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News and Views on Public Finances: A Survey Experiment

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News and Views on Public Finances: A Survey Experiment

Abstract

We use novel German survey data to investigate how perceptions and information about public finances influence attitudes towards public debt and fiscal rules. On average, people strongly underestimate the debt-to-GDP ratio, overestimate the interest-to-tax-revenue ratio and favor a tighter German debt brake. In an information treatment experiment, people consider public debt to be a more (less) severe problem once they learn the actual debt-to-GDP or interest-to-tax-revenue ratio is higher (lower) than their estimates. However, the treatment effects partly vanish when anchoring respondents' beliefs with historical public debt figures. We find no treatment effects on attitudes towards the debt brake.

JEL-Codes: E600, D830, H310, H600.

Keywords: public debt, fiscal rules, information treatment, expectations.

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1. Introduction

Public debt, fiscal rules and their interrelation with growth, inflation and financial stability are both classic, but also currently contentiously debated issues in macroeconomics (Furman and Summers 2020; Blanchard 2023; Reis 2021; Borio et al. 2023). This concerns not merely the question of a sustainable debt threshold, but more fundamentally the optimal trajectory of public debt and the ideal allocation of public resources. The US Congress frequently grapples with diverging viewpoints in the pursuit of votes to elevate the legal debt ceiling, while the European Union has been engrossed in perpetual discourse for over a decade on how best to recalibrate its fiscal rules.

Meanwhile, the general population’s grasp on these issues is limited. For key macroeconomic variables such as inflation or growth, surveys already show that the population on average has only a foggy understanding (Blendon et al. 1997; Rumler and Valderrama 2020; Haldane et al. 2020). Regarding public finances, the situation is more nuanced, but not necessarily much better. Blinder and Krueger (2004) find in a US survey that respondents on average estimate public deficit figures rather well, even though the variance is large. Stantcheva (2021), based on US survey and experimental data, shows that while the respondents know current tax rates, they misconceive the distribution of the incidence of taxation. Roth et al. (2022) demonstrate that US survey respondents strongly underestimate the level of public debt in their country (by more than 40 percent). Moreover, informing respondents about their misconception leads to lower public debt tolerance and reduced support for government spending. They conclude that downward-biased beliefs about the debt level could be a contributing factor to excessive public debt levels. Conversely, support for cutting public debt and for strict debt rules may be related to being better informed and to higher economic literacy. According to a German survey, the economically literate among the electorate are more likely to favor cutting public debt and instituting debt rules (Hayo and Uhl 2017; Hayo and Neumeier 2019).¹

This paper asks how information and knowledge about public finance variables shape attitudes on public debt and public financing rules. The study is based on a representative survey of the German population that we conducted in September and October 2021, right after the Bundestag election.

¹One might ask how robust these results are across countries and given the cultural differences. As Aspide et al. (2022) show, attitudes towards public debt differ significantly across countries, but cultural norms and popular narratives cannot systematically explain the variation. The question is even more relevant as there is a wide variation of fiscal frameworks across countries.

Within this survey, we query respondents about their estimates of the prevailing debt-to-GDP and interest-to-tax-revenue ratios² in Germany. We combine this with a randomized control trial (RCT) involving an information-based intervention on the current and past development of these two measures of debt sustainability. Subsequently, we ask respondents how far they agree that ‘public debt is a major problem’ and inquire which fiscal rule they would prefer (the status quo versus stricter or laxer versions).

We make use of these data in two steps. We first explore the correlations between untreated respondents’ opinions on public debt and fiscal rules with their educational background, financial literacy, socio-demographic factors, individual preferences and self-identified political party affiliations.

Second, we employ the RCT to discern the causal impact of enhanced information regarding public finances on individuals’ viewpoints. The RCT works as follows: after their estimate of the debt ratio and interest coverage ratio, some respondents are exposed to graphs showing the recent development of either the debt ratio or the interest coverage ratio, juxtaposed with their own estimates. We then compare treated and untreated respondents’ opinions on public debt and fiscal rules to identify a possible effect from the information treatment on people’s attitudes. Importantly, some of those in the treatment groups are provided at random with the values of the debt ratio and the interest coverage ratio of 2009 as anchoring information prior to their own estimate. This allows us to test whether contextualizing prior information via the anchor enables respondents to make a better estimate and whether this moderates the information treatment effect.

The results show that, even in a traditionally debt-averse country like Germany with constitutional debt rules and in the proximity of a general election where public finances were a central matter of discussion, the general public has only limited knowledge of the magnitude and costs of public debt. Consistent with previous findings by Roth et al. (2022) for the US, respondents strongly underestimate the actual German debt ratio of 2020 by about 40 percent on average. However, they even more strongly *overestimate* the interest coverage ratio by a factor of 7.5.³

Moreover, our results challenge the hypothesis that better information or knowledge of public finances generally leads to lower debt tolerance and stronger support for debt limiting fiscal rules. According to our simple regression exercise, there is a *negative* correlation between education or financial literacy and public debt concerns, even when

²Throughout this text the terms “debt ratio” and “interest coverage ratio” are utilized interchangeably with “debt-to-GDP ratio” and “interest-to-tax-revenue ratio”, respectively.

³Note that participants in Roth et al. (2022) are all provided with a (past and low) anchor of the debt ratio, which we give to only some of our respondents. Note also that no comparison is possible with regard to the interest coverage ratio as this metric has not been considered in Roth et al. (2022).

controlling for political party preferences as well as further socio-demographic characteristics. Likewise, higher education and financial literacy come with a greater likelihood of preferring laxer fiscal rules rather than stricter ones. Higher education or financial literacy are also related to a preference for public investments to be financed by additional borrowing instead of other spending cuts.

The RCT provides further insights into the formation of opinions about public debt: In line with Roth et al. (2022), confronting respondents with the actual values of the debt ratio, juxtaposed with their (often too low) estimates, makes them view public debt as a more severe problem. However, the opposite is true when respondents estimate the interest coverage ratio and then learn that their estimate was (often) too high: in this case, they are much less likely to consider public debt as a severe problem.

These changes in opinions partly depend on their prior information: if we anchor respondents' estimation about the debt ratio with the value of 2009, the estimation error of the current debt ratio is reduced strongly and the assessment of public debt as a severe problem becomes indistinguishable from the control group. The same holds true for respondents who did not receive an anchor but nevertheless only made a small forecast error. However, the treatment effects remain intact (if slightly weakened) for the interest coverage ratio even with anchoring.

Considering the heterogeneity of treatment effects by prior estimates, we show that for the debt ratio treatment the anchor uniformly reduces the treatment effect across the range of participants' prior estimates. In contrast, for the interest coverage ratio treatment, treatment effects are more homogeneous and are essentially unaltered by the anchor across the distribution of prior estimates. We hypothesize that this different is due to respondents' weaker priors with respect to the interest coverage ratio, which is a less popular indicator of debt sustainability. It seems to be a valuable additional information in people's assessment of public debt irrespective of their prior beliefs.

In summary, our results show that more accurate prior knowledge or additional information, (i) either in the form of an anchor, (ii) by taking into account the less popular metric of the interest coverage ratio or (iii) by updating prior beliefs, helps people contextualize public finance figures. Importantly, being better informed leads in most instances to lower concerns about public debt. These findings may be rationalized by a psychological 'surprise effect' (Meyer et al. 1997; Reizenzein et al. 2019) that prompts a reevaluation of respondents' perspectives.

However, confronting respondents with their misconceptions about the public finance figures does not change their attitude towards debt rules or the financing options for public investment. Hence, there seems to be no connection between changes in the

perception of public debt as a policy priority and attitudes towards the economic policies, which determine public debt. The preferences for fiscal rules seem to be more firmly rooted in the socio-demographic characteristics of the respondents and their political party preferences, in line with the findings of Bursztyn et al. (2023), documenting the attraction of opinion over facts.

Our paper contributes to the literature studying public attitudes towards public finances. It is most closely related to recent survey experiments in Roth et al. (2022) and Bremer and Bürgisser (2022) who study attitudes towards public debt, Stantcheva (2021) who focuses on re-distributional and efficiency issues in taxation, and Hübscher et al. (2021) who study voter preferences for spending, taxes and deficits in the light of budget constraints. Our results particularly extend and nuance the findings of Roth et al. (2022), showing that the sign of respondents' forecast errors matters for their assessment, that the relative size of the anchors is vital for the treatment effects and that stronger awareness of debt problems does not necessarily lead to changes in preferences about fiscal rules. The paper also relates to a recent RCT study by Grigoli and Sandri (2023) on the link between perceived public debt and households' inflation expectations. In line with our results, these authors find that the public tends to underestimate public debt and further report that information about the true levels leads to an increase in inflation expectations. Similar to our findings regarding the perception of public debt as a problem, Grigoli and Sandri (2023) show that the extent of a revision in expected inflation depends on the size of respondents' public debt estimation errors. Finally, Bursztyn et al. (2023) show experimentally that US respondents prefer opinion shows over news shows from the same network as an information source for guessing past macroeconomic variables, even when provided with strong monetary incentives to give precise estimates. This evidence seems to be in line with our finding that information about current and past debt or interest coverage ratios does not change opinions on the political debt brake. Instead, these are strongly correlated with respondents' preference for political parties, i.e. their political "opinions".

Methodologically, our paper also refers to recent advances in survey design, addressing the issue that traditional, unidimensional survey questions might lead to an overestimation of support for specific policies and seemingly inconsistent preferences (Bremer and Bürgisser 2022; Armingeon and Bürgisser 2021; Busemeyer and Garritzmann 2017). In an extension of our baseline analysis, we expose respondents to a policy trade-off by asking for preferences for mutually exclusive options on how to finance public investment spending.

Finally, we speak to the literature that extends the scope of debt sustainability analysis to include other metrics than public debt ratios and considers the interest coverage ratio as an additional important indicator, particularly when real interest rates are low (Furman and Summers 2020; Blanchard 2023).

The paper is structured as follows: the next section explains the design of our survey and the RCT. Section 3 presents descriptive statistics of the main variables of interest and how they correlate with socio-demographic factors and individual preferences. Section 4 focuses on the results of the information treatment experiment. The final section concludes. The Appendices provide further information on the dataset and the experiment, provide further robustness tests and document the questionnaire.

2. Study design

2.1. Survey

Our study is based on an online survey among German adults (aged 18 to 75), in which different subgroups were exposed to different information treatments on the level of public debt and public interest expenditure. The survey was conducted in the period from 28 September to 12 October 2021 and thus immediately after the 2021 German Bundestag election (held on September 26), in which the future path of fiscal policy played an important role.

The survey is based on a quota sample such that the structural composition of the respondents has been determined on the basis of fixed quotas according to the characteristics of age, gender, federal state and household income. The quota specifications are based on official statistics, so that the sample adequately represents the German population according to these characteristics.

In the first part of the survey, we measure respondents' gender, age and their general willingness to take risks and their general patience (both measured on a scale from 0-10).⁴ Next, we ask about respondents' estimates of the German debt ratio and the German interest coverage ratio in 2020, the most recent available data at the time of our survey. As explained in the next sub-section, these estimates may be subject to information treatments within our survey experiment. We then ask about respondents' attitudes towards public debt and their knowledge about the current German constitutional debt brake, as well as their preferences for a possible reform of the debt brake and for the financing of public investment. Specifically, we ask:

⁴All the questions used in this study are listed in Appendix D. The full questionnaire can be found at https://www.boeckler.de/pdf/p_2021_fragebogen_staatsverschuldung_imk.pdf

- How far the current level of public debt in Germany is seen as a big problem
- What respondents think the current constitutional debt brake prescribes (hence their knowledge about existing rules)
- How respondents think the debt brake should be constructed (after telling them about the current rule)
- How respondents think public investment should be financed

Answers to the first question are given on a scale from 1 (fully disagree that ‘public debt is a major problem’) to 5 (fully agree). From the other questions, we generate dummy variables, which take on the value of 1 if respondents correctly identify the answer describing the German debt brake and if they think the debt brake should i) oblige the state to deleverage fully, ii) not allow any new debt, iii) be kept as it is, iv) allow deficit financing of public investment or v) have no debt limit, respectively. From the last question we generate dummy variables identifying respondents who think that public investment should be financed through i) public debt, ii) spending cuts in other areas, iii) tax hikes or iv) that the investment should be foregone.

We collect further socio-demographic covariates, including respondents’ level of education, dummy variables for having financial reserves, for having children, and for their political party preferences; we design measures of their general risk preferences and patience as well as their financial literacy using the test questions on interest rate compounding, real interest rates and portfolio diversification by Lusardi and Mitchell (2008), Lusardi and Mitchell (2011), and Lusardi and Mitchell (2014). [Table A1](#) in [Appendix A](#) shows the summary statistics of the control variables.

The initial sample consists of 4495 respondents. We drop the observations of respondents who spend less than half the median time in completing the full survey. In order to deal with outliers, we exclude estimates of 0 percent for debt and interest coverage ratios and truncate estimates for the debt ratio at 200 percent and for the interest coverage ratio at 50 percent. This leaves us with a sample size of 3824 observations. In all estimations, we use population-based probability weights for age, gender, region and income in order to ensure representativeness of the results.

2.2. Experiment

The survey experiment is designed in two steps. In the first step, we randomly split the sample into three groups. The debt-anchor group is informed about the debt ratio in 2009 (73 percent), the interest-anchor group is informed about the interest coverage

ratio in 2009 (5.9 percent) and the control group receives no anchor.⁵ All respondents are then asked to estimate the debt and the interest coverage ratio in 2020, the most recent available data at the time of our survey.

In the second step, directly after estimating the ratios, the sample is randomly split again: the first group, consisting of about 1000 respondents, receives the *debt info treatment*. Of these, 50 percent were previously treated with the debt anchor.⁶ The wording of the *debt info treatment* reads as follows (translated into English):

In 2020, the public debt ratio in Germany was 70 percent. This means that the debt level was about as large as two-thirds of annual economic output. The following chart shows the debt ratio in Germany over time.

As a reminder: You estimated the public debt ratio in 2020 at [own estimate] percent.

The second group, consisting again of about 1000 respondents, receives the interest information treatment. Once more, 50 percent of respondents in this treatment group had been given an interest coverage anchor prior to the information treatment.⁷ The wording of the debt information treatment reads as follows (translated into English):

In 2020, the interest coverage ratio in Germany was about 1.4 percent. This means that out of every 100 euros of revenue, the state had to spend 1.40 euros on interest payments. The following chart shows the interest coverage ratio in Germany over time.

As a reminder: You estimated the interest coverage ratio in 2020 at [own estimate] percent.

Figure 1 shows the original information treatment screens (in German).

The control group, consisting of about 1850 respondents, continues the survey without further information and had also received no anchor previously. Figure A1 in Appendix A provides a flow chart of the experiment.⁸

This experimental design serves the following purposes: with the information treatment in the second step, we jointly test two hypotheses: (i) respondents consider public

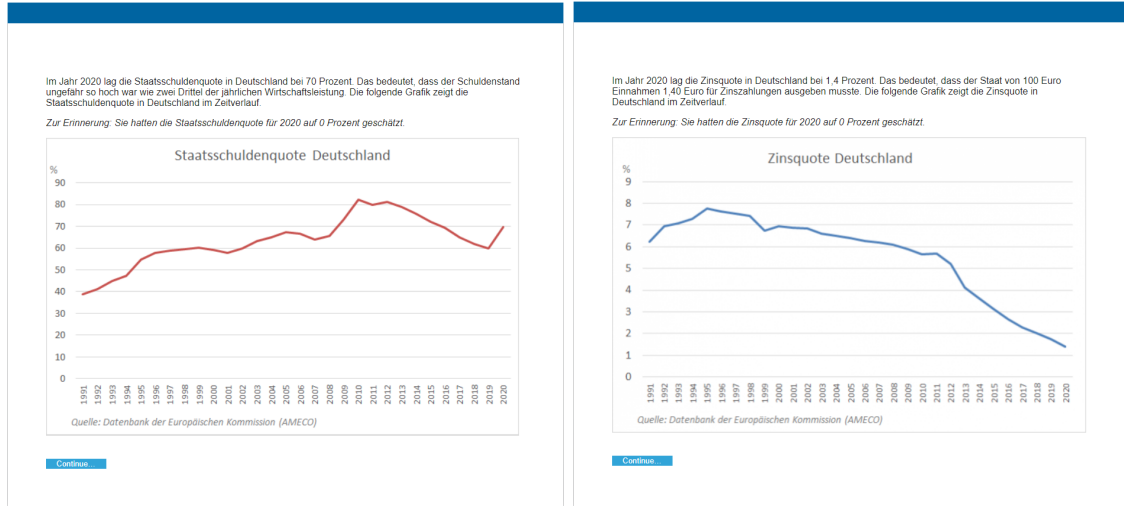
⁵All the macroeconomic data on debt and interest payments that we use in the survey has been taken from the European Commission's AMECO database (vintage 2021). Currently available data might therefore differ.

⁶Note that no respondents in this treatment receive the interest anchor.

⁷No respondents in this treatment receive the debt anchor.

⁸In Tables A2 to A5 we test whether the sample is balanced between the treatment and the control group in terms of observables and find that this is indeed the case.

Figure 1: Information treatments



(a) Debt information treatment

(b) Interest information treatment

Notes: The figures present the screens that participants in the two treatment groups have been shown.

debt to be a more (less) severe problem once they learn the actual debt ratio or interest coverage ratio is higher (lower) than their own estimates; (ii) respondents would favor a stricter (laxer) fiscal rule once they learn the actual debt ratio or interest coverage ratio is higher (lower) than their own estimates. With the anchors in the first step, we also test whether respondents can improve their forecast accuracy after receiving contextualizing prior information and whether this influences the treatment effect.

3. Opinions on public finances and fiscal rules

In this section, we analyze opinions on public finances and fiscal rules for the untreated control group. Focusing on the control group allows for a first assessment of how well respondents comprehend the topic and what is the mean and dispersion of their opinions without any imposed information. First, we present descriptive statistics on knowledge and opinions on public debt and the debt brake. Second, we examine how knowledge and opinions correlate with educational and socio-demographic factors as well as the individual preferences of respondents.

3.1. Descriptive statistics

Table 1 shows descriptive statistics of respondents' agreement with the statement 'public debt is a major problem', as well as their knowledge and preference about the constitutional debt brake, for the untreated control group. About a quarter of respondents fully

Table 1: Opinions and knowledge on public finances; control group

	Mean	SD	<i>N</i>
Public debt major is a problem			
Fully agree	0.23	0.42	1,781
Tend to agree	0.41	0.49	1,781
Undecided	0.20	0.40	1,781
Tend to disagree	0.14	0.34	1,781
Fully disagree	0.02	0.15	1,781
Know debt brake			
Debt brake preference			
Zero debt	0.22	0.41	1,662
Zero deficit	0.14	0.35	1,662
No change	0.37	0.48	1,662
Golden Rule	0.25	0.43	1,662
No limit	0.02	0.15	1,662

Notes: The table presents summary statistics of variables related to opinions and knowledge about public finances for the control group. We use population-based probability weights for age, gender, region and income, and exclude outlier estimates of the debt ratio (0 percent or >200 percent) and interest coverage ratio (0 percent or >50 percent).

agree with the statement that public debt in Germany is a big problem and, overall, about two-thirds fully agree or tend to agree with this statement. Fourteen percent tend to disagree while only very few respondents fully disagree.

More than half of respondents answer the question on the rules of the debt brake correctly (i.e. “a provision that allows the government to incur debt in very limited amounts relative to economic output”).

Opinions on the severity of the public debt problem are also reflected in attitudes towards the design of the German debt brake: while a relative majority of 37 percent prefers the existing rule, 36 percent are in favor of a stricter rule (of which 60 percent would prefer an outright zero debt rule and 40 percent a fully-fledged balanced budget rule). A quarter of respondents would relax the debt brake to impose a Golden Rule and only a small minority would vote for no debt limit at all. Our survey thus confirms the widely-held belief that Germans are on average fiscally conservative.

3.2. Opinions on public debt and debt brakes by respondents' characteristics

Table 2 shows the results for a series of estimation models where knowledge and opinions on public debt and the debt brake are regressed against a set of socio-demographic factors and individual preferences. Column (1) presents the results of an OLS regression. The dependent variable refers to the degree to which respondents agree with the statement 'public debt is a major problem'. We treat the Likert scale answers (from fully disagree to fully agree) as a linear variable. Column (2) shows the average marginal effects of a logit regression. The dependent variable is a dummy variable equal to 1 if respondents answer the question on the definition of the German debt brake correctly. Columns (3)-(7) show the results of a multinomial logit regression of the preferred design of the German debt brake. Individuals' preference for the design of the debt brake derives from discrete, non-ordered choices in our survey. We therefore model the response probabilities in a multinomial logit setting. We report the marginal effects of changes in the covariates on the likelihood that households choose any of the five answers in the survey.

Our results suggest that respondents with higher education or higher financial literacy are significantly more likely to know the workings of the debt brake. Interestingly, higher education and financial literacy come with less agreement to the statement that 'public debt is a major problem'. Respondents with higher education or financial literacy are also more likely to prefer to keep the status quo of the debt brake or to soften it rather than tighten it.

Male respondents are more likely to have a better knowledge about the debt brake. They also tend to prefer a weaker debt brake, but the estimated coefficients are relatively small and not highly statistically significant. Older respondents tend to consider public debt as a more severe problem, yet they are more likely to lean towards a softer than a harder debt brake. Those with children in their household view public debt as a more severe problem and are slightly more likely to prefer stricter debt rules over the status quo. There is no strong pattern for the relationship between household income and attitudes towards debt levels and the debt brake, but those in a higher income group tend to dislike a strict balanced budget rule. Risk preferences or patience are rather unrelated to knowledge or opinions on public debt or the debt brake.

By contrast, opinions on public debt are strongly correlated with respondents' political party preferences.⁹ The estimates measure preferences relative to respondents with no party preference. We find clear and expected patterns: left-leaning voters (a preference

⁹Party names/abbreviations refer to: 'Die Linke' (Left Party), 'SPD' (Social Democratic Party), 'B90/Die Grünen' (Green Party), 'FDP' (Free Democratic Party), 'CDU/CSU' (Christian Democratic/Social Union), 'AfD' (Alternative for Germany)

Table 2: Opinions on public debt and the debt brake; control group

	Pub. debt	Know	Debt brake preference				
	problem	debt brake	Zero debt	Zero deficit	No change	Golden Rule	No limit
	OLS	Logit	Multinomial logit				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Education	-0.169*** (0.045)	0.040** (0.020)	-0.030 (0.019)	-0.046*** (0.015)	0.051** (0.022)	0.021 (0.019)	0.004 (0.006)
Fin. literacy	-0.078** (0.034)	0.079*** (0.015)	-0.010 (0.015)	-0.027** (0.011)	0.018 (0.017)	0.023 (0.016)	-0.004 (0.005)
Male	-0.029 (0.062)	0.074*** (0.028)	-0.003 (0.025)	-0.039* (0.022)	0.013 (0.029)	0.010 (0.025)	0.019** (0.009)
Age	0.004* (0.002)	-0.001 (0.001)	-0.002*** (0.001)	-0.002** (0.001)	0.001 (0.001)	0.003*** (0.001)	-0.000 (0.000)
Children	0.151** (0.066)	-0.024 (0.033)	0.003 (0.029)	0.042* (0.025)	-0.052 (0.034)	0.001 (0.031)	0.007 (0.012)
HH Income	-0.001 (0.011)	0.004 (0.005)	0.006 (0.004)	-0.011*** (0.004)	0.005 (0.005)	0.002 (0.005)	-0.001 (0.002)
Fin. reserves	-0.036 (0.069)	-0.060* (0.031)	-0.023 (0.030)	0.031 (0.022)	0.049 (0.034)	-0.047 (0.032)	-0.009 (0.010)
Risk appetite	-0.002 (0.013)	0.005 (0.006)	0.001 (0.005)	0.001 (0.004)	-0.011* (0.006)	0.010* (0.005)	-0.001 (0.002)
Patience	0.001 (0.012)	-0.009* (0.005)	-0.004 (0.005)	0.004 (0.004)	0.004 (0.005)	-0.003 (0.005)	-0.001 (0.002)
Die Linke	-0.254* (0.141)	0.041 (0.064)	-0.101** (0.045)	-0.075* (0.041)	0.012 (0.065)	0.170*** (0.063)	-0.007 (0.018)
SPD	-0.295*** (0.090)	0.051 (0.042)	-0.078** (0.035)	-0.051* (0.031)	0.090** (0.044)	0.028 (0.039)	0.011 (0.016)
B90/Die Grünen	-0.594*** (0.104)	0.127*** (0.045)	-0.089** (0.038)	-0.095*** (0.030)	0.070 (0.052)	0.124** (0.049)	-0.009 (0.016)
CDU/CSU	-0.074 (0.089)	0.037 (0.043)	0.020 (0.040)	-0.068** (0.031)	0.059 (0.043)	0.011 (0.039)	-0.022** (0.010)
FDP	-0.127 (0.138)	0.055 (0.054)	0.023 (0.053)	-0.053 (0.039)	0.081 (0.059)	-0.021 (0.048)	-0.030*** (0.008)
AfD	0.246* (0.146)	-0.024 (0.065)	0.138** (0.063)	0.038 (0.056)	-0.149*** (0.055)	0.003 (0.055)	-0.030*** (0.008)
Other	0.152 (0.105)	0.077 (0.054)	0.184*** (0.058)	-0.047 (0.043)	-0.031 (0.054)	-0.091** (0.043)	-0.017 (0.015)
Constant	4.206*** (0.178)						
<i>N</i>	1450	1488	1368	1368	1368	1368	1368
Adj./Pseudo R^2	0.067	0.040	0.055	0.055	0.055	0.055	0.055
χ^2		69.165	5192.593	5192.593	5192.593	5192.593	5192.593

Notes: Column (1) shows the results of an OLS regression. The dependent variable refers to respondents' agreement with the statement that 'public debt is a major problem' (on a linear scale of 1=fully disagree to 5=fully agree). Column (2) shows average marginal effects of a logit regression. The dependent variable is a dummy variable developed from whether respondents answer the question on the definition of the German debt brake correctly (yes=1; no=0). Columns (3)-(7) present the average marginal effects of a multinomial logit regression. The dependent variable refers to the question of which fiscal rule respondents would prefer. Explanatory variables: education (1=lower; 2=normal; 3=upper secondary school); financial literacy (linear scale, 0 to 3 correct answers); gender (1=male; 0=other); age (in years); children (1=household with children; 0=no children); household income (net, in euros); financial reserves (1=available; 0=not); risk appetite (self-assessment, linear scale, 0-10); patience (self-assessment, linear scale, 0-10); party preference (categorical dummy variables per political party; reference: no party preference/not specified). We use population-based probability weights for age, gender, region and income. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

for Die Linke, SPD or B90/Die Grünen) consider public debt as a less severe problem and are significantly more likely to favor either the status quo or a Golden Rule over stricter options for the debt brake. Conservative-liberals (a preference for CDU/CSU and FDP) tend to favor the status quo of the debt brake and are significantly less likely to agree to a fiscal rule without a limit. Interestingly, they also tend to dislike the notion of a strict zero deficit rule in comparison to those without a party preference, even though this so-called “black zero” had been an identifying narrative of the CDU in the run-up to the 2021 Bundestag elections. Supporters of the far-right AfD are those with the strongest concerns about public debt and significantly favor a zero debt rule over the status quo. This group of voters is the only one which is significantly less likely to prefer the status quo of the current debt brake relative to those with no party preference.¹⁰

Our survey questions on the problem of public debt and the preferred design of the fiscal rules do not explicitly represent the trade-off of fiscal policy that higher debt can reduce fiscal sustainability but may also be used to enhance social welfare. Thus, answers might be biased towards considering public debt as a more severe problem or a preference for stricter fiscal rules if respondents do not take into account the possible opportunity costs. Alternatively, [Appendix B](#) contains analyses regarding another question from our survey on how public investment spending should be financed. Respondents could choose whether additional public investment should be primarily financed by credit, by other spending cuts, by tax hikes or whether the investment should rather be forgone.

[Table B1](#) presents the average marginal effects of a multinomial logit regression of the answer categories on respondents’ socio-demographic characteristics and individual preferences, similar to [Table 2](#). The results are largely consistent with the findings for the design of the debt brake: higher education is more likely to come with a preference for the deficit financing of investment rather than for this to be done via spending cuts. The relationship between financing options and party preferences mirrors the electoral programs of the major parties in the 2021 Bundestag election.

So far, our results suggest that respondents with higher education or financial literacy consider public debt to be a less severe problem and would lean towards keeping the status quo of the fiscal rules in Germany or include a Golden Rule for public investment rather than voting for stricter rules. Consistently, these respondents would prefer additional public investment to be deficit financed. These findings are robust to controlling

¹⁰Respondents’ party preferences are also strongly correlated with their self-perceived trust in the government and parliament. AfD sympathizers are those with the lowest trust in these institutions. Adding variables on trust consequently renders the AfD dummy statistically insignificant. As one might expect, higher trust is correlated with lower concerns about public debt, a preference for the status quo of the debt brake and a rejection of stricter rules (results not shown).

for gender, age, income and financial reserves, children, risk appetite, patience and political party preferences. Party preferences are also strongly correlated with attitudes towards fiscal rules and public finances being largely in line with party manifestos.

4. Causal effects of information on attitudes towards public finances

Does being better informed about public finances make people consider public debt to be less of a problem and lead them to prefer laxer fiscal rules? The evidence on the relationship between education, financial literacy and attitudes towards public finances from the previous section might be insufficiently identified to make such a claim. Educational level and financial literacy might be insufficient proxies for being informed about public finances and unobserved factors might be responsible for a spurious correlation. This section therefore presents results from an information treatment experiment which allows for causal inference. In our survey, we first ask respondents to estimate the debt ratio and the interest coverage ratio for Germany. Then, we provide a random subset of our respondents with information about the actual ratios and analyze how this affects their attitudes on public finances.

4.1. Estimates of debt and interest coverage ratios

How do respondents, who are provided with different prior information, perform when they are asked to estimate the German debt ratio and the interest coverage ratio for the previous year of 2020? [Table 3](#) provides summary statistics for the estimated debt ratio (Panel A) and the interest coverage ratio (Panel B). It shows statistics for respondents' point estimates (PE), their forecast error (FE) and absolute forecast error (AFE) for the full sample, the control group and the information treatment group with and without the anchor.

The actual debt ratio in Germany in 2020 was 70 percent and the interest coverage ratio was 1.4 percent. As anchors, we use the 2009 values of the debt ratio (73 percent) and the interest coverage ratio (5.9 percent). We chose the 2009 values in order to construct a balance between using an anchor that is not too recent but also not too different in size to the values to be estimated.

According to Panel A, the mean estimate of the debt ratio for 2020 is 36 percent and the median is 30 percent when respondents do not receive any anchoring information prior to their estimate. This holds true both for the control group and the treatment group without the anchor. The mean forecast error vanishes almost completely when respondents receive the anchor of the debt ratio. This might be expected since the

Table 3: Summary statistics of respondents' estimates of German debt ratio and interest coverage ratio of 2020

Panel A debt/GDP	Mean	Median	SD	Min	Max	<i>N</i>
PE full sample	41.12	35.00	31.95	0.05	200.00	2,832
PE control	36.19	30.00	30.39	0.05	200.00	1,849
PE treat, no anchor	35.92	30.00	30.43	0.10	200.00	500
PE treat, with anchor	65.74	75.00	27.79	0.20	150.00	483
FE full sample	-28.88	-35.00	31.95	-69.95	130.00	2,832
FE control	-33.81	-40.00	30.39	-69.95	130.00	1,849
FE treat, no anchor	-34.08	-40.00	30.43	-69.90	130.00	500
FE treat, with anchor	-4.26	5.00	27.79	-69.80	80.00	483
AFE full sample	35.44	40.00	24.47	0.00	130.00	2,832
AFE control	38.28	45.00	24.51	0.00	130.00	1,849
AFE treat, no anchor	38.86	45.00	24.02	0.00	130.00	500
AFE treat, with anchor	20.76	14.00	18.94	0.00	80.00	483
Panel B interest/revenue	Mean	Median	SD	Min	Max	<i>N</i>
PE full sample	9.79	5.00	11.69	0.00	50.00	2,841
PE control	10.17	5.00	12.23	0.01	50.00	1,849
PE treat, no anchor	10.60	5.00	12.68	0.00	50.00	483
PE treat, with anchor	7.69	6.20	7.95	0.00	50.00	509
FE full sample	8.39	3.60	11.69	-1.40	48.60	2,841
FE control	8.77	3.60	12.23	-1.39	48.60	1,849
FE treat, no anchor	9.20	3.60	12.68	-1.40	48.60	483
FE treat, with anchor	6.29	4.80	7.95	-1.40	48.60	509
AFE full sample	8.60	3.60	11.53	0.00	48.60	2,841
AFE control	9.00	3.60	12.06	0.00	48.60	1,849
AFE treat, no anchor	9.44	3.60	12.50	0.00	48.60	483
AFE treat, with anchor	6.43	4.80	7.84	0.10	48.60	509

Notes: The table presents summary statistics of respondents' point estimates (PE) and (absolute) forecast errors ((A)FE, against the actual values in 2020) of the debt ratio and the interest coverage ratio. We use population weights and exclude outlier estimates of the debt ratio (0 percent or >200 percent) and interest coverage ratio (0 percent or >50 percent).

anchor is close to the 2020 value. The anchored median estimate (75 percent) is close to the anchor itself. Nevertheless, the standard deviation of the forecast error remains large for the group with the anchor and is only slightly smaller than for those without it. Thus, while the anchor provides a centering of the estimates around the true value, there is still sufficient heterogeneity of belief to exploit in our dataset.¹¹

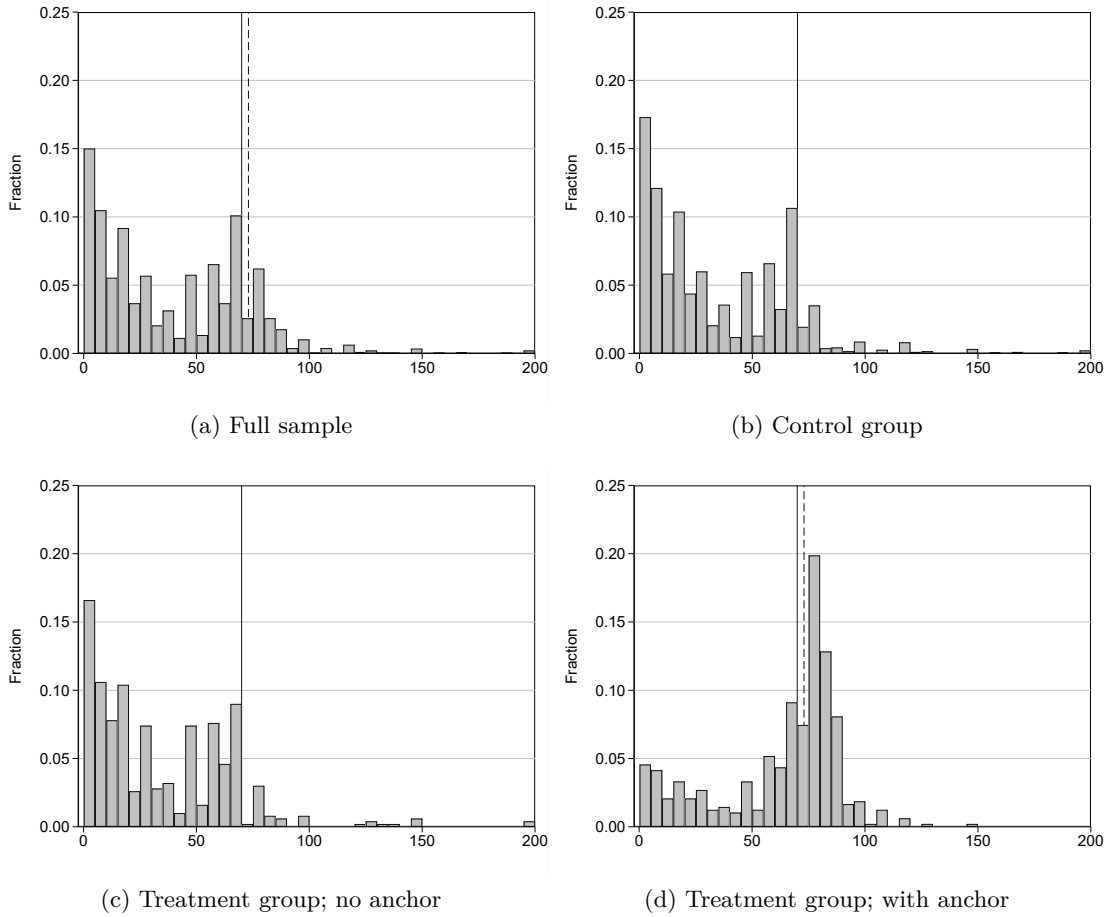
Turning to the interest coverage ratio in Panel B, respondents without the anchor strongly overestimate the interest burden. The mean estimate is above 10 percent and the median is 5 percent, whereas the actual value is 1.4 percent. The mean forecast error is about 2 to 3 percentage points smaller for the group with the anchor. However, in relative terms, the forecast error is still larger than in Panel A, which is likely to be because the anchor for the interest coverage ratio of 2009 is still substantially higher than the value of 2020 to be estimated. Consequently, anchoring even comes with a *larger median* forecast error in Panel B. In line with Panel A above, the median estimate with the anchor (6.2 percent) is close to the anchor itself (5.9 percent). Seemingly, anchoring tames some outliers but at the cost of guiding the median respondent’s estimate away from the true value. Even though anchoring reduces the dispersion of the estimates, heterogeneity remains large.

Figure 2 shows histograms of respondents’ estimates of the German debt ratio in 2020 for the full sample and the control group as well as the information treatment group with and without the anchor, respectively. As is apparent, there are heaps at rounded values that are also frequently observed in other surveys when respondents estimate macroeconomic variables such as inflation (Binder 2017) or their marginal propensity to consume (Jappelli and Pistaferri 2014). The distribution of the estimates is quite similar for the control group and the treatment group without the anchor. In the groups without the anchor, the mass of respondents vastly underestimate the debt ratio, with a large fraction believing this to be close to zero. Yet, there is also a heap (a fraction of around 10 percent) close to the true value.

In line with Table 3, the anchored estimates are less scattered and clearly more centered around the actual value. However, the variance is still large and the fraction of answers in the “correct” bin is similar to the full sample. The mode in the anchored group is rather around 80 percent, which we interpret such that many respondents have

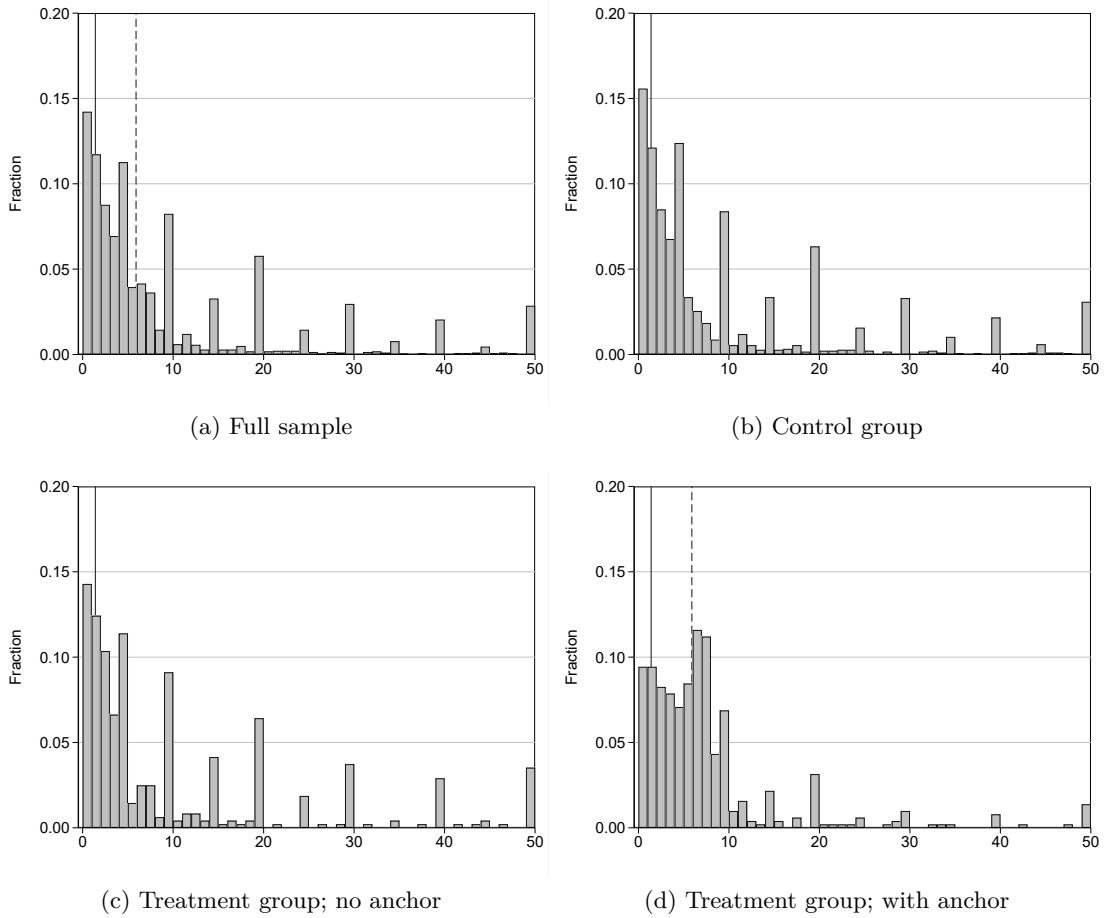
¹¹Note that the anchoring differs decisively from the one in Roth et al. (2022), where the primary anchor for the debt ratio in their US dataset stems from 1970 and is only 35 percent; that is, about 70 percentage points lower than the value of 2016 to be estimated. Their alternative anchors – a historical 100-year average of the US debt ratio (55 percent) and a recent OECD median (52 percent) – are also substantially lower than the 2016 US value.

Figure 2: Histograms of the estimates of the German public debt ratio in 2020



Notes: The figure shows histograms (in 5 percentage point bins) of respondents' estimates of the German debt ratio in 2020 for the full sample, the control group, the information treatment group without the anchor and the information treatment group with the anchor, respectively. The vertical solid line represents the actual value in 2020 and the dashed line the anchor value in 2009.

Figure 3: Histograms of the estimates of the German interest coverage ratio in 2020



Notes: The figure shows histograms (in 1 percentage point bins) of respondents' estimates of the German interest coverage ratio in 2020 for the full sample, the control group, the information treatment group without the anchor and the information treatment group with the anchor, respectively. The vertical solid line represents the actual value in 2020 and the dashed line the anchor value in 2009.

in mind a small positive growth rate in the debt ratio in comparison to the anchoring value of 2009.

Figure 3 presents histograms of respondents' estimates of the interest coverage ratio. Again, the control group and the treatment group without the anchor show quite similar patterns. Heaps at rounded numbers are much more prevalent for this estimate and are muted, yet still existent, in the anchored group. This suggests that consumers are in general less informed about the interest coverage ratio compared to the publicly more discussed debt ratio.

With anchoring, most estimates are concentrated in the 0-10 percent range. While the 6 percentage point bin (including the anchor value) is chosen much more often in the anchored group compared to the other groups, again the mode is slightly higher

Table 4: Anchoring effect on respondents' estimates

Panel A debt/GDP	(1) point estimate	(2) point estimate	(3) AFE	(4) AFE
anchor	29.607*** (1.660)	28.729*** (1.769)	-17.643*** (1.093)	-16.989*** (1.230)
<i>N</i>	2832	2312	2832	2312
Adj. R^2	0.120	0.147	0.072	0.079
Controls	No	Yes	No	Yes
Panel B interest/revenue	(1) point estimate	(2) point estimate	(3) AFE	(4) AFE
anchor	-2.569*** (0.445)	-2.176*** (0.493)	-2.661*** (0.438)	-2.263*** (0.485)
<i>N</i>	2841	2295	2841	2295
Adj. R^2	0.007	0.039	0.008	0.039
Controls	No	Yes	No	Yes

Notes: The table presents the estimation results of OLS regressions. In columns (1) and (2) the dependent variable is respondents' point estimates for the debt ratio (Panel A) and the interest coverage ratio (Panel B). In columns (3) and (4) the dependent variable is the absolute forecast error (AFE) for these measures. The anchor variable is a dummy variable equal to 1 when the respondent receives the anchor value of 2009. The specifications in columns (2) and (4) include the same control variables as in Table 2. We use population-based probability weights for age, gender, region and income. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

at around 7 or 8 percentage points, confirming our suspicion that respondents expect a slightly positive trend in the figures. As surmised from Table 3, the anchor seems to distract some respondents from the correct estimate which is chosen (accidentally?) more often by the other groups.

Table 4 considers the effect of anchoring more rigorously. It shows the treatment effects of the anchors on the point estimates and the AFE of the debt ratio (Panel A) and the interest coverage ratio (Panel B) from the OLS regressions. As expected, the anchor increases the mean estimate of the debt ratio by almost 30 percentage points and reduces the mean AFE by nearly 17 percentage points. It reduces the mean estimate of the interest coverage ratio by about 2.5 percentage points and the respective mean AFE by almost the same amount. These results remain largely unchanged when the control variables according to Table 2 are included in the regression.

4.2. Effects of information treatments on attitudes towards public debt

We now turn to the question how information about public debt figures affects respondents' concerns regarding public debt. For this purpose, we use the information treatment experiment as outlined in [Subsection 2.2](#). Our hypotheses are that, when respondents are informed about higher (lower) actual debt or interest coverage ratios than previously estimated, they might consider public debt to be a more (less) severe problem and would consequently prefer stricter (laxer) fiscal rules.

[Table 5](#) shows the effects of the information treatments on respondents' assessments as to whether public debt is a severe problem. Panel A focuses on the information treatment related to the debt ratio and Panel B refers to the interest coverage ratio. Column (1) presents the results without controls while column (2) includes the control variables according to [Table 2](#) plus the individual forecast error. We do not report the estimated coefficients on the control variables. However, the results confirm the analysis shown in [Section 3](#).

First, we consider respondents who estimated the German debt ratio of 2020 without the prior anchor and who were subsequently shown the actual figure in comparison to their estimate. These respondents on average view public debt as a more severe problem than the control group. The treatment effect is highly statistically significant. On average, the treated respondents assess public debt to be about 0.2 units more problematic (on a Likert scale from 1 to 5). This corresponds to 5 percent of the mean value and 0.2 standard deviations within the variable. At first glance, these results seem to confirm the findings of [Roth et al. \(2022\)](#) for the US case in terms of the sign and size of the estimated coefficient.

However, the treatment effects vanish completely for the group that had received the anchoring information about the debt ratio of 2009, which was similar to the 2020 value. How can we interpret this difference? One might surmise that anchored respondents simply repeat the anchor value in estimating the 2020 value, leaving insufficient variation in the explanatory variable. However, the variation in the anchored group's estimates is almost as large as for the rest, except that the mean has shifted towards the anchor (refer to [Table 3](#) and [Figure 2](#) again). [Ansolabehere et al. \(2013\)](#) document that benchmarks can help reduce respondents' estimation errors about complex quantities in surveys. We thus suspect that the anchoring information helped respondents contextualize the size of government debt in historical perspective, such that the 2020 figure did not come as an alarming surprise. Put differently, better information about the magnitudes and development of public finance data makes people worry less about public debt than when they are surprised by their false assessment of the magnitudes.

Table 5: Effects of information treatments on assessment of the public debt problem

Panel A debt/GDP	public debt problem	
	(1)	(2)
Info	0.187*** (0.055)	0.204*** (0.058)
Info + anchor	0.034 (0.057)	-0.043 (0.063)
FE		0.001** (0.001)
<i>N</i>	2733	2254
Adj. R^2	0.004	0.073
F -stat	5.795	9.354
Controls	No	Yes
Panel B interest/revenue	public debt problem	
	(1)	(2)
Info	-0.228*** (0.060)	-0.218*** (0.063)
Info + anchor	-0.190*** (0.058)	-0.201*** (0.064)
FE		0.006*** (0.002)
<i>N</i>	2745	2239
Adj. R^2	0.008	0.083
F -stat	10.547	10.167
Controls	No	Yes

Note: The table presents the estimation results of OLS regressions. The dependent variable refers to respondents' agreement with the statement that 'public debt is a major problem' (on a linear scale of 1=fully disagree to 5=fully agree). Panel A refers to the information treatment regarding the debt ratio and Panel B to the interest coverage ratio. The specifications in column (2) include the same control variables as in [Table 2](#) plus respondents' forecast errors (FE) with respect to the actual values in 2020. We use population-based probability weights for age, gender, region and income. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

This interpretation finds support in Panel B of [Table 5](#). The interest coverage ratio usually receives less attention in public discourse, even though it is an important metric of debt sustainability. When respondents learn that this indicator is small (or smaller than they expected), they become less concerned about public debt. This is consistent with our hypothesis.

As can be seen in Panel B, anchoring does not affect the size and significance of the estimated treatment effect, in contrast to Panel A. There are two plausible explanations for this: first, the anchor for the interest coverage ratio is farther from the actual value and anchored respondents may thus still face a considerable (salving) surprise effect; second, since the interest coverage ratio is less familiar than the debt ratio in public discourse, it may have an information effect irrespective of prior anchoring.

In any case, providing respondents with more comprehensive and contextualised information on public finances reduces their concerns about public debt. This finding nuances the results of Roth et al. (2022).¹²

4.3. Heterogeneity in treatment effects

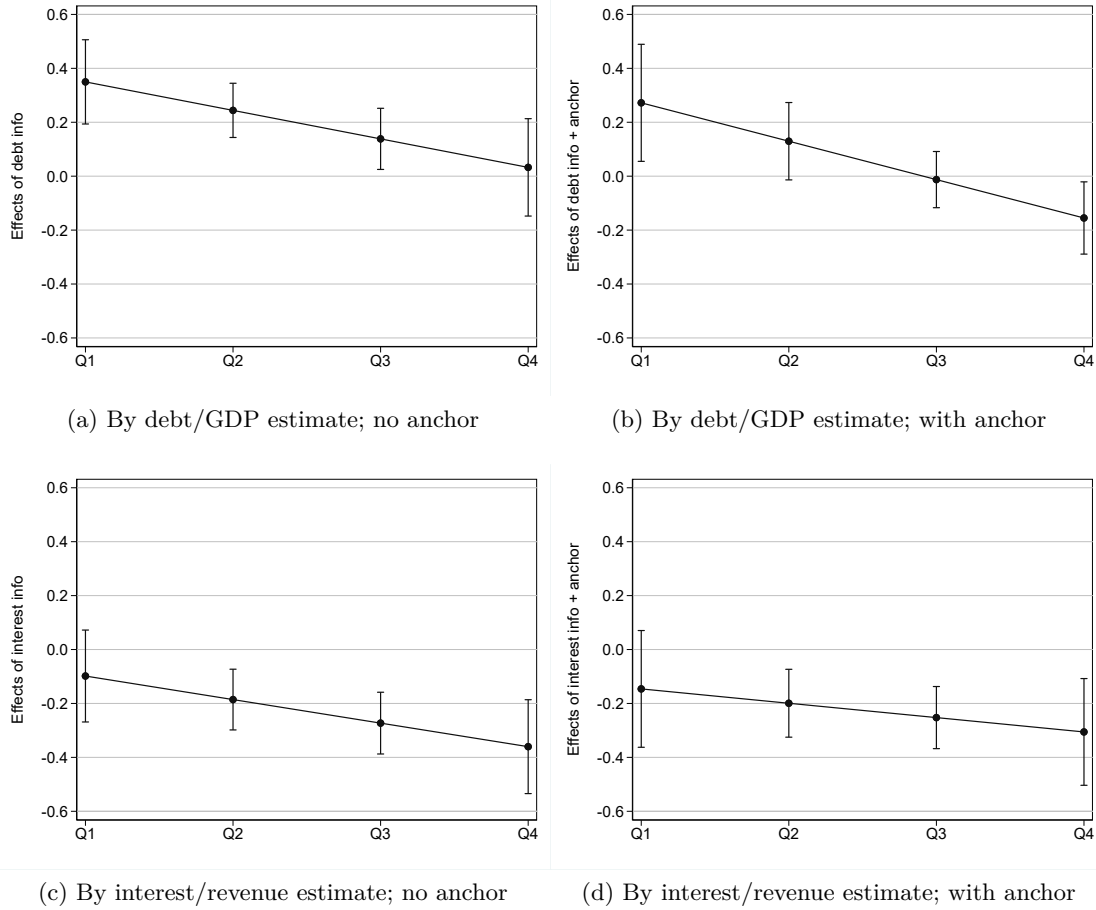
In light of the wide dispersion in respondents' estimates and the substantial effect of anchoring, one might expect the treatment effects to differ by the level of respondents' estimates of the debt and interest coverage ratio. We analyze this potential heterogeneity in this section.

[Figure 4](#) plots the effects of information treatments on the extent to which respondents consider public debt as a severe problem by quartiles of prior estimates of the debt ratio and the interest coverage ratio, respectively. [Figures 4a](#) and [4b](#) are based on the model estimates in Panel A of [Table 5](#) while [Figures 4c](#) and [4d](#) are related to Panel B of [Table 5](#).

For the debt ratio, Q4 starts at 66 percent and contains the anchor as well as the actual 2020 value. For the interest coverage ratio, Q1 includes the actual value and Q3 the anchor. As expected, the treatment effects are more positive (or less negative) for respondents with lower priors. As can be seen in [Figure 4a](#), respondents who more strongly underestimated the debt ratio become more concerned about public debt due to the stronger upward correction of their estimate. The treatment effect is essentially zero for Q4 that contains the actual debt ratio. Likewise, in [Figure 4c](#), the treatment effect for Q1, which contains the true interest coverage ratio, is not statistically different

¹²Roth et al. (2022) do not consider the case of a treatment without anchor in their main analysis, impeding a comparison of the effect of anchoring itself. Such analysis is confined to their pilot study, whose results are not reported in their paper. Nevertheless, the results in their [Table 1](#) point in the direction that the alternative anchors, which are closer to the value to be estimated, produce weaker treatment effects. This would be consistent with our findings.

Figure 4: Effects of information treatments on attitudes towards public debt by prior estimates



Notes: The figure shows the treatment effects on respondents' opinions as to whether the level of public debt in Germany is a major problem by prior estimates of the debt ratio and the interest coverage ratio. The figure displays point estimates of the treatment effects with 90 percent confidence intervals. The graphs in the upper (lower) panel are based on the model specifications reported in [Table 5](#), Panel A (Panel B), column 2. For the debt ratio, the quartile values are 10, 30 and 66 percent; for the interest coverage ratio, the quartile values are 2, 5 and 12.5 percent.

from zero. However, those respondents who more strongly overestimated the interest coverage ratio become less concerned as the information treatment might have provided some relief.

The downward-sloping patterns persist also with anchoring. However, for the debt ratio treatment (Figure 4b) the effect sizes become more centered on zero and the slope is even a bit steeper. That is, the distance between the own estimate and the true value still matters with anchoring, but the median person has a low forecast error and consequently is not triggered in the assessment of public debt problems. Those who strongly underestimate the debt ratio (Q1), despite the anchor, still become more concerned with public debt. On the opposite end, many respondents in Q4 still overestimate the actual value but become less concerned due to the information treatment in combination with the anchor. This shows that anchoring the debt ratio did not annul the treatment effect simply because it led participants to repeat the anchor value in their estimate. To the contrary, the distance between the own estimate and the actual 2020 value matters even a bit more than without anchoring. Maybe the recognition of no substantial trend from the 2009 anchor to the 2020 actual value reduced participants' concerns across the board of their estimation errors. Seemingly, the anchor on average leads people to make a more educated assessment and to be less worried about public debt.

In contrast, anchoring participants' estimate of the interest coverage ratio (Figure 4d) does not cause such a parallel shift of the treatment effects by quartile in comparison to estimates without anchor (Figure 4c). Yet, it even makes the assessment a bit more homogeneous along the distribution of participants' estimates. This may confirm that the interest coverage ratio as a less well-known metric of debt sustainability provided an information treatment irrespective of the anchoring value across the board of participants' estimation errors.

In Appendix C, we analyze in more detail the answer categories to the statement 'public debt is a major problem'. So far we have interpreted the Likert scale (from 1-fully disagree to 5-fully agree) in a linear way. In Figure C1 we compare the treatment effects for the answer categories separately. This shows that the effects for the debt-to-GDP information treatment without the anchor are largely due to an increase in the answer share of the "fully agree" category at the expense of all other answers. The effects are more evenly spread for the interest coverage treatment but, again, are strongest for the highest answer category. With anchoring, the group shares are almost identical to the control group for the debt treatment. For the interest coverage treatment with the anchor, the effects are rather confined to the middle answer categories.

In summary, more accurate prior knowledge or additional information, either in the form of an anchor, by taking into account the additional metric of the interest coverage ratio or by updating prior beliefs, helps people contextualize public finance figures. In all cases, being better informed leads to lower concerns about public debt.

4.4. Effects of information treatments on attitudes towards the debt brake

In this section, we analyse whether the information treatment also affects respondents' preferences regarding the German debt brake. One might expect that changes in the view of the extent to which public debt is a major problem also carry over to changes in preferences for fiscal rules.

Table 6 shows the average marginal effects of the information treatments from a multinomial logit regression. Generally, the effects of the treatments are relatively weak. Consistent with our previous results, those receiving the information treatment of the debt ratio slightly lean more towards stricter than laxer fiscal rules. In addition, anchoring again reduces the effects. Conversely, those who are informed about the lower than expected interest coverage ratio slightly favor the status quo over a zero debt rule. However, for the anchored group the already weak treatment effect completely vanishes. In general, the effects are small and mostly statistically insignificant. This finding is similar to Roth et al. (2022) who do not find a statistically significant information treatment effect on their respondents' willingness to sign a petition for a balanced budget rule in the US.

Moreover, in Appendix B we show that there are also no relevant treatment effects on preferences for financing public investment. As can be seen from Table B2, we do not find statistically significant effects of either treatment, irrespective of the anchoring. The coefficients have the expected signs (the debt ratio information treatment comes with a negative coefficient for deficit financing while the opposite is true for the interest coverage ratio treatment) but they are all close to zero.

More generally, our results suggest that opinions on the debt brake or preferences for financing public investment are less affected by treatment than worries about public debt. These preferences are less driven by how well informed people are, but more firmly rooted in their socio-demographic characteristics and political party preferences. This is in line with the findings of Bursztyn et al. (2023) who document in an experiment that US respondents prefer opinion programs over straight news to gain information about macroeconomic facts.

Table 6: Effects of information treatments on attitudes towards the debt brake

Panel A debt/ GDP	Zero debt		Zero deficit		No change		Golden Rule		No limit	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Info	0.017 (0.025)	0.029 (0.027)	0.001 (0.020)	-0.014 (0.021)	0.018 (0.027)	0.014 (0.029)	-0.040* (0.022)	-0.032 (0.024)	0.004 (0.009)	0.004 (0.009)
Info + anchor FE	-0.013 (0.028)	-0.019 (0.029)	0.016 (0.021)	0.024 (0.024)	0.025 (0.028)	0.020 (0.031)	-0.029 (0.022)	-0.027 (0.026)	-0.000 (0.010)	0.002 (0.012)
		0.000 (0.000)		-0.000 (0.000)		-0.000 (0.000)		0.000 (0.000)		0.000 (0.000)
<i>N</i>	2560	2134	2560	2134	2560	2134	2560	2134	2560	2134
Ps. R^2	0.001	0.050	0.001	0.050	0.001	0.050	0.001	0.050	0.001	0.050
χ^2	5.1	6273.9	5.14	6273.9	5.1	6273.9	5.1	6273.9	5.1	6273.9
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Panel B interest/ revenue	Zero debt		Zero deficit		No change		Golden Rule		No limit	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Info	-0.034 (0.024)	-0.044* (0.025)	-0.005 (0.020)	-0.014 (0.021)	0.039 (0.028)	0.051* (0.031)	-0.002 (0.024)	0.004 (0.026)	0.001 (0.008)	0.002 (0.009)
Info + anchor FE	0.012 (0.024)	0.002 (0.026)	0.014 (0.020)	0.005 (0.021)	-0.013 (0.027)	0.006 (0.030)	-0.013 (0.023)	-0.011 (0.025)	-0.000 (0.008)	-0.002 (0.008)
		0.001 (0.001)		0.001 (0.001)		0.000 (0.001)		-0.002 (0.001)		0.000 (0.000)
<i>N</i>	2558	2113	2558	2113	2558	2113	2558	2113	2558	2113
Ps. R^2	0.001	0.047	0.001	0.047	0.001	0.047	0.001	0.047	0.001	0.047
χ^2	4.5	6785.9	4.5	6785.9	4.5	6785.9	4.5	6785.9	4.5	6785.9
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Notes: The table presents the average marginal effects of multinomial logit estimations. The dependent variable refers to the question of which fiscal rule respondents would prefer. Panel A refers to the information treatment regarding the debt ratio and Panel B to the interest coverage ratio. The specifications in even-numbered columns include the same control variables as in Table 2 plus respondents' forecast errors (FE) with respect to actual 2020 values. We use population-based probability weights for age, gender, region and income. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5. Conclusion

Our study presents causal evidence on the effects of information on attitudes towards public debt from a large survey experiment with a representative sample of the German public. Without information treatment, the results show that respondents underestimate the size of public debt relative to GDP, but overestimate the interest rate costs relative to government revenues. Moreover, public debt is seen as a severe problem on average and the majority favors either the current or a stricter debt brake. These opinions on public debt correlate both with socio-demographic characteristics and with political preferences: while consumers with higher education or financial literacy and/or more left-leaning political party preferences tend to view public debt as a less severe problem and are more likely to be in favor of the status quo or a laxer debt brake, more conservative respondents prefer stricter debt rules.

Anchoring a random selection of respondents with the historical value of current debt or interest coverage ratios from 2009 significantly centers their estimates of current ratios around the anchor. Moreover, randomly informing some respondents about the recent time series for debt or interest coverage ratios and about their own (potential) estimation errors significantly affects their opinions on whether or not public debt is a severe problem: these treated respondents become more likely to view public debt as a problem if they learn that they underestimated it previously, while the opposite is the case if they are informed about the lower than expected interest coverage ratio. Anchoring causes this effect to disappear for the debt ratio, but not for the interest coverage ratio. For the debt ratio treatment the anchor uniformly reduces the treatment effect across the range of participants' prior estimates. In contrast, for the interest coverage ratio, treatment effects are more homogeneous and are essentially unaltered by the anchor across the distribution of prior estimates. We conjecture that the 'surprise effect' of the information treatment disappears when the often-discussed debt ratio is anchored. By contrast, the interest coverage ratio is a less popular concept and, therefore, the low figure remains relevant information even with anchoring. We interpret these findings such that better information about the indicators of fiscal sustainability might foster a more rational debate about public debt.

However, our results also suggest that this does not cause respondents to reconsider their opinions on fiscal rules relative to those who receive no information treatment or anchoring. Roth et al. (2022) make a similar observation for their US sample. This might indicate that people have a strong opinion on, but not a good (economic) understanding of, the processes influencing public debt. It would also mean that the strong

support for the constitutional debt brake in Germany (and in other countries which have given themselves such rules) might not be rooted in the economic understanding of the electorate but more in political fashions and narratives or political values. In this regard, the results indicate that a purely rational debate about public debt and fiscal rules might be difficult to achieve. Future work on this topic might explore in more detail why people do not link their different concerns about public debt sustainability to specific preferences for budgetary decisions or rules.

References

- Ansolabehere, Stephen, Marc Meredith, and Erik Snowberg (2013). “Asking About Numbers: Why and How”. In: *Political Analysis* 21.1, pp. 48–69.
- Armingeon, Klaus and Reto Bürgisser (2021). “Trade-offs between redistribution and environmental protection: the role of information, ideology, and self-interest”. In: *Journal of European Public Policy* 28.4, pp. 489–509.
- Aspide, Alessia, Kathleen J. Brown, Matthew DiGiuseppe, and Alexander Slaski (2022). “Culture & European attitudes on public debt”. In: *New Political Economy* 28.4, pp. 509–525.
- Binder, C. C. (2017). “Measuring uncertainty based on rounding: New method and application to inflation expectations”. In: *Journal of Monetary Economics* 90, pp. 1–12.
- Blanchard, Olivier (2023). *Fiscal Policy under Low Interest Rates*. Cambridge, MA: MIT Press.
- Blendon, Robert J. et al. (1997). “Bridging the Gap Between the Public’s and Economists’ Views of the Economy”. In: *Journal of Economic Perspectives* 11.3, pp. 105–118.
- Blinder, A. S. and A. B. Krueger (2004). “What Does the Public Know about Economic Policy, and How Does It Know It?” In: *Brookings Papers on Economic Activity* 2004.1, pp. 327–387.
- Borio, Claudio E. V., Marc Farag, and Fabrizio Zampolli (2023). *Tackling the fiscal policy-financial stability nexus*. BIS working papers 1090. Basel.
- Bremer, Björn and Reto Bürgisser (2022). “Do citizens care about government debt? Evidence from survey experiments on budgetary priorities”. In: *European Journal of Political Research*.
- Bursztyn, Leonardo, Aakaash Rao, Christopher Roth, and David Yanagizawa-Drott (2023). “Opinions as Facts”. In: *Review of Economic Studies* 90.4, pp. 1832–1864.
- Bussemeyer, Marius R. and Julian L. Garritzmman (2017). “Public opinion on policy and budgetary trade-offs in European welfare states: evidence from a new comparative survey”. In: *Journal of European Public Policy* 24.6, pp. 871–889.
- Furman, Jason and Lawrence H. Summers (2020). *A Reconsideration of Fiscal Policy in the Era of Low Interest Rates*. Mimeo.
- Grigoli, Francesco and Damiano Sandri (2023). *Public Debt and Household Inflation Expectations*. IMF Working Paper 2023/066.
- Haldane, A., A. Macaulay, and M. McMahon (2020). *The 3 E’s of central bank communication with the public*. Bank of England Staff Working Paper 847.

- Hayo, Bernd and Florian Neumeier (2019). “Public Preferences for Government Spending Priorities: Survey Evidence from Germany”. In: *German Economic Review* 20.4, e1–e37.
- Hayo, Bernd and Matthias Uhl (2017). “Taxation and consumption: evidence from a representative survey of the German population”. In: *Applied Economics* 49.53, pp. 5477–5490.
- Hübscher, Evelyne, Thomas Sattler, and Markus Wagner (2021). “Voter Responses to Fiscal Austerity”. In: *British Journal of Political Science* 51.4, pp. 1751–1760.
- Jappelli, Tullio and Luigi Pistaferri (2014). “Fiscal Policy and MPC Heterogeneity”. In: *American Economic Journal: Macroeconomics* 6.4, pp. 107–136.
- Lusardi, A. and O. Mitchell (2008). “Planning and Financial Literacy: How Do Women Fare?” In: *American Economic Review* 98.2, pp. 413–417.
- (2011). “Financial literacy around the world: an overview”. In: *Journal of Pension Economics and Finance* 10.4, pp. 497–508.
- (2014). “The Economic Importance of Financial Literacy: Theory and Evidence”. In: *Journal of Economic Literature* 52.1, pp. 5–44.
- Meyer, Wulf-Uwe, Rainer Reizenzein, and Achim Schützwohl (1997). “Toward a Process Analysis of Emotions: The Case of Surprise”. In: *Motivation and Emotion* 21.3, pp. 251–274.
- Musgrave, Richard Abel (1939). “The Nature of Budgetary Balance and the Case for the Capital Budget”. In: *American Economic Review* 29.2, pp. 260–271.
- Reis, Ricardo (2021). *The constraint on public debt when $r < g$ but $g < m$* . CEPR discussion paper 15950. London: Centre for Economic Policy Research.
- Reizenzein, Rainer, Gernot Horstmann, and Achim Schützwohl (2019). “The Cognitive-Evolutionary Model of Surprise: A Review of the Evidence”. In: *Topics in cognitive science* 11.1, pp. 50–74.
- Roth, Christopher, Sonja Settele, and Johannes Wohlfart (2022). “Beliefs about public debt and the demand for government spending”. In: *Journal of Econometrics* 231.1, pp. 165–187.
- Rumler, F. and M. T. Valderrama (2020). “Inflation literacy and inflation expectations: Evidence from Austrian household survey data”. In: *Economic Modelling* 87, pp. 8–23.
- Stantcheva, Stefanie (2021). “Understanding Tax Policy: How do People Reason?” In: *Quarterly Journal of Economics* 136.4, pp. 2309–2369.

Appendix A Further information on the dataset and experiment

Appendix A provides additional information on the dataset and the experimental design. Table A1 shows the summary statistics of the control variables while Figure A1 provides a flow chart of the RCT. In Tables A2 to A5 we test whether the sample is balanced between the treatment and the control group in terms of observables. We show p -values for t -tests of differences in observables between the treatment groups and the control group. Apart from minor exceptions, the groups are similar.

Table A1: Summary statistics of the control variables

	Mean	Median	SD	Min	Max	N
Education						
Lower secondary school	0.12	0.00	0.33	0.00	1.00	3,655
Secondary school	0.37	0.00	0.48	0.00	1.00	3,655
Upper secondary school	0.51	1.00	0.50	0.00	1.00	3,655
Financial literacy	2.19	2.00	0.94	0.00	3.00	3,824
Male						
Male	0.50	0.50	0.50	0.00	1.00	3,824
Age	47.09	49.00	15.43	18.00	79.00	3,824
Children	0.27	0.00	0.44	0.00	1.00	3,685
Household income						
Less than €2,000	0.28	0.00	0.45	0.00	1.00	3,493
€2,000-€2,999	0.24	0.00	0.43	0.00	1.00	3,493
€3,000-€3,999	0.21	0.00	0.41	0.00	1.00	3,493
€4,000 and more	0.27	0.00	0.44	0.00	1.00	3,493
Financial reserves	0.74	1.00	0.44	0.00	1.00	3,591
Risk appetite						
Risk appetite	4.49	5.00	2.40	0.00	10.00	3,801
Patience	5.56	6.00	2.61	0.00	10.00	3,807
Party preference						
Die Linke	0.05	0.00	0.22	0.00	1.00	3,824
SPD	0.14	0.00	0.34	0.00	1.00	3,824
B90/Die Grünen	0.10	0.00	0.30	0.00	1.00	3,824
CDU/CSU	0.11	0.00	0.32	0.00	1.00	3,824
FDP	0.07	0.00	0.25	0.00	1.00	3,824
AfD	0.05	0.00	0.21	0.00	1.00	3,824
Other	0.08	0.00	0.27	0.00	1.00	3,824
No party	0.41	0.00	0.49	0.00	1.00	3,824

Figure A1: Flow chart of the RCT

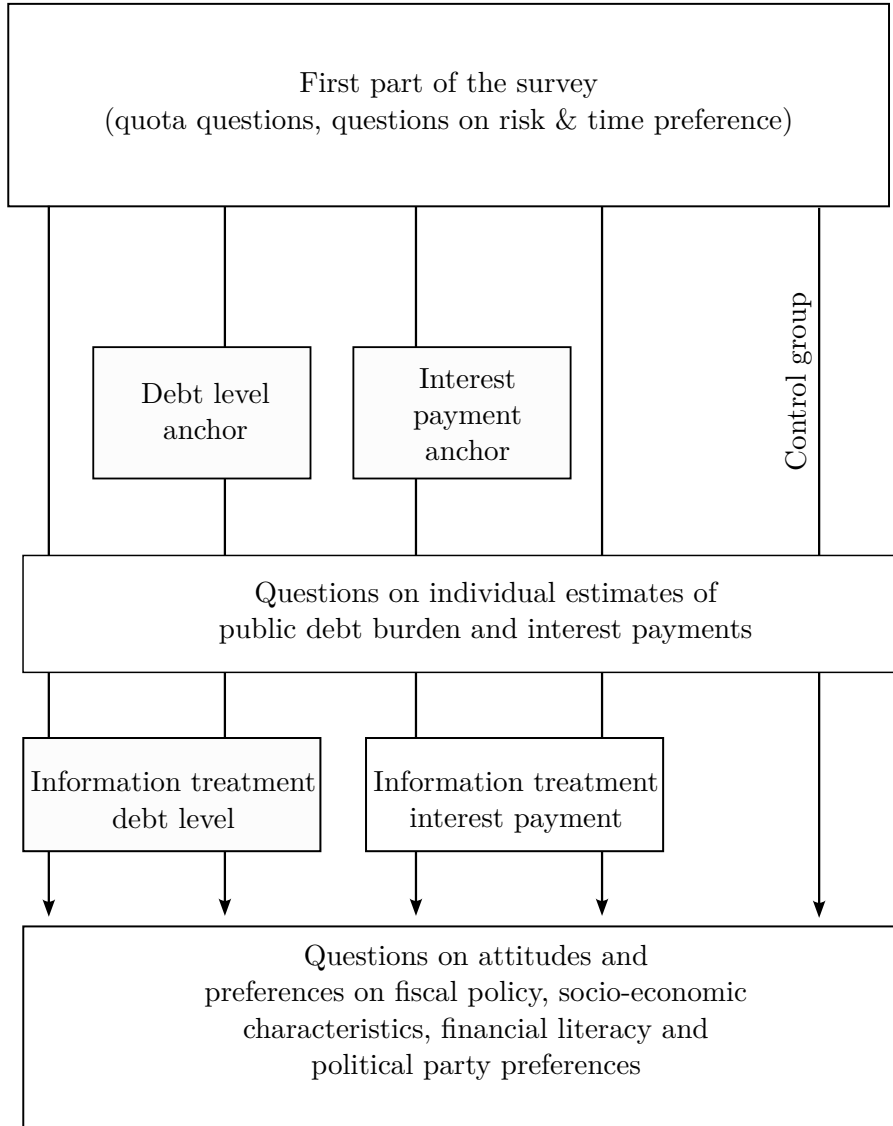


Table A2: Balance tests for treatment (debt/GDP info) vs. control group

	Control	Treated	<i>t</i> -statistic	<i>p</i> -value	<i>N</i>
Education					
Lower secondary school	0.118	0.136	-0.963	0.335	1908
Secondary school	0.364	0.345	0.691	0.489	1908
Upper secondary school	0.518	0.519	-0.033	0.974	1908
Financial literacy	2.282	2.198	1.701	0.089*	1908
Male					
Male	0.515	0.493	0.794	0.428	1908
Age	47.278	46.874	0.478	0.633	1908
Children	0.262	0.283	-0.869	0.385	1908
Household income					
Less than €2,000	0.262	0.283	-0.869	0.385	1908
€2,000-€2,999	0.243	0.229	0.595	0.552	1908
€3,000-€3,999	0.219	0.207	0.525	0.600	1908
€4,000 and more	0.276	0.281	-0.192	0.848	1908
Financial reserves	0.739	0.757	-0.741	0.459	1908
Risk appetite	4.407	4.462	-0.419	0.675	1908
Patience	5.656	5.502	1.082	0.279	1908
Party preference					
Die Linke	0.054	0.055	-0.026	0.979	1908
SPD	0.143	0.162	-0.958	0.338	1908
B90/Die Grünen	0.102	0.102	-0.014	0.989	1908
CDU/CSU	0.133	0.107	1.407	0.160	1908
FDP	0.071	0.064	0.494	0.622	1908
AfD	0.051	0.048	0.286	0.775	1908
Other	0.069	0.052	1.187	0.235	1908
No party	0.376	0.410	-1.235	0.217	1908

Table A3: Balance tests for treatment (debt/GDP info + anchor) vs. control group

	Control	Treated	<i>t</i> -statistic	<i>p</i> -value	<i>N</i>
Education					
Lower secondary school	0.118	0.101	0.939	0.348	1892
Secondary school	0.364	0.391	-1.016	0.310	1892
Upper secondary school	0.518	0.507	0.382	0.702	1892
Financial literacy	2.282	2.252	0.594	0.553	1892
Male					
Male	0.515	0.495	0.703	0.482	1892
Age	47.278	47.265	0.015	0.988	1892
Children	0.262	0.260	0.089	0.929	1892
Household income					
Less than €2,000	0.262	0.275	-0.511	0.609	1892
€2,000-€2,999	0.243	0.252	-0.409	0.683	1892
€3,000-€3,999	0.219	0.200	0.806	0.420	1892
€4,000 and more	0.276	0.272	0.157	0.875	1892
Financial reserves	0.739	0.713	1.063	0.288	1892
Risk appetite	4.407	4.564	-1.170	0.242	1892
Patience	5.656	5.584	0.494	0.621	1892
Party preference					
Die Linke	0.054	0.050	0.391	0.696	1892
SPD	0.143	0.129	0.741	0.459	1892
B90/Die Grünen	0.102	0.089	0.777	0.437	1892
CDU/CSU	0.133	0.116	0.888	0.375	1892
FDP	0.071	0.087	-1.045	0.296	1892
AfD	0.051	0.047	0.330	0.741	1892
Other	0.069	0.079	-0.740	0.459	1892
No party	0.376	0.403	-0.995	0.320	1892

Table A4: Balance tests for treatment (interest/revenue info) vs. control group

	Control	Treated	<i>t</i> -statistic	<i>p</i> -value	<i>N</i>
Education					
Lower secondary school	0.118	0.115	0.207	0.836	1881
Secondary school	0.364	0.359	0.176	0.860	1881
Upper secondary school	0.518	0.527	-0.302	0.762	1881
Financial literacy	2.282	2.328	-0.916	0.360	1881
Male	0.515	0.517	-0.062	0.951	1881
Age	47.278	47.328	-0.059	0.953	1881
Children	0.262	0.260	0.102	0.918	1881
Household income					
Less than €2,000	0.262	0.270	-0.305	0.760	1881
€2,000-€2,999	0.243	0.257	-0.589	0.556	1881
€3,000-€3,999	0.219	0.209	0.446	0.656	1881
€4,000 and more	0.276	0.265	0.458	0.647	1881
Financial reserves	0.739	0.725	0.562	0.574	1881
Risk appetite	4.407	4.387	0.145	0.884	1881
Patience	5.656	5.677	-0.143	0.886	1881
Party preference					
Die Linke	0.054	0.051	0.277	0.782	1881
SPD	0.143	0.160	-0.855	0.393	1881
B90/Die Grünen	0.102	0.109	-0.420	0.675	1881
CDU/CSU	0.133	0.104	1.522	0.128	1881
FDP	0.071	0.076	-0.347	0.729	1881
AfD	0.051	0.051	0.015	0.988	1881
Other	0.069	0.084	-1.053	0.292	1881
No party	0.376	0.364	0.454	0.650	1881

Table A5: Balance tests for treatment (interest/revenue info + anchor) vs. control group

	Control	Treated	<i>t</i> -statistic	<i>p</i> -value	<i>N</i>
Education					
Lower secondary school	0.118	0.106	0.675	0.500	1902
Secondary school	0.364	0.382	-0.674	0.500	1902
Upper secondary school	0.518	0.512	0.218	0.827	1902
Financial literacy	2.282	2.181	2.002	0.045**	1902
Male					
Age	47.278	47.507	-0.269	0.788	1902
Children	0.262	0.268	-0.246	0.806	1902
Household income					
Less than €2,000	0.262	0.302	-1.614	0.107	1902
€2,000-€2,999	0.243	0.239	0.146	0.884	1902
€3,000-€3,999	0.219	0.196	1.028	0.304	1902
€4,000 and more	0.276	0.263	0.522	0.602	1902
Financial reserves	0.739	0.739	0.005	0.996	1902
Risk appetite	4.407	4.727	-2.411	0.016**	1902
Patience	5.656	5.324	2.322	0.020**	1902
Party preference					
Die Linke	0.054	0.041	1.088	0.277	1902
SPD	0.143	0.145	-0.091	0.927	1902
B90/Die Grünen	0.102	0.126	-1.364	0.173	1902
CDU/CSU	0.133	0.087	2.529	0.012**	1902
FDP	0.071	0.080	-0.586	0.558	1902
AfD	0.051	0.046	0.428	0.669	1902
Other	0.069	0.051	1.304	0.192	1902
No party	0.376	0.425	-1.803	0.072*	1902

Appendix B Opinions on public investment financing

Our baseline questions on the perception of public debt as a major problem and the preferred design of fiscal rules may not represent a clear trade-off of public finances to respondents. In [Appendix B](#) we address this concern by considering an additional (after treatment) question from our survey asking respondents about their preferences on how to finance public investment spending.

This is interesting in our context for two reasons. First, public investment in the traditional public finance literature on the Golden Rule (Musgrave 1939) is considered to be optimally financed by public debt and therefore receives special treatment in public debt rules, including recent reforms in the EU fiscal surveillance framework and the antecedent ruling in German public finances that prevailed before the debt brake legislation of 2009. Second, it allows us to learn about the preferences of respondents facing a clear trade-off regarding alternative financing options (tax financed vs. other spending cuts vs. deficit financed vs. foregoing the investment).

What stands out from the multinomial logit regressions contained in [Table B1](#)? Respondents with a higher education are more likely to favor deficit financed public investment over spending cuts, in line with the Golden Rule reasoning. However, higher financial literacy comes with a preference for spending cuts. Male participants tend to prefer tax-based financing over spending cuts relative to others. Those with financial reserves rather prefer tax hikes and spending cuts vis-a-vis debt financing. A higher risk appetite is positively correlated with deficit financing solutions for public investment, as would be expected. The relationship between financing options and party preferences mirrors rather well the electoral programs of the major parties in the 2021 Bundestag election: those preferring left of center parties favor tax or deficit financing options over spending cuts compared to right of center voters and those without a party preference.

[Table B2](#) repeats the exercise of [Table 6](#) for the question of how to finance public investment.

Table B1: Multinomial logit regressions for opinions on public investment financing; control group

	(1)	(2)	(3)	(4)
	Deficit financing	Spending cuts	Tax hikes	Forego investment
Education	0.039** (0.019)	-0.032 (0.021)	0.004 (0.012)	-0.011 (0.010)
Fin. literacy	-0.009 (0.013)	0.033** (0.016)	-0.001 (0.010)	-0.023*** (0.008)
Male	0.020 (0.023)	-0.073*** (0.028)	0.053*** (0.016)	-0.000 (0.016)
Age	0.001 (0.001)	-0.001 (0.001)	0.001 (0.001)	-0.001 (0.000)
Children	-0.004 (0.027)	0.006 (0.033)	-0.016 (0.019)	0.014 (0.019)
HH Income	0.005 (0.004)	-0.002 (0.005)	0.003 (0.003)	-0.005** (0.003)
Fin. reserves	-0.063** (0.030)	0.032 (0.033)	0.031* (0.018)	-0.001 (0.016)
Risk appetite	0.014*** (0.004)	-0.012** (0.006)	-0.003 (0.003)	0.001 (0.003)
Patience	0.003 (0.004)	0.001 (0.005)	-0.002 (0.003)	-0.003 (0.002)
Die Linke	0.068 (0.055)	-0.116* (0.063)	0.078* (0.045)	-0.030 (0.025)
SPD	0.027 (0.034)	-0.073* (0.041)	0.071*** (0.026)	-0.026 (0.019)
B90/Die Grünen	0.104** (0.044)	-0.185*** (0.051)	0.104*** (0.035)	-0.023 (0.022)
CDU/CSU	-0.035 (0.031)	-0.027 (0.042)	0.036 (0.023)	0.026 (0.027)
FDP	-0.005 (0.042)	0.065 (0.047)	-0.006 (0.021)	-0.054*** (0.017)
AfD	-0.024 (0.045)	0.033 (0.056)	-0.035** (0.016)	0.026 (0.035)
Other	-0.004 (0.044)	-0.045 (0.056)	0.055 (0.036)	-0.005 (0.029)
<i>N</i>	1406	1406	1406	1406
Ps. R^2	0.055	0.055	0.055	0.055
χ^2	141.199	141.199	141.199	141.199

Notes: The table presents the average marginal effects of a multinomial logit regression. The dependent variable refers to the question of the respondent's preferred financing option for additional public investment. The specifications include the same control variables as in Table 2. We use population-based probability weights for age, gender, region and income. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B2: Effects of information treatments on opinions for public investment Financing

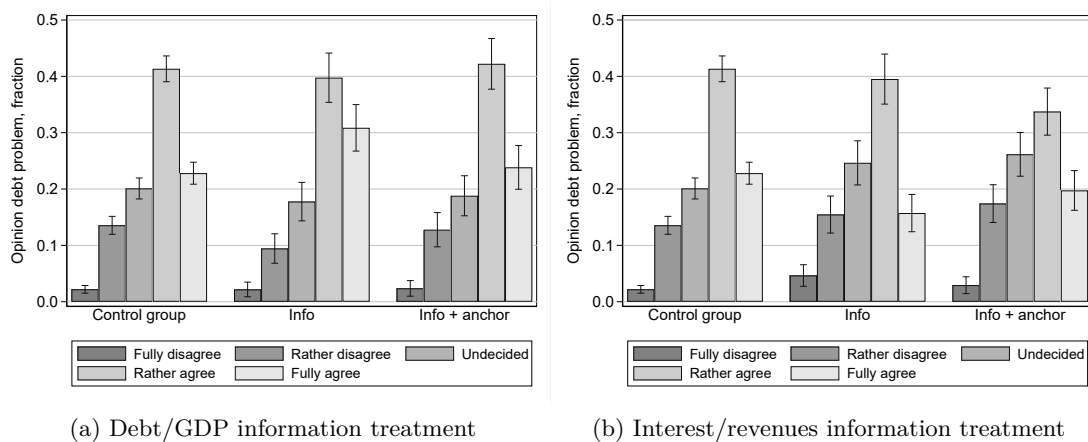
Panel A debt/GDP	Deficit financing		Spending cuts		Tax hikes		Forego investment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Info	-0.020 (0.021)	-0.026 (0.022)	0.010 (0.026)	0.013 (0.028)	0.017 (0.016)	0.014 (0.017)	-0.007 (0.013)	-0.002 (0.014)
Info + anchor	0.012 (0.022)	0.012 (0.024)	-0.015 (0.029)	-0.035 (0.033)	0.006 (0.023)	0.011 (0.024)	-0.003 (0.014)	0.012 (0.018)
FE		0.000 (0.000)		0.000 (0.000)		0.000 (0.000)		-0.000 (0.000)
<i>N</i>	2625	2179	2625	2179	2625	2179	2625	2179
Ps. R^2	0.001	0.047	0.001	0.047	0.001	0.047	0.001	0.047
χ^2	2.736	186.032	2.736	186.032	2.736	186.032	2.736	186.032
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Panel B interest/revenue	Deficit financing		Spending cuts		Tax hikes		Forego investment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Info	0.026 (0.023)	0.030 (0.024)	-0.039 (0.027)	-0.036 (0.029)	0.014 (0.017)	0.006 (0.018)	-0.001 (0.014)	-0.000 (0.015)
Info + anchor	0.020 (0.022)	0.005 (0.023)	-0.027 (0.026)	0.007 (0.027)	0.013 (0.016)	0.008 (0.017)	-0.006 (0.013)	-0.019 (0.012)
FE		-0.001 (0.001)		0.002** (0.001)		-0.001 (0.001)		-0.001 (0.001)
<i>N</i>	2635	2162	2635	2162	2635	2162	2635	2162
Ps. R^2	0.001	0.062	0.001	0.062	0.001	0.062	0.001	0.062
χ^2	3.697	228.624	3.697	228.624	3.697	228.624	3.697	228.624
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Notes: The table presents the average marginal effects of multinomial logit estimations. The dependent variable refers to the question of the respondent's preferred financing option for additional public investment. Panel A refers to the information treatment regarding the debt ratio and Panel B to the interest coverage ratio. The specifications in even-numbered columns include the same control variables as in Table 2 plus respondents' forecast errors (FE) with respect to actual 2020 values. We use population-based probability weights for age, gender, region and income. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix C Non-linear effects of the information treatment

In our baseline analysis, we have interpreted the Likert-scale of respondents' agreement to the statement 'public debt is a major problem' as a linear continuous variable. One might ask whether the effects of the information treatment on respondents' attitudes toward public debt are indeed linear or whether they are rather concentrated in certain answer categories. Figure C1 shows the respective answer shares for the control and treatment groups.

Figure C1: Heterogeneous treatment effects on attitudes towards public debt by answer categories



Notes: The figure shows percentages of responses to the statement 'public debt is a major problem', split into the control group and the information group with and without the anchor. The left (right) panel shows the percentages of responses for the groups that received the information treatment of the debt ratio (interest coverage ratio). The whiskers represent 90 percent confidence intervals.

Figure C1a shows that the shares for the control group and the treatment group with the anchor are rather similar for the same answer categories and the differences are not statistically significant at the 10 percent level. This confirms the non-existent treatment effect for participants with the anchor from Table 5, accounting for possible non-linearities. The differences between the control and the debt ratio treatment group without the anchor is concentrated in the category of 'fully agree', i.e. those with the strongest concerns. The share is above 30 percent for the treatment group without the anchor, about 8 percentage points larger than for the control group. This comes primarily at the expense of a lower fraction of people who 'tend to disagree' with the statement. The other categories are less affected. We interpret this finding such that participants without the anchor, who may have vastly underestimated the debt ratio become very alarmed when their prior beliefs are revised upwards.

Figure C1b concerns the interest coverage treatment. In this case, information treatment without the anchor considerably reduces the fraction of respondents who ‘fully agree’, increasing primarily respondents who ‘fully disagree’, i.e. those with the lowest concerns. Regarding information treatment with the anchor, the differences with the control group are mainly confined to the answer categories in the middle. There is a significantly lower share of those who ‘tend to agree’, feeding a higher share of ‘undecided’ respondents as well as those who ‘tend to disagree’. It may be that general information about a relatively unknown metric of debt sustainability leads to a more pronounced rethinking of attitudes towards public debt. When participants are given a prior anchoring, they may change their attitudes more gradually.

Appendix D Survey questions

Appendix D provides the English translation of the survey questions we use to construct the variables for our empirical analysis. We list the original survey numbers of the questions. The full questionnaire can be found at https://www.boeckler.de/pdf/p_2021_fragebogen_staatsverschuldung_ink.pdf

C1. Risk preference

How do you view yourself: Are you in general a risk-taking person or do you try to avoid risks?

Please answer according to the following scale:

- 0 = Not at all willing to take risks
- 1–9
- 10 = Very willing to take risks
- No answer

C2. Patience

How do you view yourself: Are you in general a person who is patient or do you tend to be impatient?

Please answer according to the following scale:

- 0 = Very impatient
- 1–9
- 10 = Very patient
- No answer

D1a. Public debt ratio

We will now ask you a question about the public debt ratio in Germany. The public debt ratio is the ratio of a country's public debt to its gross domestic product. The gross domestic product is the market value of all final goods and services produced by a country within one year.

What do you think was the public debt ratio in Germany in 2020?

Please enter a value in the input field (values may have decimal places).

___ Percent

D1b. Public debt ratio, with anchor

We will now ask you a question about the public debt ratio in Germany. The public debt ratio is the ratio of a country's public debt to its gross domestic product. The gross domestic product is the market value of all final goods and services produced by a

country within one year. In 2009, the public debt ratio in Germany was 73 percent. This means that the debt level was about as large as three quarters of the annual economic output. (Source: AMECO database of the European Commission)

What do you think was the public debt ratio in Germany in 2020?

Please enter a value in the input field (values may have decimal places).

___ percent

D2a. Interest coverage ratio

We will now ask you a question about the interest burden on the German public budget. The interest coverage ratio is the ratio of the government's annual interest expenditure to its revenue. The government's revenues consist primarily of taxes and duties.

What do you think was the interest coverage ratio in Germany in 2020?

Please enter a value in the input field (values may have decimal places).

___ percent

D2b. Interest coverage ratio, with anchor

We will now ask you a question about the interest burden on the German public budget. The interest coverage ratio is the ratio of the government's annual interest expenditure to its revenue. The government's revenues consist primarily of taxes and duties. In 2009, the interest coverage ratio in Germany was 5.9 percent. This means that, for every 100 euros of revenue, the government had to spend 5.90 euros on interest payments. (Source: AMECO database of the European Commission)

What do you think was the interest coverage ratio in Germany in 2020?

Please enter a value in the input field (values may have decimal places).

___ percent

T1. Info treatment 1

In 2020, the public debt ratio in Germany was 70 percent. This means that the debt level was about as large as two-thirds of annual economic output. The following chart shows the debt ratio in Germany over time.

As a reminder: You estimated the public debt ratio in 2020 at [own estimate] percent.

T2. Info treatment 2

In 2020, the interest coverage ratio in Germany was about 1.4 percent. This means that out of every 100 euros of revenue, the state had to spend 1.40 euros on interest payments. The following chart shows the interest coverage ratio in Germany over time.

As a reminder: You estimated the interest coverage ratio in 2020 at [own estimate] percent.

E1. Opinion on public debt

To what extent do you agree with the following statement: “The level of public debt in Germany is a major problem”?

- Fully agree
- Tend to agree
- Undecided
- Tend to disagree
- Fully disagree
- No answer

E2. Knowledge about debt brake [randomized sequence of answers]

Since 2009, the so-called debt brake has been included in the German Constitution, which regulates the federal government’s borrowing. What is meant by the debt brake in Germany?

- A provision that does not allow the government to incur debt
- A provision that allows the government to incur debt in very limited amounts relative to economic output
- A provision that allows the government to incur debt at the amount of public investment
- Don’t know

E3. Attitude towards the debt brake [randomized sequence of answers]

The debt brake in Germany is a regulation that allows the government to take on debt to a limited extent (0.35 percent of annual economic output with exceptions for crisis situations). What is your opinion on the debt brake?

Please choose the answer that best suits your view.

- The debt brake should oblige the government to reduce its debt completely and quickly.
- The debt brake should not allow the government to take on new debt.
- The debt brake should remain as it is.
- The debt brake should allow the government to take on debt to the extent of public investment.
- The government should be allowed to take on debt without limit.
- No answer

E8. Financing of public investment [randomized sequence of answers]

Suppose the government wants to conduct more investment. How should these investments be financed? *Please choose the answer that best suits your view.*

- The government should borrow money.

- The government should reduce other spending.
- The government should increase taxes.
- The government should forgo the investment.
- Don't know

H1. Level of education

What is your highest level of education?

- Still in school
- Lower secondary education (*Hauptschulabschluss*)
- Intermediate secondary education (*Realschulabschluss*)
- Upper secondary education (*Abitur/Allgemeine Hochschulreife*)
- Other education
- No graduation
- No answer

H5. Household size

How many people permanently live in your household (including yourself)? Please also consider all children.

- People above age 18: __ Number
- People from above age 14 to below age 18: __ Number
- People below age 14: __ Number
- No answer

I2. Party preference – general

Many people in Germany lean towards one party over a longer time span, even if they occasionally vote for another party. What about you? Do you lean towards a particular party in Germany?

- Yes
- No

I3. Party preference – specific party [randomized sequence of answers]

Which party do you lean toward?

- SPD
- CDU
- CSU
- FDP
- B90/Die Grünen
- Die Linke
- AfD

- Other
- No answer

J1. Household income

What is the total monthly net income of your household?

This refers to the total amount, comprising wages, salaries, income from self-employment, social benefits and pensions, in each case after deducting tax and social security contributions.

If you don't know, please estimate.

- Less than € 500
- € 500-999
- € 1,000-1,499
- € 1,500-1,999
- € 2,000-2,499
- € 2,500-2,999
- € 3,000-3,499
- € 3,500-3,999
- € 4,000-4,499
- € 4,500-4,999
- € 5,000-5,499
- € 5,500-5,999
- € 6,000 or more
- No answer

J3. Financial reserves

Do you have financial reserves to pay your current expenses for one month if necessary?

- Yes
- No
- No answer

K1. Financial literacy – interest effect

Let us assume you have a balance of € 100 in your savings account. This balance bears interest at an annual rate of 2 percent, and you leave it there for 5 years. What do you think: How high is your balance after 5 years?

- Higher than € 102
- Exactly € 102
- Lower than € 102
- Don't know

K2. Financial literacy – inflation

Let us assume that the interest paid on your savings account is 1 percent per year and consumer prices increase by 2 percent per year. What do you think: After a year, will you be able to buy just as much, more or less than today with the balance in your savings account?

- More than today
- Just as much as today
- Less than today
- Don't know

K3. Financial literacy – diversification

Do you agree with the following statement: “The investment in the stock of a single company is riskier than investing in a fund with stock in similar companies”?

- I agree.
- I do not agree.
- Don't know