LORE
Laboratory of
Opinion Research

GÖTEBORGS UNIVERSITET

LORE Methodological Note 2015:10

Primacy effects in rating scales with horizontal layout – second case

Maria Andreasson

Title:
LORE Methodological Note 2015:10. Primacy effects in rating scales with horizonal layout – second case

LORE
Laboratory of
Opinion Research
University of Gothenburg

University of Gothenburg
Sweden
Box 100, S-405 30
Gothenburg

Title: Primacy effects in rating scales with horizontal layout – second case

LORE Methodological Note 2015:10

Series editor: Johan Martinsson

Author:
Maria Andreasson
Research assistant
Laboratory of Opinion Research (LORE)
Department of Political Science, University of Gothenburg
maria.andreasson@gu.se

ABSTRACT

This methodological note examines if the order response options are presented in affects the response distributions in rating scales with horizontal layout. Earlier research on primacy effects suggests that respondents tend to choose the first acceptable response choice in visually presented scales due to satisficing response strategies. In a web survey experimental setup, the standard and reversed directions of two different response scales are compared for a total of eight items, both scales with horizontal layout. The results show only few statistically significant effects and no specific pattern. Based on the findings in this study, primacy effects in rating scales with horizontal layout cannot be confirmed.

Introduction

Earlier research shows that the order response options are presented in may influence response distributions. With respondents' increasing use of tablets and smartphones when responding to web surveys, many web survey programs nowadays automatically provide mobile friendly adaption of questionnaire layout. For example, based on screen resolution, response scales will automatically adapt to a mobile friendly version if the screen resolution is below a certain level. This means that sometimes respondents that use different devices may experience a different questionnaire layout.

Picking up on one of the theories of how questionnaire design affects survey responses, namely response order effects, this methodological note aims to test if primacy effects can be found in horizontally presented rating-scale questions. The note begins with a short description of earlier findings on response order effects starting with the cognitive process of answering surveys, followed by the satisficing theory perspective, which is said to explain the primacy effect which the note aims to test. The method and data section explain how the data was collected, followed by the results section. The note ends with a summary and concluding section where the results are related to findings in other studies and some suggested avenues for future research are discussed.

Earlier findings

Sudman, Bradburn and Schwarz (1996) describe four cognitive steps that explain the process of answering a survey question. First the respondent reads and interprets the question, then the respondent recalls previous memories associated with the area, analyzes the information, and then translates and adopts the answer to available response options. When all four steps are performed attentively and the respondent provides an optimal answer, the respondent is said to be optimizing. When the respondent on the other hand selects a less than optimal response alternative, (s)he is said to be satisficing. Krosnick distinguishes between weak and strong satisficing, where strong satisficing occurs when the respondent deliberately chooses a response option more or less randomly, as opposed to weak satisficing when the respondent merely hastes through or skips any of the four cognitive steps. Weak satisficing is considered less harmful for the validity of the response quality, while strong satisficing is more damaging. (Krosnick 1999: 566-548)

There are numerous motives to why respondents choose to endure the burdensome process of providing optimized responses for questions in questionnaires, see for example the norm of reciprocity (Gouldner 1960) and the leverage-saliency theory (Groves, Singer, Corning 2000). Although the initial intention of the respondent might be to provide true and accurate opinions, cognitive ability, fatigue or boredom can affect the quality of the responses. Most likely the respondent will in some way or the other try to ease the burden and shortcut the procedure, intentionally or not. Research show that the degree of satisficing depends on question difficulty (Mathews 1927), the respondent's cognitive ability (Mingay & Grenwell 1989, Krosnick & Alwin 1987) and motivation (Krosnick 1999). Response order effects have been found particularly among less educated respondents and respondents uninterested in the topics involved (Krosnick 1999).

Krosnick (1999:549) argues that the satisficing perspective explains response order effects such as primacy effects in visually presented surveys, as respondents try to ease the cognitive burden. Primacy effects regard the tendency of respondents to choose the first response option that seems satisfactory or acceptable according to their opinion. This makes the response options placed in the beginning of a column in a vertical scale, or farthest to the left in a horizontal scale, more likely to be chosen than if placed further down or more to the right of other response options.

Weng and Cheng (2000) tested the effects of changing the response order of a Likert-type scale with horizontal layout, but found no effects of response order in their study. In line with Krosnick's theory of satisficing, they controlled for a mitigating effect of education, but could not confirm such an effect either. A previous report from LORE (LORE Methodological Notes 2015:9) conducted a similar analysis with reversed response order of a five horizontal Likert-type rating scales and found no significant primacy effects.

The present study builds upon LORE Methodological Notes 2015:9 and the study by Weng and Cheng (2000). The aim of this methodological note is to provide an extended test of primacy effects in horizontally presented scales. This study also extends previous research by including a larger number of respondents (which enables more reliable tests of the potential moderating effects of education and political interest) and by including two different scales: one good/bad rating scale, and one agree-disagree scale.

Method and data

The experiment had a 2x2 design where results from a standard and a reversed response order were tested on two different response scales. To ensure sufficient variance in people's political sophistication, a pre-stratified sample was used. Respondents were assigned into three subgroups depending on how many correct answers the respondent had scored in a political sophistication test that had been fielded three months earlier; 0-2 (low political sophistication), 3-4 (medium political sophistication) or 5-6 (high political sophistication). Respondents from each level of political sophistication were then randomly assigned into one of the four experiment groups.

The respondents were asked "What is your opinion on the following policy proposals?" with the following four policy proposals: Reduce the public sector (item 1), Lower the taxes (item 2), Accept fewer refugees in Sweden (item 3), and Increase the tax on carbon dioxide in gasoline (item 4).

Each of the four experiment groups was assigned to one specific scale version. The first group answered the questions with a five-point scale from Very good proposal to Very bad proposal, while the second group received the same scale but in reversed order, i.e. Very bad proposal - Very good proposal. The third group answered the questions with a five-point scale of Strongly agree - Strongly disagree, and the fourth group received the reversed order of Strongly disagree - Strongly agree. All scales were horizontal. (The full scales can be found in the Appendix)

To collect the experimental data a web survey was dispatched in February 2013 to a pre-recruited online panel run by LORE (Laboratory of Opinion Research) at the University

of Gothenburg. The invited sample of 3600 was drawn from an opt-in web panel at the time consisting of 12,000 members.

The survey closed after a field period of five weeks with a net participation rate of 84% for this specific study. Among the respondents, 62% were men, the average age was 47, and 52% had at least a university degree. For more details, see the technical report of the survey (Martinsson et al. 2013).

Results

We begin to evaluate the results by comparing the distributions for the standard and reversed order of the two response alternatives among all respondents. The absolute deviations of the endpoints in the different scales are then presented and compared. Following up on the idea that people with lower interest in the subject and lower cognitive ability are more prone to generate primacy effects, we assess the results at different levels of political interest and education.

Starting with the comparison of response scale order for good/bad proposal (see Table 1), no convincing evidence of primacy effects was found. Differences between the standard and the reversed scale order were quite stable around one or two percentage points, but the observed effects ran in both directions. At most, there was a three-percentage point difference for item 3, where the alternative Very good proposal was chosen by 20 percent of the respondents when placed at the left endpoint, but only 17 percent when placed at the right endpoint. This was the only difference reaching above two percentage points.

Table 1. Comparison of response scale order: Good/bad proposal (standard) versus Bad/good proposal (reversed) (percent)

Policy proposal	Very good proposal	Rather good proposal	Neither good nor bad proposal	Rather bad proposal	Very bad proposal	Total	n
Item 1							
standard	8	16	17	25	34	100	758
reversed	9	14	18	23	36	100	747
Item 2							
standard	9	18	20	28	25	100	753
reversed	10	20	20	27	23	100	744
Item 3							
standard	20	13	17	24	26	100	754
reversed	17	16	19	23	25	100	742
Item 4							
standard	17	24	23	18	18	100	757
reversed	15	27	19	21	18	100	745

Comment: Respondents were asked which opinion they had on four different policy proposals common in the political debate. Each question started with "Which is your opinion on the following policy proposals: ..." followed by four different items. Item 1 was "Reduce the public sector"; Item 2 was "Lower the taxes"; Item 3 was "Accept fewer refugees in Sweden"; and Item 4 was "Increase the taxes on carbon dioxide in gas". Every item's response order was presented in two different ways depending on experiment group. The standard order had "Very good proposal" at the left endpoint, while the reversed order had "Very bad proposal" at the left endpoint.

Table 2 compares the response scale order for agree/disagree. Once again the differences were small, at most three percentage points. However the direction of the majority of these differences were in fact in the opposite direction of expectations.

Table 2. Comparison of response scale order: Agree/disagree (standard) versus Disagree/agree (reversed) (percent)

Policy proposal	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Total	n
Item 1							
standard	9	18	16	23	34	100	741
reversed	10	18	16	23	33	100	739
Item 2							
standard	11	20	19	24	26	100	740
reversed	13	21	18	24	24	100	734
Item 3							
standard	20	16	16	19	29	100	741
reversed	22	17	14	18	29	100	738
Item 4							
standard	22	24	17	16	21	100	739
reversed	19	25	20	18	18	100	737

Comment: Respondents were asked which opinion they had on four different policy proposals common in the political debate. Each question started with "Which is your opinion on the following policy proposals: ..." followed by four different items: Item 1 was "Reduce the public sector"; Item 2 was "Lower the taxes"; Item 3 was "Accept fewer refugees in Sweden"; and Item 4 was "Increase the taxes on carbon dioxide in gas". Every item's response order were presented in two different ways depending on experiment group, the standard order with "Strongly agree" at the left endpoint and the reversed order with "Strongly disagree" at the left endpoint.

The next step was to control if there were any statistically significant differences between response scale orders. In Table 3, the differences in endpoints between standard and reversed order are presented, both for the good/bad proposal scale (columns one and two) and for the agree/disagree scale (column three and four). Out of 16 possible effects, not a single effect was statistically significant. Four effects were in the expected direction, two of them did not differ at all, and ten effects ran in the opposite direction of what was expected. All in all, we do not find any evidence of primacy effects.

Table 3. Effect of response order in two different response scales (percentage point difference)

Policy proposal	Very good proposal (standard) minus Very good proposal (reversed)	Very bad proposal (standard) minus Very bad proposal (reversed)	Strongly agree (standard) minus Strongly agree (reversed)	Strongly disagree (standard) minus Strongly disagree (reversed)
Item 1	-1	2	-1	-1
Item 2	-1	-2	-2	-2
Item 3	3	-1	-2	0
Item 4	2	0	3	-3

Comment: The numbers represent the difference in percentage points between the share of respondents choosing a certain response option when the response scale is in standard order or in reversed order. The numbers for Good/bad proposal are found in Table 1, and the numbers for Agree/disagree are found in Table 2. For each difference (cell) a pr-test for difference in proportions was conducted in Stata. ***=p < .01, **=p < .05, *=p < .10

The next step was to check whether primacy effects are moderated by political sophistication. According to primacy effect hypothesis, people with less interest in the subject matter and lower cognitive ability are more prone to primacy effects, as an effect of satisficing. In Table 4 and 5, the effects of varying response orders are compared for the two different response scales at different levels of political interest and education.

Starting with political interest, Table 4 shows no statistically significant effects of response option order (for complete frequency distributions by political interest and education, see Tables 6-9 in appendix). 12 of the 32 scale order effects ran in a positive direction, 15 in a negative direction and 4 did not differ at all. The effects seem to run in a negative direction more often among those with high political interest (11 out of 16), and in a positive direction more often among those with low political interest (8 out of 12). 5 out of in total 7 effects that reach more than or equal to 4 percentage points difference are found among respondents with high political interest. However, the differences were not statistically significant and the results do not provide any convincing evidence that political interest affect the likelihood of response order effects.

Table 4. Effect of response order in two different response scales by political interest (percentage point difference)

Policy proposal	Political interest	Very good proposal first - Very good proposal last	Very bad proposal first - Very bad proposal last	Strongly agree first - Strongly agree last	Strongly disagree first - Strongly disagree last
Item 1	Low/medium	0	4	1	3
	High	-2	0	-1	-5
Item 2	Low/medium	0	-1	0	-1
	High	-2	-3	-4	-3
Item 3	Low/medium	4	2	-2	3
	High	1	-4	-2	-3
Item 4	Low/medium	2	-1	2	0
	High	3	2	6	-5

Comment: The numbers represent the difference in percentage points between the share of respondents choosing a certain response option when the response scale is in standard order or in reversed order. The complete frequency distributions for the good/bad proposal scale are found in Table 6, and the numbers for the agree/disagree scale are found in Table 7, in Appendix. For each difference (cell) a significance test for differences in proportions was conducted using Stata's pr-test command. ***=p < .01, **=p < .05, *=p < .10

Continuing with Table 5, now comparing respondents by level of education, once again no statistically significant effects in any of the 32 cases were found. Compared to the effects among people with high and low political interest, the results of changing the scale order in different educational groups showed even less systematic patterns. Ten of the response order effects ran in a positive direction, 14 in a negative direction and eight showed no difference at all. Education did not seem to affect the likelihood for respondents to exhibit primacy effects depending on response scale order.

Table 5. Effect of response order in two different response scales by education (percentage point difference)

Policy proposal	Education	Very good proposal first - Very good proposal last	Very bad proposal first - Very bad proposal last	Strongly agree first - Strongly agree last	Strongly disagree first - Strongly disagree last
Item 1	Low/medium	0	1	0	-2
	High	-2	3	0	1
Item 2	Low/medium	-2	0	-3	-2
	High	2	-2	-1	0
Item 3	Low/medium	4	-2	-2	0
	High	1	-1	-2	1
Item 4	Low/medium	-1	0	6	-2
	High	6	1	0	-3

Comment: The numbers represent the difference in percentage points between the share of respondents choosing a certain response option when the response scale is in standard order or in reversed order. The numbers for Good/bad proposal are found in Table 8, and the numbers for Agree/disagree are found in Table 9 in Appendix. For each difference (cell) a pr-test for difference in proportions was conducted in Stata. ***=p < .01, **=p < .05, *=p < .10

Summary and concluding discussion

In this methodological note two different but commonly used response scales in standard and reversed order were tested using four items of mixed political issues. The aim was to explore primacy effects in questionnaire design. We found no pattern in any specific direction. Rather the pattern seems quite random. Not a single statistically significant effect was found, even when looking for such effects in groups with lower education or political interest. Hence, like previous studies on response order effects of horizontal response scales in self-administered surveys this study finds no evidence of primacy effects and response order hypothesis.

Possible explanations as to why no significant primacy effects were found could be due to the response scales we used. Rating scales in general are less cognitively demanding as the increasing or decreasing order of the scale makes them intuitively easier to understand, compared to categorical scales without any obvious logical order. Also, the two scales used in this study are used quite frequently in standard questionnaires, thus the scales could be considered as already being familiar to respondents. If respondents are already familiar with the response alternatives, they do not have to read each and every alternative carefully. The risk of primacy effects due to satisficing response strategies might therefore be lower compared to when using new or more cognitively demanding scales.

In addition, according to previous studies primacy effects are more likely to occur when people are uninterested in the question or topic at hand (since it is an expression of satisficing behavior). The survey questions we used in this study could generally be considered of relevance and interest to most people who answer these kinds of questionnaires since the Citizen Panel is primarily an opt-in panel that offers no monetary incentives, hence making the study less likely to find primacy effects. One might argue that if we would have found significant primacy effects in this "less likely" design, one could expect stronger effects in studies with questions of less general interest to the respondent.

Future research should dig deeper into whether topic interest and topic importance to respondents are an important explanation for primacy effects, for example by letting respondents rank the importance or interest in a question when they give their opinion on a matter. Future research should also study whether horizontal or vertical scales are more vulnerable to primacy effects. As of today, if the primacy effect is stronger in vertical scales, it poses an even greater challenges to questionnaire design in web surveys if both versions are used, and mobile friendly web surveys automatically shift a horizontal scale to a vertical scale when the screen resolution is small.

References

Gouldner, A. W. (1960) *The Norm of Reciprocity: A Preliminary Statement*. American Sociological Review, 25:2, 161-178.

Groves, R. M., Singer, E., Corning, A. (2000) *Leverage-Saliency Theory of Survey Participation*. Public Opinion Quartely, 64:3, 299-308.

Krosnick, J. A. (1999) *Survey research*. Annual Review of Psychology, 50, 537-567.

Krosnick, J. A., Alwin, D. F. (1987) *An Evaluation of a Cognitive Theory of Response-Order Effects in Survey Measurement*. Public Opinion Quartely, 51, 201-219.

Martinsson, J., Andreasson, M., Pettersson, L. (2013) *Technical Report Citizen Panel 6 – 2013*. Gothenburg: University of Gothenburg, LORE.

Mathews, C. O. (1927) The Effect of Position of Printed Response Words upon Children's Answers to Questions in Two-Response Types of Tests. Journal of Educational Psychology, 18:7, 445-457.

Mingay, D. J., Greenwell, M.T. (1989) *Memory Bias and Response Order Effects*. Journal of Official Statistics, 5, 253-263.

Sudman, S., Bradburn, N., & Schwarz, N. (1996) *Thinking about answers: The Application of cognitive processes to survey methodology*. San Francisco, CA: Jossey-Bass.

Weng, L-J., Cheng, C-P. (2000) *Effects of Response Order on Likert-Type Scales*. Educational and Psychological Measurement, 60:6, 908-924.

Appendix

Table 6. Comparison of response scale order by political interest: Good/bad proposal (standard) versus Bad/good proposal (reversed) (percent)

Policy proposal	Political interest	Very good proposal	Rather good proposal	Neither good nor bad proposal	Rather bad proposal	Very bad proposal	Total	n
Item 1 standard	Low/medium	6	16	21	30	27	100	446
	High	11	16	9	20	44	100	309
Item 1 reversed	Low/medium	6	15	23	25	31	100	439
	High	13	14	11	18	44	100	304
Item 2 standard	Low/medium	7	19	24	32	18	100	444
	High	12	17	12	24	35	100	306
Item 2 reversed	Low/medium	7	23	24	29	17	100	438
	High	14	17	14	23	32	100	302
Item 3 standard	Low/medium	20	17	21	26	16	100	443
	High	20	8	10	21	41	100	308
Item 3 reversed	Low/medium	16	19	23	24	18	100	437
	High	19	12	13	20	36	100	301
Item 4 standard	Low/medium	13	23	25	21	18	100	446
	High	22	28	19	14	17	100	308
Item 4 reversed	Low/medium	11	24	23	25	17	100	439
	High	19	30	15	17	19	100	303

Comment: Respondents were asked which opinion they had on four different policy proposals common in the political debate. Each question started with "Which is your opinion on the following policy proposals: ..." followed by four different items: Item 1 was "Reduce the public sector"; Item 2 was "Lower the taxes"; Item 3 was "Accept fewer refugees in Sweden"; and Item 4 was "Increase the taxes on carbon dioxide in gas". Every item's response order were presented in two different ways depending on experiment group, the standard order with "Very good proposal" at the left endpoint and the reversed order with "Very bad proposal" at the left endpoint. Numbers are under control for political interest, where respondents were asked to answer the following question: "Generally speaking, how interested are you in politics?". Low/medium political interest pertain to respondents choosing the response alternatives "Somewhat interested", "Not very interested" and "Not at all interested". High political interest pertains to respondents choosing the response alternative "Very interested" on the same scale.

Table 7. Comparison of response scale order by political interest: Agree/disagree (standard) versus Disagree/agree (reversed) (percent)

Policy proposal	Political interest	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Total	n
Item 1 standard	Low/medium	7	22	18	26	27	100	428
	High	13	12	14	19	42	100	307
Item 1 reversed	Low/medium	6	20	20	24	30	100	421
	High	14	16	11	22	37	100	310
Item 2 standard	Low/medium	9	22	24	25	20	100	429
	High	14	17	14	21	34	100	305
Item 2 reversed	Low/medium	9	23	23	26	19	100	418
	High	18	19	11	21	31	100	308
Item 3 standard	Low/medium	19	21	20	19	21	100	428
	High	21	9	12	19	39	100	307
Item 3 reversed	Low/medium	21	19	17	19	24	100	419
	High	23	14	10	17	36	100	311
Item 4 standard	Low/medium	17	26	19	20	18	100	427
	High	30	23	12	11	24	100	306
Item 4 reversed	Low/medium	15	24	22	21	18	100	419
	High	24	25	17	15	19	100	310

Comment: Respondents were asked which opinion they had on four different policy proposals common in the political debate. Each question started with "Which is your opinion on the following policy proposals: ..." followed by four different items: Item 1 was "Reduce the public sector"; Item 2 was "Lower the taxes"; Item 3 was "Accept fewer refugees in Sweden"; and Item 4 was "Increase the taxes on carbon dioxide in gas". Every item's response order were presented in two different ways depending on experiment group, the standard order with "Strongly agree" at the left endpoint and the reversed order with "Strongly disagree" at the left endpoint. Numbers are under control for political interest, where respondents were asked to answer the following question: "Generally speaking, how interested are you in politics?". Low/medium political interest pertain to respondents choosing the response alternatives "Somewhat interested", "Not very interested" and "Not at all interested". High political interest pertains to respondents choosing the response alternative "Very interested" on the same scale.

Table 8. Comparison of response scale order by education: Good/bad proposal (standard) versus Bad/good proposal (reversed) (percent)

Policy proposal	Education	Very good proposal	Rather good proposal	Neither good nor bad proposal	Rather bad proposal	Very bad proposal	Total	n
Item 1 standard	Low/medium	10	14	17	25	34	100	387
	High	7	18	16	25	34	100	371
Item 1 reversed	Low/medium	10	17	17	21	35	100	355
	High	9	12	19	23	37	100	392
Item 2 standard	Low/medium	9	17	21	30	23	100	388
	High	10	18	19	27	26	100	365
Item 2 reversed	Low/medium	11	18	20	28	23	100	352
	High	8	23	19	26	24	100	392
Item 3 standard	Low/medium	28	13	18	21	20	100	388
	High	12	14	15	27	32	100	366
Item 3 reversed	Low/medium	24	18	23	17	18	100	351
	High	11	14	15	29	31	100	391
Item 4 standard	Low/medium	10	23	23	20	24	100	388
	High	23	27	22	16	12	100	369
Item 4 reversed	Low/medium	11	21	21	23	24	100	353
	High	17	32	18	20	13	100	392

Comment: Respondents were asked which opinion they had on four different policy proposals common in the political debate. Each question started with "Which is your opinion on the following policy proposals: ..." followed by four different items: Item 1 was "Reduce the public sector"; Item 2 was "Lower the taxes"; Item 3 was "Accept fewer refugees in Sweden"; and Item 4 was "Increase the taxes on carbon dioxide in gas". Every item's response order were presented in two different ways depending on experiment group, the standard order with "Very good proposal" at the left endpoint and the reversed order with "Very bad proposal" at the left endpoint. Results are under control for education with Low/medium education including respondents with university studies without a degree or less, and High education with at least a university degree.

Table 9. Comparison of response scale order by education: Agree/disagree (standard) versus Disagree/agree (reversed). By (percent)

Policy proposal	Education	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Total	n
Item 1 standard	Low/medium	11	20	13	24	32	100	352
	High	8	15	20	22	35	100	388
Item 1 reversed	Low/medium	11	18	19	22	30	100	353
	High	8	20	13	23	36	100	386
Item 2 standard	Low/medium	12	22	19	23	24	100	352
	High	10	18	20	25	27	100	387
Item 2 reversed	Low/medium	15	19	18	26	22	100	350
	High	11	22	18	22	27	100	384
Item 3 standard	Low/medium	27	19	17	15	22	100	353
	High	13	14	16	22	35	100	387
Item 3 reversed	Low/medium	29	19	14	16	22	100	355
	High	15	16	13	20	36	100	383
Item 4 standard	Low/medium	20	21	15	18	26	100	351
	High	24	27	18	15	16	100	387
Item 4 reversed	Low/medium	14	22	18	22	24	100	353
	High	24	27	22	14	13	100	384

Comment: Respondents were asked which opinion they had on four different policy proposals common in the political debate. Each question started with "Which is your opinion on the following policy proposals: ..." followed by four different items: Item 1 was "Reduce the public sector"; Item 2 was "Lower the taxes"; Item 3 was "Accept fewer refugees in Sweden"; and Item 4 was "Increase the taxes on carbon dioxide in gas". Every item's response order were presented in two different ways depending on experiment group, the standard order with "Strongly agree" at the left endpoint and the reversed order with "Strongly disagree" at the left endpoint. Results are under control for education with Low/medium education including respondents with university studies without a degree or less, and High education with at least a university degree.

The Laboratory of Opinion Research (LORE) is an academic web survey center located at the Department of Political Science at the University of Gothenburg. LORE was established in 2010 as part of an initiative to strengthen multidisciplinary research on opinion and democracy. The objective of the Laboratory of Opinion Research is to facilitate for social scientists to conduct web survey experiments, collect panel data, and to contribute to methodological development. For more information, please contact us at:

info@lore.gu.se