

The Economics of Privacy at a Crossroads

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Agenda

1. The rise of the economics of privacy
2. Unintended consequences
3. Where next?

The Rise of the Economics of Privacy

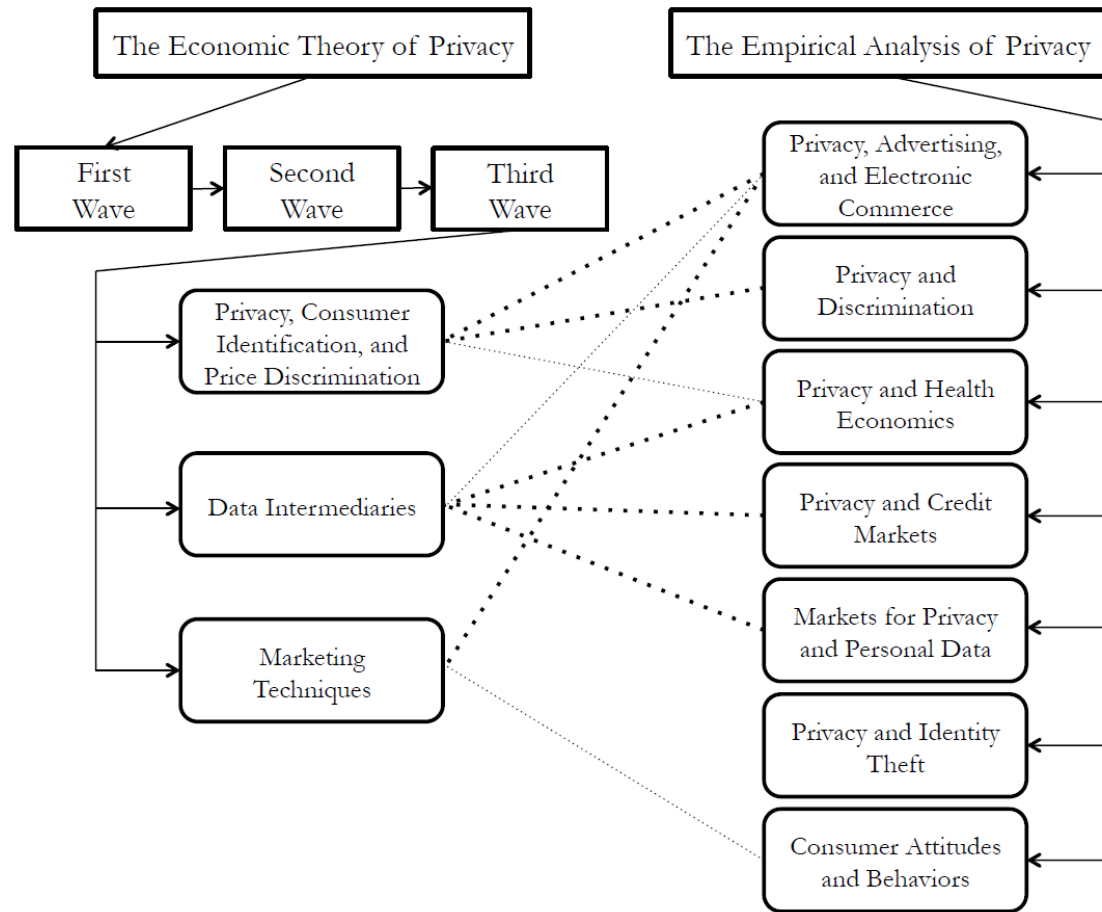
- By several metrics, the field of research on the economics of privacy has been remarkably successful
 - From a handful of articles in the early 1980s, to a vast (and rapidly growing) body of research today
 - More (and more diverse) scholars and journals publishing economics of privacy research
 - More and more diverse topics
 - From price discrimination and data breaches...
 - ... to competition/anti-trust, data markets, regulation/innovation, algorithmic bias, and more
 - Review in the *JEL* (Acquisti, Taylor, Wagman 2016)
 - NBER Workshop on the Economics of Privacy (this past Spring)
 - NBER Tutorial (today)
 - Policy impact – GDPR, CCPA, data dividends debate, and so forth

The Rise of the Economics of Privacy

- And that's a good thing, right?
 - Yes. But.

The Rise of the Economics of Privacy

- Early 1980s
 - The Chicago School
- Mid 1990s
 - The IT revolution
- 2000s and onward
 - Expansion and diversification



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The Economics of Privacy

By RICHARD A. POSNER*

The concept of "privacy" has received a good deal of attention from lawyers, political scientists, sociologists, philosophers and psychologists, but until recently very little from economists. This neglect is on the mend (see, for example, my 1978, 1979a articles and forthcoming book, chs. 9–11; George Stigler), and in this paper I will report on the economic research on privacy in which I and others have been engaged.

Some definitional clarification is necessary at the outset. Privacy is used today in at least three senses. First, it is used to mean the concealment of information; indeed, this is its most common meaning today. Second, it is used to mean peace and quiet, as when someone complains that telephone solicitations are an invasion of his privacy. Third, it is used as a synonym for freedom and autonomy; it is in this sense that the Supreme Court has used the word in subsuming the right to have an abortion under the right of privacy (see my 1979b article, pp. 190–200).

The third meaning of privacy need detain us only briefly. To affix the term privacy to human freedom and autonomy (as in Jack Hirshleifer) is simply to relabel an old subject—not to identify a new area for economic research. The second meaning of the word privacy set out above invites a slightly novel application of economics. It suggests an economic reason why certain (cerebral) workers have private offices and other (manual) workers do not, why aversion to noise is associated with rising education, and why certain low-level invasions of a person's "private space" (for example, shoving a person roughly but without hurting him) are tortious (see my forthcoming book, ch. 10). But the range of economic applications in this area seems limited.

The first meaning of privacy set out above—privacy as concealment of informa-

tion—seems the most interesting from an economic standpoint. There is a rich and growing literature on the economics of information. It would seem that the same economic factors that determine search behavior by workers and consumers might also determine investments in obtaining, and in shielding, private information. This insight (emphasized in my 1978 article) provides the starting point for the economic analysis of privacy.

To relate the economics of privacy to the economics of information in as clear a fashion as possible, consider the example of the employer searching across employees and the employee searching across employers. The employer is looking for certain traits in an employee that may not be obvious, things like honesty, diligence, loyalty, and good physical and mental health. To the extent that the employee is deficient in one or more of these characteristics, he has an incentive—strictly analogous to the incentive of a seller of goods to conceal product defects—to conceal these deficiencies. That is, he has an incentive to invoke a "right of privacy" if the employer tries to "pry" into his private life.

The concealment of personal characteristics in the employment contest retards rather than promotes the efficient sorting of employees to employers. By reducing the amount of information available to the "buyer" in the labor market (the employer), it reduces the efficiency of that market. The analysis can easily be generalized, moreover, to other markets, some of them "non-economic," in which private information is concealed. An example is the marriage "market." The efficient sorting of females to males in that market is impeded if either spouse conceals material personal information. The extended courtship that remains typical of the marriage market may be due in part to the efforts of prospective spouses to conceal their deficiencies from each other.

*University of Chicago Law School.

How Economists Think of Privacy vs how Privacy Scholars Think of Privacy

How Economists Think of Privacy vs how Privacy Scholars Think of Privacy (generalizing)

How Economists Think of Privacy vs how Privacy Scholars Think of Privacy

Economics	Privacy scholarship
Privacy as concealment	Privacy as boundary regulation (see, e.g. Altman)
Privacy as personal information	Privacy as personal information, decisional autonomy, freedom (including bodily freedom), liberty, dignity,
Revealed preferences: People don't care <i>that much</i> about privacy	Revealed preferences: People do care, and act to manage privacy – <i>all the time</i>
Generally skeptical about govt regulation (market forces)	Generally sympathetic towards govt regulation (behavioral hurdles)

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Revealed Preferences and Privacy Behavior

“You have zero privacy anyway. Get over it.”

Scott McNealy, 1999

“People have really gotten comfortable not only sharing more information and different kinds, but more openly and with more people. That social norm is just something that’s evolved over time.”

Mark Zuckerberg, 2010

Revealed Preferences and Privacy Behavior

- Evidence of privacy seeking behavior is abundant
 - In the **offline** world:
 - Lowering our voice during intimate conversations...
 - Leaving a group of people to take a personal call...
 - Tilting a document we are reading so it's protected from prying eyes...
 - Drawing curtains to ensure privacy in our bedrooms...
 - Altman (1975): privacy behaviors are so ubiquitous and common that they occur with little conscious awareness

Revealed Preferences and Privacy Behavior

- And in the **online** world too. Multiple times per day, we...
 - Alternate between different email accounts or online personae to separate personal from professional spheres...
 - Pick privacy settings to manage the visibility of our social media posts...
 - Reply privately to group messages, carefully selecting recipients for our responses...
 - Enter (or rely on previously stored) passwords to keep information in our online accounts private...
 - Set "I am busy!" notices on instant messaging profiles to tell people not to contact us, right now...
 - Turn on and off camera or audio on conference calls...

Revealed Preferences and Privacy Behavior

- Evidence for online privacy seeking behavior arises also from
 - Market surveys
 - E.g., about 80% of Apple iOS users opted not to be tracked following Apple's transition to ATT (AppleInsider 2021)
 - Self-reported behavior
 - E.g.: majority (58%) of social network site users had restricted access to their profiles (Pew 2012)
 - Observational field studies
 - E.g.: 86% of CMU Facebook users publicly shared DOB in 2005; 22% in 2009 (Stutzman, Gross, and Acquisti 2013) (JPC)
 - Experiments
 - E.g.: 50% of participants unwilling to exchange a \$10 anonymous gift card for a \$12 trackable one (Acquisti, John, Loewenstein 2013)(JMR)

Revealed Preferences and Privacy Behavior

- In fact, substantial multi-disciplinary evidence for a universal human drive for privacy (contra notion of privacy as a modern invention)
 - Altman (1977): privacy as simultaneously culturally universal and culturally specific
- But why? An evolutionary conjecture. Privacy as selective adaptation process
 - See Acquisti, Brandimarte, Hancock (2022) (Science)
- Surprised? Cfr. Varian (1996):
 - Rational (strategic) for an individual to be willing to share with tele-markets some personal information (e.g., her interests), but not other (e.g., her WTP)

Revealed Preferences and Privacy Behavior

- In short:
 - Ubiquitous evidence of privacy seeking behavior...
 - ... and also ubiquitous evidence of disclosure seeking behavior
- No contradiction
 - Privacy *is not static protection of data*. Privacy is a dialectic and dynamic process of “boundary regulation” (Altman, 1975)
- Accordingly, individuals manage their privacy all the time
 - Which does not mean that they “protect” data *every time*

Hurdles in Privacy Behavior

- And herein lies the problem
- Can individuals, *à la* Varian (1996), strategically control information flows? Do market behaviors capture actual privacy preferences?
 - Altman (1975): desired privacy \neq realized privacy
- Economic hurdles
 - Acquisti, Brandimarte, Loewenstein (2020) (JCP)
- Behavioral hurdles
 - Acquisti, Brandimarte, Loewenstein (2015) (Science)
 - An evolutionary mismatch (Acquisti, Brandimarte, Hancock 2022) (Science)

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CORRIERE TV - I video del giorno



Le bombe nel parco giochi, l'indifendibile e il sogno cinese
di Beppe Severgnini



Mine in strada e villaggi distrutti
La scia di morte dei russi *dL Cremonesi, inviato*



Un missile russo colpisce Leopoli: le immagini riprese da un'auto



Il ritorno delle salme dei soldati ucraini: i cittadini si inginocchiano



CHAMPIONS LEAGUE

Milan-Chelsea, rigore di Jorginho, rosso a Tomori e gol di Aubameyang. Si va al riposo [Diretta 0-2](#)

di Carlos Passerini

Rossoneri per reagire alla sconfitta di una settimana fa a Londra e sorpassare gli inglesi in un girone apertissimo

■ [Champions League, dove vedere Milan-Chelsea](#) *di S. Riggio*



The Privacy “Paradox”

- Those hurdles are among the many explanations for the so-called privacy paradox
 - The purported gap between privacy attitudes and behaviors
- Heavily researched, and yet still unresolved: myth (Solove 2020) or reality?
- Multiple sources of confusion
 1. Conflicting interpretations of the term “paradox”
 2. Studies span highly heterogeneous scenarios
 3. Untenable premise of a binary answer (to the questions: do privacy attitudes predict behavior?)
- My view:
 - Focusing on whether an attitudes/behavior gap is or is not *paradoxical* is no longer useful
 - Better to focus on whether the gap exists or not. (It does. But not all the time.)
 - And better to focus on its policy implications

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Privacy Economics and Unintended Consequences

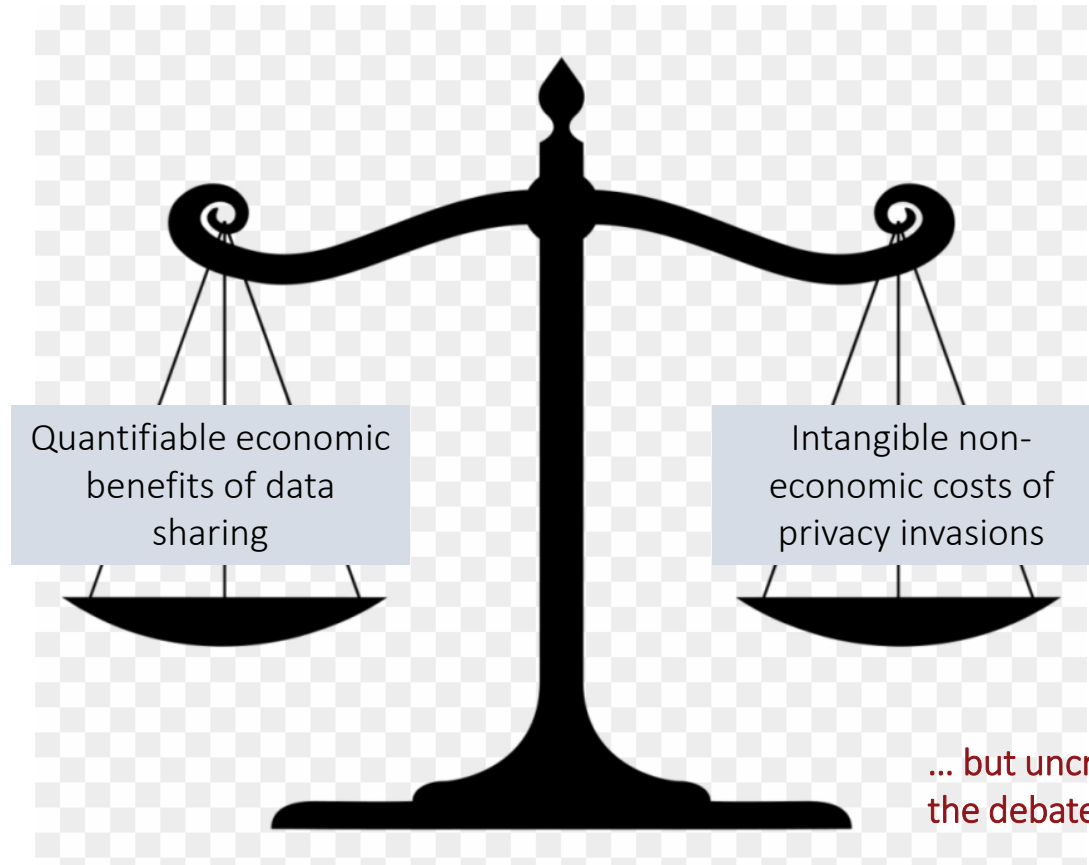
- Narrow focus on informational issues, at the expenses of other critical dimensions of privacy
- What else is privacy (and potential privacy harm)?
 - Individual and societal potential harm
 - *Cambridge Analytica...*
 - *Facebook and Myanmar...*
 - *Dobbs vs Jackson, overturning Roe vs Wade...*
- Thankfully, some exceptions: e.g. Marthews and Tucker (2017)

Privacy Economics and Unintended Consequences

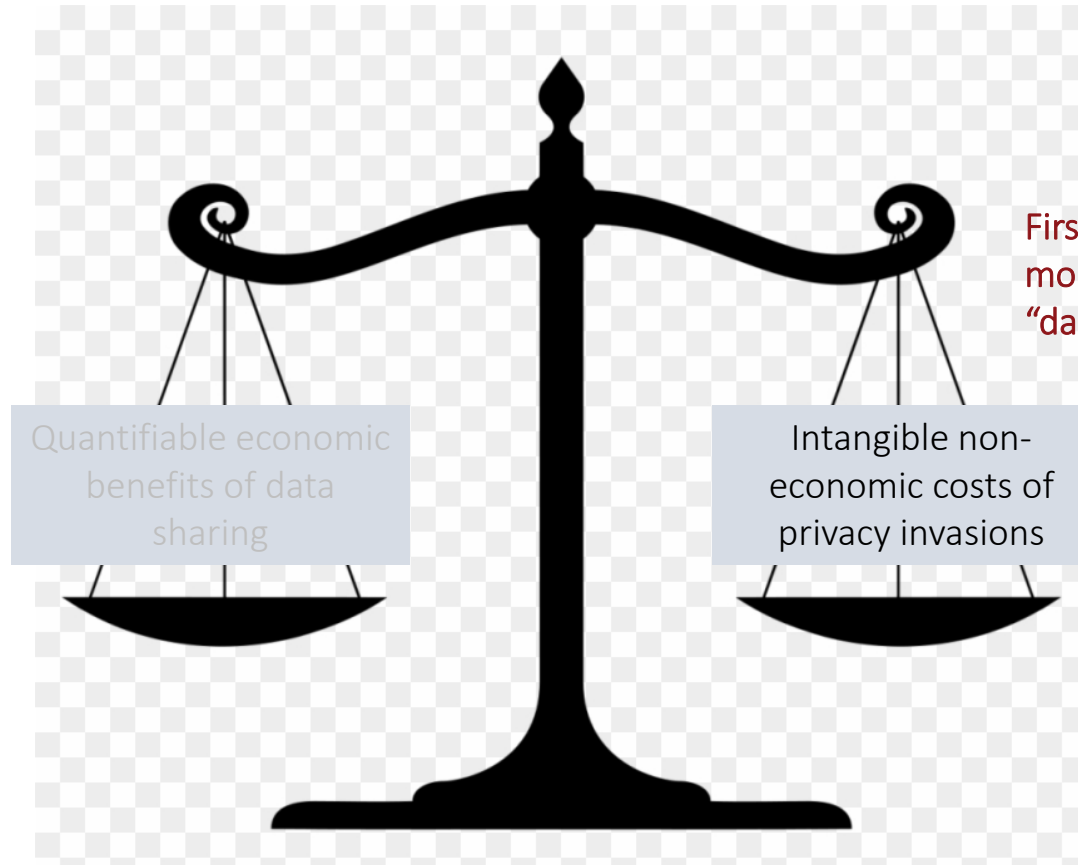
- In turn, emerging policy mindset? If no *quantifiable economic* harm, then no privacy concern worth worrying about
 - A “reverse” Overton window
 - This mindset is perilous: it risks undermining the importance of many intangible dimensions of privacy - the “**economic dark matter**” (Acquisti, Brandimarte, Loewenstein 2020) (JCP)

Privacy Economics and Unintended Consequences

- In turn, **prevalent** focus of empirical research on **costs of data privacy regulation**
 - Excellent work in this area (e.g. Miller & Tucker, Tucker & Goldfarb, Johnson et al, ...)
 - Looking at the bigger picture, apparent disconnect between theoretical privacy economics literature (which highlights tensions and nuanced trade-offs of protection/sharing) and dominant empirical analysis (which tends to focus on the study of regulatory costs)
 - Risk of a “gotcha” mindset, which discounts the non-economic dimensions of privacy, and crowds-out attention for other, **critical research questions**
 - Risk of overemphasizing short-term impact of regulatory shock (adaptation), rather than comprehensive analysis of long-term effects of different privacy stances



... but uncritically accepting this framing of the debate may be a mistake



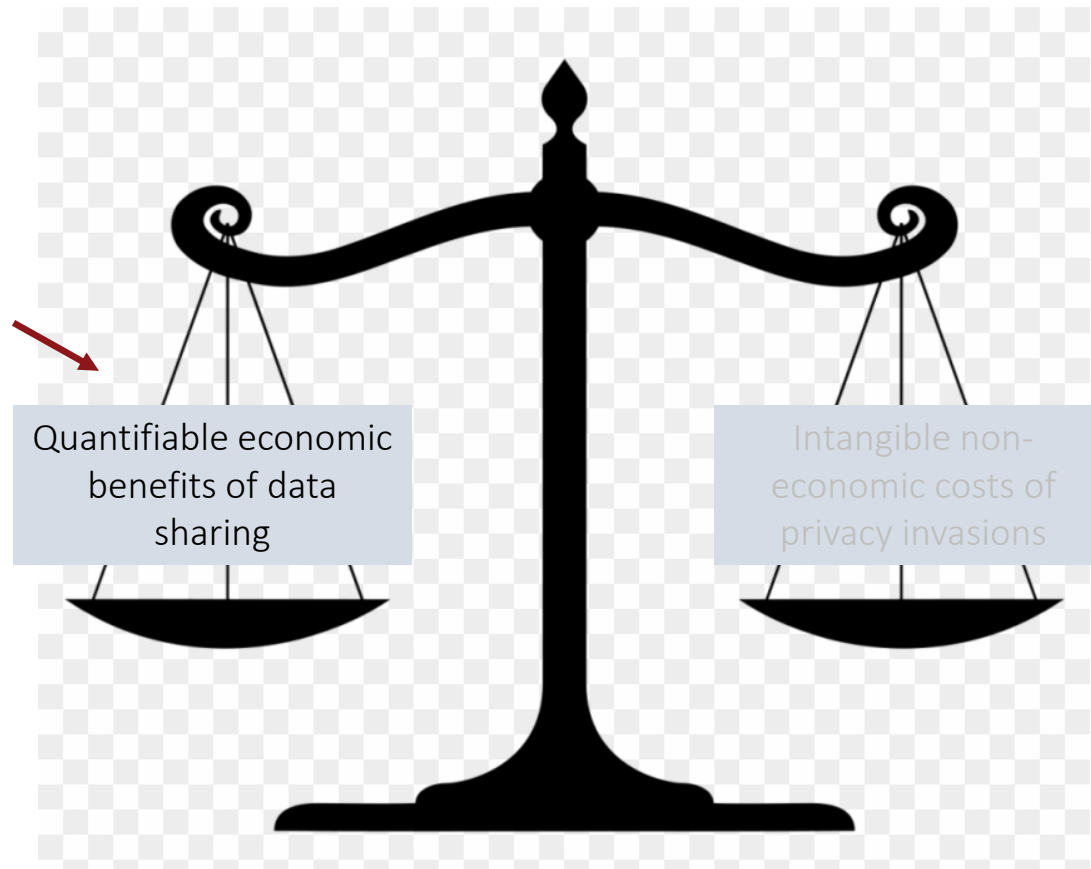
Quantifiable economic benefits of data sharing

Intangible non-economic costs of privacy invasions

First, we may consider paying more attention to this economic "dark matter"

Second: How much do we actually know about this?

(As we will see, surprising little - especially if we are interested in benefit allocation)



Where next? The Economics of Privacy at a Crossroads

- What if we alter the frame of the current economic debate around privacy?
- From
 - “Privacy protection is costly and inefficient. Unless one can demonstrate quantifiable privacy harms, what need is there for govt regulation?”
- To
 - What is the evidence that current product/services cannot be provided in more privacy-preserving manners?
 - What is the evidence of the (allocation of) benefits from data collection?

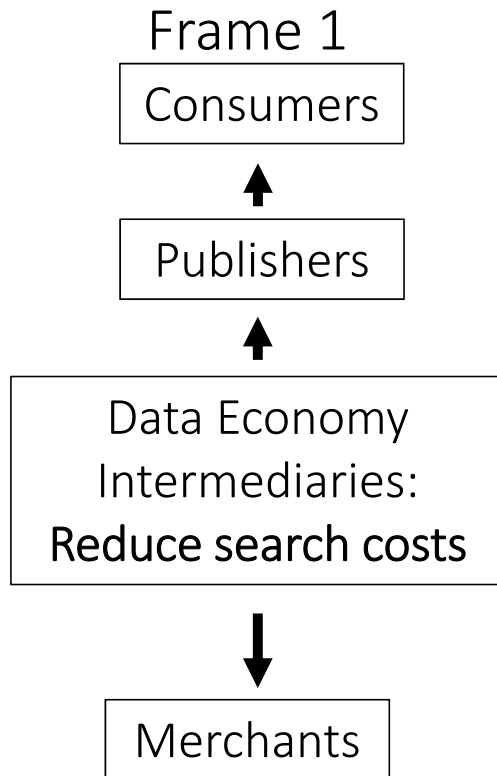
Questions for the Next Chapter of the Economics of Privacy

- What are the *downstream (long-term, less obvious), and non-easily quantifiable* effects of privacy regulation?
- What are the broader effects of the *absence* of privacy protection, *the economic dark matters*?
- How do we tackle the “*aggregation*” problem of privacy harms?
 - The problem is not that there are no privacy harms, but that there are too many and diverse ones
- What are the costs of *privacy enhancing technologies (PETs)*, and who bears them?
 - Steed, Liu, Wu, & Acquisti (2022) (Science)
- How is the value accrued from consumer data *allocated*?
- Ultimately, *who benefits from the data economy*?

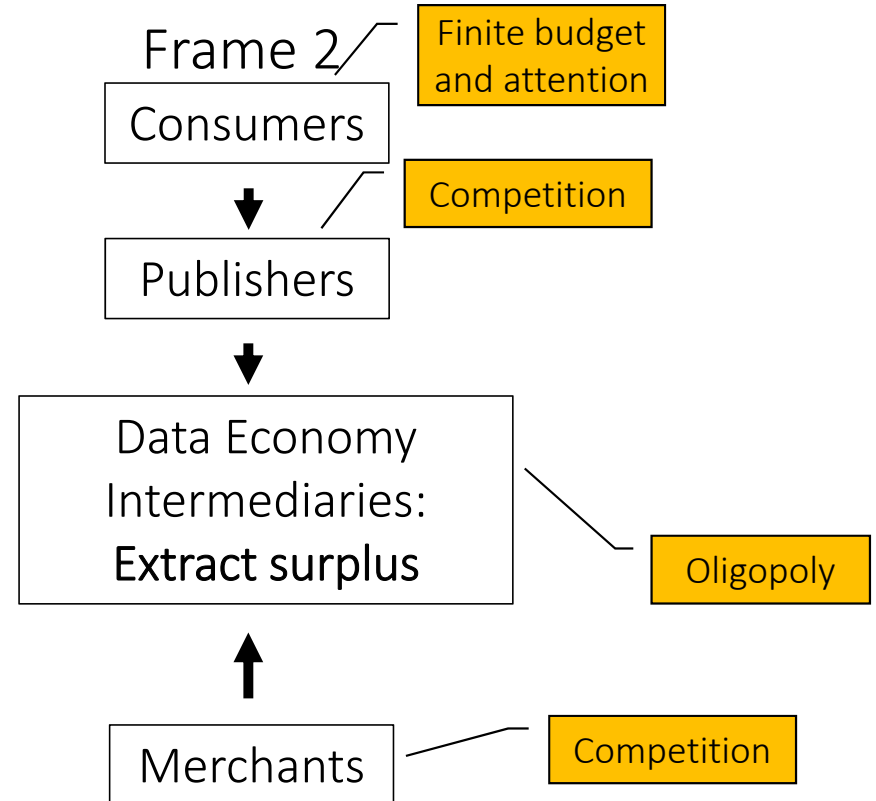
*“Behavioural targeting is **not only good for consumers** [...] it’s a rare win for everyone. [...] It ensures that ad placements display content that you might be interested in rather than ads that are irrelevant and uninteresting. [...] Advertisers achieve [...] a greater chance of selling the product. Publishers also win as [...] behavioral targeting increases the value of the ad placements.”*

David Nelson, Operations & IT Director, Unanimis.co.uk

Online advertising:



Online advertising:



Ongoing work

- *Surplus allocation in models of targeted advertising changes dramatically with the amount and type of consumer data collected – consumers benefit from some information being shared, but not other [ISR, 2021]*
- *When contextual ads are blocked in search engine results in a lab experiment, consumer welfare does not decrease (and some measures of satisfaction increase) [USENIX, 2020]*
- *No significant downstream effect from GDPR on EU websites content's quality/quantity [WEIS 2020, NBER 2022]*
- *Apple ATT does not seem to have caused a fall in entry, or increase in exit, of apps in the Apple store [SCECR 2022]*
- *Display ads more likely to be associated with lower quality vendors, higher prices, compared to products in search results [PRIVACYCON 2022]*

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References (excluding work in progress)

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