Discussion on “Data Privacy and Temptation” by J. Liu, M. Sockin, and W. Xiong

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Literature and Contribution

- Traditional trade-off in economics of privacy:
  - Enhanced personalized service vs. price discrimination
- Results about merchant profits, consumer surplus, and welfare depend on
  - Naive consumers vs. sophisticated consumers (Taylor 2004; Acquisti and Varian 2005; Bonatti and Cisternas, 2019)
  - Exogenous consumer information vs. endogenous consumer information (Ichibashi 2019)
- A novel trade-off in this paper:
  - Normal commodity vs. temptation commodity
Setting

- Two commodities:
  - Normal “good” (A, eggs) and temptation “bad” (B, lollipops)

- Three types of consumers:
  - Strong-willed, mass $\pi_S$: only consume good A, with transient random utility $\tilde{u}_A$ (to avoid price discrimination)
  - Weak-willed, mass $\pi_W$: consume A with utility $\tilde{u}_A$, and also B, with persistent temptation strength $\tilde{\gamma}_i$ (price discrimination)
  - Outsiders, mass $1 - \pi_S - \pi_W$: don’t consume A and B (matching frictions)

- Privacy=consumer type

- Firms: maximize profits; reaching consumers costs money
Findings and Intuitions

- Analysis 1: Full privacy vs. Full disclosure
  With consumer type information:
  - Firms can better target consumers, saving searching costs
  - Strong-willed consumers are better off due to more precise targeting
  - Weak-willed consumers face a trade-off:
    - Gain from normal good $A$ (better targeting), but lose from temptation bad $B$ (eating junk + resisting temptation)
  - Both weak-willed consumers and total welfare can be harmed with full data sharing
Analysis 2: Opt-in/out (endogenous partial disclosure/privacy)

A key finding is an externality result

- Outsiders will opt out due to (unmodeled) intrinsic privacy concerns
- Strong-willed consumers will opt in to enjoy the better targeting of seller $A$
- Weakly weak-willed consumers will opt in for the same reason
- So, strongly weak-willed consumers can be better identified by pooling with only outsiders relative to a full privacy benchmark

$\Rightarrow$ The same welfare rank can be extend to endogenous partial privacy: $W^{FullSharing} < W^{PartialSharing} < W^{NoSharing}$ for sufficiently strong temptation concerns
Comment 1: Temptation and Self-Control

- Temptation is clearly empirically relevant and of first-order importance, and the theory insights are novel.
- Still, many other reasonable and relevant behavioral biases:
  - Naïveté, over-confidence, social preference, prospect theory, regret, inattention ...
- One paper cannot incorporate all biases
  - Is temptation particularly relevant in the data privacy context?
  - How to gauge its importance?
  - Does it deliver different insight from the traditional trade-off?
    - Different welfare predictions on the opt-in policy (comparing with Anderson, Baik and Larson 2020)
- More friendly to empirical analysis?
The key trade-off comes from the benefit associated with good A and the cost associated with bad B.

The ideal regulation policy is to only share information with seller A.

Possibly, even ban the production of bad B.

But, are these regulation tools practical?

How to define good A vs. bad B in reality? Are lollipops only “bad”?

Maybe, all commodities have a temptation element, and it is just a difference in degrees...

What is the optimal policy?
Comment 3: Platforms

- Platforms in the current setting are passive.
- Beyond regulations, how data is collected and shared can be determined by platform behaviors.
- Their objectives, business models...
- How do they exactly share data across sellers?
- Do they sell data for a price? Are they allowed to sell the data? (Data ownership)
  “Privacy is not the opposite of sharing—rather, it is control over sharing.” (Acquisti et al., 2016, p. 445)
Comment 4: Data Ownership

- Three players are involved with transaction data production: platform, merchants, and consumers.
- Who should own the data? How do they use the data?
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- Who should own the data? How do they use the data?

Results:
- Data ownership matters because different players have different objective functions
- Data sales can be a strategic complement
Two periods, two firms compete in a platform, selling similar products to consumers.

First period transaction data are useful for future demands.

The platform owning the data is most efficient:
- Full data coverage (due to complementarity), and save transaction cost.

If consumers own the data:
- High transaction cost, and worry about price discrimination.

If merchants own the data:
- Worry about competition from the opponents.
Comment 5: Fairness as Beliefs

- Consumer displeasure for price discrimination
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- But price discrimination occurs offline all the time.
- What is fair (ethical)? This is different from legal
  - “Price discrimination is illegal if it’s done on the basis of race, religion, nationality, or gender, or if it is in violation of antitrust or price-fixing laws.”
The paper has many elements, and it would be useful to illustrate the role of each model element.

What is privacy?

- Intrinsic vs. derived
- The paper is about derived economic value
- Outsiders opt out because of intrinsic values
- Can the model say something about the privacy paradox?

What happens if \( F > \bar{u}/4 \)?
Conclusion

- A great and ambitious paper with
  - significant empirical relevance;
  - novel theory insights;
  - important policy implications.