Pricing Privacy
ECON-6340

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Behavioral Financial Economics Research Proposal Presentation

Agenda

Motivation

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- Privacy matters

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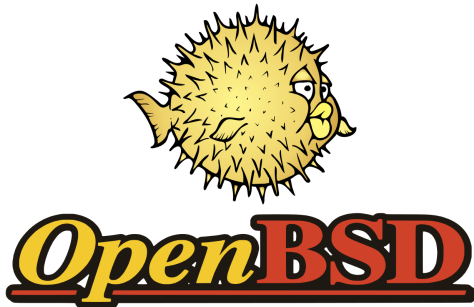- "Keep it simple, stupid"

Motivation

- Privacy matters
- "Keep it simple, stupid"
- Privacy and security go hand in hand

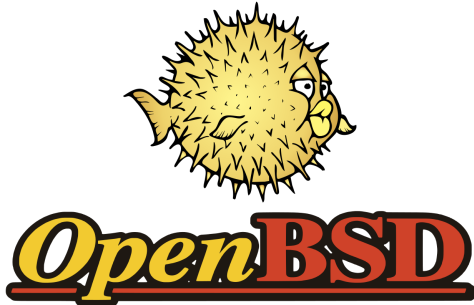# Examples

- OpenBSD

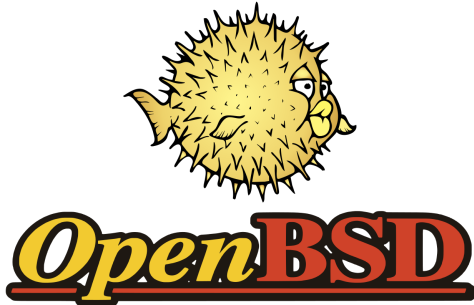# Examples

- ▶ OpenBSD
  - ▶ Mail servers

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  - ▶ Websites

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  - ▶ Mail servers
  - ▶ Websites
  - ▶ Personal computing (`pledge`, `unveil`, privilege separation, &c...)

Examples

- Libreboot
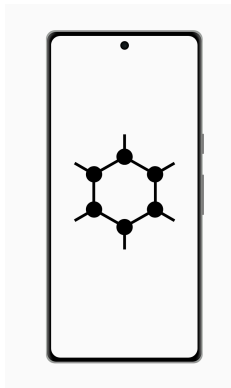
Examples

- Libreboot
  - ME removal

Examples

- ▶ Librebot
  - ▶ ME removal
  - ▶ Lift hardware restrictions

Examples

- GrapheneOS

Examples
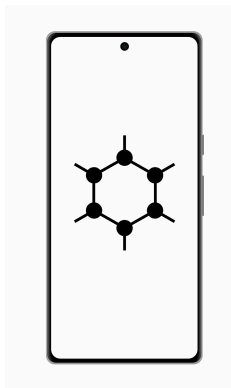
- ▶ GrapheneOS
    - ▶ de-Google your Google phone (ironically)

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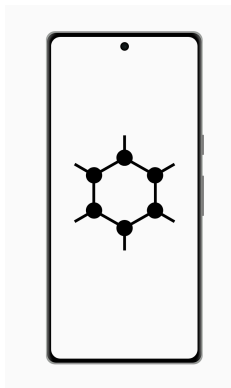
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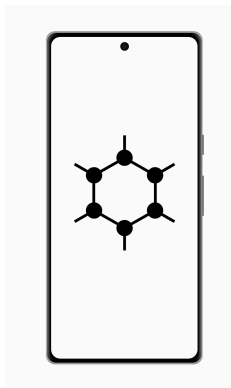
- GrapheneOS
  - de-Google your Google phone (ironically)
  - Free software replacements for existing software
  - Stronger privacy features

What's the issue?

Time consuming!!

Time consuming!!
High effort

Time consuming!!
High effort
Inconvenient

Research Questions

► How much do people value their privacy monetarily?

► What biases are behind people "undervaluing" their privacy?

Literature Review — Alessandro Acquisti and Loewenstein (2013)

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Literature Review — Alessandro Acquisti and Loewenstein (2013)

- ▶ Pricing privacy has important policy implications (e.g., HIPAA)
- ▶ Individual valuations of privacy are affected by endowments and framing
- ▶ Subjects who *believed their data would otherwise be protected* rejected offers to access their data **5 times** more often than subjects who believe otherwise.

Literature Review — Zuiderveen Borgesius and Poort (2017)

▶ Private data can be used to engage in price discrimination

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- ▶ Digital commerce is funded by organizing data for marketing and price discrimination

Literature Review — Zuiderveen Borgesius and Poort (2017)

► "In September 2000, Amazon.com outraged some customers when its own price discrimination was revealed. One buyer reportedly deleted the cookies on his computer that identified him as a regular Amazon customer. The result? He watched the price of a DVD offered to him for sale drop from \$26.24 to \$22.74." – CNN

Literature Review — Regner and Riener (2017)

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- ▶ Pay-what-you-want scheme for CD purchases
- ▶ Removal of anonymity reduced income by 35% (online) *because of opt-out*

Hypotheses

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H_2: There is a strong endowment effect in privacy valuations

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▶ Send out participation requests to college students on campus

▶ Randomly assign to:

Treatment: Informed of group opinion (nudged)
Control: Not informed of group opinion (not nudged)

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▶ Respond with "very socially inappropriate", "somewhat socially inappropriate", "somewhat socially appropriate", to "very socially appropriate".

▶ E.g., "Using an ad-blocker in a web browser to reduce targeted marketing."

▶ Incentive compatibility: choose one at random and if it matches the average participant response, the subject receives $5.

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- E.g., "Digital privacy is important and people's data should not be freely accessible to companies."
- "Of the n participants also taking part in this experiment, how many do you believe agree with this statement?"
- Incentive compatibility: if the participant's answer is within 10% of the group response, the subject receives \$5.

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- ▶ The control group **is not** informed.

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▶ If there is an endowment effect, we would see it here.

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▶ If social preferences are involved, we should see a systematic deviation between the treatment and control groups' aggregate responses.

Experimental Design

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- Exit survey: age, year of graduation, major, &c.

Experimental Design

- ▶ Exit survey: age, year of graduation, major, &c.
- ▶ Enables heterogeneity analysis

Poke holes in my design!!

Discussion

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- Potential issues?

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- Potential issues?
- What can be improved?

Thank you!

Questions?