The Value of Personal Data: Revealed Privacy Decision-Making in Controlled Laboratory Environments

Victoria Fast, Daniel Schnurr

MOTIVATION
Consumers face privacy decisions on an almost daily basis

Methodological challenges of research on privacy decisions

Surveys (“Experimental scenarios”)
Field studies
Laboratory experiments
Challenges:
• Hypothetical scenarios
• Stated preferences & intentions
• Confounding effects

How to induce value for data in the lab? Which data to use in the lab?

S1: DATA TYPE
Opinion on 14 controversial topics, e.g.:
• Sex toys
• Smoking marijuana
• Cheating
• Drinking

16 questions of a logic test:
• Verbal reasoning
• Letter and number series
• Matrix reasoning
• Three-dimensional rotation

S2: UNCERTAINTY
Base treatment
High uncertainty (WTA before test)
Low uncertainty (WTA after feedback)

S3: ELICITATION METHOD
BDM mechanism:
(Becker, DeGroot, & Marschak, 1964)

Hypothetical:
Participants answer the same questions but there is no bid selection, data disclosure or additional payment

Data disclosure procedure
In case of disclosure, the name, photo and answers of the selected participant are presented in front of the other participants in the lab.

Responds by John Doe
• Are you in favor or against the legislation of prostitution? Response of the participant in favor: Share in favor, 100% of the participants

Figure 1: Overview of studies
Figure 2: Mock-up of disclosure screen

METHODOLOGY
General experimental procedure
1. Privacy consent and comprehension questions
2. Data collection
3. Data valuation (WTA)
4. Questionnaires
5. Determination of bid and outcome

Field studies
Privacy
Body of Knowledge

PRELIM. RESULTS (S1)
Paired Mann-Whitney-U Tests

Treatment differences
(WTAs over 50 EUR were capped at 51 EUR)

Subjects’ performance and WTA in treatment IQ
Simple OLS regression:

The impact of personal characteristics on WTA
Measurement of privacy attitudes: Model shows convergent and discriminant validity (based on data collected in first five sessions)

Constructs based on Xu et al. (2011)
CR
AVE
MSV

Disposition to value privacy
74
50
11

Internet privacy concerns
78
55
43

Privacy risks
88
55
43

Privacy control
84
57
02

But: No statistically significant effect of privacy attitudes on subjects’ WTA evident in regression analyses.

Effect of personal traits on WTA (Ttest regression model):

WTAi = β0 + β1WTAi-1 + β2Agei + β3WTAi-1Grade + β4WTAi-1Gender + β5WTAi-1Married + β6WTAi-1Income + β7WTAi-1Race 

There seems to be no statistically significant impact of stated privacy attitudes, but of personal traits, on WTA.

REFERENCES
• The International Cognitive-Affective System (TICS) [https://ticsserver.com/]

University of Pennsylvania
School of Business, Economics and Information Systems
Research Group on Data Policies

victoria.fast@upenn.edu
http://www.dapolicies.net

This project was funded by the European Data Ethics Lab and the US Army, in the framework of the Centre Digitalization Initiative.