

Understanding the Effects of Conceptual and Analytical Choices on 'Finding' the Privacy Paradox

A Specification Curve Analysis of Large-Scale Survey Data

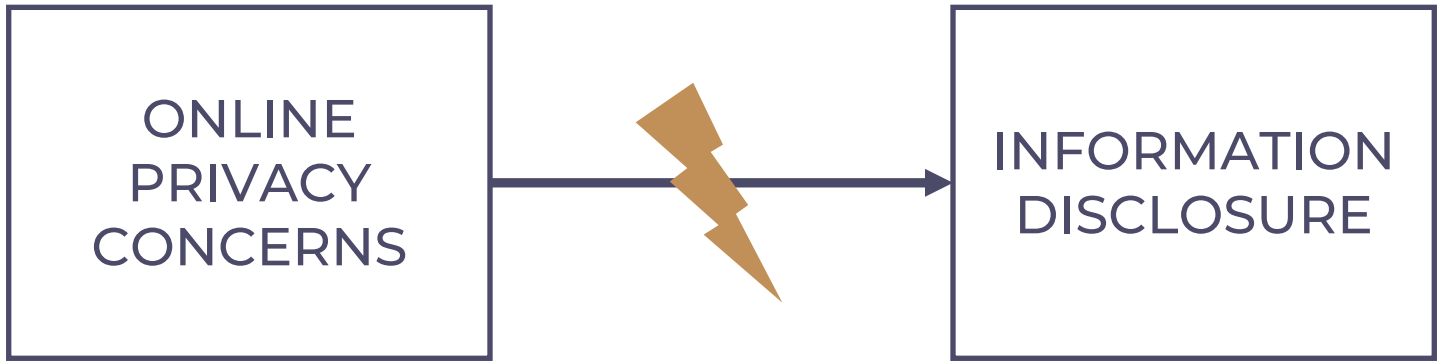
Philipp K. Masur

71st Annual Conference of the
International Communication Association

Department of
Communication Science

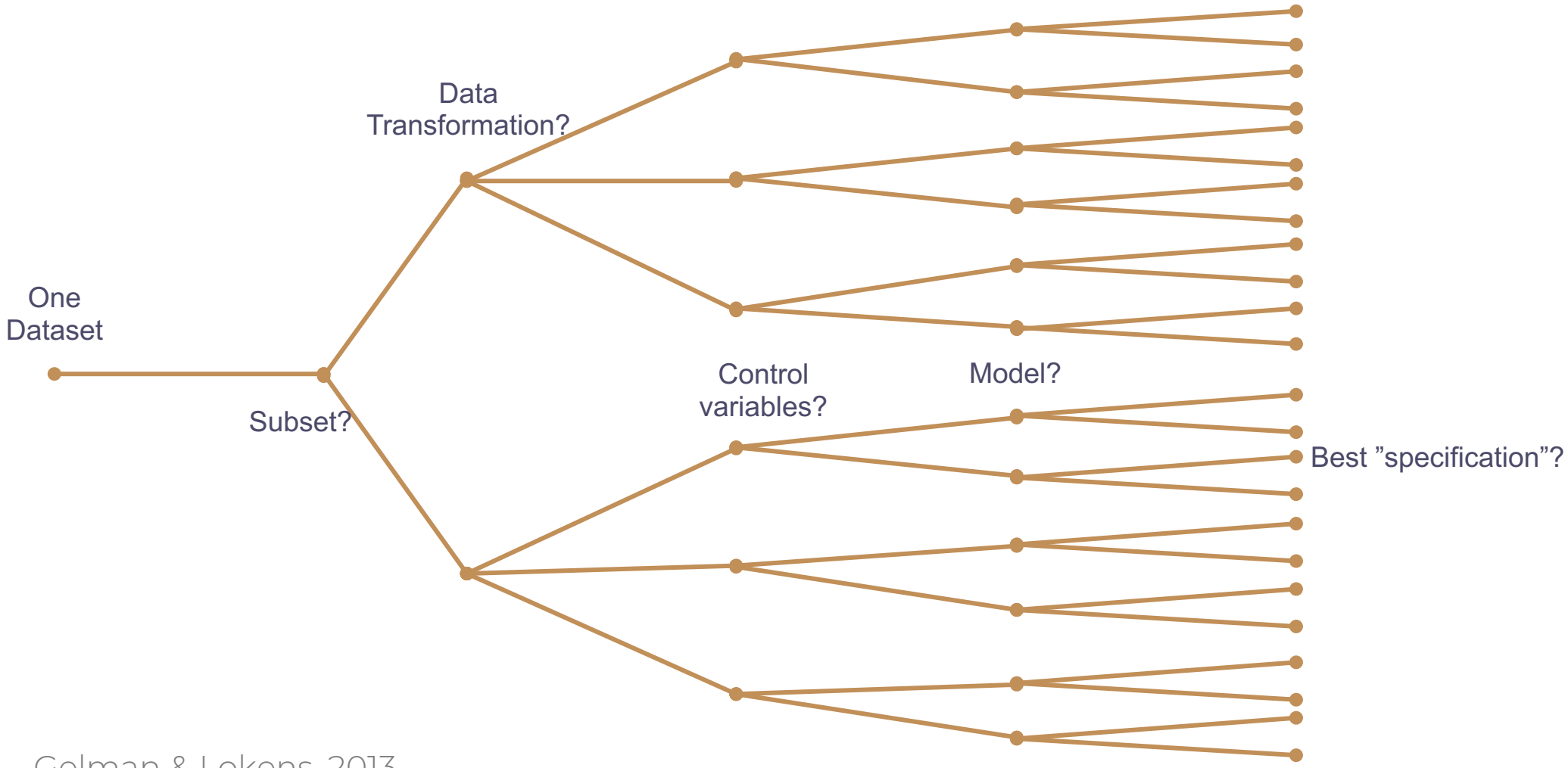
VU

PRIVACY PARADOX



e.g., Acquisti & Gross, 2005; Awad & Krishnan, 2006; Barnes, 2006; Dinev & Hart, 2006; Tufekci, 2009; Utz & Krämer, 2009; Krasnova et al, 2010; Nosko et al, 2010; Walrave et al., 2012; Taddei & Contena, 2013; Taddicken, 2014; Blank et al., 2014; Lutz & Strathoff, 2014; Dienlin & Trepte, 2015; Zlatolas et al., 2015; Baruh et al., 2016; Hallam & Zanella, 2017; Kokolakis, 2017; Barth & de Jong, 2017; Chen, 2018; Dienlin, Masur & Trepte, 2021

THE GARDEN OF FORKING PATHS



Gelman & Lokens, 2013

VU

METHOD AND PROCEDURE

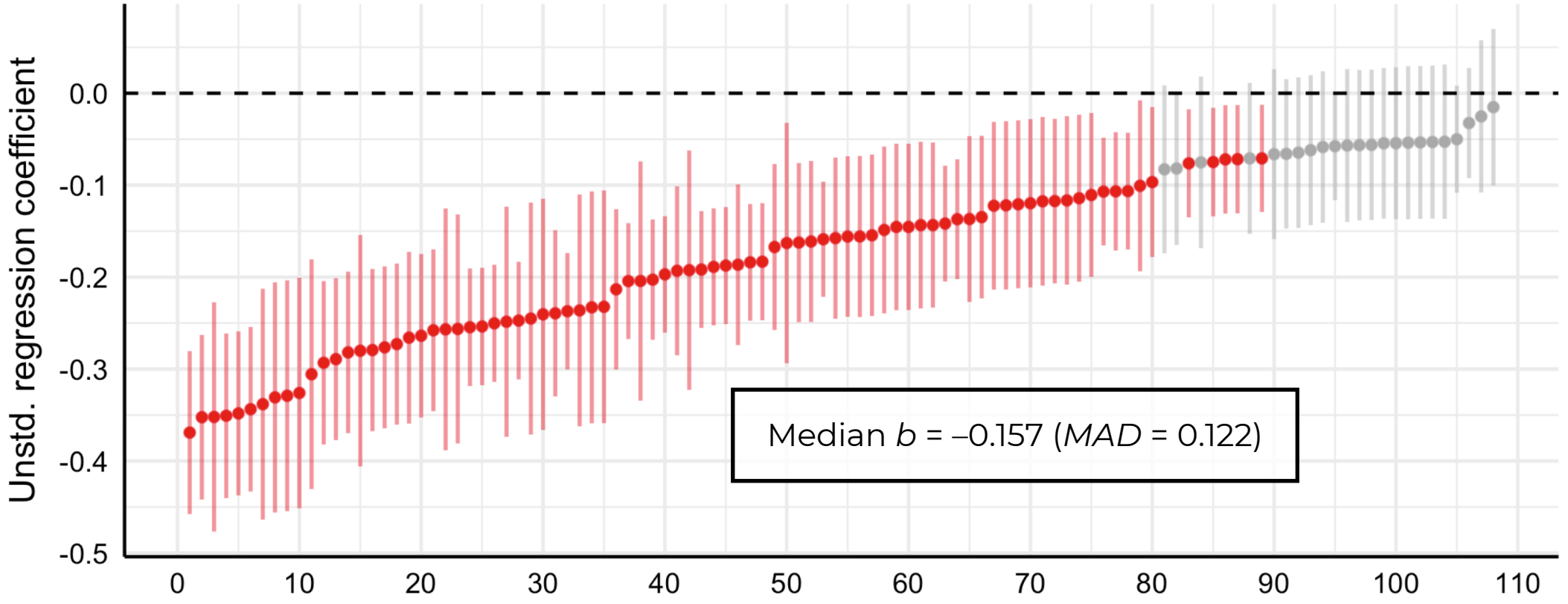
- Secondary data analysis of the „Eurobarometer Surveys“
  - Cross-sectional surveys from 2011, 2015 and 2019
  - Representative for all 27 countries of the EU (N = 82,078)

- Specification curve analysis (Steegen et al., 2016; Simonsohn et al., 2018)
  - Running all „theoretically plausible“ specifications
  - Investigating the „multiverse“ of results
  - Typically by using a visualization

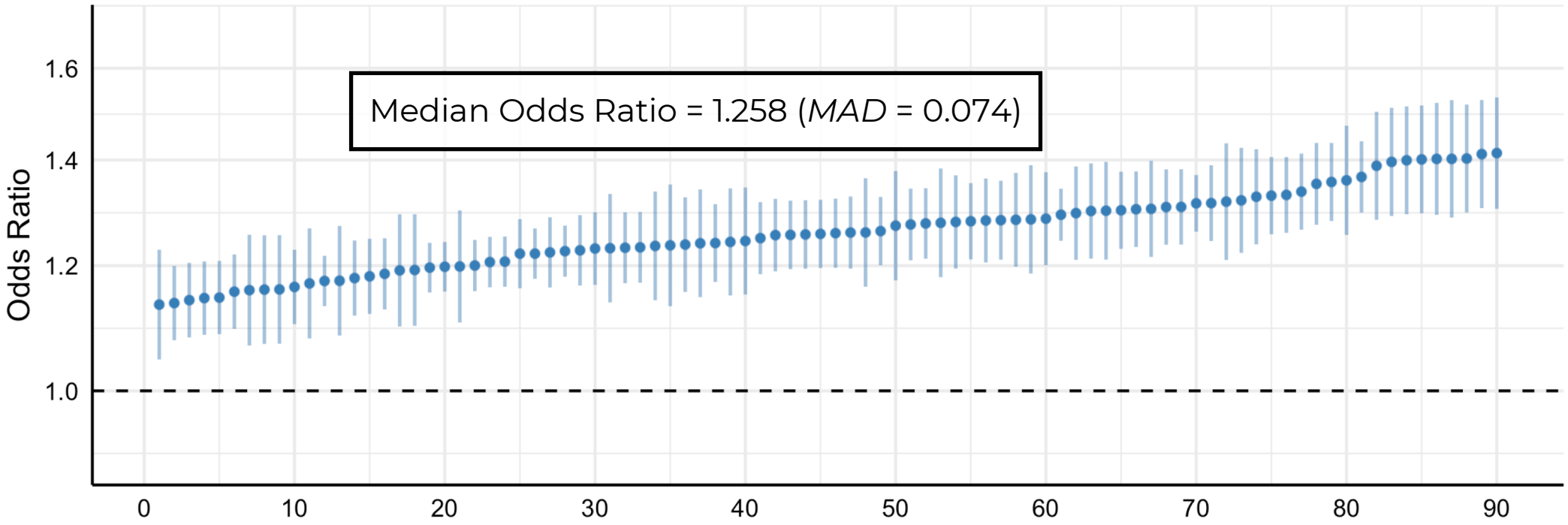
OVERVIEW OF SPECIFICATIONS

Decisions	Analysis 1: Information Disclosure (Eurobarometer 2011)	Analysis 2: Privacy Setting Use (Eurobarometer 2015 and 2019)
1. Dependent variable	Sum score of all 14 binary items measuring information disclosure	Binary variable measuring privacy setting use (1 = changed default settings; 0 = not)
2. Independent variable	Three items that measured different types of privacy concerns (on a 4-point scale)	Single item measuring privacy concerns (4-point scale)
3. Model estimation	Linear multilevel regression models	Logistic multilevel regression models
4. Control variables	No covariates, each covariate individually, all covariates at the same time	No covariates, each covariate individually, all covariates at the same time
5. Age-based subsets	≤ 32 years, > 32 years (median split), all participants	≤ 41 years, > 41 years (median split), all participants
6. Year	Only the 2011 dataset was used	Either the 2015, 2019, or both datasets at the same time were used
Number of specifications	108	90

CONCERNS PREDICTING DISCLOSURE



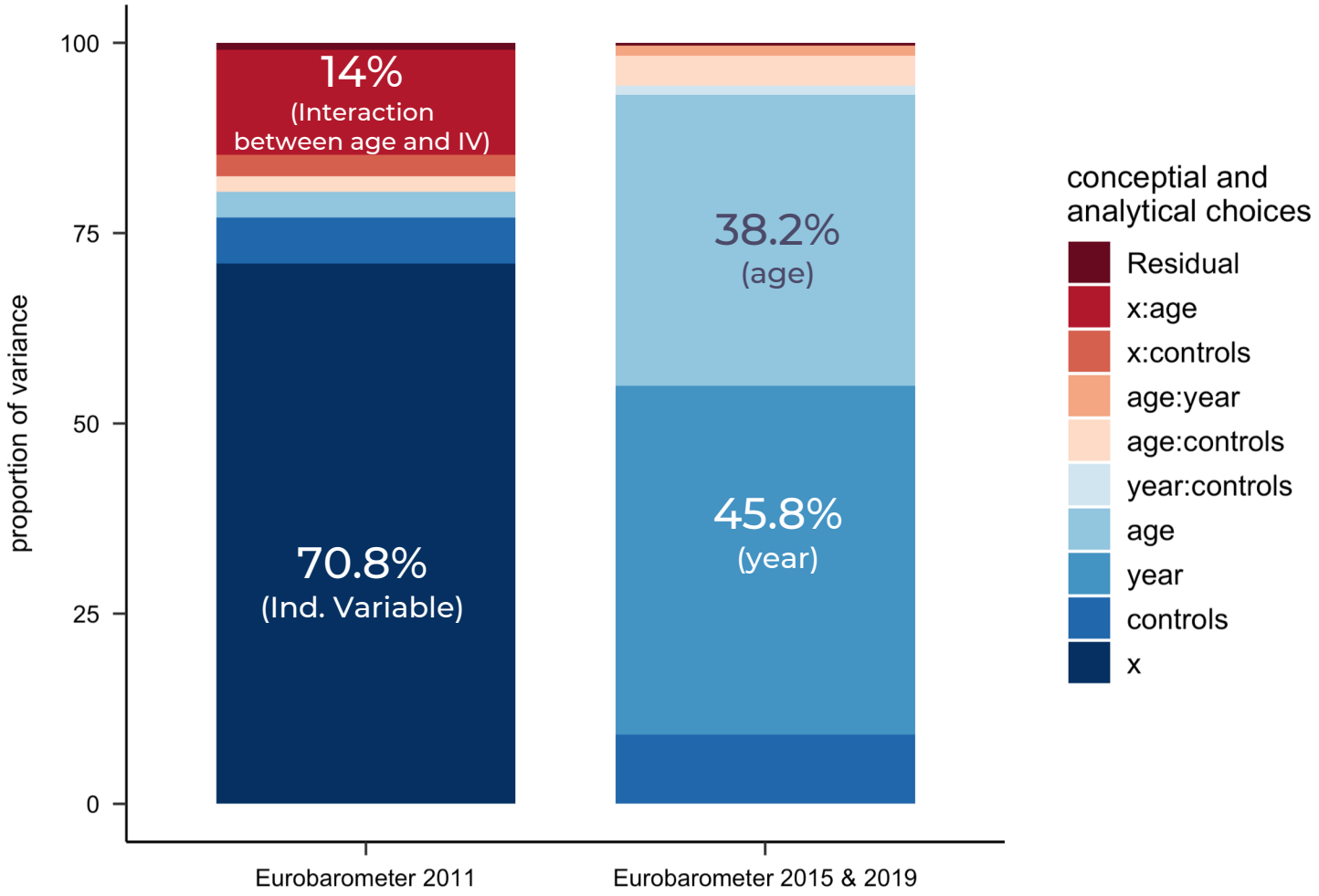
CONCERNS PREDICTING PRIVACY SETTING USE



= positive and significant

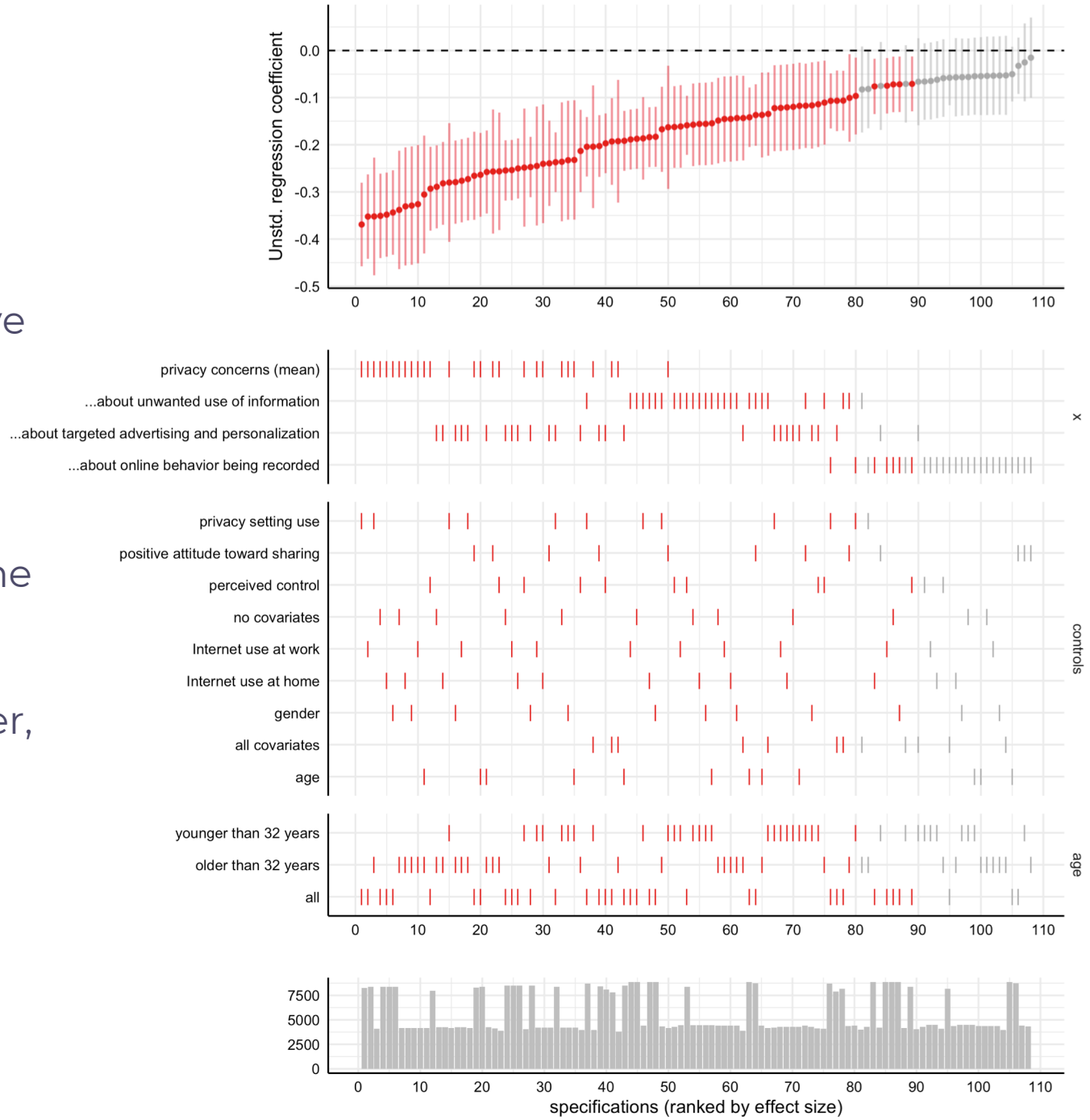
= non-significant

VARIANCE COMPONENTS



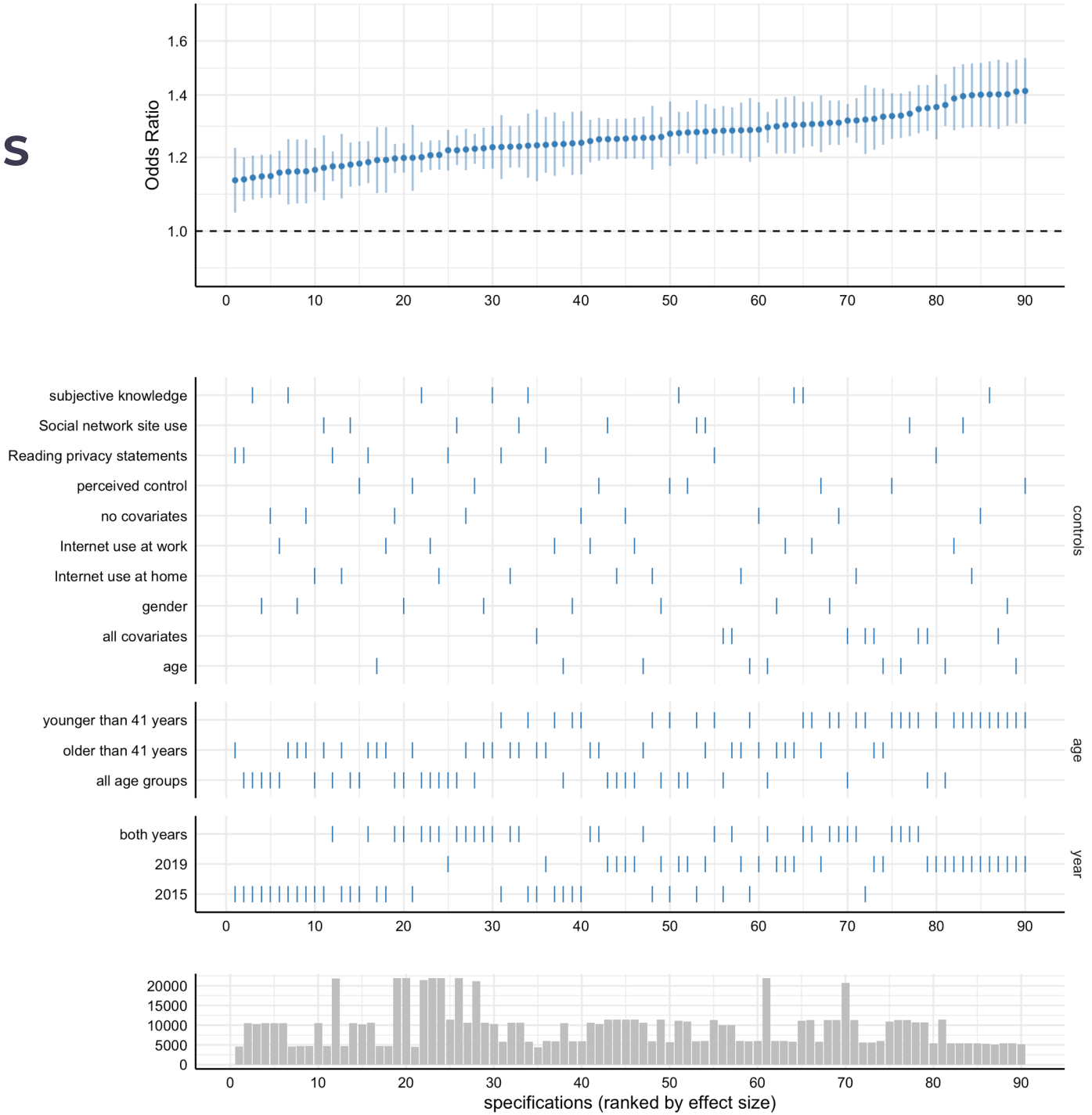
DISCLOSURE

- 78.7% significant and negative relationships
- Large variance in effect sizes
- Large differences between the independent variables
- Control variable clearly matter, but no obvious pattern
- Stronger effects for older vs. younger participants



PRIVACY SETTINGS

- All significant positive relationships
- Less variance in effect sizes
- Control variable do not matter as much
- Strongest effect sizes for younger participants
- Relationship became stronger over time (2019 > 2015)



FUTURE PERSPECTIVES

1. Being fully cognizant of the degrees of freedom
2. Preregistering analyses plans to ensure transparency
3. Detailed justifications for our decisions
4. Stop focusing on statistical significance and investigating effect sizes instead
5. More systematic analysis of the available literature

CONCLUSION

1. Results can be heavily contingent on analytical decisions.
2. Undisclosed analytical flexibility may account for large inconsistencies in the published literature on the privacy paradox.
3. Specification curve analyses can help to gain insights into the effects of analytical decisions and thus help to establish best practices.

THANK YOU FOR YOUR ATTENTION

Philipp K. Masur

p.k.masur@vu.nl
@masurphil

LITERATURE

- Acquisti, A., & Gross, R. (2006). Imagined communities: Awareness, information sharing, and privacy on the Facebook. In D. Hutchison, T. Kanade, J. Kittler, J. M. Kleinberg, F. Mattern, J. C. Mitchell, M. Naor, O. Nierstrasz, C. Pandu Rangan, B. Steffen, M. Sudan, D. Terzopoulos, D. Tygar, M. Y. Vardi, G. Weikum, G. Danezis, & P. Golle (Eds.), *Privacy Enhancing Technologies* (pp. 36–58). Springer. https://doi.org/10.1007/11957454_
- Awad, N. F., & Krishnan, M. S. (2006). The personalization privacy paradox: An empirical evaluation of informaiton transparency and the willingness to be profiled online for personalization. *Mis Quarterly*, *30*(1), 13–28.
- Barnes, S. B. (2006). A privacy paradox: Social networking in the United States. *First Monday*, *11*(9). https://doi.org/10.5210/fm.v11i9.1394
- Barth, S., & de Jong, M. D. T. (2017). The privacy paradox – Investigating discrepancies between expressed privacy concerns and actual online behavior – A systematic literature review. Telematics and Informatics, 34(7), 1038–1058. https://doi.org/10.1016/j.tele.2017.04.013
- Bates, D., Mächler, M., Bolker, B. M., & Walker, S. C. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01
- Blank, G., Bolsover, G., & Dubois, E. (2014). *A New Privacy Paradox: Young People and Privacy on Social Network Sites* (SSRN Scholarly Paper ID 2479938). Social Science Research Network. https://doi.org/10.2139/ssrn.2479938
- Baruh, L., Secinti, E., & Cemalcilar, Z. (2017). Online privacy concerns and privacy management: A meta-analytical review. Journal of Communication, 67(1), 26–53. https://doi.org/10.1111/jcom.12276
- Chellappa, R. K., & Sin, R. G. (2005). Personalization versus privacy: An empirical examination of the online consumer's dilemma. *Information Technology and Management*, *6*(2), 181–202. https://doi.org/10.1007/s10799-005-5879-y
- Chen, H.-T. (2018). Revisiting the Privacy Paradox on Social Media With an Extended Privacy Calculus Model: The Effect of Privacy Concerns, Privacy Self-Efficacy, and Social Capital on Privacy Management. *American Behavioral Scientist*, *62*(10), 1392–1412. https://doi.org/10.1177/0002764218792691
- Chen, H.-T., & Chen, W. (2015). Couldn't or wouldn't? The influence of privacy concerns and self-efficacy in privacy management on privacy protection. *Cyberpsychology, Behavior and Social Networking*, *18*(1), 13–19. https://doi.org/10.1089/cyber.2014.0456
- Dienlin, T., Masur, P. K., & Trepte, S. (2019). *A longitudinal analysis of the privacy paradox*. https://doi.org/10.31235/osf.io/fm4h7
- Dienlin, T., & Metzger, M. J. (2016). An extended privacy calculus model for SNSs—Analyzing self-disclosure and self-withdrawal in a U.S. representative sample. *Journal of Computer-Mediated Communication*, *21*(5), 368–383. https://doi.org/10.1111/jcc4.12163
- Dienlin, T., & Trepte, S. (2015). Is the privacy paradox a relic of the past? An in-depth analysis of privacy attitudes and privacy behaviors. *European Journal of Social Psychology*, *45*(3), 285–297. https://doi.org/10.1002/ejsp.2049
- Dinev, T., & Hart, P. (2006). An extended privacy calculus model for e-commerce transactions. *Information Systems Research*, *17*(1), 61–80. https://doi.org/10.1287/isre.1060.0080
- Hallam, C., & Zanella, G. (2017). Online self-disclosure: The privacy paradox explained as a temporally discounted balance between concerns and rewards. *Computers in Human Behavior*, *68*, 217–227. https://doi.org/10.1016/j.chb.2016.11.033

LITERATURE II

- Krasnova, H., Spiekermann, S., Koroleva, K., & Hildebrand, T. (2010). Online social networks: Why we disclose. *Journal of Information Technology*, *25*(2), 109–125. https://doi.org/10.1057/jit.2010.6
- Krasnova, H., Veltri, N. F., & Günther, O. (2012). Self-disclosure and privacy calculus on social networking sites: The role of culture. *Business & Information Systems Engineering*, *4*(3), 127–135. https://doi.org/10.1007/s12599-012-0216-6
- Krasnova, Hanna, Kolesnikova, E., & Günther, O. (2009). "It won't happen to me!": Self-disclosure in online social networks. *Krasnova, Hanna; Kolesnikova, Elena; Günther, Oliver (6 August 2009). "It Won't Happen to Me!": Self-Disclosure in Online Social Networks. In: 15th Americas Conference on Information Systems (AMCIS 2009). AMCIS 2009 Proceedings. Paper 343 (S. 1-10). Atlanta, Georgia: AIS/ICIS*, 1–10. http://aisel.aisnet.org/amcis2009/343
- Kokolakis, S. (2017). Privacy attitudes and privacy behaviour: A review of current research on the privacy paradox phenomenon. Computers & Security, 64, 122–134. https://doi.org/10.1016/j.cose.2015.07.002
- Lutz, C., Hoffmann, C. P., & Ranzini, G. (2020). Data capitalism and the user: An exploration of privacy cynicism in Germany. New *Media & Society*, *22*(7), 1168–1187. https://doi.org/10.1177/1461444820912544
- Lutz, C., & Strathoff, P. (2014). *Privacy Concerns and Online Behavior – Not so Paradoxical after All? Viewing the Privacy Paradox Through Different Theoretical Lenses* (SSRN Scholarly Paper ID 2425132). Social Science Research Network. https://doi.org/10.2139/ssrn.2425132
- Masur, P. K. (2018). *Situational privacy and self-disclosure: Communication processes in online environments*. Springer. https://doi.org/10.1007/978-3-319-78884-5
- Masur, P. K., & Scharkow, M. (2020). *specr: Conducting and Visualizing Specification Curve Analyses (version 0.2.1)*. https://CRAN.R-project.org/package=specr
- Metzger, M. J. (2004). Privacy, trust, and disclosure: Exploring barriers to electronic commerce. *Journal of Computer-Mediated Communication*, *9*(4), 00. https://doi.org/10.1111/j.1083-6101.2004.tb00292.x
- Reynolds, B., Venkatanathan, J., Gonçalves, J., & Kostakos, V. (2011). Sharing Ephemeral Information in Online Social Networks: Privacy Perceptions and Behaviours. In P. Campos, N. Graham, J. Jorge, N. Nunes, P. Palanque, & M. Winckler (Eds.), *Human-Computer Interaction – INTERACT 2011* (Vol. 6948, pp. 204–215). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-23765-2_14
- Sheehan, K. B. (1999). An investigation of gender differences in on-line privacy concerns and resultant behaviors. *Journal of Interactive Marketing*, *13*(4), 24–38.
- Taddei, S., & Contena, B. (2013). Privacy, trust and control: Which relationships with online self-disclosure? *Computers in Human Behavior*, *29*(3), 821–826. https://doi.org/10.1016/j.chb.2012.11.022
- Taddicken, M. (2014). The `privacy paradox' in the social web: The impact of privacy concerns, individual characteristics, and the perceived social relevance on different forms of self-disclosure. *Journal of Computer-Mediated Communication*, *19*(2), 248–273. https://doi.org/10.1111/jcc4.12052
- Zlatolas, L. N., Welzer, T., Heričko, M., & Hölbl, M. (2015). Privacy antecedents for SNS self-disclosure: The case of Facebook. *Computers in Human Behavior*, *45*, 158–167. https://doi.org/10.1016/j.chb.2014.12.012