Measuring Budgetary Preferences Using Interactive Budget Simulations: A Holistic Approach*

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Abstract

The literature on budget preferences has become increasingly bifurcated with scholars studying preferences over spending and revenue as separate outcomes of interest. Certainly, this substantive divide has led to important advancements in explaining specific questions related to each side of the ledger, but the distinction within the field has come at a theoretical and empirical cost. In this paper, we argue that a holistic approach, accounting for spending and revenue preferences, can overcome several existing issues found in the literature. Yet, a major barrier to studying budget preferences in this way lies with traditional methods, such as survey questionnaires. We introduce online interactive budget tools as a flexible, multi-purpose method for scholars to collect attitudinal measures on spending and revenue items. We test whether the holistic approach elicits different behaviors than the more singular approaches using data from a 2018 Mechanical Turk survey with an embedded budget tool, and a randomized experiment. We make two important contributions. First, we uncover that participants reduce spending less when given both size of the budget compared to when they are given spending separately. On the tax side, there is little variation between treatments, which aligns well with the theory that Americans have quite stable preferences for taxation. Secondly, we uncover that our budget tool decreases polarization considerably. Indeed, when given both sides of the budget there are very little differences on taxing and spending between conservatives and democrats.

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Introduction

Decisions over government budgets engender political battles. Accordingly, the literature on mass attitudes toward government budgets is nothing less than immense, spanning a large disciplinary range, including political science, economics, and sociology. Over the years, the research on budget preferences has increasingly drifted further apart with some scholars only focusing on the tax/revenue side of the ledger while others seek to explain spending preferences. In fact, it may be argued that the scholarship on spending and tax preferences are so large that they now constitute separate research programs. Certainly, this substantive divide has led to tremendous advancements in explaining specific questions related to each side of the ledger, but the distinction within the field has come at a theoretical and empirical cost.

Specifically, we raise three issues related to what may be called the “singular approach” – that is focusing on only taxes or spending – to explaining budget preferences (Beck, Rainey and Traut 1990). Most importantly, few studies have forced respondents to consider the real-world fiscal trade-offs between taxes and spending. This omission of budgetary constraints may lead to extreme positions on the issue of taxation and spending. As (Citrin 1979: p. 114) pointed out early on in the literature “[S]ome surveys elicit opinions without forcing people to confront, albeit hypothetically, the trade-off between taxing and spending. 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.” Second, many studies narrowly focus on specific items within the federal budget such as spending on education or corporate tax on the revenue side. While such item-specific approaches can be useful to explain preferences on a particular budgetary line, it is difficult to generalize these preferences to the budget at-large, and it is unclear what the composition of the budget would be if these preferences were translated into actual budget items. Third, existing studies on preferences over the budget and budget items often lack context, giving respondents insufficient information about how their decisions impact other parts of the budget.

In this paper, we argue that a “holistic approach” – studying spending and revenue preferences in tandem – offers a solution to these issues. The inherent trade-offs between spending and revenue are more transparent when respondents are given both sides of the ledger. A holistic approach accommodates multiple spending and revenue items and gives a broader context to how individual items are situated in the budget-at-large. Certainly, the call for a holistic approach is not entirely new, but its adoption has been met with resistance be-
cause of existing methodological challenges. We present online interactive budget tool as a solution to these limitations and enable researchers to more effectively match empirics with theory.

To demonstrate the connection between a holistic approach and our method, we partnered up with Balancing Act, an organization focusing on public engagement in government budgets, to build an interactive budget tool based on the general line items of the 2018 federal budget.\footnote{Balancing Act creates interactive budget models for voters to learn about public budgets and the choices involved in creating them. More information about Balancing Act can be found on their website\url{http://www.abalancingact.com}} Interest in interactive budget tools has grown in recent years with policymakers and nonprofits using them to educate the public about local and state budgets. We believe that this is a powerful but underutilized tool for political scientists studying attitudes toward taxation and spending policies. The tool allows researchers to obtain micro-level data on individual line items and macro-level data on general trends, such as do conservatives support increasing taxes on the rich or do liberals support cutting defense spending. Moreover, future research can utilize budget tools to measure issue salience, generate dichotomous and continuous measures for specific budgetary items, and determine whether and how people balance budgets.\footnote{Our data will be made publicly available on the authors’ website.}

We make two contributions to the literature. We use the data collected from this study to illustrate that a holistic approach to studying taxes and spending elicits different preferences than studying taxes and spending separately by leveraging a randomized controlled experiment. Secondly, we examine whether ideological polarization over important budgetary positions is indeed an facet of the American citizenry or an artefact of the “singular” approach. To preview our results: We uncover that participants reduce spending less when given both size of the budget compared to when they are given spending separately. On the tax side, there is little variation between treatments, which aligns well with the theory that Americans have quite stable preferences for taxation.

**Budget Preferences: A Tale of Two Literatures**

There is a long scholarly history of studying the public’s support for budgets. Early scholars began studying budgets by employing what we call a holistic approach. Much of this early literature suggests that the public holds unrealistic preferences, which we believe has facilitated a methodological disconnect between taxes and spending. If the public has a hard
time making realistic decisions when presented with both sides of the budget, then it makes some sense to disentangle spending and taxes as to improve our measurements, as well as to 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, we argue, has led to theoretical assumptions that may not align with actual budget preference. Scholars such as Beck, Rainey and Traut (1990), Hansen (1998), and Bonica (2015) increasingly seem to share this sentiment.

Early pioneers who examined public support for budgets usually accounted for attitudes toward taxes and spending together. Mueller (1963), for example, fielded a survey in 1960-61 which asked respondents about preferences toward certain 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) concludes 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 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, 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 important and enduring characteristics of American public opinion and ideology.

Though there is some consensus, it’s still not exactly clear whether individuals actually hold contradictory preferences. For instance, extending upon Citrin (1979) and Ladd Jr et al. (1979), Susan Welch (1985) instead suggests that the idea that most people have unrealistic preferences is not totally accurate. 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 (pg. 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 speaks more to the methodological problems associated with measuring peoples threshold for tradeoffs without forcing them to make an actual tradeoff. Similarly, Hansen (1998) indicates that most Americans have very little trouble determining their views, recognizing tradeoffs, and making consistent decisions. He concludes that Americans’ budget preferences are “remarkably well structured” (pg. 526). But he also 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 tradeoffs inherent in establishing public priorities. Typically, survey questions offer respondents unrealistic choices among incomplete sets of options.” (pg. 514).

We believe that this tacit agreement among academics that Americans hold unrealistic preferences and the lack of literature demonstrating otherwise, has facilitated a methodological disconnect between taxes and spending, which over time reinforces the divorcing of these research agendas. According to Beck, Rainey and Traut (1990: 72), “Citizen thinking about taxes, services, and the tradeoffs between them is not well understood. Most previous research has restricted its attention to only one side of the tradeoff equation and has approached it from a single theoretical perspective.” They go on to say, “With such divergence in focus and theoretical approach, it is little wonder that citizen fiscal thinking remains somewhat puzzling to social scientists.

Yet, despite the ambiguous findings and this call for a more holistic approach, the vast majority of studies still only consider one side of the budget. This is not to say, however, 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 very specific areas of the budget. 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.

Furthermore, Wlezien (1995) makes an important theoretical contribution to the spending literature by pinpointing support for very specific spending items. This study indicates that preferences for public spending are not so static. Individuals form preferences in relation to
current policy changes, so that individuals adjust their preferences for public spending down when appropriations increase and up when appropriations decrease. Similarly, Kolln and Wlezien (2016), using a conjoint experiment, further demonstrate that individuals do hold strong preferences when asked to make complex/multidimensional decisions. Both of these studies provide both theoretical and methodological contributions by focusing on one side of the budget. However, singular models that leverage only one feature of the budget fail to account for dynamic preferences. The literature cited above, for example, assumes that women’s, seniors’, and Democrats’ preferences would remain unchanged even when given richer contextual information. Indeed, this might be so, but without examining both sides of the ledger and providing realistic budgetary context there is no way to know whether those preferences are real or simply an artifact of a lack of prior contextual information.

There is also an expanding amount of literature on preferences for taxation (Ballard-Rosa, Martin and Scheve 2017; Scheve and Stasavage 2010; Barnes 2014; Ballard-Rosa, Martin and Scheve 2017; Bartels 2005; Rudolph and Evans 2005). Although less attention has been given to taxation, the general conclusion among most scholars is that people are averse to tax increases generally and demonstrate somewhat unrealistic preferences. For example, Bartels (2005) demonstrates that most Americans supported the Bush tax cuts, although the redistributive effects were more regressive than progressive. Most recently, Ballard-Rosa, Martin and Scheve (2017) have recently developed a conjoint model which demonstrates that although most people are concerned for fairness and progressivity, their policy preferences would bring in significantly less revenue than current policy. The authors acknowledge, however, that this result could also be an artifact of a lack of context addressing the spending side of the budget. This is an important contribution to the literature as it introduces taxes as a multi-dimensional issue instead of singular. However, all of these literatures still only consider the one side of the budget.

Although academics have made considerable progress since the pioneering work of Freed and Cantril (1967), Citrin (1979), and Welch (1985), more recent research still leaves gaps for further investigation. For example, Rudolph and Evans (2005) and Rudolph (2009) consider both sides of the ledger, however they are studied independently. Ballard-Rosa, Martin and Scheve (2017) use conjoint analysis experiments to examine progressive taxation, but until now they have only considered taxation. Similarly, Kolln and Wlezien (2016) exploit a conjoint experiment, and yet, they only consider spending. Moreover, although conjoint experiments are extremely valuable for examining trade-offs, researchers also have to make significant trade-offs when deciding which budgetary items should be included in the trade-off decision.
An Argument for A Holistic Approach to Studying Budget Preferences

There are a number of scholars that argue for a more holistic approach to studying budget preferences, as they do not believe that the “unrealistic” preferences argument holds up when individuals are given context about both sides of the budget ledger. Even more recent studies that considers only one side of the budget point out the limitations to examining either taxes or spending. Kolln and Wlezien (2016: 18) recognize 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.” Similarly, Ballard-Rosa, Martin and Scheve (2017: 15) state “although 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 is not made explicit.” They therefore acknowledge the benefits of research that considers spending preferences alongside tax preferences and encourage others to take steps in this direction.

It could be argued then that this one-sided methodology could be driving the “unrealistic” preference for high spending and low taxes (Freed and Cantril 1967; Sears and Citrin 1982). Beck, Rainey and Traut (1990: 72) argue that this is indeed the product of a methodological “singular” approach, stating:

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 sociopsychological approaches typically have concentrated on service evaluations and have employed political attitudes and beliefs as the major explanatory factors. By contrast, taxes have been the special domain of scholars adopting microeconomic perspectives with their explanatory emphasis on material cost-benefit calculations.

Most importantly, few studies have forced respondents to consider the real-world fiscal trade-offs between taxes and spending. 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 vast majorities 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 support a balanced budget amendment. Additionally, although Eismeier (1982: 134) finds that 71 percent of the sample thinks 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.” Most recently, Ballard-Rosa, Martin and Scheve (2017) find that Americans’ tax preferences would raise significantly less tax revenue than current policy. Instead of unrealistic fiscal preferences, it could be that a lack of fiscal context is contributing to extreme attitudes.

Second, many studies narrowly focus on specific items within the federal budget such as spending on education or corporate tax on the revenue side. While such item-specific approaches can be useful to explain preferences on a particular budgetary line, it is difficult to generalize these preferences to the budget at-large, and it is unclear what the composition of the budget would be if these preferences were translated into actual budget items.

Third, existing studies on preferences over the budget and budget items often lack context, giving respondents little information about the actual content of the budget. In a typical opinion survey respondents do not have to choose between real alternatives. Participants are then left to make choices without having to consider how their choices would affect other areas of the budget, which in turn could affect them personally. It is easy to say that you want to “cut spending” on something without the distribution of the resources or the actual amounts spent. Similarly, it can be easy to say that “the rich” or corporations should pay higher taxes when you do not really know how much companies or wealthy individuals currently pay, or how much money would actually be generated if they were asked to pay more.

Real budgets are dynamic and multidimensional. The decision to decrease/increase spending in one area affects how much governments are able to decrease/increase spending and taxation. For this reason, we argue that a holistic approach that considers both sides of the ledger in context of an actual budget is preferable to a “singular” approach. Moreover, traditional public opinion surveys are not suited for capturing these dynamic, multidimensional decisions. Hainmueller, Hopkins and Yamamoto (2013) argue this point and offer conjoint analysis as one way to study multidimensional policy preferences. Yet, conjoint analysis has its own restrictions. Assigning too few attributes can cause respondents to use an included attribute to draw conclusions about an omitted characteristic (Hainmueller, Hopkins and Yamamoto 2013:25). Malhotra (1982:419) states “it is important to determine the number of choice alternatives and attributes consumers can simultaneously process without suffering
the negative effects of overload.” Malhotra’s results indicate that there was not information
overload at between five and ten attributes, but respondents suffered information overload
with over ten attributes. Hainmueller, Hopkins and Yamamoto (2013:25) acknowledges this
limitation, stating “when faced with a conjoint table that includes too many attributes,
respondents might disregard all but the first attribute.”

Despite many scholars having argued for a holistic approach to studying budget preferences,
most still study either taxes or spending.3 One of the main reasons for not studying revenue
and spending together is because of methodological limitations. Over the last several years,
scholars have made significant progress studying multidimensional preferences utilizing tools,
such as conjoint analysis. However, since conjoint analysis is very limited in the number of
attributes it can include, it also tends to constrain scholars to one side of the budget. In the
next section, we introduce interactive budget simulation tools as a solution.

Interactive Budget Tools

While public opinion surveys are useful in measuring attitudes toward a specific, stand-
alone issue, it is difficult to link these attitudes to particular policies because surveys tend
not to provide budgetary context. In other words, when thinking about budget preferences,
a complete preference model needs to account for both sides of the budget, coupled with
budgetary context without which survey respondents lack the necessary prior information
to make informed decisions.

As Bonica (2015: 2) elegantly observes,

“It is worth considering that the incoherency present in responses to conventi-
tional budgeting survey questionnaires is more a symptom of the test than the
takers. In any other context than a survey, it would likely seem unreasonable –
Perhaps even unfair – to ask individuals about their public budgeting preferences
without first providing even a minimal amount of information on relative spend-
ing amounts needed to place them in context, and then declare the uninformed
and often incoherent preferences that result as evidence of their irrationality and
incompetence.”

3There is a growing movement to account for a more complete preference model by studying both sides of
the budget ledger together. Björn Bremer and Reto Bürgisser (see Bürgisser and Bremer 2017), for example,
consider individual tradeoffs between taxes and spending using a conjoint experiment. But again, researchers
sacrifice important budgetary information for simplicity.
At its core, an interactive budget tool is an online simulation designed to give a holistic perspective of a budget and allow respondents to adjust items within the budget while providing real-time feedback for how their choices affect the overall budget. In the most basic of interactive budget tools, individuals go to a web page and are presented with some basic information, such as the size of the current budget (or simulated budget). For example, in our tool there is a slider at the top of the page that reads: “2017 Budget: You are in deficit.” Under the text, the red slider shows the extent to which the budget is in deficit (surplus). The slider is interactive in that it adjusts as the participant makes decisions on taxes and spending. There is a list of line items from the budget with revenue on one side and spending on the other side. One of the many benefits of a budget tool is that it can be as simple or complex as one would like. There can be a whole battery of line items that mimics a specific budget, or it can be simple with very few line items to address specific questions.

These interactive budget tools were initially designed for learning, teaching, and citizen engagement. Using a budget tool, policy makers can build a two-way relationship with citizens based on facts and get informed input on service levels and priorities. Through these tools policy makers are also able to foster public understanding and put users in the decision makers’ shoes, including seeing the difficult tradeoffs inherent in budgets.

Local governments have long recognized the value of simulations to both provide useful information to assist staff and elected officials to make budgets, but also as a meaningful form of public engagement. Until recently, simulations were paper-based and both staff-intensive and could usually only involve about 30 people. However, as internet technology has improved, local governments and states (i.e. Canada, UK and Australia) are increasingly using simulations to both convey complex information and to receive informed input. One of the many uses of budget tools includes providing input on how to close a gap between projected revenue and expenses with cost-saving options, such as closing libraries for one day each week. Budget tools have also been used to help identify projects that should be included in a long-term infrastructure plan alongside the taxes need to pay for the increase; they have been employed to demonstrate transparency and accountability by accompanying a proposed budget from city managers or mayors while embedding layers of information in an effective way to share with residents. Furthermore, in states that have local referendums, these simulations have been used to prepare for an election by creating understanding of why an increase in bond revenue may be needed.

Finally, budget simulations are great pedagogical tools. They can easily keep students in-
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involved and attentive. Moreover, the interactive element can spark student interest in the budgetary process, while demonstrating the basic features of budgets.

Scope of Application

Just as with any methodological tool, there are both benefits and limitations to the budget tool. First, the budget tool can provide a large amount of information that can be laid out in an intuitive way for respondents. It is also great for researchers studying the trade-offs between taxes and spending. This can be as broad or specific as the research question demands. For example, researchers can look at the total ratio of spending cuts to tax increases or they can analyze taxes increased on the wealthy compared to spending cuts on welfare programs. It can also be used as a tool to measure issue salience by measuring how much they are reducing and raising specific items.

These tools are flexible. Researchers can use real approximations of budgets; they can input values that speak more directly to their research questions; it also provides scholars who study state, local, and federal governments a variety of options. Something like gauging public support for a local sales tax initiative can be easily executed employing an interactive budget tool. They can also be simple or provide labyrinth of detail, depending on the particular research question.

There are also important ways in which an interactive budget can be structured so that researchers can examine specific issues. Suppose a researcher is interested in preferences for welfare programs. Very specific welfare items can be nested within a much broader welfare category. Further within something like this, researchers can vary question wording to examine the effects of priming on preferences. Calling it welfare might elicit different behaviors than calling it support for low-income individuals, for example. Finally, scholars can include more items than traditional methods.\(^4\)

Yet, a clear drawback with using a fully flexible budget tool is that it gives respondents too many choices. When given too many options, respondents have been known to satisfice which could lead to biased and inefficient measures. It also asks survey respondents to make unrealistic decisions. As Haskell (2001: ) states, “the main point of having people in leadership positions in legislatures is to have them do that which citizens are in no position to do – construct some rational whole out of a given year’s budget.” It is somewhat problematic that

\(^4\)An alternative method is conjoint analysis but it is less flexible in the number of items (and estimates more sensitive too many items) and cannot measure the intensity of preferences - only relative importance)
by exploiting an interactive budget, we are asking subjects to make particularly complicated decisions that they would never be forced to make in reality. Further, it is impossible to provide an exact replica of a government budget, while at the same time keeping the tool parsimonious and interpretable for analysis. Therefore, although interactive budgets can provide a breath of information and detail that surveys and experiments cannot provide, it is important that the budgets are also simple enough to provide accurate measures.

Moreover, it can be less useful for measuring less salient budget items. For example, researchers could find that there is little variation on spending cuts to widely popular items, such as the fire department, which renders analysis on these issues problematic. They can also be costly to construct. Although interactive tools can be affordable, fully customizable budgets can be expensive. However, prices will come down as more researchers adopt these methods.

Application of Budget Tools for Social Science Research

We fielded an online survey with an embedded link to the budget tool between August 7 and 8, 2018. We conducted the survey with 919 voting-age Americans using a panel provided by Mechanical Turk (mTurk). Survey participants were randomly allocated to one of three treatments. In our baseline survey, we provided participants with an embedded link to our full online budget simulation containing both taxes and spending together. This meant that they could choose to adjust both taxes and spending. For another treatment, we gave survey takers the tax-side of the budget first. Once they submitted the tax-side, their choices were locked-in, and we then gave them the spending-side of the budget. Finally, for our third treatment, we asked respondents to manipulate the spending-side of the budget first. Those decisions were locked and followed by the tax-side of the budget. To be clear, once the decisions were made and the budget was submitted in treatments two and three, respondents could not go back and adjust their decisions.

In the first part of the study we presented respondents with an online survey that provided consent and basic demographic information such as age, employment status, gender, and income. In addition to the pre-survey questions, the subjects were primed with the 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.”

After they completed the survey respondents 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.”

They were then given an embedded link, which took them directly to the budget tool.

The full budget tool contains both revenue and spending items. Figure 1 is a screen capture of the online budget tool used for this study. The revenue-side contains 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. The limited budgets contain the exact 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 included 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.

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See Appendix Table 3 and Table 4 for the complete list of revenue and spending items.
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Figure 1: Screen Capture of Online Budget Tool

Similar to the baseline treatment, we provided respondents in treatment two with a pre-treatment survey with the same prime followed by an embedded link to the budget tool. However, for this treatment we only gave participants the tax-side of the budget first followed by the spending-side. Figure 2 is a screen capture of the tax-side only. Specifically we stated,

“In the model, you can adjust the budget by changing the tax side of the budget. The tax side allows you to increase or decrease the amount of money coming from different tax sources. You will see the total amount of money from that source as well as the current tax rate, if applicable. Click the arrow to the right to expand a category to see its sub-categories. This is where you will make your
changes to taxes.

The bar located at the top of the model indicates whether your budget is in a deficit or surplus. As a friendly reminder, we are asking you to submit a budget that you support. This means that you can submit a budget with a deficit or surplus.

We provide a timer to help protect your valuable time as a respondent. Please note that you are allowed to go over the allotted time.”

![U.S. Federal Budget](image)

Figure 2: Screen Capture of Online Budget Tool-Taxes Only

Once they submit the tax-side of the budget, we present them with an information bubble
explaining that budgets are made up of both revenue and spending. Figure 3 is a screen capture of the information bubble.

Figure 3: Screen Capture of Instruction Bubble Following Submission

Thank you for your submission!

Your changes to the revenue items have been saved.

Because budgets are comprised of both revenue and spending, now we would like to know how you would change the spending side of the federal budget.

On the next page you will see spending items on the federal budget alongside the revenue side you just saved. The revenue side is visible to you for your reference, but not editable—you will only be able to edit spending.

How would you adjust spending from the budget? Please click “Continue” to start making changes!

Please note: clicking “back” on your browser will invalidate your participation in this study.

Finally, in treatment three was the opposite of treatment two. Thus, we first provide participants with brief information, specifically stating,

“In the model, you can adjust the budget by changing the spending side of the budget.

The spending side allows you to increase or decrease the amount of money that is spent on certain items. Click the arrow to the right to expand a category to see its sub-categories. This is where you will make your changes to spending.

The bar located at the top of the model indicates whether your budget is in a deficit or surplus. As a friendly reminder, we are asking you to submit a budget that you support. This means that you can submit a budget with a deficit or surplus.

We provide a timer to help protect your valuable time as a respondent. Please
note that you are allowed to go over the allotted time."

Figure 4: Screen Capture of Online Budget Tool—Taxes Only

<table>
<thead>
<tr>
<th>U.S. Federal Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>You are in deficit.</td>
</tr>
<tr>
<td>-3015.4b</td>
</tr>
<tr>
<td>Time Left</td>
</tr>
<tr>
<td>5:00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Security: $1.1t</td>
</tr>
<tr>
<td>General Government: $204.8b</td>
</tr>
<tr>
<td>Health Care: $1.4t</td>
</tr>
<tr>
<td>Defense: $780.6b</td>
</tr>
<tr>
<td>Infrastructure and Development: $53.0b</td>
</tr>
<tr>
<td>Education: $102.6b</td>
</tr>
<tr>
<td>Foreign and Diplomatic Aid: $52.4b</td>
</tr>
<tr>
<td>All Other Spending: $77.3b</td>
</tr>
<tr>
<td>Economic Security: $347.7b</td>
</tr>
</tbody>
</table>

Again, we locked these decisions once they submitted their budget, and we then provided them with an information bubble about the next phase of the study. Just as the previous treatment, we told participants that the spending-side is only displayed as a reference and is not adjustable. In all three treatments, once the participants submitted their final budgets, we redirected them to a post-treatment survey that asked questions about the participants experience, such as how difficult was it to submit a budget that they supported.

By giving participants the tax-first treatment and spending-first treatment and locking those decisions, the design more closely resembles a traditional survey in which researchers give survey-takers only one side of the budget in isolation. We can then compare these treatment to our baseline treatment. In other words, we can test the singular approach against the holistic approach.
Our budget tool has several desirable attributes as a research instrument to measure preferences. First, it allows respondents to see both sides of the budget. Second, respondents see how their individual choices on a single item impact the overall budget. Third, the budget tool contains all the major categories and subcategories in the budget and allows respondents to make budget decisions on each of them.

The number of items in our budget totaled 39 line 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 in order to match the budget as closely as possible to the actual federal budget. Instead, we also include a variable in our analysis measuring the difficulty of the simulation because scholars have shown that respondents face cognitive constraints and optimization problems when asked to perform complicated tasks such as budgets (Benartzi and Thaler 2007).

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, data provides 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.

The average respondent spent less than ten minutes to complete the simulation. Once respondents submitted their preferred budgets they were redirected back to the post-survey questionnaire for which they answered a short battery of questions on demographics and political orientation.

What Do American Budget Preferences Look Like?

Perhaps the greatest benefit of using interactive budget tools for social science research is the rich, fine-grained data collected. In this section, we demonstrate the wealth of data by first providing descriptive data on Americans’ budget preferences. We do this first by looking at the total increases or decreases on each item of the federal budget. We follow
A Holistic Approach to Studying Budget Preferences

this by examining the percent change in each item for our entire sample. We also examine the distribution of increases vs. decreases. In other words, how many items on average did participants increase and/or decrease?

In general, data on whether an item (or items) has been adjusted is useful for studying budget preferences at the macro-level, such as explaining mass support for tax increases or spending cuts, while the dollar amount adjustment on a particular item is more appropriately used for budgetary questions at micro-level, like explaining support for health care spending. The reason for this macro-micro distinction relates to how the budget simulation is designed. Respondents are able to adjust items at 1% increments, but in terms of actual dollar amounts, a 1% incremental change varies by item depending on the initial allocations in the budget. For example, in terms of the actual dollar size of the federal budget, a 1% decrease in defense spending roughly equates to an 8% cut in education spending because spending on defense is currently about eight times larger than education spending. Therefore, measures using the total dollars adjusted (e.g. total spending cuts or total revenue increase) to summarize budget preferences at the macro-level are more sensitive to small adjustments on big budget items like defense and less sensitive to substantively important adjustments on smaller items like education.

Next, we examine how budget preferences can be influenced by the survey design. We argue that holistic budgets can overcome the weaknesses of the singular approach. By leveraging a controlled experiment we are able to demonstrate that the holistic approach elicits more balanced budget priorities.

American Attitudes Toward the Federal Budget? We examine here Americans’ attitudes towards the federal government. We provide summary statistics for each spending and tax category in Table 1. Commencing from the last column, start amount refers to the beginning amount of federal spending before adjustment. However, though this table provides quite a lot of data, it is not the most intuitive of tables. We, therefore, provide the average percent of revenue from each tax item and average change in spending from each spending item in Figure 5.
A Holistic Approach to Studying Budget Preferences

Table 1: Descriptive statistics in Billions of US Dollars

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Min</th>
<th>Max</th>
<th>Start Amount</th>
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<td>590.9</td>
<td>7.7</td>
<td>0</td>
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<td>590</td>
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<td>Affordable Care Act Subsidies</td>
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<td>20</td>
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<td>302.8</td>
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<td>22.8</td>
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<td>Tax Below $25,000</td>
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<td>270</td>
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<td>2,383</td>
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<td>841.3</td>
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<td>27.8</td>
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<td>783</td>
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<td>2.8</td>
<td>0</td>
<td>6.1</td>
<td>6.1</td>
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</table>
On the tax side, a few observations stand out. First, Americans largely support progressive taxation, confirming (Ballard-Rosa, Martin and Scheve 2017). Interestingly, they tend to cut taxes more on those who make between $25,000-$50,000 than those making less than $25,000. This could be due to the fact that individuals making less than $25,000 start at an effective tax rate of -3.5%. Moreover, they made the largest decreases to payroll taxes, and opted to not lift the cap on social security spending.

On the spending side, people tended to cut rather than increase spending. Because of the way that we primed our subjects, we expected this. However, there were also some enormous cuts to programs such as foreign military spending, humanitarian aid, and diplomacy spending. Although these spending items make up a very small portion of the federal budget, participants cut foreign military aid by 55%, humanitarian aid by 20%, and diplomacy spending by 16%. They also cut military spending by 15%; however, military spending makes up a much larger part of total federal spending. We also observe large increases to education and infrastructure spending.

![Figure 5: Average Change for Tax Items (left) and Average Change for Spending Items (right)](image)

We now move on to consider the number of items participants adjusted. We examine whether individuals demonstrate a diverse set of preferences or whether individuals are more singularly focused on more salient features of the budget. Examining Figure 10, we observe that people have quite disperse preferences for taxing and spending. While Sanders (1988) and Bonica (2015) demonstrate that individuals have a range of preferences on many issues, Ballard-Rosa, Martin and Scheve (2017) suggest that most people have a strong reaction to a small set of tax related issues, such as raising taxes on the poor. Similarly, Kolln and Wlezien (2016) uncover that individual preferences for spending line up on just a few salient
issues.

Overall, we find most respondents have preferences over multiple items in the federal budget. Figure 10 contains two histograms showing the number of items adjusted on the revenue and spending sides. On average respondents decreased taxes on 2.54 items and increased taxes on 7.38 items. In fact, the average respondent in the sample adjusted more than 49.6 percent of the budget items, 19.36 items out of the total 39. Finally, Figure 7 displays total revenue raised in the simulation on the y-axis and total expenditures on the x-axis with colors representing changes to spending only, revenue only, and changes to both taxes and spending. From the figure, it is clear that most people prefer a balance between changes to taxes and spending.

Figure 6: Number of Spending Items Increased or Decreased

(a) Number of Revenue Items Increased and Decreased

(b) Number of Spending Items Decreased

Figure 6: Number of Spending Items Increased or Decreased
In summary, we examined the rich data that budget simulations can provide. From our data, we are able to get a good glimpse into Americans’ preferences for taxing and spending. In short, Americans support progressive taxation. They also make large spending cuts to any kind of international spending, such as foreign military aid. At the macro level, American’s preference are quite dispersed between taxing and spending. Most respondents, take a balanced approach to the budget, meaning they make changes to both sides of the budget. Indeed, very few participants only adjusted taxes or spending. This, thus, leads us to ask the question: What are the effects of giving respondents only one side of the budget (singular approach) versus giving respondents both sides of the budget. We turn to this in the following section.

1 Holistic Approach versus Singular Approach?

In this section, we test whether the “holistic” approach – providing survey-takers with both sides of the budget – elicits more balanced or moderate attitudes toward taxes and spending than the “singular” approach – providing survey-takers with only one side of the budget. In the first section we use means tests to demonstrate that on most items in our federal
budget respondents cut significantly less spending or increase significantly less taxes when given both sides of the budget than when given only one side of the budget.

Here we briefly review our treatments. In the taxes and spending treatment, participants were given both treatment simultaneously. They were able to adjust both taxes and spending together. In another treatment, we gave participants spending first. Once they submitted their spending choices, those choices were locked, and we gave them taxes. For treatment three, we gave them taxes first. Theoretically, because we locked the “spending first” and “tax first” decisions, we are mimicking the singular approach. Therefore, for our analysis we will compare choices on the revenue side of the budget when given the holistic approach to “tax first,” and for spending, we will compare the holistic budget to “spending first.”

![Figure 8: Mean Differences for Other Taxes](image)

(a) Mean differences for Income Taxes
(b) Mean differences for Other Taxes

We turn now to our group means tests for the tax treatments. For this analysis, we use the macro approach defined above. The tax and spending variables range from -1 (decrease), 0 (no change), and 1 (increase). A couple interesting things emerge here. First, as we mentioned above, there is a general trend towards progressivity in both treatments, demonstrated in Figure 8a. Moreover, there are significant differences between the two treatments on incomes between $50,000 and $151,000, and the trend tends to move towards zero when we give them both sides of the budget. This means that when we give respondent taxes first, they increase significantly more at those income levels. However, on incomes below $50,000 and above $741,000, preferences seem to be quite stable between preferences. Finally, in Figure 8b, we can see there is still a general trend towards 0.
A Holistic Approach to Studying Budget Preferences

Figure 9: Average Percent Decrease in Spending by Category

(a) Education and Defense Spending

(b) Economic Security and Health Spending

(c) Other Spending Categories and Diplomacy Spending
On the spending side, there is a lot of variation between treatments. In fact, on Arts, Economic Security, and Health Spending, participants switch from spending cuts to slight increases. The general trend, however, is to move right from deep cuts to more moderate cuts, as we would expect. For example, in the spending only treatment 26 percent of participants cut border spending, whereas in the taxes and spending treatment nine percent of participants cut border spending. On education in Figure 9a, though, individuals in both treatments increase spending, but they increase spending significantly more in the taxes and spending treatment.

This tells us *prima facie* that when researchers gauge preferences for taxes and spending, those preferences will vary quite significantly when they give subjects a complete picture of the federal budget. Next, we will investigate this using individual level models.

**Individual Level Models**

In this section, we move on to our individual level models. We test whether respondents will have different preferences when given a singular budget or a holistic budget. More specifically, we suggest that by giving individuals a complete picture of the federal budget they will make more moderate/balanced choices than when we give them only one side of the budget. We formally state our hypothesis as:

Hyp1: Respondents will make significantly larger cuts to spending items in the “spending first” treatment than in the “taxes and spending treatment.”

Hyp2: Respondents will increase taxes significantly more in the ‘taxes first” treatment than in the “taxes and spending treatment.”

**Dependent Variables:** We measure respondents’ support for each tax item as a simple ordinal variable ranging from -1 (decrease), 0 (no change), and 1 (increase). We create equivalent variables for the spending side. These variables (one for each category) serve as the primary dependent variables for comparing coefficients across treatments.

**Independent Variables:** The key independent variables in our analysis are “treatment group 1” on the spending side and “treatment group 2” on the tax side. In addition to our main variables of interest, we also include several control variables to account for respondents’
ideology, party affiliation, trust in federal government, political awareness, importance of federal debt, task difficulty, and whether they balanced the budget.

Results

Because we are interested in the treatment effect on each individual category and our dependent variables are categorical, we run 39 separate ordered logit models and plot the coefficient for “treatment group 1” for the spending variables and the coefficients for “treatment group 2” for the tax variables in Figures 10a and 10b. The reference category for both taxes and spending is the “taxes and spending” treatment. To the extent that there are significant treatment effects, we do not expect the coefficients to cross zero. Moreover, we expect the coefficients to be negative in the spending treatment, because respondents should cut spending more in the “spending first treatment” compared to the “taxes and spending treatment.” On the other hand, we expect the coefficients on the tax side to be positive, as we predict that participants will increases taxes more in the “taxes first” treatment compared to the “taxes and spending treatment.”
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Figure 10: Individual Level Regression Analyses of Treatment Effects

(a) Ordered Logit Regressions for Tax Side

(b) Ordered Logit Regressions for Spending Side
On the tax side, our results, shown in Figure 10a, demonstrate that respondents in the “taxes first” treatment increase taxes significantly more on incomes between $88,000 and $741,000 than in the “taxes and spending” treatment. Moreover, the result is highly significant on other taxes and the social security cap. For instance, for those in the “taxes first” treatment, the odds of increasing taxes on incomes between $151,000 and $741,000 versus not changing or decreasing taxes is .51 times greater, all else being equal, displayed in Figure 11. Finally, taxes on income between $55,000 and $100,000 is significant at .1. This provides some support to our means test above and our underlying hypothesis. However, the results are mostly not significant on the tax side, which lead us to the conclusion that Americans’ preferences for taxes are relatively stable to our treatments. This is not necessarily surprising and also confirms Ballard-Rosa, Martin and Scheve (2017).

The results are much different, however, when considering the spending side. Our results in Figure 10b demonstrate that respondents who receive spending first cut spending significantly more than in the “taxes and spending” treatment on all spending items, except for military spending and the employer health care exemption. In other words, for those in the “spending first” treatment, the odds of decreasing spending on Affordable Care Act subsidies versus not changing or increasing spending is .41 times greater, all else being equal. The largest effect is on the home mortgage deduction variable, meaning that for those in the “spending first” treatment, the odds of decreasing spending versus not changing or increasing spending is 1.2 times greater, all else being equal.
To sum our results: Americans have a general preference for progressive taxation. Though their decisions do not vary much between receiving only one side of the budget rather than both, they do vary on incomes between $88,000 and $741,000. On spending, overall the trend was to cut, and they cut some items, like any kind of foreign aid, much more than others. However, they do show a trend towards increased education spending. Finally, their decisions are much more extreme on spending cuts when given only one side of the budget compared to a much more balanced approach when given both sides of the budget.

Discussion

The literature on budget preferences has expanded tremendously in recent years. However, there appears to be a growing disconnect between what actually constitutes a budget and research on budget preferences. Examine only spending or revenue preferences requires researchers to either make potentially unrealistic assumptions about individual preferences over the other side of the budget or ignore them altogether.

Echoing early research in the field, we argue that research can generally benefit from study budget preferences from a holistic approach. A holistic approach enables researchers to study budget preferences within each side of the ledger and across the two sides. Put differently, singular approaches have much to offer for answering specific questions about revenue or
spending, but they are limited in explaining more macro-level attitudes over the spending v. revenue trade-off.

This paper makes two contributions to the ongoing development in this research programme. Methodologically, we introduce budget tools as a new way for social science researchers to study and measure budget preferences from a holistic approach. Budget tools enable researchers to obtain micro-level data on preferences toward individual line items as well as macro-level data on attitudes toward crossledger 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 presents a bird’s view of how revenue is raised and spent. We believe this added context leads to more refined measures of preferences than more traditional instruments like surveys, which essentially ask questions in a compartmentalized vacuum. We test this proposition by leveraging a randomized experiment in which survey-takers receive one of three budgets: A budget with taxes first; a budget with spending first; and a budget with taxes and spending together. Theoretically, our results demonstrate that indeed the different treatments render different preferences for taxes and spending, and that when given only one side of the budget, respondents tend to make more extreme decisions, whereas when respondents are given both sides of the budgets, they make more informed and balanced choices.

Finally, budget simulations provide a great deal of flexibility for scholars studying preference for taxes and spending. For future research, we will examine whether these treatment effects vary by ideology or party affiliations. We will also remove the prime in the instructions to see how that affects the treatments. Future research can also begin to examine how partaking in these types of exercises can increase political efficacy and civic engagement. The possible utility of these tools are numerous, providing benefits to policymakers, policy advocates, and scholars endeavoring to understand mass attitudes toward budgetary policies.
References


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Appendix

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.”

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 2: Descriptive Statistics

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<th>Std. Dev.</th>
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<td>12</td>
</tr>
<tr>
<td>Moderate</td>
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<td>0.347</td>
<td>0.476</td>
<td>0</td>
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</tr>
<tr>
<td>Conservative</td>
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<td>0.349</td>
<td>0.477</td>
<td>0</td>
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</tr>
<tr>
<td>Trust</td>
<td>2,901</td>
<td>2.535</td>
<td>1.064</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Income</td>
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<td>6.170</td>
<td>3.276</td>
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</tr>
<tr>
<td>Education Level</td>
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<td>3.887</td>
<td>1.438</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Age</td>
<td>2,899</td>
<td>48.097</td>
<td>16.874</td>
<td>18</td>
<td>82</td>
</tr>
<tr>
<td>Female</td>
<td>2,217</td>
<td>0.535</td>
<td>0.499</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>White</td>
<td>3,184</td>
<td>0.750</td>
<td>0.433</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Democrat</td>
<td>2,900</td>
<td>0.350</td>
<td>0.477</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Republican</td>
<td>2,900</td>
<td>0.333</td>
<td>0.472</td>
<td>0</td>
<td>1</td>
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</tbody>
</table>

**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.

**Appendix Tables & Figures**
### Table 3: Revenue Items Included in Balancing Act Budget Tool

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

*Amounts reported in billions USD.
Table 4: Spending Items Included in Balancing Act Budget Tool

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

*Amounts reported in billions USD.