

Question-order effect in the study of satisfaction with democracy. Lessons from three split-ballot experiments

The study of attitudes toward democracy and democratic performance gains momentum with the gradual degradation of democracies worldwide (Bermeo 2016). During what some call the third wave of autocratization (Lührmann and Lindberg 2019; Waldner and Lust 2018), we see the halt of the liberal democracy projects in Eastern European countries such as Hungary and - formerly Poland, and the Czech Republic (Anna Vachudova 2020; Bustikova and Guasti 2017; Sitter and Bakke 2019). Arguably, citizen satisfaction with democracy (SWD) plays a role in the future of liberal democracy in that it has the potential to stabilize democracy and prevent radical changes (Bernauer and Vatter 2012). Behavioral consequences of democratic dissatisfaction include support for anti-democratic parties, participation in illegal political action, and decreasing willingness to vote (Anderson et al. 2005; André and Depauw 2017; Bengtsson and Christensen 2016).

It is no surprise that SWD has been in the focus of a vast number of studies. At the same time, the SWD survey item has been criticized because of inter- and intra-country variation that prohibit the meaningful comparison of individuals and countries (Canache, Mondak, and Seligson 2001; Clarke, Dutt, and Kornberg 1993) and that it is highly sensitive to the institutional context (Linde and Ekman 2003). Thus, SWD is demonstrably not a suitable indicator of political support for democracy. However, it is generally considered a good

measure of the citizens' subjective assessment of the quality of democracy as they perceive it (Cutler, Nuesser, and Nyblade 2013). Recent evidence puts researchers on guard by demonstrating that different cross-national survey projects report varying levels, trends, and determinants of SWD raising further questions about measurement validity (Valgarðsson and Devine 2022). At the same time, these survey projects differ in terms of the wording and the scale of the SWD item, as well as the general context of the questionnaire further hampering comparative efforts. *This research note focuses on how the context of the survey affects responses to the SWD question.*

Our research question is informed by the European Social Survey's core questionnaire (ESS). ESS is a popular source for the study of SWD (among others, Christmann 2018; Harteveld et al. 2021; Magalhães 2016; Nemčok and Wass 2021; Stecker and Tausendpfund 2016; Vlachová 2019; Zilinsky 2019). It offers high-quality, wide-range comparative and longitudinal data on people's social and political attitudes. In the ESS, the SWD measure (STFDEM) '... on the whole, how satisfied are you with the way democracy works in your country?' (ESS Round 10: European Social Survey 2022) follows several satisfaction measures, namely, 'All things considered, how satisfied are you with your life as a whole nowadays?' (STFLIFE), 'On the whole, how satisfied are you with the present state of the economy in [country]' (STFECON), and 'Now thinking about the [country] government, how satisfied are you with the way it is doing its job?' (STFGOV). All items are measured on a 0 to 10 scale with 'Extremely dissatisfied' (0) and 'Extremely satisfied' (10) at the two extremes. While these survey items are not visually presented as a battery, due to their joint focus (i.e. satisfaction) the respondents may very well think they are clustered together for a reason. Therefore, there is a possibility that this series of connected questions may be subject to question-order bias, and perhaps the order of questions affects the level of SWD as well as its determinants. Out of the three

preceding satisfaction items, *we zoom in on satisfaction with the state of the economy (SWE) and how its relative position in the questionnaire affects SWD responses*. We carried out three independent split-ballot experiments in Hungary between May 2021 and May 2022. We conclude that if the SWE question is asked first (i.e. the SWD question is primed by SWE), the mean value of SWD is significantly and meaningfully lower than in the case when the SWD question is not primed. Importantly, question order only affects SWD but not SWE. Our results are relevant to the (1) creators of ESS for the further development of the core questionnaire, (2) to creators of other large, comparative studies that have yet to include a full satisfaction battery, (3) to researchers designing smaller studies who may consider including several satisfaction items, and (4) to the users of such studies to receive additional information on data quality.

Question-order effects

Question-order effect or question-order bias is well-documented in survey research. Studies on such effects appear as early as the 1930s and 40s (Cantril 1944; Sayre 1939) and span over eight decades. It refers to the phenomenon when the order in which the questions are presented in the survey influences answers to the questions (Schuman and Presser 1983), and can affect not only the distribution of responses but the relationships between variables as well.

To understand question-order effects, the literature points back to the complicated process of answering survey questions. Respondents must first interpret the question, access relevant information in their memory, weigh information according to their relevance, formulate information into a judgment, and finally translate this judgment into a scale (Thau et al. 2021; Tourangeau, Rips, and Rasinski 2000; Zaller 1992). However, according to the principle of cognitive accessibility, people do not retrieve all relevant information in their memory, only those that are most accessible. The recency principle dictates that the most accessible

information is information most recently thought about (Wyer 1980; Wyer and Srull 1986). The information that the previous question contains or activates is used to answer the subsequent question, creating a priming effect (Förster, Liberman, and Friedman 2007; Higgins, Rholes, and Jones 1977; Janiszewski and Wyer 2014; Strack 1992). The respondent may or may not be aware of the priming episode (Strack 1992). The activation function of priming is an automatic process and happens subconsciously. The information function of priming, however, requires the respondent to be aware of the priming episode: based on the previous question, they have to infer the *intended* meaning of the subsequent question and that the previous and the subsequent questions are grouped together for a reason (Strack 1992). **Two forms of the priming effect are commonly discussed in the literature: assimilation (or carryover) and contrast (or backfire) effects** (DeMoranville and Bienstock 2003; Sigelman 1981; Strack 1992; Sudman, Bradburn, and Schwarz 1996; Tourangeau et al. 2000).

Assimilation vs. contrast effects

An *assimilation effect* occurs when the respondents respond to the subsequent question in a similar way as they did with the previous question, **strengthening the correlation between the two questions**. This may happen either consciously (i.e. the respondent is aware of the priming episode and infers the intended meaning of the questions [**information function of priming**]) or subconsciously (i.e. the respondent is not aware of the priming episode [**activation function**]). **Alternatively, the information function of priming – where the respondents are aware of the priming episode – may lead to a contrast effect and a gap between the responses to the previous and subsequent questions (Strack 1992):** the Maxim of Quantity encourages respondents to be as informative as possible and avoid redundancy. Therefore, when two questions overlap in their content, respondents typically aim to provide new information (for instance DeMoranville and Bienstock 2003). This leads to a weaker relationship between the two items.

General vs. specific questions

The scholarship often discusses question-order bias in the context of general versus specific (or whole vs. part) questions (Schwarz, Strack, and Mai 1991; Strack 1992; Strack, Martin, and Schwarz 1988). The general recommendation in the literature is that if the items are in a general vs. specific relationship, the general question should precede the specific one (McClendon and O'Brien 1988). The reason again lies in the recency principle. Because general questions are difficult to answer and the response is subject to different interpretations (Schuman and Presser 1983), respondents will retrieve the most recent information they activated. If the specific question comes first, **the information activated by the question** will influence the interpretation of the subsequent general question (i.e. the intended meaning of the general item), and therefore, the correlation between the two questions will be stronger than it would be the other way around (McClendon and O'Brien 1988). A nice example of general and specific questions is the satisfaction with life type of questions versus satisfaction with various sub-areas of life such as marriage, work, social life, etc. If satisfaction with, for instance, marriage comes first, the respondent uses this information in interpreting the more general life satisfaction question. In other words, the respondent would think that the author of the questionnaire must have intended that satisfaction with one's marriage is an integral part of life satisfaction. However, if the general question comes first, the life satisfaction question's intended meaning remains open to a lot of interpretations (that is, besides marriage), and the relationship between life satisfaction and satisfaction with one's marriage will be weaker (McClendon and O'Brien 1988).

Satisfaction with the state of the economy and democracy

As demonstrated above, general questions are notoriously difficult to answer. They can activate a lot of information, the intended meaning of the question has a lot of potential interpretations,

and the respondents must make a strong cognitive effort to answer (Schuman and Presser 1983). The more ambiguous the content of the question, the more likely it is that respondents use information that has already been primed (McFarland 1981; Thau et al. 2021; Van De Walle and Van Ryzin 2011). Therefore, *general questions are very much exposed to question-order bias*.

The SWD survey item is a typical general question. The definition of democracy itself is open to a lot of interpretations (Quaranta 2018). Therefore, respondents can be expected to reach back to previous questions for information on the intended purpose of the item. Our study focuses on the priming effect of satisfaction with the economy on SWD. Research on SWD reveals a relationship between satisfaction and all sorts of governmental output (e.g. government effectiveness, corruption, and quality of public administration [Ariely 2013; Dahlberg and Holmberg 2014; Wagner, Schneider, and Halla 2009]), including economic performance (Christmann 2018; Daoust and Nadeau 2021; Magalhães 2016). While there is a lot of ambiguity about whether democracy and economic development are causally connected (Doucouliagos and Ulubaşoğlu 2008; Gerring et al. 2005), data from Wave 5 (2005–2007)ⁱ of the World Values Survey (WVS) (Inglehart et al. 2018) indicates that an overwhelming majority of respondents think that a ‘prospering economy’ is an essential characteristic of democracy. This puts the two items into a part (economy) versus whole (democracy) dynamics.

Figure 1 displays the mean values of a prospering economy being an essential characteristic of democracy (measured on a scale of 1 to 10) over GDP. We only include European countries. The data clearly shows that the perceived importance of economic prosperity for democracy is negatively correlated with GDP. We also see that in younger democracies, economic performance is an important feature of democracy. Hence, and especially in such countries, due

to the information activated by the SWE item and the respondents' inference to the intended meaning of the general question (SWD), we expect a significant priming effect on SWD.

For our empirical exercise, we select Hungary as a case. Its comparatively poor economic performance and the Hungarians' materialistic perception of democracy (see Figure 1) make it an ideal candidate to demonstrate how the order of SWE and SWD items influences democratic satisfaction in the context of a whole versus part design.

(Figure 1 about here)

Study design

We conducted three studies in March 2021 (Study 1), March 2022 (Study 2), and May 2022 (Study 3) as part of larger surveys. We refer to Study 1 as the main study and Studies 2 and 3 as replications. In Studies 1 and 2, the contracted companies randomly selected the samples from their carefully maintained online panel. These samples are representative of the Hungarian population *with internet access* aged 18–65 by gender (male, female), age group (18–29, 30–39, 40–49, 50–59, 60+), and the level of education (low, middle, high). Online survey samples generally do not represent the whole population, but this technique of collecting data is much less resource-demanding, widely used, and appropriate for conducting survey experiments (Auspurg and Hinz 2014). Nevertheless, Studies 1 and 2 perform well against population indicators such as age, gender, and education. Respondents in Study 3 were recruited on Facebook with no representativeness criteria. In this study, men and respondents with higher education are over-represented.

We coded two versions of the questionnaire with different question orders: (1) SWD – SWE (control group; not primed) and (2) SWE - SWD (treatment group; primed). The key survey items (SWD and SWE) appeared on separate pages, and a “Go back” button was provided. The questionnaire directed respondents to the two versions of the survey applying simple randomization. The randomization procedure resulted in groups of roughly the same size in all three studies (Study 1: Control: 502, Treatment: 498; Study 2: 591, 609; Study 3: 461, 459). The groups are balanced across various covariates (Appendix A), suggesting that randomization was successfully performed. We further present a test of randomization in the Online Appendix (Appendix D).

Results

Negative priming effect

Table 1 shows the main results from Study 1. The difference in the SWD mean across the not primed (3.675) and the primed (3.159) groups is substantial: when the SWE question is asked first, the mean of SWD falls by 0.516 points. More substantively, in the control group with no priming, 56.8 % of the respondents were not satisfied with democracy ($SWD < 5$) and this figure increases to 66.3 % in the treatment group. The change amounts to a 9.5 % point growth ($\chi^2=9.51$, $p=0.002$) in the number of dissatisfied individuals. To be able to compare the effect size of priming to that of other important covariates, we calculated Cohen’s d , which measures the standardized differences between two group means (Cohen 1988). We find that the Cohen’s d of priming (0.16, 95% CI: 0.04 - 0.29) is as large as in the case of political interest (0.17; 0.04 - 0.31) but smaller than for party preference (-1.85; (-2.03) - (-1.68)), which is the strongest covariant. In sum, our results tell us that the SWE question has a statistically significant

negative priming effect on the SWD item and that this effect is meaningful in size. Importantly, question order only affects the measurement of SWD but not that of SWE.

Contrast effect

We further see that in the case of priming (i.e. when the SWE question is asked first), the difference between SWD and SWE means becomes significant. The mean value of SWD (3.159) is lower than the mean value of SWE (3.438). Conversely, in the group with no priming, no such differences are prevalent. This is potential evidence for a *contrast effect*: the distance between the two indicators increases in the primed group.

(Table 1 about here)

Replication

We replicated our study in March 2022 and May 2022 on samples with 1200 and 920 respondents respectively. As indicated in Figure 2, both Studies 2 and 3 confirm the results of Study 1. In both studies, we find that priming has a substantial negative effect on the mean value of SWD. We further find evidence for a contrast effect. Additionally, similar to Study 1, question order does not affect SWE (Appendix B). The fact that we were able to replicate the main findings of Study 1 on a sample that is not representative of the population and that was collected utilizing a different data collection technique (see Study 3) strengthens the robustness of our results.

(Figure 2 about here)

Sub-group treatment effects

To further investigate the robustness of the results, we searched for heterogeneous treatment effects. First, we built a simple linear regression model explaining SWD with question order (treatment) and respondent features such as age, gender, level of education, place of residence, party preference, and political interest. Second, we interacted question order with each covariate; one at a time. In these models, a significant interaction term means that the effect of the treatment varies across specific groups of respondents. We report no statistically significant heterogeneous treatment effects in the cases of gender, level of education, place of residence, and party preference. In the cases of age and political interest the Johnson-Neyman plots (Brambor, Clark, and Golder 2006) for Study 1 reveal that, first, the effect of treatment does not change in the group of the youngest but slightly increases as respondents get older, and second, moving towards people with stronger political interests we see a small decrease in treatment effect, which eventually stabilizes after interest level 4 (out of 6). However, we report that these sub-group effects are inconsistent across the three studies: as opposed to Study 1, both in Studies 2 and 3 we observe that the effect of the priming event decreases (and does not increase as in Study 1) with increasing age, and the effect becomes stronger in the case of higher levels of political interest. While the effect of the treatment only slightly changes with age and political interest, the potential heterogeneity of the effect further complicates the puzzle and sabotages the comparison of individuals even within the same country.

(Figure 3 about here)

(Figure 4 about here)

Conclusions

This study focused on question-order effects in measuring satisfaction with democracy. Particularly, we were interested in whether the relative position of the satisfaction with the state

of the economy question affects responses to SWD. Our question was informed by the European Social Survey's core questionnaire, in which the SWD question is embedded into a battery of satisfaction measures. We conducted three independent split-ballot experiments in Hungary.

Based on our analysis, we draw four conclusions. First, we find a significant and substantial negative priming effect that possibly leads to a systematic underestimation of SWD. Second, we find no question-order effect in the measurement of SWE. Third, the analysis reveals a contrast effect: when the SWD question is primed, the difference between SWE and SWD means increases. The scholarship finds an explanation for this in the Maxim of Quantity principle, which posits that if two questions overlap to some extent respondents try to provide new information to avoid redundancy. While our data is not suited to confirm this mechanism in our samples, we find this hypothesis appealing, and future research could zoom in on the psychological processes that establish the contrast effect in the context of measuring satisfaction. Fourth, we find indications of heterogeneous treatment effects in our data. This means that question-order bias may complicate the comparison of the individuals' SWD responses.

Based on our findings, we have two recommendations regarding questionnaire design. First, in countries similar to Hungary concerning the materialistic understanding of democracy, which puts SWD and SWE in a whole versus part dynamics, we recommend that the SWD question precedes the SWE item. Second, in countries where we do not know if there is a question-order bias, the order of satisfaction items should be random. Randomization also offers a great opportunity to reveal the presence of such bias. Further research should focus on identifying other sources of question-order bias in the satisfaction battery. Satisfaction with the government (SWG) is a strong candidate here. We already know a great deal about how party preference

affects SWD through winning and losing the elections (Bernauer and Vatter 2012; Blais and Gélneau 2007; Blais, Morin-Chassé, and Singh 2017; Curini, Jou, and Memoli 2012; Singh 2014). The SWG item asked before the SWD question may very well activate the feeling of winning/losing and consequently widen the winner-loser gap in SWD. We believe that our recommendations assist ongoing and future data collection efforts (comparative or single-country studies) in developing and integrating a battery of satisfaction items into the questionnaires.

While it was out of the scope of our study, our results hint at a potential measurement validity concern regarding SWD. We urge that authors are aware of it but evaluate the magnitude of this problem always *in the context of their research*. In case the authors are interested in the level (or mean) of SWD the priming effect presents a significant problem. At the same time, in the case of multivariate models, the gravity of the problem very much depends on the aim of the modeling exercise. Importantly, we recommend that authors still rely on the rich and high-quality data that ESS offers. We hope that our study helps researchers utilize the data more comprehensively.

Finally, a few words on the generalizability of the results are in order. Our case selection rests on the observation that Hungarian's understanding of democracy is demonstrably materialistic (see Figure 1). It is possible that in countries where respondents are better able to differentiate between democracy and the state of the economy, and hence the overlap between the SWD and SWE items is smaller, the priming effect is less prevalent. However, we suspect that our findings travel well to countries where citizens' attitudes toward democracy are similar to those of Hungarians, including new democracies. Furthermore, we presented a case of overall dissatisfaction: respondents were on average rather dissatisfied with both the state of the

economy and democracy. The dissatisfaction with the economy sets satisfaction on a downward spiral that leads to even more dissatisfaction with democracy. However, the question of whether there is a similar substantial bias in the case of more satisfied nations remains open. Nevertheless, should our findings *not* travel to other political contexts we are presented with an even bigger puzzle. If the priming effect varies across countries, it may substantially hamper cross-country comparisons. Together with problems of intra-country comparison revealed by the heterogeneous treatment effects, this shall put researchers on guard when designing questionnaires and using comparative data.

Notes

ⁱ We are unaware of more recent data highlighting the materialistic understanding of democracy. We suspect that the 2008 financial crisis further polarized materialistic attitudes toward democracy.

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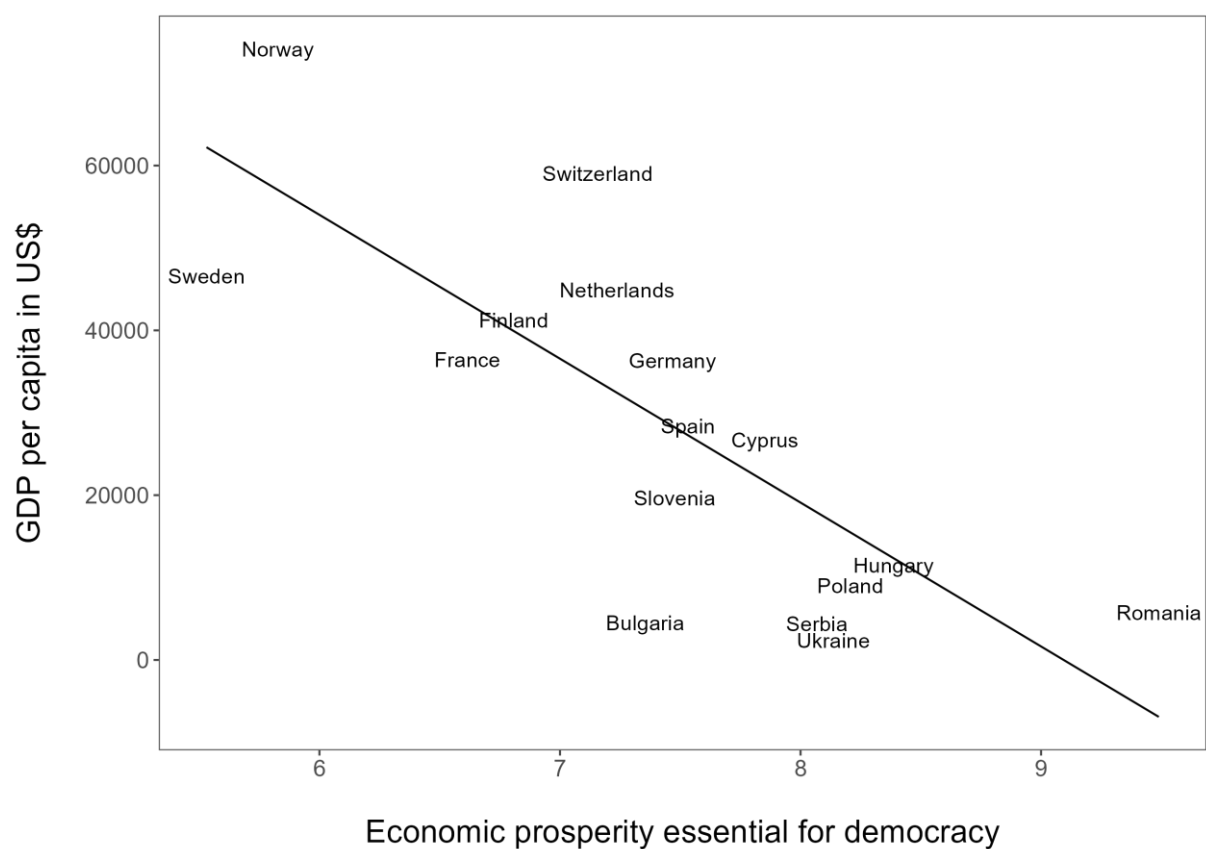
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Table 1 Main results in Study 1

		SWD	SWE	Difference (SWD-SWE)
Total sample	Mean	3.418	3.517	d = - 0.099
	SD	3.151	2.799	t = - 0.099
	N	1000	1000	p = 0.162
SWD question first	Mean	3.675	3.595	d = 0.079
(no priming)	SD	3.163	2.838	t = 0.731
	N	502	502	p = 0.465
SWE question first	Mean	3.158	3.438	d = - 0.279
(priming)	SD	3.121	2.76	t = - 3.128
	N	498	498	p = 0.001
Difference between primed and not primed	d	0.517	0.157	
	t	2.6	0.89	
	p	0.01	0.373	

Figure 1 Economic prosperity and democracy by the GDP per capita (USD) across Europe, 2006



Data sources: GDP per capita in US\$ 2006 :

<https://data.worldbank.org/indicator/NY.GDP.PCAP.CD> ;

Economic prosperity: WVS Wave5, V158, Inglehart et al. 2018

Figure 2 The effect of treatment group membership on SWD/SWE

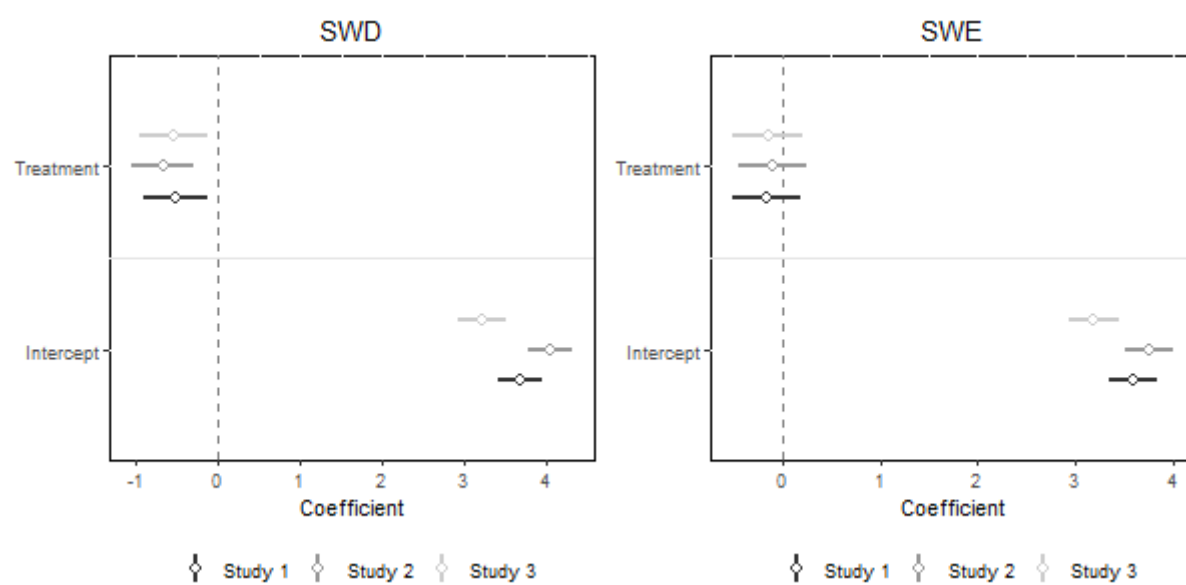


Figure 3 Johnson - Neyman plot of treatment and age

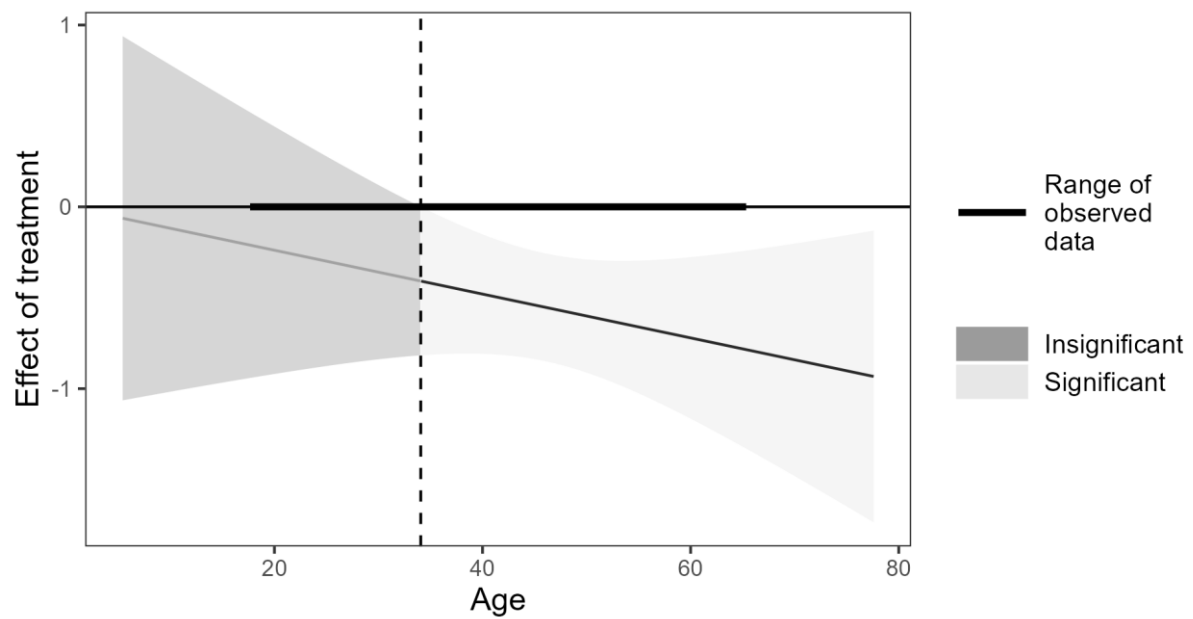


Figure 4 Johnson - Neyman plot of treatment and political interest

