

Supplement to “What do people in CESEE think about public debt?”

Markus Eller, Branimir Jovanovic, Thomas Scheiber¹

Expanding on the paper “What do people in CESEE think about public debt?” published in Focus on European Economic Integration Q3/21, this supplement addresses three additional topics: (1) potential data bias introduced by straight-lining behavior in the underlying OeNB Euro Survey,² (2) summary statistics and bivariate correlations, and (3) further estimation results based on a narrower definition of baseline regressors, alternative estimators (ordered probit and generalized ordered probit) and alternative model selection methods (least absolute shrinkage and selection operator – LASSO).

1. Survey straight-lining

The similar pattern of responses we observed for the four-item question that we used to generate the dependent variables for the regression analysis warrants a closer inspection of whether this pattern might be due to response nondifferentiation, or straight-lining behavior, i.e. respondents selecting the same answer many times in a row because they fail to adequately differentiate between items, for whatever reason. Since other multi-item questions enter the ensuing regression analysis (mainly as indices) as explanatory variables, we actually investigate five multi-item questions (listed in chart 1).

In respect of the question measuring public debt attitudes, straight-liners accounted for nearly 25% of respondents. The prevalence of straight-lining was somewhat lower (roughly one-fifth) for respondents’ answers about their satisfaction with public services, trust in institutions as well as political attitudes, and somewhat higher (around 40%) with regard to their concerns about past public debt development (see chart 1).

Straight-lining behavior introduces some measurement errors. Compared with the non-straight-lined results, respondents’ answers about their attitudes on public debt, public debt development and politics turn out to be clustered at the more skeptical end of the spectrum, while the questions capturing satisfaction with public services tend to elicit mid-range answers; only the trust-in-institution views are more polarized. Across the five multi-item questions, 41% of respondents never straight-lined, 30% of the respondents straight-lined only once, 17% twice, 9% three times, and 4% four times.³

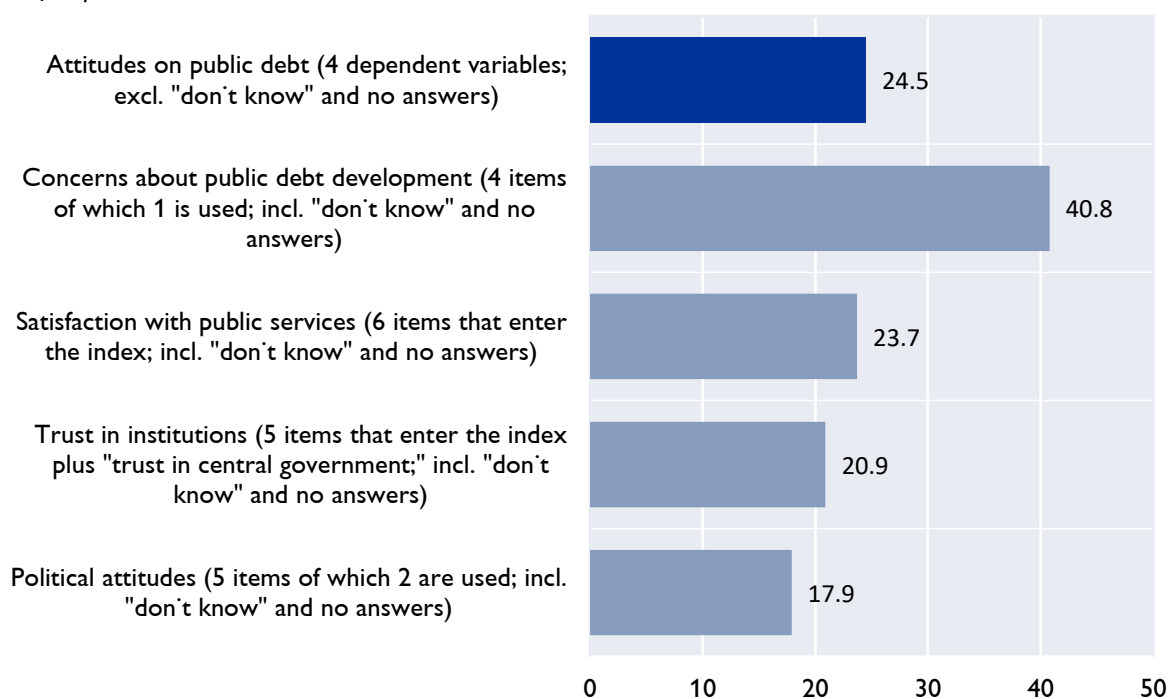
¹ Oesterreichische Nationalbank, Foreign Research Division, markus.eller@oenb.at and thomas.scheiber@oenb.at; The Vienna Institute for International Economic Studies (wiiw), jovanovic@wiiw.ac.at. Opinions expressed by the authors do not necessarily reflect the official viewpoint of the Oesterreichische Nationalbank, the Eurosystem or wiiw.

² For the terms and conditions for using the survey data, see <https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/data-sharing.html>.

³ No respondent straight-lined responses in all five blocks of questions.

Straight-lining of responses

% of respondents



Source: OeNB Euro Survey 2018.

Note: Respondents were asked to express their agreement with various statements per question on a Likert-scale. "Don't know" and no answers are included in the count or excluded from the count as indicated.

Table 1

Extent of straight-lining by country

% of respondents

	Never straight-lined	Straight-lined at least once	Straight-lined	
			1 to 3 questions	4 to 5 questions
BG	39.3	60.7	58.2	2.5
HR	42.8	57.2	55.9	1.3
CZ	47.1	52.9	50.3	2.6
HU	33.1	66.9	61.8	5.1
PL	42.9	57.1	55.1	2.1
RO	33.6	66.4	64.7	1.7
AL	40.1	59.9	36.6	23.3
BA	40.2	59.8	58.1	1.7
MK	39.4	60.6	59.1	1.5
RS	47.7	52.3	50.1	2.2
All countries	40.6	59.4	55.0	4.4
Number of cases	4,098	5,989	5,549	440

Source: OeNB Euro Survey 2018.

Note: Figures refer to the incidence of straight-lining in the case of five multi-item questions that concerned respondents' attitudes toward public debt, their assessment of public debt development, satisfaction with public services, trust in institutions and their political attitudes.

Since the fieldwork is conducted by ten different survey institutes, table 1 allows a closer look on straight-lining across countries. In Czechia and Serbia, about half of the respondents straight-lined at least once, while this ratio reaches about two-thirds for Romania and Hungary. Multiple straight-lining (i.e. for four out of the five multi-item questions) is rather rare across countries except for Hungary (5%) and particularly Albania (23%). The question arises whether major straight-lining compromises data quality since it might not reflect pronounced views but rather a tendency to rush through the survey or a preference to give uninformative responses perhaps due to the nature of political questions.

The literature on survey quality issues like nondifferentiation mentions various reasons for straight-lining. Some are related to demographic and personality characteristics (e.g. education or interest in the topic), others to cultural characteristics or contextual factors (e.g. face-to-face vs. web-based interviews, wording and format of items and, in particular, the impact of interviewers on respondents' response style). According to a literature review by van Vaerenbergh and Thomas (2013), demographic and personality variables explain only a relatively small proportion of the variance in response styles, whereas culture and country-level characteristics seem to explain a relatively larger proportion. Beullens and Loosveldt (2017) provide evidence for the extent to which interviewers mediated straight-lining in the European Social Survey 2012.

Using paradata from the OeNB Euro Survey, we can explore which factors (as defined in table 4) are associated with straight-lining in our sample, based on regression results for four different specifications (table 2), namely an ordered logit model predicting the frequency of straight-lining and three different probit models predicting the presence of straight-lining and minor or major cases.

Both the ordered logit model results (column 1 of table 2) and the average marginal effects of the probit model predicting whether or not a respondent straight-lined at least once (column 2) reveal that straight-lining in general is associated with rushing through the interview (short duration) and with individual characteristics such as error-preventing behavior (risk aversion), older age (proxy for more pronounced political views), low financial literacy, and a preference to keep certain information private (such as household net income). Interestingly, straight-lining is less prevalent among respondents who appeared apprehensive before the survey. Moreover, interviewer characteristics turn out to be insignificant, implying that straight-lining is not driven by a certain class of interviewers (gender, age or experience). The threshold parameters of the ordered logit model appear to be statistically significantly different from each other, except for rather similar characteristics found for the subgroup of respondents that straight-lined once or twice. The threshold parameter is particularly large between observations exhibiting three vs. four cases of straight-lining, which warrants a closer look into this subgroup.

For a more granular analysis, we report the average marginal effects of two probit models predicting minor straight-lining (1 to 3 times) and major straight-lining (4 out of 5 times). The specification of column 3 of table 2 uses the same controls as in column 2, while column 4 uses interviewer fixed effects instead of interviewer characteristics and country fixed effects. Major straight-lining appears to be associated with individual characteristics such as risk-loving behavior (proxy for pronounced views), younger age and low financial literacy; and with Albania. Albania, which exhibits 233 of 440 multiple straight-lining (53%), is the only country with a positive significant country fixed effect. A closer look reveals that multiple straight-lining is clustered around a dozen of Albanian interviewers, which suggests some interviewer impact on response style. Note that the number of observations in specification 4 shrinks to 1,595,

from 5,748 in column 3. The reason is that many interviewers did not encounter any cases of major straight-lining at all, which implies that the maximum likelihood estimate for the coefficient of the respective interviewer is negative infinity.

Table 3 illustrates the impact on baseline results if major straight-lining cases are excluded from the sample (i.e. 4% of the sample). The effect of nearly all baseline regressors remains qualitatively unchanged, except for the dummy indicating poor housing conditions that loosens statistical significance (see also the discussion in the robustness check section of the main paper).

Estimation results: factors associated with straight-lining

Econometric model Outcome variable Y is defined as:	Ordered logit model	Probit models		
	Number of straight-lined responses, ranging from 0 to 4	Binary variable: 1 = respondent straight-lined at least once 0 = no straight-lining	Binary variable: 1 = respondent straight-lined 4 times 0 = respondent straight-lined 1–3 times	
Specification	1	2	3	4
	Coefficients	Average marginal effects		
Duration of total interview	-0.015*** (0.004)	-0.003*** (0.001)	-0.001 (0.001)	-0.001 (0.001)
Respondents' characteristics				
Risk aversion (dummy)	0.204** (0.098)	0.043** (0.020)	-0.011 (0.012)	-0.066** (0.033)
Age	0.004*** (0.001)	0.001*** (0.000)	-0.001** (0.000)	-0.003*** (0.001)
Female	0.021 (0.037)	0.004 (0.010)	0.004 (0.006)	0.014 (0.018)
Financial literacy index (from 0 to 4)	-0.232*** (0.033)	-0.034*** (0.007)	-0.027*** (0.004)	-0.044*** (0.012)
Household net income: 1 st quartile	0.014 (0.075)	0.014 (0.016)	0.013 (0.010)	0.049* (0.029)
Household net income: 4 th quartile	-0.139 (0.093)	-0.015 (0.020)	-0.007 (0.015)	-0.035 (0.041)
Household net income: not reported	0.233*** (0.087)	0.072*** (0.019)	-0.005 (0.011)	-0.010 (0.032)
Interviewers' assessment				
Respondent was apprehensive before the survey (index)	-0.313*** (0.068)	-0.057*** (0.014)	-0.022** (0.009)	0.010 (0.035)
Respondent was suspicious about the survey afterward (index)	0.003 (0.056)	0.006 (0.013)	-0.006 (0.008)	-0.012 (0.027)
Interviewers' characteristics				
Female	0.129 (0.154)	0.029 (0.030)	0.000 (0.014)	
Age	-0.004 (0.004)	-0.001 (0.001)	-0.000 (0.001)	
Experience with the OeNB Euro Survey (dummy)	0.003 (0.125)	-0.002 (0.028)	0.003 (0.014)	
Constant	No	Yes	Yes	Yes
Country fixed effects				
Positive significant country fixed effects	HU**	HU*	AL***	No
Negative significant country fixed effects	BA*		BA**, HR*, MK***, RO*	
Individual interviewer fixed effects	No	No	No	Yes
Threshold parameters				
Cut $Pr(y_i = \text{respondent straight-lined once})$	-1.307*** (0.428)			
Cut $Pr(y_i = \text{respondent straight-lined twice})$	-0.018 (0.432)			
Cut $Pr(y_i = \text{respondent straight-lined 3 times})$	1.082** (0.442)			
Cut $Pr(y_i = \text{respondent straight-lined 4 times})$	2.319*** (0.459)			
Log likelihood	-12,986.6	-6,430.6	-1,121.7	-687.7
Pseudo R-squared (McFadden)	0.03	0.02	0.26	0.23
Probability > Chi squared (df_m)	120.39 (22)	109.59 (22)	247.28 (22)	..
Number of observations	9,730	9,730	5,748	1,595
BIC	26,211.9	13,072.4	2,442.4	1,449.2
$P(\text{DepVar}=1)$..	0.59	0.07	0.25

Source: Authors' calculations based on OeNB Euro Survey 2018.

Note: Column 1 shows coefficients estimated with ordered logit regressions, columns 2 to 4 show average marginal effects estimated with probit regressions using data from the OeNB Euro Survey 2018; robust standard errors are adjusted for clustering at the interviewer level and reported in parentheses. ***, **, * denote that the coefficient or average marginal effect is statistically different from zero at the 1%, 5% and 10% level, respectively. For a definition of the variables, see table 4. $P(\text{DepVar}=1)$ denotes the unconditional sample probability of the respective dependent variable. Base categories are: respondent is not risk averse and a Bulgarian resident; respondent's household net income falls into the 2nd or 3rd quartile; interviewer conducts the OeNB Euro Survey for the first time.

Probit estimations: baseline specification excluding 356 cases of major straight-lining

Outcome variable: agreement with statement (0/1)	Binary dependent variables			
	Higher public debt compromises opportunities of future generations	Higher public debt allows for higher investments today	Higher public debt implies higher future taxes	Higher public debt implies lower future pensions and benefits
	1	2	3	4
<i>Average marginal effects</i>				
Respondents' sociodemographic and socioeconomic characteristics				
Aged 19 to 34 years	-0.007 (0.013)	-0.010 (0.014)	0.001 (0.013)	-0.007 (0.014)
Aged 55+ years	-0.003 (0.013)	-0.003 (0.014)	-0.011 (0.013)	-0.022 (0.014)
Female	-0.016 (0.010)	-0.004 (0.010)	0.004 (0.010)	-0.006 (0.010)
Dwelling is well maintained	0.023* (0.012)	0.031** (0.013)	0.022* (0.013)	0.017 (0.013)
Dwelling is poor, needs major repair	0.030 (0.018)	0.040** (0.020)	-0.003 (0.018)	0.034* (0.019)
Respondent has accumulated savings	0.025** (0.012)	0.019 (0.014)	0.023* (0.013)	0.015 (0.013)
Refused to reveal extent of savings	-0.005 (0.033)	-0.015 (0.039)	0.025 (0.032)	-0.005 (0.035)
2-person household	-0.018 (0.016)	-0.043** (0.018)	-0.033* (0.017)	-0.009 (0.018)
3-plus-person household	-0.033* (0.017)	-0.055*** (0.018)	-0.044** (0.017)	-0.022 (0.017)
Respondents' general attitudes				
Present bias (index)	-0.027*** (0.005)	0.032*** (0.006)	-0.025*** (0.005)	-0.015*** (0.005)
Discomfort of owing money	0.109*** (0.016)	0.046** (0.018)	0.149*** (0.017)	0.135*** (0.017)
General trust in institutions (index)	-0.005 (0.007)	0.030*** (0.008)	-0.015** (0.008)	-0.019*** (0.007)
Respondents' economic hardship experiences				
Currently unemployed	0.047*** (0.015)	0.022 (0.017)	0.022 (0.016)	0.041** (0.016)
Had to cut back consumption (2008–2018)	0.051*** (0.013)	-0.040*** (0.014)	0.062*** (0.013)	0.045*** (0.013)
Country fixed effects	yes	yes	yes	yes
Constant	yes	yes	yes	yes
Log likelihood	-4,962.6	-5,506.4	-5,057.8	-5,229.4
Pseudo R-squared (McFadden)	0.06	0.03	0.09	0.06
Probability > Chi squared (df_m)	277.76 (23)	173.84 (23)	449.86 (23)	348.18 (23)
Number of observations	8,551	8,331	8,409	8,296
BIC	10,142.4	11,229.6	10,332.5	10,675.3
P(DepVar=1)	0.69	0.42	0.63	0.60

Source: Authors' calculations based on OeNB Euro Survey 2018.

Note: Average marginal effects estimated with probit regressions with country fixed effects using data from the OeNB Euro Survey 2018; robust standard errors are adjusted for clustering at the PSU level and reported in parentheses. ***, **, * denote that the average marginal effect is statistically different from zero at the 1%, 5% and 10% level, respectively. For a definition of the variables, see annex table A1. P(DepVar=1) denotes the unconditional sample probability of the respective dependent variable. By construction, positive (negative) average marginal effects imply that respondents are more (less) likely to agree with the statement underlying the dependent variable. Base categories are: 35 to 54 years old; main residence is good, only needs minor repair; reports to have no savings; 1-person household, Czech resident. The sample comprises all ten OeNB Euro Survey countries excluding 356 observations of multiple straight-lining (i.e. respondents straight-lined four times regarding five multi-item questions).

Definitions of variables for the regressions on the determinants of straight-lining

Label	Description
<i>Straight-lined responses (dependent variables in the regressions)</i>	
Number of straight-lined responses	Metric variable that counts the number of straight-lining incidences concerning five multi-item questions regarding attitudes toward public debt, assessment of public debt development, satisfaction with public services, trust in institutions and political attitudes.
Straight-lined at least once	Dummy equals 1 if respondents straight-lined at least once; 0 if respondents never straight-lined.
Major straight-lining	Dummy equals 1 if respondents straight-lined responses in four out of five blocs of questions; 0 if respondents straight-lined 1 to 3 times. Excluding respondents who never straight-lined.
<i>Respondents' characteristics</i>	
Age	Age of respondents (years).
Female	Dummy variable that takes the value 1 if respondents were female, 0 otherwise (base category).
Financial literacy (index)	Based on answers to four questions regarding real interest rates, exchange rates, inflation, and risk diversification. Index varies between 0 (= item non-response) and 4 (4 = all questions regarding financial literacy were answered correctly).
Household net income	Dummy variables for the level of total household income after taxes (1 st quartile, 2 nd and 3 rd quartile, 4 th quartile, don't know/no answer). Base category: 2 nd and 3 rd quartile.
Risk averse	Dummy equals 1 if respondents agreed with the statement "In financial matters, I prefer safe investments over risky investments;" 0 otherwise (6-point Likert scale).
Respondent was apprehensive before the survey (index)	Index is based on interviewer assessment of whether respondents seemed apprehensive about the survey prior to the interview; with 1 coding "No, not at all," 2 coding "Yes, a little" and 3 coding "Yes, very."
Respondent was suspicious about the survey afterward (index)	Index is based on interviewer assessment of whether respondents were suspicious about the survey at the end of the interview; with 1 coding "No, not at all," 2 coding "Yes, a little" and 3 coding "Yes, very."
<i>Interviewers' characteristics</i>	
Age	Age of interviewers (years).
Female	Dummy variable that takes the value 1 if interviewers were female, 0 otherwise (base category).
Experience with the OeNB Euro Survey	Dummy variable that takes the value 1 if interviewers had conducted the OeNB Euro Survey at least once before 2018.
<i>Other controls</i>	
Duration of the interview	Total duration of the interview in minutes, excluding sociodemographic questions.

Source: Authors' compilation.

2. Summary statistics and correlations

This section provides the descriptive statistics for both the dependent and the explanatory variables used in the regressions in the main paper (in table 5), followed by the bivariate (Spearman) correlations among the investigated explanatory variables (table 6) to provide guidance for model selection in view of potential multicollinearity. Finally, chart 2 depicts the (weighted) percentage of respondents who agreed with the four statements on public debt and its effects. Agreement refers here not only to those who agreed, or strongly agreed, with the statements (as in chart 2 in the main paper) but also to those who only "somewhat" agreed. Relying on this broader definition, overall agreement rates in CESEE become less different across countries and increase to 63% in the case of "higher debt enables higher investments today," to 74% in the case of "higher debt implies lower future pensions and benefits," to 79% in the case of "higher debt implies higher future taxes," and to 82% in the case of "higher debt compromises the opportunities of future generations." When using this broader definition of agreement for the dependent variables in the estimations, the corresponding results remain

relatively comparable to the less broad definition shown in the main paper – except for some loss in statistical significance (available upon request).

Table 5

Descriptive statistics

	Minimum	Maximum	Number	Mean	Median	Standard deviation
Dependent variables						
Higher public debt compromises opportunities of future generations	0	1	9,427	0.68	1	0.46
Higher public debt allows for higher investments today	0	1	9,192	0.41	0	0.49
Higher public debt implies higher future taxes	0	1	9,280	0.61	1	0.49
Higher public debt implies lower future pensions and benefits	0	1	9,156	0.59	1	0.49
Explanatory variables						
Aged 19 to 34 years	0	1	10,087	0.26	0	0.44
Aged 35 to 54 years	0	1	10,087	0.36	0	0.48
Aged 55+ years	0	1	10,087	0.36	0	0.48
Female	0	1	10,087	0.52	1	0.50
Condition of respondent's home: well-maintained	0	1	10,087	0.30	0	0.46
Condition of respondent's home: good, needs minor repair	0	1	10,087	0.58	1	0.49
Condition of respondent's home: poor, needs major repair	0	1	10,087	0.12	0	0.32
Respondent has accumulated savings	0	1	10,087	0.37	0	0.48
Respondent has not accumulated savings	0	1	10,087	0.60	1	0.49
Respondent refused to reveal extent of savings	0	1	10,087	0.03	0	0.18
1-person household	0	1	10,087	0.15	0	0.35
2-person household	0	1	10,087	0.29	0	0.46
3-plus-person household	0	1	10,087	0.56	1	0.50
Present bias (index)	1	6	9,994	2.86	3	1.28
Discomfort of owing money	0	1	10,046	0.83	1	0.37
General trust in institutions (index)	1	5	10,063	3.21	3.20	0.94
Currently unemployed	0	1	9,979	0.15	0	0.36
Had to cut back consumption (2008–2018)	0	1	9,692	0.28	0	0.45
Capital city resident	0	1	10,087	0.12	0	0.32
Local economic activity (nightlight brightness)	-1.29	3.68	10,087	0.92	0.72	1.20
Self-reported health status (index)	1	4	10,030	2.82	3	0.86
Access to emergency borrowing (index)	0.1	0.9	10,052	0.39	0.37	0.17
Respondent is interested in politics	0	1	9,918	0.36	0	0.48
Respondent is financially literate	0	1	10,087	0.35	0	0.48
Respondent is concerned about development of public debt	0	1	10,021	0.76	1	0.42
Interaction: financially literate AND concerned about public debt development	0	1	9,196	0.30	0	0.46
Respondent failed to identify the size of public debt	0	1	10,087	0.36	0	0.48
Respondent correctly identified the size of public debt	0	1	10,087	0.26	0	0.44
Interaction: correctly identified size of public debt AND concerned about its development	0	1	10,021	0.22	0	0.41
Satisfaction with public services (index)	1	4	9,758	2.11	2	0.68
State is wasting taxpayer money	0	1	9,836	0.62	1	0.48
Preference for income redistribution	0	1	9,928	0.29	0	0.45
Trust in central government	0	1	9,889	0.32	0	0.47

Source: Authors' calculations.

Note: Statistics are weighted, using individual weights calibrated on census population statistics for age, gender, region, and, where available, on education and ethnicity (separately for each country); not adjusted for population size.

Table 6

Bivariate Spearman correlations among explanatory variables

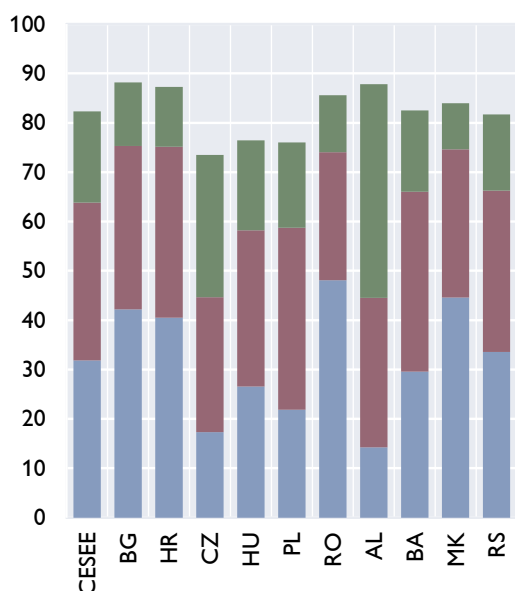
	Aged 19 to 34 years	Aged 35 to 54 years	Aged 55+ years	Female	Condition of respondent's main residence: well-maintained	Condition of respondent's main residence: good, needs minor repair	Condition of respondent's main residence: poor, needs major repair	Respondent has accumulated savings	Respondent has not accumulated savings	Respondent refused to reveal extent of savings	1-person household	2-person household	3-plus-person household	Present bias (index)	Discomfort of owing money	General trust in institutions (index)	Currently unemployed	Had to cut back consumption (2008–2018)	Capital city resident	Local economic activity (nightlight brightness)	Self-reported health status (index)	Access to emergency borrowing (index)	Respondent is interested in politics	Respondent is financially literate	Respondent is concerned about development of public debt	Interaction: financially literate AND concerned about public debt	Respondent failed to identify size of public debt	Respondent correctly identified size of public debt	Interaction: correctly identified size of public debt AND worried about it	Satisfaction with public services (index)	State is wasting taxpayer money	Preference for income redistribution	Trust in central government			
Aged 19 to 34 years																																				
Aged 35 to 54 years	-0.46																																			
Aged 55+ years	-0.43	-0.58																																		
Female	0.01	0.00	0.00																																	
Condition of main residence: well-maintained	0.03	0.03	-0.06	0.02																																
Condition of main residence: good, needs minor repair	0.00	-0.01	0.01	-0.02	-0.79																															
Condition of main residence: poor, needs major repair	-0.04	-0.03	0.07	0.00	-0.23	-0.41																														
Respondent has accumulated savings	-0.03	0.04	-0.01	-0.03	0.15	-0.07	-0.11																													
Respondent has not accumulated savings	0.03	-0.04	0.01	0.03	-0.15	0.07	0.11	-0.92																												
Respondent refused to reveal extent of savings	-0.01	0.01	0.00	-0.01	0.00	0.00	0.00	-0.14	-0.23																											
1-person household	-0.09	-0.12	0.22	0.05	-0.07	0.02	0.09	-0.04	0.03	0.02																										
2-person household	-0.16	-0.14	0.30	-0.05	-0.02	0.02	0.00	0.04	-0.03	-0.01	-0.26																									
3-plus-person household	0.21	0.21	-0.43	0.01	0.07	-0.03	-0.06	-0.01	0.01	0.00	-0.46	-0.74																								
Present bias (index)	0.16	-0.01	-0.15	-0.03	-0.04	0.03	0.00	-0.10	0.10	0.00	-0.02	-0.08	0.09																							
Discomfort of owing money	-0.03	0.00	0.03	0.06	0.02	0.01	-0.05	0.04	-0.02	-0.05	-0.02	-0.01	0.03	-0.04																						
General trust in institutions (index)	0.03	0.01	-0.05	0.01	0.06	0.01	-0.11	0.17	-0.16	-0.03	-0.06	-0.03	0.07	-0.01	0.12																					
Currently unemployed	0.11	0.00	-0.10	0.14	-0.03	-0.04	0.11	-0.13	0.13	-0.01	-0.08	-0.10	0.14	0.04	0.03	-0.03																				
Had to cut back consumption (2008–2018)	-0.07	0.02	0.06	0.03	-0.08	-0.02	0.14	-0.05	0.05	0.00	0.04	0.03	-0.06	-0.06	0.04	-0.14	0.04																			
Capital city resident	0.02	0.00	-0.02	0.01	0.02	-0.01	-0.02	0.03	-0.03	0.00	0.03	0.02	-0.03	-0.01	0.00	0.02	-0.04	0.01																		
Local economic activity (nightlight brightness)	0.07	0.00	-0.06	0.01	0.03	-0.01	-0.03	0.09	-0.09	-0.01	0.02	0.02	-0.03	0.01	-0.01	-0.03	-0.11	0.03	0.52																	
Self-reported health status (index)	0.34	0.08	-0.42	-0.05	0.16	-0.04	-0.18	0.09	-0.09	-0.02	-0.18	-0.16	0.27	0.12	-0.01	0.15	0.00	-0.21	0.05	0.05																
Access to emergency borrowing (index)	0.11	0.07	-0.17	-0.03	0.07	0.00	-0.10	0.14	-0.15	0.02	-0.11	-0.08	0.15	0.13	0.00	0.19	-0.05	-0.11	0.04	0.04	0.16															
Respondent is interested in politics	-0.05	0.01	0.05	-0.12	0.03	-0.03	-0.01	0.09	-0.08	-0.01	0.00	0.02	-0.01	0.07	0.04	0.11	-0.06	-0.02	0.03	0.03	0.00	0.08														
Respondent is financially literate	-0.03	0.02	0.01	-0.05	0.05	-0.03	-0.04	0.15	-0.14	-0.05	0.00	0.03	-0.03	-0.12	0.08	0.11	-0.07	0.05	0.04	0.09	0.05	-0.04	0.05													
Respondent is concerned about development of public debt	-0.01	0.02	0.00	-0.02	0.02	0.00	-0.03	-0.05	0.06	-0.04	-0.03	0.00	0.02	-0.01	0.14	0.00	0.02	0.06	-0.01	-0.03	-0.01	0.00	0.04	0.04												
Interaction: financially literate AND concerned about public debt	-0.04	0.03	0.01	-0.04	0.04	-0.03	-0.01	0.11	-0.09	-0.04	0.01	0.02	-0.03	-0.11	0.09	0.06	-0.06	0.08	0.02	0.07	0.02	-0.07	0.04	0.88	0.29											
Respondent failed to identify size of public debt	-0.02	-0.04	0.05	0.09	-0.01	0.00	0.03	-0.08	0.05	0.08	0.06	0.00	-0.04	-0.05	0.02	-0.08	0.02	0.06	-0.02	-0.04	-0.08	-0.12	-0.13	-0.05	-0.12	-0.04										
Respondent correctly identified size of public debt	0.00	0.02	-0.01	-0.05	0.10	-0.07	-0.03	0.12	-0.10	-0.05	-0.03	0.00	0.02	-0.02	0.02	0.07	-0.02	-0.02	0.03	0.04	0.05	0.03	0.10	0.12	0.09	0.12	-0.45									
Interaction: correctly identified size of public AND worried about it	0.00	0.02	-0.01	-0.05	0.09	-0.07	-0.02	0.09	-0.07	-0.04	-0.03	-0.01	0.03	-0.02	0.05	0.06	0.00	0.00	0.02	0.01	0.05	0.02	0.09	0.12	0.29	0.19	-0.40	0.89								
Satisfaction with public services (index)	0.04	-0.02	-0.02	0.00	-0.02	0.06	-0.05	0.09	-0.08	-0.02	-0.02	-0.02	0.03	0.11	0.02	0.37	-0.01	-0.12	-0.01	-0.02	0.08	0.10	0.09	0.01	-0.09	-0.05	-0.03	0.00	-0.02							
State is wasting taxpayer money	-0.03	0.01	0.02	0.00	0.03	-0.02	-0.01	-0.03	0.04	-0.03	-0.01	0.03	-0.02	-0.07	0.08	-0.17	0.01	0.09	-0.04	-0.01	-0.03	-0.09	-0.07	0.05	0.20	0.10	0.04	0.01	0.05	-0.28						
Preference for income redistribution	0.03	0.00	-0.03	-0.03	0.02	0.00	-0.03	0.00	0.01	-0.02	-0.03	-0.03	0.04	0.07	-0.04	-0.02	0.03	-0.07	-0.01	0.00	0.05	0.06	-0.01	-0.09	0.03	-0.08	-0.04	0.00	0.00	0.00	0.17					
Trust in central government	0.01	0.00	-0.01	-0.01	-0.02	0.04	-0.04	0.05	-0.04	-0.02	-0.03	-0.05	0.07	0.05	0.02	0.51	-0.02	-0.12	0.00	-0.02	0.09	0.15	0.13	-0.02	-0.10	-0.07	-0.10	0.02	-0.01	0.34	-0.25	-0.01				

Source: Authors' calculations.

Attitudes toward public debt

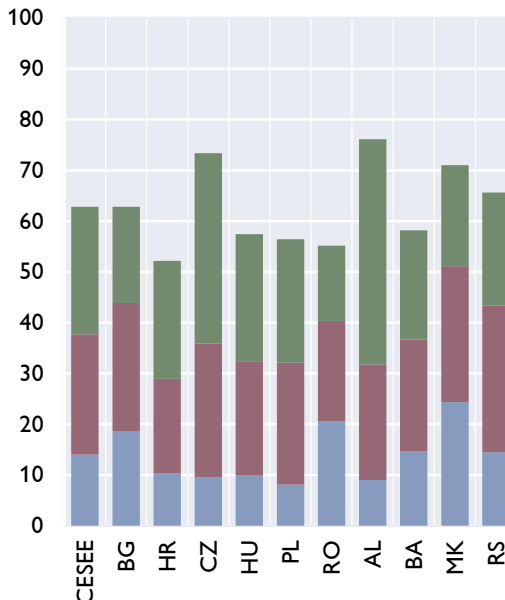
Higher debt compromises opportunities of future generations

% of individuals



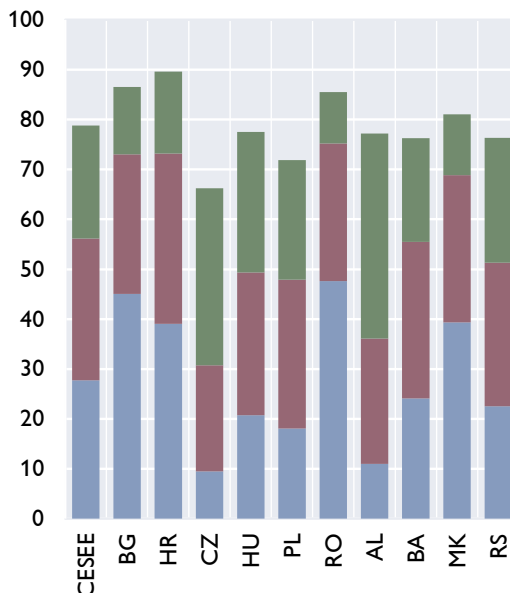
Higher debt allows for higher investments today

% of individuals



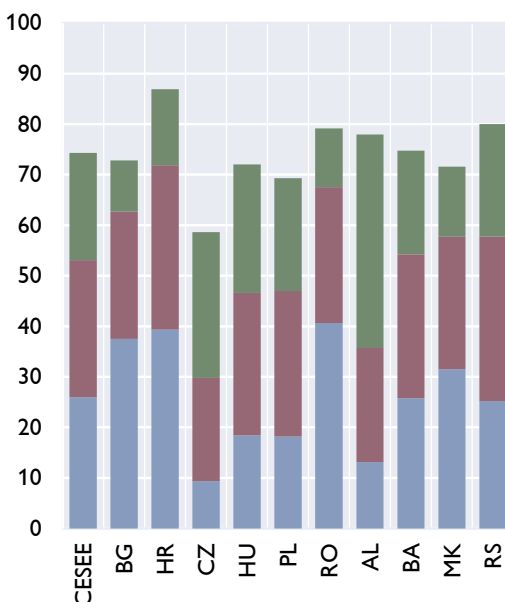
Higher debt implies higher future taxes

% of individuals



Higher debt implies lower future pensions and benefits

% of individuals



■ Strongly agree ■ Agree ■ Somewhat agree

Source: OeNB Euro Survey 2018.

Note: Respondents were asked whether they agree or disagree with the respective statements on a 6-point Likert scale. Percentages are weighted, using weights calibrated on census population statistics for age, gender, region, and, where available, on education and ethnicity (separately for each country). Excluding respondents who answered "don't know" or did not provide an answer. Entries for CESEE are unconditional averages across all observations, using individual weights not adjusted for population size.

3. Further estimation results

3.1 Narrower sets of baseline regressors

As mentioned in the main paper, model selection follows a *specific-to-general* approach. Table 7 below shows the probit results if we (1) use only the sociodemographic and socioeconomic characteristics as regressors (odd columns) and (2) expand the regression with the variables of general attitudes (even columns).

Table 7

Probit estimations: general factors associated with attitudes toward public debt

Outcome variable: agreement with statement (0/1)	Binary dependent variables							
	Higher public debt compromises opportunities of future generations		Higher public debt allows for higher investments today		Higher public debt implies higher future taxes		Higher public debt implies lower future pensions and benefits	
	1	2	3	4	5	6	7	8
Average marginal effects								
Respondents' sociodemographic and socioeconomic characteristics								
Aged 19 to 34 years	-0.018 (0.012)	-0.007 (0.012)	0.008 (0.013)	-0.004 (0.013)	-0.012 (0.012)	-0.000 (0.013)	-0.013 (0.013)	-0.004 (0.013)
Aged 55+ years	0.011 (0.013)	0.000 (0.013)	-0.009 (0.014)	-0.000 (0.014)	0.004 (0.013)	-0.007 (0.013)	-0.013 (0.013)	-0.020 (0.013)
Female	-0.003 (0.010)	-0.008 (0.010)	0.001 (0.010)	-0.001 (0.010)	0.012 (0.009)	0.005 (0.009)	0.003 (0.009)	-0.002 (0.009)
Dwelling is excellent and well-maintained	0.024* (0.012)	0.025** (0.012)	0.035*** (0.013)	0.033** (0.013)	0.021* (0.013)	0.026** (0.012)	0.017 (0.013)	0.020 (0.013)
Dwelling is poor, needs major repair	0.052*** (0.017)	0.056*** (0.017)	0.037* (0.019)	0.047** (0.019)	0.017 (0.018)	0.019 (0.017)	0.047*** (0.018)	0.047*** (0.018)
Respondent has accumulated savings	0.034*** (0.012)	0.028** (0.012)	0.029** (0.014)	0.026* (0.014)	0.029** (0.013)	0.023* (0.013)	0.016 (0.013)	0.013 (0.013)
Refused to reveal extent of savings	-0.034 (0.032)	-0.016 (0.031)	-0.033 (0.036)	-0.026 (0.037)	-0.015 (0.032)	0.001 (0.031)	-0.014 (0.033)	-0.003 (0.033)
2-person household	-0.013 (0.016)	-0.015 (0.016)	-0.041** (0.018)	-0.039** (0.018)	-0.035** (0.017)	-0.036** (0.017)	-0.017 (0.017)	-0.015 (0.017)
3-plus-person household	-0.019 (0.017)	-0.022 (0.017)	-0.046** (0.018)	-0.044** (0.018)	-0.037** (0.018)	-0.040** (0.017)	-0.019 (0.017)	-0.019 (0.017)
Respondents' general attitudes								
Present bias (index)		-0.026*** (0.005)		0.032*** (0.005)		-0.024*** (0.005)		-0.014*** (0.005)
Discomfort of owing money		0.105*** (0.016)		0.034* (0.018)		0.154*** (0.016)		0.139*** (0.016)
General trust in institutions (index)		-0.012* (0.007)		0.027*** (0.007)		-0.021*** (0.007)		-0.023*** (0.007)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log likelihood	-5,567.3	-5463.3	-6100.1	-6005.8	-5682.2	-5545.2	-5823.5	-5714.3
Pseudo R-squared (McFadden)	0.05	0.06	0.02	0.03	0.08	0.10	0.06	0.07
Pseudo R-squared (McKelvey & Zavoina)	0.10	0.12	0.04	0.06	0.16	0.19	0.12	0.14
Probability > Chi squared (df_m)	253.34 (18)	304.36 (21)	123.87 (18)	175.58 (21)	392.29 (18)	490.04 (21)	303.30 (18)	380.20 (21)
Number of observations	9,393	9,315	9,160	9,086	9,248	9,172	9,125	9,055
BIC	11,308.4	11,127.7	12,373.6	12,212.2	11,537.9	11,291.1	11,820.2	11,629.0
Adjusted pseudo R-squared (McFadden)	0.05	0.06	0.02	0.02	0.08	0.09	0.06	0.07
Tjur's D	0.07	0.08	0.04	0.03	0.11	0.12	0.08	0.09
P(DepVar=1)	0.68	0.68	0.41	0.42	0.61	0.61	0.59	0.59

Source: Authors' calculations based on OeNB Euro Survey 2018.

Note: Average marginal effects estimated with probit regressions with country fixed effects using data from the OeNB Euro Survey 2018; robust standard errors are adjusted for clustering at the PSU level and reported in parentheses. ***, **, * denote that the average marginal effect is statistically different from zero at the 1%, 5% and 10% level, respectively. For a definition of the variables, see annex table A1. P(DepVar=1) denotes the unconditional sample probability of the respective dependent variable. By construction, positive (negative) average marginal effects imply that respondents are more (less) likely to agree with the statement underlying the dependent variable. Base categories are: 35 to 54 years old; main residence is good, only needs minor repair; reports to have no savings; 1-person household; Czech resident. The sample comprises all ten OeNB Euro Survey countries.

3.2 Ordered probit and generalized ordered probit as alternative estimators

As mentioned in the main paper, the binary dependent variables are derived from naturally ordered raw data. Hence, we explored alternative estimators that exploit the ordered structure of the data. An ordered probit model for the baseline specification of the four dependent variables (table 8) confirms the main results concerning excellent housing conditions, respondents' general attitudes and economic hardship experiences, while the regressors for poor housing conditions and savings turn out insignificant. When using models for ordinal dependent variables, we need to test whether the proportionality assumption (parallel lines assumption) holds. Since the Brant Test (1990) and the Wolfe-Gould Test (1998) rejected the null hypothesis of proportional odds, we explored whether a more generalized specification with variable parameters for selected explanatory factors may be a better fit. In our analysis, following the procedure of Williams (2006, 2016), we detected four explanatory variables for which variable parameters could potentially increase the goodness-of-fit: the three individual attitude variables (i.e. present bias, discomfort of owing money and general trust in institutions) and the cut-back-consumption variable.

The final specification is a generalized ordered probit model with clustered standard errors at the primary sampling unit (PSU) level, variable parameters for the mentioned four explanatory variables and proportional parameters for all others. The coefficients of the four explanatory variables vary substantially in size and sign across the six categories for all four dependent variables. The intuition that the correlation between public debt attitudes and individual attitudes or economic hardship experience varies with the degree of agreement or disagreement seems plausible. The main results remain unchanged compared to the ordered probit as presented in table 8, but we get a more detailed picture, as expected. For higher degrees of agreement with the statements "higher public debt compromises the opportunities of future generations" and "higher public debt implies lower future pensions and benefits," the mitigating effect of present bias becomes larger; for the statement "higher public debt allows for higher investments today," it becomes smaller. Discomfort of owing money as well as general trust in institutions have the largest coefficients for the middle categories of the dependent variables "higher public debt compromises the opportunities of future generations", "implies higher future taxes" and "implies lower future pensions and benefits." For higher degrees of disagreement with the statement "higher public debt allows for higher investments today," the effect of general trust in institutions or consumption cuts becomes larger. For higher degrees of agreement with the statements "higher public debt compromises the opportunities of future generations", "implies higher future taxes" and "implies lower future pensions and benefits," the effect of consumption cuts becomes larger.

Since the results of the (generalized) ordered probit model pretty much confirm the main insights, we opted to present the more restrictive but more easily accessible probit models in the main body of the study.

Ordered probit estimations: main factors associated with attitudes toward public debt (baseline)

Outcome variable: agreement with statement (from 1 "strongly disagree" to 6 "strongly agree")	Ordinal dependent variables			
	Higher public debt compromises opportunities of future generations	Higher public debt allows for higher investments today	Higher public debt implies higher future taxes	Higher public debt implies lower future pensions and benefits
	1	2	3	4
Coefficients				
Respondents' sociodemographic and socioeconomic characteristics				
Aged 19 to 34 years	-0.040 (0.030)	-0.031 (0.028)	0.012 (0.031)	-0.018 (0.030)
Aged 55+ years	-0.015 (0.032)	0.027 (0.030)	-0.035 (0.030)	-0.033 (0.031)
Female	-0.062*** (0.023)	-0.001 (0.022)	-0.017 (0.023)	0.001 (0.022)
Dwelling is well maintained	0.086*** (0.031)	0.062** (0.029)	0.055* (0.031)	0.020 (0.032)
Dwelling is poor, needs major repair	0.067 (0.047)	0.070 (0.043)	-0.003 (0.046)	0.066 (0.045)
Respondent has not accumulated savings	0.033 (0.030)	0.018 (0.030)	0.003 (0.031)	0.013 (0.031)
Refused to reveal extent of savings	-0.031 (0.079)	-0.087 (0.094)	0.018 (0.080)	0.018 (0.082)
2-person household	-0.036 (0.041)	-0.075* (0.039)	-0.058 (0.041)	-0.018 (0.040)
3-plus-person household	-0.067 (0.043)	-0.086** (0.040)	-0.060 (0.040)	-0.028 (0.041)
Respondents' general attitudes				
Present bias (index)	-0.070*** (0.013)	0.089*** (0.013)	-0.070*** (0.013)	-0.037*** (0.013)
Discomfort of owing money	0.282*** (0.042)	0.064* (0.038)	0.344*** (0.041)	0.328*** (0.040)
General trust in institutions (index)	-0.043** (0.018)	0.109*** (0.018)	-0.051*** (0.019)	-0.066*** (0.018)
Respondents' economic hardship experiences				
Currently unemployed	0.125*** (0.038)	0.029 (0.038)	0.051 (0.038)	0.125*** (0.039)
Had to cut back consumption (2008–2018)	0.195*** (0.033)	-0.132*** (0.033)	0.177*** (0.032)	0.121*** (0.034)
Country fixed effects	Yes	Yes	Yes	Yes
Constant	No	No	No	No
Threshold parameters				
Cut $Pr(y_i = 2 \text{ "disagree"})$	-1.944*** (0.113)	-1.082*** (0.097)	-1.816*** (0.107)	-1.687*** (0.106)
Cut $Pr(y_i = 3 \text{ "somewhat disagree"})$	-1.352*** (0.110)	-0.514*** (0.096)	-1.243*** (0.103)	-1.049*** (0.103)
Cut $Pr(y_i = 4 \text{ "somewhat agree"})$	-0.895*** (0.109)	0.002 (0.097)	-0.685*** (0.103)	-0.505*** (0.104)
Cut $Pr(y_i = 5 \text{ "agree"})$	-0.136 (0.108)	0.742*** (0.099)	0.173* (0.101)	0.236** (0.102)
Cut $Pr(y_i = 6 \text{ "strongly agree"})$	0.793*** (0.108)	1.561*** (0.101)	1.055*** (0.102)	1.069*** (0.103)
Log likelihood	-12202.4	-14344.4	-12255.8	-12812.3
Pseudo R-squared (McFadden)	0.03	0.01	0.05	0.03
Probability > Chi squared (df_m)	381.05 (23)	214.38 (23)	616.53 (23)	374.78 (23)
Number of observations	8,907	8,687	8,765	8,652
BIC	24,659.5	28,942.7	24,765.9	25,878.4
Uncondition mean of dep. variable	4.85	4.04	4.71	4.61

Source: Authors' calculations based on OeNB Euro Survey 2018.

Note: Coefficients estimated with ordered probit regressions with country fixed effects using data from the OeNB Euro Survey 2018; robust standard errors are adjusted for clustering at the PSU level and reported in parentheses. ***, **, * denote that the average marginal effect is statistically different from zero at the 1%, 5% and 10% level, respectively. For a definition of the variables, see annex table A1. By construction, positive (negative) coefficients imply that respondents are more (less) likely to agree with the statement underlying the dependent variable. Base categories are: 35 to 54 years old; main residence is good, only needs minor repair; reports to have no savings; 1-person household; Czech resident. The sample comprises all ten OeNB Euro Survey countries.

3.3 LASSO as alternative model selection method

The least absolute shrinkage and selection operator (LASSO) is a machine-driven method for automatic selection of explanatory variables from a larger set of candidate variables, which also produces estimates. We use LASSO to verify whether it selects the variables that turned out to be significant in the probit analysis. The central idea behind LASSO, which was developed by Tibshirani (1996), is to minimize the residual sum of squares, subject to the sum of the absolute value of the coefficients being smaller than a chosen parameter. The starting point is that all coefficients are equal to zero; then variables are added one by one on the grounds of their correlation with the dependent variable. The stepwise selection of variables is based on the extended Bayesian information criterion, as proposed by Chen and Chen (2008).

The LASSO results (table 9) are generally similar to the probit results presented in the main paper. Most of the variables that are significant according to LASSO are also significant in the probit estimations, with the same signs for the coefficients. At the same time, LASSO did not select a few variables that were (not highly) significant in several probit estimations (e.g. poor housing conditions, savings, general trust, local economic activity, health status, debt knowledge).

LASSO estimations: automatic selection of explanatory variables

Outcome variable: agreement with statement (0/1)	Binary dependent variables			
	Higher public debt compromises opportunities of future generations	Higher public debt allows for higher investments today	Higher public debt implies higher future taxes	Higher public debt implies lower future pensions and benefits
	1	2	3	4
Respondents' sociodemographic and socioeconomic characteristics				
Dwelling is well maintained	0.030	0.014		0.029
Refused to reveal extent of savings			0.042	
3-plus-person household	-0.007		-0.008	
Respondents' general attitudes				
Present bias (index)	-0.008	0.018	-0.009	
Discomfort of owing money	0.058	0.012	0.101	0.079
Respondents' economic hardship experiences				
Currently unemployed	0.035		0.022	0.027
Had to cut back consumption (2008–2018)	0.047		0.053	0.038
Capital city resident	0.016		0.008	
Access to emergency borrowing (index)	-0.031		-0.141	-0.117
Household net income: 4 th quartile				
Household income (don't know/no answer)	0.006		0.022	0.025
Respondents' financial literacy level and debt knowledge				
Interested in politics		0.031	0.016	
Financially literate	0.068		0.029	
Concerned about size of public debt	0.178	0.092	0.237	0.219
Interaction: financially literate AND concerned about size of public debt	0.009	0.018		0.036
Respondent failed to identify size of public debt	0.041		0.045	0.014
Interaction: correctly identified size of public debt AND worried about it	0.046		0.013	
Political attitudes				
Satisfaction with public services (index)	-0.032	0.039	-0.032	-0.032
State is wasting taxpayer money	0.089		0.104	0.073
Preference for income redistribution	-0.039		-0.057	-0.033
Trust in central government	-0.02		-0.066	-0.065
lambda (selected with extended BIC)	145.51	190.08	90.06	136.35

Source: Authors' calculations.

Note: Only the LASSO coefficient estimates are shown, for clarity. These are linear estimates, so they are not directly comparable to the probit coefficients, but the sign of the coefficients is comparable.

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