Does the mode of financing affect people's support for public spending programs? Pre-Analysis Plan

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March 31, 2017

Abstract

We examine whether people's support for government spending programs depends on the way the spending is financed. We use a between-subject design in which a spending program is either financed by (i) issuing debt, (ii) temporarily increasing the income tax rate for all earners, (iii) temporarily increasing the income tax rate for the top ten percent of earners or (iv) temporarily introducing a wealth tax for the ten percent of households with the highest wealth. In this document, we outline our plan for analysis of the data, including the main specifications of interest, the dimensions of heterogeneity, and corrections for multiple hypothesis testing.

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1 Motivation

We run a vignette experiment to test whether people's support of different types of spending programs depends on the way the spending is financed. We ask people for their support of eight different spending programs. We examine five spending programs which directly increase public investments and three unconditional cash transfer programs aimed at indirectly increasing private consumption.

We vary the mode of financing across subjects to examine how sensitive people's support for spending programs is to the mode of financing. We use a between-subject design in which the spending program is either financed by (i) issuing debt, (ii) temporarily increasing the income tax rate for all earners, (iii) temporarily increasing the income tax rate for the top ten percent of earners or (iv) temporarily introducing a wealth tax for the ten percent of households with the highest wealth. We thereby test the notion of "debt illusion", i.e. people's tendency to perceive the costs of government spending programs more accurately if they are tax-financed rather than debt-financed.

2 Experimental Design

First, we define several economic concepts to our respondents, such as different government spending categories, government debt, and different types of taxes.

Then, we ask for people's hypothetical support for temporary increases by ten percent in the following types of government spending[1]:

- Investments in Defense and National Security

- Investments in Public Infrastructure

- Investments in Schooling and Higher Education

- Investments in Health

- Investments in Environment

Next, we ask for people's support for different on-time unconditional cash transfer programs:

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[1] We present the spending programs in two blocks. In block 1 we present the investment spending programs. In block 2 we present the spending programs aimed at increasing consumption. Within blacks we randomize the order of the different spending programs.

- A one-time unconditional cash transfer program of $500 for every U.S. household

- A one-time unconditional cash transfer program of $500 for each of the 50 percent of U.S. households with the lowest income

- A one-time unconditional cash transfer program of $500 for each of the 10 percent of U.S. households with the lowest income

We randomly assign people to one of the following ways through which the different spending programs would be financed:

- Temporary increases in income tax rates for all earners

- Temporary increases in the income tax rate for the top ten percent of earners

- Issuing government debt

- Temporarily introducing a wealth tax for the ten percent of households with the highest wealth

For example, people receive the following "vignettes" for spending increases on Investments in Defense and National Security:

- Imagine the US government plans to temporarily increase government spending on **Investments in Defense and National Security** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

- Imagine the US government plans to temporarily increase government spending on **Investments in Defense and National Security** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

- Imagine the US government plans to temporarily increase government spending on **Investments in Defense and National Security** by ten percent for one year. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

- Imagine the US government plans to temporarily increase government spending on **Investments in Defense and National Security** by ten percent for one year. The government plans to fully finance this additional spending by introducing a **wealth tax for the 10 percent of households with the highest wealth** temporarily for one year. Are you in favor of the introduction of this spending program?

The detailed instructions for each of the several spending categories and for each type of financing can be found in Appendix A of this document.

3   Setting and Sample Size

We will run this experiment on Amazon Mechanical Turk, an online platform which is widely used to conduct experiments. We will only recruit participants who currently live in the United States. Moreover, workers must have completed at least 500 tasks, and they must have an overall rating of more than 95 percent. For the main experiment, we plan to recruit 1600 participants, with 400 participants per treatment arm. We will exclude participants who participated in any of our previous experiments on beliefs about government debt.

3.1   Power calculation

To have 80 percent power to detect an effect size of one-fifth of a standard deviation at a 5 percent significance level, we need 400 subjects in each treatment cell, or 1600 subjects in total. For the main experiment, we therefore plan to recruit 1600 participants. It is worth noting that in our main specification we will include control variables which will increase our effective power. If our controls explain 15 percent of the variation, we will have a power of 80 percent to detect effect sizes of approximately .16 of a standard deviation.

4   Analysis

4.1   Baseline Balance

We will test for baseline balance for the following variables:

- Gender.

- Age.

- log income (income is the midpoint of the interval specified by the respondent).

- Number of children (top-coded at five).

- Employment status (dummies for unemployed, part-time employed, employed full-time, retired, student, and other employment status).

- Education (dummy for person with at least bachelor degree).

- Political orientation (one dummy taking value one for Republicans and zero otherwise and one dummy taking value one for Independents and zero otherwise).

- Trust in official US statistics (measured on a 5-point scale).

We will regress each of these variables on three treatment indicators to see if there are imbalances. In the table we will report the p-value of the joint test of all three treatment indicators being jointly significant.

4.2   Main Specifications

First, we simply compare people's support for spending increases in different spending categories across the different treatment arms. We regress our outcome variables y_i on a treatment indicator, WealthTax_i, which takes the value one for people who receive the "wealth-tax"-treatment, and the value zero for all the other participants, IncTaxTop10_i, which takes the value one for people who are asked whether they support the investment program if it is financed by income tax rate increases for the top ten percent of earners and zero otherwise, and IncTaxAll_i, which takes value one for respondents who are asked whether they support the investment program if it is financed by income tax rate increases for all earners and zero otherwise.

$$y_i = \pi_0 + \pi_1 \text{IncTaxAll}_i + \pi_2 \text{IncTaxTop10}_i + \pi_3 \text{WealthTax}_i + \Pi^T \mathbf{X_i} + \text{order}_i + \varepsilon_i$$

where X_i is a vector of control variables, including all of the variables we use in the baseline balance check, order_i are order fixed effects which account for the order in which the different spending categories are presented and ε_i is an individual-specific error term.[2]

The coefficients π_1, π_2 and π_3 provide us with an estimate of people's support for different spending programs when they are financed by (i) income tax increases for all earners, (ii) income

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[2]We report robust standard errors for all estimations.

tax increases for the top ten percent of earners or (iii) wealth tax increases. These coefficients are relative to people's support for the spending programs if they are financed by issuing debt.

4.3 Multiple Hypothesis Adjustment

We have one family of outcomes which is comprised of people's support for increasing spending on the eight different spending categories. To deal with the issue of multiple hypotheses testing, we adopt two strategies.

4.3.1 Use of Indices

We create an index for our main family of outcomes. We use the method described in Anderson (2008) to create the index. We normalize these variables, using the mean and standard deviation in the control group. Then, we calculate the covariances between the variables that are part of the same family of outcomes and use the inverse of the covariance matrix in order to weight the outcomes. For more details see Anderson (2008).

4.3.2 Accounting for the False Discovery Rate

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

4.4 Coding of background questions

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

- Gender will be coded as a dummy.

- Age will be coded continuously.

- Number of children will be top-coded at five.

- Household income will be coded as the log of the midpoint of the interval specified by the respondent.
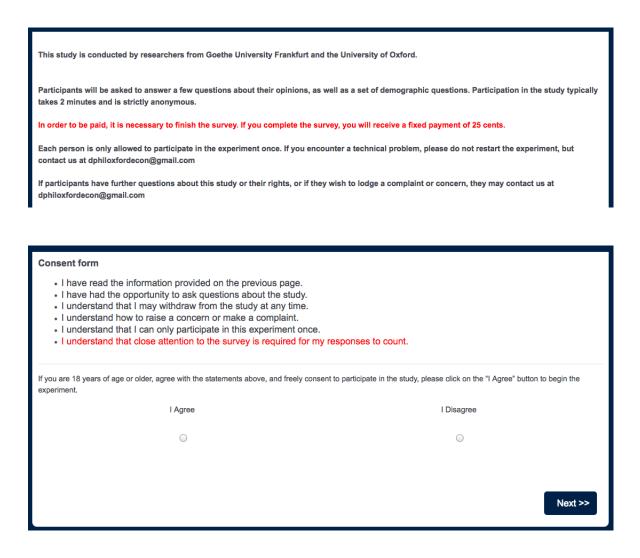
- Education will be coded as a dummy for whether the respondent has at least a two-year college degree.

- Employment status will be coded as one dummy for each category (unemployed, part-time employed, employed full-time, retired, student, and other employment status).

- Party affiliation will be coded as a dummy equal to one if the respondent considers himself a Republican and zero otherwise and an additional dummy taking value one for Independents and zero otherwise.

- People's trust in official statistics will be coded continuously using a 5-point scale.

References

Anderson, M. L. (2008). Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects. *Journal of the American statistical Association*, 103(484):1481–1495.

Benjamini, Y., Krieger, A. M., and Yekutieli, D. (2006). Adaptive Linear Step-up Procedures that Control the False Discovery Rate. *Biometrika*, 93(3):491–507.

Appendix A: Experimental Instructions

Introduction

This study is conducted by researchers from Goethe University Frankfurt and the University of Oxford.

Participants will be asked to answer a few questions about their opinions, as well as a set of demographic questions. Participation in the study typically takes 2 minutes and is strictly anonymous.

In order to be paid, it is necessary to finish the survey. If you complete the survey, you will receive a fixed payment of 25 cents.

Each person is only allowed to participate in the experiment once. If you encounter a technical problem, please do not restart the experiment, but contact us at dphiloxfordecon@gmail.com

If participants have further questions about this study or their rights, or if they wish to lodge a complaint or concern, they may contact us at dphiloxfordecon@gmail.com

Consent form

- I have read the information provided on the previous page.
- I have had the opportunity to ask questions about the study.
- I understand that I may withdraw from the study at any time.
- I understand how to raise a concern or make a complaint.
- I understand that I can only participate in this experiment once.
- I understand that close attention to the survey is required for my responses to count.

If you are 18 years of age or older, agree with the statements above, and freely consent to participate in the study, please click on the "I Agree" button to begin the experiment.

I Agree   I Disagree

○   ○

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Definitions

We would like to give you some basic information about economic concepts. It is important that you **carefully read** through the following instructions.

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

Investments in Public Infrastructure, which includes renewing of roads, airports, railways and bridges or building of new infrastructure.

Investments in Health, which refers, among others, to renewing public hospitals and buying new hospital equipment.

Investments in Education, which includes renovating kindergartens, public schools, universities and community colleges and buying new educational equipment.

Investments in Defense and National Security, including, for instance, the purchase of new tanks and airplanes.

Investments in the Environment, including, among others, Research and Development for environmental protection.

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Government debt is the total amount owed by the Federal government. This is often referred to as the "national debt".

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Wealth is the total amount of assets a person owns minus any debt. Examples of assets include money in savings or retirement accounts, stocks, and the value of real estate owned; examples of debt include remaining mortgages, credit card balances, and student loans. The **wealth tax** is a type of tax people pay on their wealth. Currently, there is no wealth tax in the United States.

Income is the amount of money a person earns in a year. Examples of income include salary from employment, interest on savings accounts, and stock dividends. The **income tax** is the total amount of taxes a person pays on his or her total income.

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We will now ask you some questions on different kinds of government spending programs.

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Wealth tax treatment

Imagine the US government plans to temporarily increase government spending on **Investments in Health** by ten percent for one year. The government plans to fully finance this additional spending by introducing **a wealth tax for the 10 percent of households with the highest wealth** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the US government plans to temporarily increase government spending on **Investments in the Environment** by ten percent for one year. The government plans to fully finance this additional spending by introducing **a wealth tax for the 10 percent of households with the highest wealth** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Schooling and Higher Education** by ten percent for one year. The government plans to fully finance this additional spending by introducing **a wealth tax for the 10 percent of households with the highest wealth** for one year. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Defense and National Security** by ten percent for one year. The government plans to fully finance this additional spending by introducing **a wealth tax for the 10 percent of households with the highest wealth** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Public Infrastructure** by ten percent for one year. The government plans to fully finance this additional spending by introducing **a wealth tax for the 10 percent of households with the highest wealth** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes
○ No

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Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to each of the 10 percent of U.S. households with the lowest income**. The government plans to fully finance this additional spending by introducing **a wealth tax for the 10 percent of households with the highest wealth** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to each of the 50 percent of U.S. households with the lowest income**. The government plans to fully finance this additional spending by introducing **a wealth tax for the 10 percent of households with the highest wealth** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to every U.S. household**. The government plans to fully finance this additional spending by introducing **a wealth tax for the 10 percent of households with the highest wealth** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes
○ No

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Income taxes: top 10 percent

Imagine the US government plans to temporarily increase government spending on **Investments in the Environment** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Schooling and Higher Education** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Defense and National Security** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Public Infrastructure** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Health** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Next >>

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to each of the 50 percent of U.S. households with the lowest income**. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to each of the 10 percent of U.S. households with the lowest income**. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to every U.S. household**. The government plans to fully finance this additional spending by equally increasing the **income tax rate for the top 10 percent of earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

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Debt treatment

Imagine the US government plans to temporarily increase government spending on **Investments in Defense and National Security** by ten percent for one year. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the US government plans to temporarily increase government spending on **Investments in the Environment** by ten percent for one year. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Health** by ten percent for one year. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Schooling and Higher Education** by ten percent for one year. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Public Infrastructure** by ten percent for one year. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

○ Yes
○ No

Next >>

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to every U.S. household**. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to each of the 10 percent of U.S. households with the lowest income**. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to each of the 50 percent of U.S. households with the lowest income**. The government plans to fully finance this additional spending by issuing **government debt**. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Next >>

Income taxes: all earners

Imagine the US government plans to temporarily increase government spending on **Investments in Public Infrastructure** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the US government plans to temporarily increase government spending on **Investments in the Environment** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Defense and National Security** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Health** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the US government plans to temporarily increase government spending on **Investments in Schooling and Higher Education** by ten percent for one year. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Next >>

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to every U.S. household**. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to each of the 10 percent of U.S. households with the lowest income**. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

Imagine the government wants to introduce a one-time unconditional cash transfer program. The program entails **giving $500 to each of the 50 percent of U.S. households with the lowest income**. The government plans to fully finance this additional spending by equally increasing the **income tax rate for all earners** temporarily for one year. Are you in favor of the introduction of this spending program?

○ Yes

○ No

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Demographics

Which of these describes you more accurately?

○ Male

○ Female

What year were you born?

[▾]

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

○ Less than 15,000

○ Between 15,000 and 25,000

○ Between 25,000 and 50,000

○ Between 50,000 and 75,000

○ Between 75,000 and 100,000

○ Between 100,000 and 150,000

○ Between 150,000 and 200,000

○ More than 200,000

○ Prefer not to say

Which of these describes your current situation most accurately?

○ Employed full-time

○ Employed part-time

○ Unemployed and looking for a job

○ Unemployed but not looking for a job

○ Retired

○ Student

○ Other:

[   ]

What is the highest level of education you have completed?

○ 12th grade or less

○ Graduated high school or equivalent

○ Some college, no degree

○ Associate degree

○ Bachelor's degree

○ Post-graduate degree

How many children do you have?

What category would best describe your political orientation?

○ Republican

○ Democrat

○ Independent

To what extent do you agree with the following statement?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I trust in official U.S. government statistics.	○	○	○	○	○

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