The Economics and Behavioral Economics of Privacy

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NIST Privacy in the Digital Age Lecture Series, December 8 2014
- The economics of privacy
- The behavioral economics of privacy
- Privacy in online social networks
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The economics of privacy
The impact of breach disclosure laws on ID theft

- Average reduction of ID theft due to disclosure laws: 6%

Empirical analysis of data breach litigation

Dismissed vs. Settled lawsuits

Probability of **lawsuit higher** when:
- greater number of records compromised
- evidence of actual harm (financial loss)
- data required heightened level of protection (e.g. CCN, medical, financial)
- breach caused by improper disclosure of information

Probability of **settlement higher** when:
- plaintiffs claim to suffer actual (financial) harm
- class is certified
- surprisingly, statutory damages not found to drive settlement

“An Experiment in Hiring Discrimination via Online Social Networks,”
Alessandro Acquisti and Christina Fong, work in progress (available at SSRN).
The “behavioral economics” of privacy

- Asymmetric information
- Bounded rationality
- Cognitive and behavioral biases
What is privacy worth?

$10 Anonymous ➡️ $12 Tracked
Will consumers pay for privacy?

Condition 1
No information

Duracell Alkaline Battery, AA, 8/PK
Duracell Coppertop Alkaline AA Batteries Long-life alkaline batteries provide the best, longest power source. Recommended for use in smoke alarms, flashlights, lanterns, calculators, pagers, cameras, recorders, radios, CD players
www.ccvsoftware.com/c/product.html?record=56119

$14.45 (w/shipping)

Duracell AA8 DURACELL - Alkaline Batteries Value Packs
Duracell AA8 DURACELL Alkaline Battery Value Packs...
discountofficeitems.zoovy.com/product/DURMN15RT12Z

$14.60 (w/shipping)

Duracell Alkaline Battery Value Packs
Duracell AA8 DURACELL Alkaline Battery Value Packs DURACELL AA ALKALINE BATTERY - 8 PACK Cardboard card for peg hook 8 pack Specifications Weight 0.45 lbs Length 4.5 inches Width 3.75 inches Height 1 inches Manufactures Web site www.duracell...
www.instawares.com/Coppertop-Alkaline-Lithium-Bat...

$14.80 (w/shipping)

Duracell Coppertop Alkaline AA Batteries
Long-life alkaline batteries provide the best, longest power source. Recommended for use in smoke alarms, flashlights, lanterns, calculators, pagers, cameras, recorders, radios, CD players, medical equipment, toys and electronic games. Dependable after seven years of storage.
www.officequarters.com/product.php/item/DUR-MN1500B8...

$15.14 (w/shipping)
Condition 2
Irrelevant information

Duracell Alkaline Battery, AA, 8/PK
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www.officequarters.com/product.php/item/DUR-MN1500B8...
$15.14 (w/shipping)
Condition 3
Privacy information

Privacy premium: $0.69 (or about 5%)
Results

% Purchases by Level of Privacy

- Batteries
  - No Information: None
  - Handicap: Low
  - Privacy: Med.

- Sex Toy
  - No Information: None
  - Handicap: Low
  - Privacy: Med.

Level of Privacy: None, Low, Med., High
So: How do we balance data sharing and privacy protection?
Transparency and control
Sufficient vs. Necessary conditions
Sufficient vs. **Necessary** conditions
Not Sufficient
Control
Privacy and paradox of Control
Privacy and paradox of Control

Control :: Privacy
Privacy and paradox of Control

Control :: Privacy
Study on Ethical Behavior

IMPORTANT: All answers are voluntary. By answering a question, you agree to give the researchers permission to publish your answer.

1. Are you married?  
2. Have you ever been fired by your employer?  
3. Have you ever stolen anything (e.g., from a shop, a person)?  
4. Have you ever used drugs of any kind (e.g., weed, heroin, meth)?  
5. Have you ever lied about your age?  
6. Have you ever had cosmetic surgery?  
7. Have you ever done any kind of voluntary service?  
8. Have you ever been in a public venue (e.g., restroom of a club, airplane)?  
9. Have you ever made a donation to a non-profit organization?  
10. Do you have any permanent tattoos?
<table>
<thead>
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<th>Question</th>
<th>Publication permission</th>
<th>Yes</th>
<th>No</th>
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Transparency
The limits of Transparency
"Sleights of Privacy," Idris Adjerid, Alessandro Acquisti, Laura Brandimarte, and George Loewenstein. *SOUPS*, 2013
15 seconds delay
The limits of Transparency

"Sleights of Privacy," Idris Adjerid, Alessandro Acquisti, Laura Brandimarte, and George Loewenstein. SOUPS, 2013
Privacy and disclosure behavior on Facebook over time

Implications

1. Making users feel more in control of their data can lead to their sharing more sensitive information with more strangers (overconfidence)
2. Even very simple and accessible disclosures/privacy notices can be strategically framed to produce variable (and sometimes arbitrary) amounts of disclosure
3. Privacy behavior is context dependent and “malleable”
4. Privacy behaviors have economics consequences for data holders and data subjects
Solutions?

- Self-regulation (i.e., market-based approaches)?
- Regulation?
- “Better” information?
- User interventions?
- Soft (asymmetric) paternalism, or “nudges”?
For more information

- Google/Bing: economics privacy
- Visit: http://www.heinz.cmu.edu/~acquisti/economics-privacy.htm
- Email: acquisti@andrew.cmu.edu