Household Responses to Fiscal News Shocks
Pre-analysis plan

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Abstract

We examine the effects of government spending on household consumption and macroeconomic expectations through an information provision experiment. We experimentally shift expectations about the growth of government consumption and investment spending using forecasts from the Survey of Professional Forecasters (SPF). First, we examine the quality of households' fiscal expectations compared to professional forecasters and evaluate the extent to which households update their expectations upon receiving information about the expected fiscal stance. Second, we estimate the impact of the fiscal news shock on the intra-individual change between past household consumption in 2024 and expected household consumption in 2025. Additionally, we analyze qualitative changes in consumer behavior and income expectations. We then explore whether households associate the fiscal news shock with inflation and increased taxation in both the short and long run. Finally, we use open-ended questions to explore how individuals relate the fiscal stance to their own economic behavior and expectations. We use a follow-up survey to ascertain whether the effects persisted over time.

Keywords: government spending, fiscal policy, expectation formation, mental models

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1 Introduction and design

This is the pre-analysis plan for an information provision experiment that aims to estimate the effects of a fiscal news shock on private consumption plans and macroeconomic expectations. The experiment provides U.S. households with a professional forecast of the growth rate of real federal government spending in 2025 to experimentally shift their beliefs. We focus on four main research questions:

Research questions (RQs):

- RQ1: Do households change their consumption plans in response to a news shock about future government spending and, if so, in which direction?
- RQ2: How do households process arriving macroeconomic information?
- RQ3: How do households adjust their macroeconomic expectations in response to a fiscal news shock?
- RQ4: Are household expectations aligned with professional forecasts regarding real federal government spending growth?

Participants are randomly assigned to one out of two treatment groups. Respondents in the first group receive the largest individual real federal government spending forecast in growth rates for 2025 reported by the SPF in 2024:IV. Respondents in the second group receive the smallest forecast with the same sign. The corresponding values in 2024:IV were 4.1% (SPF forecaster ID 510) and 0.3% (ID 428), obtained by computing growth rates from level forecasts.[1] Both groups receive the same questions. The structure is as follows: 1) Demographics, 2) Prior beliefs, 3) Information treatment, 4) Posterior beliefs, 5) Political orientation (non-mandatory).

2 Outcomes

Primary outcome: Household consumption growth
Household consumption growth is computed as the percentage change between the annualized values of planned (and expected) average monthly spending on all goods and services in 2024 and 2025. We use the expected inflation rate in 2025 to compute real instead of nominal consumption growth. We also capture the qualitative changes in total household consumption and its various components in the posterior block. We allow respondents to elaborate on their expected changes in consumer spending in an open-ended question.

[1] The corresponding values in 2024:III were 3.3% (SPF forecaster ID 510) and 0.1% (ID 593).

Secondary outcome: Tax expectations, inflation rate, income expectations
We measure tax expectations as the expected qualitative change in the personal income tax rate in the next 12 months (short-run) and over the next 5 years (long-run). We elicit individual expectations about the inflation rate in percent as a numerical value. We elicit income expectations as the qualitative change in household gross income in 2025 compared to 2024. Finally, we allow respondents to elaborate on their personal income tax expectations and their general understanding of the relationship between government spending and their own economic decisions in two open-ended questions.

3 Structure & design

Experimental details
Our experimental design is structured as follows: We first elicit respondents' beliefs about the 2024 government spending growth rate and then provide the actual projected growth rate (SPF 2024:IV) as an anchor. Second, we elicit prior expectations about the expected growth rate of government spending on investment and consumption for the upcoming year, 2025. Third, respondents receive varying information about the spending growth rate from the SPF. The treatment group receives information calibrated with the upper bound of professional spending forecasts, while the active control group receives information about the growth rate calibrated as the lowest positive growth rate.

Intervention
We experimentally shift respondents' fiscal expectations by presenting them with varying information about government spending growth in 2025 relative to 2024, calibrated using data from the SPF. The treatment group receives information about the upper bound of spending growth among professional forecasters, while the active control group is presented with information about a neutral fiscal stance, calibrated as the lowest positive growth rate.

4 Pre-processing data

Representativeness
We compare our demographic data (sex, age, education, household income) with the latest available American Community Survey (ACS) from the United States Census Bureau. Note, that we focus on answer quality in our experiment and we only impose the representativeness criteria of Prolific while collecting our data. These cover sex, age, and political affiliation. We choose political affiliation instead of ethnicity as our survey could negatively be affected by bipartisanship due to the presidential election in the U.S. in November 2024. However, we cannot expect our data to be representative and missing

representativeness does not harm our analysis plan.

Data quality
We elicit the expected change in government spending in 2024 against 2023 and 2025 against 2024. The latter is elicited both before and after the treatment. For all three items, we elicit both the qualitative change and a quantitative estimate for the growth rate. For all respondents, we check whether the sign of the quantitative estimate corresponds to the qualitative change selected. More detailed, if a respondent selects "strongly decrease", "decrease", or "somewhat decrease", the quantitative estimate must be negative and if a respondent selects "strongly increase", "increase", or "somewhat increase", the quantitative estimate must be positive. For "remain constant" we check the distribution of quantitative estimates of the respondents before we select a reasonable range around zero.

Our survey includes an attention check but respondents who fail the attention check twice[2] are excluded during the survey and are thus not in our data.

5 Inference

5.1 Research question 1 - consumption response

Our RQ1 consists of

> Do households change their consumption plans in response to a news shock about future government spending and, if so, in which direction?

Our main estimation tool is an instrumental variable regression (Haaland et al. 2023, Roth & Wohlfart 2020). First, we pre-process the consumption data for our between-subjects identification. For each respondent i, we first calculate nominal household consumption in 2024 by multiplying the elicited typical monthly consumption level with 12. Then we use the expected inflation rate in 2025, π_{25}, to calculate total nominal household consumption in 2024, C_{24}, in 2025 prices, resulting in $C_{24}^{\pi_{i,25-24}}$. Then, we compute the relative percentage change in total consumption ΔC_i^{rel}.

$$C_{24}^{\pi_{i,25-24}} = C_{24} \times \left(1 + \pi_{(i),25-24}\right) \tag{1}$$

$$\Delta C_i^{\text{rel}} = \left(\frac{C_{i,25} - C_{24}^{\pi_{i,25-24}}}{C_{24}^{\pi_{i,25-24}}} \right) \times 100 \tag{2}$$

[2]By this, we apply the official Prolific policy regarding attention and comprehension checks.

With these values at hand, we can run our IV regression in the following form:

$$\Delta C_i^{\text{rel}} = \beta_0 + \beta_1 \widehat{Posterior}_i + \beta_2' Controls_i + \epsilon_i \tag{3}$$

$$\text{with } \widehat{Posterior}_i = \alpha_0 + \alpha_1 Treatment + \alpha_2' Controls_i + v_i \tag{4}$$

We start with a most parsimonious specification where $Controls_i$ are our main demographics (e. g. we include a dummy to control for gender differences). Then we can apply robustness checks where we control for e. g. the political orientation or the personal outlook. We also replace the personal expected inflation rate in eq. (1) with the mean inflation forecast of the SPF as a robustness check.

Based on our theoretical framework, a negative effect of the fiscal news shock on household consumption would suggest a more Ricardian-like response, wherein households interpret a spending increase as a negative wealth effect and adjust their consumption downward accordingly. Conversely, a positive effect would indicate a Keynesian response, reflecting an increase in consumption driven by perceived higher government spending boosting current income or economic confidence.

5.2 Research question 2 - updating fiscal beliefs

Our RQ2 consists of

> How do households process arriving macroeconomic information?

We start by a simple descriptive analysis and compute the $Update_i$ in real federal government spending growth rate beliefs for each respondent i:

$$Update_i = Posterior_i - Prior_i. \tag{5}$$

We then take the average updates for both treatment groups as well as the average posteriors and compare both with the corresponding treatments. This gives a first picture on how strong people update towards the professional forecast. In the spirit of Roth & Wohlfart (2020), we then estimate learning rates by

$$Update_i = \beta_0 + \beta_1 Shock_i + \beta_2 Prior_i + \alpha' Controls_i + \epsilon_i \tag{6}$$

with ϵ_i as the error term and $Shock_i$ being the difference of the treatment and the prior.

5.3 Research question 3 - mental models

Our RQ3 consists of

> Are consumption responses compatible with mental models of the economy?

We repeat the instrumental variable regression we use to investigate the consumption response with other outcomes. We subsequently replace the endogenous variable, the planned consumption growth in 2025, with the expected inflation rate, and the only qualitatively elicited variables: the expected change in household's gross income, the expected change in the income tax rate next year, and the expected change in the income tax rate over the next five years.

This procedure gives us more insights into the mental model of respondents. E. g. if we find, on average, a negative effect of higher government spending expectations on planned consumption growth and a positive effect on the income tax rate, this points to a Ricardian model. We also plan to use the open-ended questions to check whether people think in a model-based way about the macroeconomy but we abstain from a detailed pre-analysis plan as we cannot predict whether the answers allow specific inference tools.

5.4 Research question 4 - household expectations and professional forecasts

Our RQ4 consists of

> Are household expectations aligned with professional forecasts regarding real federal government spending growth?

Our main inference tool here is a simple comparison of the prior beliefs of real federal government spending growth in 2024 against 2023 and in 2025 against 2024 based on the mean over all respondents who pass our quality checks and the corresponding values in the SPF. These are taken from the SPF in the fourth quarter that is expected to be published in the mid of November. For the nowcast (2024 against 2023), we compute the exact growth rate by dividing the annual level forecast for 2024 (column RFEDGOVA) by the realization of government spending in 2023 in the latest available vintage and subtract 1. For the forecast (2025 against 2024) we divide the level forecast for 2025 (column RFEDGOVB) by the nowcast (RFEDGOVA) and subtract 1. We also compare standard deviations for both the respondents in our experiment and the individual forecasters reporting to the SPF.

5.5 Exploratory Analyses

We consider the heterogeneous effects of the experimental fiscal news shock across income categories, consumer profiles, and partisanship.

5.6 Follow-Up Survey

We use an obfuscated follow-up survey to examine whether the effects of our treatment on fiscal belifes and posterior outcomes persist over time. One month after our initial data collection period, we recontact half of our respondents and estimate the effect of our treatment on current consumption, planned consumption for the remainder of 2025, tax expectations in 12 months and over the next 5 years, and the inflation rate. At the end of our survey, we ask respondents about their expected growth rate of real federal government spending in 2025 relative to 2024.

References

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