

Assessing the Effects of Issue Framing on Fiscal Attitudes: Evidence from a Survey Experiment

TARC DISCUSSION PAPER 030 - 20

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February 18, 2020

Abstract

The literature on attitudes toward government budgets has been dominated by two distinct approaches, jointly studying both sides of the ledger (holistic approaches) and studying attitudes over spending and revenue separately (singular approaches). Despite the theoretical and methodological distinction between these approaches, the associated framing effects remain largely unexplored. In this paper, we ask, “Do the different approaches to studying the budget alter mass attitudes toward spending and taxes, and if so, how?” Drawing from the literature on framing effects, we test whether respondents who receive information about both sides of the budget will express different attitudes compared to those who receive information about only one side of the budget. We measure the difference in framing effects between the holistic and singular approaches using online interactive budget tools. Using data from an MTurk survey experiment, we find that attitudes toward spending differ significantly when framed as a spending only issue (singular approach) as opposed to a combined issue of spending and revenue. On the tax side, our results show that tax attitudes remain consistent regardless of whether taxes is framed in the singular approach or in the holistic approach. The consistency in attitudes toward taxes accords with existing empirical studies showing that individuals have well-defined revenue attitudes.

Keywords: fiscal attitudes, tax attitudes, spending attitudes, budget model, interactive

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simulations

1 Introduction

The literature on mass attitudes toward government budgets has adopted either a singular approach, focusing on either taxes or spending, or a holistic approach – that is studying tax and spending attitudes together. However, these two approaches could lead to different attitudes toward taxes and spending. Scholars have provided convincing arguments for both approaches. For example, Mueller (1963, 210) explains that one measure by which we should evaluate budgets is by a budget’s ability to maximize welfare, which, by definition, must consider citizen’s attitudes for taxing *and* spending. Citrin (1979) also argues that although politicians downplay the relationship between taxes and spending, there is an inherent nexus between the two. Indeed, our taxes fund the services we consume. Beck, Rainey and Traut (1990) further emphasize the importance of studying this fiscal trade-off so scholars can better understand what is driving “inconsistent” attitudes toward taxes and spending. In contrast, Steinmo (1995) argues that because of the separation of tax and spending decisions in the US Congress, politicians have few incentives to encourage voters to consider tax and spending as joint decisions.

Presently, more scholars tend to focus on either tax only or spending only attitudes. This divergence in the scholarship, studying spending and tax attitudes as separate issues, has increasingly developed into two separate research programs. On the one hand, scholars have examined how trust in government can mediate the effects of ideology on spending attitudes (Rudolph and Evans 2005); how spending attitudes are continually changing in the context of current policy (Wlezien 1995); and the multidimensionality of spending attitudes (Kolln and Wlezien 2016). On the other hand, scholars have examined the multidimensionality of tax attitudes (Ballard-Rosa, Martin and Scheve 2017), support for the Bush tax cuts (Bartels 2005) and progressive taxation (Roberts, Hite and Bradley 1994), and a general willingness to pay taxes (D’Attoma 2018). Despite the seemingly broad substantive coverage, these pieces share a common approach to issue framing – focusing on only tax *or* spending attitudes.

We refer to this method of issue framing as the “singular approach” to measuring budgetary attitudes.

Certainly, this substantive divide has led to tremendous advancements in explaining specific questions related to each side of the ledger, but the potential framing effects associated with adopting either a holistic or singular approach have yet to be systematically tested. Consider the abbreviated list of research papers spanning from the 1960s to present that study fiscal attitudes (Table 1). As we can see, researchers have adopted a broad array of research designs to study fiscal attitudes. Some research has narrowly focused on a single side of the budget (only taxes *or* spending attitudes) while others have adopted more holistic approaches.

When choosing between the two approaches, researchers are in essence choosing between different emphasis frames (Druckman 2011). By focusing on taxes or spending, the singular approach inherently emphasizes a subset of potentially relevant considerations to the budget, which could lead respondents to narrowly focus their considerations when constructing their opinions. In contrast, the holistic approach emphasizes both sides of the budget and the fiscal trade-offs inherent to the budgeting process. Some scholars argue that a “holistic” view of a government budgets can foster preference consistency rather than incoherency (Sniderman and Theriault 2004). While there has been a lot of budget preference research noting the difference in issue framing and the associated framing effects, relatively little has been directed at estimating these effects. This paper formally tests the influence of issue framing on individuals’ attitudes toward taxes and government spending, asking “Do the different approaches to framing the budget lead survey participants to evaluate taxes and spending differently, thus, leading to different results, and if so, how do they differ?”

We use the data collected from a survey experiment to test whether the different approaches to studying taxes and spending elicit different responses from respondents. We make two contributions to the literature on budgetary attitudes. First, we present the first set of

Table 1: Research on Fiscal Attitudes: 1963-2019

Only Taxes	Year	Only spending	Year	Taxes and Spending	Year	Trade-offs	Year
Steinmo	1989	Eisemeier	1982	Mueller	1963	Mueller	1963
Roberts, Hite and Bradley	1994	Lowery and Sigelman	1982	Citrin	1979	Hockley and Harbour	1983
Bartels	2003	Kristensen	1982	Hockley and Harbour	1983	Welch	1985
Edlund	2009	De Groot and Pommer	1987	Welch	1985	Beck, Rainey and Traut	1990
Rudolph	2010	Sanders	1988	Citrin and Green	1985	Alvarez and McCaffery (2003)	2003
Scheve and Stasavage	2017	De Groot and Pommer	1989	Modigliani and Modigliani	1987	Busemeyer and Garrizmann	2017
Ballard-Rosa, Martin and Scheve	2017	Feldman and Zaller	1992	Alt and Lowry	1994	Bürgisser and Brenner	2019
		Jacoby	1994	Hansen	1998	Häusermann, Kurer and Traber	2019
		Wlezien	1995	Pujol and Weber	2003		
		Jacoby	2000	Smiderman and Theriault	2004		
		Schneider and Jacoby	2005	Blinder and Krueger	2004		
		Rudolph and Evans (2005)	2005	Barnes	2015		
		Funk and Gathmann	2011				
		Sørensen	2013				
		Bonica	2015				
		Kolln and Wlezien	2016				
		Lergetporer et al.	2016				

tests comparing how participants respond to the singular approaches commonly used in the literature to a holistic approach. Second, improving on previous methodological attempts, we propose interactive budget models as a new way to present fiscal trade-offs to respondents. Interactive budget tools are a flexible way to collect data on attitudes toward the budget.

Our results show that that tax and spending attitudes are relatively stable, meaning no preference reversals, regardless of framing. However, the strength of spending attitudes are highly sensitive to how researchers frame the budget. Specifically, there is a statistically significant difference between spending attitudes over non-salient budgetary issues when respondents are given information about both sides of the budget compared to when they are given information only pertaining to expenditures. The effect is negligible for strongly partisan budgetary items like defense spending. On the tax side, there is little variation in attitudes toward taxation, regardless of whether taxes is framed in the singular approach or in the holistic approach. The null results on the tax side are consistent with existing theories that individuals have remarkably stable revenue attitudes. In the conclusion section, we discuss the implications of our findings in relation to the current direction of research in the field.

2 The two approaches to studying Fiscal Attitudes

The research on fiscal attitudes is expansive, with the major research programs covering budget deficits, fiscal trade-offs, spending attitudes and revenue attitudes. In this section, we show the fluid use of the singular and holistic approaches over the years and highlight the debate over how to study fiscal attitudes.

The literature on attitudes toward budget deficits is arguably one of the first developed

research programs within the field. Over the last several decades, a broad catalogue of literature has assessed individual attitudes and preferences for spending. The expansion of the welfare state and government spending since WWII, followed by a significant challenge to the welfare state in the 1980s, coincided with extensive academic interest in attitudes towards this expansion and contraction (Sanders 1988; Alesina and Angeletos 2005; Lizzeri 1999; Wlezien 1995; Jacoby 1994).

These early scholars began studying budgets by employing what we call a holistic approach, that is jointly studying spending and revenue attitudes. For example, one of the earliest studies on attitudes toward budget deficits was conducted by Citrin (1979) using a variety of survey data, conducted before and after the 1978 vote on limiting personal property taxes in California. The author uncovered that self-interest was the primary motivating factor driving attitudes toward taxing and spending policy. Majorities thought that visible taxes, such as property and income taxes, were the least fair, while indirect taxes were the most fair. In another study by Hockley and Harbour (1983), the authors use a coupon scale survey on 3000 residents in Wales and England to determine what influences national budget choices. They uncovered that budget choices varied by individual demographic characteristics, such as age, gender, and income. Older individuals preferred increased spending, except on education, environment, and overseas services. This aligns well with a theory of self-interest, since older individuals do not benefit directly from education and environmental spending. Spending in those areas clearly spills-over into future generations. Furthermore, men spend more on defense and supported decreases in capital gains, while women expressed preferences for reductions in the income tax, national insurance contributions, and local taxes. Women also supported increased spending on education and housing. Similarly, Blinder and Holtz-Eakin (1983), demonstrate that personal characteristics, such as race, age, and gender affect attitudes toward balancing the budget. In general, however, they find that a majority of Americans support some kind of balanced budget stipulation.

More recent studies on attitudes toward budget consolidation have been conducted in Germany and Austria (Heinemann and Hennighausen 2012; Stix 2013). Exploiting a survey of 1001 Germans, Heinemann and Hennighausen (2012) demonstrate that unemployed, high earners, and older individuals are more likely to support budget consolidation, whereas women were 10% less likely than men, and individuals who are pro-welfare state were less supportive of consolidation. It is also notable that they uncovered individuals with higher levels of generalized trust supported more consolidation. Stix (2013) uncovered very similar attitudes amongst 2,000 randomly surveyed Austrians. Moreover, they found that if respondents assume higher taxes in the future, they will opt for fast consolidation.

Despite the initial and continued focus on jointly studying spending and revenue attitudes, other researchers have developed research designs to study attitudes on revenue and spending as independent outcomes of interest. Mueller (1963), for example, fielded a survey in 1960-61 which asked respondents about attitudes toward specific public programs, followed by a series of questions about raising taxes to support those same programs. She concludes that there is a lack of congruence between the levels of spending that people want and the extent of taxes that they are willing to pay to support those programs. Similarly, Citrin (1979, 113) referring to the public's incoherent budget preferences states, "the public's readiness to demand and consume government programs is understandably greater than their willingness to pay for them." Sears and Citrin (1982) and Ladd Jr et al. (1979) also indicate that people enjoy high levels of spending without the required taxes to fund that spending. In other words, Ladd Jr et al. (1979, 135) conclude that "the message Americans are giving on the issues of taxing and spending is clear: Reduce taxes; maintain "big government"; end the waste and inefficiency of big government."

This preference for "something for nothing" has been referred to as "incoherency", and could be due to what Freed and Cantril (1967) coined as value "schizophrenia," meaning that individuals generally support public spending, but at the same time, espouse laissez-faire

ideals. While Freed and Cantril (1967) see this as a failure to adapt to changing political and economic structures, others (Rokeach 1973; Lipset 1979; McClosky and Zaller 1984; Feldman and Zaller 1992) perceive this as a conflict between deeply entrenched American values, such as freedom and equality. Inconsistent, incoherent, and unrealistic preferences were thus all considered to be essential and enduring characteristics of American public opinion and ideology.

In line with this incoherency hypothesis, many scholars in the field have narrowed their focus to particular sides of the budget, decoupling spending and revenue policies. Tax-specific studies (Ballard-Rosa, Martin and Scheve 2017; Scheve and Stasavage 2010; Barnes 2015; Ballard-Rosa, Martin and Scheve 2017; Bartels 2005; Rudolph and Evans 2005) and spending-specific studies (Eismeier 1982; Sanders 1988; Wlezien 1995; Jacoby 1994 2000) have come to dominate the field. The general conclusion among most scholars who study taxation is that people are averse to tax increases generally and demonstrate somewhat incoherent preferences. For example, Bartels (2005) demonstrates that most Americans supported the Bush tax cuts, although the redistributive effects were more regressive than they would otherwise have preferred. Most recently, Ballard-Rosa, Martin and Scheve (2017) use data from a conjoint analysis design to demonstrate that although most people are concerned for fairness and progressivity, their policy attitudes would bring in significantly less revenue than current policy. The authors acknowledge, however, that this result could also be due to a lack of context addressing the spending side of the budget. Their methodological refinement is an important contribution to the literature as it introduces taxes as a multi-dimensional issue instead of singular. However, the vast majority of the literature still only considers one side of the budget.

Much of the literature adopting the singular approach suggests that the public holds incoherent preferences. If the public has a hard time making rational decisions when presented with both sides of the budget, then it makes some sense to disentangle spending and taxes

to improve our measurements and focus on more specific questions. Today, the literature has mainly splintered so that scholars either study taxes or spending, but, rarely, consider both sides of the budget ledger together. This divorce has led to theoretical assumptions that may not align with actual budget attitudes. Scholars such as Beck, Rainey and Traut (1990), Hansen (1998), Steinmo (2010), and Bonica (2015) increasingly seem to share this sentiment.

Though some scholars agree that individuals hold incoherent budget preferences, other scholars offer alternative explanations for the apparent contradiction. For instance, extending upon Citrin (1979) and Ladd Jr et al. (1979), Susan Welch (1985) instead suggests that the idea that most people have incoherent preferences could be inaccurate. In her study, only a minority of individuals want something for nothing, while most people were willing to fund increased spending with higher taxes. Welch (1985, 316) claims, however, that “we do not know whether citizens have very accurate ideas of how much money might be raised by reallocating from their less desired services, nor do we know how they would balance cost against benefits in their reallocation preferences.” This uncertainty speaks more to the methodological problems associated with measuring individuals’ threshold for trade-offs without forcing them to make an actual trade-off. Similarly, Hansen (1998) indicates that most Americans have very little trouble determining their views, recognizing trade-offs, and making consistent decisions. He concludes that Americans’ budget preferences are “remarkably well structured” (Hansen 1998, 526). Additionally, he makes a similar observation about some of the methodological limitations when stating, “[E]ven the best survey instruments have neglected the essential aspect of the public budgeting problem: the trade-offs inherent in establishing public priorities. Typically, survey questions offer respondents unrealistic choices among incomplete sets of options” (Hansen 1998, 514).

This is not to say that there are not good reasons for separating the two research agendas. Both Hetherington (2005) and Rudolph and Evans (2005), for example, make significant

contributions to the spending literature as they put forth a theory which suggests that spending preferences are not necessarily singular, but rather are context-dependent. Their contributions have been influential for understanding how both trust and ideology can shape individuals' support for public spending. Therefore, by focusing on only spending, they were able to also look at specific areas of the budget that were of theoretical interest. Still, this literature assumes that individuals can only have relative preferences on stand-alone issues because they cannot process something as complex as a federal budget.

In summary, the literature has consistently adopted both approaches to study fiscal attitudes. While some scholars have considered the trade-offs inherent in these approaches and their empirical strategy, most scholars adopt research designs with little to no explicit concern of the other approach. Notwithstanding the fundamental differences between the approaches, scholars still do not have a clear sense of whether, and how, their research design choices influence the reliability of their empirics, and more importantly the inferences we draw from those empirics.

3 Why differences between the two approaches may matter

In this section, we identify three inter-related reasons why the two common approaches may yield different responses to fiscal policy. First, the singular approach does not force subjects to make trade-offs. Presenting subjects with trade-offs enables subjects to see the effects of decision x on y . For example, what happens to the budget if we cut taxes on wealthy individuals, and how does that affect a government's spending priorities? Second, context and accounting for the multidimensionality of budgets and budgetary preferences matters. Subjects might want to increase taxes in one area, but cut taxes in others, or they might want

to increase spending on education but cut spending on the military. By allowing participants to account for this multi-dimensionality, their preferences for taxes and spending might be considerably different than when scholars provide for a more macro or singular view, such as “Do you support increasing taxes or Do you support cutting spending”. Lastly, by framing the budget either as only taxes, spending, or both scholars are essentially providing subjects with different emphasis frames. Below we elaborate on each of these reasons.

First, few studies have forced respondents to consider the real-world fiscal trade-offs between taxes and spending. **Beck, Rainey and Traut (1990, 72)** state,

Most previous research has restricted its attention to only one side of the trade-off equation and has approached it from a single theoretical perspective. Scholars favoring socio-psychological approaches typically have concentrated on service evaluations and have employed political attitudes and beliefs as the primary explanatory factors. By contrast, taxes have been the domain of scholars adopting microeconomic perspectives with their explanatory emphasis on material cost-benefit calculations.

The omission of budgetary constraints may lead to extreme positions on the issue of taxation and spending items. For example, **Ladd Jr et al. (1979)**, using public opinion polling, demonstrate that the vast majority of Americans thought they paid too much in taxes, but very few thought that public services should be reduced. On the other hand, **Blinder and Holtz-Eakin (1983)** produced polling that shows 67 percent of Americans supported a balanced budget amendment. Additionally, although **Eismeier (1982, 134)** finds that 71 percent of the sample thought taxes are too high, “taxpayers who perceive their tax burdens as too high are no more likely to oppose additional spending than are those who do not.” **Ballard-Rosa, Martin and Scheve (2017)** find that Americans’ tax preferences would raise significantly less tax revenue than current policy. However, by forcing respondents to make trade-offs between taxes and spending, the results of these studies might have been considerably different. In fact,

Ballard-Rosa, Martin and Scheve (2017, 15) state, “[A]lthough our experiment explicitly encouraged respondents to consider the revenue consequences of the tax rate plans that they chose, the most favored set of rates would raise substantially less revenue than current policy. Further research is needed to determine whether this is because the effects of these cuts on public services are not made explicit.” Kolln and Wlezien (2016, 18) similarly acknowledge that even when giving individuals real-world trade-offs on spending items through a conjoint experiment, “our analysis still focuses on what are largely unconstrained preferences, and in future research we will address the consequences of imposing real budget constraints and allowing for higher/lower taxes.”

Citrin (1979, 114) concedes very early on that “When the survey questions properly point to the existence of “price effects” by warning that reduced taxes mean fewer services or that increased spending would result in higher taxes, the tendency to demand “something for nothing” declines.” Thus a lack of valuable contextual information might generate different results. Existing research typically asks participants to make decisions about fiscal policy without them having to consider how their choices would affect other areas of the budget, which in turn could affect them personally. It is low-cost, or perhaps costless, for respondents to say that they want to “cut spending” on something without knowing the distribution of the resources or the actual amounts spent. Similarly, it may be easy to say that “the rich” or corporations should pay higher taxes when the respondent does not have a sense of how much companies or wealthy individuals currently pay, or how much money would be generated if they were asked to pay more. This lack of information could lead survey respondents to choose policy positions they otherwise might not take if they were given more complete information.

Second, existing studies on budget preferences items lack context, giving respondents little information about the actual content of the budget. Researchers thus ask participants to make choices without them having to consider how their choices would affect other areas of

the budget, which in turn could affect them personally. It is low-cost, or perhaps costless, for respondents to say that they want to “cut spending” on something without knowing the distribution of the resources or the actual amounts spent. Similarly, it may be easy to say that “the rich” or corporations should pay higher taxes when the respondent does not have sense of how much companies or wealthy individuals currently pay, or how much money would be generated if they were asked to pay more. This lack of informational context could lead to survey respondents taking extreme positions on particular items. Even Citrin (1979, 114) concedes very early on that “When the survey questions properly point to the existence of ‘price effects’ by warning that reduced taxes mean fewer services or that increased spending would result in higher taxes, the tendency to demand ‘something for nothing’ declines.”

Finally, how researchers emphasize different features of the budgets should yield different results. For example, the singular approach emphasizes a subset of relevant *spending* or *taxing* considerations of the budget, which likely leads participants to singularly focus on taxes or spending with out considering how these features of the budget are inter-related. On the other hand, the holistic budget provides for participants to consider both sides of the budget and the trade-offs that are involved in the budgetary process.

4 Research Design and Data Collection

We fielded an online survey with an embedded link to the budget tool between August 7 and 8, 2018 to test our hypothesis. We conducted the survey on a sample of 804 voting-age Americans recruited from Mechanical Turk (MTurk), of which 740 completed the survey and budget simulation. The survey flow unfolds in three distinct parts: pre-treatment demographic questions, the budget simulation, and post-simulation follow-up questions.

In the first part of the study, we presented respondents with an online survey that requested

consent and asked for basic demographic information such as age, employment status, gender, and income. Table 2 presents the descriptive statistics of the MTurk sample.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Female	740	0.5621622	0.4964564	0	1
White	740	0.7878378	0.4091156	0	1
Income	740	6.537838	3.306602	1	17
Education	740	4.177027	1.226572	1	6
Age (18-29)	740	0.2891892	0.4536926	0	1
Age (30-44)	740	0.4486486	0.4976924	0	1
Age (45-64)	740	0.2283784	0.4200716	0	1
Age (over 65)	740	0.0337838	0.1807944	0	1
Democrat	740	4.413514	1.893463	1	7
Liberal	740	4.443243	1.718567	1	7

After completing the demographics battery, we motivated all respondents to consider the national debt and yearly deficit with the following statement:

“The U.S. federal government is in debt. In 2018 the government plans to spend approximately \$487 billion more than it collects in taxes and other revenues. This is commonly referred to as a “budget deficit”. This 1/2 trillion dollars will be added to the total debt which is currently about 21 trillion dollars. To put this in perspective, the current total debt of the U.S. government is equal to approximately \$65,000 for every American citizen. Generally speaking, governments can reduce deficits by decreasing spending and/or increasing taxes and revenue.”

To test our hypothesis that a holistic approach to the budget will produce different responses than singular approaches, we then randomly assigned survey participants to one of three treatments: *combined*, *revenue*, and *spending*. In our combined treatment, we provided participants with an embedded link to our full online budget simulation containing both taxes and spending together. Respondents assigned to the combined treatment received information about both sides of the budget and were asked to submit a budget that they would personally support by adjusting the level of individual revenue and spending items.

In our second treatment, which we refer to as the revenue treatment, respondents initially received information and choices only pertaining to the revenue side of the budget. Once they submitted the revenue-side, their choices were saved, and then respondents were given the spending side of the budget to complete. Finally, in our spending treatment, respondents initially received information and choices only pertaining to the spending side of the budget. Again, those decisions were locked and followed by the revenue side of the budget. To be clear, once respondents made their decisions and submitted their budgets in the revenue and spending treatments, respondents could not go back and re-adjust their initial decisions on the first of the budget that they received.

The budget simulation included all major spending and revenue items in the 2018 federal budget. In total, the simulation included 39 line items, 27 spending items and 12 revenue items. As mentioned above, one potential limitation to budget tools is that it overburdens respondents with information. We chose not to reduce the budget further to match the budget as closely as possible to the actual federal budget. Table 8 and 9 provide a full list of the line items included in the simulation and the initial revenue and spending amounts. The individual line items constituting the budget were the same for all three treatments. The principal difference between the combined and the other two treatments (spending and revenue) is that respondents assigned to the combined received both sides of the budget simultaneously while those assigned to the other two treatments sequentially received them.

Table 3: Revenue Items Included in Balancing Act Budget Tool

Main Line Items	Initial Revenue Amount*
Income Tax on Low Incomes (below \$25,800)	-\$35.6
Income Tax on Lower Middle Incomes (between \$25,800-\$50,200)	-\$16.9
Income Tax on Middle Incomes (between \$50,200-\$88,100)	\$95.0
Income Tax on Upper Middle Incomes (between \$88,100-\$151,400)	\$228.7
Income Tax on High Incomes (between \$151,400-\$741,000)	\$687.8
Income Tax on Top 1% of Incomes (over \$741,000)	\$738.7
Social Security Payroll Taxes	\$1,220
Corporate Income Taxes	\$341.9
Estate Tax	\$22.9b
Gas Tax (18.4 cents per gallon)	\$227.4
Other Revenues	\$164.5
Eliminate Income Cap on Social Security	\$0

*Amounts reported in billions USD.

The budget tool logged how respondents interact with the individual lines in the federal budget, producing a wealth of fine-grained information for researchers. In particular, the tool stores information about which items of the budget are changed and the degree of change for each item. Stylistically, these characteristics of the data are analogous to traditional survey questions employing Likert scales. For example, the data provide information on whether a respondent reduces a spending item, like foreign military aid, and the extent to which it is reduced. However, in contrast to survey items in a questionnaire, the budget tool environment gives respondents a “big picture” of how each item fits into the total budget and how their choices affect changes in the budget deficit. Importantly, this open-choice environment allows researchers to track which items respondents prioritize in the context of other budgetary choices.

Once respondents submitted their preferred budgets, they were redirected back to the survey to complete a short follow-up questionnaire.

Table 4: Spending Items Included in Balancing Act Budget Tool

Main Line Items	Initial Amount by Main Line Items*	Spending by Main Line	Subcategories under main line items
Economic Security	\$347.7		Family and Nutrition Assistance, Housing Assistance, Unemployment Insurance, Home Mortgage Interest Deduction
Social Security	\$1,100		Average Retirement Benefit, Disability Benefits
Education	\$102.6		K-12 and Vocational Education, Higher Education, Arts, Museums, and Other Social Services, Job Training, Research, and Other Labor Services
All Other Spending	\$77.3		NASA and General Research, Farm Income Stabilization, Community Development
Defense	\$780.6		Military, Veterans Benefits
General Government	\$204.8		Federal Employee Retiree/Disability, Legal, Judicial, and Correctional System, Border Security and Domestic Law Enforcement
Health Care	\$1,400		Medicare, Medicaid, Affordable Care Act Subsidies, Employer Paid Health Insurance Exemption
Foreign and Diplomatic Aid	\$52.4		International Development/Humanitarian Assistance, Foreign Military Aid, Embassies and Diplomatic Affairs
Infrastructure and Development	\$53.0		Highways, Railroads, Other Surface Transportation, Water and Air Transportation

*Amounts reported in billions USD.

4.1 Treatments

Combined Treatment Following information about the debt and deficit, but before starting the simulation, respondents in the combined treatment were given a prompt which stated:

“With the size of the deficit in mind, we would like to know how you personally would change federal taxes and spending. We have created a “budget model” based on the actual federal budget. In the model, you will be asked to increase or decrease taxes in any category where you believe that the federal government taxes too much or too little. Likewise, for the spending side, you will be asked to increase or decrease spending in any category where you believe that the federal government spends too much or too little. The basic idea is to allow you to adjust the budget in the ways you prefer.”

We provided additional guidelines to respondents explaining how to navigate the simulation and adjust line item amounts.¹ Respondents were then asked to click on an embedded link that redirected to the budget simulation.

The full budget tool contains both revenue and spending items. Figure 1 is a screen capture of the combined treatment. The revenue-side includes six income brackets and an additional six categories including social security payroll and corporate income tax. Effective tax rates and revenue amounts were given for each revenue item.² The limited budgets contain the same tax and spending items. On the spending-side of the budget, we included nine broad spending categories and a total of 27 subcategories. Each budget item added an information bubble with a short description to help clarify the contents of the item. Respondents could change any item in increments of 1% by clicking on “+” and “-” signs.

¹In the accompanying appendix, we include the full content of the guidelines that we gave to respondents.

²See Appendix Table 8 and Table 9 for the complete list of revenue and spending items.

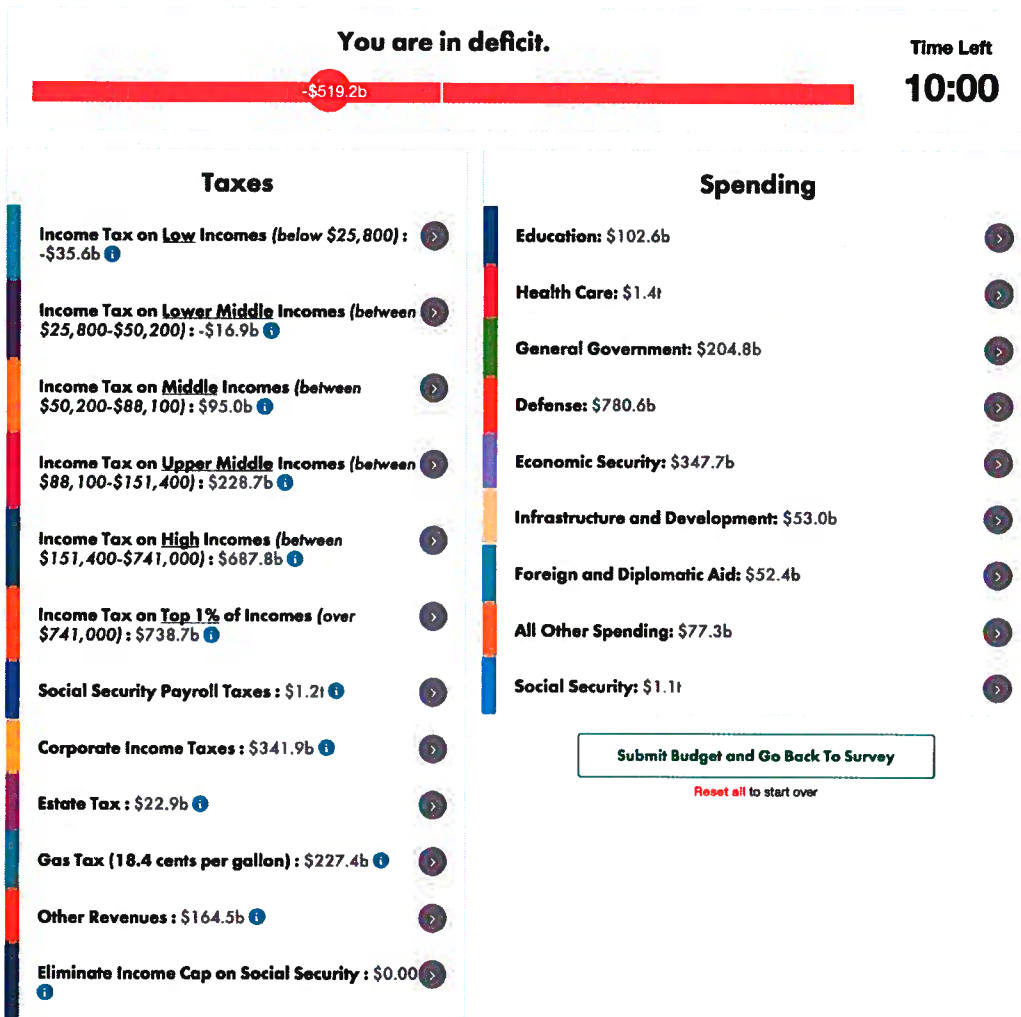
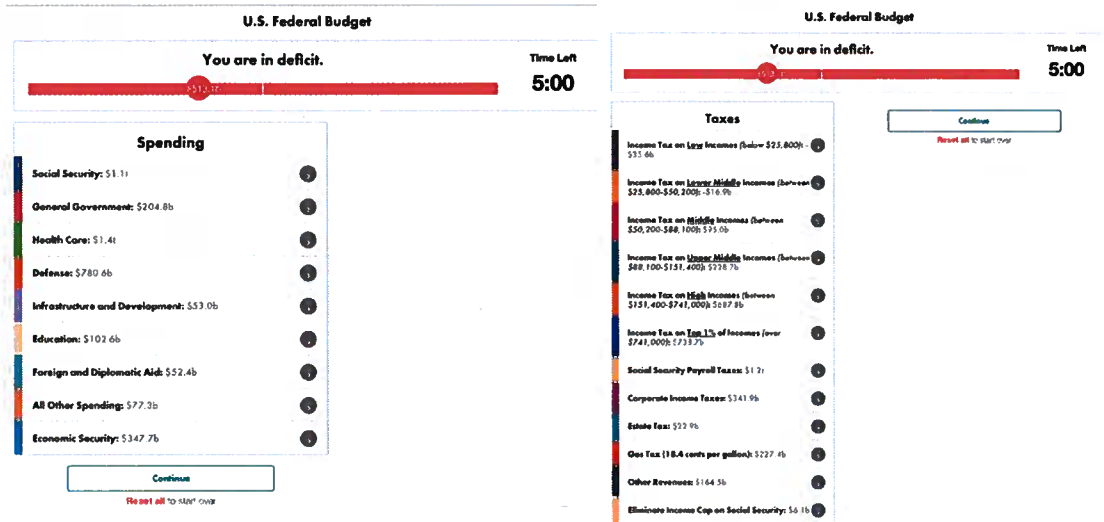


Figure 1: Screen Capture of Combined Treatment



(a) Spending Treatment

(b) Revenue Treatment

Figure 2: Screen Capture of Spending and Revenue Treatments

Revenue Treatment We provided respondents assigned to the revenue treatment with the same motivating prime, followed by an embedded link to the budget tool. For this treatment, we first gave participants the revenue side of the budget before the spending side.

Spending Treatment Mirroring the revenue treatment, respondents assigned to the spending treatment received the spending side of the budget before the revenue side. Figure 2 displays screenshots taken of the spending and revenue treatments.

By giving respondents the revenue and spending treatments and locking those decisions, the design more closely resembles what we have referred to as the “singular” approach. Like existing revenue and spending studies that bracket the discussion about the other side of the ledger, the treatments isolate spending attitudes from revenue attitudes. This design enables us to then compare the “singular” treatments to the combined “holistic” approach.

4.2 Dependent Variables

We use the data from the budgets that respondents submitted in the simulation, and generate three sets of variables to operationalize fiscal attitudes. First, *spending total* and *revenue total* are aggregated measures of each side of the ledger. These totals are the sums of all line items (in billions USD). Higher values of spending total indicate increased spending while higher amounts of revenue total indicate increased government revenue. At the cost of precision, these measures provide a “global” perspective on respondents’ attitudes toward spending and revenue. Second, for each item in the budget, we generate a simple ordinal variable ranging from -1 (decrease in budget line), 0 (no change), and 1 (increase in budget line). For example, a reduction in spending on education or a decrease in corporate tax revenue will be coded as -1 for the given line item. These ordinal variables identify whether respondents changed a specific line item but are insensitive to the amount changed. Third, as a robustness check, we measure the percentage change in each of the budgetary lines. This third measure offers the most precision but is also highly sensitive to outlier attitudes (e.g. say extreme cuts to defense spending). Together, these three sets of variables serve as the dependent variables for comparing the treatment effects.

Given our hypothesis, we expect respondents who receive the combined treatment to express different attitudes toward the budget than those who are assigned to the spending or revenue treatments.

5 Results

We begin our analysis by first examining how the spending and revenue treatments influenced aggregate spending and revenue compared to the combined treatment. Importantly, we wish to be clear that for the purposes of testing our hypothesis we are only interested in comparing

the spending treatment to the combined treatment and comparing the revenue treatment to the combined treatment. We do not compare the spending and revenue treatments to each other because the sequencing involved in those treatments may potentially influence their responses.

Given that our aggregate variables (spending total and revenue total) are continuous measures, we estimate our models using simple linear regression. Table 5 presents our results for spending total. Model 1 serves as our baseline model and only includes our treatment variable, spending treatment. Again, the reference category for the spending treatment is the combined treatment. The spending treatment variable in Model 1 obtains a negative coefficient (-201.260) and is statistically significant at the 0.01 level. Substantively speaking, respondents who received the spending treatment on average decreased spending by \$201 billion compared to those who received the combined treatment. Model 2 and 3 include demographics along with party ID and political ideology. We include party ID and political ideology in separate models given the high degree of multicollinearity between the two variables. Consistent with prior studies, we find that party ID and political ideology are important factors in explaining spending preferences, with Democrats and Liberals more supportive of spending than their Republican and conservative counterparts. The additional covariates in the model do not significantly change the spending treatment result. Our results show that our sample cuts significantly less spending when presented with both sides of the budget, and that how scholars present their budgets (at least on the spending side) can result in different conclusions.

Turning to the revenue side, we present our results for revenue total in Table 6. Again, we estimate the same set of models as above using simple linear regression. Most notably, the revenue treatment variable is not significant in any of the models, indicating that revenue totals were not significantly different between the combined and revenue treatments. However, as would be expected, the sign and level of significance for the party ID and political

Table 5: Spending Total Model

	Model 1: Treatment only	Model 2: With Covariates	Model 3: With Covariates
Spending Treatment	-201.260** (28.990)	-215.393** (28.684)	-211.132** (28.712)
Female		14.364 (29.487)	10.748 (29.617)
Income		-0.308 (4.602)	-0.950 (4.605)
White		21.415 (36.009)	15.725 (35.990)
Liberal		29.294** (8.357)	
Education Level		16.825 (11.930)	16.933 (11.972)
Age (30-44)		-5.108 (34.886)	-4.842 (35.002)
Age (45-64)		99.565* (41.650)	94.756* (41.720)
Age (65 and Over)		217.926* (84.676)	218.631* (84.958)
Democrat			22.828** (7.626)
Constant	4037.398** (20.127)	3794.312** (76.133)	3833.033** (73.302)
N	500	500	500
R2	0.088	0.138	0.132

ideology variables mirror the results on the spending side.

Table 6: Revenue Total Model

	Model 1: Treatment only	Model 2: With Covariates	Model 3: With Covariates
Revenue Treatment	22.435 (56.585)	15.647 (55.463)	17.283 (56.196)
Female		-114.864* (56.100)	-106.454+ (56.858)
Income		-12.491 (8.661)	-14.875+ (8.741)
White		54.698 (66.379)	52.534 (67.050)
Liberal		87.541** (16.062)	
Education Level		8.267 (24.329)	13.570 (24.617)
Age (30-44)		-39.637 (66.046)	-48.249 (66.980)
Age (45-64)		-51.363 (78.378)	-69.178 (79.541)
Age (65 and Over)		-48.473 (163.094)	-61.657 (165.647)
Democrat			55.303** (14.611)
Constant	4107.045** (39.242)	3829.622** (143.394)	3968.038** (142.618)
N	499	498	499
R2	0.000	0.077	0.048

The null result on the revenue treatment suggests that the singular approach may be a less pernicious problem for studies on tax attitudes and that individuals may have more consistent attitudes over the revenue side of the budget than spending.

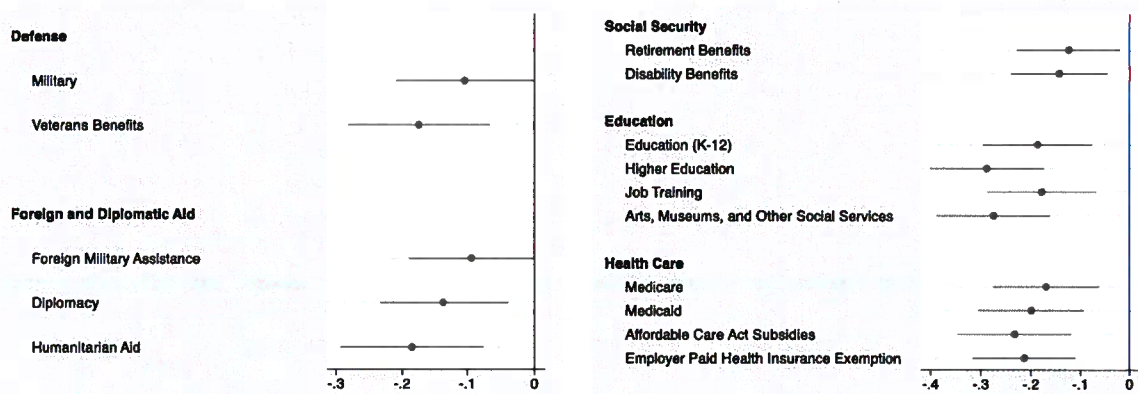
5.1 Modeling Individual Budget Items

In this second half of the analysis, we move beyond aggregate measures of the budget and examine treatment effects at the budget line item level. As mentioned earlier, the budget

line variables range from -1 (decrease), 0 (no change), and 1 (increase). We analyze the data using simple group mean tests (t-tests) to determine whether respondents in the combined treatment made different decisions than those in the spending and revenue treatments. We present our treatment effects for the spending side using coefficient plots with 95% confidence intervals (Figure 3 and 4). A negative sign on a coefficient indicates that respondents who received the spending treatment decreased the given spending item more than those who received the combined treatment.

In nearly all categories, except for military and foreign military assistance spending, we find a statistically significant difference between respondents who received the spending treatment and those who received the combined treatment. The individual spending item results are consistent with the aggregate results for spending total. On the revenue side, the only significant differences that we find are for income taxes between \$88k-\$151k, \$151k-\$741k, and other taxes. These results are also consistent with the aggregate results for revenue.

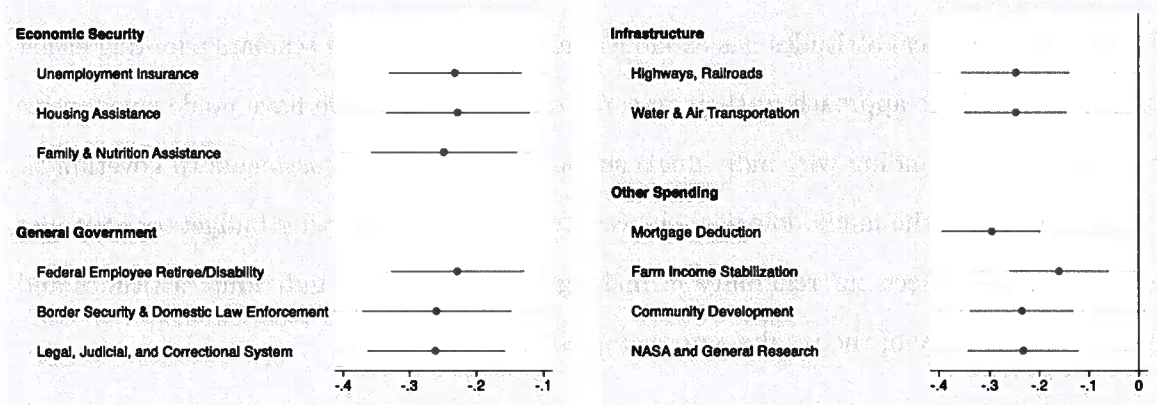
Figure 3: Treatment Effect across Spending Items



(a) Defense and Foreign Spending

(b) Social Security, Education, Health Care Spending

Figure 4: Treatment Effect across Spending Items



(a) Economic Security and General Government Spending

(b) Infrastructure and other spending

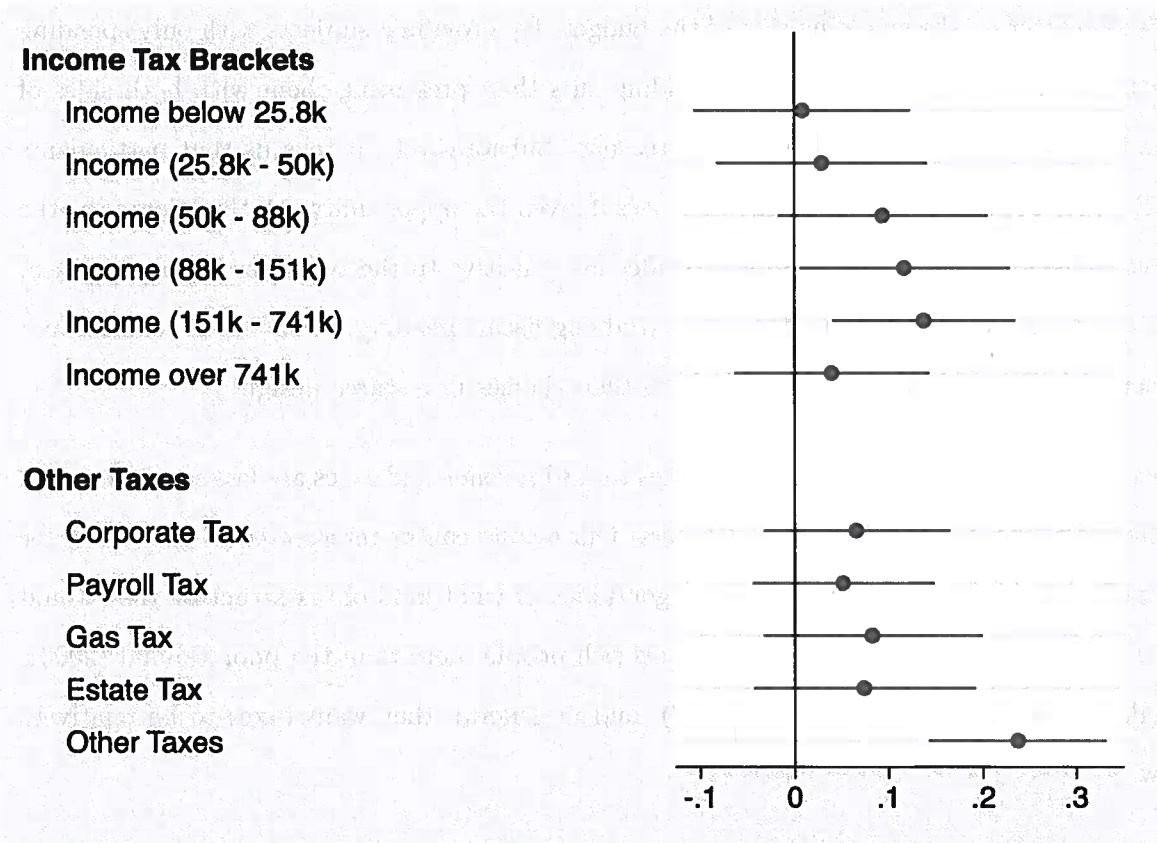


Figure 5: Treatment Effect across Revenue Items

6 Discussion

The literature on fiscal attitudes has expanded in recent years, with scholars adopting either a singular or holistic approach in their research designs. Indeed, we have made substantive progress in understanding why individuals support and oppose adjustments to government budgets. However, the methodological choices we make when studying budgetary attitudes could potentially affect our reliability in making inferences about individual attitudes and hinder comparability of the results across studies.

In this paper, we contribute to the methodological considerations that go into the research design by presenting the first set of systematic tests comparing how participants respond to the two commonly used approaches in the literature. Our results indicate that framing effects matter on the spending side of the budget. By providing subjects with only spending decisions they make more extreme spending cuts than presenting them with both sides of the budgets. This is important for two reasons. Substantively, it tells us that participants will balance spending cuts with tax increases if given the opportunity. Methodologically, the results demonstrate that spending attitudes are sensitive to the two approaches. As such, we encourage scholars, particularly ones studying fiscal spending attitudes, to consider and discuss the framing effects associated with their choices in research design.

The results also demonstrate that attitudes toward revenue and taxes are less sensitive to the different approaches applied by researchers. Our results can be interpreted as good news for tax scholars. Americans seem to have a good idea of what kind of tax structure they would like. They want a tax structure that taxes rich people more than the poor [Edlund \(2003\)](#); [Ballard-Rosa, Martin and Scheve \(2017\)](#), and in general, they want taxes to be relatively low.

Why are attitudes toward revenue more sensitive to framing? Here, we believe future research is needed. At this point, we can only offer some mechanisms driving this difference in

behavior. Potentially, the notable difference could be due to what Hsee et al. (1999) calls the evaluability hypothesis. Hsee argues that people may exhibit different attitudes for the same options in two normatively equivalent evaluation conditions. When people are able to compare two options side-by-side the evaluability of the items change. Although subjects are not comparing two normatively equivalent conditions in the contexts of budgets, they are more easily able to evaluate the revenue effects of their spending decisions when given a more complete environment. However, this theory alone is still incomplete because it does not explain the observed stability in tax attitudes. An additional consideration may be related to the proximal and distal determinants of fiscal policy. Despite all citizens paying taxes and receiving government services in return, concerns about taxes may be more a proximal determinant of fiscal attitudes, and therefore more stable, than spending attitudes because taxes represent clear and personal costs to individuals while government services are more diffuse.

Finally, this paper presented interactive budget models as a new and effective way to present fiscal trade-offs to respondents. The classical surveys can make it difficult to accurately understand what citizens would prefer if they were forced to consider the fiscal trade-offs between their taxation and spending preferences. Budget simulations enable researchers to obtain micro-level data on attitudes toward individual budgetary line items as well as macro-level data on attitudes toward cross-ledger preferences, such as the size of government and budget deficits. From the respondents' perspective, budget tools provide important information about the constituent line items and present a bird's view of how revenue is raised and spent. We believe this added context leads to more refined measures of attitudes than more traditional instruments like surveys, which effectively ask questions in a compartmentalized vacuum.

Acknowledgements and Disclosure Statement

A previous version of this article was presented at the MPSA Conference 2018, held in Chicago, and the APSA Conference held in Washington D.C. For helpful comments, we thank David Kimball, and the members of TARC. This project was funded by the European Research Council under the European Union's Seventh Framework Programme (FP7/2007-2013) / ERC Grant Agreement n. [295675]. John D'Attoma acknowledges an ESRC grant from Tax Administration Research Centre (TARC) for this research (ESCR Grant ES/S00713X/1).

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A Appendix

A.1 Survey

Prompt given before starting the budget tool exercise: “The U.S. Federal Government is in debt. In 2017 the government is going to spend approximately \$519 billion more than it will collect in taxes and other revenues. This 1/2 trillion dollars will be added to the debt total which is currently approximately 19 trillion dollars. To put this in perspective, the current debt of the U.S. Government is equal to approximately \$45,000 for every American citizen. With the size of the deficit in mind, we would like to see how you personally would change Federal taxes and/or spending. We have created a ?budget model? based on the actual Federal budget.

In the model you will be able to cut spending in any category where you believe that the Federal government spends too much money and/or increase revenues in any category where you think taxes should be raised. The basic idea is to allow you to change taxes and/or spending in the ways you prefer. The model will only allow spending cuts and/or increases in Federal taxes. You will have 10 minutes to complete the budget model. After completing the model, you will be returned to the survey and asked some follow-up questions.”

A.1.1 Survey Questions and Coding

Ideology: “When it comes to politics, do you usually think of yourself as”: 1) Very conservative; 2) Conservative; 3) Somewhat conservative; 4) Moderate or middle of the road; 5) Somewhat liberal; 6) Liberal; 7) Very liberal. We coded the dummy variable for Liberal as “1” if the respondent chose 5,6, or 7; otherwise “0”. We coded the dummy variable for Conservative as “1” if the respondent chose 1,2, or 3; otherwise “0”. Moderate serves as the reference category.

Party ID: “Generally speaking, do you usually think of yourself as”: 1) Strong Republican; 2) Weak Republican; 3) Lean Republican; 4) Independent; 5) Lean Democrat; 6) Weak Democrat; 7) Strong Democrat. We coded the dummy variable for Democrat as “1” if the respondent chose 5,6, or 7; otherwise “0”. We coded the dummy variable for Republican as 1 if the respondent chose 1,2, or 3; otherwise “0”. Independent serves as the reference category.

Political Trust: “How often can you trust the federal government in Washington to do what is right?” 1) Never; 2) Sometimes; 3) About half the time; 4) Most of the time; 5) Always

Table 7: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Spending Count	1,991	7.221	6.244	0	27
Revenue Count	1,991	3.841	2.944	0	12
Moderate	2,901	0.347	0.476	0	1
Conservative	2,901	0.349	0.477	0	1
Trust	2,901	2.535	1.064	1	5
Income	2,901	6.170	3.276	1	16
Education Level	2,901	3.887	1.438	1	6
Age	2,899	48.097	16.874	18	82
Female	2,217	0.535	0.499	0	1
White	3,184	0.750	0.433	0	1
Democrat	2,900	0.350	0.477	0	1
Republican	2,900	0.333	0.472	0	1

Age: “In what year were you born?” Continuous measure of age ranging from 18 to 82.

Income: Over the past year, what was your family’s approximate annual income? 1) Less than \$10,000; 2) \$10,000 - \$19,999; 3) \$20,000 - \$29,999; 4) \$30,000 - \$39,999; 5) \$40,000 - \$49,999; 6) \$50,000 - \$59,999; 7) \$60,000 - \$69,999; 8) \$70,000 - \$79,999; 9) \$80,000 - \$99,999; 10) \$100,000 - \$119,999; 11) \$120,000 - \$149,999; 12) \$150,000 - \$199,999; 13) \$200,000 - \$249,999; 14) \$250,000 - \$349,999; 15) \$350,000 - \$499,999; 15) \$500,000 or more; Prefer not to say (coded as missing).

Education: “What is the highest level of education you have completed?” 1) Did not graduate from high school; 2) High school graduate; 3) Some college, but no degree; 4) 2-year college degree; 5) 4-year college degree; 6) Post-college graduate degree.

Female: “What is your gender?” 1) Female; 0) otherwise.

White: “What racial or ethnic group or groups best describes you?” 1) White; 0) otherwise.

A.2 Appendix Tables & Figures

Table 8: Revenue Items Included in Balancing Act Budget Tool

Main Line Items	Initial Revenue Amount*
Income Tax on Low Incomes (below \$25,800)	-\$35.6
Income Tax on Lower Middle Incomes (between \$25,800-\$50,200)	-\$16.9
Income Tax on Middle Incomes (between \$50,200-\$88,100)	\$95.0
Income Tax on Upper Middle Incomes (between \$88,100-\$151,400)	\$228.7
Income Tax on High Incomes (between \$151,400-\$741,000)	\$687.8
Income Tax on Top 1% of Incomes (over \$741,000)	\$738.7
Social Security Payroll Taxes	\$1,220
Corporate Income Taxes	\$341.9
Estate Tax	\$22.9b
Gas Tax (18.4 cents per gallon)	\$227.4
Other Revenues	\$164.5
Eliminate Income Cap on Social Security	\$0

*Amounts reported in billions USD.

Table 9: Spending Items Included in Balancing Act Budget Tool

Main Line Items	Initial Amount by Main Line Items*	Spending by Main Line	Subcategories under main line items
Economic Security	\$347.7		Family and Nutrition Assistance, Housing Assistance, Unemployment Insurance, Home Mortgage Interest Deduction
Social Security	\$1,100		Average Retirement Benefit, Disability Benefits
Education	\$102.6		K-12 and Vocational Education, Higher Education, Arts, Museums, and Other Social Services, Job Training, Research, and Other Labor Services
All Other Spending	\$77.3		NASA and General Research, Farm Income Stabilization, Community Development
Defense	\$780.6		Military, Veterans Benefits
General Government	\$204.8		Federal Employee Retiree/Disability, Legal, Judicial, and Correctional System, Border Security and Domestic Law Enforcement
Health Care	\$1,400		Medicare, Medicaid, Affordable Care Act Subsidies, Employer Paid Health Insurance Exemption
Foreign and Diplomatic Aid	\$52.4		International Development/Humanitarian Assistance, Foreign Military Aid, Embassies and Diplomatic Affairs
Infrastructure and Development	\$53.0		Highways, Railroads, Other Surface Transportation, Water and Air Transportation

*Amounts reported in billions USD.