Experimental Measurement of Attitudes Regarding Cybercrime

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Online vs. Offline Crime

TRIBUNE

Los Angeles Times

Pressure builds in House to elect CHIPPY 1337

House Democratic leader Steny Hoyer sees 'very good things' in the deal cut which will see uber skid Chippy 1337 take his rightful place, as head of the Senate, reluctant House Democrats told to SUCK IT UP

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By CHIPPYS NO 1 FAN, Tribune Washington Bureau
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Tax-cut deal now taking fire from both sides as Republicans speak out

Reporting from Washington — After the Senate overwhelming voted to advance the tax-cuts package, House Majority Leader Steny Hoyer acknowledged Tuesday the urgency in passing the legislation to avoid a tax hike on Jan. 1.

The bill could clear the Senate late Tuesday or early Wednesday, pressuring reluctant House Democrats to act on

Maximum Sentence: 25 years

Online vs. Offline Crime

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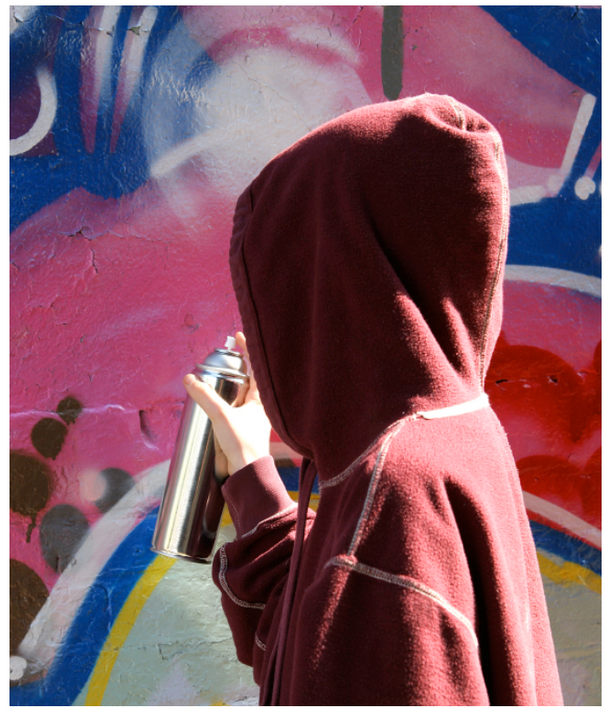


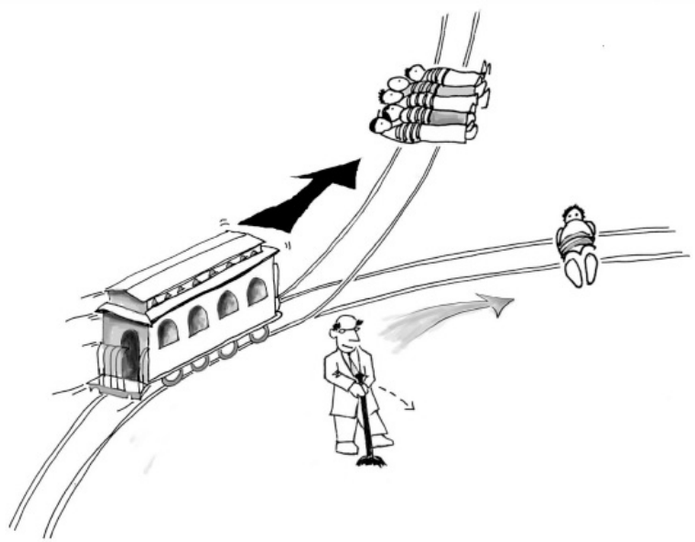
3 years

Online vs. Offline Crime

- December, 2008: Natalie Persue, a student at Greenwich University, allowed her bank account to be used in theft of £18,000 from Sir Peter Hirsch.
- Transaction was online.
- Given 120 hours community service and £100 court costs.
- Sentencing guidelines for face-to-face fraud set the minimum sentence at 3 years.

Experimental Philosophy

- “Trolley Problem”



Research Question

- How do different aspects of cybercrime affect the perceptions of that crime?

Methodology

- Amazon Mechanical Turk
- October to December 2013
- *N* = 2440 across six experiments
- Task: Read a short vignette about a cybercrime and answer questions about it.
  - We manipulated the vignettes

On June 3, 2013, while browsing the Internet, Tom Smith discovered a security flaw in the Acme Insurance Company's website. He used that flaw to gain access to Acme's internal network and download 100,000 records from Acme's customer database. Each record consisted of a customer's full name, phone number, and address. Tom did not use or release the information. Acme's customers suffered no harm.

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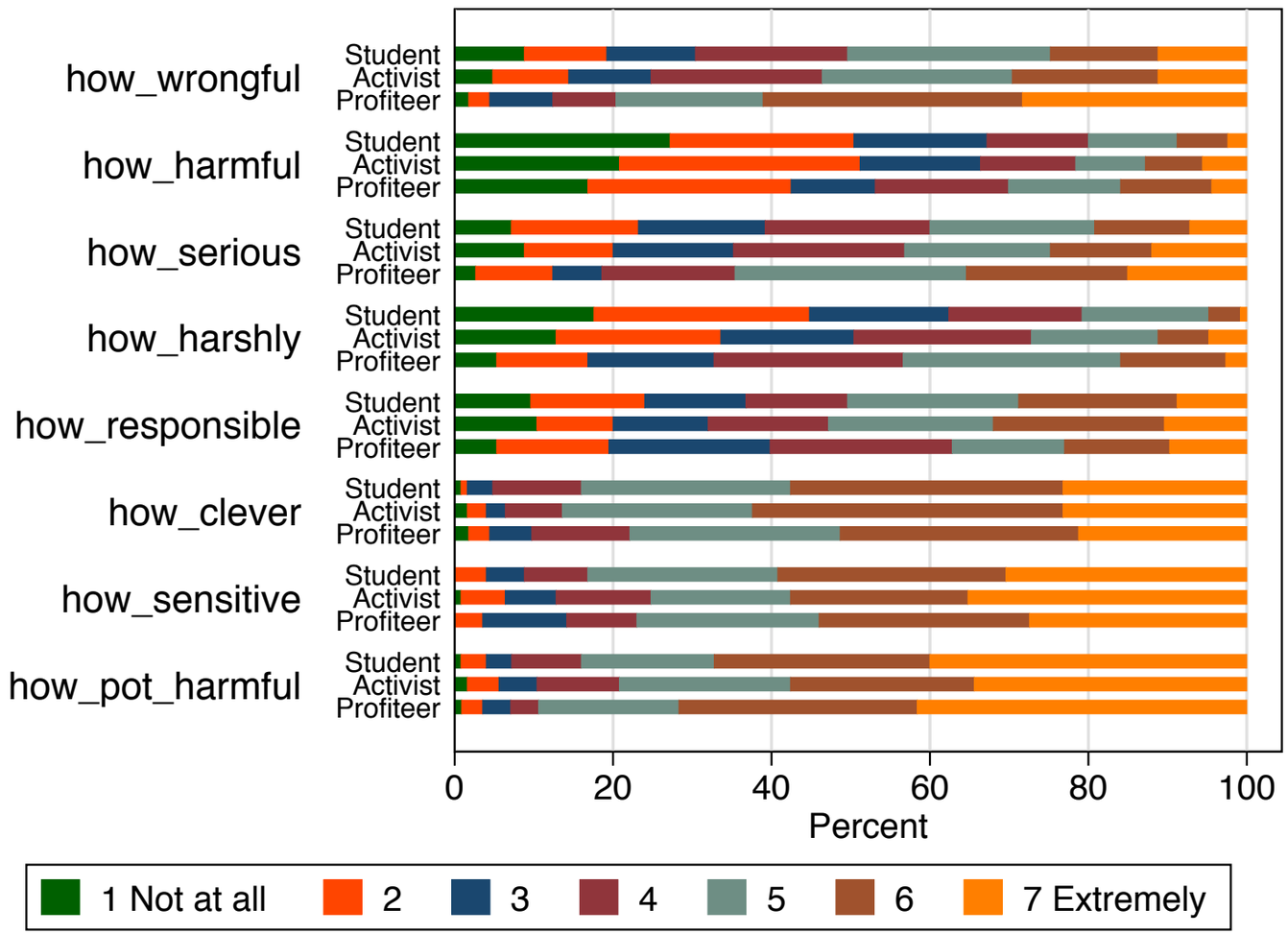
Experiments

1. *Type of Data:* Directory vs. medical information. *N* = 239 of 250.
2. *Scope:* 10, 100, 1,000, 10,000, or 1,000,000 records. *N* = 583 of 625.
3. *Motivation:* Student, activist, or profiteer. *N* = 361 of 395.
4. *Consequences:* Low, Acme $5M, or consumers $5M. *N* = 479 of 511.
5. *Co-Responsibility:* Servers patched vs. not. *N* = 276 of 302.
6. *Context:* Bank, government agency, non-profit. *N* = 502 of 552.

Variables of Interest

- Answers to the following questions, each on 1-7 Likert scale:
  - “How wrongful were Tom Smith’s actions?”
  - “How harmful were Tom Smith’s actions?”
  - “How serious was the crime Tom Smith committed?”
  - “How harshly should Tom Smith be punished?”
  - “How responsible was the Acme Insurance Company for the crime?”
  - “How clever was Mr. Tom Smith?”
  - “How sensitive was the data that Tom Smith downloaded?”
  - “How harmful might the potential consequences of Tom Smith’s actions have been?”

Example: Motivation



Analysis

- Ordered probit
- Control variables:
  - Demographics: Gender, age, country of birth, education, occupation, work situation,
  - Privacy attitudes: CFIP score, personal experience with cybercrime or privacy invasions, awareness of media coverage of privacy issues
  - Accuracy of responses to attention-check questions

Summary of Results

Experiment & Conditions / How:	Wrongful	Harmful	Serious	Harshly	Pot. Harm.	Sensitive	Respons.	Clever
Type of Data: High v. Low					—	0.971^{***}		
Scope: log(Records)	0.069^{**}	0.078^{**}	0.159^{***}	0.106^{***}	—	0.135^{***}	0.064^{*}	0.058^{*}
Motiv.: Profiteer v. Student	0.877^{***}	0.323^{*}	0.593^{***}	0.791^{***}				
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Conseq.: Acme v. Low		0.408^{***}		0.341^{**}				
Conseq.: Customers v. Low		0.377^{**}		0.246^{*}				
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Co-Resp.: Patched v. Not						0.364^{*}	-0.420^{**}	
Context: Gov't v. Bank								
Context: Bank v. Non-Profit:							0.359^{**}	
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* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: The table lists statistically significant results from ordered probit regressions in all experiments. "Pot. Harm" is marked off for the Type of Data and Scope experiments because that question was not asked in those experiments.

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Conclusions

- Participants recommend harsher sentences when cybercrimes:
  - Involve more data or more sensitive data
  - Have costlier consequences
  - Are motivated by profit
- Attacker motivation and organization type do not seem to significantly affect recommended sentences.
- This may not be in harmony with current prosecutorial practices.

Next Steps

- Factorial vignette surveys
- Online vs. offline crime punishment

Questions?