

2<sup>nd</sup> annual Research Capacity Building 4-lateral Meeting

# Extended Model of Online PRivacy CONcern - PRICON

Jelena Budak

Institute of Economics, Zagreb

Belgrade, 18 May 2018

Croatian Science Foundation research project no. 7913

# in 2013@EIZ

Our research curiosity when talking about privacy today, in the digital age:

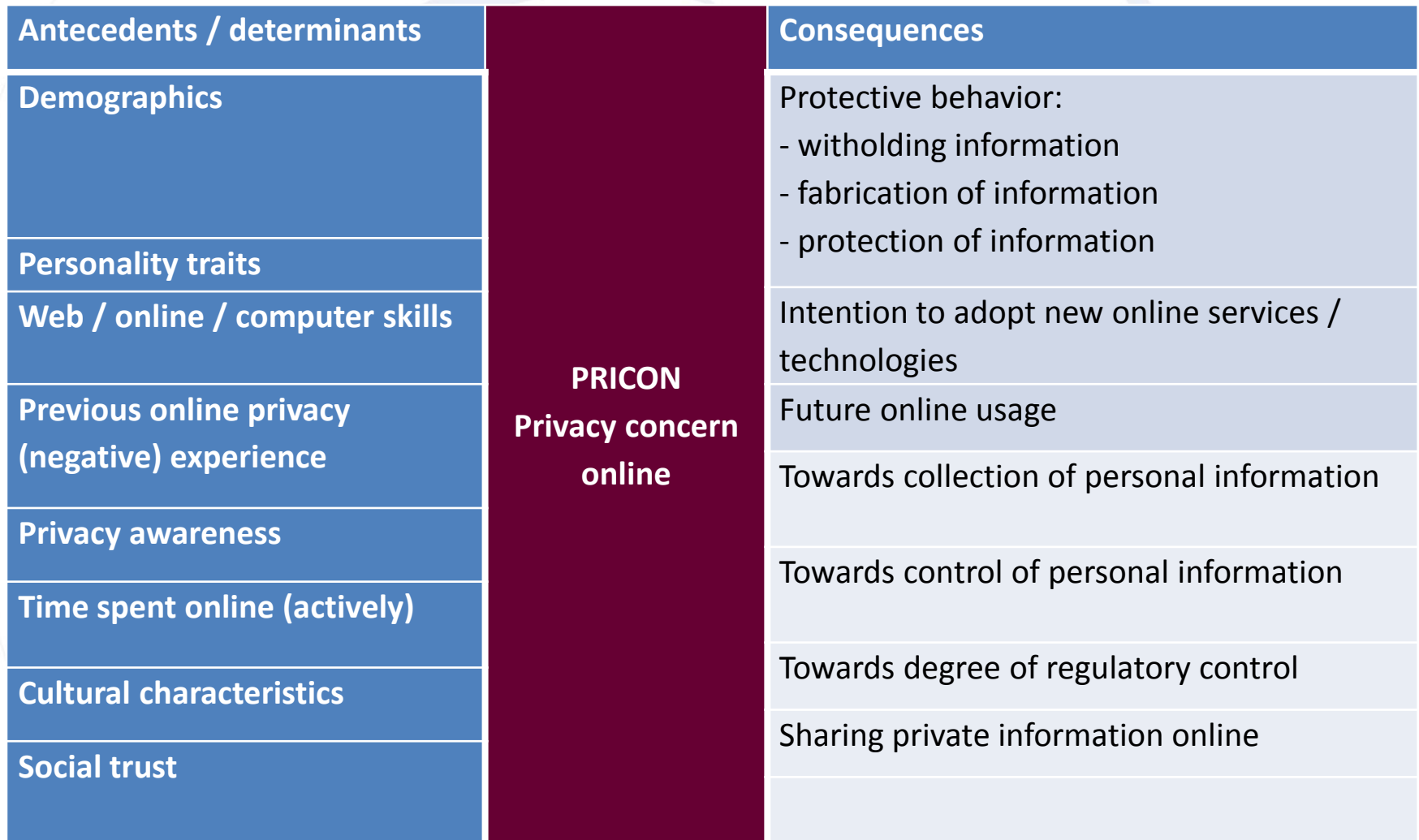
- Is there any privacy when online, in our everyday life as customers, employers, students?
- What do we sense as privacy intrusion? Is the notion of privacy offline different from privacy online?
- How much is a person nowadays aware or concerned about privacy intrusion?
- Do we change our behaviour accordingly? What actions do we take when confronted with online privacy issues?
- Is privacy of a typical Internet user protected by regulations?
- Do we trust business privacy protection policy or national regulators?
- Do people in different societal groups share similar attitudes about online privacy and would they take similar actions? If not, what factors explain the variations?

These questions stand in the core of the PRICON research project.

# Aim of the project

- There was an abundant literature - both theoretical and empirical studies tackling privacy from diverse point of views.
- However, the big exhaustive model for studying privacy as an indeed complex phenomenon was missing.
- Interdisciplinary approach
- **Extended model of online PRiVacy CONcern (PRICON)** is a research project aimed at developing a comprehensive integrated model of privacy concern in the online environment and empirically testing it in order to provide deeper understanding of various interactions between antecedents, concerns and consequences of online privacy.

# PRICON model



# PRICON model

antecedents

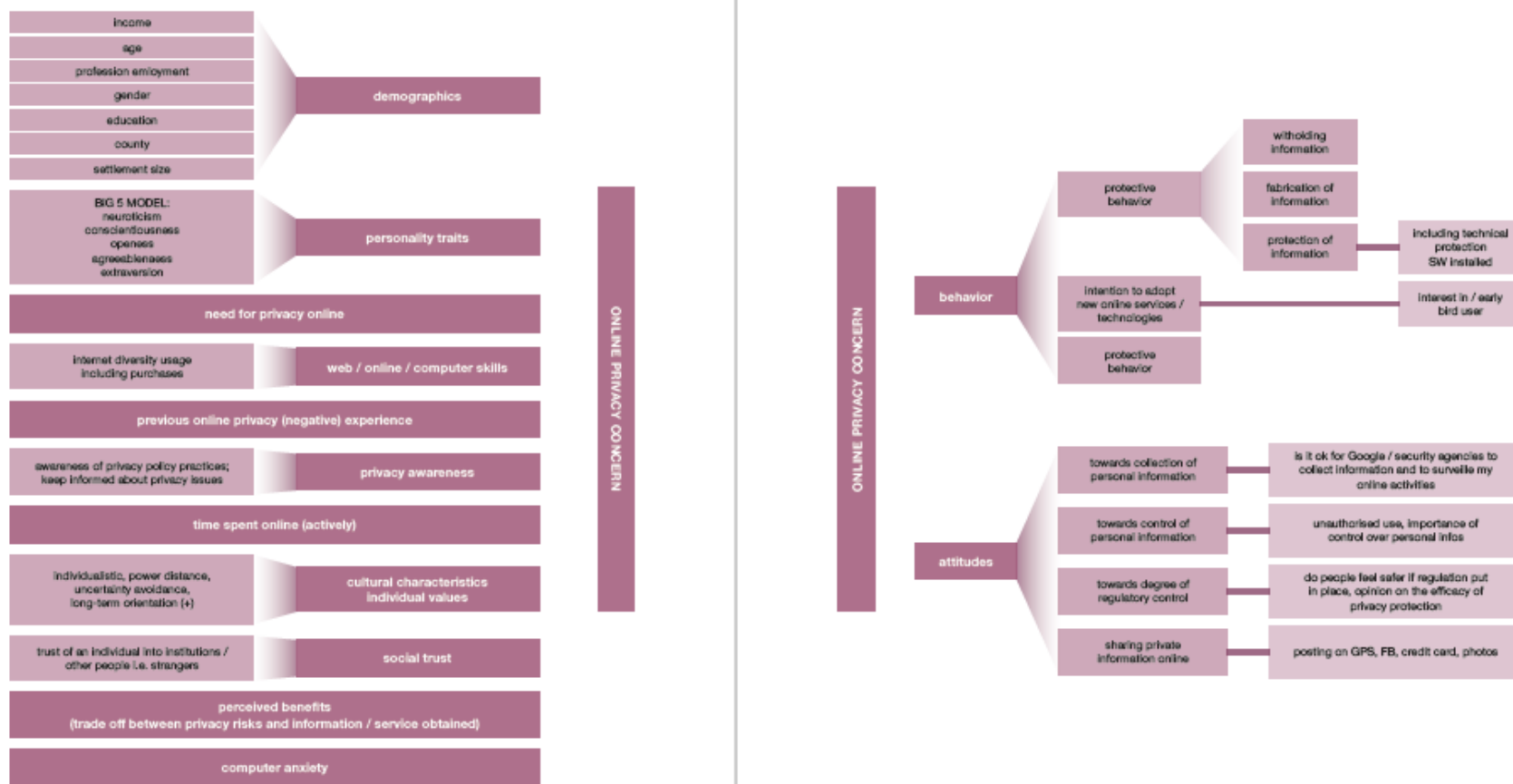


OPC



consequences

Figure 2. PRICON model



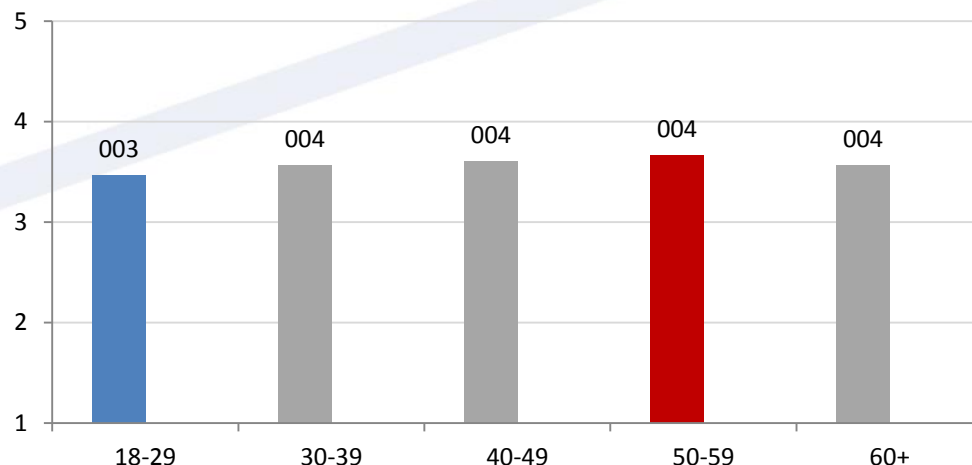
# Survey

- Semi-structured interviews
- Variables and items taken and adapted from the literature
- Total of 19 variables
- Questionnaire in Croatian: 100 questions / statements
- Pilot testing, editing
- Survey conducted early 2016 at the EIZ
- CATI method, about 20 minutes interviews
- Net sample 2060 Internet users in Croatia

# Descriptive statistics first

- Active online on average 3:15 h/day
- Mostly for getting general information, daily news, e-mails (over 90% of respondents), and social networks (75%)
- Respondents are slightly concerned for their privacy online OPC=3.56
- no gender differences
- the most concerned low-educated people (score 4.1)
- less concerned young people

Online Privacy Concern (ave=3.5)  
age groups of Internet users in Croatia



1-not concerned at all, 5- very concerned

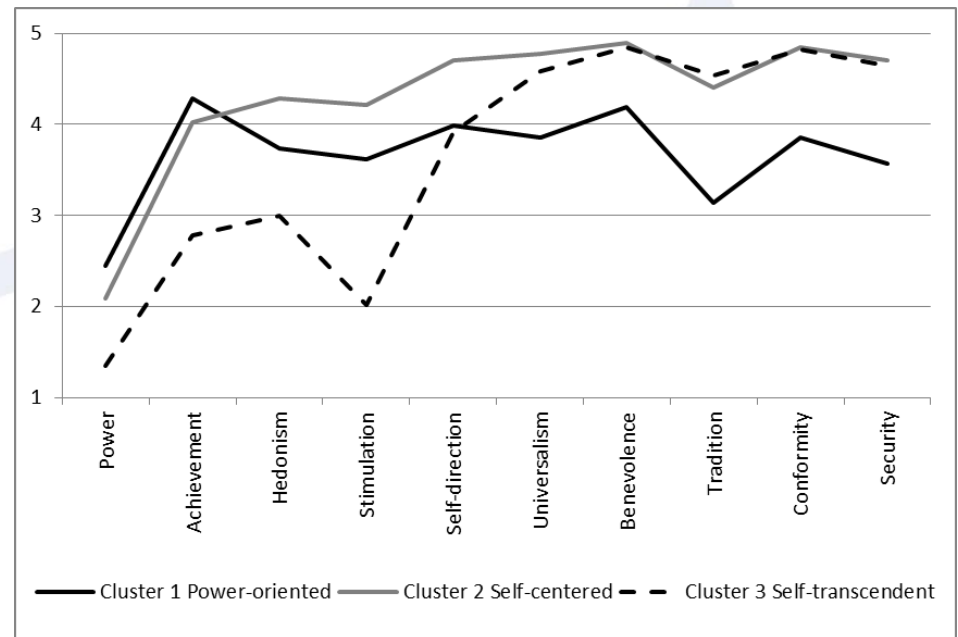
# Empirical analysis - antecedents

- Different methods have been employed to test parts of the model: OLS, probit, K-means cluster analysis

Personal values of Internet users: a cluster analytic approach  
(Rajh, Budak, Žokalj, 2016)

Could Internet users in Croatia be clustered on the basis of their values, and if so, what explains the differences among groups?

Short Schwartz's Value Survey applied





# Distinctive characteristics of clusters

**Power-oriented cluster 1:** The highest aspiration for achievements, wealth, authority and social power over other people.

Male, younger, more educated, more earnings, striving for success and power is a driving value for company owners, managers, and professionals as well as for students.

The lowest recorded social trust in institutions, opposed to the highest social trust in strangers. They have expressed no need for privacy online, and a lack of computer anxiety.

**Self-centered cluster 2:** Driven by exciting life, hedonism, stimulation and self-direction, appreciate universal values.

Slightly prevalent female, aged < 40 years, 53% have secondary education: professionals and technicians.

Leads in the level of social trust in institutions and seems to be concerned about privacy online. Demonstrate nearly the average computer anxiety.

**Self-transcendent cluster 3:** Life-guiding principles are benevolence and conformity.

Female, middle-aged and elderly people Internet users with primary and secondary education, lower household incomes. Workers, unemployed, retired.

Reserved towards strangers and more trustful towards judiciary, political and other institutions. The highest computer anxiety and technology aversion.

# Empirical analysis - antecedents

## The Effect of Personality Traits on Online Privacy Concern (Škrinjaric, Budak, Žokalj, 2017)

What determines the privacy concern of Internet users and, specifically, if and how their personality shapes and explains the level of their concern about privacy when online?

Five personality traits significantly influence an individual's online privacy concern.

Shortened version of the Big Five framework 10-item version applied (Rammstedt & John, 2007).

OLS and Ordered Probit Estimation

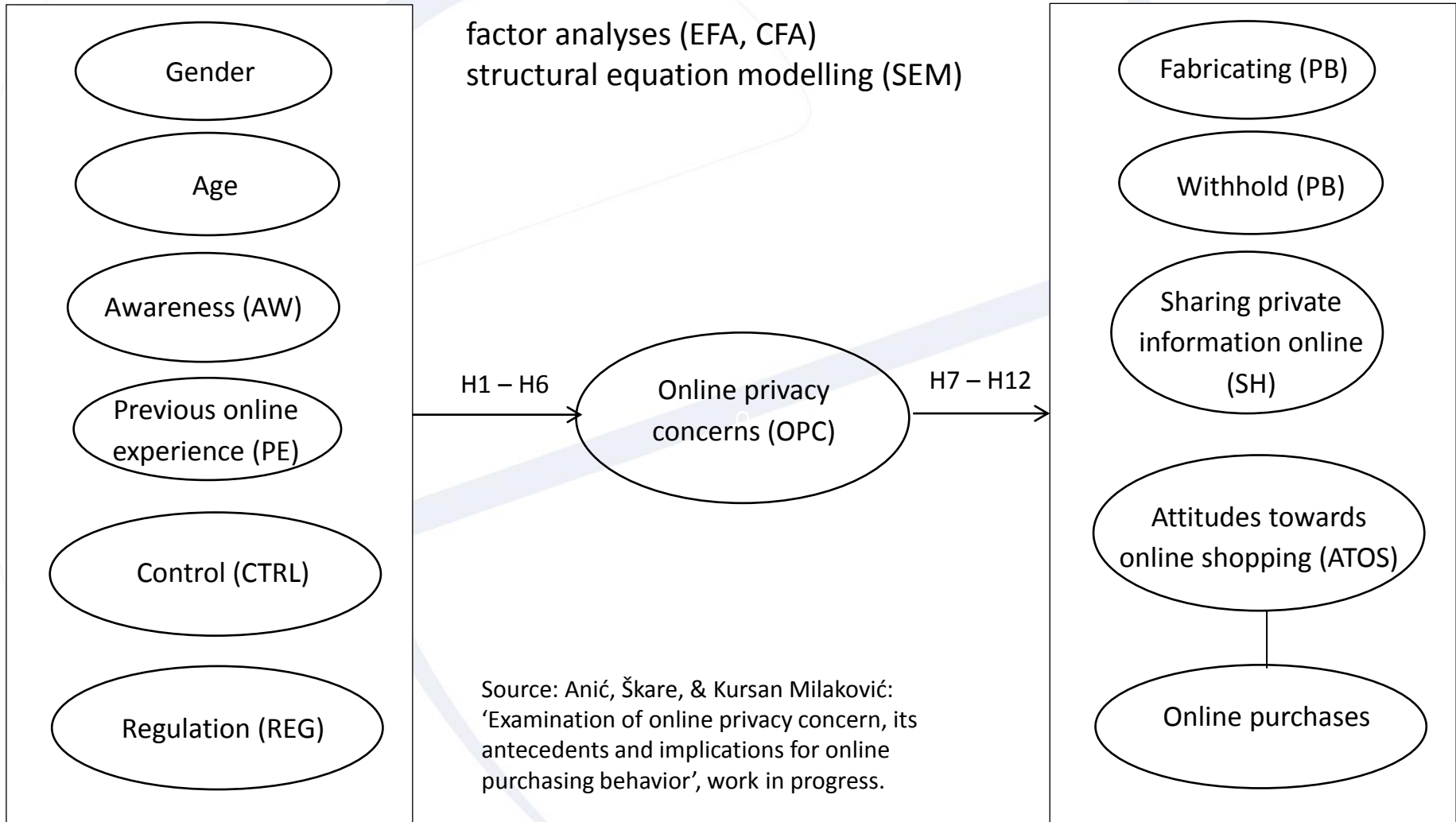
- Personality traits
  - Openness (+)
  - Conscientiousness (+)
  - Extraversion (-)
  - Agreeableness (-)
  - Neuroticism (+)
- Privacy awareness (+)
- Trust in institutions (-)
- Previous (neg.) experience (+)
- Computer anxiety (+)
- Time spent online
- Sociodemographics

Online privacy concern

# Personality traits and online privacy concern

- An average Internet user in Croatia is concerned about privacy when online
- Croatian Internet population is very conscientious, agreeable and extraverted
- Only Extraversion and Neuroticism showed to be significant: more extraverted and neurotic person is more concerned
- Positive effect of Conscientiousness on online privacy concern is not significant- no matter how Internet users are efficient, self-disciplined and responsible in their work, they might share concerns about privacy when online
- Privacy awareness, trust in institutions and previous online privacy breach experience are significant antecedents of online privacy concern
- Computer anxiety has the strongest positive impact to online privacy concern.

# Empirical analysis - consumer behavior



# Personality traits and online privacy concern

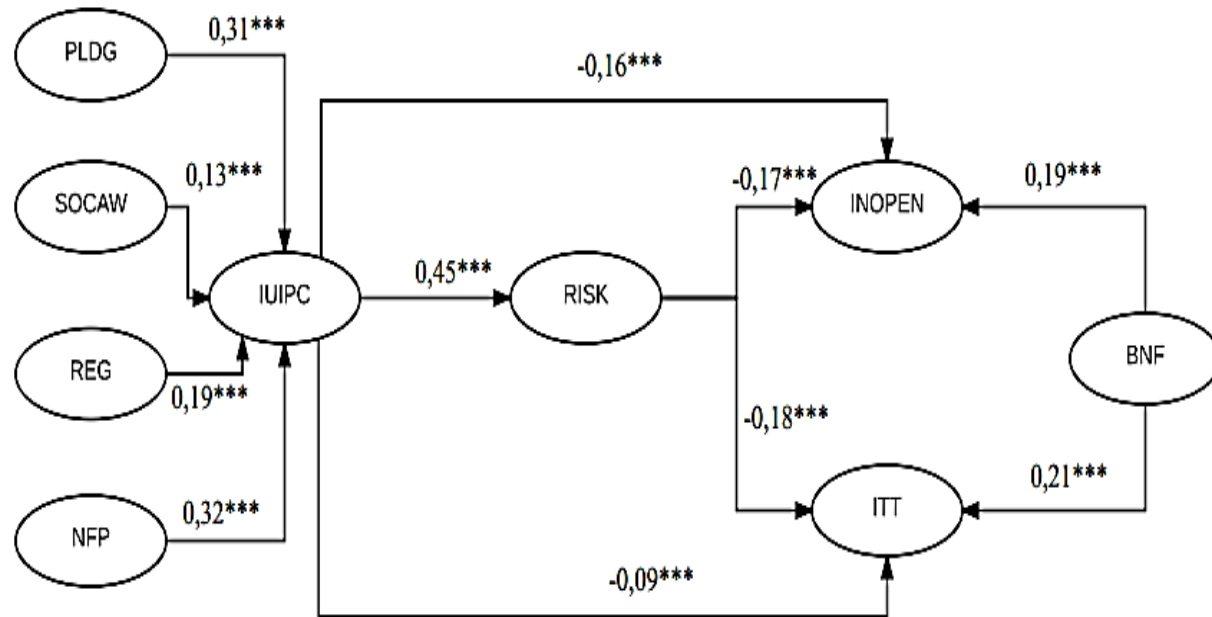
- Perceived government regulation and control are the key factors influencing OPC.
- Previous online experience also influences OPC.
- Demographic variables are not important in explaining OPC.
- OPC has positive impact to fabricating information, negative impact to sharing information online, and negative effect on attitudes towards online shopping.
- Attitudes positively affect online purchases and mediate the relationship between online privacy concerns and online purchases.

# Consumer behavior: Online Privacy Concern and Intention to Transact

- Internet users' information privacy concern (IUIPC) determined by perceived level of data gathering, need for privacy, regulation and awareness
- Benefits mitigate risks – 'privacy calculus'
- Privacy concern negatively affects intentions to transact

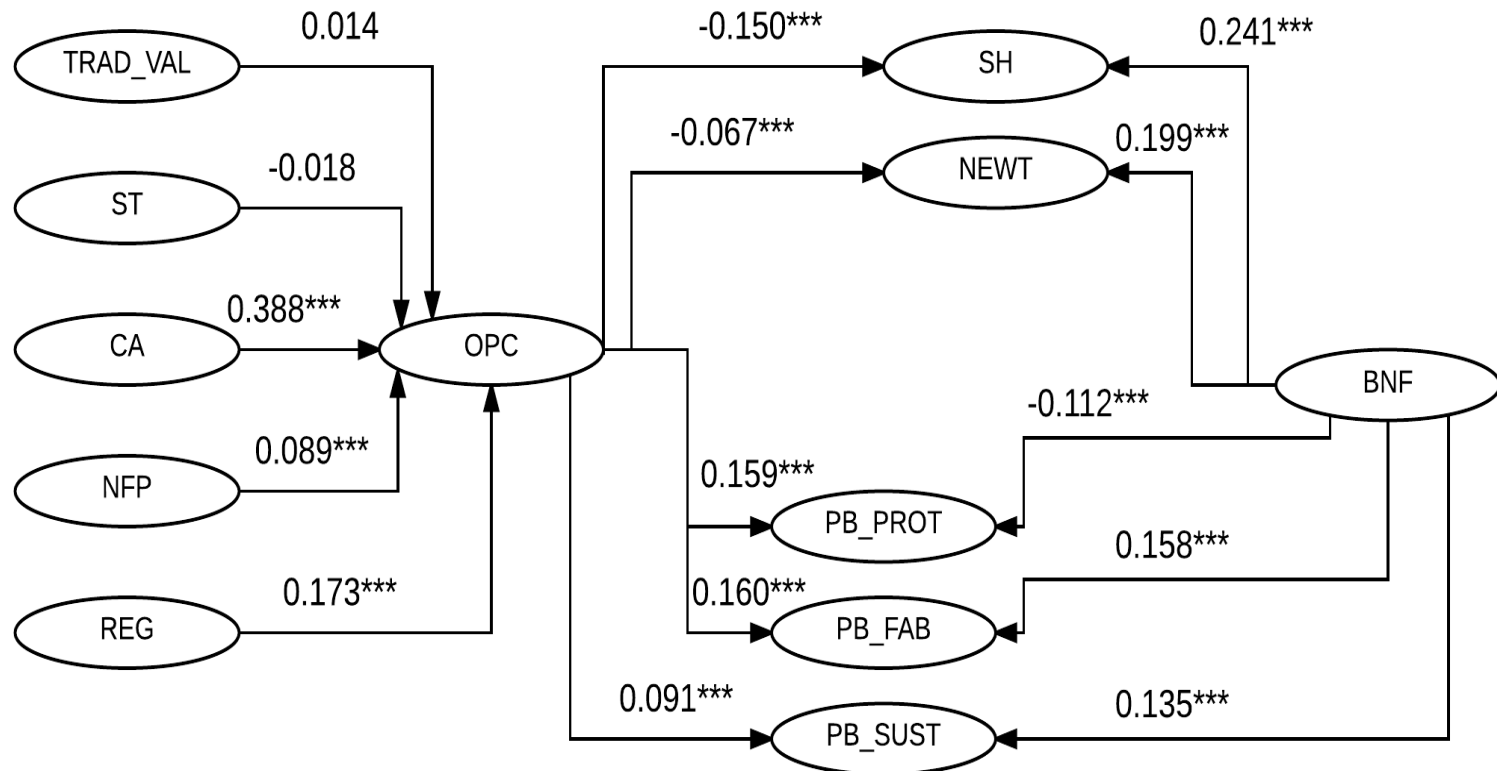
Recher (2017):  
The effect of  
privacy concern  
on consumer  
behavioral  
intention in the  
online  
environment  
(doctoral  
dissertation)

PLS-PM (SEM-PLS)



# Empirical analysis: Extended model

- Finally the whole model has been tested with SEM-PLS: estimation results





# Findings

Intrenet users in Croatia are privacy concerned: mean OPC=3.56 (Likert scale 1-5)

Gender or age is not significant for the level of online privacy concern; however older Internet users are more negative about sharing private information and tend to employ protective behaviour actions to preserve their privacy online.

Among variables included in the extended model as **antecedents**,

- **Computer anxiety** seems to have the largest positive impact on level of online privacy concern,
- followed by **perceived low quality of the regulatory framework**,
- respondents's **belief in privacy rights** i.e. **need for privacy** increases individual's privacy concern
- traditional personal values and social trust do not have a significant impact on online privacy concern.



# Findings

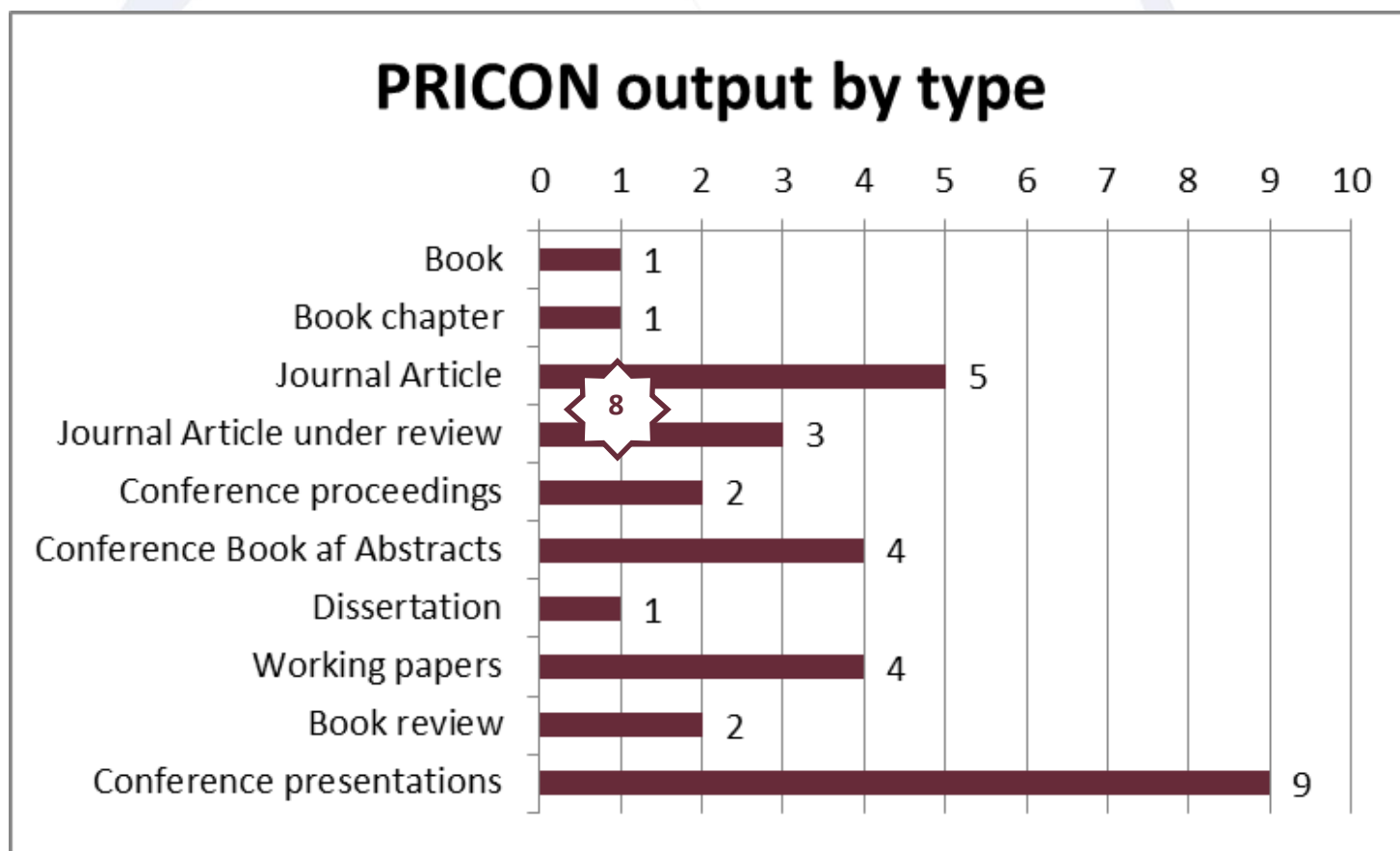
On the **consequences** side of the model

- online privacy concern has the largest impact on active **protection, fabrication and sharing personal information** on the Internet.
- there is a strong and significant positive relation between online privacy concern and **protective behavior**.
- Internet users who are more concerned about their online privacy would change their **intentions to share personal information** and intentions to **adopt new technologies**.
- The research shows that, on average, **perceived benefits of using the Internet outweighs potential associated costs with privacy concern of people**.

# Conclusion

- The level of online privacy concern shapes our behavior on the Internet
- This research unveils the trade-off between privacy concern and perceived benefits of using the Internet
- The online privacy concern might influence adoption of new technologies and other innovations, future usage of online services, and other far reaching decisions
- Therefore findings may be useful for practitioners as well, notably in helping companies to develop business strategies and regulators to better frame privacy policy. GDPR opportunity?

# PRICON project output 2015-2018



# PRICON book

PRICON project study published as an e-book in open access available for download via the website of the Institute of Economics, Zagreb.

<http://www.eizg.hr/publikacije/knjige/the-extended-model-of-online-privacy-concern/3952>

eizg The Institute of Economics, Zagreb



## The Extended Model of Online Privacy Concern

Ivan-Damir Anić  
Jelena Budak  
Edo Rajh  
Vedran Recher  
Vatroslav Škare  
Bruno Škrinjar  
Mateo Žokalj

Open Access  
ISBN 978-953-6030-49-1

Zagreb, 2018

# Thank you for your attention!

PRICON team 2018



This work has been fully supported by Croatian Science Foundation under the project 7913-Extended Model of Online PRlvcy CONCern.