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The Role of Heuristics in processing Survey Results:
Evidence from a Vignette Experiment

Sven Stadtmüller[1], Henning Silber[1],
Jessica Daikeler[1] & Florian Keusch[2,3]

[1] GESIS – Leibniz-Institute for the Social Sciences
[2] University of Mannheim
[3] University of Maryland

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How do people process survey results? And why is this important?

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- Survey results are part of the political information environment

- Although not persuasive in nature, survey results are influential for political elites, citizens, and journalists

- Nowadays, some surveys (potentially) convey a biased picture of public opinion

- From a normative point of view, recipients should be able to discriminate "good" from "bad" surveys when ascribing trust to their results

The role of heuristics in processing survey results

- Survey results are usually communicated in the media with only limited (if any) methodological information

- Moreover, the public's understanding of survey methods is limited (Kuru et al. 2017)

- In such low information environments, recipients rely on heuristics to assess the trustworthiness of survey results

- Heuristics are "judgmental shortcuts that people use to draw complicated inferences from simple environmental cues" (Lupia et al. 2000: 17)

The role of heuristics in processing survey results

- In low information environments, heuristics help people to arrive at (seemingly) rational decisions

- In the context of survey results, even people with low (methodological) knowledge can use simple methodological cues to assess trustworthiness

- However, to use heuristics effectively, motivation and knowledge is required (Sniderman et al. 1991; Lau & Redlawsk 1997)

Hypotheses

- **H1a** (*Quantity heuristic*): The more people have participated in a survey (net sample size), the more likely the survey result is considered trustworthy

- **H1b** (*Quantity heuristic*): The higher the share of people who participated in a survey (response rate), the more likely the survey result is considered trustworthy

- **H2** (*Representativity heuristic*): Surveys that are reported as representative are trusted more

- **H3** (*Ideological compatibility heuristic*): Survey results that are more in line with the prior attitudes of the recipient are trusted more

- **H4** (*Sophistication hypothesis*): Recipients with higher levels of knowledge and motivation use these heuristics to a greater extent

Data

- Vignette experiment fielded in the 54th wave (July 2021) of the German Internet Panel (GIP)

- The GIP is based on a random probability sample of the German general population aged 16 to 75

- Bi-monthly surveys with 20-25 minutes questionnaires and 4 Euro conditional incentive (+ bonus incentives)

- Completion rate: 52.2% (75% of the net sample were assigned to the vignette experiment; n=2,427)

- Each respondent was randomly assigned to four vignettes

Vignette experiment

Example for a vignette

In a recent survey, 45 percent of respondents were in favor of pushing ahead with European integration. 55 percent, on the other hand, thought European unification had already gone too far. 500 people took part in the representative survey. This corresponds to about 30 percent of all persons who were selected to participate.

How much do you trust in this survey result?

[1 "not at all" to 7 "completely"]

Dimension	Levels	Randomization
Survey result	41 percent in favor of further EU integration 45 percent in favor of further EU integration 51 percent in favor of further EU integration 59 percent in favor of further EU integration	Completely randomized without putting back
Representativeness	Not mentioned Mentioned	Completely randomized
Net sample size	500 respondents 1,000 respondents 5,000 respondents	Completely randomized
Response rate	10 percent 30 percent 50 percent	Completely randomized

Additional measures

- **H3 (*Ideological compatibility heuristic)***
  - ▶ Prior attitude
    - *Some say that European integration should be pushed further. Others say it has already gone too far. What is your opinion?*
      - 1 (has already gone too far) – 11 (should be pushed further) (recoded to range from 0-1)

- **H4 (*Sophistication hypothesis*)**
  - ▶ Motivation: Interest in EU integration
    - *How much are you personally interested in the subject of European integration?*
      - 1 (not at all) – 7 (very much) (recoded to range from 0-1)
  - ▶ Ability: Educational qualification
    - 0 (low); 0.5(medium); 1 (high)
 - ▶ Sophistication: (Motivation + Ability) / 2

Results H1a/b+H2
(Quantity and representativity heuristics)

| DV: Trust in survey result (1-7)	Null model			Model with vignette dimensions		
	b	se	p	b	se	p
Fixed Effects						
Constant	3.41	.025	***	2.70	.040	***
Vignette dimensions						
Survey Result						
(Ref: 41 percent in favor)						
45 percent in favor				-.018	.029	
55 percent in favor				.015	.029	
59 percent in favor				.038	.029	
Representativeness						
Mentioned				.069	.023	**
Net sample size						
(Ref: 500)						
1,000 respondents				.365	.028	***
5,000 respondents				.744	.028	***
Response rate						
(Ref: 10 percent)						
30 percent				.309	.028	***
50 percent				.577	.028	***
Variances of Random Effects						
Variance: Constant	1.20 (.044)			1.23 (.043)		
Variance: Residual	1.11 (.019)			.954 (.016)		
Proportion of Level 2-Variance	51.9%			56.3%		
Proportion of Level 1-Variance	48.1%			43.7%		
Modelfit						
Variance Explained (overall)				6.1%		
Variance Explained (Level 2)				0.0%		
Variance Explained (Level 1)				14.4%		
Deviance (df)	30065.2			29002.7		

$^*p < .05; ^{**}p < .01; ^{***}p < .001$
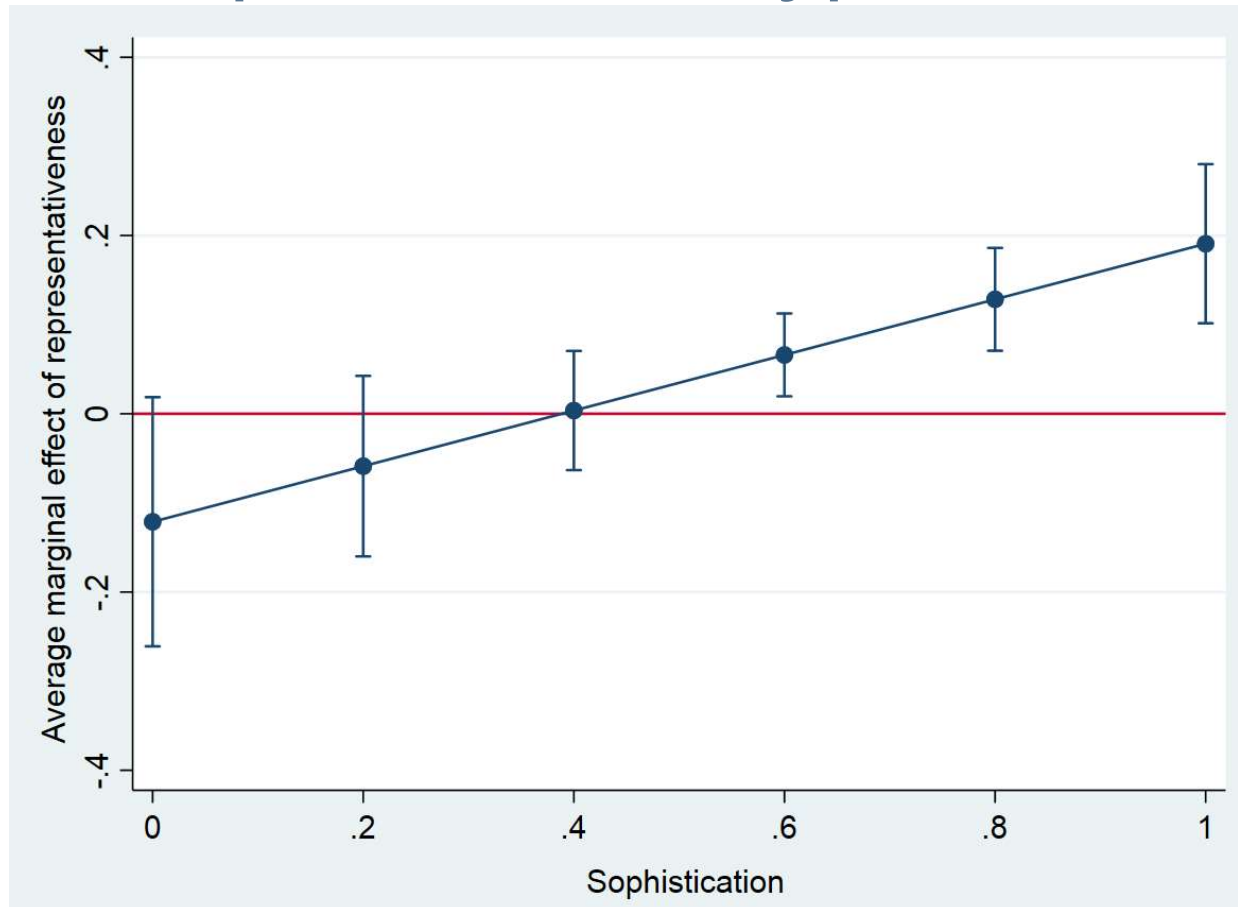
Results H1a/b+H2
(Quantity and representativity heuristics)
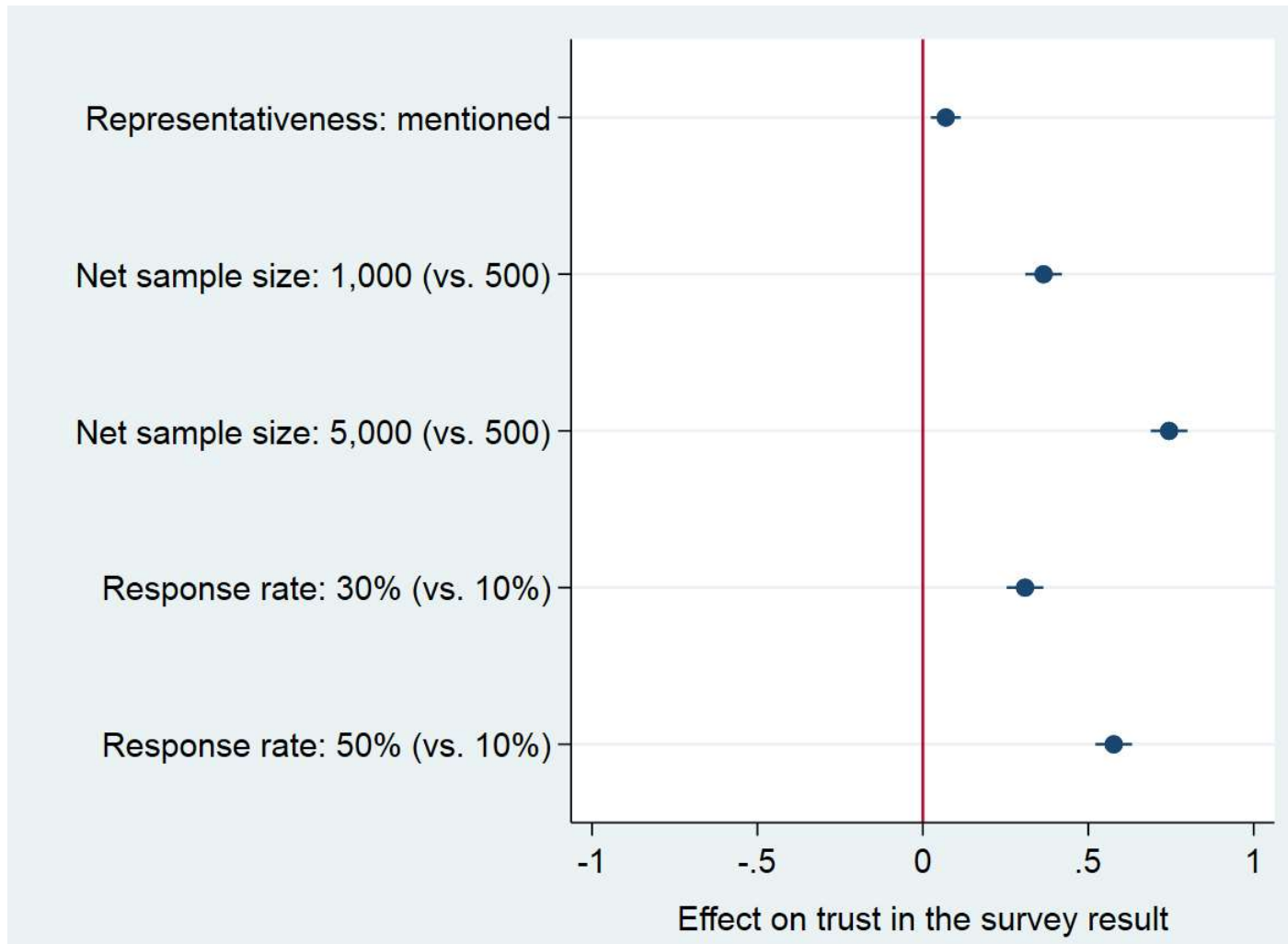
Results H3
(Ideological compatibility heuristic)
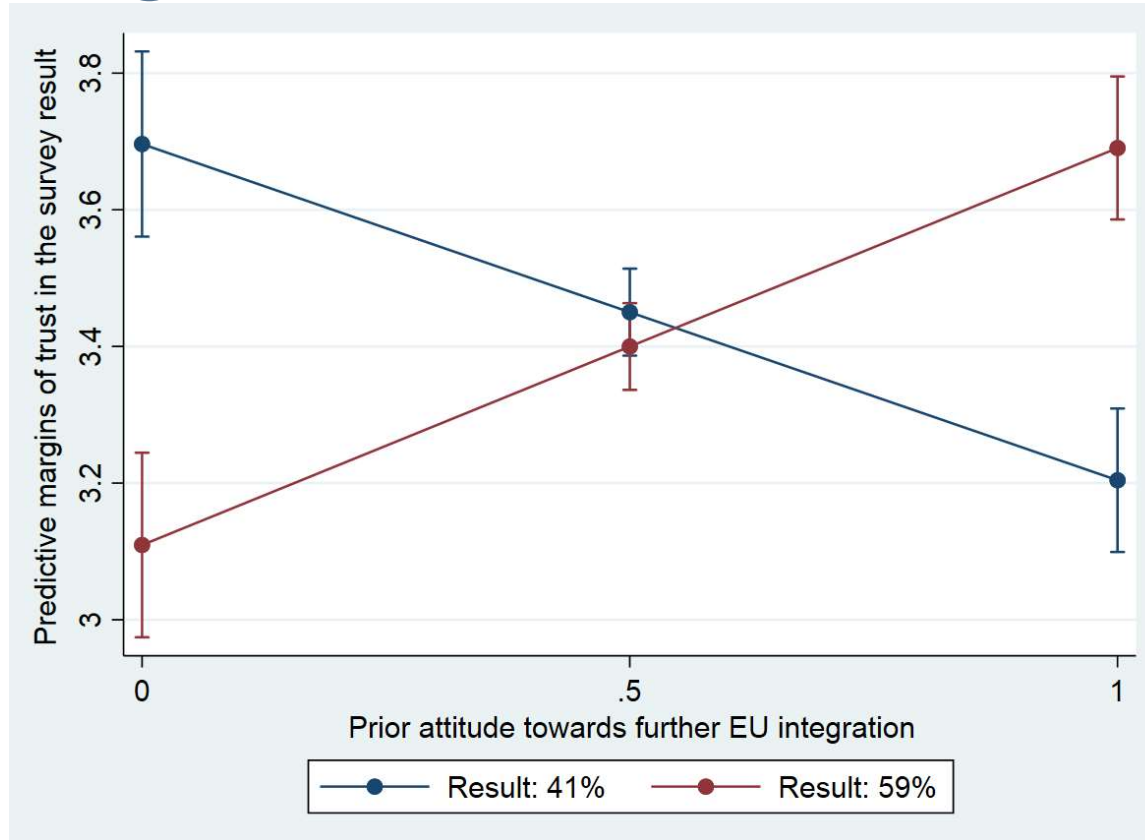
b(result 45%)= -.159 (se=.065); p=.015
b(result 55%)= -.520 (se=.065); p=<.001
b(result 59%)= -.587 (se=.065); p=<.001

b(prior) = -.492 (se=.105); p=<.001
b(45% x prior)= .244 (se=.099); p=.014
b(55% x prior)= .910 (se=.100); p<.001
b(59% x prior)= 1.07 (se=.099); p<.001

Results H4
(Sophistication hypothesis)

b(representative)= -.121 (se=.071); p=.089
b(sophistication)= -1.58 (se=.326); p=<.001
b(representative x sophistication)= .312 (se=.1.06); p=<.01

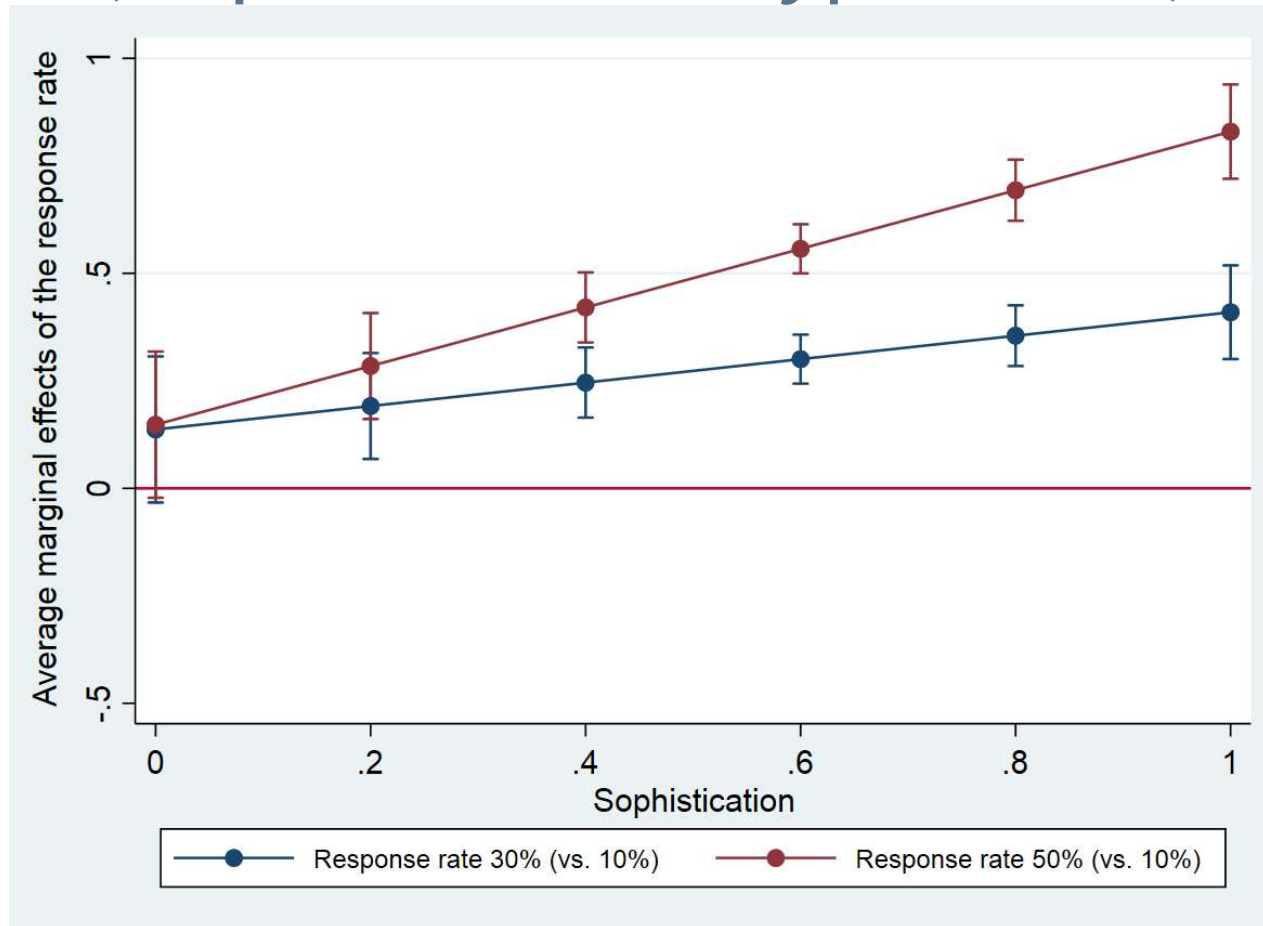# Results H4
(Sophistication hypothesis)
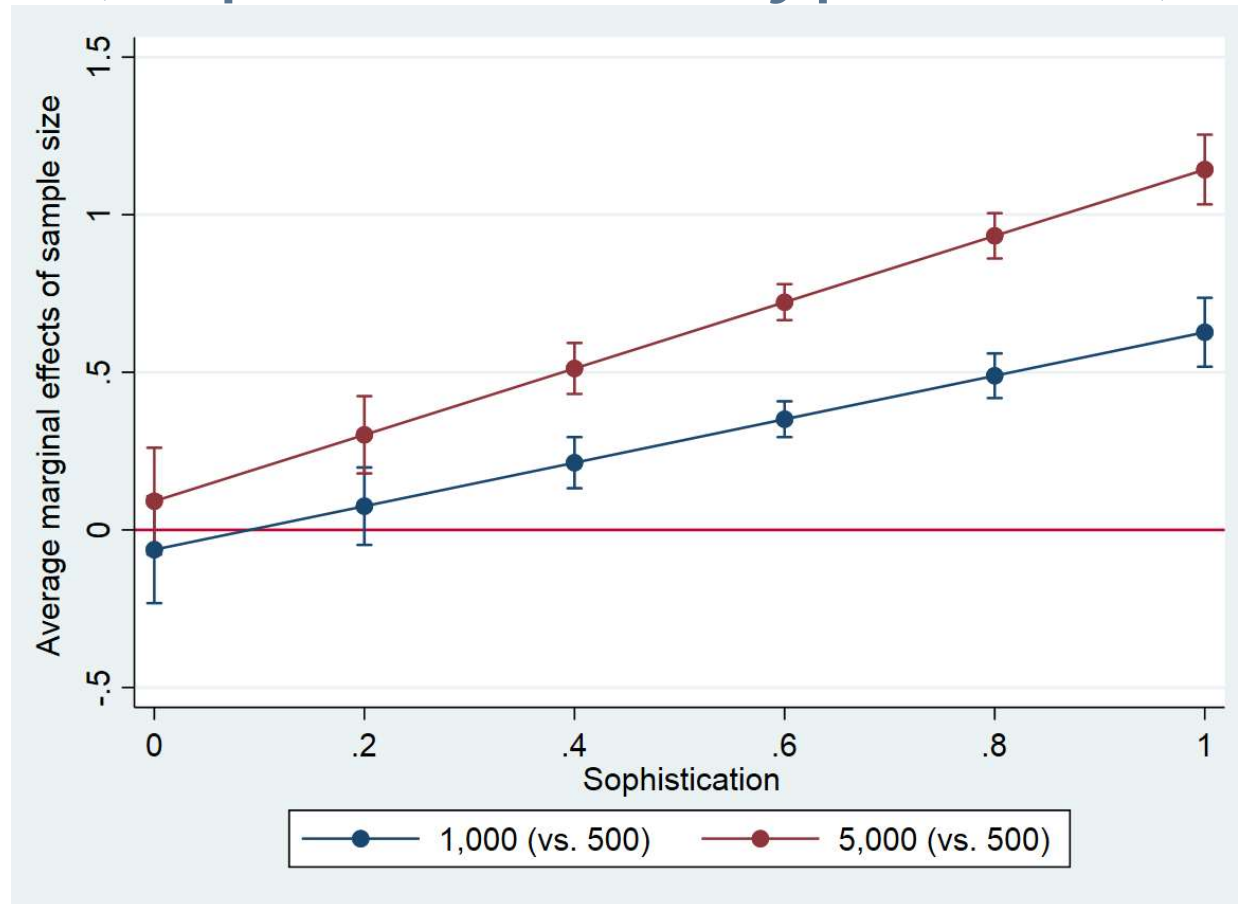
b(1,000)= -.063 (se=.087); p=.469
b(5,000)= .091 (se=.086); p=.291
b(sophistication)= -1.58 (se=.326); p=<.001

b(1,000 x sophistication)= .690 (se=.130); p=<.001
b(5,000 x sophistication)= 1.05 (se=.130); p=<.001

13

Results H4
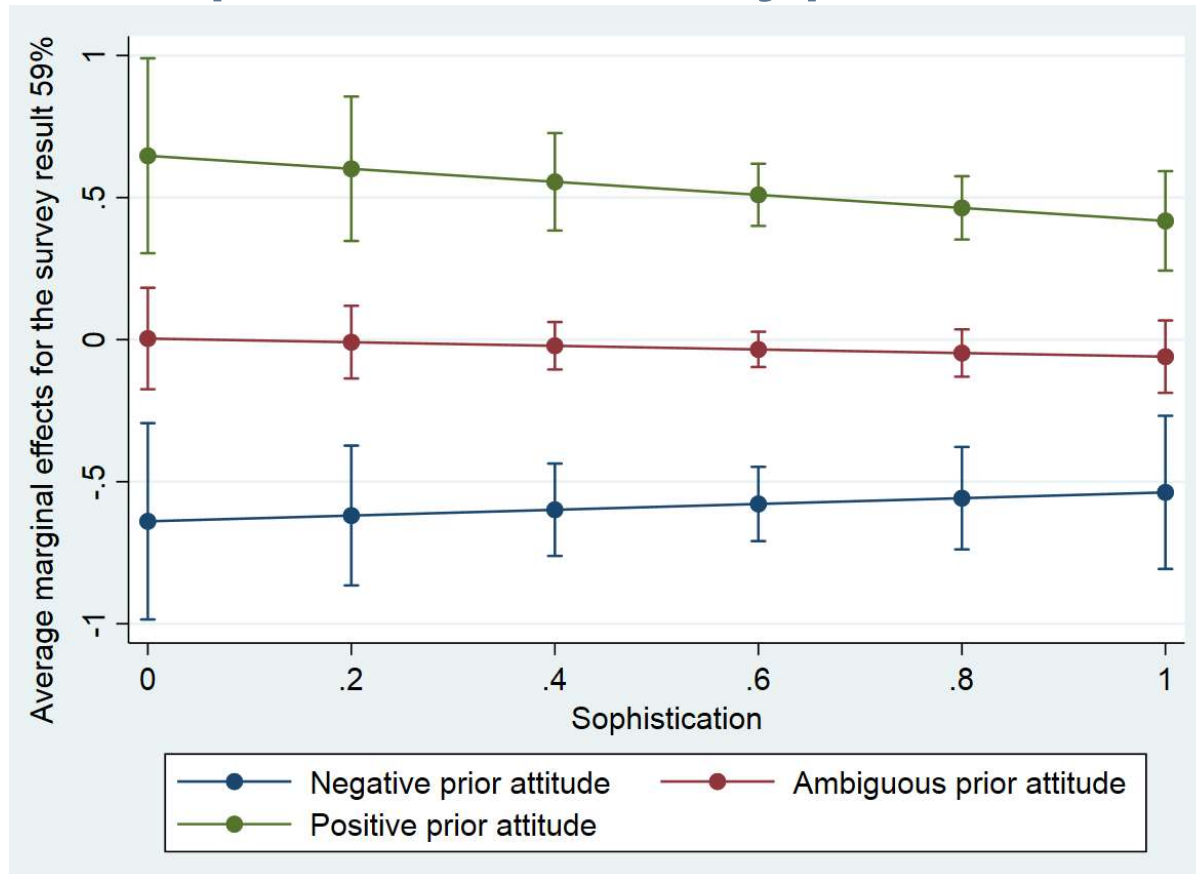# (Sophistication hypothesis)

b(30%)= .137 (se=.087); p=.114   b(30% x sophistication)= .273 (se=.129); p=<.05
b(50%)= .148 (se=.087); p=.088   b(50% x sophistication)= .682 (se=.130); p=<.001
b(sophistication)= -1.58 (se=.326); p=<.001

Results H4
(Sophistication hypothesis)

b(59%)= -.639 (se=.176); p=<.001   b(59% x soph)= .102 (se=.284); p=.720
b(prior)= -.487 (se=.320); p=.128   b(59% x prior)= 1.29 (se=.300); p=<.001
b(soph)= -1.58 (se=.326); p=<.001   b(prior x soph)= .165 (se=.473); p=.727
                b(59% x prior x soph)= -.331 (se=.443); p=.455

Conclusion

- Recipients rely on methodological cues (quantity heuristic, representativity heuristic) when they assess the trustworthiness of survey results

- Moreover, according to the ideological compatibility heuristic, they are more inclined to trust survey results that fit to their prior attitudes

- Recipients with higher levels of sophistication use the methodological heuristics far more intensively

- However, the ideological compatibility heuristic is a better predictor of trust for recipients with *low* levels of sophistication

Conclusion

- From a normative point of view, it is encouraging that methodological cues affect levels of trust in survey results

- However, both methodological heuristics can be misleading and are ambiguous even among survey methodologists/statisticians (representativity heuristic)

- What is more, people with low levels of sophistication hardly use methodological cues (even if they are present!) but rather ascribe trust depending on the congruency of the survey result with their prior attitudes

References

- Kuru, O., Pasek, J., & Traugott, M. W. (2017). Motivated reasoning in the perceived credibility of public opinion polls. *Public Opinion Quarterly*, 81(2), 422–446. https://doi.org/10.1093/poq/nfx018.

- Lau, R., & Redlawsk, D. (1997). Voting correctly. *American Political Science Review* 91(3): 585–598. https://doi.org/10.2307/2952076.

- Lupia, A., McCubbins, M. D., & Popkin, S. L. (2000): Beyond rationality: Reason and the study of politics. In: Lupia, A., McCubbins, M., & Popkin, S. L. (eds.) *Elements of reason: Cognition, choice, and the bounds of rationality*. Cambridge: University Press, 1–21.

- Sniderman, P. M., Brody, R. A., & Tetlock, P. E. (1991). *Reasoning and choice: Explorations in Political Psychology*. New York: Cambridge University Press.

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sven.stadtmueller@gesis.org