Data Sharing and Trading

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April 17, 2023

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Based largely on Seim, Bergemann, Crawford, Crémer, Dinielli, Fletcher, Groh, Heidhues, Schaefer, Schnitzer, Scott Morton, and Sullivan (Forthcoming, Yale Journal of Regulation):

Market Design for Personal Data.

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  Huge realized and potential benefits!

  - Disadvantage in popular discussion: privacy costs.

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  - No presumption that we should interfere only if "market failure".

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- "Behavioral / default effects" crucial regarding consumer choices.
  - Google pays a large fraction of its revenue on Apple devices to be default. Why?

What is Personal Data?

GDPR: personal data is information "related to an identified or identifiable natural person".

Our definition: all data describing an individual's characteristics, transaction histories, browsing histories, etc generated by an individual (even if the actual person cannot be identified from the data generated).

- Advertiser may value information that I looked for blue shoes in Berlin even if they cannot identify me.

Why Refuse Sharing Personal Data?

Consumer may oppose the collection of personal data because

1. Some things are inherently "private" and do not want to share.
   - Spy camera in the shower.
   - Press reports on Tesla this week.
2. Knowledge can be used to my disadvantage.
   - Discrimination (e.g. on sexual orientation), blackmail (stolen data).
   - Price discrimination based on willingness to pay (IO literature).
   - Inability to insure (health data).
   - May enable firms to target me with bad products (scams / bad steering).
3. Fear negative consequence on societal level.
   - Firms treat non-sharing customers differently.
     - Insurance markets break down (Google / Fitbit).
     - Price discrimination.
   - Firms may exploit vulnerable consumers.
     - Gambling adds targeting gambling addicts, etc....
4. Feel they should be reimbursed for sharing their data.

Effective Privacy Control?

Currently, consumers can click on (confusing) pop-ups to try and make privacy choices.

- Real cost of learning about terms of service high - just fiction to think consumers know it.
- With switching costs, learning only so useful as these terms can be changed at any time.
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Arguably, little—if any—effective privacy control.

Problems in Current Data Markets?

Status quo:

- A handful of firms control vast amount of personal data, yielding significant market power.
- Users' valuable resource — private data — is extracted without monetary payment.
  - And the barter exchange does not seem "fair" with largest firms persistently earning billions of dollars in profits.
- Data is shared at best selectively and non-optimally.
  - Not used for public benefits (as preventing digital addiction or transportation planing) and shielded from rivals or new entrants.

A well functioning data market design should address the

1. failure to provide users effective control over their data;
2. failure to provide users a way to benefit financially;
3. failure to ensure that data is put to highest use (non-profit, government, or other firms).

Towards a Solution: Data Intermediaries

Users need to "negotiate collectively" to receive fair share:

- Transaction costs.
- Typically: value of a marginal consumer's data is less than the average value.
  - Often use data of a group of (similar) users to predict an individual user's behavior (incremental prediction accuracy decreases).
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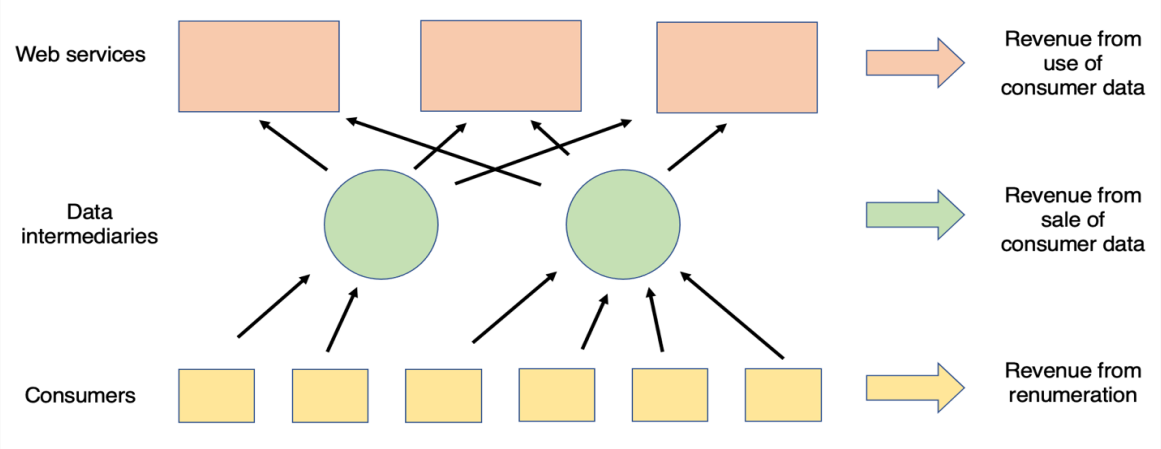
Propose governments intervention to create licensed intermediaries to collect and monetize personal data on behalf of user.

- Key: prohibit any firm other than licensed intermediary from monetizing personal data or control the use of personal data (exclusive control).
- Note: web service would only be able to use an individual's data to provide the web service in question, not for targeted advertising or other commercial purposes.

Proposal for Data Markets: Basic Structure

- Competing intermediaries offer renumeration contracts to consumers for selling their data.
  - Reimbursement amount depends on how much data consumer is willing to share.
- Web services who want to use personal data for ads need to purchase the data from the consumer's intermediary.

Schematic identifying principal categories of participants in data intermediary markets



Web Service: Data for Servicing Users

Web services can use data they collect to service users, such as use data to

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  - Recommendations on an e-commerce site is targeting, while recom. when users have fixed subscription (Spotify or Netflix) is not.

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- reduces revenue that can be passed on to users; and
- intermediaries could make the data available to entrants or rivals allowing them to overcome scale disadvantages.

Rules on Intermediaries

1. Intermediaries must be licensed.
   - Strict data protection, cybersecurity and resilence standards.
   - Data minimization.
2. Fiduciary duties and minimum payout rules (e.g. 70% of revenue).
3. Compete to be the exclusive agent of the individual once a year.
   - For personal data of individual's web devices and IoT.
   - Compete via renumeration and customer service, etc.
   - Must compete using a standardized interface (more later).
4. Web services and intermediaries cannot be vertically integrated.
   - Prohibitions of exclusive contracting.
   - Make sure the market for intermediaries does not monopolize.

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1. Tier 1:
   - basic demographics (age, gender, location at postal code level);
   - apps installed in user device.
2. Tier 2 = Tier 1 + ...
   - browsing and app-usage data.
3. Tier 3 = Tier 2 + ...
   - approximate real-time location.
4. Tier 4 = Tier 3 + ... (things allowing precise attribution)
   - financial records;
   - online transactions;
   - email receipts.

Plus a compulsory Tier 0 for users that want to remain anonymous.

- Zero data monetization.

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- Far less likely to create value.
- Perhaps allowing consumers to state interests helpful.

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- Likely helpful but we think more is desirable.