

Beliefs about Government Debt and Political Attitudes: Pre-Analysis Plan*

Christopher Roth[†] Johannes Wohlfart[‡]

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Abstract

We examine whether people's beliefs about government debt affect their attitudes towards government spending and taxation. We first ask all of our respondents about their estimate of the current debt-to-GDP ratio in the United States. Then, we inform half of the participants about the actual current debt-to-GDP ratio. Thereafter, all of our respondents complete a series of questions measuring their attitudes towards government spending and taxation. In this document, we outline our plan for analysis of the data, including the main specifications of interest, the dimensions of heterogeneity, and corrections for multiple hypothesis testing.

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[†]Department of Economics, University of Oxford and CSAE, e-mail: christopher.roth@economics.ox.ac

[‡]Johannes Wohlfart, Department of Economics, Goethe University Frankfurt, e-mail: wohlfart@econ.unifrankfurt.de

1 Motivation

Government debt in many of the biggest economies in the world has reached very high levels and keeps increasing. For example, the debt-to-GDP ratio in the United States has reached 104.81 percent in 2016. The high levels of government debt have important implications for the tax burden of future generations, the sustainability of public finances and the possibility of a fiscal crisis and a government debt default. The European sovereign debt crisis as well as the recent debt ceiling crises in the U.S. have highlighted the potential negative consequences of high levels of indebtedness.

Little is understood on people’s beliefs and preferences regarding government debt. However, understanding people’s beliefs and preferences is crucial for optimal government policy. In particular, it is important to understand whether people’s demand for government spending and taxation depends on people’s beliefs about the degree of indebtedness of the government.

In this paper, we address these issues in the context of a survey experiment that we intend to field in the United States. In the experiment, we elicit people’s beliefs about the current debt-to-GDP ratio and then examine how correcting people’s biases in beliefs about this statistic affects their attitudes towards government spending and taxation measured using self-reports.

We already conducted an experiment with 800 people from Amazon Mechanical Turk. In this new experiment we plan to recruit 800 participants from an online panel representative of the US population in terms of age, gender and region.

We hypothesize that most individuals under-estimate the degree of indebtedness and that individuals who realize that there is more debt than they thought will be in favor of cutting government spending or increasing taxes. We also shed light on mechanisms by examining how beliefs about the degree of indebtedness affect people’s trust in the government, their beliefs about rent-seeking and inefficiencies in the public sector, their beliefs about the sustainability of public finances and the levels of government spending and taxation people expect for themselves and for future generations.

We contribute to the literature asking whether the provision of economically relevant information can change people’s political attitudes (Alesina et al., 2017; Gilens, 2001; Grigorieff et al., 2016; Kuklinski et al., 2000; Lawrence and Sides, 2014).¹ Overall, the evidence on the impact of information on policy preferences is mixed. While Kuziemko et al. (2015) find that providing

¹For an excellent overview on the related literature on persuasion, see DellaVigna and Gentzkow (2010).

people with information about income inequality in the U.S. does not affect their demand for redistribution, Cruces et al. (2013) and Karadja et al. (2016) show that informing people about their position in the income distribution changes their redistributive preferences.

Our paper is most closely related to Lergetporer et al. (2016) and West et al. (2016) who show that providing people with information about current levels of government spending on different categories and education, respectively, sharply decreases people’s support for spending increases in these categories. In our paper we look at a different kind of misinformation, namely misinformation about the debt-to-GDP ratio. Our setting allows us to shed light on whether voters are forward-looking and on how their beliefs about fiscal sustainability are affected by information. Finally, our design enables us to provide evidence on the mechanisms through which our findings may operate by collecting rich data on people’s beliefs about the government.

Moreover, we contribute to the literature on the determinants of preferences for redistribution (Alesina and Giuliano, 2010; Alesina and La Ferrara, 2005; Fisman et al., 2015; Giuliano and Spilimbergo, 2014; Roth and Wohlfart, 2016). Our paper extends this literature by providing the first evidence on the role of people’s beliefs about government debt in the formation of attitudes towards redistributive policies of the government such as spending on income support and social insurance programs.

Our paper also adds to the largely theoretical literature on the political economy of government debt (Alesina and Passalacqua, 2015; Alesina and Tabellini, 1990; Persson and Svensson, 1989). By examining whether people’s beliefs about future taxes and future government spending change in response to changes in beliefs about government debt, we provide direct experimental evidence on whether voters understand the notion of the intertemporal budget constraint of the government.^{2,3}

Our paper also contributes to the small correlational literature examining whether voters punish governments for running budget deficits, which provides indirect evidence on voters’ preferences over government debt.⁴ We also speak to the debate whether misinformation plays

²More generally, we contribute to the literature discussing the relevance of “fiscal illusion” and in particular “debt illusion”, i.e. the notion that people perceive the costs of a particular spending program more accurately if it is tax-financed rather than debt-financed.

³The assumption that voters understand the government’s intertemporal budget constraint is one of the key assumptions underlying the Ricardian Equivalence Theorem (Barro, 1974; Buchanan, 1976).

⁴For example, Peltzman (1992) documents that voters in the U.S. penalize governments for spending increases, but do not react to deficit spending. Brender and Drazen (2008) show that voters punish budget deficits rather than rewarding them. Alesina et al. (1998) provide evidence that fiscal austerity increases rather than decreases re-election probabilities using opinion poll data, while Alesina et al. (2012) find that fiscal adjustment does not affect re-election probabilities using actual election results. This literature suffers from several methodological

an important role in the emergence of political budget cycles.⁵ Finally, our paper is related to the literature that examines how conflicting interests of voters of different generations affect the equilibrium levels of government debt, government spending and taxation (Müller et al., 2016; Song et al., 2012).

2 Experimental Design

2.1 Main experiment

Our experiment is structured as follows: First, we ask all respondents some questions about their demographics (age, gender, political affiliation). Second, we inform all participants about the debt-to-GDP ratio in 1970⁶ and ask them to estimate the current debt-to-GDP ratio in the U.S.. Third, only respondents in the treatment group receive information about the actual debt-to-GDP ratio in the U.S. in 2016 (104.81 percent).

Then, we ask all of our respondents whether they think that there is too much government debt in the U.S. and whether the government should reduce the amount of debt. Thereafter, we ask them a series of questions on their attitudes towards the amount of government spending in general and on different spending categories. Subsequently, our respondents answer a series of questions on whether income taxes of different income groups should be increased or decreased, whether the government should introduce a wealth tax and whether the Estate tax should be increased or decreased.

We also add a question that allows us to understand our respondents' preferences over debt-vs. tax-financed government spending. Half of our respondents are asked whether they support the introduction of a temporary investment program on infrastructure which is financed by a temporary tax increase, while the remaining respondents are asked whether they are supportive of the same investment program financed by issuing new debt. This novel measure allows us to test whether people's beliefs about the level of government debt affect their preferences over the way new government spending is financed.

problems such as reverse causality which Alesina and Passalacqua (2015) succinctly summarize in their review article.

⁵Shi and Svensson (2006) document the importance of political budget cycles in a large panel of countries. Importantly, they find that political budget cycles are a lot weaker if the share of informed voters is higher. Akhmedov and Zhuravskaya (2004) document regional political budget cycles in Russia and show that they are weaker, among others, with greater voter awareness, government transparency and media freedom.

⁶We include this anchor in order to make sure that people's subsequent estimate of the debt-to-GDP is meaningful to them.

Subsequently, we explore mechanisms, such as our respondents' expectations about future taxation and government spending as well as their beliefs about the sustainability of public finances. Moreover, we measure our respondents' trust towards the government and their beliefs about the effectiveness of the government and about the corruption of politicians.

Finally, we ask our respondents a series of questions on their demographics. The detailed experimental instructions can be found in Appendix A.

3 Setting and Sample Size

We collaborate with a market research company, "Research Now", which provides us with a sample representative in terms of the US population in terms of age, gender, and area of residence. To obtain this representativeness, "Research Now" uses quotas which it sets at the beginning of the study. Moreover, in order to exclude participants who will not pay any attention to our survey, we include a screener developed by Berinsky et al. (2014) at the start of the experiment. Only participants who manage to pass this screener will be able to proceed to the actual experiment.⁷

3.1 Power calculation

To have 80 percent power to detect an effect size of one-fifth of a standard deviation at a 5 percent significance level, we need 400 subjects in each treatment cell, or 800 subjects in total. For the main experiment, we therefore plan to recruit 800 participants. It is worth noting that in our main specification we will include control variables which will increase our effective power. If our controls explain 15 percent of the variation, we will have a power of 80 percent to detect effect sizes of approximately .16 of a standard deviation.

4 Main Hypothesis and Mechanisms

4.1 Main Hypothesis

We hypothesize that individuals who underestimate the debt-to-GDP ratio and who receive the information about the actual debt-to-GDP ratio will be in favor of cutting government debt, by lowering spending or by increasing taxes.

⁷For the exact instructions, please refer to Appendix A.

4.2 Mechanisms

We consider four main mechanisms through which beliefs about the debt-GDP-ratio could affect attitudes towards government spending and taxation:

- **Intertemporal government budget constraint:** If people are aware of the intertemporal budget constraint of the government, changing their beliefs about government debt should affect their expectations about future taxes or future government spending. If they expect taxes to increase or government spending to decrease in the future, they might prefer the government to cut current government spending or to increase current taxes. This has particular empirical predictions that depend on the respondent's age and, assuming that individuals care about the resources available to their children in the future, whether the respondent has children. In particular, we would expect younger people and people with children who learn that there is more debt than they thought to more strongly adjust their preferences regarding government spending and taxation.
- **Beliefs about fiscal sustainability:** People who learn that there is more government debt than they thought there was could update their beliefs about the probability of a fiscal crisis. If people's subjective probability of a fiscal crisis increases, they might be more inclined to either cut government spending or to increase taxes.
- **Trust in the government:** Changes in beliefs about the debt-to-GDP ratio could affect people's trust towards the U.S. government. Specifically, after learning that the debt-to-GDP ratio has reached a higher level than they previously thought they could become less likely to think that the government can be trusted to do what is right. Therefore, respondents may prefer to downsize the government.
- **Beliefs about the effectiveness of the government and the corruption of politicians:** Once people learn about the large amount of government debt, they may update their beliefs about the wastage that occurs in the bureaucratic process. Specifically, such wastage could occur through corruption of politicians or a general lack of effectiveness of the government. Thus, they may be more inclined to cut the size of the government.

5 Analysis

5.1 Baseline Balance

We will test for baseline balance for the following variables:

- Estimate of the debt-to-GDP ratio.
- Gender.
- Age.
- log income (income is the midpoint of the interval specified by the respondent).
- Number of children
- Employment status (dummies for unemployed, part-time employed, employed full-time, retired and student).
- Education (dummy for person with at least bachelor degree).
- Political orientation (taking value one for Republicans and zero otherwise).

We will regress each of these variables on a treatment indicator to see if there are imbalances. We will account for multiple hypothesis testing by regressing the treatment indicator on all of the variables, and we will conduct a joint F-test, to see if the coefficients are jointly different from zero.

5.2 Main Specifications

First, we simply compare the behavior of people in the treatment group with that of people in the control group. We regress our outcome variables y_i on a treatment indicator, $Treatment_i$, which takes the value one for people who receive the information treatment, and the value zero for all the other participants:

$$y_i = \pi_0 + \pi_1 Treatment_i + \Pi^T \mathbf{X}_i + \varepsilon_i$$

where X_i is a vector of control variables, including all of the variables we use in the baseline balance check and ε_i is an individual-specific error term.⁸ We also present our results without any additional control variables.

5.3 Tax- vs. Debt-Financed Spending Program

We ask our respondents for their support of an infrastructure program and randomly assign whether this program is tax-financed or debt-financed. This allows us to cleanly identify whether people’s support for the exact same investment program hinges on whether it is financed by debt or by a temporary tax increase. To analyze whether our treatment has differential effects depending on whether a proposed spending program is tax-financed or debt-financed, we create the dummy variable $Debt_i$, which takes value one for participants who are asked about support for a debt-financed infrastructure program and value zero for participants who are asked about support for a tax-financed program. We estimate the following specification:

$$y_i = \pi_0 + \pi_1 Treatment_i \times Debt_i + \pi_2 Treatment_i + \pi_3 Debt_i + \Pi^T \mathbf{X}_i + \varepsilon_i$$

The coefficients π_1 and π_2 capture effects of our treatment on support for the program that potentially differ depending on the mode of financing. We are also interested in the coefficient π_3 , which captures whether people in the control group differentially support tax-financed and debt-financed infrastructure investments.

5.4 Heterogeneous Treatment Effects

We will also check whether there are important heterogeneous treatment effects caused by our information treatment. For all of the heterogeneity analysis, we look at the same outcomes as in the main analysis.⁹ Specifically, we will estimate the following equation, where $interaction_i$ refers to the interaction variable:

$$y_i = \pi_0 + \pi_1 Treatment_i \times interaction_i + \pi_2 Treatment_i + \pi_3 interaction_i + \Pi^T \mathbf{X}_i + \varepsilon_i$$

We will explore heterogeneity along the following dimensions:

⁸We report robust standard errors for all estimations.

⁹The different families of outcomes and the corresponding indices are defined below, in the section “Use of indices” (section 5.6.1).

- **Belief that the debt-to-GDP ratio is low:** Our information treatment is designed to be more effective for people who have highly biased beliefs about the debt-to-GDP ratio. We therefore create an indicator variable taking the value one for subjects who estimate the debt-to-GDP ratio to be lower than 90 percent.¹⁰
- **Size of bias about the debt-to-GDP ratio:** We also use a continuous winsorized¹¹ measure of the bias in beliefs people have about the debt-to-GDP ratio pre-treatment, which is given by people's estimate of the debt-to-GDP ratio minus 104.81 (the actual debt-to-GDP ratio in 2016).
- **Political Orientation:** We code this variable such that it takes value one for all respondents who say that they are Republicans.
- **Age:** We use age as a continuous variable to examine heterogeneity. We expect young individuals to respond more strongly to the treatment as they are more likely to see higher taxes and lower government spending in the future which might become necessary to reduce government debt.
- **Children:** We use a dummy variable taking value one if the respondent reports having at least one child. If people care about the resources available to their children we would expect stronger responses to our treatment among people who have children.
- **High Income:** This variable takes value one for all respondents who have a household income of above 50,000 US dollars.
- **High Education:** This variable takes value one for all respondents who have at least completed a bachelor degree.

5.5 Main Specifications: Mechanisms

We examine in how far the information treatment affects the following set of variables which we collect to test for mechanisms. In particular, we collect data on the following potential mechanisms:

- **Trust in the government:** We collect data on people's trust in the government.

¹⁰We also assess the robustness of this result to using dummy variables taking value one for people whose estimates of the debt-to-GDP ratio are lower than 60 percent or for those with estimates below the true value.

¹¹We winsorize the data at an estimate of the debt-to-GDP ratio of 200 (i.e. a bias of 95.19) to make sure that our results are not driven by outliers.

- **Beliefs about politicians and the government:** We collect data on people’s beliefs about the wastage occurring through corruption of politicians or a general lack of effectiveness of the bureaucratic process.
- **Expected future taxes:** We collect data on the level of taxation they expect for themselves in the future and for future generations.
- **Expected future government spending:** We collect data on the level of government spending they expect for themselves in the future and for future generations.
- **Beliefs about fiscal sustainability:** We collect data on people’s beliefs about fiscal sustainability.

5.6 Multiple Hypothesis Adjustment

To deal with the issue of multiple hypotheses testing, we adopt two strategies.

5.6.1 Use of Indices

First, we group our explicit outcome measures into different families of outcomes, and create an index for each family. We use the method described in Anderson (2008) to create the various indices.¹²

We define the families of outcomes as follows:

- **Perception of the amount of government debt:**
 - There is too much government debt in the United States.
 - The government should reduce the amount of government debt.
- **Attitudes towards government spending:**¹³
 - Do you think the overall amount of government spending should be increased, decreased, or remain the same? [It should be increased a lot; It should be increased a little; It should remain as it is; It should be decreased a little; It should be decreased a lot.]

¹²We recode the variables such that high values correspond to reducing the amount of government spending and increasing the amount of taxation. We normalize these variables, using the mean and standard deviation in the control group. Then, we calculate the covariances between the variables that are part of the same family of outcomes and use the inverse of the covariance matrix in order to weight the outcomes. For more details see Anderson (2008).

¹³The choice of spending categories and their description closely follows Alesina et al. (2017).

- Do you think the amount of government spending on Defense and National Security should be increased, decreased, or remain the same?
- Do you think the amount of government spending on Public Infrastructure should be increased, decreased, or remain the same?
- Do you think the amount of government spending on Schooling and Higher Education should be increased, decreased, or remain the same?
- Do you think the amount of government spending on Social Security, Medicare, Disability Insurance and Supplementary Security Income should be increased, decreased, or remain the same?
- Do you think the amount of government spending on Social Insurance and Income Support Programs should be increased, decreased, or remain the same?
- Do you think the amount of government spending on Health should be increased, decreased, or remain the same?
- Do you think the amount of government spending on the Environment should be increased, decreased, or remain the same?

• **Attitudes towards taxation:**¹⁴

- Do you think the overall amount of taxes raised by the government should be increased, decreased, or remain the same?
- Do you think that income taxes for the top 10 percent (richest) of households should be increased, decreased or remain the same?
- Do you think that income taxes for the next 40 percent (10 percent of households earn more than them, 50 percent less) should be increased, decreased or remain the same?
- Do you think that income taxes for the bottom 50 percent (poorest) should be increased, decreased or remain the same?
- Do you think that the government should introduce a wealth tax, such that every year each household with net assets (assets minus liabilities) greater than 1,000,000 dollars, would have to pay a small fraction (less than 1 percent) of the total net asset value to the government?

¹⁴The choice of taxation categories and their description closely follows Alesina et al. (2017).

- The Federal Estate tax is a tax imposed on the transfer of wealth from a deceased person to his or her heirs. Do you think the Federal Estate tax should be increased, decreased or remain the same?

5.6.2 Accounting for the False Discovery Rate

The second method uses the “sharpened q-value approach” (Anderson, 2008; Benjamini et al., 2006). We use the same families of outcomes as the ones defined above. For each family of outcomes, we control for a false discovery rate of 5 percent, i.e. the expected proportion of rejections that are type I errors (Anderson, 2008).

6 Definition of Variables

In general, we will drop from the analysis variables which have very limited variation, as they are not informative. Specifically, we will drop variables for which more than 95 percent of observations have the same value. If these variables are part of an index, we will recalculate the index without them.

6.1 Main Outcomes

For simplicity, we will consider all of the self-reported measures on attitudes toward government spending as continuous. For instance, when participants need to state to what extent they agree with a particular statement, we will code “Strongly disagree” as 1, “Disagree” as 2, ..., and “Strongly agree” as 5.

6.2 Coding of background questions

When the background questions are used as controls in the regression, they will be coded as follows:

- Gender will be coded as a dummy.
- Age will be coded continuously.
- Children will be coded as one if the respondent reports to have children.
- State will be coded as four regional dummies (Northeast, Midwest, South, and West).¹⁵

¹⁵We will follow the regional classifications of the United States Census Bureau.

- Household income will be coded as the log of the midpoint of the interval specified by the respondent.
- Education will be coded as a dummy for whether the respondent has at least a two-year college degree.
- Employment status will be coded as one dummy for each category.
- Party affiliation will be coded as a dummy equal to one if the respondent considers himself as a Republican and zero otherwise.

7 Pooling data across experiments

We also conducted a very similar experiment on Amazon Mechanical Turk. We will pool together the data from Amazon Mechanical Turk and Research Now for those outcome variables which were included in both experiments as this will substantially increase our effective statistical power. We will re-run our main specifications outlined in this pre-analysis plan with this pooled data. In our regressions we will include a dummy variable taking value one if the responses are from MTurk respondents.

References

- Akhmedov, A. and Zhuravskaya, E. (2004). Opportunistic political cycles: Test in a young democracy setting. *The Quarterly Journal of Economics*, 119(4):1301–1338.
- Alesina, A., Carloni, D., and Lecce, G. (2012). The electoral consequences of large fiscal adjustments. In *Fiscal Policy after the Financial Crisis*, pages 531–570. University of Chicago Press.
- Alesina, A. and Giuliano, P. (2010). Preferences for Redistribution. *Handbook of Social Economics*.
- Alesina, A. and La Ferrara, E. (2005). Preferences for Redistribution in the Land of Opportunities. *Journal of Public Economics*, 89(5):897–931.
- Alesina, A. and Passalacqua, A. (2015). The political economy of government debt. *NBER Working Paper*.
- Alesina, A., Perotti, R., Tavares, J., Obstfeld, M., and Eichengreen, B. (1998). The political economy of fiscal adjustments. *Brookings Papers on Economic Activity*, 1998(1):197–266.
- Alesina, A., Stantcheva, S., and Teso, E. (2017). Intergenerational mobility and preferences for redistribution. *NBER Working Paper*.
- Alesina, A. and Tabellini, G. (1990). A positive theory of fiscal deficits and government debt. *The Review of Economic Studies*, 57(3):403–414.
- Anderson, M. L. (2008). Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects. *Journal of the American statistical Association*, 103(484):1481–1495.
- Barro, R. J. (1974). Are government bonds net wealth? *Journal of Political Economy*, 82(6):1095–1117.
- Benjamini, Y., Krieger, A. M., and Yekutieli, D. (2006). Adaptive Linear Step-up Procedures that Control the False Discovery Rate. *Biometrika*, 93(3):491–507.
- Berinsky, A. J., Margolis, M. F., and Sances, M. W. (2014). Separating the Shirkers from the Workers? Making Sure Respondents Pay Attention on Self-administered Surveys. *American Journal of Political Science*, 58(3):739–753.

- Brender, A. and Drazen, A. (2008). How do budget deficits and economic growth affect reelection prospects? evidence from a large panel of countries. *The American Economic Review*, 98(5):2203–2220.
- Buchanan, J. M. (1976). Barro on the ricardian equivalence theorem. *Journal of Political Economy*, 84(2):337–342.
- Cruces, G., Perez-Truglia, R., and Tetaz, M. (2013). Biased Perceptions of Income Distribution and Preferences for Redistribution: Evidence from a Survey Experiment. *Journal of Public Economics*, 98:100–112.
- DellaVigna, S. and Gentzkow, M. (2010). Persuasion: Empirical evidence. *Annual Review of Economics*, Volume 2.
- Fisman, R., Jakiela, P., Kariv, S., and Markovits, D. (2015). The distributional preferences of an elite. *Science*, 349(6254):aab0096.
- Gilens, M. (2001). Political Ignorance and Collective Policy Preferences. *The American Political Science Review*, 95(2):379–396.
- Giuliano, P. and Spilimbergo, A. (2014). Growing up in a recession. *The Review of Economic Studies*, 81(2):787–817.
- Grigorieff, A., Roth, C., and Ubfal, D. (2016). Does information change attitudes towards immigrants? evidence from survey experiments. *Working Paper*.
- Karadja, M., Mollerstrom, J., and Seim, D. (2016). Richer (and Holier) Than Thou? the Effect of Relative Income Improvements on Demand for Redistribution. *Review of Economics and Statistics*, forthcoming.
- Kuklinski, J. H., Quirk, P. J., Jerit, J., Schwieder, D., and Rich, R. F. (2000). Misinformation and the currency of democratic citizenship. *Journal of Politics*, 62(3):790–816.
- Kuziemko, I., Norton, M. I., Saez, E., and Stantcheva, S. (2015). How Elastic are Preferences for Redistribution? Evidence from Randomized Survey Experiments. *The American Economic Review*, 105(4):1478–1508.
- Lawrence, E. D. and Sides, J. (2014). The consequences of political innumeracy. *Research & Politics*, 1(2):1–8.

- Lergetporer, P., Schwerdt, G., Werner, K., and Woessmann, L. (2016). Information and Preferences for Public Spending: Evidence from Representative Survey Experiments. *IZA Discussion Paper No. 9968*.
- Müller, A., Storesletten, K., and Zilibotti, F. (2016). The political color of fiscal responsibility. *Journal of the European Economic Association*, 14(1):252–302.
- Peltzman, S. (1992). Voters as fiscal conservatives. *The Quarterly Journal of Economics*, 107(2):327–361.
- Persson, T. and Svensson, L. E. (1989). Why a stubborn conservative would run a deficit: Policy with time-inconsistent preferences. *The Quarterly Journal of Economics*, pages 325–345.
- Roth, C. and Wohlfart, J. (2016). Experienced inequality and preferences for redistribution. *Working Paper*.
- Shi, M. and Svensson, J. (2006). Political budget cycles: Do they differ across countries and why? *Journal of Public Economics*, 90(8):1367–1389.
- Song, Z., Storesletten, K., and Zilibotti, F. (2012). Rotten parents and disciplined children: A politico-economic theory of public expenditure and debt. *Econometrica*, 80(6):2785–2803.
- West, M. R., Woessmann, L., Lergetporer, P., and Werner, K. (2016). How information affects support for education spending: Evidence from survey experiments in germany and the united states. Technical report, CESifo Group Munich.

Appendix A: Main Experiment

Demographics

The next question is about the following problem. In questionnaires like ours, sometimes there are participants who do not carefully read the questions and just quickly click through the survey. This means that there are a lot of random answers which compromise the results of research studies. To show that you read our questions carefully, please choose "Very strongly interested" and "Not at all interested" as your answer in the next question.

How interested are you in politics?

- ☐ Very strongly interested
- ☐ Very interested
- ☐ A little bit interested
- ☐ Almost not interested
- ☐ Not at all interested

Next >>

Which of these describes you more accurately?

- ☐ Male
- ☐ Female

Next >>

What category would best describe your political orientation?

- ☐ Republican
- ☐ Democrat
- ☐ Other

Next >>

What is your age?

- ☐ 18 - 24
- ☐ 25- 34
- ☐ 35 - 44
- ☐ 45 - 54
- ☐ 55 - 64
- ☐ 65 or older

Next >>

In which region do you currently reside?

- ☐ Northeast (CT, ME, MA, NH, RI, VT, NJ, NY,PA),
- ☐ Midwest (IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD)
- ☐ South (DE, DC, FL, GA,MD, NC, SC, VA, WV, AL, KY, MS, TN, AR, LA, OK, TX)
- ☐ West (AZ, CO, ID, NM, MT, UT,NV, WY, AK, CA, HI, OR, WA)

Next >>

What was your family's household income in 2016 in US dollars?

- ☐ Less than 15,000
- ☐ Between 15,000 and 25,000
- ☐ Between 25,000 and 50,000
- ☐ Between 50,000 and 75,000
- ☐ Between 75,000 and 100,000
- ☐ Between 100,000 and 150,000
- ☐ Between 150,000 and 200,000
- ☐ More than 200,000
- ☐ Prefer not to say

Next >>

Belief about the debt-to-gdp ratio

We will now ask you one question about the **debt-to-GDP ratio** in the United States.

The debt-to-GDP ratio is the ratio between a country's government debt and its gross domestic product (GDP). By government debt we mean the **total amount owed by the Federal government**. This is often referred to as the "national debt". Gross domestic product (GDP) is the **market value of all final goods and services** that are produced by an economy **within one year**.

In 1970 the debt-to-GDP ratio was **34.78 percent**. This means that the Federal Government owed around a third of what the country produced within one year.

What do you think was the debt-to-GDP ratio in 2016? Please enter your answer in the text entry field below. (in percent)

I think the debt-to-GDP ratio in 2016 was (in percent):

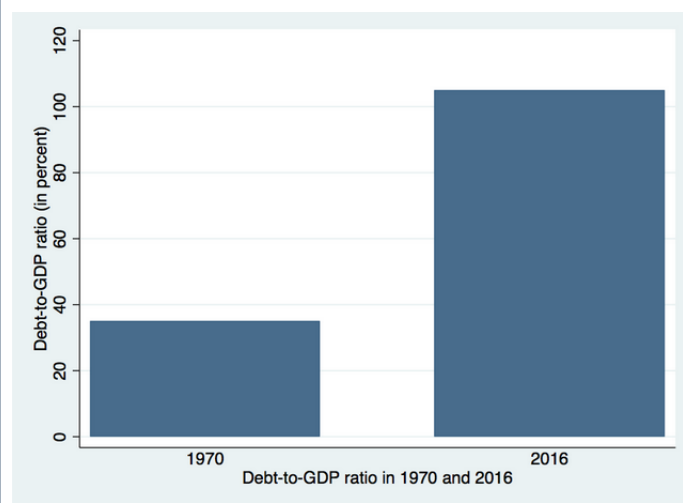
Next >>

Information treatment

We now would like to provide you with information about the debt-to-GDP ratio in the US.

Next >>

In **2016**, the federal debt-to-GDP ratio was **104.81 percent**. This means that the Federal Government owed a bit more than what the country produced within one year.



Source: Federal Reserve Bank of St. Louis and U.S. Office of Management and Budget, Federal Debt: Total Public Debt as Percent of Gross Domestic Product, retrieved from FRED, Federal Reserve Bank of St. Louis, January 8, 2017.

Perception of government debt

We would now like to ask you some questions about your opinions on government debt.

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
There is too much government debt in the United States.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The government should reduce the amount of government debt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next >>

Attitudes towards government spending

We would now like to ask you some questions about your opinions on different aspects of government spending.

Next >>

Do you think the overall amount of government spending should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Next >>

We will now introduce you to some categories of government spending:

Defense and National Security, which refers to the costs of the defense department and the costs of supporting security operations in foreign countries.

Public Infrastructure, which includes, among others, transport infrastructure like roads, bridges, airports and water infrastructure.

Schooling and Higher Education including help for children from low income families to attend school and university.

Social Security, Medicare, Disability Insurance and Supplementary Security Income, which provide income support and help with healthcare expenses to the elderly and the disabled.

Social Insurance and Income Support Programs. This covers help to the unemployed (through unemployment insurance) and help to low income families (through Food Stamps and Earned Income Tax Credit).

Public spending on health, such as Medicaid for the poor (a healthcare program for low-income families) or tax subsidies to help poor families.

Environment, which refers to spending in order to protect the environment.

We will now ask you some questions on whether you think that government spending in the different categories should be increased, decreased or remain the same.

Next >>

Do you think the amount of government spending on **Defense and National Security** should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Do you think the amount of government spending on **Schooling and Higher Education** should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Do you think the amount of government spending on **Public Infrastructure** should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Do you think the amount of government spending on **Social Security, Medicare, Disability Insurance and Supplementary Security Income** should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Do you think the amount of government spending on **Social Insurance and Income Support Programs** should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Do you think the amount of government spending on **Health** should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Do you think the amount of government spending on the **Environment** should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Next >>

Attitudes towards taxation

We will now ask you some questions on your opinion about taxation in the US.

Do you think the overall amount of taxes raised by the government should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Next >>

We will now ask you some questions about the income tax rate in the US.

The income tax rate is the percentage of your income that you pay in federal income tax. We will now ask you whether you think that income tax rates for different groups of earners should be increased, decreased or remain the same.

Do you think that **income taxes** for the top 10 percent (richest) of households should be increased, decreased or remain the same?

- ☐ Taxes for them should be increased a lot.
- ☐ Taxes for them should be increased a little.
- ☐ Taxes for them should remain as they are.
- ☐ Taxes for them should be decreased a little.
- ☐ Taxes for them should be decreased a lot.

Do you think that **income taxes** for the next 40 percent (10 percent of households earn more than them, 50 percent less) should be increased, decreased or remain the same?

- ☐ Taxes for them should be increased a lot.
- ☐ Taxes for them should be increased a little.
- ☐ Taxes for them should remain as they are.
- ☐ Taxes for them should be decreased a little.
- ☐ Taxes for them should be decreased a lot.

Do you think that **income taxes** for the bottom 50 percent (poorest) should be increased, decreased or remain the same?

- ☐ Taxes for them should be increased a lot.
- ☐ Taxes for them should be increased a little.
- ☐ Taxes for them should remain as they are.
- ☐ Taxes for them should be decreased a little.
- ☐ Taxes for them should be decreased a lot.

Next >>

Do you think that the government should introduce a **wealth tax**, such that every year each household with net assets (assets minus liabilities) greater than 1,000,000 dollars, would have to pay a small fraction (less than 1 percent) of the total net asset value to the government?

- ☐ The government should introduce a wealth tax.
- ☐ The government should not introduce a wealth tax.

The **Federal Estate tax** is a tax imposed on the transfer of wealth from a deceased person to his or her heirs. Do you think the Federal Estate tax should be increased, decreased or remain the same?

- ☐ It should be increased a lot.
- ☐ It should be increased a little.
- ☐ It should remain as it is.
- ☐ It should be decreased a little.
- ☐ It should be decreased a lot.

Next >>

Debt- vs. tax-based government spending

Debt-based government spending

Imagine the US government wants to launch a large one-time infrastructure investment program which would cost one percent of GDP. The government plans to fully finance this investment by issuing further debt. Are you in favor of the introduction of this investment program?

- ☐ Yes.
- ☐ No.

Next >>

Tax-based government spending

Imagine the US government wants to launch a large one-time infrastructure investment program which would cost one percent of GDP. The government plans to fully finance this investment by increasing taxes temporarily for one year. Are you in favor of the introduction of this investment program?

- ☐ Yes.
- ☐ No.

Next >>

Expectations

Suppose 10 years from now, your total household income **before taxes and deductions** is the **same as now**. What do you expect to have happened to the total amount of federal income tax you will have to pay?

- ☐ The total amount of federal income tax will have increased a lot.
- ☐ The total amount of federal income tax will have increased a little.
- ☐ The total amount of federal income tax will have remained the same.
- ☐ The total amount of federal income tax will have decreased a little.
- ☐ The total amount of federal income tax will have decreased a lot.

Next >>

What do you expect to have happened to the total amount of government spending **10 years from now**?

- ☐ The total amount of government spending will have increased a lot.
- ☐ The total amount of government spending will have increased a little.
- ☐ The total amount of government spending will have remained the same.
- ☒ The total amount of government spending will have decreased a little.
- ☐ The total amount of government spending will have decreased a lot.

Next >>

To what extent do you agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The tax burden of future generations will increase compared to the tax burden of my generation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next >>

To what extent do you agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Future generations will see lower levels of government spending than the current generation.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next >>

Sustainability of public finances

To what extent do you agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The current levels of government spending and taxation are not sustainable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If we do not reduce public debt now, it will become more expensive for the US government to borrow in the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next >>

Trust in government

People have different ideas about the government in Washington. These ideas don't refer to Democrats or Republicans in particular, but just to the government in general. We want to see how you feel about these ideas.

To what extent do you agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The government in Washington can be trusted to do what is right.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The government makes good use of taxpayers' money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The government's bureaucracy is not very efficient.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The government is forward-looking in its spending and taxation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next >>

To what extent do you agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Politicians in the US work to enrich themselves and the lobbies they support, instead of working for the benefit of the majority of the citizens.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next >>

More demographics

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I usually follow news on the national economy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next >>

Which of these describes your current situation most accurately?

- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Unemployed and looking for a job
- ☐ Unemployed but not looking for a job
- ☐ Retired
- ☐ Student
- ☐ Other:

Next >>

How many children do you have?

What is the highest level of school you have completed or the highest degree you have received?

- ☐ Less than high school degree
- ☐ High school graduate (high school diploma or equivalent including GED)
- ☐ Some college but no degree
- ☐ Associate degree in college (2-year)
- ☐ Bachelor's degree in college (4-year)
- ☐ Master's degree
- ☐ Doctoral degree
- ☐ Professional degree (JD, MD)

What year were you born?

Next >>

Which candidate did you vote for in the 2016 presidential election?

- ☐ Donald Trump
 - ☐ Hillary Clinton
 - ☐ Other
-
- ☐ Did not vote
 - ☐ Prefer not to say

Next >>

Do you feel that this survey was biased?

- ☐ Yes, it felt left-wing biased.
- ☐ Yes, it felt right-wing biased.
- ☐ No, it did not feel biased.

Next >>

Trust in provided info

During the experiment we provided you with one statistic about the debt-to-GDP ratio in 2016.

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I was very confident that the statistic provided was accurate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next >>