multinationals in B can already use these techniques to shift their profit to existing tax havens, and whether B introduces effective limits to interest deductibility on loans between related parties to combat such planning.

The same issue arises for intangible assets. Country A would tax the routine profit associated with the creation in A of an intangible asset. But it would not tax any income flowing into A from other members of a multinational group as a licence or royalty payment for using the intangible asset. If that payment is deductible in the country from which it is made, then again A would, in effect, be operating as a tax haven for the purposes of this type of income. And again, the importance of that depends on the opportunities that multinationals already have

to divert income in this way to tax havens and whether B can introduce effective limits to deductions for such payments.

The adoption of the RPAI by a single country may therefore aggravate the problems of base erosion and profit shifting in countries that did not implement the RPAI. The quantitative impact of additional profit shifting opportunities on other countries is hard to gauge: multinationals already have many opportunities to shift profit to low rate jurisdictions. And the impact will depend on the particular circumstances, being greater, for instance, if the adopter is a large and initially high tax country. Non-adopters might be likely to respond by strengthening anti-avoidance rules, such as thin capitalization rules, or by introducing withholding taxes.

4.2.3 Ease of administration

We discuss implementation issues in more detail below. Here we simply identify issues that arise in the specific case of unilateral adoption.

Introducing the RPAI unilaterally poses no specific problems for the taxation of routine profit. But it may make the calculation of residual profit more difficult. If all countries introduce the RPAI, then the routine profit will be determined by the country in which the economic activity takes place, where functions and activities are located. Although there may be an incentive for the tax authority in this country to collude in inflating the routine profit, the fact that there should be a routine profit agreed, and hence a well-determined (deemed) transfer value of a good or service provided to, or allocated to, the market country, provides a basis for the market country to determine the appropriate deduction in determining the residual profit.

But suppose a business operates in country B, which does not introduce the RPAI. The business has significant costs of all forms in B and produces a good which it sells to another affiliate in the market country A; A does introduce the RPAI. To implement a tax on residual profit, the tax authority in A would need information on the costs incurred in B, as well as the routine profit associated with those costs. This may be more difficult if the tax authority in B does not split profit into its routine and residual components.

In practice, it is possible that A may choose simply to recognize a deduction for the profit declared in B, even if it is not restricted only to routine profit.[108] If this is higher than routine profit this would of course reduce the tax collected in A. But this would also reduce the potential problem of double taxation noted above. As with the case of remote sales, A may also be able to exercise leverage by proposing to levy tax on gross revenues realized there with no allowance for routine profit taxed elsewhere, unless the business produces credible evidence on its costs incurred elsewhere.

[108] Where the tax rates in the two countries are the same, this would be equivalent to the proposal in Schreiber and Fell (2017) which would give a credit for taxes paid in B.

4.2.4 Fairness

Unilateral, as opposed to universal, adoption of the RPAI does not add very significant considerations with respect to fairness. Two that should be addressed are the possibility that worldwide profit may be taxed more or less than once in total, and that a country introducing the RPAI may create a disadvantage to another country. Yet neither of these is necessarily problematic.

As we argued in Chapter 2, the notion of single or double taxation is not very helpful. Double taxation applies in existing systems where businesses must remit tax on their profit and again on sales (through VAT or a sales tax, for example). In popular debate these taxes may be thought to fall on different economic actors (shareholders and customers respectively). However, the reality is more complex, and if it is often very difficult to determine who is actually worse off because of a tax.

In the cases described above, it is possible that one country seeks to tax the whole profit of a multinational under the existing system, whilst another also seeks to tax the residual profit. That may seem to introduce an element of unfairness overall but is simply the result of two countries operating different tax systems. Imagine that the market country gave no relief at all for the costs of the business arising outside its country. This would turn the tax on residual profit into the treatment applied under an excise tax, a sales tax, or VAT. If one of these taxes on the value of the sale is not thought to be unfair, then it is hard to see why it becomes more unfair if relief is actually given for those costs incurred elsewhere.

The disadvantage that arises for non-adopting countries mirrors that which arises under any form of tax competition. If—under the existing system or the RPAI—country A reduces its tax rate, then businesses have an incentive to shift activity to A from other countries. In addition, under the RPAI businesses may find it easier to shift profit into A from other countries, for example, by paying interest or royalties to an affiliate in A. These issues arise whenever tax systems are not the same across countries.

4.2.5 Incentive compatibility

We have already discussed the issue of incentive compatibility above in the sense of whether a country has an incentive to reduce its tax rates when all countries have adopted the RPAI. We now ask whether a single country would want to implement the RPAI unilaterally, and what incentives adoption by one country would create for non-adopters.

As discussed above, in terms of the location incentives created by the RPAI, these are generally favourable to the country implementing the RPAI. Broadly, the RPAI would partially shift the tax base from being in the place of origin, to the market country. To the extent that the customers of a business are relatively immobile, then the overall tax base would be less mobile. As noted above, this would probably lower the competitive pressure to reduce the tax rate both for routine profit and residual profit. In the extreme case in which businesses pay tax under the

existing system only on routine profit, then incentives under the RPAI would be no different. But in all other cases, the incentives would point towards adoption of the RPAI. Introducing the RPAI could therefore be seen as a move in the tax competition game among countries to reduce the effective tax rate on more mobile tax bases by reducing the tax base in the location of functions and activities. Countries with an RPAI would then also lose less revenue from reducing the tax rate on routine profit, thereby encouraging still greater competition. But this depends on the mobility of functions and activities. Countries which consider the corporate tax on profit from production activities to reflect to a large extent location-specific rents—and which would therefore be reluctant to take part in tax competition—would be less inclined to give up their claims on residual profit.

So, in many cases, there would appear to be an advantage to moving to the RPAI rather than keeping the existing system. However, a more extreme move in the tax competition game would be to move completely to a destination basis and leave the origin basis altogether. A country introducing the RPAI might therefore be outflanked by others introducing a pure destination-based tax, such as the DBCFT.

5. Implementation

The RPAI would allocate routine profit to the location of functions and activities and residual profit to market jurisdictions. We have set out above the key elements and properties of such a tax. But a number of practical issues must be resolved before it could be feasible. This section discusses the most important issues. Of course, considerably more detailed work would have to be undertaken to address these in practice. Note that some difficulties arising in the current system would remain—the distinction between debt and equity finance, for example. We do not address these here, but instead focus on the new issues that would be raised if the RPAI were implemented.

We discuss practical issues under six main headings: the scope of the tax; the boundaries of the multinational; the tax base; identifying the place of destination and collecting tax in that location; expansion into new markets; and legal issues arising from the possible need to overturn existing treaties.

5.1 Scope

The problems of the scope of taxes on business profit are common to all tax systems and have been discussed in Chapter 5. From the perspective of economic efficiency, it is desirable to tax all business income—both the return to capital and the return to labour—in the same way, to avoid distortions to the legal form of businesses and to avoid giving one form of business a competitive advantage over another.

However, this may conflict with the administrative and compliance burden on small businesses and revenue authorities. In practice, in most countries—though not all—incorporated businesses are liable to a separate corporation tax, but the profit of unincorporated businesses is allocated to the business owners and is liable to personal income tax. Of course, this is not universal. By contrast, VAT is normally applied to all businesses over a certain turnover threshold.

The RPAI is designed to address international issues in the allocation of profit among countries for taxation. It is not designed to address the problems arising from the interaction of taxes on business profit and personal income taxes. Nevertheless, the question arises as to whether it is feasible to apply the RPAI to business income that is subject to personal income tax, as well as to business income that is subject to a separate corporation tax.

In considering the taxation of residual profit in the market country, this distinction should not apply. In principle, it would seem reasonable to apply the tax on residual profit to all sales in a country, irrespective of the legal form or size of the business selling in that market. That would treat businesses selling in that market equally with respect to their residual profit.[109] It may be that for practical reasons, it would be prohibitively expensive for the tax authority in B to collect revenue from a very small business in A. That may suggest some threshold to be applied, which we discuss further below.

To consider the tax on the routine profit, suppose that the RPAI was introduced by country A only for businesses that currently face a separate corporation tax. That would imply that a business in country A that is not liable to corporation tax would pay tax on its total profit in A, as under the current system. But if that business also exported to B (which has an RPAI that applies to all business), then it would face a competitive disadvantage, since it would also be liable to tax in B on its residual profit. That suggests that if the market country taxes the residual profit of all business selling in that country, then the origin country should limit itself to taxing the routine profit of all businesses.

Of course, this issue would not apply for businesses that were purely domestic—that did not export or import any goods or services. The combination of the tax on routine and residual profit would leave such businesses unaffected by the introduction of the RPAI, as long as the tax rates on routine and residual components were the same. It would be simpler for such businesses not to have to distinguish between routine and residual profit. For businesses with modest exports, there would be a trade-off between the possible competitive advantage and the greater complexity in identifying routine and residual profit separately. It could be left for small

[109] A related but separate issue has been discussed in Section 3.4.1. Businesses should be taxed on their residual profit in a market country whether they sell their goods and services in that country through a subsidiary, a branch, or remotely. The RPAI is neutral in the treatment of these different options for cross-border sales.

businesses to elect in the origin country whether they prefer to be taxed on their entire profit, or whether they would prefer to be taxed only on their routine profit.

5.2 Boundaries of the multinational

Since the RPAI contains one element of an apportionment system, for non-allocable expenses, a question arises as to what businesses should be included in this apportionment. This is an issue that we discussed in Chapter 4 in the context of formulary apportionment systems. As we noted there, the idea of an apportionment mechanism is that there is a clear-cut division between independent businesses and integrated groups. But there are many situations where the situation is less clear-cut, for example, when individual subsidiaries have to comply with the interests of minority shareholders or when two businesses engage in joint ventures.

In determining what constitutes part of the multinational business, it is necessary to trade off, two competing objectives.[110] On the one hand, it would be useful to have a simple and clear definition, based on the parent's ownership of, or voting rights in, an affiliate business. This is the approach taken, for example, by the European Commission in its CCCTB proposal. On this approach, in order to be included the multinational should own at least 50% of the affiliate and have at least 75% of the voting rights.[111]

On the other hand, an affiliate that is 49% owned by the multinational would in many cases be indistinguishable from one that is 50% owned. Arbitrary bright-line tests—such as a 50% ownership rule—tend to encourage businesses to organize their affairs to be just on the more favourable side of the line for tax purposes. Depending on circumstances, a multinational may want to include, or exclude, an affiliate in its overall RPAI assessment. This could distort business decisions, sometimes with real economic consequences, and also create greater complexity.[112] In practice, however, accounting treatment is typically based on the 50% ownership rule. It is perhaps unlikely that a multinational would be willing to adjust its financial statements significantly in order to manipulate the bright line for tax purposes. So following a 50% ownership test seems a reasonable compromise.

However, the problem of defining the boundary of the business is smaller in the context of the RPAI than with other RPA systems, or with a more general formulary apportionment system. That is because, ultimately, the only apportionment

[110] See Schön (2007), p. 1073 *et seq*.

[111] Article 5 of the CCCTB Draft Directive.

[112] In principle, it would be possible to include a proportion of an affiliate in the RPAI allocation, rather than have an all-or-nothing rule for inclusion. For example, the proportion included could be based on ownership; if the multinational owned 49% of the affiliate, then 49% of its non-allocable expenses could be apportioned with the multinational, and 49% of its RGI or sales would be included as part of the allocation formula. But this approach would clearly contribute to greater complexity.

within the RPAI system is of non-allocable costs. That is, in the absence of non-allocable costs, then there would be no apportionment within the RPAI. The benefits of including, or excluding, an affiliate in an RPAI assessment are therefore likely to be relatively small.

5.3 Defining the tax base

Under a system of formulary apportionment, the principle is that total profit should be determined and then allocated among countries. This raises the question of the need for harmonizing the tax base. If countries use different definitions of the tax base, then there will not be an agreed measure of total profit. Each country may then base its own entitlement on its own measure of profit. To prevent this, the European Commission plans first to harmonize the tax base—the Common Corporate Tax Base (CCTB)—before consolidation across Member States is introduced.[113] US states do not have common definitions of the tax base, but they are broadly similar, drawing from the federal tax base.[114]

There are at least two reasons within the RPAI to question whether there is a need to define a common base across countries. The first is that transfer prices within a multinational group will depend on costs and the associated routine profit, determined at least initially in the country in which the costs are incurred. Differences in allowing costs—for example, in depreciation provisions—might affect the tax base in other countries. Second, there is an element of apportionment under the RPAI due to the treatment of non-allocable costs.

In practice, some balance is required in addressing this question, since reaching international agreement on a common definition of the tax base amongst all countries could prove extremely difficult (as has been found in the EU, for example). The question therefore is whether the problems that might arise in not having such an agreement would be serious for the properties of the RPAI. It seems probable that a reasonable outcome could normally be achieved without the need for harmonizing the tax base. Three elements of the RPAI should be considered.

First, current international transfer pricing under the OECD guidelines or the US Regulations do not presuppose a common set of accounting rules in all involved states. While such a common set might be helpful in order to avoid unintended cases of higher or lower taxation due to double or non-taxation, there is no reason to believe that the problems arising in the absence of a common set of rules would be greater under the RPAI than under the existing system. As a matter of substance, there is a need to determine transfer prices for trade between affiliates

[113] European Commission, Proposal for a Council directive on a common corporate tax base, COM(2016) 685, 25 October 2016.

[114] Hellerstein (2013).

of a single multinational group (and transfer prices on deemed transactions in the case of PEs or remote sales), based on the expenditure of one of the affiliates plus the routine profit.

If there is no common tax base, then the definition of what is allowable expenditure for the purposes of identifying the routine profit on functions and activities in a country could differ between the countries involved in a trade between two affiliates. This requires the identification of those items of expenditure which constitute the base for the calculation of routine profit, a task that can be fulfilled on the basis of specific information from both financial accounts and tax accounts without full harmonization of the domestic tax base. One issue here is how to treat special provisions, for example, incentives for R&D. As proposed above, the straightforward approach is that such provisions should not affect transfer prices, but that the country offering the incentive should determine any adjustment to the tax liability separately, leaving the tax base in other countries unaffected.

Second, the RPAI requires the allocation of non-allocable costs to countries. This is more akin to the formulary apportionment approach, ideally based on a commonly agreed value of the expenses and associated routine profit. With different tax bases, these valuations could differ between countries. Again, however, the apportionment could be achieved using financial accounts and tax accounts. To the extent that a country wanted to be more or less generous in its treatment of specific non-allocable expenses, then it could again make an adjustment, without affecting the common book value used in the apportionment.

Third, the apportionment of non-allocable costs should ideally be based on a common definition of residual gross income (RGI). Again, this factor could be calculated by reference to book values. If countries were unwilling to do this in respect of RGI, and their measures of RGI were significantly different, this might suggest using sales revenue as a more straightforward measure, despite the disadvantages discussed elsewhere in this chapter.

However, the bottom line is that—primarily by basing transfer prices and apportionment factors on book values—the RPAI could reasonably avoid the complications of agreeing a common tax base.

5.4 Collecting tax on a destination basis

A key element of the RPAI is that residual profit is taxed in the market country, or the country of destination. To make the RPAI operational, it is necessary to define this location more precisely. We have discussed the notion of destination in Chapter 5, where we set out the notion of the customer location proxy, borrowed from VAT, and defined as 'the location, residence, or place of business of the customer, the person to whom the seller has a contractual legal obligation to supply the goods'.

Applying this approach to the sales of goods should be relatively straightforward. The location of individual and even business consumers purchasing goods can be easily identified where the sale is through an affiliate of the multinational; a multinational can reasonably be assumed to know the location of all third party sales made by its affiliates. Where the multinational affiliate (whether a subsidiary or a PE) making the ultimate sale is in the jurisdiction of sale, that would be the entity taxed on any residual profit from the group's sales of products in that jurisdiction, plus on any routine profit it may derive from marketing, distribution, and any other activities in that country.

Other situations, however, raise more difficult issues for the RPAI: sales to unrelated business customers of intermediate and component products, sales of final products through unrelated distributors, remote sales, and the treatment of new market countries. We have discussed many of the problems—and potential solutions—relating to these issues above; the discussion here is therefore relatively brief.

The location of sales of intermediate goods to unrelated parties raises difficult issues. Such intermediate goods would include capital goods, and also goods incorporated in other products typically either by transformation (e.g. chemical processing) or assembly (e.g. installing semiconductors on a circuit board).

There are at least three places which might be considered as the location of the sale of the intermediate good. First, it might perhaps be logical to trace through the intermediate good to a final good sold to a consumer. A second option would be simply to identify the location of the sale as the place of residence of the business purchasing the good. And a third option would be to identify the jurisdiction in which the purchaser uses the products purchased.

The first might be more appropriate where the business purchasing the good did relatively little to change the nature of the intermediate good itself, but simply sold it on, for example as a wholesaler. However, the seller of the component or intermediate product is unlikely to have an accurate accounting of the sale location of the final product. Under the second, it would be relatively straightforward for the purchasing business to locate an affiliate in a low tax jurisdiction. The tax on the routine profit of the purchasing business would then be kept to a minimum, as would the tax on the residual profit of the selling business. The third option would make this more difficult, although it could still mean allocating a significant amount of income to tax-favoured jurisdictions in industries like electronics where much manufacturing has migrated over the past twenty years.

Similar issues arise in relation to sales to unrelated distributors, as discussed above. If sales locations could again be manipulated to allocate residual profit to tax-favoured jurisdictions, then tracing the sale through to the final consumer would be more appropriate. This would require the distributor to report the location of its resales to its multinational seller. Such reporting may involve increased

record keeping by some distributors and wholesalers, but it is likely many multinationals already receive substantial data on the location of these sales given their desire to keep a close watch on where, and to whom, their goods are sold.

One issue here is that international law requires a nexus between the person taxed or the activity being taxed and the country levying the tax. In effect the country of the final consumer would aim to tax the profit of a business in one country selling to a distributor in a third country.

As noted in Chapter 5, a business can also sell goods to consumers in a country without a physical presence in that country by, for example, selling over the internet or through catalogues. There is no reason why the consumer would have information on the residual profit of the selling business, which implies that that the tax authority must deal with the selling business located abroad directly.

Governments already have significant experience through the VAT of taxing remote sales in a destination country, including for digital products, and so VAT rules on taxing non-resident businesses might be adapted for this purpose. It may be, for example, that a withholding, or back-up withholding, regime would be required of unrelated party distributors that bring goods into a country for ultimate sale to make sure that businesses are reporting their transactions properly. It may also be that a relatively high minimum threshold of sales could be established to limit the burden to relatively large businesses.

Deeming a multinational to have a taxable presence in the market country goes significantly beyond anything the OECD and most countries have traditionally been willing to adopt in considering when a business should be treated as having a permanent establishment subject to the taxing jurisdiction of the country of purchase. However, proposals from several countries for a tax on the profit of certain highly digitalized businesses in the location of the user also go well beyond existing PE rules. In this context, a recent report by the UK government stated that it did not 'see collection [in such circumstances] as a significant issue' and noted that 'the more important question is how to ensure that, for those businesses with minimal of no UK presence, compliance with the tax does not impose significant administrative burdens'.[115] Furthermore, as discussed in Chapter 3 and earlier in this chapter, at the time of writing proposals are being discussed by the OECD's Inclusive Framework which would go beyond existing PE rules more generally.

5.5 Expansion into new markets

Another issue is what happens when a multinational business with potential residual profit expands into new markets. Should the residual profit be taxable in

[115] HM Treasury (2018).

that market country from the date the business first generates such profit in that country? If the business has no losses being carried forward, then the straightforward answer would be to allocate the residual profit based on that year's sales.

But if there are losses being carried forward from earlier periods, then it could be argued that the current profit should be first allocated to those countries in which those losses occurred. That is, countries with prior year losses should be given priority in the allocation of residual profit, with the new market country able to tax residual profit only after that priority allocation is completed. Alternatively, an arbitrary 'buy-in' rule could be applied that phased in the full residual profit allocation to a new market country over, for example, a three- or five-year period. The profit not allocated during the transition would increase the residual profit of other countries that are fully phased in.

5.6 Treaties

Most double tax treaties (including the OECD Model Treaty) require that transfer pricing between related parties be consistent with how independent enterprises price similar transactions under similar circumstances. Moreover, most such treaties eliminate origin-based taxation of profit arising from intangibles by the jurisdiction of 'use' in favour of taxation by the jurisdiction that finances and manages intangible development activities. The RPAI deviates materially from these provisions. For example, treaty country businesses that sell goods or services to a related party in a country adopting the RPAI could challenge the allocation of residual profit to that country and would likely be successful.

Avoiding these challenges would require amending existing treaties. At a minimum that would be a time-consuming exercise and, for countries that cannot override treaties by legislation (e.g. France, the Netherlands, or Switzerland), would make adopting the RPAI less feasible to the extent treaty partners were unwilling themselves to adopt the proposal. Depending on the respective constitutional framework there are some jurisdictions (like Germany, the US, and the UK) where legislation can in certain circumstances override treaties. Nevertheless adopting the RPAI by legislation would not make the concurrent breach of international treaty law disappear.[116]

Note that treaty reform would also be required to adopt the Unified Approach being considered at the time of writing by the Inclusive Framework, or other proposals for taxing highly digitalized businesses being considered unilaterally by some countries, such as the UK's 'user participation' proposal.

[116] Sachdeva (2013).

6. Conclusions

This chapter has set out an alternative system, the RPAI, for allocating international business profit among jurisdictions. The basic approach follows OECD guidelines and other proposals that have been made in distinguishing between routine and residual profit. The system allocates taxing rights over routine profit to countries where multinationals' functions and activities take place. It allocates taxing rights over residual profit to market countries, where the multinational makes sales to independent, third party customers.

The key aims of the RPAI are to combat profit shifting and to reduce economic distortions thus also reducing competitive pressures experienced by countries under the existing system. However, another important aspect of the system is that it is intended to be reasonably close to the existing system, to minimize the costs of transition and to make it more accessible to those with knowledge of the existing system.

Routine profit would be identified using existing transfer pricing techniques (or, should that prove overly difficult, by mechanical mark-ups). Comparables used to determine routine profit would therefore be based on third party outsourcing businesses, in the form of contract manufacturers, researchers, logistic providers, and marketers; the returns of such comparable businesses should not reflect the overall risk of the multinational's business.

Transfer prices within the multinational would be based on this routine profit. In calculating residual gross income (RGI) in a market jurisdiction the market affiliate would be deemed to have purchased goods and services from other affiliates at the third party costs they have incurred plus any associated routine profit. Residual profit allocated to that market affiliate would be equal to RGI less a share of non-allocable costs including any associated routine profit, where the share is based on the proportion of the multinational's total RGI earned by that affiliate. The RPAI system can therefore be thought of as a hybrid; routine profit is based on existing transfer pricing techniques, whilst the allocation of residual profit introduces some elements of formulary apportionment.

The fact that residual profit is allocated to the market country has benefits both in terms of combating profit shifting and in reducing distortions in economic behaviour. This is primarily due to the relative immobility of customers. Certainly when customers are individuals, they are unlikely to relocate in order to reduce tax on their suppliers. This may be less true where the customer is a business, and look-through rules may be needed to identify cases where independent distributors locate in low tax jurisdictions as part of a tax planning scheme.

The immobility of customers in the market country, combined with the relative transparency of transactions with third parties, should make it difficult to shift residual profit to other jurisdictions. The incentive to shift routine profit is also correspondingly lower than the incentive to shift total profit. Basing tax on residual

profit in the destination country also significantly reduces the incentive for multinationals to locate their real activity in low tax jurisdictions, thereby reducing economic distortions.

One significant difference in implementation compared to the existing system is the treatment of remote sales. Currently, if a multinational resident in country A sells directly to customers in country B, without any physical presence in B, then its profit will be taxed in A. By contrast, under the RPAI routine profit will be taxed in A and residual profit will be taxed in B. Taxation in the market country is not contingent on physical presence there under the RPAI.

The guiding principle behind the RPAI is the relative immobility of third party customers, but the proposal is tempered by practical considerations. The RPAI moves towards a destination basis of taxation but stops short of full allocation to destination countries. It aims at departing from the existing system as little as possible because of the familiarity of existing concepts, and the costs and difficulties in transitioning to a completely new system. Nonetheless, by partially, though coherently, moving to a destination basis of taxation, the RPAI should partly harness the substantial benefits arising from the relative immobility of customers, thus offering significant promise as a tax system that is fit for purpose for years to come.

7
Destination-Based Cash Flow Taxation

This chapter[1] presents, analyses, and further develops the idea of a Destination-Based Cash Flow Tax (DBCFT).[2] The DBCFT has several highly attractive properties: in principle it does not distort the scale or location of investment, it assures neutral treatment of debt and equity as sources of finance, is robust against avoidance through within-business transactions, and provides long-term stability due to its incentive compatibility combined with a resistance to tax competition amongst countries. The DBCFT thus addresses many of the ailments afflicting current tax regimes in both purely domestic and international settings.

On the other hand, the DBCFT raises a number of significant implementation issues—both administrative and legal—and requires substantial changes, both conceptually and in application, from current practice in the taxation of business profit. Neither of its two principal design features, a cash flow tax base and taxation on a destination basis, are currently commonplace amongst existing business taxes.[3]

The purpose of this chapter is to describe the DBCFT, how it might work, what its effects would be, and the main challenges its implementation would face. We start in Section 1 by outlining how a DBCFT would work, and elaborating on its key elements, including the nature and role of border tax adjustments. We show that a tax reform with equivalent economic effects would be to introduce a broad-based, uniform-rate Value Added Tax (VAT)—or to raise the rate of an existing broad-based VAT—and making a corresponding reduction in taxes on wages and salaries. Section 2 then evaluates the DBCFT against our five criteria: economic efficiency, fairness, robustness to avoidance, ease of administration, and incentive compatibility. As with our analysis of the Residual Profit Allocation by Income (RPAI) in Chapter 6, in doing so we deal in turn with two settings: that in which all countries adopt a DBCFT (or its VAT-based equivalent) and that in which adoption

[1] An earlier version of this chapter was published as Auerbach et al (2017a).

[2] For earlier discussions of the DBCFT, see Bond and Devereux (2002); President's Advisory Panel on Federal Tax Reform (2005); Devereux and Birch Sorensen (2006); European Economic Advisory Group (2007); Auerbach et al (2010); Auerbach (2010); Devereux (2012); and Auerbach and Devereux (2018). A version of the DBCFT was also advocated by the Ways and Means Committee of the House of Representatives (2016), which led to an extensive political debate in the US in 2016 and 2017.

[3] The only national level cash flow tax of which we are aware is the Mexican IETU, which operated (as a minimum tax) between 2007 and 2014, apparently without major technical difficulty. For a review of the use of cash flow taxes, see Ernst & Young (2015).

Taxing Profit in a Global Economy. Michael P. Devereux, Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella, Oxford University Press (2021).
DOI: 10.1093/oso/9780198808060.003.0007.

is unilateral. Section 3 then considers the treatment of financial flows, from both conceptual and practical perspectives. This is an important issue that has not previously been considered in detail. Section 4 takes up a range of implementation issues, though the chapter does not attempt a full treatment of all the issues that are likely to arise in practice (many of which are likely to be country-specific). The chapter concludes in Section 5.

1. The DBCFT in outline

The DBCFT has two distinct attributes: a cash flow tax base and a destination basis. A destination basis could be applied to a variety of tax bases, and arguments for cash flow taxation originally arose in a purely domestic setting. But there are advantages to combining the cash flow tax base and the destination basis. This section recalls the features of a cash flow tax operating in a single economy, explains what a destination basis would mean, and shows the economic equivalence of a DBCFT to the combination of a VAT and an offsetting subsidy to labour costs.

1.1 Cash flow taxation

Cash flow taxation in a single economy has been studied at length, and we have introduced the idea, and discussed its properties, in Chapter 2.[4] As its name implies, a cash flow tax applies to net receipts arising in the business. Receipts are included in the tax base when payment is received, and expenses are recognized when payment is paid.[5] The tax base in any given period is the former less the latter. The most significant difference in the timing of the inclusion of receipts and expenses in the base, compared to most existing taxes on business profit, is that under cash flow taxation even capital assets that are typically depreciated over time are instead immediately expensed (i.e. deducted in full upon purchase). There is therefore no need for complex depreciation rules that are typically found under current systems, and no need to differentiate between different types of assets. This also introduces a significant difference between the cash flow tax base and measures of profit in financial statements.

[4] The idea of the cash flow tax dates back to Brown (1948) and has since been the subject of an extensive literature including Kaldor (1955); Andrews (1974); US Treasury (1977); Meade Committee (1978); and Graetz (1979). Elements of cash flow taxation, including immediate expensing of capital goods, have been introduced in several countries, including the US and in a limited form in the UK.

[5] More precisely, the tax would naturally be based on an accruals basis so that, for example, receipts are recorded when the obligation to pay is incurred, rather than when cash is actually received. The accruals basis would also apply to purchases, including of capital assets. Similar arrangements are standard under the VAT.

In the terminology of the Meade Committee (1978), a cash flow tax could be levied on a business on an R (real) base or an R+F (real plus financial) base. Under the R base, transactions involving financial assets and liabilities are ignored—so, for example, interest receipts would not be taxed, and interest expenses would not be deductible. The R base is thus limited to the difference between real inflows (from the sale of products, services, and real assets) and real outflows (from the purchase of materials, products, services—including labour—and real assets). By contrast, under the R+F base, all cash inflows, including borrowing and the receipt of interest, would be taxable; all cash outflows, including lending, repaying borrowing, and interest payments, would be subtracted in calculating the tax base. That is, the tax would apply to all net financial inflows related to borrowing, including principal amounts, as well as to net real inflows.[6] The choice between an R and an R+F base is discussed in detail below.

The properties of the cash flow tax have been set out in Chapter 2, so we will review them only briefly here. The starting point for understanding them is the usual assumption that an investor seeks to maximize the net present value (NPV) of an investment, defined as the sum of all discounted cash flows associated with it.[7] In principle, if the discount rate is set at the investor's opportunity cost of funds (which is also the minimum required rate of return) then it is worth undertaking any project with a NPV greater than zero; and it is not worth undertaking any project with a NPV less than zero. The pre-tax NPV for any project—calculated over all periods in which any cash flow arises—is also a measure of the economic rent that it generates. Any tax that falls only on economic rent (and has a rate between zero and 100%) has the property that the post-tax NPV of an investment has the same sign (i.e. positive or negative) as the pre-tax NPV. In this case, any investment worth undertaking in the absence of tax remains worth undertaking in the presence of tax, and vice versa. Hence the investment decision is independent of a tax on economic rent.

Intuitively, cash flow taxation is neutral with respect to decisions about the scale of investment because, in effect, the state contributes a proportion of all costs of the business (through giving tax relief for all costs when they are incurred) and takes the same proportion of all receipts. In effect, this is akin to the state becoming a shareholder in the business. Like other cases in which the ownership of shares in a business changes, this in itself has no effect on the profitability of the business,

[6] The Meade committee discussed a third form: the 'S' base cash flow tax, levied on net distributions to shareholders. As a consequence of the identity between a firm's sources and uses of funds, in a domestic context an S-base tax is equivalent to an R+F-based tax, except in terms of implementation.

[7] The discounting effectively adjusts for interest that might otherwise have been earned during the intervening period. For instance, in the example below, assuming a discount rate of 10%, a cash flow of 110 in one year's time has a present value of 100. Since the discounting approach adjusts for a required rate of return on an investment, the NPV is a measure of the economic rent of an investment.

or on marginal investment and financial decisions. By taxing all cash flows at the same rate, the state captures that same proportion of economic rent.[8]

The neutrality of cash flow taxation applies also to financial decision making. As seen in Chapters 2 and 3, the favourable treatment of debt provided by most existing taxes on business profit distorts the choice of financing between debt and equity financing, leading to leverage ratios that are higher than they would otherwise be.[9] This is a significant concern: socially excessive levels of debt, especially in the financial sector, are widely seen as having played a role in triggering and deepening the financial crisis of 2007–08.

By contrast, cash flow taxes, with either an R or an R+F base, do not distort the choice between debt and equity. This is easily seen in the case of an R base, since all financial flows are simply ignored, be they associated with debt or equity. But the same applies to the R+F base. We return to this issue in more detail below.

There are caveats to this general analysis. One is that cash flow taxes lose their neutrality if the tax rate is expected to change over time: a falling rate will encourage investment, for instance, since the cost is deducted at a higher rate than its subsequent income is taxed.[10] Second, and of particular importance to the concerns of this book, even cash flow taxes may distort the choice between mutually exclusive projects which face different tax rates; the classic case in which this could occur is in location choices among countries, as we discuss below, but it could also happen in a purely domestic context. Third, the analysis is based on the assumption that a business will aim to maximize its value, summarized by the NPV. This may not necessarily be the case. One possibility, for example, is that managers with a short-term horizon will seek to maximize current profit as recorded in financial statements; this is more likely, of course, if managers' own remuneration depends on current financial earnings. In some cases, this may not be consistent with maximizing the NPV of the business. At various points in the discussion below we consider this possibility.

It should also be recalled from Chapter 2 that cash flow taxation is not the only way to achieve neutrality in business taxation. The same economic effects can in principle be achieved by giving relief for the cost of depreciation of assets, instead of an immediate write-off, and in addition giving relief for the cost of finance. In the case of debt finance, this cost is normally the interest payments that the business must make on its borrowing. For equity finance, it is an opportunity cost, reflecting

[8] Complications may arise in practice. For example, this simple characterization assumes a symmetric tax system, in which the state collects tax when cash flows are positive, but effectively makes a tax rebate when cash flows are negative. The appropriate treatment of losses is discussed below in a number of different settings.

[9] For a survey on the impact of the tax incentive to use debt, see Graham (2003). More recent evidence is provided by, amongst others, Devereux et al (2019); Doidge and Dyck (2015); Heider and Ljungqvist (2015); and, with a focus on distortions to bank leverage, de Mooij et al (2014) and de Mooij and Keen (2016).

[10] See Sandmo (1979).

the return that the shareholder would have earned on some alternative asset of equivalent risk. These financial costs can be seen as reflecting a minimum rate of return that the providers of finance require on their investments in the business. Naturally, then, giving relief for these costs implies that only economic rent—that is, profit over and above the minimum required rate of return—is subject to tax.

Comparing this approach to cash flow treatment, relief for the opportunity cost of finance can also be seen as compensating for the lack of immediate expensing in the system. Giving relief only for the depreciation of capital assets in effect defers tax relief on capital expenditure relative to a cash flow tax. Relief for the opportunity cost of capital compensates for this deferral. In fact, as the IFS Capital Taxes Group (1991) first showed, it is possible for a tax to fall on economic rent with any schedule of depreciation allowances, as long as relief for the opportunity cost of capital is based on the difference between the initial cost of the asset and its tax-depreciated value. The IFS Capital Taxes Group proposed an 'Allowance for Corporate Equity' (ACE) based on this principle, which would be a relief for the cost of equity finance in addition to relief for the cost of interest payments.[11]

The approach using an ACE has the advantage, relative to cash flow treatment, of being more similar to existing business taxes, in that it simply adds one additional relief and leaves features like interest deductibility and capital allowances unaffected. It has the disadvantage of adding some complexity relative to the cash flow tax, since it requires the specification of a rate at which the allowance is applied, although this has been applied in practice in the context of ACE reliefs introduced in several countries.[12]

1.2 Destination basis

The international setting introduces the second dimension of the DBCFT, relating to how a country determines the component of the taxable profit of a multinational business which falls within its particular jurisdiction. A DBCFT would be based on sales of goods and services in the country less expenses incurred in the country: so receipts from exports are not included in taxable revenues and imports are taxed.[13] This 'border adjustment' is essentially the same treatment as is common under

[11] The equivalence of expensing and a rate of return allowance was first shown by Boadway and Bruce (1984). Kleinbard (2007) proposed a related form of cost of capital allowance, with the same notional rate applied to debt as well as equity finance. Fane (1987) and Bond and Devereux (1995, 2003) analysed the properties of various such rate of return allowances in the presence of risk.

[12] For example, in Austria, Belgium, Brazil, Croatia, and Italy. Experience with the ACE is reviewed by Hebous and Klemm (2018); see also de Mooij (2012); Zangari (2014); IMF (2016a); and Devereux and Vella (2020). Something akin to a notional return would also need to be specified under cash flow taxation, however, if losses were not instantly refunded but the same effect in present value terms were to be achieved by instead carrying them forward.

[13] More precisely (and as discussed later): imports by businesses liable to a DBCFT could either be taxed, with a deduction then available, or untaxed but not deductible; imports by final consumers would be taxed.

Table 7.1 Illustration of application of the DBCFT

	Country A	Country B	Total
Tax rate	*20%*	*30%*	
Labour costs	60	0	60
Other costs	40	0	40
Sales	150	150	300
DBCFT tax base	50	150	200
DBCFT charge	**10**	**45**	**55**
VAT tax base	110	150	260
VAT charge	22	45	67
Relief for labour costs	–12	0	–12
VAT + relief for labour costs	**10**	**45**	**55**

VAT; we explore differences from, and similarities with, VAT below. In a sense, the DBCFT would tax inflows and outflows asymmetrically—since income from sales are subject to tax in the place of the sale (the destination, or market, country), while expenses, including for labour, receive tax relief where they are incurred (the origin country). It thus combines both destination and origin elements.[14] We stick, however, with the established terminology, with the term 'destination'—taken from the literature on VAT—highlighting the role of border adjustment on payments and receipts.

A simple example makes the workings of the DBCFT clear (Table 7.1). Suppose a business produces goods in country A, employing labour at a cost of 60 and with costs of 40 on other domestic purchases. It sells goods to domestic consumers in A for 150, and also has exports of goods to country B of 150. It therefore has a total profit, in cash flow terms, of 200.

The DBCFT tax base in A is calculated as domestic sales of 150 less domestic cost of 100: a total of 50. The DBCFT tax base in B is simply the value of the imports into B: 150. If the tax rate in A is 20% and that in B is 30%, then the business' tax liabilities are 10 in A and 45 in B.

The relevant 'destination' for the calculation of tax, it should be emphasized, is the location of the immediate purchaser, not (necessarily) that of the final consumer. For example, if a US manufacturer sells steel to a French automobile producer which uses the steel to produce automobiles sold back to the US, US application of

[14] Note that if both sales and expenses were included on a destination basis, this would be equivalent to sales-based formulary apportionment.

the DBCFT would not tax the sale of steel but would tax the automobile imports. And in France, the imports of steel would either be taxed at entry but treated, along with labour and other costs incurred there, as a deductible cost or simply excluded from tax (a choice we return to later). The export would not be taxed in France.

It is, however, the location of the final customer upon which the impact of the DBCFT ultimately turns. As will be seen more clearly below, the DBCFT is built on the intuition that taxing profit on the basis of something that is relatively immobile—which, by and large, we take customers to be—limits the scope for the gaming that—as seen in Chapter 3—has caused such difficulties within the existing international tax framework.

It should be noted too that forms of economic rent tax other than cash flow taxes could also be destination-based. One could also implement border adjustments under an ACE, for example, though this would raise additional considerations.[15]

1.3 Equivalence between the DBCFT and a VAT with matching reduction in wage taxes

Before turning to an evaluation of the DBCFT, it is useful to compare the DBCFT with the combination of a VAT and reduced taxation of wages. In Chapter 2 we set out the equivalence of the combination of an R-based cash flow tax plus a tax on labour income with a VAT (if all were levied at the same rate, and the VAT was a broad-based tax). This equivalence continues to hold if both the cash flow tax and VAT are levied on a destination basis. In the example in Table 7.1, under the usual invoice–credit method, at a tax rate of 20%, the business would remit VAT on the value of the domestic sale (30) net of the VAT already paid on the non-labour input (8).[16] The total VAT payment by the business in A would thus be 22. The VAT due in B, where there are only sales,[17] would be the same as the DBCFT charge, 45.

[15] For a discussion of this option, see Hebous and Klemm (2018). A key issue in an international context, as noted above, is that a pure destination-based ACE would not allow imports by businesses to be ignored for tax purposes. However, it would be possible to consider a hybrid, with an ACE used for domestic purchases of capital goods, and cash flow treatment being used for imports.

[16] The standard invoice-credit method of collecting VAT keeps track of VAT on every transaction. A VAT-registered business remits tax on its sales less a credit for the VAT it has already paid on its inputs. A subtraction-method VAT is more akin to a corporation tax—and the DBCFT—in its operation with annual accounting of the sales less non-labour costs made by the company. In this case, rather than a tax on sales less a credit for the tax paid on inputs, we can think of a tax on a base equal to sales less a deduction for the cost of the inputs. In the simple case in which there is a single VAT rate, these approaches result in the same tax base.

[17] Imports of 150 from the entity in country A would be subject to VAT, but a credit of exactly the same amount would be available against the VAT due on sales.

The only difference in principle between the DBCFT and a VAT is in the treatment of labour costs. In B, where no wage costs are incurred, the liability is the same under the DBCFT as under the VAT. In A, the difference in the DBCFT base and the VAT base is the 60 of labour costs incurred in A. The DBCFT is intended to tax profit—or more accurately, economic rent, given that the tax base is net cash inflows—and so gives relief for labour costs. The VAT is intended to tax value added; this is equivalent to the sum of profit— again, more accurately, economic rent—and the amount paid to labour, and so VAT does not give relief for labour costs. It follows that introducing a VAT (or increasing its rate)—having in mind here an idealized VAT, levied at a single rate on a broad base[18]—and reducing labour income taxes at the same rate would have equivalent economic effects to those of the DBCFT. This is shown in the last two lines of the table: giving relief for labour costs in A reduces the tax in A by 12, and the combination of the VAT and relief for labour costs yields the same tax base as the DBCFT.

Below we discuss in some detail the two options of (a) implementing a DBCFT as a reform to the taxation of business profit, and (b) an economically equivalent reform of introducing a VAT (or applying an increased rate to the generality of transactions under an existing VAT) combined with a matching reduction in taxes on wages and salaries.

1.4 Border adjustments

A key element for understanding both the incentive effects of a DBCFT and the incidence of a DBCFT is the role played by the border tax adjustment (BTA).[19] By this is meant that exports would not be subject to the tax, but imports would be. The impact of BTA has been extensively studied in the literature on VAT, in particular the effects of shifting from an origin-based system (exports taxed, imports untaxed) to a destination-based system that is the norm (exports untaxed, imports taxed); we draw on that literature here.

The adoption of border adjustments might appear to make a country more competitive in international trade. But any such effect is at most a temporary one.

To see this, consider first the hypothetical case in which there are no domestic taxes and in which the country has a freely floating exchange rate. Now consider the impact of the introduction of a DBCFT in that country only.[20] Goods and services that are produced domestically but exported would receive the benefit of a

[18] This is a major qualification that, for brevity, we shall often omit below.

[19] See Auerbach and Holtz-Eakin (2016) for an elaboration of, and examples illustrating, the arguments in this subsection.

[20] If the DBFCT were introduced in several countries at once, then the effects identified would be replicated in each country. The extent of price and/or exchange rate adjustments would depend on relative tax rates in the countries undertaking the reform.

tax deduction for costs incurred (in the pure DBCFT, at least), but the income from sales would not be taxed. The reduction in net costs would allow the business to sell the good or service more cheaply on world markets; this would create a stimulus to exports. By contrast, the domestic cost of imports purchased by final consumers would increase with the tax on imports; this would discourage imports. Both of these effects would result in an increase in demand for the domestic currency, causing it to appreciate on world markets. This appreciation would counteract the initial effects of the tax by dampening the demand for exports, and stimulating the demand for imports. This effect on the exchange rate could occur quickly—indeed, immediately on the introduction of the tax, or even in anticipation of its introduction.

In principle at least, a new equilibrium would be established only when the currency had appreciated far enough to restore the initial position. In this case, there would be no impact on trade or investment.[21] There would be no adjustment to the nominal price level or wage rates in the domestic country, and so the domestic workforce would be unaffected. The government would collect revenue on an aggregate tax base equal to the value of domestic sales less the costs of domestic production. This tax base has two components: the economic rent earned by domestic businesses on their domestic production, plus net imports. Alternatively, the tax base could be seen as the value of domestic consumption out of non-wage income. We discuss these issues further below.

What about the case in which there is a single common currency, or a fixed exchange rate? Introducing a DBCFT would again stimulate the demand for exports and reduce the demand for imports. With a fixed exchange rate, and sticky wages, both effects would induce a stimulus to domestic activity. This corresponds to the well-known effect of such border adjustments, having the same impact as a currency devaluation—that is, in making exports cheaper to non-domestic consumers, and imports more expensive for domestic consumers. In the short run, this would generate a stimulus to domestic production relative to foreign production.

Over the longer run, however, we would expect prices to adjust. Expansion of domestic production would lead to an increase in the demand for labour. This would in turn push up the wage rate, and in consequence, push up the price of domestically produced goods and services. The effect of this rise in prices and wages would be to raise again the price of exports on the world market, and to raise the price of domestically produced goods relative to imports. When domestic prices and wages had risen far enough, the initial real equilibrium would again be

[21] See Auerbach and Devereux (2018). This is an application of the Lerner Symmetry Theorem (Lerner, 1936) which establishes the equivalence between import tariffs and export taxes, and, in turn, the neutrality of any tax reform that increases both by the same amount. Costinot and Werning (2019) set out the precise conditions required for this to be true.

re-established. In this long run, there would again be no overall impact on trade, due to the price and wage adjustments.

The nature of the adjustment—as between changes in domestic prices and wages, in the nominal exchange rate, and in the level of activity—will thus depend in practice on which of these can adjust more rapidly. There is, it may be helpful to note, an important difference here between the adoption of a DBCFT and the adoption of a VAT. Under the latter, consumer prices rise relative to wages, an effect that cannot be accomplished simply by a change in the nominal exchange rate; with wages sticky, the expectation is that the effect will come largely through an increase in consumer prices. The DBCFT, however, leaves that relative price unchanged, and so can be transmitted entirely through the exchange rate.

It should be noted too that whilst in the simplest models it is immaterial whether it is domestic prices or the nominal exchange rate that adjusts, this does matter for precisely who is affected by the BTA. For example, nominal exchange rate changes will have balance sheet effects for non-residents with assets or liabilities (or contracts) with prices fixed in the currency of the DBCFT-adopter, which in some cases would be significant;[22] domestic price changes, on the other hand, have no such effect. The incidence of the DBCFT is discussed more fully below.

All these (and other) qualifications mean that the adjustment to the introduction of a DBCFT in practice may well not be as simple—even in the long run and leaving aside potentially significant short-run effects—as some combination of a rescaling of domestic prices and appreciation of the nominal exchange rate. The considerations raised by the basic features of the BTA just discussed are, nonetheless, likely to be the dominant ones in assessing the impact of practical reforms.

One might hope to be able to draw on past experiences to gauge the likely impact of destination-basis taxation. But there is, unfortunately, very little empirical evidence on the effects of BTA (or of significant tax changes more generally) on exchange rates—largely because these are rarely fundamental enough, relative to all the other factors that buffet exchange rates, to create a reasonable prospect of being found in the data. There are, however, signs of effects along the lines just described in the work of de Mooij and Keen (2013) on 'fiscal devaluations'. These are tax changes that combine an increase in VAT and a reduction in the employers' social contributions[23] on labour—which is much the same thing as an increase in the rate of a DBCFT. This was advocated by some as a way to stimulate activity in the Eurozone, mimicking the effects of the devaluation that was unavailable to them, until offset by upward movements of prices and wages as described above.

[22] For example, non-residents with borrowing denominated in the currency of the DBCFT adopter could see a very significant increase in the local-currency value of their debt. For estimates of the size of these effects if the US had introduced a DBCFT in 2017, see Greene (2017).

[23] The reason for focusing on the employers' contribution is that wage stickiness is most likely to apply to the wage net of those contributions, so that a cut translates immediately into reduced employment costs.

Considering thirty OECD countries between 1965 and 2009, what emerges is that tax shifts of this kind in Eurozone countries did indeed tend to boost net exports, at least in the short term. Outside the Eurozone, however, with exchange rates to some degree flexible, there was, as one might expect, no effect—suggesting that adjustment to what resembles a DBCFT comes very quickly when the exchange rate is allowed to react. Where the exchange rate is fixed, recent evidence that increases in the standard rate of VAT are fully passed on to consumers fairly quickly—in about six months[24]—suggest that it is rigidity in nominal wages that is most likely to account for extended adjustment periods.

So far, we have analysed the case of a DBCFT being introduced unilaterally in a world without other taxation, or at least without any other changes to taxation. The point of this analysis is to argue that the DBCFT itself would have no impact on trade and investment—at least in the long run in the case of a fixed exchange rate or common currency area. But in practice the DBCFT would be likely to replace existing taxes on business profit. To identify the impact of a switch to a border adjustment, consider the likely impact of switching from an origin-based cash flow tax (where there is no border tax adjustment) to a DBCFT. Now there is an additional effect in our analysis—we also have to account for the effects of the abolition of the origin-based tax.

There are conditions under which the shift from an origin to a destination basis will have no impact on the real equilibrium. These conditions have been extensively studied in the VAT literature.[25] And, since wages are deductible in both the origin- and destination-based cash flow taxes, the results for switching from an origin-based VAT to a destination-based VAT also apply directly to the comparison between an origin- and destination-based cash flow tax.

The conditions required for such an equivalence between a destination- and origin-based cash flow tax, it should be stressed, are demanding. One necessary condition is that a uniform tax rate applies to all sectors: without this, adjusting only the exchange rate or simply rescaling prices by some common factor cannot re-establish the pre-reform pattern of relative prices. Equivalence is unlikely to hold, for instance, if there is a large untaxed sector, or significant variation in business tax rates across sectors, or in respect of real-world VATs for which rate differentiation is commonly extensive.[26] Nor does the equivalence result hold with imperfect competition.[27]

[24] Benedek et al (2020).

[25] A comprehensive analysis is provided by Lockwood (2001), synthesizing a number of earlier contributions, including de Meza et al (1994) and Lockwood (1993).

[26] Feldstein and Krugman (1990) stress and explore the trade implications of departures from uniformity of the VAT. There is, however, little work on the quantitative extent to which plausible violations of uniformity are likely to cause departures from equivalence.

[27] The implications of imperfect competition for the comparison between origin and destination principles for indirect taxation are considered in Keen and Lahiri (1998).

In general, then, the conditions required for equivalence do not generally hold in practice, and consequently we can expect that the abolition of an origin-based cash flow tax would have real economic effects. As we have noted throughout, and especially in Chapters 2 and 3, existing taxes affect real business location decisions. This would be true of an origin-based cash flow tax, but the abolition of existing origin-based taxes would be likely to have an even greater impact, because such taxes apply not only to rents, but to normal returns to capital as well. Thus a switch from existing systems to a DBCFT would have real effects on location and investment. But these would generally be beneficial for the country introducing the DBCFT, since they would stem not from the introduction of the DBCFT, but from the abolition of existing, distorting, taxes.

Account also needs to be taken of the impact of BTA on revenue. For countries running a trade deficit—imports exceeding exports—the shift to a destination basis will generally increase tax revenue. If trade is balanced in the long run, however, and the tax rate is expected to remain unchanged, the revenue impact in present value terms is zero, except to the extent of net imbalances prior to enactment. If consumers are sufficiently forward-looking to recognize this, there will then be no real impact from this revenue effect. More generally (and plausibly), however, there may be an impact. Governments that are credit-constrained, for example, will not be indifferent to the timing of their tax revenues; and consumers may not be—though the nature of this effect is imponderable, depending, for instance, on the use made of the revenue and on consumers' preferences. Perhaps more importantly, if a country earns a higher rate of return on its investments abroad than foreigners earn on their investments within the country itself, then that country can run a persistent trade deficit.[28] One potentially important explanation for such a pattern is that the profits of a country's foreign subsidiaries may be inflated by the use of transfer pricing manipulation. Again, even if such behaviour is eliminated by the adoption of border adjustments, the revenue gain relative to the current system will relate to the projected path of trade deficits under the current system.[29]

There is one other important respect in which origin and destination taxation fundamentally differ. This is that origin-based taxation, but not destination-based taxation, is vulnerable to transfer pricing abuse, since the prices charged on cross-border intermediate transactions affect the overall tax liability under the former but not under the latter.[30] Under origin-based taxation, the seller is charged tax at the rate of the exporting country but the buyer deducts the cost at the tax rate of

[28] See, for example, Blanchard and Furman (2017).

[29] See Auerbach (2017).

[30] The point is stressed by Auerbach and Devereux (2018) in the context of cash flow taxation; see also Genser and Schulze (1997) in the VAT context.

the importing country; so if, for example, the rate charged on sales exceeds that on purchases, there is an incentive in transactions between related parties to set an artificially low price. Under destination-based taxation, in contrast, neither country charges tax on such sales. And so, as will be explained in more detail later, the BTA removes a wide range of avoidance possibilities.

2. Evaluating the DBCFT

As with the RPAI in Chapter 6, we evaluate the properties of the DBCFT in two settings. The first is that in which the DBCFT is adopted by all countries, although not necessarily at the same rate. The second is that in which it is adopted by just one country, or a small group of countries. Our main discussion relates to the former case. Considering the properties of the DBCFT if introduced in a single country, or a small group of countries, is critical, however, for the issue of whether individual countries might find it in their own interest to adopt the DBCFT, or whether it could only be introduced by significant agreement between countries. This issue is important for its stability; for example, is there an incentive for an individual country to introduce the DBCFT if other countries have already adopted it; or are countries that have already adopted it likely to undermine it through some form of tax competition?

As throughout the book, we evaluate the DBCFT against our five criteria: economic efficiency, fairness, robustness to avoidance, ease of administration, and incentive compatibility.

2.1 Universal adoption

2.1.1 Economic efficiency

In principle, the DBCFT has remarkable properties in terms of economic efficiency. In particular, it should not distort the scale or location of investment, nor forms of financing choices. We discuss each of these in turn.

2.1.1.1 Location of investment

Whilst taxes on economic rent should not distort marginal investment decisions in a domestic setting, once we move to an international setting such taxes can distort decisions as to the location of investment if imposed on an origin basis—that is, broadly, where the economic activity or production, defined very widely, takes place. This decision would be distorted, for example, if the countries operating a tax on economic rents on an origin basis offer different tax rates on projects that can be implemented in any of them. Faced with the decision as

to where to locate their investment, the difference in tax rates may be so large as to induce multinationals to locate in the location which is less advantageous from a non-tax perspective. More generally, a difference in average tax rates on different mutually exclusive options may induce distortions, even if the tax base is economic rent.[31]

That distortion does not arise, however, if taxes on economic rent are levied on a destination basis, as long as the ultimate consumer is immobile. To see this, we have to consider the tax levied on the income generated from sales and the tax relief available for expenses. A key factor in choosing a destination basis is that consumers are relatively immobile; they are unlikely to move in response to a higher rate of DBCFT. But it might be thought that there would be an advantage to locating expenses in a country with a high tax rate. By doing so firms would be able to deduct expenses from profits which would otherwise be taxed at a high rate of tax (or, if in loss positions, they would receive relief at this high rate of tax). This is true—but the effect is negated by the impact of the border adjustments described above.

To see this, consider the example in Table 7.2. In Panel A, sales and costs in the two countries are the same as in Table 7.1, with the exchange rate between the two countries taken to be one-for-one. Initially, the two countries levy their DBCFTs at the same rate, 10%, which leaves the business with after-tax profits of 180. From the point of view of the business, the situation is just as if it operated in a single economy with a single DBCFT of 10%. This means that the business' investment (and financing) decisions should be wholly unaffected by the presence of the two taxes.

Suppose now that country B raises the rate of its DBCFT to 25%. If nothing else changes, this, as seen in Panel B, increases the business' total tax charge by 22.5 (i.e. an additional 15% of the base of 150 in country B), leaving it after-tax profits of 157.5.

But, still assuming no other changes, the increased tax rate in B gives the business an incentive to shift its production there from A to B, since that higher tax rate means a larger deduction for costs. As shown in Panel C, shifting production in this way reduces the firm's total tax liability, and so increases its total after-tax profit, by 15 (i.e. the difference in tax rates, 15%, multiplied by production costs of 100).

If the tax rate change applied only to this business, which was just one among many, that would be the end of the story. But if it applies to the generality of

[31] This assumes that the rent at issue is not specific to a particular location, as discussed in Chapter 2. See Devereux and Griffith (1998) for empirical evidence on the role of effective average tax rates on location decisions, and Auerbach and Devereux (2018) for a theoretical analysis.

Table 7.2 Investment neutrality of the DBCFT with universal adoption

	Country A	Country B	Total
Panel A			
Tax rate	*10%*	*10%*	
Labour costs	60	0	60
Other costs	40	0	40
Sales	150	150	300
DBCFT tax base	50	150	200
DBCFT charge	5	15	20
Net profit	45	135	180
Panel B			
Tax rate	*10%*	*25%*	
Labour costs	60	0	60
Other costs	40	0	40
Sales	150	150	300
DBCFT tax base	50	150	200
DBCFT charge	5	37.5	42.5
Net profit	45	112.5	157.5
Panel C			
Tax rate	*10%*	*25%*	
Labour costs	0	60	60
Other costs	0	40	40
Sales	150	150	300
DBCFT tax base	150	50	200
DBCFT charge	15	12.5	27.5
Net profit	135	37.5	172.5
Panel D			
Tax rate	*10%*	*25%*	
Labour costs	0	72	72
Other costs	0	48	48
Sales	150	180	330
DBCFT tax base	150	60	210
DBCFT charge	15	15	30
Net profit	135	45	180
Panel E			
Tax rate	*10%*	*25%*	
Labour costs	60	0	60

(continued)

Table 7.2 Continued

	Country A	Country B	Total
Other costs	40	0	40
Sales	150	180	330
DBCFT tax base	50	180	230
DBCFT charge	5	45	50
Net profit	45	135	180

businesses, things will change, along the lines discussed in Section 1.4. Following the rise in the tax rate in B, the demand of residents of B for imports from A will fall and the demand of residents of A for exports from B will rise. Both of these effects create upward pressure—as described above—on the value of B's currency[32] (or on wages and prices in B, if A and B have a fixed exchange rate). This has the effect, shown in Panel D, of increasing the value of profits earned in B expressed in A's currency, and rising by a factor (of 1.2 in this example)[33] that reflects the difference in tax rates. Profit in B, expressed in A's currency, rises to 60, which, after tax at 25%, exactly restores total after-tax profit to the level before the tax change and when all production was in A. Moreover, as shown in Panel E, the rise in B's prices also eliminates the business's incentive to shift production to B, as maintaining production in A also results in total after-tax profits of 180, rather than the 157.5 shown in Panel C.

The idea that prices and/or the exchange rate will adjust so as to exactly neutralize differences in rates of DBCFT across countries, it should be stressed, is not fanciful or arbitrary. The point, as is clear from the earlier discussion of the border tax adjustment, is that if the initial situation is an equilibrium—that is, a set of prices and allocation of activity such that no businesses or consumers wish to change their behaviour—then so is that in which prices and/or the exchange rate have adjusted as described.[34]

If the exchange rate is fixed or managed, however, or if wages or prices are sticky, this adjustment may not come about instantaneously. Without the appreciation of

[32] One can also think of the incipient capital inflow into B described in the previous paragraph and the incipient net export surplus of B described here as implying an excess demand for B's currency in the foreign exchange market that is eliminated by a nominal appreciation of B's currency.

[33] Denoting the tax rate in country i by T_i, the adjustment required is $(1-T_A)/(1-T_B)$, which in this example is (1–0.1)/(1–0.25) = 1.2. Note that this adjustment does not depend on the firm's costs, sales, or any other characteristics—and hence offsets the tax change for all firms. What is required for neutrality, however, is that the same rate applies to all businesses within each country.

[34] Indeed unless there are some other equilibria, the adjustment must be of exactly this form.

B's exchange rate or an increase in prices and wages there, B's exports will be cheap abroad and its imports expensive at home. Its net exports, and the level of activity, will therefore tend to rise. As the pressures on wages and prices this creates build up, however, the effect should be temporary. Eventually, wages and prices must rise in B to restore the equilibrium.

Note that this example also illustrates the incidence of the DBCFT. Due to the effect on the exchange rate—or on prices and wages in B—the business resident in A and exporting to B does not suffer any reduction in post-tax profit (in A's currency) as a result of the increase in the tax rate in B. The tax is instead borne by domestic residents of B. However, since wages in B also rise by the same proportion as prices, it is not borne by those of B's residents that consume out of labour income, but (in this example) only by those whose consumption is financed from economic rent. We discuss this further in Section 2.1.2.1.

2.1.1.2 Scale of investment

That the level of investment is also undistorted when all countries apply a DBCFT, at whatever rate, follows from the arguments just given. We have just seen that the presence of a DBCFT in country B, at whatever rate, left the firm's after-tax profit exactly as it was when it faced a 10% DBCFT everywhere. But when it faces such a tax, then, by the general property of cash flow taxation set out in Chapter 2, its investment decision is entirely undistorted.

2.1.1.3 Form of financing

Under an R-based cash flow tax, whether origin- or destination-based, financial flows simply do not enter the tax calculation and so are evidently left undistorted. The impact on financial flows under an R+F base is set out in detail in Section 3. Broadly, however, treating the location of the borrower as the 'destination' implies that a tax using the R+F base tax would be neutral with respect to financial flows and the location of lending and borrowing.

2.1.2 Fairness

What ultimately matters for the fairness of any tax system, of course, is how it affects individuals. How we tax business profit has implications for the fairness with which the tax burden is shared, both within and across countries. This section looks at the DBCFT in this light, and at the particular question of the suitability, or not, of the DBCFT for developing countries.

2.1.2.1 Incidence of the DBCFT

The effective incidence of the DBCFT—who bears the burden of this tax—can be most easily understood by recalling from Section 1.2 that the DBCFT is equivalent to a VAT plus a matching subsidy for wages and salaries. So the incidence of the

DBCFT will be the same as that of a tax on domestic consumption combined with a subsidy, at the same rate, to domestic wages. The effect of the subsidy would be to exactly offset the impact of the tax on consumption out of domestic wages, or more generally, labour income. As a result, the DBCFT is equivalent to a tax on domestic consumption financed by resources *other than* domestic wage and salary income. These resources will have two main components.

First, in a transitional period they will include returns to previous investments. Second, on an ongoing basis and in present value terms, they will reflect economic rent: the return on investments in excess of that needed to cover the normal return to capital. Note though, that the incidence is on consumption financed largely by economic rent accruing to domestic residents. As noted in the example in Table 7.2 above, the tax is *not* borne by foreign owners of businesses that sell goods and services in the jurisdiction of the DBCFT. Instead, the effects of the DBCFT on either exchange rate or on prices and wages have the consequence that the tax is borne by domestic residents.

In addition, these effects on the exchange rate or wages and prices will involve shifts in the tax burden through changes in asset values.[35] In the context of a country with a fixed exchange rate, introducing a DBCFT would tend to push up prices and wages. So domestic individuals holding assets fixed in nominal values, such as domestic bonds, will lose at the expense of issuers of the liabilities. Similarly, in this case, those earning an unadjusted minimum wage or in receipt of government transfer payments, would also lose. Neutralizing some of the possible adverse distributional effects may require indexing such payments, and any minimum wage, to consumer prices.

By contrast, in a country with a flexible exchange rate, nominal domestic prices would be less likely to be affected; their value would change relative to world prices through an appreciation of the exchange rate. In this case, residents holding domestic assets fixed in nominal values would be unaffected, while non-residents holding these assets would benefit and residents holding foreign assets would lose.

In general, a tax on consumption not financed by labour earnings would be expected to fall on the affected consumers, except to the extent that these consumers are able to avoid a tax on their consumption from non-labour income by changing their behaviour.

For the DBCFT, however, there are few possible ways in which behaviour will change. In particular, because the cash flow tax base excludes the normal return to saving, there would be no incentive to save less. In addition, because of the destination basis used for the DBCFT, there would be no incentive for capital or business activity to move to other jurisdictions, as already discussed.

[35] See Viard (2017) for further discussion.

One possible shift away from taxation that remains under the DBCFT would be through cross-border shopping, if other nearby or accessible countries impose tax at a zero or lower rate.[36] With few exceptions, however, significant cross-border shopping has tended to be confined in practice to excisable goods: it has tended to be modest in response to general differences in rates of VAT. However, to the extent that cross-border shopping reduces domestic demand, we would expect some of the tax to be borne on the supply side, for example by factors entering the production process, regardless of their location, such as the intangible assets a business owns.[37]

This analysis indicates an important point regarding the incidence of the DBCFT: it falls primarily on domestic residents receiving (and spending) economic rent—and since they tend to be in the upper part of the income distribution, the tax would be likely to be progressive. It would certainly be considerably more progressive than a broad-based VAT, which falls on all domestic residents.[38] The comparison with a conventional tax on business profit is more complex, because a conventional tax is not only levied on an origin basis, but also falls on the normal return as well as on economic rent. As we discussed in Chapter 2 such a conventional tax is at least to some extent passed on in higher prices to consumers and in lower wages to workers. By removing the normal return to capital from tax, a DBCFT is therefore likely to be more progressive (though not necessarily so).[39,40]

[36] This depends on how the place of the sale is defined. In principle, we are searching for the least mobile tax base—which is probably the normal place of residence of the consumer, rather than the place of purchase. This would imply that a consumer that shops abroad should still be taxed at her domestic tax rate. But in practice this is unlikely to be feasible, certainly in all circumstances. See the discussion in de la Feria and Devereux (2014).

[37] An alternative approach to understanding the incidence of the DBCFT is to start with an origin-based cash flow tax, which would impose a tax on the cash flows of firms' domestic operations. In general, such a tax would fall on the owners of the business. The border adjustment included in the DBCFT would in effect convert the tax base from a tax on the cash flows received by owners of domestic firms to a tax on the cash flows received by domestic owners of firms worldwide. See Auerbach and Devereux (2018).

[38] VATs in practice of course often include reduced rates on some items precisely in order to improve their progressivity. As is widely recognized, however, this is an extremely inefficient way in which to pursue distributional objectives, especially in advanced economies that have quite finely targeted income support measures available to them. The implication is that distributional impact can be improved by moving to a single rate VAT while strengthening income support (see e.g. Crawford et al, 2010).

[39] The same would be true of any form of rent taxation.

[40] As we discuss in Chapter 2, a tax on the normal return to capital could be levied at a personal level, in the country of residence of the owner of the business. This is the approach, for instance, of the Business Enterprise Income Tax proposed by Kleinbard (2007), which combines a rent tax at the corporate level with a tax on the normal return at the personal level.

2.1.2.2 Inter-nation equity

Taxing sales on a destination basis but giving relief for expenses on an origin basis can produce an allocation of profit amongst countries which might be considered to be inequitable. If a business produces goods in country A and exports to country B, then, under a DBCFT, A would not receive any tax on the business's profit. A system under which a government that potentially contributes significantly to the success of business operations by providing infrastructure, legal protection, and other goods and services, but receives no tax revenue—while governments that contributed nothing happily pick up a cheque—might be considered to be unfair, or at least inappropriate, violating a view of taxation as in part payment for the benefits provided by governments.

Recall, however, as argued in Chapter 2, that current taxes on business profit do not satisfy the prescriptions of the benefit principle either, as they can result in high taxation for businesses which derive very little value from publicly provided goods and services and no taxation for businesses which derive a great value. In other words, there is no necessary connection under current arrangements between benefits derived and taxes paid. Concern for the benefit principle would thus be better addressed through the adoption of fees based on a business' footprint in a particular country. Such fees could be introduced alongside a DBCFT by countries wishing to do so, although, of course, this could affect the attractiveness of the country as a location for investment.

But this issue should in any case be viewed at a national rather than at an individual business level. Under a DBCFT there will certainly be instances in which little or no tax is collected by countries from businesses which export a high percentage of their products or services. However, such countries will tax the profits of businesses which incurred their production costs in a different country. Viewed at a national level then, zero-rating of exports and taxation of imports would net out in the aggregate tax base to the extent that there was a balance of trade, with exports equal to imports. Of course, net exporting states would find themselves on the wrong side of this balance. However, two factors militate against the conclusion that the DBCFT would not be right for such countries. First, net trade positions change over time, albeit extremely slowly in some cases, and net exporting states might find themselves closer to a balance of trade or even net importers in years to come. Second, countries which seek to tax on an origin basis because of the benefit principle might in time find themselves simply unable to do so. Competitive forces will continue driving down corporate tax rates under the current system and businesses will respond by moving their real activity.

More generally, apart from the shift to a destination basis, there would be several effects on the revenue generated from the DBCFT, relative to the revenue generated from the conventional tax. First, as noted above and elaborated on further below, the DBCFT should make it considerably harder to shift profit to low tax

jurisdictions. Second, the pressure to have a low rate of tax in order to compete with neighbouring countries disappears with the adoption of the DBCFT, since, as seen above, location decisions by business should be independent of the rate at which any country levies its DBCFT. Any country could therefore raise its tax rate without fearing an exodus of either real economic activity or taxable profit. On the other hand, moving to a cash flow tax might reduce the tax base relative to a conventional tax, since the cash flow tax provides immediate expensing rather than traditional depreciation deductions; in the other direction, the conventional tax allows interest payments to be deducted, while the DBCFT would not. The net impact of these two offsetting effects on the tax base is unclear and would depend on the initial circumstances in a particular country with respect to the generosity of existing depreciation schedules and the extent of leverage in business capital structure. While one cannot say for certain that these offsetting changes in the tax base, combined with less profit shifting, would lead to an overall broadening of the tax base, the opportunity to increase the tax rate without concern about cross-border shifting at least offers the possibility of recovering any revenue lost even if these effects reduce the tax base.[41]

Hebous et al (2019) estimate the impact on government revenues of the hypothetical use of the DBCFT. Using data primarily on forty-eight countries over the period 2002–11, they estimate the size of the DBCFT tax base using country level national accounts data, as non-financial corporate gross operating surplus, less corporate investment, plus imports less exports. They apply the existing corporation tax rate to this tax base and compare the resulting revenue estimates with actual corporation tax collections in that period. Clearly, this can only be a rough approximation of the true DBCFT base in any country, and the authors acknowledge a number of caveats in their estimation. Nevertheless, this approach can give a broad guide to the likely impact of using the DBCFT, subject to two important assumptions—that business behaviour does not change and that the tax rate applied is that of the existing corporation tax.

In their main results they find that, on average across the sample, estimated revenues from the DBCFT would be close to those actually obtained from current corporation taxes. However, this result hides considerable variation across countries: mostly depending on whether the trade balance is significantly negative or

[41] Patel and McClelland (2017) examined some of the revenue consequences of introducing a DBCFT in the US, on the assumption of unchanged behaviour of businesses. They find that, over the period 2004–13, if the US had had an origin-based cash flow tax in place, the total tax base would have been almost the same as under the actual tax system in place at the time. Also the number of firms with tax losses, both unweighted and weighted by assets, would have been almost identical to that under the actual tax system. Because the US had a trade deficit during this period, moving from this to a DBCFT would have significantly increased the aggregate US tax base. The proportion of firms with tax losses would again have been barely unchanged on an unweighted basis, but would have been higher weighted by assets, reflecting the fact that firms which participate in cross-border transactions tend to be larger.

positive. Around a third of the sample would see a substantial gain in tax revenue, whilst another third would see a substantial reduction.

They find that, on average, developing countries that are not resource-rich would be beneficiaries of a switch to the DBCFT. Natural resources are often largely exported, a major source of government revenue (especially in many low income countries) and a national asset. Governments of resource-rich countries are unlikely to be content to receive, as they would under a DBCFT, no revenue from their exploitation—and even finding themselves paying large amounts to foreign extractive businesses.[42] Moreover, while the DBCFT looks to the immobility of consumers, this is a case in which there is an immobility of the underlying asset—giving rise to rents that are specific to their location—that can be exploited. As explained in Chapter 2, in such circumstances, there are powerful forces pointing to the retention of some element of origin-based taxation of natural resources both as a political reality and a potentially efficient form of taxation.[43]

To take into account such special treatment of natural resources in estimating the impact of the introduction of a DBCFT on revenue, suppose a country currently has both a tax on natural resources and a conventional corporation tax, which applies both to natural resources and all other activities. Now suppose that the country continues to tax its natural resources at the same level—including *both* existing sources of taxation. But for non-resources, it border-adjusts its corporate tax. Then, in aggregate, and abstracting from other factors affecting the tax base, the country would see a fall in its taxable income if its total imports were less than its exports from the non-resource sector.

We are able to analyse the position of a large number of countries using data on balance of payments statistics from UNCTAD, with information on exports of natural resources from UNComtrade. We identify seventeen countries out of 181 analysed for whom, over the period 1996–2014, imports were less than exports excluding natural resources. These include Japan, China, Germany, Switzerland, and Sweden. Only one low income country (Nepal) and four lower middle income countries (East Timor, Uzbekistan, Bangladesh, and Philippines) were in this position. If these countries continued to have such an imbalance of trade then moving to a destination basis would tend to reduce their tax base. However, for all other countries, if they maintained similar taxes on their natural resources, then these calculations suggest that moving to a DBCFT for non-resource trade would tend to increase their tax base.

[42] Businesses that are primarily exporters could be in a permanent loss position.

[43] Efficiency would call for some form of resource rent taxation, though administrative considerations may imply balancing this with royalties (charges on the volume or, more commonly, the value of output) which, though more distortionary, may be less vulnerable to avoidance through the manipulation of costs: see Boadway and Keen (2010). Similar considerations would apply to other cases in which there are location specific rents that derive largely from exportation.

2.1.2.3 Developing countries

Business tax reform is a high stakes game for developing countries—perhaps even more so than for advanced countries. They are in many cases heavily reliant on tax revenues from extractive industries, derive a somewhat larger proportion of their total revenue from taxes on business profit from the non-resource sector than do higher income countries, and have fewer realistic alternative sources of revenue. While the results of Hebous et al (2019) provide some comfort for developing countries on average, a switch to a DBCFT may be especially important for such countries. There are four main issues.

The first is the treatment of natural resources, which are an especially important source of revenue for many of them. As argued above, there is a strong case to retain origin-based taxes on these.

The second is the impact on the tax base. Broadly, moving from a traditional origin-based tax to a DBCFT means—assuming no change in behaviour—losing revenue to the extent that exports exceed imports, and to the extent that the origin-based tax is levied on the normal return to capital.[44] The likely extent of the latter, however, is hard to assess. While one could argue that this could in any event be recouped, at least in relation to domestic owners, by levying the tax at a personal level, experience on the taxation of capital income in low income countries is not encouraging.

A third consideration that is common to all countries but applies with particular force to many developing countries is non-compliance. If (as seems plausible) the untaxed sector viewed on its own tends to have a trade deficit—importing more than it exports—then the view of the likely revenue impact set out above would be over-optimistic. There is cause for more optimism, perhaps, on the impact of movement towards the DBCFT on compliance: all else being equal, remission of the tax on the normal return would make registration for this form of business taxation more attractive, while the wage deduction should also make the DBCFT more attractive to comply with than the VAT.

A fourth consideration is the greater weakness of tax administrations in developing countries. Here the heightened need to refund losses is a major concern. This remains a major issue under the VAT, and—in whichever form adopted—would be amplified under a DBCFT or the equivalent VAT combined with a payroll subsidy. Cross-crediting of DBCFT losses against other positive tax liabilities (which we discuss further in Section 4.2.2) is more difficult in such countries, both because of the administrative challenges this implies and because there are fewer taxes against which credit might be taken: there are commonly no payroll contributions and only modest personal income taxes. Corruption and fraud are obvious concerns in the processing of refund claims (indeed credits more

[44] There could also be some loss from the removal of withholding taxes on payments to non-residents, to the extent that these are not already undermined by treaty shopping.

generally). But the greater difficulty with VAT refunds has commonly been not too many, but too few, as administrations either adopt strong safeguards or lack access to the funds to pay them.[45]

Against all this, however, one must weigh the weaknesses of current international tax arrangements. These, in many respects, have not served developing countries well: the evidence is that, relative to their GDP or total revenues, they lose more from BEPS-type avoidance than do advanced economies.[46] And they are exposed too to the rigours of aggressive international tax competition. The gains from escaping those (except in relation to natural resources) could, over the long haul, outweigh quite considerable shorter-term difficulties.

2.1.3 Robustness to avoidance

No tax system is perfectly robust to avoidance. However, when adopted universally, the DBCFT closes the most significant avoidance channels found under existing tax systems, cutting through the swathe of issues taken on in the OECD/G20 BEPS project described in Chapter 3.

When adopted in all countries, the DBCFT eliminates the shifting of profits to low tax countries through the three most important current channels: lending from a low tax country to a high tax country, manipulating transfer prices, and locating intangible assets that earn a royalty or licence payment in a low tax country.[47]

The most straightforward of these to explain is debt shifting. Under an R-based cash flow tax, there is no tax relief for interest payments and there is no tax on interest received. So the debt shifting channel simply would not exist. Lending among affiliates of a multinational located in different countries would simply have no tax consequences. As we set out in Section 3, this channel would not exist under the R+F base either.

Profit shifting through the manipulation of intra-group prices is also precluded by the DBCFT. To see this, consider the effect of a sale of a good by subsidiary A to another member of the same multinational group, subsidiary B, with the two subsidiaries located in different countries. Under current arrangements, A pays tax on the sale of the good to B, but B receives tax relief on the purchase of the good as an input into its own activity. If A's country has a higher tax rate, then there is an incentive to understate the true price of the good, shifting taxable profit from A to B, and reducing the overall tax liability. If A's country has a lower tax rate, then the incentive is reversed; overall tax is lowered if the price is overstated.

[45] On the difficulties of managing VAT refunds in developing countries, see for instance IMF (2019).
[46] See, for example, Crivelli et al (2016) and Johannesen et al (2021).
[47] These effects are discussed in more detail in Auerbach et al (2017b). For a more comprehensive assessment of the DBCFT's robustness to avoidance see Devereux and Vella (2018c).

Table 7.3 DBCFT liabilities in importing country, with different prices for imports

	Price	Tax liability: Method (a)	Tax liability: Method (b)
Import	100	25	0
Sale to domestic consumer	120	5	30
Total tax liability	–	*30*	*30*
Import	0	0	0
Sale to domestic consumer	120	30	30
Total tax liability	–	*30*	*30*
Import	120	30	0
Sale to domestic consumer	120	0	30
Total tax liability	–	*30*	*30*

But under a DBCFT, A faces no domestic tax on its export. B does face a tax on its import,[48] but as an input into whatever activity B is undertaking the cost of the good will also be deducted from B's tax base. These two effects exactly cancel out, making the value of the import irrelevant for tax purposes.

An alternative approach to implementing this treatment of imports, as discussed in Auerbach (2010) and further below, would be simply to exclude imports by taxable businesses from the tax base altogether—so that for them there is neither a tax on imports,[49] nor a deduction for the cost of the imported good. In this case, the transaction between A and B is entirely free of tax. Under this alternative approach, it is particularly easy to see how the destination basis eliminates tax avoidance opportunities based on mispricing of within-group cross-border transactions. Because cross-border transactions would simply no longer affect the tax base for either of the parties to the transaction, a business could not influence its domestic tax liability by misstating revenues or expenses associated with cross-border transactions.

Table 7.3 illustrates this key point that—given universal adoption of a DBCFT, even at different rates in different countries—understating or overstating intra-group prices makes no difference to the overall tax liability under the DBCFT. The business imports the good from an affiliate in the same multinational group, and

[48] There is a need to define an 'import'. The key issue here is that all goods and services sold domestically should be subject to the tax. Broadly, in this case, an import would be a good or service purchased from an entity not subject to the domestic DBCFT (and also not a domestic entity excluded from it by virtue of size, as we discuss below in the context of the scope of the tax).

[49] Imports by final consumers would remain taxable.

then sells it to a domestic third party—for example, a final consumer or an unrelated party—for a price of 120. Both countries operate a DBCFT, and so there is no tax on the export in the exporting country. The tax in the importing country—assumed to be at 25%—can be thought of in two ways, as described above. In column (a) the import is taxed, and the cost of the import set against the tax charge on the sale to the final consumer. In column (b), the import is ignored for both purposes.

Suppose that the price at which the good is imported is 100. Then under method (a), there is a tax charge on the import of 25. In addition, there is a tax charge on the profit of the importing business at 25% of sales less imports—a tax liability of 5. Total tax is therefore 30. Under method (b), the import is simply ignored, and there is a tax charge on the total value of the sale to the domestic consumer, which also generates a total tax liability of 30. This shows the irrelevance of the import price of the import for the total tax charge. As the other panels demonstrate, even if the price of the import were set to zero, or 120, the total tax charge would remain 30.

It is important to note that the netting out of business-to-business transactions through BTAs also makes the DBCFT robust to avoidance strategies used in the context of formulary apportionment systems which are based on the destination of sales.[50] Under a formulary apportionment system, a highly profitable business could sell its products in a fully arm's length transaction to a much less profitable retail distributor in a low tax jurisdiction. As a result, only the low rate of tax would be applied to the profitable business's profits. The retail distributor could sell on the goods into a high tax country and face tax at a higher rate, but this would only apply to its relatively low profit. The overall tax liability may then be considerably lower than if the original business had sold directly into the high tax country. This could not happen under a DBCFT. In that case, the full value of imports into the final country of destination would be subject to tax in that country.

A third common strategy for profit shifting under the existing system is to place highly valuable intangibles in low tax jurisdictions. Other entities within the multinational group that are located in high tax countries may then pay royalties or licence fees to the business that owned the intangible asset in return for their use. Broadly, under the existing system, these payments receive tax relief at the high rate of tax and are liable to tax on the receipt at the low rate of tax. Again, this would not happen under a DBCFT.

The reason is the same as that given above. The purchase or sale of the right to make use of the intangible asset would naturally be treated in the same way as the purchase or sale of a good or service. This is, then, an import into a destination

[50] By this is meant a system under which the consolidated profits of a multinational are allocated for taxation across jurisdictions according to the share of each in its total sales. As discussed in Chapter 6, this problem applies to the RPAI system.

country, and as such, would be liable to tax in that country. If A (located in a high tax country) acquires a licence from B (located in low tax country) to use its IP, this would give rise to a tax liability in the high tax country. But the tax paid on that import would also be deductible as a cost for A. Just as above, these two elements would exactly balance out. An alternative arrangement, as with other imports by taxed businesses, would be simply to disregard the import and the payment for it. In any case, since there are no real tax consequences of the transaction, the incentive to locate intangible assets in a low tax jurisdiction would disappear under the DBCFT.

Finally, note that the DBCFT puts considerably less pressure on the notion of corporate residence than does the existing system, though at the cost of introducing a different notion of nexus to that under the current regime. The tax base is essentially domestic sales less domestic expenses. There is no requirement for corporate residence to identify either sales or expenses. Sales are taxed in the country of the consumer, irrespective of corporate residence. And expenses are allowed in the country in which they are incurred, also irrespective of corporate residence.

Many other issues arise in tax avoidance and planning beyond those discussed so far; and—in the context of the 2016/17 debate in the US as to whether to implement a form of DBCFT—some commentators have suggested that new forms of avoidance and planning might become available.[51] Devereux and Vella (2018c) considered the key strategies proposed, distinguishing between the 'pure' form of the DBCFT set out here, and other reform proposals that incorporated only some elements of the DBCFT.[52] They also distinguished between strategies aimed at the cash flow element of the tax and those aimed at the destination basis of the tax.

In the context of the former, it is important also to distinguish between strategies that confer a real economic benefit in present value terms from strategies that only defer tax payment. Beyond that, however, a key element of the former set of strategies is the existence of transactions with tax-exempt businesses or individuals. Domestic transactions between businesses subject to the DBCFT usually net out; a payment by A to B typically generates relief for A and is taxed in the hands of B. But that does not apply to transactions with one party not subject to the tax. Suppose B is tax exempt, for example. Then under an R-based approach, A has an incentive to structure the payment as a real, rather than financial, transaction since it will receive greater relief, at no additional cost to B. We discuss this issue at length in Section 3 in the context of taxing financial flows.

In the context of the destination-based element of the tax, there is a need to distinguish different possible responses to the tax, including a real effect from

[51] See, for example, Hariton (2017) and Miller (2017).

[52] More specifically, the proposal by the United States House Ways and Means Committee in its June 2016 Blueprint, Ways and Means Committee (2016).

a tax avoidance effect. For example, a country unilaterally replacing its existing origin-based tax with a DBCFT would attract inward flows of capital; this would be a real, and intended, effect of the reform; it does not constitute tax avoidance. Many proposed strategies aim to exploit the differences between countries that introduce a DBCFT from those that do not; these strategies either fail, benefit the country unilaterally introducing the DBCFT, cannot reasonably be labelled 'avoidance', or are in any case consistent with the aims of the DBCFT. We discuss these further below.

However, the DBCFT is not perfectly robust to avoidance, nor evasion. Indeed, certain forms of evasion commonly found in the VAT sphere, such as fraudulently disguising domestic sales as exports, can be expected. But if adopted in all countries the DBCFT would be robust to the most significant and widespread avoidance mechanisms under the existing regime. Their elimination is a major strength of the DBCFT.

2.1.4 Ease of administration

We examine issues of implementation in some detail in Section 4. Here we simply outline the main specific features that differentiate the DBCFT. Broadly, since the DBCFT eliminates the need for existing swathes of complex legislation which burdens the current tax regime and increases compliance costs on taxpayers and revenue authorities alike, then it should be rather simpler to administer.

Under the R-based cash flow tax, since debt and equity are treated in a neutral fashion, there is also no need for complex rules that police the border between the two. Further, due to the immediate expensing of all asset purchases under a cash flow tax, no rules are required to distinguish between assets that are expensed and those that are capitalized. It follows that there is also no need for complex depreciation schedules or to keep track of individual assets and their bases.

The destination basis also brings extensive simplifying benefits. It eliminates the need for some of the most significant, yet complex and lengthy, extant anti-avoidance rules. These include rules on transfer pricing, thin capitalization, Controlled Foreign Company, and anti-inversion, as well as exit taxes. These rules require constant updating to meet new planning strategies and their application is notoriously costly and burdensome. Their elimination thus provides significant benefits of simplification to both governments and businesses.

On the other hand, the DBCFT does raise some significant administrative challenges which are new to business taxes, although well known in VAT. One is the need to distinguish between real and financial flows; this is addressed in Section 3. Others include the challenges posed by potentially persistently negative tax liabilities of exporters and the need to levy a tax in the place of sale, a particularly difficult problem for services and digital products; these are addressed in Section 4.

2.1.5 Incentive compatibility

In Chapter 3 we explored how the existing system for taxing profit has been destabilized by competitive forces which drive countries to cut their tax rates. In Chapter 4 we explained that the same would be true for alternatives such as a residence-based tax on the parent company or a multi-factor formulary apportionment system. The DBCFT, in contrast, would not be subject to competitive forces of this kind, since reducing the tax rate of a DBCFT would not help attract inward investment, headquarters, or business activity, nor would it be necessary to combat tax avoidance. Countries can thus set their DBCFT rates in accordance with their own preferences, without concern about the rates set by other countries. By neutralizing these competitive forces, the DBCFT would provide long-term stability in the tax system and enable countries to protect their revenue; this is one of its principal strengths.

2.2 Unilateral adoption

So far we have considered the properties of the DBCFT if it were introduced in all countries, possibly at different rates. But, of course, it is unlikely to be introduced simultaneously by general agreement in many countries. An important issue is therefore what the properties of the DBCFT would be if it were introduced in only one country, or a small group of countries. For considerations of incentive compatibility, we are interested both in the effects on countries which introduce it, and on those that do not. In particular, we are interested in the incentives of the first group as to whether to continue to use a DBCFT, and in the spillover effects on those that do not, including their incentive to respond by adopting a similar system—and including, for both, the implications for the likely extent and nature of tax competition. We address our usual five criteria in turn.

2.2.1 Economic efficiency

A DBCFT adopted unilaterally by one country would have the same efficiency properties in terms of the scale of investment in that country as a DBCFT adopted universally. For the case of purely domestic activity, or equivalently for an origin-based cash flow tax, this is demonstrated in Chapter 2. Adding border adjustments, when some of the cash flows associated with the investment represent either imports or exports, does not affect this neutrality property. Consider, for example, the case in which a domestic firm exports, and thus does not pay tax on its sales. In this case, the exchange rate appreciation arising from the introduction of the border adjustment offsets the benefit of the zero-rating of exports. This leaves the scale of any investment decision in the country unaffected by the domestic DBCFT. The DBCFT is also neutral with respect to borrowing from domestic sources, as we discuss in detail below; we discuss incentives to shift borrowing amongst countries in Section 3.

However, the location of investment decisions would be distorted under the unilateral adoption of a DBCFT. Suppose country A used a DBCFT but other countries maintained a conventional origin-based tax on business profit. Then, in effect, A would not levy tax on the returns to economic activity taking place in A other than that generating domestic sales. This would clearly create an incentive for businesses to locate economic activities such as production of goods and services in A, no matter how low the origin-based tax in other countries. The incentive to locate in A comes from the origin-based tax levied in other countries. The advantage of locating such activity in the DBCFT country would not vary with the rate at which it is charged. This is because, as we argued above, relief for costs incurred on that economic activity would be offset by a rise in relative prices, so the net impact of the DBCFT would be tantamount to reducing its origin-based tax on business income to zero. And this would be true whatever the tax rate in the DBCFT country.

In effect, replacing an origin-based tax on profit with a DBCFT could be seen as an aggressive move in the existing tax competition game. Origin-based taxes on business income would continue in other countries, giving businesses an incentive to locate, or relocate, their activities to countries adopting the DBCFT. This would be true irrespective of where the product was destined to be sold.

2.2.2 Fairness

Broadly, the considerations of fairness are the same as if the tax were introduced globally. The tax would continue to be equivalent to a tax on domestic consumption financed by resources other than wage and salary income. The issues of inter-nation equity are also similar as well, though with the additional twist of the likely impact of increased profit shifting out of non-adopters, discussed next.

The factors influencing revenue (other than through avoidance) would again be similar. However, in the case of unilateral adoption of the DBCFT, the behavioural response of multinationals would be different, and this could affect revenue and welfare in the country that introduced the tax. For example, suppose that country A introduced a DBCFT and country B did not. Then a business that produced in A and exported to B would face no tax on its profit. But a business that produced in B and sold in A would be taxed on its profit in B, and on its import to A. This might be considered unfair but is simply the result of the two countries having a different basis for taxation.

2.2.3 Robustness to avoidance

The unilateral adoption of a DBCFT would leave existing avoidance opportunities in place; however, they would now operate, potentially strongly, to the detriment of the rest of the world and to the advantage of the adopting country.[53] Consider,

[53] For a more detailed consideration of these issues, including numerical examples, see Auerbach et al (2017b).

for example, incentives for transfer mispricing. In the previous section, we argued that if two countries adopted the DBCFT, a business could not shift profits from one to the other by mispricing intra-group transactions. But what would happen if country A adopted a DBCFT, but country B maintained its existing conventional origin-based tax?

As we have seen above, cross-border intra-group transactions would not appear in the tax base in country A. Exports would be excluded from the tax base. Imports could be treated in two ways: they could be taxed, but with this tax then exactly netting against the relief for the cost of the input; or they could be just ignored. In either case there would be no tax consequences in country A. But the declared prices used for intra-group cross-border transactions would still affect the tax base in country B. If the business was exporting from the non-DBCFT country B, there would be an incentive to under-price the export. If the business was importing into B, there would be an incentive to over-price the import. These incentives are greater the higher is the origin-based tax rate in B.

A similar analysis applies to the strategic location of intangible assets. Under the existing system, there is an incentive for businesses to locate intangible assets in low tax jurisdictions and to pay royalties and licence fees from high tax countries to where the assets are owned. As we argued above, this incentive would not be present if the high tax country had a DBCFT, however high the rate. That is because the use in the DBCFT country of the benefits of the intangible asset would be treated as an import. The tax on the import would again net out with tax relief on the purchase of that import; or the import could be ignored entirely. In either case, there is no net deduction for the cost of using the imported service from the intangible asset.

If other countries maintained existing origin-based systems, however, then there would be an incentive to locate intangible assets in the DBCFT country, since—being akin to an export—there would be no tax on the receipt of royalty or licence fees. To this extent, the DBCFT country would again be operating in a way akin to a low tax jurisdiction under an origin-based tax system. Royalty payments to the DBCFT country would generally be deductible in other countries; this would facilitate a reduction in taxable income in those countries.

As will be seen in Section 3, the preferred treatment of financial flows under a DBCFT can also worsen base erosion in non-adopters, since interest payments may be deducted in the non-adopting countries but would not be taxed in the DBCFT country.

The adoption of the DBCFT by a single country is thus likely to aggravate the problems of base erosion and profit shifting in countries that did not implement a DBCFT, whilst rendering the adopter immune from such activity, and even conveying some benefit on it. This is, or should be, a significant concern with unilateral adoption. The quantitative impact of additional profit shifting opportunities

on other countries is hard to gauge: multinationals already have many opportunities to shift profits to low tax jurisdictions. And the impact will depend on the particular circumstances, being greater, for instance, if the adopter is a large and initially high tax country.

The likelihood is, in any case, of increased pressure on the devices that non-adopters have at their disposal to limit profit shifting: thin capitalization rules, withholding taxes, and the like. While such direct responses are in the hands of the non-adopters, the adopter may also wish to cooperate in protecting foreign tax bases from being undermined through artificial transactions and pricing. Participation in the county by country reporting that is a minimum standard under the OECD/G20 BEPS project, for instance, may yield little direct benefit to the adopter, but can be helpful for others in addressing transfer pricing issues. Beyond such measures, non-adopters would clearly have an incentive to follow suit by introducing a DBCFT. However, this is likely to take some time, during which the adverse impact on non-adopters might be significant.

2.2.4 Ease of administration

For the country adopting it, the main administrative benefits and costs of adopting a DBCFT—prominent among the former being that opportunities for shifting profit to low tax jurisdictions are considerably diminished, if not extinguished—are much the same whether adopted unilaterally or universally.

Two additional issues would arise if the DBCFT were introduced unilaterally, however. First, as we discuss in Section 4 on implementation below, there would be benefits in tax collection if countries cooperated with each other. These benefits would presumably be much less likely to occur if a country introduced the DBCFT unilaterally. Second, from the perspective of taxpaying multinationals, there may be an additional compliance cost in dealing with a DBCFT in one country, and existing business-level taxes on profit in other countries, although, of course, businesses must already cope with quite significant differences in existing national tax regimes.

2.2.5 Incentive compatibility

The attractiveness of moving from a traditional origin-based business tax from the perspective of a single country, acting on its own, involves a trade-off between advantages and disadvantages. These include, as discussed in Auerbach and Devereux (2018), the benefits of attracting capital and profits from other jurisdictions on the one hand, and the potential costs of a reduced ability to 'export' taxes to the residents of other countries on the other. A country unilaterally introducing a DBCFT would in effect be reducing its origin-based tax on business income to zero. As discussed, this would attract real activity and profit from other countries where that origin-based income would be liable to tax. But, on the other hand, an origin-based cash flow tax would fall on the owners of the business being taxed, including

non-resident owners. By contrast, as discussed above, a DBCFT would ultimately fall only on domestic residents. A move to a DBCFT from an origin-based cash flow tax would therefore have a cost in reducing the ability of the country to levy a tax the incidence of which is partly on non-residents. This second factor may be relatively more important for a large country.

However, existing business taxes are less likely to be exported to non-residents than origin-based cash flow taxes. That is because existing taxes do not generally fall solely on economic rent; consequently, they create incentives for businesses to distort their behaviour and prices in ways that pass on the burden of the tax to others, particularly residents. Thus, while there is a clear trade-off between origin- and destination-based cash flow taxes, the benefit of a conventional origin-based tax in exporting tax to non-residents is weaker than with an origin-based cash flow tax.

In addition to removing tax on domestic origin income, the treatment of borrowing and interest under the DBCFT (discussed in the next section) would introduce a powerful incentive for adoption elsewhere, for it would shift borrowing and interest deductions to other countries where interest is still deductible (at least as long as the other jurisdictions did not combat this incentive by the use of anti-avoidance rules). Similarly, as the adoption of the DBCFT by one country safeguards it against a number of profit shifting techniques whilst providing opportunities for multinationals to shift profits from countries operating an origin-based business tax to it, it also gives other countries an incentive to adopt the DBCFT.

For non-adopters, as seen above, despite such possible defences as mentioned there—and to an extent that again depends on circumstances—the replacement of a traditional business income tax by a DBCFT in another country may place substantial pressures in the forms of both reduced investment and heightened profit shifting. They are likely to respond. This may take the form of either reduced statutory rates or base narrowing measures while retaining a traditional business-level tax on profit, or a movement to a DBCFT. The former response provides no lasting solution to continued tax competition. Subject to important caveats—notably those in relation to developing countries discussed in Section 2.1.2.3 —the latter may well have more attractions than the continued undermining of the international tax systems that is all too clear under current arrangements.

How the incentives for adoption would change in response to other countries' adoption is a complex question.[54] However, it seems likely that the attractiveness of adopting the DBCFT would be enhanced by other countries already having done so. That is because countries that kept an origin-based tax would be at a competitive disadvantage since in effect they would be competing for real economic activity

[54] Empirical evidence suggests that countries respond to a reduction in the tax rate in other countries by reducing their own tax rate; for references, see Chapter 2.

and profit with countries that have no origin-based taxation. As investment and profit shifted to the countries that had unilaterally introduced the DBCFT, there would be a powerful incentive for other countries to follow suit.

A unilateral move to the DBCFT can therefore be seen as the ultimate move in a tax competitive game being played out in origin-based business-level taxes on profit, as it results in an origin-based tax rate of zero. The adopting country would not be susceptible to tax competitive forces on the tax rate it selects. In that sense the result is long-term stability for the adopting country, freed from destabilizing tax competitive forces.

3. Taxing financial flows

The growing importance of financial businesses and activities increases the attractiveness of taxing the economic rent accruing to financial businesses.[55] This section considers how this can be achieved, first under a DBCFT and then under a VAT-based equivalent.

3.1 The choice between an R base and an R+F base

As described briefly in Section 1.1, there are two basic approaches to the treatment of financial flows under a cash flow tax, including the DBCFT. These were set out by the Meade Committee (1978), and we use their terminology here. The first option is simply to ignore, or exempt them, in that no tax is levied on financial inflows, but equally no relief is given for tax levied on financial outflows. This is the route taken by most VATs. This is equivalent to a tax only on 'real' net inflows, which Meade calls the R base. The second option is to tax also all net financial inflows other than equity transactions with the business' owners, which Meade calls the R+F base. Table 7.4, which is adapted from Meade Committee (1978), shows which flows would be subject to tax under an R and an R+F base.

In the table, 'real' inflows are denoted as R and 'real' outflows are denoted as R^*. The R base is therefore simply net real inflows, R-R^*. The key elements of each flow are shown in the Table.

The 'financial' element is also straightforward, although perhaps less intuitive. The 'financial' tax base would be inflows, F—including new borrowing, interest received, and reductions in cash holdings—less outflows, F^*—including repayment of borrowing, interest payments, and new lending. The 'R+F' base

[55] See, for example, the statistics for the UK and the US in Auerbach et al (2010).

Table 7.4 Elements of R and R+F base taxation

Inflows	Outflows
Real Items	
R1 Sales of goods	*R*1* Purchases of materials and services
R2 Sales of services	*R*2* Wages and salaries
R3 Sales of assets	*R*3* Purchase of fixed assets
R	*R**
Financial Items	
F1 Increase in any forms of borrowing	*F*1* Decrease in any form of borrowing
F2 Decrease in any form of lending	*F*2* Increase in any form of lending
F3 Decrease in cash	*F*3* Increase in cash
F4 Interest received	*F*4* Interest paid
F5 Decrease in holding of shares in foreign companies	*F*5* Increase in holding of shares in foreign companies
F	*F**

would include both real and financial flows, that is, in the notation of the Table, *R+F-R*- F**.

Note that, in a domestic corporate setting as noted by the Meade Committee, an R+F base is equal to net distributions to shareholders—that is, distributions from the company to shareholders net of new equity issues. Thus, a tax on the R+F base could be implemented alternatively as a tax on net distributions to shareholders (the 'S base', in Meade's terminology). This could in principle be imposed at either the company level or the shareholder level, the latter opening up the possibility of rooting cash flow taxation in the residence of the shareholder, rather than the location of consumption.[56] However, we do not consider the S base any further here.

We initially focus instead on the interaction between the financial and non-financial sectors, starting with the domestic case so as to leave aside for the moment the issue of the location of tax.

3.2 Transactions between taxable entities

Consider first the application of the R+F base to both the financial and non-financial sectors. When a bank lends to a non-financial business, the outflow of

[56] A possibility stressed for instance by Cui (2017).

Table 7.5 Treatment of financial flows under the R+F base

	Pre-tax flows		Tax flows		Total
	Bank	**Borrower**	**Bank**	**Borrower**	
Period 1: Lending	–100	+100	-30	+30	0
Period 2: Repayment with interest	+110	–110	+33	–33	0

funds receives tax relief in the hands of the bank. But the business is taxed on its financial inflow. As long as the lender and borrower face the same tax rate, the net tax on the transaction is zero. The same applies when the business repays the bank with interest. The repayment of principal and interest by the business reduces the business' taxable income, but the receipts to the bank are taxed. Again, if the tax rates are the same, then the net tax is zero.

Table 7.5 demonstrates this. In this example the bank lends 100 to a non-financial business at a 10% interest rate. The business tax rate is 30%. Taking only these financial flows into account, the taxes on the borrower and lender net out in each period, with the result that no net tax is paid.

An economically equivalent system would be one in which the financial flows between the financial and non-financial sectors are ignored for the purposes of tax. And that is exactly what the R base does. So in effect there is no economic difference between the R base and the R+F base with respect to financial flows between entities that are liable to the same tax regime.

To compare the R and R+F base in more detail, we will expand the example, as shown in Tables 7.6 and 7.7, to include the depositor who is the origin of the funds. Now suppose that the bank receives deposits of 100 from an individual (or another entity) who is not subject to the cash flow tax, on which it pays interest of 5%. It lends the 100 to the business at a rate of 10%. The bank therefore makes a pre-tax profit of 5. The business invests 100, financed by borrowing, and earns a return of 20%, so that it has a value of 120 in period 2. It repays 110 to the bank and therefore earns a pre-tax profit of 10. Given that there are no other costs, these measures of pre-tax profit are actually economic rent (measured in period 2 terms). The total rent is therefore 15, with the business earning 10, and the bank earning 5.

The position under the R+F base is as shown in Table 7.6. All real and financial flows are taxed. In period 1, all flows net to zero. The bank borrows and lends 100, with no net tax consequence. The business borrows 100 and invests 100 also with no net tax consequence: the tax due on its receipt of the loan is exactly matched by the value of the deduction for its investment.

Table 7.6 Treatment of financial flows under the R+F base

	Pre-tax flows		Tax flows	
	Bank	**Borrower**	**Bank**	**Borrower**
Period 1				
Bank receives deposit	100		30	
Bank lends	–100	100	–30	30
Investment by borrower		–100		–30
Total period 1 flows	**0**	**0**	**0**	**0**
Period 2				
Return earned by borrower		120		36
Repayment with interest	110	–110	33	–33
Repayment to depositor	–105		–31.5	
Total (net) period 2 flows	**5**	**10**	**1.5**	**3**

Table 7.7 Treatment of financial flows under the R base

	Pre-tax flows		Tax Flows	
	Bank	**Borrower**	**Bank**	**Borrower**
Period 1				
Bank receives deposit	70			
Bank lends	–70	70		
Investment by borrower		–100		–30
Total period 1 flows	**0**	**–30**	**0**	**–30**
Period 2				
Return earned by borrower		120		36
Repayment with interest	77	–77		
Repayment to depositor	–73.5			
Total period 2 flows	**3.5**	**43**	**0**	**36**

In period 2, the business pays tax on the value of its investment but receives tax relief on its repayment to the bank. The bank pays tax on the receipts from its lending but receives tax relief on its repayment to its depositors. In sum, the bank pays tax of 1.5 and the business pays tax of 3. In both cases, this represents 30% of the pre-tax economic rent earned by each party (5 for the bank, 10 for the borrower).

Now consider the R base, as shown in Table 7.7. In this case, financial flows are simply disregarded. Let us start by assuming that the business still wants to make its investment of 100. It receives tax relief on that investment of 30. Consequently, it need borrow only 70 from the bank. Since no taxes are levied on the financial flows of the bank, the bank only has to raise 70 from its depositors. In period 2, the business earns 120 and pays tax on that of 36. It repays 77 to the bank, including 10% interest, and the bank repays 73.5 to the depositors, including 5% interest. There are no other taxes.

There are clearly differences in cash flows in these two examples. Under the R base approach the bank only borrows and lends 70. And the business receives tax relief of 30 in period 1, and pays tax of 36 in period 2. But exactly the same real investment is undertaken, and both the bank and the business are exactly as well off as they were under the R+F base. The bank has a post-tax economic rent of 3.5, and the business has a post-tax economic rent of 7 (43–36). Further, if we gross up the 30 of tax relief from period 1 at the 'normal' (deposit) interest rate of 5%, this is equivalent to tax relief of 31.5 in period 2. The overall tax liability in period 2 terms is then 4.5, exactly as under the R+F base.[57]

If under the R base the bank is not being taxed on its return from lending, then it may appear that it can earn an economic rent without tax. But in this case, any economic rent it earns is effectively being taxed in the hands of the borrower. Under the R+F base, the business and the bank each pay tax on their share of the overall economic rent earned. Under the R base the business would get no tax relief for repaying its debt with interest. In effect, it is therefore taxed on the entire economic rent, while the bank is not taxed at all. Thus, the netting procedure under the R base effectively transfers part of the tax base from financial businesses to non-financial businesses.

But, as the example makes clear, this does not mean that the bank gains at the expense of the business. This is because the amount of lending is lower under the R base. At the same interest rate, then, the bank earns a lower pre-tax economic rent. We noted above that a main weakness of the R base is thought to be its inability to tax economic rents earned by the financial sector. However, these examples show that this is not true in the case of lending and borrowing between two businesses subject to the R-based tax.

Four other important issues arise in comparing the R and R+F bases for transactions between entities liable to the tax.

[57] Note that this equivalence depends on grossing up the tax relief in period 1 by 5% to transform it into a period 2 value. This is based on the deposit rate paid by the bank in the example. Note though, that if the discount rate were 6%, but the bank earned rent on its borrowing by paying only 5% to its depositors, then the overall tax liability in period 2 terms would be lower than under the R+F base. In effect, the rent earned by the bank on its borrowing would be untaxed, illustrating the need in general to include financial transactions with non-taxable entities and individuals in the tax base, as described below.

The first concerns any other expenses incurred by the bank. Suppose in our example, the bank has additional costs of 5 in period 2—say employment costs. Under the R+F base analysis, this would extinguish the bank's economic rent; in effect the bank would not earn a rent. That would be dealt with easily by the R+F base: the additional 5 of costs would be set against net income of 5 in period 2, and the bank's R+F tax liability would fall to zero. The total tax paid would then be only the 3 paid by the borrower on its economic rent of 10.

Under the R base, however, the bank has no taxable income, since all of its income is in the form of financial flows. Yet the R base would still give tax relief for this additional real cost. In effect, the bank's R base taxable income should be negative, at -5, and under a symmetric tax system, it should receive a tax credit of 1.5. Given that the value in period 2 terms of the tax paid by the business is 4.5, then that tax credit is required to make the R and R+F bases comparable in this case, reducing total tax paid to 3. The taxable loss arises for the bank under the R base because its taxable income has in effect been transferred to the business, as explained above. It is true that there may be a problem of perception, as people may find it difficult to understand why banks should apparently be subsidized despite the fact that they may be earning economic rent.[58] But this is indeed a problem only of perception, since, as set out here, the underlying economic rent is being taxed in the hands of the borrower.

That raises issues of how a credit would be paid, and in what circumstances. The bank has not made a loss, yet under the R base it may have a negative tax base. Dealing with the tax loss by carrying it forwards, even with interest, would be inadequate as financial firms with underlying profitability could easily be in permanent tax loss positions. One option would be simply to give a tax rebate to the bank. A second would be to allow the bank to offset the negative taxable profit against its liabilities for other taxes. We discuss the issue of losses more generally in Section 4.2.2.

A second issue which arises under the R+F base is that businesses are able to defer their tax payment, possibly indefinitely, through the simple expedient of not paying the profit to their shareholders. For example, consider the borrower in the example above. Under the R+F base it has a pre-tax profit in period 2 of 10, which is implicitly assumed to be paid as a dividend to its shareholders. But suppose instead that it simply saved the money in a financial account: either cash in a bank, or buying government bonds, for example. Either form of such saving would be treated as a financial outflow (of the form F*2 or F*3 in Table 7.4) and would therefore reduce the R+F base of the business to zero.

One possible response to this is that it is not a problem. The R+F base is in effect a tax on net distributions to shareholders. So if no net distribution is made, then

[58] This problem of perception may arise even if the bank appears to be paying low or no tax under the R base.

there is no tax. If the business buys bonds in one period, for example, and earns interest on those bonds, then the dividend paid in the following period would be higher by the amount of the interest, and hence the tax liability at that point would also be higher. If the interest rate earned is the same as the shareholder's discount rate, then the net present value of the post-tax return to the shareholder would be unaffected.[59]

However, this argument does not take account of the fact that there could be advantages in deferring tax from the perspective of financial reporting. Executives may be evaluated on the basis of the profit declared in their financial statement; this is particularly true for listed companies. If the deferred tax is not included in the profit and loss statement (which may happen if the deferral is expected to be for a long enough period) then the reported post-tax profit would be boosted. Such an incentive to keep cash within the business may reinforce agency problems as directors seek to avoid the discipline of raising finance from the debt markets, and potentially giving rise to business over-investment. The susceptibility of the R+F base to the timing of tax payments provides a strong reason to prefer the R base,[60] at least for transactions between financial and non-financial businesses that face the same tax system and tax rate.[61]

A third issue is that banks may charge their borrowers in ways other than through interest—for example, through fees. Under an R base, the fee could be deductible for the borrowing business, and taxable for the bank. As with other flows between the bank and the borrower, these taxes net out. In the case where both parties are liable to tax at the same rate, it should not matter whether the flows are included in the tax base or not. But if one of the parties has a taxable loss which does not receive an effective rebate then this is not true. For example, if the bank is in a permanent taxable loss position, for which it does not receive full relief, it may have an incentive to charge fees instead of interest, in order to generate higher taxable income against which its expenses could be offset. This raises the question of how non-financial flows between the two parties should be treated. On the one hand, it may be beneficial to include non-financial flows, so as to allocate the bank a higher taxable income to reduce the problem of taxable losses in the bank. But it may also be more straightforward not to discriminate between flows, and to leave all financial and non-financial flows between the two parties outside the tax base.

[59] Note that the value of a business to its owners would be zero unless distributions are expected to be made at some point.

[60] On using deferral for planning purposes in cash flow taxes more generally, see Devereux and Vella (2018c).

[61] The problem remains to some extent if, as discussed below, financial transactions with tax exempt entities and individuals are taxed. Then in principle, tax could be deferred by lending to these groups. If this problem were serious enough, it might in practice be counteracted by requiring there to be a deemed dividend in place of the additional lending.

A fourth issue concerns implementation. The R base taxes only 'real' flows, and so requires a distinction in the tax law between 'real' and 'financial' flows. This is required to counter incentives to disguise R flows as F flows, thus keeping them outside the R base. (Note though, that this only applies in cases where one of the two parties to a transaction is subject to tax at a different rate, or not subject to the tax, being for example a tax exempt entity or an individual subject to an income tax; otherwise the taxes levied on both sides of the real transaction would net out.) On the other hand, under the R+F base, but not under the R base, the border between debt and equity requires policing. That is, as equity is not part of the tax base under an R+F base, businesses have an incentive to disguise inflows of debt as equity, and outflows of equity as debt. To counter this, rules must be introduced to prevent investors using hybrid financial instruments for tax planning—for example, having the main characteristics of equity, but disguised as debt for tax purposes, or vice versa. Both of these implementation issues are discussed further below.

3.3 Transactions with individuals and tax exempt entities

A difference between the R base and the R+F base arises where a financial business engages in financial transactions with an individual, or another entity that is not subject to the tax. Applying the R base to a bank would result in there being no tax at all if the bank engages in only financial transactions which would not be subject to tax, and the tax exempt borrower would not be subject to this tax either. To the extent that the bank may earn an economic rent from such transactions, an R base would therefore leave this economic rent untaxed. This would be similar to the case in Table 7.7, but with the borrower paying no tax.

This suggests that, even if an R base is used for transactions between taxable entities, financial businesses should be subject to tax on their financial flows with any entities that are not subject to the same tax, and where the 'F' transactions do not therefore net out.[62] An example of this is shown in Table 7.8. This is the same as in the R+F example above, except that the borrower is here assumed to be exempt from tax. In this case, in period 1 the bank receives deposits of 100 and lends 100, with a net tax liability of zero. The borrower invests 100 in period 1 and earns 120 in period 2, but is not subject to tax. But in period 2 the bank pays tax on its profit, or economic rent in this case, measured as the difference between the 110 it receives and the 105 it pays out. The bank's economic rent of 5 is therefore taxed at 30%, but the tax exempt's economic rent of 10 is untaxed.

[62] The combination of R base treatment for B2B transactions and a form of R+F treatment for B2C transactions was proposed in the context of VAT by Huizinga (2002).

Table 7.8 Treatment of financial flows under the R+F base: tax exempt borrower

	Pre-tax flows		R+F base tax
	Bank	**Borrower**	**Bank only**
Period 1			
Bank receives deposit	100		30
Bank lends	–100	100	–30
Investment by borrower		–100	
Total period 1 flows	**0**	**0**	**0**
Period 2			
Return earned by borrower		120	
Repayment with interest	110	–110	33
Repayment to depositor	–105		–31.5
Total period 2 flows	**5**	**10**	**1.5**

Applying the R base for transactions between taxed entities, and applying the R+F base to financial businesses in their financial transactions with individuals or entities which are not subject to the tax therefore has the advantages of (a) excluding non-financial businesses from the complications of implementing an R+F base; while (b) taxing all of the economic rents of financial businesses—either directly through the F base applied to transactions with tax exempt entities, or indirectly by shifting the tax base to taxed borrowers.

Such a system would to some extent also lessen the problem of financial businesses having a negative tax base, discussed above. Suppose again that the bank in the example above has labour costs of 5. This reduces its economic rent to zero. In this case, the 5 of labour costs can be offset against the rent generated from lending to the tax exempt entity, implying that the bank does not have a negative tax base. Of course, it is still possible that the bank has a negative tax base; if, in the example, it has labour costs in excess of 5.

Note that the financial business should be taxed on its net financial inflows from non-taxable entities, less *all* real costs (e.g. for purchases of labour and other inputs) that it incurs. That is, it is not necessary to allocate its real costs to the activities in which it is directly taxed. That is because, as we have seen above, the financial business should get relief for its real costs even when it is transacting with taxable entities. As noted above, the problem of dealing with a negative R base is a matter of perception as in aggregate the tax base in each period is equivalent to that under an R+F for both financial and non-financial firms. If costs were fully allowed under the R base, then exactly the same tax would be generated as if all

taxable businesses faced the R+F base, and all entities would earn the same post-tax economic rent.

Applying the R+F base to financial businesses for transactions with individuals and tax exempt entities requires drawing a line between financial and non-financial businesses. But many non-financial businesses also engage in transactions with households that incorporate financial components, such as loans implicit in deferred payment arrangements. If the non-financial business were subject to the R-based tax, it may have an incentive to explicitly separate the real and financial components, as the latter would not be taxable, and also to misstate the magnitudes of real and financial prices, for example by overstating the interest rate charged on deferred payments and understating the initial purchase price. Non-financial businesses may then be earning an economic rent on their financial transactions with tax exempt customers; to match the treatment of financial businesses we would therefore want to tax them on such transactions. The easiest way to do so would be to include all expenditures and receipts from transactions of non-financial businesses with tax exempt entities (such as individual customers) in an expanded R base—even if they relate to charges for deferred receipt or payment, such as through leasing and hire purchase. In that case, there would be no need to extend formally the R+F approach to such businesses.

In cases where real and financial activities are segregated, businesses may already have separate operating units, which would allow the financial unit to be included in the financial regime. This separation would be possible for 'non-financial' businesses with significant levels of financial transactions. Such businesses could then either treat the financial flows as if they were real (and include them under an expanded R base), or they could treat them as financial, and include them under an R+F base that applied to transactions with non-taxable entities and individuals. These two approaches would have the same tax consequences.

3.4 International considerations

We now turn to the taxation of financial flows in an international context.

First, consider the effects of implementing a full R+F base on all taxed entities, and applied on a traditional origin basis. Suppose that a bank in country A lends to a business in country B, and both countries operate an origin-based R+F system. Then the bank would receive tax relief at A's tax rate on its lending, while the business would be taxed at B's tax rate. Similarly, the business would receive tax relief on its repayment of debt with interest at B's tax rate, and the bank would be taxed on the receipt at A's tax rate. Clearly then, extending the tax base to all financial cash flows does not eliminate the incentive to lend from a low tax country to a high

tax country, nor, for transactions between related parties, does it eliminate the incentive to overstate the interest in such cases.[63]

If an R+F tax were implemented in both countries, then it would instead be natural to have border adjustments for financial flows as well as real ones, in order to eliminate these incentives for profit shifting. In the case of financial flows, we treat the country of the borrower as being the place of 'destination'. An intuition for this approach is that the bank is essentially providing a service to the borrower, of the provision of funds for a period. This service is being 'consumed' by the borrower, and so it is natural under the destination-based approach to apply the relevant taxes on financial flows in the location of the borrower.

An example of how the R+F base would work if used in two countries is given in Table 7.9, which extends the previous example above by assuming that a bank in country A lends to a business in country B. Assume that country A has a 20% tax rate and country B has a 30% tax rate. Under an R+F tax base in both countries, country A would not give relief on the lending by the bank, nor would it tax the return that the bank earns, since it is not the destination country for those transactions. Instead, all the tax effects from the cross-border lending itself would arise in country B.

Suppose, as in the example above, that the business in B wants to invest 100, on which it expects to earn a return of 20%. The bank in A is willing to lend 100 at an interest rate of 10. Country B would give tax relief of 30 to the bank in A on its lending of 100 to the business in B. The net cost to the bank of making the loan is therefore only 70. In order to raise 70, it must issue 87.5 in gross deposits in A. That is, since the bank receives deposits in A, these will be taxed in A at the rate of 20%; so the bank must pay tax of 17.5 on the deposits of 87.5, leaving it with 70 to lend to the business in B.

The business in B receives a loan of 100 from the bank on which it must pay tax of 30. But it also invests 100, for which it receives immediate expensing, also of 30. For the business, these two elements of the tax net out, so that the business does not pay any tax in period 1. In period 1, then, net cash flows are zero for both the bank and the business. The overall value of the investment to the bank and the business therefore depends only on net cash flows in period 2. But country A will have raised 17.5 in tax revenue in period 1 (from the bank deposit of 87.5), while country B would have a net 30 reduction in tax revenue in period 1 (from the relief given to the bank on its lending). So the overall value of tax revenue to each government requires an aggregation of period 1 and period 2 flows.

[63] The same would be true under the Tax Calculation Account (TCA) base, discussed below.

Table 7.9 Treatment of international financial flows under the R+F base

	Pre-tax flows		Tax in A (20%)		Tax in B (30%)	
	Bank in A	**Borrower in B**	**Bank in A**	**Borrower in B**	**Bank in A**	**Borrower in B**
Period 1						
Bank in A receives deposit	87.5		17.5			
Bank lends	–100	100			–30	30
Investment by borrower		–100		–		–30
Total period 1 flows	**–12.5**	**0**	**17.5**	**0**	**–30**	**0**
Period 2						
Return earned by borrower		120				36
Repayment with interest	110	–110			33	–33
Repayment to depositor	–91.9		–18.4			
Total period 2 flows	**18.1**	**10**	**–18.4**	**0**	**33**	**3**
Net values (in period 2 values)	***5***	***10***	***0***	***0***	***1.5***	***3***

In period 2, the business earns a gross return of 120—on which it pays tax of 36. It repays 110 to the bank and receives tax relief of 33 on the repayment. The net tax paid by the business is therefore 3. Country B levies a tax of 33 on the receipt by the bank. The bank then repays its depositor at 5% on the initial deposit (91.9) and receives tax relief on that repayment at 20% in country A (18.4). Given that the bank and the business both have zero net cash flows in period 1, the net effect is that the bank again earns a net economic rent of 3.5, made up of pre-tax net cash flow of 18.1 plus the tax rebate in A of 18.4 less the tax paid in B of 33). The business again earns a net economic rent of 7, made up of pre-tax net cash flow of 10 less tax of 3.

This is the same as in the previous example of a single country with a tax rate of 30%. To identify the period 2 values of net tax receipts, we gross up the period 1 taxes at 5% and add them to the period 2 values. The total value in period 2 terms of tax levied is again 4.5. However, in this case, this tax is collected entirely in country B—the destination country. The two tax effects in country A—taxing the deposit in

period 1 and giving relief for the repayment of the deposit with interest in period 2—net to zero.

Shifting the tax base of the financial business to the place of destination has two consequences. First, the incentive to lend from a low tax country to a high tax country is eliminated, so that it is not possible to shift profits using flows of debt and interest. For example, even if the bank were located in a zero-rated country it would make no difference to the tax liability of either party.

Second, since the taxes on financial flows net out in each period, this is equivalent to implementing an R base for these financial transactions. This is exactly the same as in the case of purely domestic transactions; the R base example above would also apply to a foreign bank lending to a domestic business, with border adjustments and hence a destination basis. Intuitively this also mirrors the case of imports of goods and services; for these we noted that since the taxation of imports netted out with the deduction for the cost of the input, it would be possible to ignore imports purchased by taxable entities altogether. The R base can be seen as the equivalent for financial transactions. Since the tax flows in the R+F destination base cancel out when the financial transactions are between taxable entities, then again they can simply be ignored. For financial transactions, this again returns us to the R base.

That is, for all financial transactions between taxable entities, border adjustments could be implemented by simply excluding cross-border financial flows from the tax system. Therefore the conclusion reached for financial flows between financial and non-financial firms in a domestic setting—to simply use the R base—also holds in an international setting. The example can be used to consider the case of an R base, shown in Table 7.10. In this case, there would be no net tax levied in country A, since in that example there are only financial flows.[64] In country B, there would be tax relief of 30 for the investment undertaken there in period 1, and a tax of 36 on the total return to that investment in period 2. All the financial flows would be untaxed. In order to finance that investment, the business has to borrow 70 from the bank. As under the R+F base in Table 7.9, the period 2 value of the tax liability (evaluated at a mark-up rate of 5%) would be 4.5, the business would earn an economic rent of 7 (from a pre-tax net cash flow of 43 less tax of 36), and the bank would earn an economic rent of 3.5.

Applying the R base for financial transactions with non-financial businesses would require financial businesses to determine whether their financial transactions were with taxable entities or not. However, it would alleviate their need to distinguish between domestic and foreign businesses in their transactions, as all such

[64] In the example, there would be no net tax revenue even if there were also a tax on financial flows with tax exempt depositors since depositors are assumed to be paid a rate of interest equal to the bank's discount rate.

Table 7.10 Treatment of international financial flows under the R base

	Pre-tax flows		Tax in B (30%)	
	Bank in A	**Borrower in B**	**Bank in A**	**Borrower in B**
Period 1				
Bank in A receives deposit	70			
Bank lends	–70	70		
Investment by borrower		–100		–30
Total period 1 flows	**0**	**–30**	**0**	**–30**
Period 2				
Return earned by borrower		120		36
Repayment with interest	77	–77		
Repayment to depositor	73.5			
Total period 2 flows	**3.5**	**43**	**0**	**36**
Net values (in period 2 values)	*3.5*	*11.5*	*0*	*4.5*

financial transactions would now be excluded from the tax base, not just those with foreign businesses.

Note that the application of a DBCFT in an international setting brings to the fore another reason for adopting an R base for domestic transactions. If financial flows are ignored in an international context but not in a purely domestic context, this would cause difficulties with respect to the treatment of cross-border sales of existing debt securities in secondary markets, where the original issuer need not be aware of the change in ownership. Suppose, for example, that domestic business A borrowed from domestic business B, which subsequently sold the loan to foreign business C; in this case C would pay B the value of the loan and B would pass on to C all interest and principal received from A. Since the initial loan was within the same domestic country, under an R+F base the amount lent would be taxable for A and deductible for B, and interest payments would be deductible for A and taxable for B. All of B's dealings with C (the proceeds from selling the loan to C and delivery of the subsequent interest and principal payments to C) would be untaxed in the domestic country because of border adjustments. That is, B would continue to pay tax on the loan's interest even after selling the loan to C, just as in the case where B borrowed separately from C and kept the loan to A rather than selling the original loan to C. On the other hand, if A borrowed from foreign lender D, which subsequently sold the loan to domestic business E, border adjustments would exclude all flows from the domestic tax base, including those between A and D and those between D and E. This discussion suggests that there would be considerable benefits in leaving both domestic and cross-border

financial flows between tax-paying businesses out of the tax base altogether, as would happen if the R base were applied.

A final issue is that also faced in a domestic setting—how to tax cross-border lending by a financial business to individuals or entities which are not subject to the tax. To align their treatment when borrowing from either domestic or foreign banks, it would be necessary to apply border adjustments in these cases too. That is, we would need to tax flows from and to the foreign bank at the domestic tax rate, with a deduction on lending and a tax on the repayment of principal and interest. As in the purely domestic case, these financial flows between financial businesses and tax exempt borrowers do not net out. In effect, then, in an international setting a destination-based R+F base would need to be applied for financial flows between financial businesses and these taxpayers.

We discuss further implementation issues below. In practice, cross-border loans by individuals should not be a major issue for most households, most of whose financial transactions are with domestic businesses, although it could be more important for wealthy households.

3.4.1 Unilateral adoption

So far we have considered the treatment of financial flows in a setting where the DBCFT is adopted by all the countries concerned. But suppose that only one country—country A—adopted the DBCFT with an R base for transactions between taxed entities, and with an R+F base for transactions with non-taxed entities.[65] Suppose that all other countries maintained a traditional approach, taxing interest received and giving relief for interest paid, both on an origin basis. What would be the incentives for borrowing and lending, and the location of each?

First, suppose that an affiliate of a multinational in country A lent to another affiliate located in country B. Then, irrespective of the identity of the borrower, there would be no tax levied in A, even under the R+F base, since A would not be the destination country in this case. In country B, relief would be given in the usual way on the interest paid to A on the loan. Relative to the existing system, this makes A appear like a zero-tax country: interest paid from B to A receives tax relief in B, but would not be taxed in A. This would clearly give an incentive for multinationals to locate outbound lending in a country operating a DBCFT, whether an R base or R+F base applied to such financial flows.[66]

What of the reverse position? Suppose that the multinational instead lent from an affiliate in B to an affiliate in A? Then under the R base treatment in A,

[65] A question arises in this case as to whether and how to differentiate borrowing from foreign 'taxable' and 'non-taxable' entities, neither of which would be subject to a DBCFT in their home countries. The consequences of each are discussed in the context of R+F treatment.

[66] This may spur country B to use CFC rules to combat profit shifting out of B.

the financial flows would be ignored in country A. The treatment under an R+F base in A would depend on how the entity in B is treated by the tax authority in A. Assuming it is treated as 'taxable' under the DBCFT, then the entity in B would receive tax relief in A on the loan that it made, and the entity in A would be taxed on the receipt of the loan. These two tax flows would cancel out. Similarly, the repayment of the loan with interest by the entity in A would receive tax relief from A, but the receipt by B would also be taxed by A. Again these two flows cancel out. Since all these tax effects would exactly cancel out, then in this case the R base and R+F base would be equivalent, with no net tax effects in country A. In country B, however, the interest on the loan would be taxable. This situation would be akin to lending to a zero tax country under the existing system; there would be no net tax in A, but B would impose a tax on the receipt of the interest. In this case, there would clearly be an incentive for multinational businesses to avoid lending from an affiliate in a non-DBCFT country to an affiliate in a DBCFT country.

Overall, then, if a DBCFT were adopted in only one country, that would introduce a strong incentive for businesses to shift their borrowing to other countries that continue to impose a traditional origin-based income tax. Any borrowing, domestic or international, by a business located in a country operating a DBCFT would be ignored; whilst borrowing by a business in a country operating a traditional origin-based income tax would benefit from interest deductibility. As with the incentives for profit shifting discussed earlier, this incentive is present even with respect to foreign jurisdictions with low origin-based tax rates.

3.4.2 Treatment of financial services under the VAT plus payroll subsidy approach

The equivalence between a DBCFT and an appropriate VAT combined with a corresponding payroll subsidy can be readily extended to the treatment of financial services. To see this, since the treatment of labour costs is the same for the R and R+F bases, it suffices to focus only on the financial flows themselves.

In practice, financial services (other than those explicitly charged for as a fee) are commonly exempt under the VAT:[67] that is, there is no charge on services provided but nor is there any credit or refund of VAT charged on inputs. This has been a long-standing source of dissatisfaction, as it implies some cascading of taxes on financial services used by registered businesses—and hence a risk of production inefficiency—and excludes from the tax base the value of services provided to final consumers.

The conceptual difficulty perceived in this area has been that of allocating the margin embedded in the pricing of financial services between the two sides of the

[67] Though not always: see for instance Crawford et al (2010).

transaction, and hence to ensure the smooth functioning of the VAT invoice-credit mechanism—something that, importantly, is needed only in relation to final consumers: for services provided to registered businesses, the spilt is immaterial, since any VAT charged by the seller will be creditable for the buyer.

One solution to this problem, developed by Poddar and English (1997), is R+F-type cash flow treatment of exactly the kind discussed above. And the reason it allocates the margin appropriately is analogous to that in which the R+F treatment allocates rents across businesses: taxing and crediting all flows between registered businesses means that the only revenue that remains reflects the margin earned from transactions with non-registered individuals and tax exempt entities.

For financial transactions between businesses, this netting of payments is exactly as under the DBCFT described above—and so, just as an R base was seen there to be adequate for the treatment of financial flows under a DBCFT, so under a VAT they might equally well be ignored. This would mean 'zero-rating' such transactions: that is, charging no tax on provision (as at present) but also providing full refund for input taxes allocable to transactions with registered businesses. Some countries already do something approaching this.

In an international context, the argument above suggested that R base treatment would also be appropriate for transactions with taxable entities abroad. This corresponds in VAT terms to zero-rating. And that, indeed, is already the norm: financial services provided to non-residents are generally zero-rated. The primary difference between current international VAT arrangements and those required to replicate the DBCFT as described above is thus the need for cash flow treatment of transactions with non-registered individuals and tax exempt entities.

Consideration of the cash flow approach in the context of the VAT led to the development of one means of implementation that does not require immediate taxation of principal amounts. Somewhat analogous to the ACE relief described above, this is the 'tax calculation account' (TCA), the basic idea of which is to defer tax liabilities on financial inflows until the deductions for the corresponding outflows arise.[68] To compensate for the difference in timing, it would be necessary to mark-up the deferred tax period by period. Briefly, the reasons for keeping the cash flow approach mirror those for not choosing the ACE approach for real flows. First, it may be administratively simpler to net out the tax on lending and on borrowing, which would only occur under the full cash flow treatment. Second, it would be necessary to specify the appropriate rate of mark-up for the TCA. In principle, setting the wrong mark-up rate could lead to distortions to financial flows, although the size of such distortions is likely to be small if the error in setting the mark-up rate were also small.

[68] Poddar and English (1997).

4. Implementation

Each country contemplating the policy choices described above will have its own concerns and circumstances. These include not only the initial state of its tax administration and wider tax system, but its policy objectives in terms of such issues as the treatment of smaller enterprises, not-for-profits, and pass-through entities. There are, however, several generic issues to be faced. Two of these have been discussed at some length in Chapter 5 since they are broadly common to both the RPAI and the DBCFT: the scope of the tax; and the identity of the 'destination' country and problems that may arise in that country collecting the tax. Here we focus on issues that are more pertinent to the DBCFT.

4.1 Two economically equivalent reforms

Most of the discussion so far in this chapter has concerned the possibility of implementing a DBCFT as a form of business tax. However, we have also emphasized that an economically equivalent reform would be to raise the rate of VAT, or introduce a VAT—here in either case having in mind an idealized VAT levied at a single rate on a broad base—and reduce taxes on labour income by that same rate. We set out these two approaches first, and then discuss some of the details of each.

Starting with the first of these, the key elements needed to transform a typical corporation tax into an R-based DBCFT would be to:

- abolish relief for interest payments;
- allow immediate expensing for all business expenses;
- ignore the proceeds of exports in the country of export;
- ignore imports purchased by taxable entities (or tax them but include them in deductible costs);
- introduce a tax on imports purchased by non-taxable entities, including individual consumers; and
- for financial businesses, tax net financial inflows resulting from transactions with non-taxable entities and individuals.

VATs observed in practice differ in two important ways from the idealized VAT envisaged in the equivalence relationship with the DBCFT: they are typically not levied at a uniform rate on all goods and services, and they do not tax financial flows between financial businesses and tax exempt entities or individuals. Bearing that in mind, the reforms needed to transform a traditional

corporate tax into the equivalent of a DBCFT through a VAT-based approach are to:

- abolish corporation tax;
- raise the rate of VAT—and, for close equivalence to a DBCFT, abolish multiple VAT rates and exemptions where they exist;
- reduce the tax rate on labour income by the same rate: we refer to this as a 'payroll subsidy' to identify its net effect relative to existing taxes; this would not amount to a tax rebate unless the rate of subsidy exceeded existing tax rates on labour income; and
- to tax the returns to financial businesses, introduce a cash flow tax on transactions between financial businesses and both non-taxable entities and individuals.

While these two approaches are economically equivalent and would yield the same revenue, their implementation would obviously be different. Consequently, there are advantages and disadvantages of each of the two approaches, which we address in the final part of this section. For the vast majority of countries that already have a VAT, its existence can be both an advantage and a disadvantage.

It can be an advantage because raising the rate of an existing tax, even substantially, does not generally amount to a radical rewriting of the tax system. Further, many of the design questions that arise in introducing a DBCFT have already been addressed in the implementation of VATs. But it can be a disadvantage, because most existing VAT systems do not cope as well as one would prefer with all of the issues that we discuss here—for example, in the treatment of financial flows. Also, most VATs are marked by widespread exemptions and/or the application of differential rates. Raising only the standard rate of VAT and combining that with a payroll subsidy may then seem a relatively easy option, but it would not be economically equivalent to introducing a DBCFT. The DBCFT route may then (subject to various caveats below) be more appealing.

It is important to recognize, in any case, that many of the design problems and implementation problems to be faced are much the same for the DBCFT and the VAT-based approach. We have already seen this in relation to the treatment of financial services and will see the point again below when discussing how to define 'destination'. Nor do all the administrative issues associated with a traditional corporation tax disappear. It remains necessary under both the DBCFT and VAT-based approach, for example, to distinguish between business and (non-deductible) personal expenditures.

Either direction of reform could be introduced gradually, potentially reducing the transition costs of moving to a new system. Clearly, in the case of the VAT plus payroll subsidy, it would be possible to adjust gradually the rates of the three taxes concerned. And for the DBCFT itself, it would be possible, for example, to extend

gradually the proportion of exports and imports to which border adjustment applies, thereby gradually introducing the destination basis; we describe this further below. Such gradual adjustment may reduce the transition costs of moving to a new system, although the period of time of transition would clearly be longer.

4.2 Practical issues

Any new tax raises practical challenges and creating a DBCFT by reforming the corporation tax is no different. Many issues, however, are familiar. Some are familiar because they relate to the cash flow element of the tax and have been discussed, together with potential solutions, over many years. Others are familiar because they relate to the destination element of the tax and thus also arise in the context of existing VATs. A third group of issues are common to existing systems of business taxation. And fourth, there are some issues that are specific to this particular reform; these require more extensive consideration here.

The difficulties in implementing the alternative approach, through increasing the rate of VAT and reducing the rate of payroll taxes, depends on whether a country already has experience of a VAT and payroll taxes. For countries which do not have a VAT, notably the US, many issues arise in the choice of determining the way in which the VAT is implemented—with the opportunity to learn from the best practices of others, for instance in maintaining a simple rate structure, minimizing exemptions, and in the treatment of the financial sector.[69] For countries that already have a VAT, it is technically straightforward to raise the standard rate, the difficulty with this being that the existing VAT may well not match the broad-based tax we have in mind here. On the payroll subsidy element, for developed countries it would be relatively straightforward to simply reduce their extensive payroll taxes. (Where payment of such taxes is linked to entitlement to future benefit, arrangements would need to be made to secure those rights; but this has proved straightforward to do, for example in the case of payroll tax holidays.) Most developing countries, however, do not have extensive payroll taxes, and the reach of taxes on wage income is often limited. Outright wage subsidies would then be needed, posing significant administrative issues. For such countries, the most practicable route is likely to be to adopt the DBCFT itself.

Against this background, we discuss practical issues under several headings: the need to distinguish real from financial flows, and flows of debt from flows of equity; the treatment of taxable losses; methods of collection in the destination country; possible legal constraints arising from tax treaties and the WTO; transition issues;

[69] Conversely, of course, introducing a DBCFT while raising labour taxes can be a way of effectively introducing a VAT; and perhaps with more chance of achieving these desirable ends than through the reform of an existing VAT.

and other issues which arise in comparing the two possible approaches described above. In each case, we begin by analysing the case of a DBCFT and then consider how things would be different if the reform were instead shaped as a VAT with payroll subsidy. Note again that we have already discussed in Chapter 5 issues concerning the scope of the tax, and the nature of 'destination'.

4.2.1 Real versus financial flows under an R base, and debt versus equity under an R+F base

As set out in Section 3, a DBCFT would have symmetric treatment for transactions between businesses subject to the tax, which generally results in a total of zero tax being levied on a transaction, as one party is taxed and the other receives an identical relief. This would be true of real flows under an R base and real and financial flows under an R+F base. For example, under an R base, the vendor's incentive to disguise R flows as F flows would be countered by the purchaser's incentive to treat the whole price as an R flow. Whilst the portion of the R disguised as an F would not be included in a vendor's inflows, it would also not be included in a purchaser's outflows meaning the latter would not obtain the corresponding relief.

However, special rules to counter avoidance would be needed where one of the two parties to a transaction is not subject to the tax (being a tax exempt entity, for example, or an individual subject to an income tax), where the two parties are subject to the tax at different tax rates, or if full loss relief is not available and one of the parties has a taxable loss. Where transactions take place between a financial business and non-taxable entities, including individuals, rules to counter avoidance by disguising R (real) flows as F (financial) flows would be needed, since disguising a real inflow as a financial inflow (or a financial outflow as a real outflow) would result in a lower tax base.

Rules to differentiate real and financial flows in these cases would need to be supplemented by rules to differentiate between flows related to debt and equity in the case of applying the R+F base to transactions with tax exempt entities and individuals. As equity flows are not part of the tax base under an R+F base, businesses would have an incentive to disguise debt as equity—for example, through the use of hybrid financial instruments—thus keeping financial payments out of the base entirely. But if the R+F base is limited to transactions of financial businesses with tax exempt entities and individuals, the importance of this distinction is more limited than under existing regimes.[70]

Turning to the alternative VAT-based strategy, as discussed above the starting point is that financial businesses are typically exempt from VAT; this means that they do not charge VAT on lending or other financial transactions, but neither are

[70] For further discussion on these issues, see Devereux and Vella (2018c).

they permitted to reclaim VAT paid on inputs. It is generally recognized that this treatment is not ideal. The analysis above suggests that—as proposed for instance by Huizinga (2002)—business-to-business financial transactions be zero-rated, while cash flow treatment (along R+F lines) be applied for transactions with individuals or other non-taxable entities. In respect of financial transactions too, the VAT plus payroll subsidy approach could therefore be used to implement a reform which is economically equivalent to a DBCFT; but this would require a significant reform of commonly applied systems of VAT.

4.2.2 Losses

The issue of losses and negative tax bases arises in three contexts under the DBCFT: domestic investment, international transactions, and financial transactions. We discuss them in turn.

4.2.2.1 Domestic

Because of immediate expensing, negative tax bases can arise under a cash flow tax even for successful businesses operating in a purely domestic setting. Take for instance a rapidly growing business engaging in substantial capital investment in a particular year: immediate expensing of those investments could easily lead to a negative tax base, even if the business is projected to increase its revenue streams substantially in the near future as a result of its investment. If a cash flow tax is to be neutral with respect to marginal investment decisions, full relief, or some equivalent alternative, should be given. Box 7.1 illustrates this key point.

Box 7.1 The treatment of losses in a domestic context

The Table below illustrates the simple case of a business that makes an investment of 100 in period 1 and earns a total return of 120 in period 2. Suppose that the rate of interest is 5%, and that the business uses this rate of return to compare cash flows in the two periods. In this case, the 100 of investment in period 1 is equivalent to an outflow of cash in period 2 of 105. The economic rent earned by the investment in period 2 terms is therefore 15: the inflow of 120 less the marked-up outflow of 105.

Now consider alternative ways of taxing this investment, with a tax rate of 30%. Under a classic R base cash flow tax, the initial investment would be immediately expensed, and so the tax payable in period 1 would be -30. If necessary, this could take the form of a payment of 30 to the business by the state. The period 2 value of this to the business, given the 5% interest rate, would be 31.5. The tax in period 2 would be 36. The period 2 value of the two elements of the

tax combined is therefore 4.5. This is 30% of the economic rent, as is intended under a cash flow tax.

Now suppose that no rebate is available for the first period tax loss, but that it is instead simply carried forward to set against second period income. In this case, the tax base in period 2 would be 20—the return of 120 less the carried forward loss of 100—and so the tax would be 6. This tax base (20) exceeds the economic rent earned (15). The investment will still be attractive to the investor, since after-tax profit is positive; but this would not have been the case, for instance, had the project been only marginally profitable in the absence of tax. This effect can be removed by marking up the loss by the interest rate as it is carried forward. In this case, the loss brought forward into period 2 would be 105, and the period 2 value of the tax would revert to 4.5.[71] Note that this is similar in effect to the case where an allowance is given for the cost of finance, as under an allowance for corporate equity (ACE). For suppose that relief for the cost of the investment is not available until the return is made, but that there is relief in period 2 for the opportunity cost of finance; this is the foregone interest of 5. In this case, the tax in period 2 is again 4.5, 30% of the economic rent.

Illustration of properties of alternative treatment of losses

	Period 1 cash flows	Period 2 cash flows	Period 2 value of investment/tax
Capital investment, and total return on investment	–100	+120	15
R base tax with immediate expensing, and full refund	–30	36	4.5
R base tax with immediate expensing, and loss carried forward	0	6	6
R base tax with immediate expensing, and loss carried forward with interest mark-up at 5%	0	4.5	4.5

As this example highlights, providing relief for losses is critical to attaining one of key attractions of cash flow taxation. However, relief in the form of an

[71] This treatment has been proposed by, among others, the President's Advisory Panel (2005) and Carroll and Viard (2012).

immediate refund could prove politically unattractive. Permitting the taxable loss to be carried forward indefinitely with an interest mark-up[72] significantly alleviates the problem of not giving immediate refunds but does not perfectly replicate it, for two reasons. First, there is a possibility of business insolvency before the loss carried forward is actually used (assuming that it cannot be used at the point of insolvency). Second, an immediate refund provides a net cash injection to the business, which may be significant for financially constrained businesses. Other possible solutions include: allowing the marketing of unused tax benefits associated with these activities, although this is not without its pitfalls, as the US experience with 'safe harbor leasing' from the early 1980s illustrates;[73] allowing taxable losses to be used in the context of mergers with profitable businesses; or allowing taxable losses to be set against other taxes paid by the business, such as payroll taxes.

The example in Box 7.1 does not include labour costs, so the position under a VAT would be exactly as the first row in the Table, with an immediate rebate of expenses. An analogous problem thus arises, as is very familiar, under a VAT. It may seem rather different in kind, since the VAT rebate is as a refund of VAT paid on capital inputs purchased. If the firm purchasing the capital equipment had no sales in that period, then it can generally reclaim the VAT paid on that input. Combining this with a reduction in the tax on wages and salaries would yield exactly the same outcome as permitting a rebate for the negative tax charge under a cash flow tax. It may appear different because the negative VAT charge can be seen as a rebate of VAT already paid. However, the same broad principle also applies to a DBCFT, since the supplier would also be subject to the DBCFT.

4.2.2.2 International

The issue of losses becomes more pronounced in an international setting, because the DBCFT taxes domestic sales less domestic expenses. So if a business produces in country A and sells all its products in country B, then it would have a negative tax base in country A. That is because the expenditure incurred to provide goods and services both domestically and for export is set against revenues from domestic sales and not exports. The tax bases of businesses that export a high percentage of their goods or services can thus easily be negative. This could be a permanent state of affairs for such businesses, in which case they would not be helped by carrying losses back or forward with interest. In such situations, the

[72] Building on Fane (1987), Bond and Devereux (1995, 2003) address the question of what interest rate is needed in the presence of risk; they show that a mark-up at the risk-free rate is sufficient as long as the amount carried forward is certain to be paid to the business. Where it is not, then a higher rate would be required that covered that specific risk.

[73] See Warren and Auerbach (1982).

Table 7.11 Illustration of effects of not receiving relief for expenditure

	Produce in A	Produce in B
Expenses in A	–100	–
Expenses in B	–	–100
Sales in A	120	120
Tax base in A	20	120
Tax base in B with full offset	–	–100
Tax base in B with no offset	–	0
Total tax base with full offset	20	20
Total tax base with no offset	20	120

options of allowing refunds in respect of negative tax bases or cross-crediting against other taxes, such as payroll taxes, become more important.[74]

If full relief were not provided the DBCFT would be likely to distort location decisions, losing an important aspect of its efficiency properties. To see this, consider the simple example in Table 7.11. Suppose that there are two countries, both operating a DBCFT, and both at the same tax rate, 30%. A business has expenditure of 100 and sales of 120. (For simplicity, in this example assume that these flows happen in the same period.) Its sales are in country A, but it can choose whether to produce in A or B. If it chooses to produce in A then its tax base will be 20 and it will pay tax of 6. If it chooses to produce in B it will have a taxable loss in B of 100, and a taxable income in A of 120. If it receives a full refund in respect of the 100 of expenditure in B then its location decision will not depend on tax; it will continue to pay tax of 6. But if it receives no relief for the cost in B, then its tax base effectively becomes 120, with a tax liability of 40. Thus the treatment of losses in this case can be highly important for location decisions.[75]

There may be some doubt as to the willingness of countries to provide relief for expenditure incurred to produce revenue which they will not tax. However, three considerations should be kept in mind.

First, some countries have been willing to accept similar situations under the existing corporate tax system. For example, they have allowed relief for interest

[74] Under this latter approach, it is of course conceivable that credit due on losses may exceed the amount of other taxes remitted. And where tax administration is weak, reliable cross-crediting may be difficult to achieve.

[75] Note that the distortion does not come from differences in the treatment of losses: as in this example, a common but imperfect treatment distorts because some location choices imply taxable losses while others do not. The symmetric treatment of losses is also important for the effects on exchange rates, or prices under a fixed exchange rate regime, which, as discussed in Section 1.4, are important for the economic efficiency properties of the DBCFT.

expenses on domestic loans used to equity finance the activities of foreign subsidiaries even when they exempt the dividends paid back from the foreign subsidiaries. For example, the UK has previously presented such generous treatment of interest expense as a competitive advantage.[76]

Second, under a DBCFT countries would also tax domestic sales by foreign firms. So while countries may find themselves giving relief for expenditure incurred to produce revenue they will not tax, they will also collect tax revenues reflecting business expenditure for which they did not provide relief. From the country's perspective, the revenue consequences should be seen at an aggregate level, where an element of quid pro quo is at play, and not at the level of an individual business. In aggregate the net effect on the tax base hinges on the relative magnitude of exports and imports; this question was addressed in Section 2.1.2.2.

Third, competitive forces provide countries with a powerful incentive to provide full relief under a DBCFT. Failure to do so would place them at a competitive disadvantage in attracting business activities relative to countries which give full relief. To take the example in Table 7.11, if B did not provide relief for the expenditure, the business would have an incentive to locate its activities in A. This would be true for most businesses that aimed to supply an export market. In fact, the opposite problem might arise in that countries which are particularly keen on attracting certain activities, such as manufacturing, would have an incentive to compete by going beyond full relief through overly generous expensing rules or interest rates on losses carried forward.

Note that the same issues arise if reform takes the form of a VAT plus a payroll subsidy. A domestic business that exports all of its output is generally permitted to reclaim any VAT that it has paid on inputs. In general, this rebate would be less than that required under a DBCFT since the VAT does not give relief for labour costs. But combining the VAT with a payroll subsidy would automatically also give the same relief for labour costs as under the DBCFT. Under normal VAT rules then, the VAT plus payroll subsidy approach would be equivalent to giving a full rebate for the taxable loss described above. There is perhaps a difference in perception here, in that the VAT rebate itself would be separate, and is generally seen as a repayment of VAT paid at an earlier stage of production. But, given the matching reduction in taxes on (or subsidy to) wages and salaries, the VAT plus payroll subsidy approach would be equivalent to giving a full rebate under the DBCFT.

4.2.2.3 Financial businesses

We saw merit above in applying an R base for financial businesses when transacting with non-financial businesses subject to tax at the same rate, and an R+F

[76] HM Treasury (2010).

base when transacting with non-taxable entities, including individuals.[77] That is, financial businesses would be taxed on their net financial inflows from non-taxable entities, less all real costs (e.g. for purchases of labour and other inputs) that they incur. As described at length above, *all* real costs should be allowable against tax, since in effect the economic rent generated from lending to taxed businesses is taxed in the hands of the borrower. An advantage of this approach is that non-financial businesses do not need to keep track of their financial flows for tax purposes (although they do need to distinguish between real and financial flows). But, if a financial business does not have a sufficient positive net cash flow from tax exempt entities and individuals, then it may be left with a negative tax base. This does not mean that it is not profitable, nor that tax has not been levied on the total profit generated; it simply means that some important income will be taxed in the hands of the borrower, not the lender. At an aggregate level, total tax collected will be the same as under an R+F base applied to all businesses.

Just as above, economic efficiency requires financial businesses that find themselves in this position to be refunded in respect of their negative position. From an implementation perspective this raises some concerns. In particular, again, it is possible that countries may be unwilling to pay tax refunds to financial businesses in a taxable loss position. As with the problem of international flows in the previous subsection, this taxable loss may be permanent, and so cannot be dealt with through carrying the loss backwards or forwards, even with an interest mark-up.

A different solution to dealing with the taxable losses of financial businesses therefore needs to be found. While the problem mirrors that of dealing with the taxable losses of exporters discussed above, it is amplified by the non-taxation of some domestic transactions by financial businesses. One approach might be to allow taxable losses of financial businesses to be transferred to non-financial businesses that are in a taxpaying position. This could in principle be achieved, in effect, by making the netting of business-to-business financial transactions optional, although introducing this option would complicate the system and could introduce distortions if transferability still left financial businesses in loss positions.[78] Another approach would again be that of allowing financial businesses to offset their taxable losses under this cash flow tax against other taxes to which they are subject, for example, payroll taxes or special taxes levied on the financial sector.

In an international setting, with banks lending to non-domestic tax exempt entities, the position is the same as for other exporters; relief should be given for costs incurred domestically, even though there may be no taxable income to match

[77] Under the R-based approach, taxes on economic rent are collected only from non-financial businesses. Transactions between two financial businesses could also be subject to R-based tax, which would imply that financial transactions between them would be effectively untaxed.

[78] In that case, financial businesses would have an incentive to net flows that would have increased taxes on non-financial businesses (e.g. payments by them to non-financial businesses) and not to net flows that reduce taxes on non-financial businesses (e.g. payments to them by non-financial businesses), as there would be immediate tax consequences of these choices only for the non-financial businesses involved.

those costs. This would be true if the R+F base were applied generally, as well as under the mixed R and R+F approach discussed in Section 3. Once again, it is necessary to find a way to reimburse the loss, in order to preserve economic efficiency. Again, this could be done by crediting the taxable loss against other taxes, such as payroll taxes or special taxes levied on the financial sector.

As noted above, VAT is generally levied only on real flows, and not financial flows. The combination, however, of a VAT reformed along the lines described above—zero-rating B2B (business-to-business) and applying cash flow treatment to B2C (business-to-consumer) transactions—and a payroll subsidy would be equivalent to giving an immediate tax rebate under the DBCFT.

4.2.3 Collection on a destination basis

The collection of the DBCFT in the market country clearly raises some challenges. Some of these relate to defining the place of destination, and some to collecting tax in that country. We have already explored these issues at in Chapter 5. Here we focus on issues that arise particularly in the context of the DBCFT.

A DBCFT could leave B2B transactions between entities taxed in distinct countries out of the tax base entirely. Exports would be zero-rated, and as discussed above, imports purchased by businesses could be ignored (either taxed but with relief, or neither). So the challenges for collecting revenue under a DBCFT relate primarily to cross-border B2C transactions. (And, of course, one issue is to be able to identify whether a transaction is B2B or B2C.) As noted in Chapter 5, countries have become more confident in collecting taxes in such a setting, as evidenced by the adoption of digital services taxes and the OECD's Pillar I proposal.

In the context of the DBCFT, one innovation in the EU that could be applied amongst cooperating countries is a 'one stop shop', as proposed by de la Feria and Devereux (2014) and the Gaspar Committee (2014). Under such a system a business selling into several separate countries would need to register in only one; in many cases that is likely to be the origin country from which the business exports. The tax authority in that country would administer the DBCFT at the rate of the country to which the good or service is exported. Going beyond what has yet been achieved in Europe, one could envisage a clearing arrangement at the aggregate level, where payments are made between tax authorities in recognition of the appropriate recipient of the tax. Such cooperation would clearly create a significant administrative simplicity relative to the case in which the exporter is required to register and pay tax in each country into which it exports.

It is worth noting that the one-stop-shop approach makes the need to deal with a negative tax base in a specific business less likely. Suppose, for example, that a business in A exports to a consumer in B. In the absence of the one-stop-shop approach, the business would have a taxable loss in A and a taxable profit in B, even if it were profitable overall. That leaves the question of how to deal with the taxable

loss in A that we have considered above in Section 4.2.2.2. But with a one-stop-shop approach, the tax authority in A can charge tax on sales in B at B's tax rate, net of relief for expenses incurred in A at A's tax rate. As long as the business is profitable overall, and tax rates are not too different, then it is likely that in these circumstances the business will have a positive tax base in A. The implicit taxable loss in A would in effect be given full relief. The cost of this to the government in A would be reflected in the payment that A makes to B to reflect the tax that A has collected on B's behalf. There would be no need for any repayment to the business itself. Assuming that there are similar businesses in B exporting to A, then there would be a similar effect for implicit taxable losses in B. In effect the negative tax bases in A and B would be netted against each other and cleared at an aggregate level.

The implementation of collecting a tax on imports by individuals is broadly similar whether the DBCFT is introduced in its corporation tax form, or as a VAT plus payroll subsidy. However, if the reform took the form of an increase in the rate of an existing VAT combined with a payroll subsidy, then it would appear to be more straightforward simply to use the existing VAT law, rather than to introduce reforms to the definition of 'destination'. For countries that do not currently have a VAT, such as the US, then there is no such easy route to increasing the use of the destination principle.

4.2.4 Bilateral double tax conventions and the WTO

There are two important sets of international obligations which may conflict with the introduction of a DBCFT: bilateral double tax conventions (DTC), and commitments under the World Trade Organisation (WTO).

Given that the form of DTCs is based on the assumption that both contracting states operate a traditional income tax system,[79] it is not surprising that DTCs are poorly equipped to accommodate a DBCFT. With respect to treaties, a key issue is whether a DBCFT lies within the scope of the taxes normally covered by DTCs—that is, whether it is a tax on income. Article 2 of the OECD Model Convention defines taxes covered by the model as 'taxes on income and on capital … irrespective of the manner in which they are levied'.[80] But the OECD Model and its accompanying guidance is far from clear what is meant by a tax on income.[81] As a result, no definitive answer is available to the question whether the DBCFT amounts to a tax on 'income' for this purpose.[82]

[79] This is of course reflected in the title of the OECD Model—Model Convention with Respect to Taxes on *Income* and on Capital (OECD, 2019e)—and in DTCs enacted by reference to that model, such as the US–UK double tax convention 'For the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on *Income* and on Capital Gains' (emphasis added).

[80] Article 2(1) of the OECD Model Tax Convention on Income and Capital.

[81] Although the Commentary to the OECD Model makes it clear that this scope is intended to be as wide as possible; see Model Commentary to Art. 2, para. 1.

[82] See the discussion of the compatibility of the DBCFT with DTCs in Collier and Devereux (2017) and Ismer and Jescheck (2017).

As a practical matter, the scope of tax treaties as regards taxes covered is left to the countries entering into the treaty concerned in any particular case. If the DBCFT did fall within the scope of the treaty, then it would clearly be in violation of a number of typical provisions. In this case, the two parties to the treaty may be able to renegotiate the treaty provisions, but if that were not possible, the treaty might need to be terminated. Of course proposals such as the Unified Approach under Pillar I, that currently are being considered by the Inclusive Framework, would also require amendment to DTCs.

As a result, it seems likely that countries enacting a DBCFT would have a clear goal in excluding the DBCFT from the scope of existing treaties in order to avoid the treaty frustrating its intended operation. This suggests that they are likely to reflect this goal in their choice of design options in implementing the DBCFT. If the DBCFT was considered not to fall within the ambit of the treaty, then the treaty could continue, but the non-DBCFT country would not be obliged to give any credit against tax levied by the DBCFT country.

There is also a question as to whether the DBCFT would be consistent with WTO rules.[83] The primary concern with the DBCFT under WTO rules relates to the deduction for labour costs. Compare the purchase of an imported good with that of an identical domestically produced good. The labour costs of the latter are allowed as a deduction in the country of sale—since in this case it is also the country of origin. But no comparable relief is given in the country of sale for the labour costs incurred in producing the imported good. It is argued that this makes the DBCFT incompatible with WTO rules.[84]

In contrast, a credit-invoice VAT on a destination basis is unambiguously WTO compliant since it does not give relief for either form of labour costs. So too, of course, is reducing payroll taxes, or even instituting a general wage subsidy. The VAT plus payroll subsidy equivalent to the DBCFT would thus face no prospect of legal challenge in the WTO or any need for re-negotiation of trade agreements.[85]

To economists, of course, this legal distinction between two equivalent tax structures makes no sense. The only difference in practical terms is that the relief for labour costs is given internally in the DBCFT, but is a standalone measure under the VAT plus payroll subsidy approach.

[83] See, for example, Schön (2016).

[84] Of course, this is also true of a conventional corporation tax on profit. However, a conventional tax does not tax imports, so the issue does not arise in this case.

[85] See President's Advisory Panel (2005); Hufbauer and Gabyzon (1996); and Schön (2016). Grinberg (2017) argues that it is possible to restructure the DBCFT to make it more clearly compatible with the WTO rules. He proposes to define the base of the tax as domestic consumption, and then treat foreign importers and other sellers equivalently, rather than imposing a deduction disallowance or an import tax. Alternatively, he suggests adopting a business activities tax, and then enacting a business level incentive for encouraging employment that is a separate legal issue. Grinberg argues that either approach would avoid the key WTO concerns.

Furthermore, as we have argued above in Section 2.1, due to exchange rate movements or wage and price adjustments under a fixed exchange rate, neither reform option actually creates any discrimination in favour of domestically produced goods. A reduction in payroll taxes does encourage domestic production to the extent that it lowers domestic production costs; but this is true of any reduction in origin-based tax rates.

The fact remains, however, that WTO compliance is determined by interpretation of existing legal agreements and not by virtue of economic equivalences. That implies that a straightforward DBCFT drafted with an integrated wage subsidy, as set out here, seems unlikely, if challenged, to be held to be WTO compliant.[86] That suggests that either WTO agreements would need to be renegotiated or the DBCFT would need to be constructed with the WTO legal framework in mind; probably, either in the form of a VAT plus payroll subsidy, or in one of the forms proposed by Grinberg (2017).

4.2.5 Transitional issues

Moving to a cash flow tax base would introduce well-known transitional issues of implementation. For example, there is a question of how to treat the pre-enactment basis in existing assets, including plant, equipment, and inventory. Proponents of cash flow taxes have typically recommended deductions over time for a business pre-enactment basis.[87] Similar issues arise in how to treat pre-enactment debt, pre-enactment loss carry-forwards and unused business tax credits. We do not explore these here, though none seems unmanageable.

Consideration also needs to be given to the possible announcement effects of reform. In a fixed exchange rate regime context, for example, one might expect forward purchasing, particularly of durables, in advance of the expected increase in consumer prices[88] (which may then itself be brought forward to some degree). With a flexible exchange rate, the nominal appreciation from BTA would be expected to start in advance of implementation, bringing forward balance sheet and wealth effects and influencing trade as well. Indeed, anticipated adoption could worsen a country's international competitiveness in the short run to the extent that exchange rate appreciation occurs prior to implementation.

As noted above, either the DBCFT or the VAT plus payroll subsidy approach could be introduced gradually. Perhaps the easiest path, for countries that have a VAT, is a gradual increase in the rate of VAT (although this would be subject to concerns about multiple rates), a gradual reduction in the payroll tax, and a gradual reduction in the rate of existing corporation tax. Indeed, in the absence of any fundamental reform, it

[86] Pirlot (2019) has argued that the case for it being inconsistent is not conclusive.

[87] See President's Advisory Panel (2005) (who proposed a five-year period for deduction of basis) and Carroll and Viard (2012) (who proposed a ten-year period).

[88] Evidence of such effects can be found in Danninger and Carare (2008) and Büttner and Madzharova (2019).

seems likely that trends in this direction—similar to the fiscal devaluation discussed in Section 1.4—will continue, prompted by strong underlying economic forces of competition between countries. While this process continues, VATs and business-level taxes on profit could co-exist. For countries that wish to maintain business-level taxes on profit—perhaps because they would like to continue to tax domestic production—then increasing VAT and reducing business income taxes and payroll taxes may be an attractive alternative to the full implementation of a DBCFT.

4.2.6 Other issues in comparing the two approaches

A variety of other issues also arise in choosing between the introduction of a DBCFT and the alternative approach of increasing the rate of an idealized VAT (or introducing a new one) and introducing a wage subsidy.

The invoice-credit method generally used for VAT collection has an advantage over the DBCFT approach—presuming that the DBCFT is implemented in a similar form to that of a subtraction-method VAT—since the invoice-credit method has now been put in place in more than 160 countries worldwide.[89] There is therefore considerable experience of how it works best. By contrast, there is little experience with a subtraction-method VAT.[90]

One difference between the invoice-credit method and the subtraction method is in the effective treatment of small businesses, non-profit organizations, and state and local governments which are exempt from the tax. Under the invoice-credit method, purchases by registered businesses from these organizations are not subject to VAT, and so these businesses remit VAT as a proportion of their sales. By contrast, under the subtraction method, as long as the purchases are deductible, the business remits VAT only as a proportion of its own value added. Together with the payroll subsidy, the latter treatment ensures that the tax base of the purchasing business is its own economic rent, and so this does not create any distortion in the choice of supplier. However, it also implies that the total VAT paid in the supply chain is lower as a result of the exemption.

It would be possible to address this by increasing the tax on the purchasing business to compensate for the lack of tax on the economic rent earned by the tax exempt organization. Disallowing a deduction for the purchase would be equivalent to the invoice-credit approach, but would in effect be a tax on the sale, and so would be higher than the tax foregone. In principle, the deduction should be limited to the costs of the tax exempt organization, though this would have practical difficulties. In any case, this approach would create an incentive to purchase from registered businesses. If the deduction is allowed, this implies that there is an

[89] As briefly described in Chapter 2, Section 1.1.2, under the invoice credit method, tax is assessed each time a business supplies a good or service, and the business is permitted to reduce its VAT liability on its sales by a credit equal to the amount of VAT paid on inputs.

[90] Many analysts have described the Japanese VAT as a subtraction-method tax. See, for example, Bartlett (2009) and Grieco and Hufbauer (2005). Schenk and Oldman (2007) more accurately describe it as a 'credit-subtraction' VAT, as opposed to the 'sales-subtraction' VAT.

incentive for the business to overstate the cost of its purchase from the tax exempt organization, implying a lower recorded value added and a lower VAT charge. This incentive does not exist under the invoice-credit approach, since in that case the VAT due depends only on the value of sales.[91]

The invoice-credit approach also has an advantage where it is desired to have more than one rate, although in general, the presumption would be that the DBCFT should apply at the same rate for all goods and services. Indeed, one problem with relying on existing VATs is that they generally exclude many goods and services from the tax base. This would suggest that the VAT approach would be more attractive in countries which have a broader VAT base or no VAT at all.

For a country without an existing VAT that wants to continue to tax production and so does not wish to eliminate its origin-based business-level tax on profit, adopting a DBCFT would seem to require two business tax regimes, which could be administratively burdensome. However, if the country were willing to convert its existing business tax to a cash flow tax that is only partially destination-based, administrative burdens would be minimized. For example, if a country adopted a cash flow tax system generally with a 25% tax rate and provided that exports were 40% zero-rated for the tax and imports were 40% non-deductible, then the system would be equivalent to a DBCFT at 10% plus an origin-based cash flow tax on production at 15%. Indeed one could envisage this as a structure for gradual movement towards a full DBCFT, gradually increasing the proportion of exports that are zero-rated and imports that are non-deductible. The cash flow feature of the origin-based element would avoid the distortions created by debt financing and depreciation deductions under current regimes.

A VAT, unlike the DBCFT, taxes consumption out of all wage income, including high wage income, as well as out of rents from capital. In some countries, political barriers may limit high tax rates on wage income. In such instances, coupling a VAT with payroll tax relief for low and moderate wage earners may achieve more progressivity overall than a DBCFT with wages taxed only at the individual level.

Unlike a VAT, a DBCFT—and a payroll subsidy or tax reduction—must identify and give relief for wages. As noted above, this is generally problematic for all taxes on the income derived by closely held businesses, in that wages must be distinguished from non-deductible payments to the business's suppliers of capital. In general, this problem cannot be solved completely without rules that distinguish between returns to capital and returns to the labour of capital providers. In the US, for example, the Internal Revenue Service (IRS) has tried to limit wages to 'reasonable compensation'. Since partnerships and other flow-through entities are typically taxed on their capital and labour income together, this problem has not arisen for such entities. But where

[91] See, for example, Grinberg (2010); Weisbach (2000); and McLure (1997, 1987). Grinberg points out that the invoice requirements under the invoice-credit method aim to ensure that the credit that the purchasing business can claim is matched to the VAT paid by the selling business.

business income is taxed at substantially different rates than wage income, rules distinguishing the two are necessary. This is true regardless of whether a country adopts a DBCFT or VAT with payroll subsidy; rather it is a function of whether after either form of tax is adopted, wages are taxed at different rates.

One further issue is how the two alternative approaches would be treated in financial accounting. The treatment of credit-invoice VATs is well settled: the tax has no effect on earnings reported to shareholders. But the financial accounting of the DBCFT is uncertain. It could be treated as an operating expense. Alternatively, it could be treated as an income tax. The latter treatment could lead to distortions if behaviour is driven by profits as reported in the financial accounts, due to the innumerable timing differences between a cash flow tax and an income tax.

5. Conclusions

This chapter has set out what would undoubtedly be a radical reform of the taxation of business-level profit. The potential benefits from moving to a DBCFT are very substantial. There should be considerable gains in terms of four of our criteria. The DBCFT would wipe away most forms of economic inefficiency seen under the existing system; for example, the scale and location of investment, and the choice of form of finance, should all be unaffected by a DBCFT. As a result, the system should become incentive compatible, and the pressure of competition amongst governments to reduce their taxes on profit should be eliminated. The main routes of tax avoidance under the existing system should also disappear, which should enable a very significant simplification of existing rules. As for our fifth criterion, it is hard to see the outcome of a DBCFT as being any less fair than the existing system.

Both elements of the DBCFT—the cash flow element and the destination-based element—are unfamiliar concepts to many. The economic consequences that are claimed on its behalf—especially the impact of the border tax adjustment on exchange rates and prices—are difficult both to explain and to understand. Yet the destination element of the DBCFT is taken from the VAT, which was also once unfamiliar—and may continue to be in countries that have not yet adopted one.

We believe that there is a need for clear, dispassionate analysis of the complex issues involved in discussing international tax and its potential reform; that is what this chapter, and the book more widely, has tried to provide.

APPENDIX 1

Personal and Business Level Taxes in a Small Open Economy

Suppose each country i taxes individuals on their capital income on a residence basis at rate m_i. Business level tax is levied on an origin basis in each country i at rate t_i. Given that individual taxes are levied on a residence basis and business level taxes are levied on an origin basis, then it seems reasonable to suppose that the equilibrium 'world' rate of return, common to all countries, r, is defined post-business level tax and pre-income tax.

To be able to pay the world rate of return after tax, businesses in country i require a minimum pre-tax rate of return of p_i, where

$$r = (1 - t_i)\, p_i$$

Individual savers in country i can expect to earn the world rate of return before personal tax; after tax they can therefore expect to earn s_i, where

$$s_i = (1 - m_i) r$$

The key insight into our perspective on these two levels of taxation is that the world rate of return, r, is determined by a very large number of non-resident investors in the rest of the world. From country i's perspective, r is fixed for a given level of risk of an investment. It follows immediately that any increase in the business level tax, t_i, will raise the required pre-tax rate of return, p_i. And any increase in the personal level tax, m_i, will reduce the required post-tax rate of return, s_i.

Individual investors can be expected to allocate their funds among different assets up to the point that the post-tax rate of return on each asset is just high enough to reflect the contribution of that asset to the overall risk of the portfolio. Differences in m_i between alternative investments will then distort the portfolio choices of individual investors. For example, suppose that for some investors the return to asset A is taxed at a higher rate than the return to asset B. Then, other things being equal, the investor has an incentive to switch her investment from A to B to benefit from the lower tax rate. Assuming that the investor starts with a well-diversified portfolio, doing so will distort the portfolio choice of the investor. If B is risky, for example, then investing more in B is likely to raise the overall risk of that investor's portfolio. As more and more of her savings are invested in B, her overall risk continues to increase, up to a point at which the marginal benefit of the tax advantage is matched by the marginal cost of the higher risk.[1]

An example of such a distortion is the case where country i offers a tax credit—a form of integration—on income received only from domestic companies. This will create a

[1] Evidence in support of this view is provided in Bond et al (2007), who analyse a rise in the tax rate faced by UK pension funds on investing in UK companies in 1997.

distortion to portfolio choices since it favours investment in domestic businesses over other forms of investment. However, that will not affect the required rate of return for businesses in country *i* or elsewhere. The main impact of the tax credit is therefore to create a deadweight cost through inducing greater risk.

A business that is taxed on a pass-through—and residence—basis does not face an origin-based business level tax. To avoid distorting the choice of an individual between investing in a pass-through business, compared to a domestic business that does face a business level tax, and non-resident businesses, the individual should face the same effective tax rate, m_i, on all of these investments. This ensures that portfolio choices are not distorted by personal taxes, since the pass-through business must then also earn a return of r before personal, residence-based tax. So not only is there no need for any integration between business level and personal tax taxes on profit; doing so is likely to create a distortion that could be avoided.

This conclusion holds whatever the effective tax rate levied at the business level. However, the business level tax can, of course, affect investment since it raises the required pre-tax rate of return on investment. A tax on economic rent, however, does not fall on the normal return to capital and so does not affect the required rate of return—for such a tax, $t_i = 0$. In this case, the required rate of return before tax would be the same for domestic pass-through businesses and businesses that do face a business level tax (on economic rent). This should normally avoid distortions to the choice between these two forms of business.[2]

[2] A caveat to this claim is that a tax on economic rent would imply that the effective average tax rate is higher in the business that faces a business level tax. This can affect mutually exclusive choices between the two forms of investment.

APPENDIX 2

The Algebra of the RPAI

This Appendix formalizes (with some simplifications) the account of the RPAI proposal set out in the text.[1]

Denote the costs incurred by the multinational in jurisdiction *i* by c_i. Assuming for simplicity that a single mark-up μ applies to all costs, routine profit in jurisdiction *i* is thus

$$\Pi^r = \mu c_i \tag{A.1}$$

and (ignoring taxes) total residual profit is then

$$\Pi^R = \sum_i (s_i - (1+\mu)c_i) \tag{A.2}$$

where s_i denotes third party sales in *i*.

A top-down allocation mechanism allocates this residual profit across jurisdictions as

$$\Pi_i^R = \lambda_i \Pi^R \tag{A.3}$$

for some set of weights λ_i such that $\sum_i \lambda_i = 1$.

For the purpose of a bottom-up allocation, costs c_i are divided into two types: (i) costs that can be allocated to sales in particular jurisdictions (in the numerical example, these are costs of goods sold and local sales and marketing), with a_{ij} denoting costs incurred in *i* that are allocable to sales in *j;* (ii) below the line costs that cannot be allocated to sales in any particular jurisdiction (costs of regional/global marketing, G&A, and R&D), denoted by z_i. Thus:

$$c_i = \sum_j a_{ij} + z_i \tag{A.4}$$

Residual gross income (RGI) in jurisdiction *i* is then

$$g_i = s_i - (1+\mu)\sum_j a_{ji} \tag{A.5}$$

[1] This analysis can be thought of as applying to the aggregate of the multinational's activities or to a particular product or product line.

The top-down approach based on RGI simply sets $\lambda_i = g_i/G$ in equation (A.3), where $G = \sum_i g_i$ denotes aggregate RGI. Noting that

$$\Pi^R = \sum_i \left(s_i - (1+\mu)\left(\sum_j a_{ij} + z_i \right) \right) \tag{A.6}$$

$$= G - (1+\mu)Z \tag{A.7}$$

use being made of $\sum_i \sum_j a_{ij} = \sum_i \sum_j a_{ji}$ and denoting $Z = \sum_i z_i$, the residual profit allocated to *i* is in this case

$$\Pi_i^R = g_i - \left(\frac{g_i}{G} \right)(1+\mu)Z. \tag{A.8}$$

The bottom-up approach instead simply apportions the non-allocable costs $(1+\mu)Z$ by RGI, that is by the proportion g_i/G, and deducts the apportioned amount from RGI. That is clearly reflected in (A.8), so that the two approaches are equivalent as claimed.

Alternatively, the residual profit can be calculated in a way that more closely resembles the existing regime, as:

$$\Pi_i^R = \underbrace{s_i - (1+\mu)c_i}_{(a)} - \underbrace{\left\{ (1+\mu)\left(\sum_j a_{ji} - \sum_j a_{ij} \right) \right\}}_{(b)} - \underbrace{(1+\mu)\left\{ \left(\frac{g_i}{G} \right) Z - z_i \right\}}_{(c)} \tag{A.9}$$

where the three terms correspond respectively to: (a) sales in *i* less all costs (inclusive of associated routine profit) incurred in *i* (as in Table 6.3); less (b) the net value of purchases from, less sales to, other entities in the group, measured as the costs of goods sold including the associated routine profit (as in Table 6.4); less (c) the amount by which *i*'s RGI-weighted share of unallocable costs exceeds unallocable costs incurred in *i* (as in Table 6.6).

Using (A.4) to cancel terms in (A.9) shows that the bottom-up allocation in the latter is exactly the same as the top-down allocation in (A.8).

References

Adams, Abi, Judith Freedman, and Jeremias Prassl (2018) 'Rethinking Legal Taxonomies for the Gig Economy', *Oxford Review of Economic Policy* 34.3, 475–94.

Agúndez-García, Ana (2006) 'The Delineation and Apportionment of an EU Consolidated Tax Base for Multi-Jurisdictional Corporate Income Taxation: A Review of Issues and Options', European Commission Directorate-General for Taxation and Customs Union Working Paper No. 9/2006.

Altshuler, Rosanne and Timothy J. Goodspeed (2015) 'Follow the Leader? Evidence on European and US Tax Competition', *Public Finance Review* 43.4, 485–504.

Altshuler, Rosanne and Harry Grubert (2010) 'Formula Apportionment: Is It Better Than the Current System and Are There Better Alternatives?', *National Tax Journal* 63.4, 1145–84.

Andrews, William D. (1974) 'A Consumption-Type or Cash Flow Personal Income Tax', *Harvard Law Review* 1113, 1148–65.

Andrus, Joe and Paul Oosterhuis (2017) 'Transfer Pricing after BEPS: Where Are We and Where Should We Be Going', *Tax Magazine*, March, 89–107.

Atkinson, Anthony B. (1977) 'Optimal Taxation and the Direct Versus Indirect Tax Controversy', *Canadian Journal of Economics* 10, 590–606.

Atkinson, Anthony B., Thomas Piketty, and Emmanuel Saez (2011) 'Income Inequality in the Long Run', *Journal of Economic Literature* 49.1, 3–71.

Atkinson, Anthony B. and Joseph E. Stiglitz (1976) 'The Design of Tax Structure: Direct Versus Indirect Taxation', *Journal of Public Economics* 6, 55–75.

Auerbach, Alan J. (1991) 'Retrospective Capital Gains Taxation,' *American Economic Review* 81, 167–78.

Auerbach, Alan J. (2006) 'Who Bears the Corporate Tax? A Review of What We Know', in James Poterba, ed., *Tax Policy and the Economy* 20, 1–40.

Auerbach, Alan J. (2010) 'A Modern Corporate Tax', *The Center for American Progress/The Hamilton Project*.

Auerbach, Alan J. (2017) 'Demystifying the Destination-Based Cash-Flow Tax', *Brookings Papers on Economic Activity*, Fall, 409–32.

Auerbach, Alan J. and David Bradford (2004) 'Generalized Cash Flow Taxation', *Journal of Public Economics* 88, 957–80.

Auerbach, Alan J. and Michael P. Devereux (2018) 'Cash-flow Taxes in an International Setting', *American Economic Journal: Economic Policy* 10.3, 69–94.

Auerbach, Alan J., Michael P. Devereux, Michael Keen, and John Vella (2017a) 'Destination-Based Cash Flow Taxation', *Oxford University Centre for Business Taxation Working Paper* 17/01.

Auerbach, Alan J., Michael P. Devereux, Michael Keen, and John Vella (2017b) 'International Tax Planning under the Destination-Based Cash Flow Tax', *National Tax Journal* 70.4, 783–802.

Auerbach, Alan J., Michael P. Devereux, and Helen Simpson (2010) 'Taxing Corporate Income' in James Mirrlees, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote,

Malcolm Gammie, Paul Johnson, Gareth Myles, and James M. Poterba, eds., *Dimensions of Tax Design*, Oxford: Oxford University Press, 837–913.

Auerbach, Alan J. and Doug Holtz–Eakin (2016) 'The Role of Border Adjustments in International Taxation,' *American Action Forum*.

Ault, Hugh J., Brian J. Arnold, and Graeme S. Cooper (2019) *Comparative Income Taxation: A Structural Analysis*, 4th ed., The Netherlands: Kluwer Law International.

Ault, Hugh J. and David Bradford (1989) 'Taxing International Income: An Analysis of the U. S. System and Its Economic Premises', *NBER Working Paper* 3056.

Avi-Yonah, Reuven S. (1995) 'The Rise and Fall of Arm's Length: A Study in the Evolution of U.S. International Taxation', *Virginia Tax Review* 15.1, 85–159.

Avi-Yonah, Reuven S. (1996) 'The Structure of International Taxation: A Proposal for Simplification', *Texas Law Review* 74, 1305–59.

Avi-Yonah, Reuven S. (2000) 'Globalization, Tax Competition, and the Fiscal Crisis of the Welfare State', *Harvard Law Review* 113, 1575–668.

Avi-Yonah, Reuven S. (2005) 'The Story of the Separate Income Tax: A Vehicle for Regulating Corporate Managers', in Steven A. Bank and Kirk A. Stark, eds., *Business Tax Stories*, New York: Foundation Press, 11–26.

Avi-Yonah, Reuven S. (2008) 'Corporate Social Responsibility and Strategic Tax Behavior', in Wolfgang Schön, ed., *Tax and Corporate Governance*, Berlin: Springer, 183–98.

Avi-Yonah, Reuven S. (2010) 'Between Formulary Apportionment and the OECD Guidelines: A Proposal for Reconciliation', *World Tax Journal* 2.1, 3–18.

Avi-Yonah, Reuven S. and Ilan Benshalom (2011) 'Formulary Apportionment: Myths and Prospects—Promoting Better International Policy and Utilizing the Misunderstood and Under-Theorized Formulary Alternative', *World Tax Journal* 3.3, 371–98.

Avi-Yonah, Reuven S., Kimberly A. Clausing, and Michael C. Durst (2009) 'Allocating Business Profits for Tax Purposes: A Proposal to Adopt a Formulary Profit Split', *Florida Tax Review* 9, 497–553.

Baker, Scott R., Nicholas Bloom, and Steven J. Davis (2016) 'Measuring Economic Policy Uncertainty', *Quarterly Journal of Economics* 131.4, 1593–636.

Bankman, Joseph (1995) 'A Market-Value Based Corporate Income Tax', *Tax Notes* 68, 1347.

Banks, James and Peter Diamond (2010) 'The Base for Direct Taxation', in James Mirrlees, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles, and James M. Poterba, eds., *Dimensions of Tax Design*, Oxford: Oxford University Press.

Bartlett, Bruce (2009) 'Support the VAT', 23 October, forbes.com.

Batchelder, Lily (2017) 'Opportunities and Risks in Individual Tax Reform', Testimony Before the US Senate Committee on Finance.

Beer, Sebastian, Ruud A. de Mooij, Shafik Hebous, Michael Keen, and Li Liu (2020) 'Exploring Residual Profit Allocation', *IMF Working Paper* 2020/49.

Beer, Sebastian, Ruud A. de Mooij, and Li Liu (2018) 'International Corporate Tax Avoidance: A Review of the Channels, Magnitudes, and Blind Spots', *IMF Working Paper* 2018/168.

Bell, Brian and John Van Reenen (2013) 'Extreme Wage Inequality: Pay at the Very Top', *American Economic Review* 103.3, 153–7.

Benedek, Dora, Ruud de Mooij, Michael Keen, and Philippe Wingender (2020), 'Estimating VAT Pass Through,' *International Tax and Public Finance* 27, 890–930.

Benshalom, Ilan (2009) 'Taxing the Financial Income of Multinational Enterprises by Employing a Hybrid Formulary and Arm's Length Allocation Method', *Virginia Tax Review* 28, 619–71.

Bernard, Andrew and Teresa Fort (2015) 'Factoryless Goods Producing Firms', *American Economic Review Papers and Proceedings* 105.5, 518–23.

Best, Michael C., Anne Brockmeyer, Henrik J. Kleven, Johannes Spinnewijn, and Mazhar Waseem (2015) 'Production Versus Revenue Efficiency with Limited Tax Capacity: Theory and Evidence from Pakistan', *Journal of Political Economy* 123.6, 1311–55.

Bettendorf, Leon, Michael P. Devereux, Albert van der Horst, Simon Loretz, and Ruud de Mooij (2010) 'Corporate Tax Harmonisation in the EU', *Economic Policy* 25, 537–90.

Bilaney, Sunny Kishore (2016) 'Understanding Risk in the Era of the OECD/G20 Base Erosion and Profit Shifting Initiative', *Bulletin of International Taxation* 70.10, 576–82.

Bilicka, Katarzyna Anna (2019) 'Comparing UK Tax Returns of Foreign Multinationals to Matched Domestic Firms', *American Economic Review* 109.8, 2921–53.

Birch Sorensen, Peter (2010) 'Dual Income Taxes: A Nordic Tax System', in Iris Claus, Norman Gemmell, Michelle Harding, and David White, eds., *Tax Reform in Open Economies—International and Country Perspectives*, Cheltenham: Edward Elgar, 78–108.

Bird, Richard M. (2002) 'Why Tax Corporations?', *Bulletin for International Taxation* 56.5, 194–302.

Bird, Richard M. and Donald J. S. Brean (1986) *The Interjurisdictional Allocation of Income and the Unitary Taxation Debate*, Canada: Economic Council of Canada.

Bird, Richard M. and Scott J. Wilkie (2000) 'Source-vs. Residence-based Taxation in the European Union', in Sijbren Cnossen, ed., *Taxing Capital Income in the European Union*, Oxford: Oxford University Press, 78–109.

Blanchard, Olivier and Jason Furman (2017) 'Who Pays for Border Adjustment? Sooner or Later, Americans Do', *Peterson Institute for International Economics*, 8 March.

Bloom, Nicholas (2014) 'Fluctuations in Uncertainty', *Journal of Economic Perspective* 28.2, 153–75.

Bloom, Nicholas, Stephen Bond, and John Van Reenen (2007) 'Uncertainty and Investment Dynamics', *Review of Economic Studies* 74.2, 391–415.

Blouin, Jennifer, Harry Huizinga, Luc Laeven, and Gaëtan Nicodème (2014) 'Thin Capitalization Rules and Multinational Firm Capital Structure', *IMF Working Paper* 14/1.

Blouin, Jennifer and Leslie Robinson (2020) 'Double Counting Accounting: How Much Profit of Multinational Enterprises Is Really in Tax Havens?' University of Pennsylvania.

Boadway, Robin (2015) 'Tax Policy for a Rent-Rich Economy', *Canadian Public Policy* 41, 253–64.

Boadway, Robin and Neil Bruce (1984) 'A General Proposition on the Design of a Neutral Business Tax', *Journal of Public Economics* 24, 231–9.

Boadway, Robin and Michael Keen (2010) 'Theoretical Perspectives on Resource Tax Design', in Philip Daniel, Michael Keen, and Charles McPherson, eds., *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*, Abingdon: Routledge, 13–74.

Boidman, Nathan and Michael Kandev (2015) 'BEPS: A Spent Force or Radical Change?', *Tax Notes International* 80, 837.

Bond, Stephen R. and Michael P. Devereux (1995) 'Generalised R-based and S-based Taxes Under Uncertainty', *Journal of Public Economics* 87, 1291–1311.

Bond, Stephen R. and Michael P. Devereux (2002) 'Cash Flow Taxes in an Open Economy', *Centre for Economic Policy Research Discussion Paper* 3401.

Bond, Stephen R. and Michael P. Devereux (2003) 'On the Design of a Neutral Business Tax Under Uncertainty', *Journal of Public Economics* 58, 57–71.

Bond, Stephen R, Michael P. Devereux, and Alex Klemm (2007) 'The Effects of Dividend Taxes on Equity Prices: A Re-examination of the 1997 UK Tax Reform', *Oxford University Centre for Business Taxation Working Paper* 07/01.

Bradford, David (1986) *Untangling the Income Tax*, Cambridge MA: Harvard University Press.

Brennan, Michael J. (1970) 'Taxes, Market Valuation and Financial Policy', *National Tax Journal* 23, 417–29.

Brown, E. Cary (1948) 'Business Income Taxation and Investment Incentives', in Alvin H. Hansen, ed., *Income, Employment and Public Policy, Essays in Honor of Alvin H. Hansen*, New York: W.W. Norton, 300–16.

Business Roundtable (2011) *Taxation of American Companies in the Global Marketplace: A Primer*, Washington DC: Business Roundtable.

Büttner, Thiess and Boryana Madzharova (2019) 'Sales and Price Effects of Pre-announced Consumption Tax Reforms: Micro-level Evidence from European VAT', *Oxford University Centre for Business Taxation Working Paper* 19/05.

Büttner, Thiess, Michael Overesch, Ulrich Schreiber, and Georg Wamser (2012) 'The Impact of Thin-Capitalization Rules on the Capital Structure of Multinational Firms', *Journal of Public Economics* 96.11–12, 930–8.

Büttner, Thiess and Georg Wamser (2013) 'Internal Debt and Multinational Profit Shifting: Empirical Evidence from Firm-Level Panel Data', *National Tax Journal* 66.1, 63–96.

Carroll, Robert and Alan D. Viard (2012) *Progressive Consumption Taxation: The X-Tax Revisited*, Washington DC: AEI Press.

CCCTB Working Group (2006) 'The Mechanism for Sharing the CCCTB', *European Commission Working Document* CCCTB\WP\047\doc\en.

Chamley, Christophe (1986) 'Optimal Taxation of Capital Income in General Equilibrium with Infinite Lives', *Econometrica* 54.3, 607–22.

Clausing, Kimberly (2020) 'How Big is Profit Shifting?', Reed College.

Clausing, Kimberly, Ed Kleinbard, and Thornton Matheson (2016) 'US Corporate Income Tax Reform and its Spillovers', *IMF Working Paper* 16/127.

Clausing, Kimberly and Daniel Shaviro (2011) 'A Burden-neutral Shift from Foreign Tax Creditability to Deductibility?', *Tax Law Review* 64, 431–52.

Clifford, Sarah (2019) 'Taxing Multinationals Beyond Borders: Financial and Locational Responses to CFC Rules', *Journal of Public Economics* 173, 44–71.

Collier, Richard and Joseph Andrus (2017) *Transfer Pricing and the Arm's Length Principle after BEPS*, Oxford: Oxford University Press.

Collier, Richard and Michael P. Devereux (2017) 'The Border-Adjusted Tax and Tax Treaties', *Tax Notes*, December 18.

Collier, Richard and John Vella (2019) 'Five Core Problems in the Attribution of Profit to Permanent Establishments', *World Tax Journal* 11.2, 159–87.

Costinot, Arnaud and Iván Werning (2019) 'Lerner Symmetry: A Modern Treatment', *American Economic Review: Insights* 1.1, 13–26.

Couzin, Robert (2013) 'Policy Forum: The End of Transfer Pricing?', *Canadian Tax Journal* 61, 159–78.

Crawford, Claire and Judith Freedman (2010) 'Small Business Taxation', in James Mirrlees, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie,

Paul Johnson, Gareth Myles, and James M. Poterba, eds., *Dimensions of Tax Design*, Oxford: Oxford University Press, 1029–99.

Crawford, Ian, Michael Keen, and Stephen Smith (2010) 'VAT and Excises', in James Mirrlees, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles, and James M. Poterba, eds., *Dimensions of Tax Design*, Oxford: Oxford University Press, 275–362.

Creedy, John and Norman Gemmell (2010) *Modelling Corporation Tax Revenue*, Cheltenham: Edward Elgar.

Crivelli, Ernesto, Ruud De Mooij, and Michael Keen (2016) 'Base Erosion, Profit Shifting and Developing Countries', *FinanzArchiv* 72.4, 268–301.

Cui, Wei (2017) 'Destination-Based Cash-Flow Taxation: A Critical Appraisal', *University of Toronto Law Journal* 67.3, 301–47.

Cui, Wei (2018) 'Residence-Based Formulary Apportionment: (In)feasibility and Implications', *Tax Law Review* 71.3, 551–81.

Cui, Wei (2019) 'The Digital Services Tax: A Conceptual Defense', *Tax Law Review* 73.1, 69–111.

Dagan, Tsilly (2017) *International Tax Policy: Between Competition and Cooperation*, Cambridge: Cambridge University Press.

Danninger, Stephan and Alina Carare (2008) 'Inflation Smoothing and the Modest Effect of VAT in Germany', *IMF Working Paper* 08/175.

De la Feria, Rita (2009) 'Place Where the Supply/Activity is Effectively Carried Out as an Allocation Rule: VAT v. Direct Taxation', in Michael Lang et al, eds., *Value Added Tax and Direct Taxation—Similarities and Differences*, Amsterdam: IBFD, 961–1014.

De la Feria, Rita and Michael P. Devereux (2014) 'Designing and Implementing a Destination-Based Corporate Tax', *Oxford University Centre for Business Taxation Working Paper* 14/07.

De Meza, David, Ben Lockwood, and Gareth D. Myles (1994) 'When Are Origin and Destination Regimes Equivalent?' *International Tax and Public Finance* 1, 5–24.

De Mooij, Ruud A. (2012) 'Tax Biases to Debt Finance: Assessing the Problem, Finding Solutions', *Fiscal Studies* 33.4, 489–512.

De Mooij, Ruud A. and Michael P. Devereux (2009) 'Alternative Systems of Business Tax in Europe: An Applied Analysis of ACE and CBIT Reforms', *European Commission Taxation Papers*, *Working Paper* 17.

De Mooij, Ruud A. and Michael P. Devereux (2011) 'An Applied Analysis of ACE and CBIT Reforms in the EU', *International Tax and Public Finance* 18.1, 93–120.

De Mooij, Ruud A. and Sjef Ederveen (2008) 'Corporate Tax Elasticities: A Reader's Guide to Empirical Findings', *Oxford Review of Economic Policy* 24.4, 680–97.

De Mooij, Ruud A. and Michael Keen (2013) 'Fiscal Devaluation and Fiscal Consolidation: The VAT in Troubled Times', in Alberto Alesina and Francesco Giavazzi, eds., *Fiscal Policy After the Crisis*, Chicago: University of Chicago Press, 443–85.

De Mooij, Ruud A. and Michael Keen (2016) 'Debt, Taxes, and Banks', *Journal of Money, Credit and Banking* 48, 5–33.

De Mooij, Ruud A., Michael Keen, and Masanori Orihara (2014) 'Taxation, Bank Leverage and Financial Crises', in Ruud A. de Mooij and Gaëtan Nicodème, eds., *Taxation and Regulation of the Financial Sector*, Boston: MIT Press, 235–60.

De Mooij, Ruud A. and Gaëtan Nicodème (2008) 'Corporate Tax Policy and Incorporation in the EU', *International Tax and Public Finance* 15.4, 478–98.

Desai Mihir A. and Dhammika Dharmapala (2015) 'Interest Deductions in a Multijurisdictional World', *National Tax Journal* 68, 653–80.

Desai, Mihir, C. Fritz Foley, and James R. Hines (2004) 'A Multinational Perspective on Capital Structure Choice and Internal Capital Markets', *Journal of Finance* 59.6, 245.

Desai, Mihir and James R. Hines (2003) 'Evaluating International Tax Reform', *National Tax Journal* 56, 487–502.

Devereux, Michael P. (2008) 'Taxation of Outbound Direct Investment: Economic Principles and Tax Policy Considerations', *Oxford Review of Economic Policy* 24.4, 698–719.

Devereux, Michael P. (2012) 'Issues in the Design of Taxes on Corporate Profit', *National Tax Journal* 65.3, 709–30.

Devereux, Michael P. (2016) 'Measuring Corporation Tax Uncertainty Across Countries: Evidence from a Cross Country Survey', *Oxford University Centre for Business Taxation Working Paper* 16/13.

Devereux, Michael P., Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella (2019) 'Residual Profit Allocation by Income', *Oxford University Centre for Business Taxation Working Paper* 19/01.

Devereux, Michael P., François Bares, Sarah Clifford, Judith Freedman, Irem Güçeri, Martin McCarthy, Martin Simmler, and John Vella (2020) 'The OECD Global Anti-Base Erosion Proposal', *Oxford University Centre for Business Taxation Report*.

Devereux, Michael P. and Peter Birch Sorensen (2006) 'The Corporate Income Tax: International Trends and Options for Fundamental Reform', *European Commission Economic Papers* 264.

Devereux, Michael P., Judith Freedman, and John Vella (2012) 'Tax Avoidance', *Oxford University Centre for Business Taxation Report*.

Devereux, Michael P., Clemens Fuest, and Ben Lockwood (2015) 'The Taxation of Foreign Profits: A Unified View', *Journal of Public Economics* 125, 83–97.

Devereux, Michael P. and Rachel Griffith (1998) 'Taxes and the Location of Production: Evidence from a Panel of US Multinationals', *Journal of Public Economics* 68.3, 335–67.

Devereux, Michael P., Rachel Griffith, and Alex Klemm (2004) 'Why Has the UK Corporation Tax Raised So Much Revenue?', *Fiscal Studies* 25.4, 367–88.

Devereux, Michael P. and Li Liu (2016) 'Stimulating Investment Through Incorporation', *Oxford University Centre for Business Taxation Working Paper* 16/07.

Devereux, Michael P., Li Liu, and Simon Loretz (2013) 'The Elasticity of Corporate Taxable Income: New Evidence from UK Tax Records', *American Economic Journal: Economic Policy* 6.2, 19–53.

Devereux, Michael P., Ben Lockwood, and Michela Redoano (2008) 'Do Countries Compete Over Corporate Tax Rates?' *Journal of Public Economics* 92.5–6, 1210–35.

Devereux, Michael P. and Simon Loretz (2013) 'What Do We Know About Corporate Tax Competition?', *National Tax Journal* 66.3, 745–74.

Devereux, Michael P., Giorgia Maffini, and Jing Xing (2018) 'Corporate Tax Incentives and Capital Structure: New Evidence from UK Firm-level Tax Returns', *Journal of Banking & Finance* 88, 250–66.

Devereux, Michael P., Giorgia Maffini, and Jing Xing (2019) 'The Impact of Investment Incentives: Evidence From UK Corporation Tax Returns', *American Economic Journal: Economic Policy* 11.3, 361–89.

Devereux, Michael P. and John Vella (2014) 'Are We Heading for a Corporation Tax Fit for the 21st Century?', *Fiscal Studies* 35.4, 449–75.

Devereux, Michael P. and John Vella (2017) 'Implications of Digitalisation for International Corporate Tax Reform', in Sanjeev Gupta, Michael Keen, Alpa Shah, and Genevieve Verdier, eds., *Digital Revolutions in Public Finance*, Washington DC: International Monetary Fund, 91–112.

Devereux, Michael P. and John Vella (2018a) 'Taxing the Digitalised Economy: Targeted or System-Wide Reform?', *British Tax Review* 4, 387–406.

Devereux, Michael P. and John Vella (2018b) 'Value Creation as the Fundamental Principle of the International Corporate Tax System', *European Tax Policy Forum Policy Paper*.

Devereux, Michael P. and John Vella (2018c) 'Gaming Destination-based Cash Flow Taxes', *Tax Law Review* 71.3, 477–514.

Devereux, Michael P. and John Vella (2020) 'Reflections on the Allowance for Corporate Equity after Three Decades' in Rita de la Feria and Glen Loutzenhiser, eds., *The Dynamics of Taxation: Essays in Honour of Judith Freedman,* Oxford: Hart Publishing, 231–50.

Dharmapala, Dhammika (2014) 'What Do We Know About Base Erosion and Profit Shifting? A Review of the Empirical Literature,' *Fiscal Studies* 35, 421–48.

Diamond, Peter and James A. Mirrlees (1971) 'Optimal Taxation and Public Production I: Production Efficiency,' *American Economic Review* 61, 8–27.

Diamond, Peter and Emmanuel Saez (2011) 'The Case for a Progressive Tax: From Basic Research to Policy Recommendations', *Journal of Economic Perspectives* 25.4, 165–90.

Dodge, Joseph M. (1995) 'A Combined Mark-to-Market and Pass-Through Corporate-Shareholder Integration Proposal', *Tax Law Review* 50, 265–372.

Doidge, Craig and Alexander Dyck (2015) 'Taxes and Corporate Policies: Evidence from a Quasi-Natural Experiment', *Journal of Finance* 70.1, 45–89.

Durst, Michael C. (2012) ' "Risk" and the OECD Discussion Drafts on Transfer Pricing', *Tax Notes International*, 285–8.

Ebrill, Liam P, Michael Keen, Jean-Paul Bodin, and Victoria Summers (2001) *The Modern VAT*, Washington DC: International Monetary Fund.

Egger, Peter and Georg Wamser (2015) 'The Impact of Controlled Foreign Company Legislation on Real Investments Abroad. A Multi-dimensional Regression Discontinuity Design', *Journal of Public Economics* 129, 77–91.

Elkins, David (2017) 'The Case Against Income Taxation of Multinational Enterprises', *Virginia Tax Review* 36, 143–204.

Engle, Robert and J. Gonzalo Rangel (2008) 'The Spline-GARCH Model for Low-Frequency Volatility and Its Global Macroeconomic Causes', *Review of Financial Studies* 21.3, 1187–222.

Englisch, Joachim and Johannes Becker (2019) 'International Effective Minimum Taxation—The GLOBE Proposal' *World Tax Journal* 11.4, 484–529.

Ernst & Young (2015) 'Experiences with Cash-flow Taxation and Prospects', *European Commission Taxation Papers*, *Working Paper* 55–2015.

Ernst & Young (2019) 'Wem gehört der Dax? Analyse der Aktionärsstruktur der DAX-Unternehmen im Jahre 2018-Kurzfassung'.

Escribano, Eva (2019) *Jurisdiction to Tax Corporate Income Pursuant to the Presumptive Benefit Principle*, Alphen aan den Rijn: Wolters Kluwer.

European Commission (2001) 'Company Taxation in the Internal Market', *European Commission Staff Working Paper* 1681.

European Commission (2009) *Promoting Good Governance in Tax Matters*, Communication from the Commission to the European Parliament, the Council, and the European Economic and Social Committee, COM(2009) 201 final.

European Commission (2011) *Towards a simpler, more robust and efficient VAT system tailored to the single market*, Communication from the Commission to the European Parliament, the Council, and the European Economic and Social Committee on the future of VAT, COM(2011) 851 final.

European Commission (2015) *A Fair and Efficient Corporate Tax System in the European Union: 5 Key Areas for Action,* Communication from the Commission to the European Parliament and the Council, SWD(2015) 121 final.

European Commission (2016) *Proposal for a Council Directive on a Common Consolidated Corporate Tax Base (CCCTB),* COM(2016) 683 final.

European Commission (2017) *A Fair and Efficient Tax System in the European Union for the Digital Single Market,* Communication from the Commission to the European Parliament and the Council, COM(2017) 547 final.

European Commission (2018a) *Questions and Answers on a Fair and Efficient Tax System in the EU for the Digital Single Market*, 21 March 2018.

European Commission (2018b) *Impact Assessment Accompanying the document Proposal for a Council Directive laying down rules relating to the corporate taxation of a significant digital presence and Proposal for a Council Directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services*, European Commission Staff Working Document, SWD(2018) 81 final.

European Commission (2018c) *Time to establish a modern, fair and efficient taxation standard for the digital economy*, Communication from the Commission to the European Parliament and the Council, COM(2018) 146 final.

European Council (1997) *Code of Conduct for Business Taxation*, Resolution of the Council and the Representatives of the Governments of the Member States.

European Economic Advisory Group (2007) *The EEAG Report on the European Economy,* Chapter 5, Munich: CESifo Group, 121–32.

Fane, George (1987) 'Neutral Taxation Under Uncertainty,' *Journal of Public Economics* 33.1, 95–105.

Feld, Lars P. and Jost H. Heckemeyer (2011) 'FDI and Taxation: A Meta-study', *Journal of Economic Surveys* 25.2, 233–72.

Feld, Lars P., Jost H. Heckemeyer, and Michael Overesch (2013) 'Capital Structure Choice and Company Taxation: A Meta-study', *Journal of Banking and Finance* 37, 2850–66.

Feldstein, Martin (1995) 'Behavioral Responses to Tax Rates: Evidence from the Tax Reform Act of 1986', *American Economic Review* 85.2, 170–4.

Feldstein, Martin (1999) 'Tax Avoidance and the Deadweight Loss of the Income Tax', *Review of Economics and Statistics* 81.4, 674–80.

Feldstein, Martin and David Hartman (1979) 'The Optimal Taxation of Foreign Source Investment Income', *The Quarterly Journal of Economics* 93.4, 613–29.

Feldstein, Martin and Paul Krugman (1990) 'International Trade Effects of Value-Added Taxation', in Assaf Razin and Joel Slemrod, eds., *Taxation in the Global Economy*, Chicago: University of Chicago Press, 263–82.

Fell, Lisa Maria (2017) 'The Sales Country as a Tax Credit Country—Implementation Issues, Complexity Costs and Tax Planning', University of Mannheim.

Fleming, J. Clifton Jr., Robert J. Peroni, and Stephen E. Shay (2001) 'Fairness in International Taxation: The Ability-to-Pay Case for Taxing Worldwide Income', *Florida Tax Review* 5, 299–354.

Fleming, J. Clifton Jr., Robert J. Peroni, and Stephen E. Shay (2014) 'Formulary Appointment in the US International Income Tax System: Putting Lipstick on a Pig?', *Michigan Journal of International Law* 36.1, 1–57.

Fleming, J. Clifton Jr., Robert J. Peroni, and Stephen E. Shay (2016a), 'Two Cheers for the Foreign Tax Credit, Even in the BEPS Era', *Tulane Law Review* 91.1, 1–54.

Fleming, J. Clifton Jr., Robert J. Peroni, and Stephen E. Shay (2016b) 'Defending Worldwide Taxation with a Shareholder-based Definition of Corporate Residence', *BYU Law Review* 6, 1681–1713.

Forstater, Maya and Rasmus C. Christensen (2017) 'New Players, New Game: The Role of the Public and Political Debate in the Development of Action on International Tax Issues', *European Tax Policy Forum research paper*.

Fuest, Clemens (2015) 'Who Bears the Burden of Corporate Income Taxation?', *European Tax Policy Forum Policy Paper* 1.

Fuest, Clemens, Andreas Peichl, and Sebastian Siegloch (2018) 'Do Higher Corporate Taxes Reduce Wages? Micro Evidence from Germany', *American Economic Review* 108.2, 393–418.

Gadzo, Stepan (2018) 'The Principle of "Nexus" or "Genuine Link" as a Keystone of International Income Tax Law: A Reappraisal', *Intertax* 46.3, 194–209.

Gaspar Committee (2014) *Report of the Commission Expert Group on Taxation of the Digital Economy*, chaired by Vitor Gaspar, Brussels: European Commission.

Genser, Bernd and Günther Schulze (1997), 'Transfer Pricing Under an Origin-based VAT System,' *FinanzArchiv* 54, 51–67.

Gil Garcia, Elizabeth (2019) 'The Single Tax Principle: Fiction or Reality in a Non-Comprehensive International Tax Regime?', *World Tax Journal* 11.3, 305–46.

Goldin, Jacob and Edward Fox (2020) 'Sharp Lines and Sliding Scales in Tax Law' *Tax Law Review*, forthcoming.

Gordon, Roger H. (1986) 'Taxation of Investment and Savings in a World Economy', *American Economic Review* 76, 1086–102.

Gordon, Roger H. and Sarada (2019) *The Role of the Corporate Tax*, Cambridge: Cambridge University Press.

Gordon, Roger H. and John D. Wilson (1986) 'An Examination of Multijurisdictional Corporate Income Taxation under Formula Apportionment', *Econometrica* 54.6, 1357–73.

Graetz, Michael J. (1979) 'Implementing a Progressive Consumption Tax', *Harvard Law Review* 92, 1575–1661.

Graetz, Michael J. (2001) 'The David R. Tillinghast Lecture: Taxing International Income: Inadequate Principles, Outdated Concepts, and Unsatisfactory Policies', *Tax Law Review* 54, 261–336.

Graetz, Michael J. (2008) 'A Multilateral Solution for the Income Tax Treatment of Interest Expenses', *Bulletin for International Taxation* 62, 486–93.

Graetz, Michael J. (2015) 'Can a 20th Century Business Tax Regime Serve a 21st Century Economy?', *Australian Tax Forum* 30, 551–67.

Graetz, Michael J. and Alvin C. Warren (2007) 'Dividend Taxation in Europe: When the ECJ Makes Tax Policy', *Common Market Law Review* 44, 1577–1623.

Graetz, Michael J. and Alvin C. Warren (2016) 'Integration of Corporate and Shareholder Taxes', *National Tax Journal* 69.3, 677–700.

Graham, John R. (2003) 'Taxes and Corporate Finance: A Review', *Journal of Financial Studies* 16.4, 1075–129.

Gravelle, Jennifer C. (2011) 'Corporate Tax Incidence: A Review of Empirical Estimates and Analysis', *Congressional Budget Office Working Paper* 2011–01.

Greene, Megan (2017) 'US Border Adjustment Tax: The Path to Stagflation, Debt and Deflation?', *Manulife Asset Management: Market Views and Insights*, 26 January.

Grieco, Paul L. E. and Gary C. Hufbauer (2005) 'America Badly Needs a Value-Added Tax', *Financial Times*, 21 April.

Grinberg, Itai (2010) 'Where Credit is Due: Advantages of Credit-Invoice Method for a Partial Replacement VAT', *NYU Tax Law Review* 63, 316–58.

Grinberg, Itai (2016) 'The New International Tax Diplomacy', *Georgetown Law Journal* 104, 1137–96.

Grinberg, Itai (2017) 'A Destination-Based Cash Flow Tax Can Be Structured to Comply with World Trade Organization Rules', *National Tax Journal* 70.4, 803–18.

Grubert, Harry and Rosanne Altshuler (2013), 'Fixing the System: An Analysis of Alternative Proposals for the Reform of International Tax', *National Tax Journal* 66.3, 671–712.

Grubert, Harry and Rosanne Altshuler (2016) 'Shifting the Burden of Taxation from the Corporate to the Personal Level and Getting the Corporate Tax Rate Down to 15%', *National Tax Journal* 69.3, 643–76.

Hall, Robert E. and Dale W. Jorgenson (1967), 'Tax Policy and Investment Behavior', *American Economic Review* 57, 391–414.

Hall, Robert E. and Alvin Rabushka (1983) *The Flat Tax*, Stanford: Hoover Institution (Second edition, 2007).

Harberger, Arnold C. (1962) 'The Incidence of the Corporation Income Tax', *Journal of Political Economy* 70, 215–40.

Hariton, David P. (2017) 'Planning for Border Adjustments: A Practical Analysis', *Tax Notes*, 20 February, 965.

Harris, Peter (2013) *Corporate Tax Law: Structure, Policy and Practice*, Cambridge: Cambridge University Press.

Hartman, David G. (1985) 'Tax Policy and Foreign Direct Investment', *Journal of Public Economics* 26.1, 107–21.

Hassett, Kevin A., and R. Glenn Hubbard (2002) 'Tax Policy and Business Investment', in Alan J. Auerbach and Martin Feldstein, eds., *Handbook of Public Economics* Volume 3, Amsterdam: Elsevier, 1293–343.

Hebous, Shafik and Alexander Klemm (2018) 'A Destination-Based Allowance for Corporate Equity', *IMF Working Paper* 18/239.

Hebous, Shafik, Alexander Klemm, and Saila Stausholm (2019) 'Revenue Implications of Destination-Based Cash-Flow Taxation', *IMF Working Paper* 19/7.

Heckemeyer, Jost H. and Michael Overesch (2017) 'Multinationals' Profit Response to Tax Differentials: Effect Size and Shifting Channels', *Canadian Journal of Economics* 50.4, 965–94.

Heider, Florian and Alexander Ljungqvist (2015) 'As Certain as Debt and Taxes: Estimating the Tax Sensitivity of Leverage from State Tax Changes', *Journal of Financial Economics* 118, 684–712.

Hellerstein, Jerome R., Walter Hellerstein, and John A. Swain (2016) *State Taxation*, 3rd edn., Valhalla, NY: WG & L/Thomson Reuters.

Hellerstein, Walter (2005) 'The Case for Formulary Apportionment', *International Transfer Pricing Journal* 12.3, 103–11.

Hellerstein, Walter (2013) 'Formulary Apportionment in the EU and the US: A Comparative Perspective on the Sharing Mechanism of the Proposed Common Consolidated Corporate Tax Base', in Anna Dourado, ed., *Movement of Persons and Tax Mobility in the EU: Changing Winds*, Amsterdam: International Bureau of Fiscal Documentation, 413–59.

Hellerstein, Walter (2018) 'A US Subnational Perspective on the "Logic" of Taxing Income on a "Market" Basis', *Bulletin for International Taxation* 72, 293–6.

Hellerstein, Walter and Michael Keen (2010) 'Interjurisdictional Issues in the Design of a VAT', *Tax Law Review* 63.2, 359–408.

Hey, Johanna (2014) 'Base Erosion and Profit Shifting and Interest Expenditure', *Bulletin for International Taxation* 68.6–7, 332–45.

Hey, Johanna (2018) 'Taxation Where Value is Created' and the OECD/G20 Base Erosion and Profit Shifting Initiative', *Bulletin for International Taxation* 72, 203–8.

Hickman, Andrew (2016) 'The Application of Revised Transfer Pricing Rules to Aspects of Business Models', *Intertax* 44.10, 730–4.

Hines, James R. (2010) 'Income Misattribution Under Formula Apportionment', *European Economic Review* 54, 108–20.

HM Revenue and Customs (2018/9) *Annual Report and Accounts*, London: HMRC.

HM Treasury (2010) *The Corporate Tax Road Map*, London: HM Treasury.
HM Treasury (2017) *Corporate Tax and the Digital Economy*, London: HM Treasury.
HM Treasury (2018) *Corporate Tax and the Digital Economy: Position Paper Update*, London: HM Treasury.
HM Treasury and HM Revenue and Customs (2018) *Digital Services Tax: Consultation*, London: HM Treasury and HMRC.
Hongler, Peter and Pasquale Pistone (2015) 'Blueprints for a New PE Nexus to Tax Business Income in the Era of the Digital Economy', *IBFD Working Paper*.
House, Christopher and Matthew Shapiro (2008) 'Temporary Investment Tax Incentives: Theory with Evidence from Bonus Depreciation', *American Economic Review* 98.3, 737–68.
Hufbauer, Gary C. and Carol Gabyzon (1996) *Fundamental Tax Reform and Border Tax Adjustments*, Washington DC: Peterson Institute for International Economics.
Huizinga, Harry (2002) 'A European VAT on Financial Services', *Economic Policy* 17, 498–534.
IFS Capital Taxes Group (1991) *Equity for Companies: A Corporation Tax for the 1990s*, London: The Institute for Fiscal Studies.
IMF (2014) 'Spillovers in International Corporate Taxation', *IMF Policy Paper*.
IMF (2016) 'Tax Policy, Leverage and Macroeconomic Stability', *IMF Policy Paper*.
IMF (2019) 'Corporate Taxation in the Global Economy', *IMF Policy Paper*.
IMF/OECD (2017) *Tax Certainty*, Report for the G20 Finance Ministers.
Independent Commission for the Reform of International Corporate Taxation (ICRIT) (2018) *A Roadmap to Improve Rules for Taxing Multinationals*.
Infanti, Anthony C. (2013) 'Inter-nation Equity and Human Development', in Yariv Brauner and Miranda Stewart, eds., *Tax, Law and Development*, Cheltenham: Edward Elgar, 209–40.
Ismer, Roland, and Christoph Jescheck (2017) 'The Substantive Scope of Tax Treaties in a Post BEPS World: Article 2 OECD MC (Taxes Covered) and the Rise of New Taxes', *Intertax* 45.5, 382.
Johannesen, Niels, Thomas Tørsløv, and Ludvig Wier (2021) 'Are Less Developed Countries More Exposed to Multinational Tax Avoidance? Method and Evidence from Micro-Data', *World Bank Economic Review*, forthcoming.
Judd, Kenneth L. (1985) 'Redistributive Taxation in a Simple Perfect Foresight Model', *Journal of Public Economics* 28.1, 59–83.
Kaldor, Nicholas (1955) *An Expenditure Tax*, London: George Allen & Unwin.
Kanbur, Ravi and Michael Keen (2014) 'Thresholds, Informality, and Partitions of Compliance', *International Tax and Public Finance* 21.4, 536–59.
Kanbur, Ravi and Michael Keen (2015) 'Reducing Informality', *Finance and Development* 52.1.
Kane, Mitchell A. (2004) 'Strategy and Cooperation in National Responses to International Tax Arbitrage', *Emory Law Journal* 53, 89–169.
Kane, Mitchell A. (2014) 'Transfer Pricing, Integration and Synergy Intangibles: A Consensus Approach to the Arm's Length Standard', *World Tax Journal* 3, 282–314.
Kane, Mitchell A. (2016) 'Location Savings and Segmented Factor Input Markets: In Search of a Tax Treaty Solution', *Brooklyn Journal of International Law* 41, 1108–41.
Keen, Michael and Kai Konrad (2013) 'The Theory of International Tax Competition and Coordination', in Alan J. Auerbach, Raj Chetty, Martin Feldstein, and Emmanuel Saez, eds., *The Handbook of Public Economics*, Volume 5, Amsterdam: Elsevier, 257–328.
Keen, Michael and Sajal Lahiri (1998) 'The Comparison between Destination and Origin Principles under Imperfect Competition,' *Journal of International Economics* 45, 323–50.

Keen, Michael and Jack Mintz (2004) 'The Optimal Threshold for a Value-Added Tax', *Journal of Public Economics* 88, 559–76.

Keen, Michael and Hannu Piekkola (1997) 'Simple Rules for the Optimal Taxation of International Capital Income,' *Scandinavian Journal of Economics* 99, 447–61.

Keen, Michael and Joel Slemrod (2017) 'Optimal Tax Administration', *Journal of Public Economics* 152, 133–42.

Keen, Michael and David Wildasin (2004) 'Pareto-efficient International Taxation', *American Economic Review* 94, 259–75.

Kemmeren, Eric (2001) *Principle of Origin in Tax Conventions: A Rethinking of Models*, Tilburg: Tilburg University.

Keuschnigg, Christian and Michael P. Devereux (2013) 'The Arm's Length Principle and Distortions to Multinational Firm Organization', *Journal of International Economics*, 89.2, 432–40.

Kleinbard, E. (2007) 'Rehabilitating the Business Income Tax', *Hamilton Project Discussion Paper* 2007–9.

Knoll, Michael S. (1996) 'An Accretion Corporate Income Tax', *Stanford Law Review* 49.1, 1–43.

Knoll, Michael S. and Ruth Mason (2017) 'The Economic Foundations of the Dormant Commerce Clause', *Virginia Law Review* 102, 309–54.

Krever, Richard and François Vaillancourt, eds., (2020) *The Allocation of Multinational Business Income: Reassessing the Formula Apportionment Option*, The Netherlands: Kluwer Law International.

Lang, Michael, Pasquale Pistone, Josef Schuch, Claus Staringer, and Alfred Storck (2013) *Corporate Income Taxation in Europe: The Common Consolidated Corporate Tax Base (CCCTB) and Third Countries*, Cheltenham: Edward Elgar Publishing.

League of Nations Financial Committee (1923) *Report on Double Taxation submitted to the Financial Committee,* Professor Bruins, Professor Senator Einaudi, Professor Seligman, and Sir Josiah Stamp.

Leahy, John, and Toni Whited (1996) 'The Effect of Uncertainty on Investment: Some Stylized Facts', *Journal of Money, Credit and Banking* 28.1, 64–83.

Lennard, Michael (2016) 'Base Erosion and Profit Shifting and Developing Country Tax Administrations', *Intertax* 44, 740–5.

Lerner, Abba P. (1936) 'The Symmetry Between Import and Export Taxes', *Economica* 3.11, 306–13.

Li, Jinyan (2002) 'Global Profit Split: An Evolutionary Approach to International Income Allocation', *Canadian Tax Journal* 50, 823–83.

Liu, Li (2014) 'Income Taxes and Business Incorporation: Evidence from the Early Twentieth Century', *National Tax Journal* 67.2, 387–418.

Liu, Li, Ben Lockwood, Miguel Almunia, and Eddy Tam (2021) 'VAT Notches, Voluntary Registration, and Bunching: Theory and UK Evidence', *Review of Economics and Statistics*, forthcoming.

Lockwood, Ben (1993) 'Commodity Tax Competition under Destination and Origin Principles', *Journal of Public Economics* 53, 141–62.

Lockwood, Ben (2001) 'Tax Competition and Tax Co-ordination under Destination and Origin Principles: a Synthesis', *Journal of Public Economics* 81, 279–319.

Lohse, Theresa and Nadine Riedel (2013) 'Do Transfer Pricing Laws Limit International Income Shifting? Evidence from European Multinationals', *Oxford University Centre for Business Taxation Working Paper* 13/07.

Luckhaupt, Hagen, Michael Overesch, and Ulrich Schreiber (2012) 'The OECD Approach to Transfer Pricing: A Critical Assessment and Proposal', in Wolfgang Schön and

Kai Konrad, eds., *Fundamentals of Transfer Pricing in Law and Economics*, Berlin and Heidelberg: Springer-Verlag, 91–121.
Mankiw, N. Gregory, Weinzierl, Matthew, and Danny Yagan (2009) 'Optimal Taxation in Theory and Practice', *Journal of Economic Perspectives* 23.4, 147–74.
Mazerov, Michael (2001) 'The Single Sales-factor Formula: A Boon to Economic Development of a Costly Giveaway', *State Tax Notes* 20, 1775–1817.
McLure, Charles E. (1987) *The Value-Added Tax: Key to Deficit Reduction?*, Washington DC: American Enterprise Institute.
McLure, Charles E. (1997) 'The U.S. Debate on Consumption-Based Taxes: Implications for the Americas', *University of Miami Inter-American Law Review* 29, 143–96.
Meade Committee (1978) *The Structure and Reform of Direct Taxation*, report of a committee chaired by Professor J.E. Meade, London: George Allen & Unwin.
Milanez, Anna (2017) 'Legal Tax Liability, Legal Remittance Responsibility and Tax Incidence: Three Dimensions of Business Taxation', *OECD Taxation Working Paper* 32.
Miller, David S. (2017) 'Tax Planning Under the Destination Based Cash Flow Tax: A Guide for Policy Makers and Practitioners', *Columbia Journal of Tax Law* 8, 295–308.
Mintz, Jack (2015) 'An Agenda for Corporate Tax Reform in Canada', Canadian Council of Chief Executives.
Mirrlees, James, Stuart Adam, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles, and James M. Poterba (2011) *Tax by Design*, Oxford: Oxford University Press.
Moore, Mick, Wilson Prichard, and Odd-Helge Fjeldstad (2018) *Taxing Africa: Coercion, Reform and Development*, London: ZED Books.
Morse, Susan (2010) 'Revisiting Global Formulary Apportionment', *Virginia Tax Review* 29, 593–644.
Musgrave, Richard A. and Peggy C. Musgrave (1972) 'Inter-nation equity', in Richard Bird and John Head, eds., *Modern Fiscal Issues: Essays in Honour of Carl S. Shoup*, Toronto: University of Toronto Press.
Nallareddy, Suresh, Ethan Rouen, and Juan Carlos Suárez Serrato (2018) 'Do Corporate Tax Cuts Increase Income Inequality?', *NBER Working Paper* 24598.
OECD (1998) *Harmful Tax Competition: An Emerging Global Issue*, Paris: OECD Publishing.
OECD (2013a) *Addressing Base Erosion and Profit Shifting*, Paris: OECD Publishing.
OECD (2013b) *Action Plan on Base Erosion and Profit Shifting*, Paris: OECD Publishing.
OECD (2014a) *Guidance on Transfer Pricing Aspects of Intangibles*, Paris: OECD Publishing.
OECD (2014b) *BEPS Action 10: Discussion Draft on the Use of Profit Splits in the Context of Global Value Chains*, Paris: OECD Publishing.
OECD (2015a) *OECD/G20 Base Erosion and Profit Shifting Project 2015 Final Reports*, Paris: OECD Publishing.
OECD (2015b) *Limiting Base Erosion Involving Interest Deductions and Other Financial Payments, Action 4—Final Report*, Paris: OECD Publishing.
OECD (2015c) *Aligning Transfer Pricing Outcomes with Value Creation, Actions 8-10–2015 Final Reports*, Paris: OECD Publishing.
OECD (2015d) *Making Dispute Resolution Mechanisms More Effective, Action 14—2015 Final Report*, Paris: OECD Publishing.
OECD (2015e) *BEPS Action Explanatory Statement*, Paris: OECD Publishing.
OECD (2015f) *Measuring and Monitoring BEPS, Action 11–2015 Final Report*, Paris: OECD Publishing.
OECD (2017a) *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*, Paris: OECD Publishing.

OECD (2017b) *International VAT/GST Guidelines*, Paris: OECD Publishing.
OECD (2017c) *Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting*, Paris: OECD Publishing.
OECD (2018a) *Brief on: Tax Challenges Arising from Digitalisation—Interim Report 2018*, Paris: OECD Publishing.
OECD (2018b) *Tax Policy Reforms 2018: OECD and Selected Partner Economies*, Paris: OECD Publishing.
OECD (2018c) *Tax Challenges Arising from Digitalisation—Interim Report 2018*, Paris: OECD Publishing.
OECD (2018d) *Revised Guidance on the Application of the Transactional Profit Split Method—BEPS Action 10*, Paris: OECD Publishing.
OECD (2019a) *Addressing the Tax Challenges of the Digitalisation of the Economy*, Paris: OECD Publishing.
OECD (2019b) *Programme of Work to Develop a Consensus Solution to the Tax Challenges of the Digitalisation of the Economy*, Paris: OECD Publishing.
OECD (2019c) *Secretariat Proposal for a 'Unified Approach' Under Pillar 1*, Paris: OECD Publishing.
OECD (2019d) *Global Anti-Base Erosion Proposal ('GloBE')—Pillar Two*, Paris: OECD Publishing.
OECD (2019e) *Model Tax Convention on Income and on Capital 2017* (Full Version), Paris: OECD Publishing.
OECD (2020) *Statement by the OECD/G20 Inclusive Framework on BEPS on the Two-Pillar Approach to Address the Tax Challenges Arising from the Digitalisation of the Economy*, Paris: OECD Publishing.
Office for National Statistics (2019) Share Ownership: Share Register Survey Report.
Ohrn, Eric (2018) 'The Effect of Corporate Taxation on Investment and Financial Policy: Evidence from the DPAD', *American Economic Journal: Economic Policy* 10.2, 272–301.
Oosterhuis, Paul and Amanda Parsons (2018) 'Destination-Based Income Taxation: Neither Principled Nor Practical?', *Tax Law Review* 71.3, 515–50.
Osborne, George, Pierre Moscovici, and Wolfgang Schäuble (2013) 'We are determined that multinationals will not avoid tax', *Financial Times*, 16 February.
Patel, Elena and John McClelland (2017) 'What Would a Cash Flow Tax Look Like for US Companies? Lessons from a Historical Panel', *Office of Tax Analysis Working Paper* 116.
Picciotto, Sol (2016) 'Taxing Multinational Enterprises as Unitary Firms', *International Centre for Tax and Development Working Paper* 53.
Picciotto, Sol and Daniel Bertossa (2019) *Taxing Multinationals: A New Approach*, Ferney-Voltaire: Public Services International.
Pirlot, Alice (2019) 'Don't Blame it on WTO law: An Analysis of the Alleged WTO Law Incompatibility of Destination-Based Taxes', *Florida Tax Review* 23.1, 432–93.
Platform for Collaboration on Tax (2017) 'A Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses', IMF, OECD, UN, World Bank.
Poddar, Satya and Morley English (1997) 'Taxation of Financial Services Under a Value-Added Tax: Applying the Cash-Flow Approach', *National Tax Journal* 50.1, 89–111.
President's Advisory Panel on Federal Tax Reform (2005) *Simple, Fair and Pro-growth: Proposals to Fix America's Tax System*.
Public Accounts Committee (2013) Minutes of Oral Evidence, 16 May 2013.
Ramey, Gary and Valerie A. Ramey (1995) 'Cross-Country Evidence on the Link between Volatility and Growth', *American Economic Review* 85.5, 1138–51.

Richman, Peggy C. (1963) *United States Taxation of Foreign Investment: Issues and Arguments*, Cambridge, MA: Harvard Law School.
Riedel, Nadine (2010) 'The Downside of Formula Apportionment: Evidence on Factor Demand Distortions', *International Tax and Public Finance* 17.3, 236–58.
Riedel, Nadine (2015) 'Quantifying International Tax Avoidance: A Review of the Academic Literature', *European Tax Policy Forum Policy Paper* 2.
Robillard, Robert (2015) 'BEPS: Is the OECD Now at the Gates of Global Formulary Apportionment?', *Intertax* 43, 447–53.
Röder, Erik (2018) 'Combining Limited Liability and Transparent Taxation: Lessons from the Convergent Evolution of GmbH & Co. KGs, S Corporations, LLCs, and Other Functionally Equivalent Entities', *Florida Tax Review* 21, 762–843.
Roin, Julie (2008) 'Can the Income Tax Be Saved? The Promises and Pitfalls of Adopting Worldwide Formulary Apportionment', *Tax Law Review* 61, 169–240.
Rosenbloom, H. David (2000) 'The David R. Tillinghast Lecture: International Tax Arbitrage and the "International Tax System" ', *Tax Law Review* 53, 137–66.
Rosenbloom, H. David (2005) 'Angels on a Pin: Arm's Length in the World', *Tax Notes International*, 9 May, 523–30.
Rosenbloom, H. David (2009) 'Where's the Pony? Reflections on the Making of International Tax Policy', *Canadian Tax Journal* 57, 489–503.
Rosenthal, Steven M. and Lydia S. Austin (2016) 'The Dwindling Taxable Share of US Corporate Stock', *Tax Notes* 16 May, 923–34.
Sachdeva, Sachin (2013) 'Tax Treaty Overrides: A Comparative Study of the Monist and the Dualist Approaches', *Intertax* 41, 180–207.
Saez, Emmanuel, Joel B. Slemrod, and Seth H. Giertz (2012) 'The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review', *Journal of Economic Literature* 50.1, 3–50.
Saint-Amans, Pascal and Éric Robert (2015) 'Le projet BEPS et la longue marche en direction d'une fiscalité globale pour l'economie du XXIe siècle', *Revue de Droit Fiscal* 709.49, 19–23.
Sandmo, Agnar (1979) 'A Note on the Neutrality of the Cash Flow Corporation Tax,' *Economics Letters* 4.2, 173–6.
Schenk, A. and O. Oldman (2007) *Value-added Tax: A Comparative Approach*, Cambridge Tax Law Series, New York: Cambridge University Press.
Schizer, David (2001) 'Frictions as a Constraint on Tax Planning', *Columbia Law Review* 101, 1312–409.
Schön, Wolfgang (2000) 'Tax Competition in Europe—The Legal Perspective', *EC Tax Review* 9.2, 90–105.
Schön, Wolfgang (2004) 'World Trade Organization Law and Tax Law', *IBFD Bulletin* 58, 283–96.
Schön, Wolfgang (2006) 'Corporate Disclosure in a Competitive Environment—The Quest for a European Framework on Mandatory Disclosure', *Journal of Corporate Law Studies* 6.2, 259–98.
Schön, Wolfgang (2007) 'Group Taxation and the CCCTB', *Tax Notes International*, 10 December, 1063–80.
Schön, Wolfgang (2008) 'Tax and Corporate Governance: A Legal Approach', in Wolfgang Schön, ed., *Tax and Corporate Governance*, Berlin: Springer, 31–61.
Schön, Wolfgang (2009) 'International Tax Coordination for a Second-Best World (Part I)', *World Tax Journal* 1, 67–114.
Schön, Wolfgang (2010) 'International Tax Coordination for a Second-Best World (Part III)', *World Tax Journal* 2, 227–61.

Schön, Wolfgang (2012a) 'Transfer Pricing—Business Incentives, International Taxation and Corporate Law', in Wolfgang Schön and Kai Konrad, eds., *Fundamentals of International Transfer Pricing in Law and Economics*, Berlin and Heidelberg: Springer-Verlag, 47–67.

Schön, Wolfgang (2012b) 'The Distinct Equity of the Debt-Equity Distinction', *Bulletin for International Taxation* 66, 490–502.

Schön, Wolfgang (2014) 'International Taxation of Risk', *Bulletin for International Taxation* 68, 280–94.

Schön, Wolfgang (2015) 'Neutrality and Territoriality—Competing or Converging Concepts in European Tax Law?', *Bulletin for International Taxation* 69, 271–93.

Schön, Wolfgang (2016) 'Destination-Based Income Taxation and WTO Law: A Note', in Heike Jochum, Peter Essers, Michael Lang, Norbert Winkeljohann, and Bertil Wiman, eds., *Practical Problems in European and International Tax Law—Essays in Honour of Manfred Mössner*, Amsterdam: IBFD, 429–51.

Schön, Wolfgang (2018) 'Ten Questions as to Why and How to Tax the Digitalized Economy', *Bulletin for International Taxation* 72.4/5, 278–92.

Schön, Wolfgang (2019) 'One Answer to Why and How to Tax the Digitalized Economy', *Intertax* 47.12, 1003–22.

Schön, Wolfgang et al (2014) 'Debt and Equity in Domestic and International Tax Law—A Comparative Policy Analysis', *British Tax Review* 2, 146–217.

Schoueri, Luis Eduardo (2015) 'Arm's Length: Beyond the Guidelines of the OECD', *Bulletin of International Taxation* 69, 690–716.

Schreiber, Ulrich (2018) 'Sales-Based Apportionment of Profits', *Bulletin of International Taxation* 72, 259–72.

Schreiber, Ulrich and Lisa Maria Fell (2017) 'International Profit Allocation, Intangibles, and Sales-Based Transactional Profit Split', *World Tax Journal* 9, 1–18.

Shaviro, Daniel (2011a) 'The Case Against Foreign Tax Credits', *Journal of Legal Analysis* 3, 65–100.

Shaviro, Daniel (2011b) 'The Rising Tax-Electivity of U.S. Corporate Residence,' *Tax Law Review* 64, 377.

Shaviro, Daniel (2014) *Fixing the US Tax System*, Oxford: Oxford University Press.

Shaviro, Daniel (2019) 'Digital Services Taxes and the Broader Shift from Determining the Source of Income to Taxing Location-Specific Rents', *NYU Law and Economics Research Paper* 19.

Shaw, Jonathan, Joel Slemrod, and John Whiting (2010) 'Administration and Compliance', in James Mirrlees, Stuart Adam, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles, and James M. Poterba, eds., *Dimensions of Tax Design*, Oxford: Oxford University Press.

Shay, Stephen, E., J. Clifton Fleming, Jr., and Robert J. Peroni (2015) 'Designing a 21st Century Corporate Tax — An Advance US Minimum Tax on Foreign Income and Other Measures to Protect the Base', *Florida Tax Review* 17, 669–723.

Skaar, Arvid Aage (1991) *Permanent Establishment: Erosion of a Tax Treaty Principle*, The Netherlands: Kluwer Law International.

Slemrod, Joel and Christian Gillitzer (2013) *Tax Systems*, Cambridge, MA: MIT Press.

Slemrod, Joel and Tejaswi Velayudhan (2018) 'Do Firms Remit at Least 85% of Tax Everywhere? New Evidence from India', *Journal of Tax Administrators* 4.1, 124–37.

Slemrod, Joel and Shlomo Yitzhaki (1987) 'The Optimal Size of a Tax Collection Agency', *Scandinavian Journal of Economics* 89.2, 183–92.

Slemrod, Joel and Shlomo Yitzhaki (1996) 'The Costs of Taxation and the Marginal Efficiency Cost of Funds', *International Monetary Fund Staff Papers* 43.1, 172–98.

Smith, Adam (1776) *An Inquiry into the Nature and Causes of the Wealth of Nations*, London: W. Strahan.

Stark, Johanna (2019) *Law for Sale: A Philosophical Critique of Regulatory Competition*, Oxford: Oxford University Press.

Straub, Ludwig and Iván Werning (2020) 'Positive Long Run Capital Taxation: Chamley-Judd Revisited', *American Economic Review* 110.1, 86–119.

Suárez Serrato, Juan Carlos, and Owen Zidar (2016) 'Who Benefits from State Corporate Tax Cuts? A Local Labor Markets Approach with Heterogeneous Firms', *American Economic Review* 106.9, 2582–624.

Ting, Antony (2014) 'iTax—Apple's International Tax Structure and the Double Non-Taxation Issue', *British Tax Review* 1, 40–71.

Toder, Eric and Alan D. Viard (2014) *Major Surgery Needed: A Call for Structural Reform of the US Corporate Income Tax*, New York: Peter G. Peterson Foundation.

Toder, Eric and Alan D. Viard (2016) *A Proposal to Reform the Taxation of Corporate Income*, Washington DC: Tax Policy Center, Urban Institute and Brookings Institution.

Tørsløv, Thomas, Ludvig Wier, and Gabriel Zucman (2018) 'The Missing Profits of Nations', *NBER Working Paper* 24701.

United Nations (2017) *Model Double Taxation Convention between Developed and Developing Countries*, New York: United Nations.

United States Department of the Treasury (1977) *Blueprints for Basic Tax Reform*, Washington DC: US Government Printing Office.

United States Department of the Treasury (1992) *Integration of the Individual and Corporate Tax Systems: Taxing Business Income Once*, Washington DC: Bureau of National Affairs.

United States Department of the Treasury (2016) *United States Model Income Tax Convention*.

United States Federation of Tax Administrators (2020) 'State apportionment of corporate income'.

United States Senate Permanent Committee on Homeland Security and Government Affairs Permanent Subcommittee on Investigations (2014) 'Caterpillar's Offshore Tax Strategy', Washington DC: United States Senate.

Vann, Richard J. (2003a) 'Trends in Company/Shareholder Single or Double Taxation? General Report' in Richard Vann, Robert Couzin, Philippe Derouin, and Malcom Gammie, eds., *Cahiers de Droit Fiscal International: Studies on International Fiscal Law*, The Netherlands: Kluwer Law International, 21–70.

Vann, Richard J. (2003b) 'Reflections on Business Profits and the Arm's-Length Principle', in Brian J. Arnold, Jaques Sasseville, and Eric Zolt, eds., *The Taxation of Business Profits Under Tax Treaties*, Toronto: Canadian Tax Foundation, 133–69.

Vann, Richard J. (2010) 'Taxing International Business Income: Hard-Boiled Wonderland or the End of the World', *World Tax Journal* 2, 291–346.

Vega, Alberto (2012) 'International Governance through Soft Law: The Case of the OECD Transfer Pricing Guidelines', *TranState Working Papers* 163.

Vella, John (2020) 'Value Creation and the Allocation of Profit Under Formulary Apportionment', in Richard Krever and François Vaillancourt, eds., *The Allocation of Multinational Business Income: Reassessing the Formula Apportionment Option*, The Netherlands: Kluwer Law International.

Vella, John and Anzhela Yevgenyeva (2016), 'Using the Enhanced Cooperation Procedure in the Tax Sphere: Lessons from the Financial Transaction Tax Proposal' in Panos Koutrakos and Jukka Snell, eds., *Research Handbook on the Law of the EU's Internal Market*, Cheltenham: Edward Elgar Publishing.

Verlinden, Isabel, David Ledure, and Maxime Dessy (2016) 'The Risky Side of Transfer Pricing: The OECD Base Erosion and Profit Shifting Reports Sharpen the Rules on Risk Allocation under the Arm's Length Standard', *International Transfer Pricing Journal* 23.2, 109–14.

Viard, Alan D. (2017) 'The Economic Effects of Border Adjustments', *Tax Notes*, 20 February, 1029–43.

Vogel, Klaus (1988a) 'Worldwide vs. Source Taxation of Income—A Review and Re-Evaluation of Arguments (Part I)', *Intertax* 8–9, 216–29.

Vogel, Klaus (1988b) 'Worldwide vs. Source Taxation of Income—A Review and Re-Evaluation of Arguments (Part II)', *Intertax* 10, 310–20.

Vogel, Klaus (1988c) 'Worldwide vs. Source Taxation of Income—A Review and Re-Evaluation of Arguments (Part III)', *Intertax* 11, 393–402.

Warren, Alvin C. (1993) *Integration of Individual and Corporate Income Taxes*, Philadelphia: American Law Institute.

Warren, Alvin C. and Alan J. Auerbach (1982) 'Transferability of Tax Incentives and the Fiction of Safe Harbor Leasing', *Harvard Law Review* 95.8, 1752–86.

Ways and Means Committee of the House of Representatives (2016) 'A Better Way Forward: Our Vision for a Confident America', Washington DC: United States House of Representatives.

Weisbach, David A. (2000) 'An Efficiency Analysis of Line Drawing in the Tax Law', *The Journal of Legal Studies* 29.1, 71–97.

Wittendorff, Jens (2015) 'OECD Misinterprets Controlled Transactions', *Tax Notes International* 4 May, 461.

Wittendorff, Jens (2016) 'BEPS Action 8–10: Birth of a New Arm's-Length Principle', *Tax Notes International*, 25 January, 331–58.

Zangari, Ernesto (2014) 'Addressing the Debt Bias: A Comparison between the Belgian and the Italian ACE Systems', *European Commission Taxation Papers* 44-2014.

Zwick, Eric and James Mahon (2017) 'Tax Policy and Heterogeneous Investment Behavior', *American Economic Review* 107.1, 217–48.

Index

Tables, figures, and boxes are indicated by *t*, *f*, and *b* following the page number.