

Dibiasi, Andreas; Mikosch, Heiner; Sarferaz, Samad; Steinbach, Armin

Working Paper

Fiscal Responses to Monetary Policy: Insights From a Survey of Government Officials

CESifo Working Paper, No. 12247

Provided in Cooperation with:

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Dibiasi, Andreas; Mikosch, Heiner; Sarferaz, Samad; Steinbach, Armin (2025) : Fiscal Responses to Monetary Policy: Insights From a Survey of Government Officials, CESifo Working Paper, No. 12247, Munich Society for the Promotion of Economic Research - CESifo GmbH, Munich

This Version is available at:

<https://hdl.handle.net/10419/334603>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

CES ifo

**12247
2025**

November 2025

Working Papers

Fiscal Responses to Monetary Policy: Insights From a Survey of Government Officials

Andreas Dibiasi, Heiner Mikosch, Samad Sarferaz,
Armin Steinbach

CES ifo

Imprint:

CESifo Working Papers

ISSN 2364-1428 (digital)

Publisher and distributor: Munich Society for the Promotion
of Economic Research - CESifo GmbH

Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 (0)89 2180-2740

Email office@cesifo.de
<https://www.cesifo.org>

Editor: Clemens Fuest

An electronic version of the paper may be downloaded free of charge

- from the CESifo website: www.ifo.de/en/cesifo/publications/cesifo-working-papers
- from the SSRN website: www.ssrn.com/index.cfm/en/cesifo/
- from the RePEc website: <https://ideas.repec.org/s/ces/ceswps.html>

Fiscal Responses to Monetary Policy: Insights From a Survey of Government Officials*

Andreas Dibiasi[†], Heiner Mikosch[‡], Samad Sarferaz[§] and Armin Steinbach[¶]

November 6, 2025

In a novel survey, we study how German senior government officials systematically adjust fiscal policy in response to economic shocks, focusing on their fiscal responses to a contractionary monetary policy shock. Using randomized vignette treatments, we examine how officials update GDP and inflation expectations under fiscal and monetary policy shock scenarios and assess their preferred fiscal adjustments. Our findings show that officials predominantly respond by increasing debt and reducing spending, with tax increases playing a minor role, often combining multiple fiscal instruments. Counterfactual analysis reveals that officials' reasoning aligns with key insights from the Heterogeneous Agent New Keynesian literature.

JEL classifications: D83, E62, E63, E52

Keywords: Fiscal policy, monetary policy, fiscal-monetary interaction, expectation formation, survey experiment

*The authors thank Guido Ascari, Efrem Castelnuovo, Lukas Hack, Giorgio Primiceri and the participants of the 4th Dolomiti Macro Meetings and the Demur Workshop 2024 for helpful comments and suggestions. Financial support from the French National Agency for Research (ANR) via the grant ANR-20-CE26-0013 is gratefully acknowledged. The project leading to this publication has also received funding from the French government under the “France 2030” investment plan managed by the French National Research Agency (reference: ANR-17-EURE-0020) and from the Excellence Initiative of Aix-Marseille University A*MIDEX. The survey received approval by the ETH Zurich Ethics Commission (EK-2024-N-145). Pre-registration documents are available at osf.io/7xzav.

Corresponding author: Heiner Mikosch, mikosch@kof.ethz.ch

[†]Free University of Bozen-Bolzano, Italy, andreas.dibiasi@unibz.it.

[‡]KOF Swiss Economic Institute, ETH Zurich, Switzerland, mikosch@kof.ethz.ch.

[§]KOF Swiss Economic Institute, ETH Zurich, Switzerland, sarferaz@kof.ethz.ch

[¶]HEC Paris, France, steinbacha@hec.fr

1 Introduction

The effectiveness of monetary policy depends significantly on its interaction with fiscal policy. Fiscal responses to unexpected interest rate changes, for instance, can substantially alter the transmission and outcomes of monetary policy (e.g., Kaplan, Moll and Violante, 2018; Auclert, 2019).¹ Nonetheless, there is still limited empirical evidence on how fiscal authorities adjust their policies in response to monetary shocks.

The primary objective of this paper is to measure the fiscal policy response of government officials to a monetary policy shock, i.e., how the officials rebalance the public budget after an increase in the interest costs. To this end, we conduct a survey experiment with randomized vignette treatments among senior government officials from the German Federal Ministries of Finance and Economic Affairs who are involved in fiscal policy decisions. We confront the government officials with a hypothetical scenario that comprises a monetary policy shock, i.e., an unexpected increase in interest costs that cause an imbalance in the government budget constraint. Subsequently, we ask the officials to correct the disbalance by adjusting one or more of the following fiscal instruments: public transfers, government spending, taxes and public debt. To the best of our knowledge, we are the first ones to conduct a survey experiment among government officials and to provide empirical evidence on how they propose to adjust the government's fiscal budget in response to a monetary policy shock.

In our survey experiment, we first ask the government officials to state their expectations for GDP growth and inflation over various horizons. Thereafter, officials are presented with a monetary shock scenario in which the European Central Bank (ECB) unexpectedly raises interest rates, leading to an increase in debt servicing costs. The officials are then asked to propose adjustments in public transfers, government spending, taxes and/or public debt in order to rebalance the public budget constraint. In addition, officials

¹Auclert, Rognlie and Straub (2020) argue that the effect of fiscal policy on monetary transmission can be negligible when considering long-term debt and excluding a balanced budget rule.

reassess their expectations for GDP growth and inflation, taking into account both the monetary policy shock and their proposed budget adjustments. We vary the size of the monetary policy shock and randomly assign participants to different scenarios.

Our empirical findings indicate that, on average, government officials adjust spending—transfers and government expenditures—and revenues—taxes and debt—in similar ways to rebalance the government’s budget. Both categories contribute about 50% to the overall budget adjustment. When assessing the single fiscal instruments, we observe that the government officials have a clear tendency to rebalance the public budget by increasing government debt (35% of the overall adjustment). The propensity to adjust taxes, on the other hand, is relatively low (17%). Transfers and government spending are situated in the middle, with propensities of 24% each. Our regression analysis indicates that the reported adjustments of transfers, taxes and debts are also statistically significantly different from zero, suggesting that the reported adjustments may have a non-negligible impact on fiscal policy outcomes. Furthermore, we find that the officials frequently adjust different fiscal instruments simultaneously: approximately 40% adjust three instruments simultaneously, 30% adjust two and 10% adjust all four. Only 20% of the government officials suggest to use only one fiscal instrument to rebalance the budget, a scenario commonly assumed in macroeconomic models.

In a counterfactual exercise, we examine how the different fiscal adjustments measures affect government officials’ expectations about the impact of the interest rate shock on GDP and inflation. By considering scenarios in which each measure – spending cuts, tax increases, transfer cuts or higher debt – is used in isolation to balance the budget, we find that GDP losses are expected to be largest for spending cuts and smallest for debt financing, with tax adjustments having intermediate effects. These expected effects are consistent with insights of the Heterogeneous Agent New Keynesian (HANK) literature, suggesting that government officials incorporate these insights into their reasoning and expectation formation.

Besides providing empirical evidence on how fiscal authorities react to monetary policy, this is the first paper to provide insights into the macroeconomic expectations of senior government officials. Their GDP growth and inflation forecasts are similar to those of forecasting experts in banks and research institutes in terms of cross-sectional distributions. The dispersion is much narrower than those of households or corporate managers. We also study how government officials update their expectations about future GDP growth and inflation when being confronted with shocks. In addition to the previously described monetary policy shock, the survey experiment includes a scenario in which the government plans an unexpected direct cash transfer to all residents. The government officials are then asked to reassess their GDP growth and inflation expectations in light of this transfer program.

In response to the transfer shock of €40 billion (i.e., around 1.3% of GDP), government officials expect an increase in GDP growth of around 0.3 percentage points (pp) in the following year, but the expected effect peters out in the second year already. Regarding inflation, the officials foresee somewhat longer effects, with an increase of around 0.4 pp and 0.2 pp in the first and second year after the transfer shock, respectively, and effects close to zero from year 3 onward. For the monetary policy shock, they expect somewhat smaller but longer-lasting effects on both GDP growth and inflation.

Further, we find evidence that government officials consider the marginal propensity to consume (MPC) of the population as important in shaping the effects of macroeconomic shocks. Specifically, we ask the officials for an estimate of the populations' MPC and find that when they estimate the MPC to be relatively high, the expected impact of the transfer shock on GDP growth is initially large but fades out quickly. In contrast, a lower MPC estimate leads them to expect an initially weaker, but longer lasting response in GDP growth. Moreover, a higher MPC estimate significantly intensifies the impact of both the transfer and the interest rate shock on expected inflation. Furthermore, we also collect officials' beliefs about the future independence of the ECB from political

influence and find that lower perceived ECB independence leads officials to anticipate a stronger and longer-lasting inflation response to the transfer shock. This reasoning of the government officials aligns with the Fiscal Theory of the Price Level (FTPL), which suggests that limited central bank independence can amplify inflation expectations following fiscal shocks (e.g., Leeper, 1991; Sims, 1994; Woodford, 1995; Cochrane, 1998).

We contribute to the HANK model literature that highlights the role of fiscal policy in the transmission of monetary policy shocks. Kaplan, Moll and Violante (2018) emphasize the significant impact of monetary policy on household consumption through labor demand effects, indicating the importance of fiscal responses in shaping macroeconomic outcomes. Auclert (2019) explores how monetary policy affects consumption through redistributive effects, highlighting the interaction with fiscal policy, debt management and mortgage design. Eusepi and Preston (2018) argue that under imperfect knowledge, public debt's scale and structure critically influence monetary policy's control of inflation.² Our work provides novel empirical evidence on how government authorities adjust fiscal policy in response to monetary policy shocks.

Bouscasse and Hong (2023), Mangiante and Meichtry (2023) and Breitenlechner, Geiger and Klein (2024) conduct observational studies using time series data to estimate fiscal reactions to monetary policy. We contribute to this nascent strand of literature by providing a causal analysis of the beliefs and intended actions of fiscal agents involved in the policymaking process. By employing a controlled survey experiment that elicits their responses to interest rate changes, we obtain direct estimates of how specific fiscal instruments are adjusted in response to monetary shocks. This approach allows us to disentangle the simultaneity of adjustments across different fiscal instruments and identify whether they are modified jointly or in isolation. Moreover, by controlling for the feedback effects that typically accompany monetary policy shocks in real-world settings, we focus on the direct impact of monetary policy on fiscal decisions. This enables us to

²Further transmission channels of monetary policy in models that incorporate heterogeneous agents are studied by Werning (2015), McKay, Nakamura and Steinsson (2016), Sterk and Tenreyro (2018), Bilbiie (2019), Ravn and Sterk (2020), Gornemann, Kuester and Nakajima (2021) and Lueticke (2021).

isolate the immediate reactions of fiscal authorities to changes in monetary policy, separate from the subsequent economic feedback effects that may indirectly influence fiscal policy.

More generally, we contribute to the rapidly growing macroeconomic survey experimental research that incorporates randomized information or vignette treatments into household, firm and expert surveys to investigate expectation formation and decision-making among economic agents (see Fuster and Zafar, 2023, Haaland, Roth and Wohlfart, 2023 and Stantcheva, 2023 for recent literature reviews). Household-focused studies, including Jappelli and Pistaferri (2014), Armantier et al. (2016), Cavallo, Cruces and Perez-Truglia (2017), Armona, Fuster and Zafar (2018), Christelis et al. (2019), Coibion, Gorodnichenko and Ropele (2020), Jappelli and Pistaferri (2020), Christelis et al. (2021), Coibion et al. (2023), Ash et al. (2024), Dräger, Lamla and Pfajfar (2024), Faia et al. (2024), Fuster et al. (2022), Fuster, Kaplan and Zafar (2021) and Roth and Wohlfart (2020) study aspects such as consumption behavior, expectation revisions, liquidity constraints, information processing biases and the influence of macroeconomic expectations on personal economic outlook. Firm-focused research, including Drechsel et al. (2015), Coibion, Gorodnichenko and Kumar (2018), Coibion et al. (2021), Coibion, Gorodnichenko and Weber (2022), Link et al. (2023), Dibiasi, Mikosch and Sarferaz (2024) and Baumann et al. (2024), examines how firms form expectations, take investment decisions and respond to macroeconomic uncertainties, inflationary environments and oil price and exchange rate fluctuations. Additionally, studies involving both households and firms, such as Mikosch et al. (2023) and Weber et al. (2023), investigate the interactions between different economic agents' expectations and decision-making processes, particularly regarding information acquisition in response to economic exposure. Studies involving both households and experts, including Andre et al. (2022) and Andre et al. (2023), explore the subjective macroeconomic models held by professionals and households and how economic narratives from households influence inflation expectations. We extend this literature by conducting a survey experiment with government officials, thereby broadening the scope of survey experiments beyond

households and firms.

Notably, our survey was conducted at a particularly timely juncture. During the period of our survey, inflation rates were escalating, prompting the ECB to raise interest rates. At the same time, there was intense political debate about how to help households cope with the rising cost of living. This context not only increases the relevance of our research, but also allowed us to capture the fiscal policy considerations of government officials in the midst of real-world challenges where the interaction between monetary and fiscal policy was particularly salient. The economic developments at the time of survey provided an ideal backdrop for examining how fiscal authorities adjust their policies in response to monetary shocks.

The paper is organized as follows. Section 2 describes the survey and the group of surveyed government officials. Section 3 examines how the officials adjust their macroeconomic expectations in response to fiscal and monetary shock scenarios, providing insights into their expectation formation processes. Section 4 analyzes the fiscal policy adjustments proposed by the government officials in response to the monetary policy shock and discusses the implications of these adjustments for the shock's macroeconomic impact. Section 5 concludes.

2 Survey Among Government Officials

In this section, we first describe the sample of government officials and then present the survey questionnaire, including the hypothetical vignettes and the randomized treatment groups.

2.1 Survey Sample

We conduct a survey experiment among German government officials to study their expected fiscal responses to a monetary policy shock and to explore their assessment of the effects of a fiscal transfer shock. As participants in the survey experiment, we specifically targeted senior ministry officials who are involved in fiscal policy-making.

Targeted ministries. Typically, fiscal policy decisions of the German government are prepared by the Ministry of Finance and the Ministry of Economic Affairs. While the primary competence for fiscal decisions in Germany lies with the Ministry of Finance, in order for their decision to be adopted by the government, the cooperation and approval by the Ministry of Economic Affairs is necessary. In the particular case of fiscal policy measures, both ministries generally work closely together in the preparation process, as both financial and economic policy aspects play a role.

Targeted Directorate-Generals. For our survey experiment, we target the Directorate-Generals of both ministries that are involved in fiscal policy decisions. Within the Ministry of Finance, the Directorate-General for Fiscal Policy and Economics holds expert knowledge that is typically referred to when preparing decisions of fiscal nature. The corresponding department in the Ministry of Economic Affairs is the Economic Policy Directorate-General. If the fiscal decisions have a European dimension (which is often the case, especially when monetary policy aspects need to be considered), the Directorate-General for European Policy and International Fiscal Affairs in the Finance Ministry and the Directorate-General for European Policy in the Ministry of Economic Affairs can also be involved in the decision-making process. In addition, the Tax Directorate-General is usually involved in decisions on fiscal policy measures, especially when it comes to tax issues.³ Clearly, not all Directorate-Generals and Directorates are involved in every

³Within the latter, the involved divisions are from Directorate A (“Strategic Management, Fundamental Topics and Coordination”) and, in case international aspects play a role, Directorate B (“International tax law; EU tax harmonisation; fundamental freedoms and EU fundamental rights”).

single fiscal policy decision. However, each of the targeted divisions and individuals are potentially involved in fiscal policy decisions. With rotation of personnel being common practice in these ministries, each of these persons could eventually be assigned to work in the relevant divisions that contribute directly in the decision-making process.

Target group. Altogether, the targeted population for our survey comprises all senior ministry officials in the aforementioned five Directorate-Generals. Notably, the target group includes only senior officials performing substantive tasks (i.e., “Höherer Dienst” in German civil service categories). In particular, they author the briefs and memos for ministers that contain a proposed course of action to which the political helm of the ministry must give its approval. In contrast, personnel occupied with operational and supportive tasks (i.e., “Gehobener Dienst“ and “Mittlerer Dienst”) is not part of our target group. At the time the survey was conducted, the two ministries employed around 400 senior officials in the five Directorate-Generals (290 from the Finance Ministry and 110 from the Economics Ministry). We obtained the contact details of 393 of them.

Decision-making. In a democracy, civil servants are not the ultimate decision-makers with regard to fiscal policy, particularly in relation to fundamental fiscal policy decisions, as discussed here. Ultimate political decisions are taken by ministers, who thereby assume political responsibility. Subsequently, their decision is frequently subject to parliamentary approval. Ministers make their decisions within a complex network of agents, including lobbyists, party representatives, other politicians, coalition partners and academics. In terms of formal state organization, however, it is the advice formulated and proposed by civil servants that is brought closest to the minister’s consideration, to be acted upon in the minister’s ministerial capacity. Ministerial civil servants are not ordinary administrative civil servants who carry out legal acts. Ministerial civil servants are actively engaged in the political decision-making process. They prepare briefs and memoranda for ministers which propose a course of action or seek approval for a minister’s decision. The

proposals are typically well-founded and, where necessary, supported by empirical data. It is incumbent upon the ministers to consider the proposals put forth by civil servants, regardless of whether or not they ultimately choose to implement them. In the majority of instances, the ministers do indeed adopt the course of action recommended by the civil servants. Ministers formally indicate their approval by signing the memorandum or give their approval otherwise. However, ministers may choose to override the proposals when they run counter to their own political preferences. While this occurs on occasion, taking decisions that contravene the explicit and documented advice of the bureaucratic body carries political costs.

2.2 Survey Questionnaire

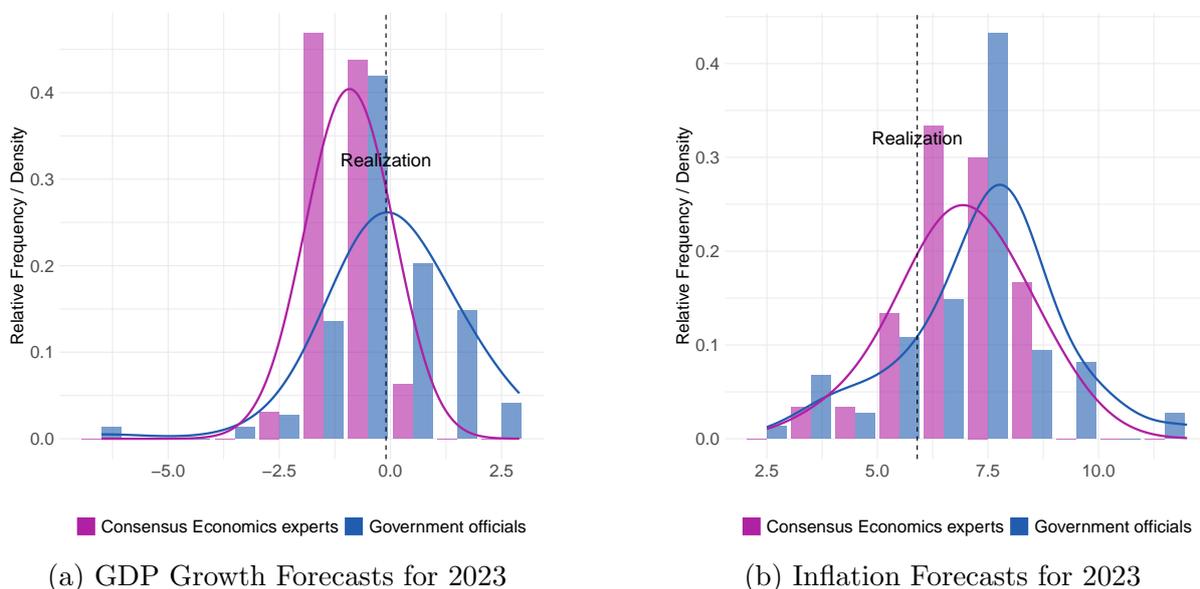
At the end of September 2022, we sent out e-mails to the above mentioned ministry officials, inviting them to participate in a survey via the purpose-designed web interface of KOF, ETH Zurich. The e-mail invitation was not explicit about the objective of the survey, it rather motivated the officials to support an empirical research project on the formation of expectations in the economic policy domain. The survey ended in December 2022. The questionnaire used neutral language and was provided in German, given that all ministry officials are German speaking. Out of the 393 contacted ministry officials, 74 participated in the survey, which corresponds to a response rate of 19%. While the number of respondents in our study is smaller than in household or firm surveys, this comparison is not directly applicable. Instead, our appropriate benchmark is professional forecasters, who also operate within specialized domains. Appendix Figures A.1 to A.3 present statistics on the response group and compare them with statistics on the target group, i.e., the entire group of contacted officials.⁴ Appendix Table A.1 shows summary statistics of the variables collected in the survey. The following paragraphs describe the

⁴Some characteristics in the response group mildly deviate from those in the population. To test for biases resulting from potential non-random selection into the response sample, we reweight our main specification using inverse probability weighting as a robustness check (see Appendix Table B.7). The results do not change.

survey step by step.⁵

Introductory text. The survey started with a short welcome text. As for the e-mail invitation, the text motivated the survey participants to support an empirical research project on the formation of expectations in the economic policy domain, but did not mention the objective of the study. As an incentive to participate, we announced to donate €20 per participant to a charitable cause that each participant could choose freely at the end of the survey.

Figure 1: Forecasts of Government Officials and Consensus Economics Experts



Notes: The figure shows the frequency histograms of the GDP growth and inflation forecasts for the year 2023 of the surveyed government officials as well as the corresponding frequency histograms of the forecasts of the Consensus Economics experts as of November 2022. The kernel density distributions shown are smoothed versions of the frequency histograms. The dashed vertical lines represent the realized value of GDP growth and inflation in 2023.

GDP and inflation projections. In the first two questions of the survey, we asked the ministry officials to provide their expectations for GDP growth and inflation in Germany for the years 2023, 2024, 2025 and 2030. Figure 1 compares the distributions of the

⁵Appendix Figure A.4 provides a graphical overview of the survey. Appendix D contains an English translation of the original questionnaire.

government officials' GDP growth and inflation forecasts for 2023 with the corresponding forecasts by the Consensus Economics (CE) experts (Consensus Economics, 2022).⁶ The distributions of the government officials' forecasts are only slightly more widely spread than the CE distributions, despite the significantly higher number of underlying individual forecasts. In any case, the dispersion is much lower than for households or firm managers (e.g., Baumann et al., 2024).

Transfer program vignette. We then confronted the officials with a hypothetical vignette of a public transfer program and asked for their assessment. The financial numbers in the vignette text differ according to the treatment group (more on this in Section 2.3). In the following reprint of the vignette, we have replaced the financial figures with placeholders X and Y, where X=40 and Y=500 for one treatment group and X=80 and Y=1000 for the other treatment group.

Consider the following scenario:

The German government considers launching a €X billion transfer program in 2023 with the following features: Every person in Germany receives a one-off payment of €Y at the beginning of 2023, to be spent immediately and free of charge. The program is to be announced in early January 2023 and implemented immediately. No information is currently available to the public.

The €X billion will be in addition to the previously planned budget. The transfer program is to be financed by an increase in new borrowing. Assume for the purpose of this study that the German debt brake and the European debt rules do not conflict with the program.

In order to estimate the economic impact of the transfer program, you are asked to give your assessment.

⁶CE collects monthly macroeconomic forecasts from experts in banks and economic research institutes. The CE projections are from the November 2022 wave and include 28 (24) individual forecasts for GDP growth (inflation). Our survey data include GDP and inflation forecasts of 74 government officials.

Adjusted GDP and inflation projections. After reminding the respondents of their previous GDP growth and inflation forecasts, we asked them to provide their expectations for GDP growth and inflation in Germany for the years 2023, 2024, 2025 and 2030, taking into account the transfer program.

Assessment of MPC. We then asked the respondents to estimate what percentage of the amount received from the transfer program the population consumes on average within the first year. We also asked them to estimate the proportion of hand-to-mouth consumers in the population (i.e., what proportion of the population consumes at least 80% or 100% of the transfer within the first year) and the proportion that saves the entire transfer.

Interest rate hike vignette. Next, we presented the ministry officials with another vignette. Again, the financial figure provided in the vignette text differs according to the treatment group (see Section 2.3). In the below reprint, the figure is replaced by a placeholder Z , where $Z=10$ for one treatment group and $Z=20$ for the other treatment group.

The German government's plans for the transfer program described above are currently known only to selected circles within the government. The European Central Bank (ECB) is not aware of them.

Irrespective of the German government's plans, the ECB has decided to raise interest rates more than expected in order to counter the current inflationary pressures. This rate hike implies an unexpected increase in the federal government's interest costs from 2023 onward of $\text{€}Z$ billion per year on average over the next 3 years. Cumulatively over 3 years, the federal government's interest costs thus unexpectedly increases by $\text{€}(3 \times Z)$ billion.

Adjustment of the public budget. We then asked the ministry officials for their views on whether and, if so, how the government’s revenue and expenditure policies should be adjusted in light of the additional interest costs of €3×Z billion over the next three years (2023–2025). Specifically, the respondents were asked to allocate the amount of €3×Z billion to the following categories:

- Reduction of the planned transfer program: €
- Reduction of other government spending: €
- Increase in taxes: €
- Increase in new debt: €

Re-adjusted GDP and inflation projections. After reminding respondents of their previous GDP and inflation forecasts, we asked them once again about their expectations for GDP growth and inflation in Germany for the years 2023, 2024, 2025 and 2030, this time taking into account the transfer program, the interest rate hike and any adjusted government revenue/spending.

Final questions. Finally, we asked the respondents how independent they consider the ECB’s monetary policy to be from political influence (on a scale of 0% to 100%). We also asked the respondents about their age, gender and educational (disciplinary) background as well as their preferred purpose for the donation of €20.

2.3 Treatment Groups

We implement a randomized between-subject treatment design with active control groups (e.g., Mikosch et al., 2023). An advantage of the active control groups is that all groups

receive the same vignette information, except that the size of the transfer program or the change in the interest costs differ from group to group.⁷

Transfer program treatment groups. For the transfer program vignette, the ministry officials were randomly assigned to one of two treatment groups with a probability of 50%. The two groups differ only with regard to the figures given in the vignette on the volume of the transfer program. Specifically, one group was given a transfer program volume of $\text{€}X \text{ billion} = \text{€}40 \text{ billion}$ and a one-off payment per person of $\text{€}Y = \text{€}500$ (“low transfer group”). The other group was given $\text{€}X \text{ billion} = \text{€}80 \text{ billion}$ and $\text{€}Y = \text{€}1000$ (“high transfer group”). 40 or 80 billion corresponds to 1.3% or 2.6% of GDP in 2022. For comparison, Germany’s economic stimulus package during the Great Recession of 2008–2009 was 2.6% of GDP, while the package enacted in response to the COVID-19 crisis reached 4.2% of GDP.

Interest rate hike treatment groups. For the interest rate hike vignette, the respondents were again randomly (and independently of the previous assignment to the transfer program treatment groups) assigned to one of two treatment groups. The first group was given an increase in the government’s interest costs of $\text{€}Z = \text{€}10 \text{ billion}$ per year or $\text{€}30 \text{ billion}$ over the period 2023–2025 (“low interest cost group”). The second group was given $\text{€}Z = \text{€}20 \text{ billion}$ per year or $\text{€}60 \text{ billion}$ over 2023–2025 (“high interest cost group”). Based on the maturities of German government bonds at the time of the survey, an annual increase of $\text{€}10$ or $\text{€}20 \text{ billion}$ corresponds to an interest rate rise of 100 or 200 basis points. Under typical economic conditions, such an increase would be considered substantial. However, in response to sharply rising inflation, the ECB raised rates by 200 basis points in the second half of 2022 and an additional 200 basis points in 2023.

⁷Stantcheva (2023) discusses the pros and cons of active versus passive control groups.

Balance checks. To test for the exogeneity of the treatments, we separately regress the respondents' pre-treatment projections on GDP and inflation and their individual characteristics (gender, education and age) on a constant and an indicator variable that takes value one if the respondent is in the high transfer group and zero if they are in the low transfer group. Then, we iterate the regressions with an indicator variable that takes value one if the respondent is in the high interest cost group and zero if they are in the low interest cost group. If the coefficient estimates attached to the indicator variables are not significantly different from zero, this indicates that the random assignment of the respondents to the treatment groups worked and the treatments are indeed exogenous. Appendix Figures A.5 and A.6 show the estimated coefficients for the transfer program vignette and the interest cost vignette, respectively. As one would expect, almost all of the coefficients are not significantly different from zero.

3 Effects of Shocks on Macroeconomic Expectations

Government officials play a central role in the design and implementation of fiscal policy, making their expectations a focal point of interest. Our study provides the possibility to observe expectations of government officials on key macroeconomic variables and to gain insights into their formation process. In this section, we examine how the surveyed government officials adjust their expectations for GDP growth and inflation in the face of the shock scenarios described in the previous section. We also examine how the government officials' views regarding the MPC of the German population and regarding the future independence of the ECB influence their expectation adjustments.

Setup. Consider the following change in expectations of government official $i \in \{1, \dots, n\}$:

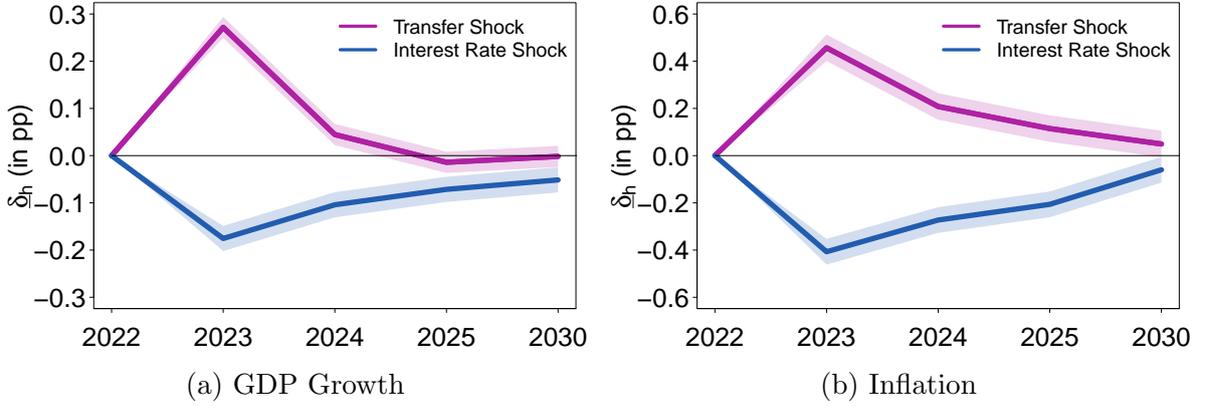
$$\delta_{i,h} = E_{i,t}[y_{i,t+h}|\eta_t = 1] - E_{i,t}[y_{i,t+h}|\eta_t = 0], \quad (1)$$

where $E_{i,t}[y_{i,t+h}]$ is i 's expectation in year t about a macroeconomic outcome in year $t+h$ and η_t is a treatment variable with $\eta_t = 0$ before i is presented with a shock vignette and with $\eta_t = 1$ after presentation of the vignette. $\delta_{i,h}$ is government officials i 's expected change in a macroeconomic outcome in response to the shock scenario h years after the shock. In our survey, $y_{i,t+h}$ is either the GDP growth or the inflation rate (in %), the shock scenario is either the transfer shock vignette or the interest rate shock vignette, and $h = 1, 2, 3, 8$. We normalize the effects of the shock presented in the respective scenario. Specifically, for the transfer shock scenario, $\underline{\delta}_{i,h} = \delta_{i,h}/2$ if respondent i is in the treatment group with the transfer of €1000 and $\underline{\delta}_{i,h} = \delta_{i,h}$ if they are in the €500 group. Similarly, for the interest rate shock scenario, $\underline{\delta}_{i,h} = \delta_{i,h}/2$ if i is in the €60 billion group and $\underline{\delta}_{i,h} = \delta_{i,h}$ if they are in the €30 billion group.

Expected shock effects. The graphs of Figure 2 show the expected effects of the transfer and the interest rate shock scenario on GDP growth and inflation, averaged over all respondents (i.e., $\underline{\delta}_h = \frac{1}{n} \sum_{i=1}^n \underline{\delta}_{i,h}$). The purple lines display the effects of the transfer shock. As can be seen from the left graph, the transfer increases expected GDP growth by 0.27 pp in 2023 and 0.05 pp in 2024. No significant difference is observed for the years 2025 and 2030. The right graph reveals that the transfer shock is also expected to increase inflation. In 2023, the inflation rate is higher by 0.46 pp, in 2024 by 0.21 pp and in 2025 by 0.12 pp. The blue lines depict the expected response of the economy to the interest rate shock, defined as the difference between the expectations in the face of the interest rate and the transfer shock scenario minus the expectations pertaining to the transfer shock scenario alone. Notably, the change in expectations in response to the interest rate shock also incorporates the government's fiscal adjustments in transfers, spending, taxes and/or debt proposed by the ministry officials (see more on this in Section 4). It turns out that the interest rate hike by the ECB is expected to decrease GDP growth by 0.18 pp in 2023, 0.10 pp in 2024 and 0.07 pp in 2025. Further, the government officials expect that the interest rate shock will have an economically significantly negative effect

on inflation. They estimate that inflation will decrease by 0.40 percentage points in 2023, 0.27 percentage points in 2024, and 0.21 percentage points in 2025 as a result of the shock.

Figure 2: Change in Expectations in Response to Shock



Notes: The figure shows the percentage point change in GDP growth forecasts (left panel) and inflation forecasts (right panel) for the years 2023, 2024, 2025 and 2030 in response to the transfer and the interest rate shock scenario, respectively, averaged across all government officials. The shaded areas represent one standard deviation confidence bands.

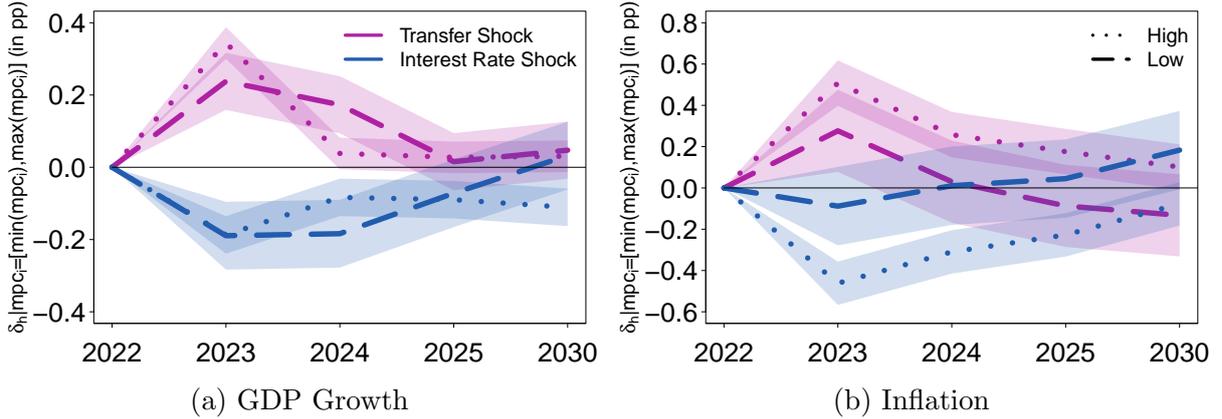
High vs. low MPC. HANK models highlight the role of variation across population in the MPC, as it can substantially shape the short- to medium-term effects of fiscal and monetary policies on GDP and inflation. It is therefore of interest to investigate whether this perspective aligns with the expectations held by government officials. To this end, we run the following regression:

$$\delta_{i,h} = \mathbf{x}_i \boldsymbol{\beta} + \boldsymbol{\tau}_i' \boldsymbol{\alpha} + \boldsymbol{\tau}_i' \text{mpc}_i \boldsymbol{\theta} + \epsilon_i, \quad (2)$$

where \mathbf{x}_i is a vector of control variables and $\boldsymbol{\tau}_i$ is a vector of four horizon dummies with the first (second, third, fourth) dummy taking value one for horizon 1 (2, 3, 8) and zero otherwise. mpc_i is government official i 's belief of what percentage of the received transfer the population will consume within the first year after the transfer (see Section 2.2). The ordinary least squares (OLS) regression estimates are recorded in Appendix Table B.1. In order to visualize the influence of the MPC beliefs, we use the regression

estimates to predict $\delta_{i,h}$ conditional on different values for mpc_i , with the values of the control variables in x_i being set to their respective sample means. Figure 3 compares the expected response of GDP growth and inflation to the transfer and the interest rate shock, conditional on the government officials' beliefs about the MPC.

Figure 3: Change in Expectations in Response to Shock – High vs. Low MPC

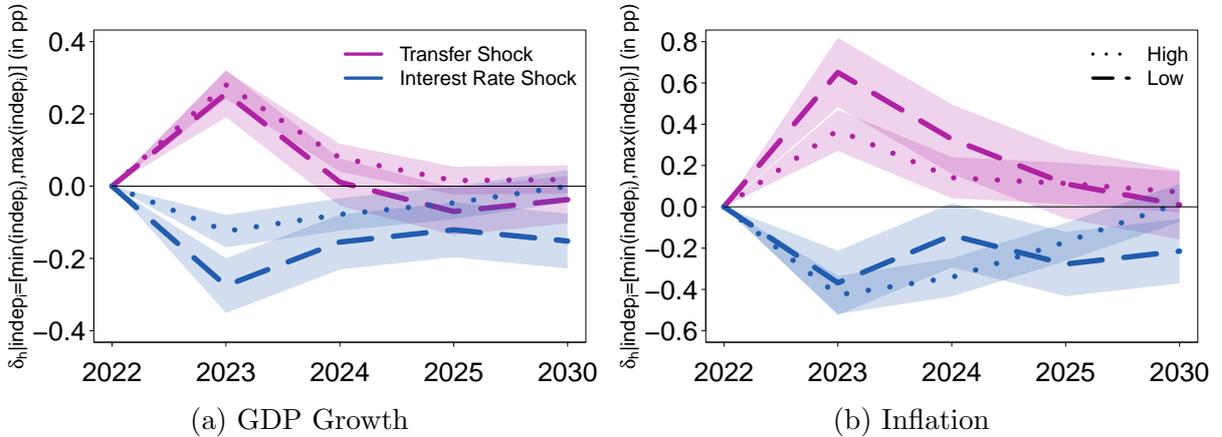


Notes: The figures show, based on the coefficient estimates of Equation (2), the predicted effects $\delta_{i,h}$ of the shock scenarios on the government officials' expectations for GDP growth (left-hand panel) and inflation (right-hand panel) conditional on the government officials believing that the MPC in the population is either high (i.e., 100%) or low (i.e., 10%). The coefficient estimates are displayed in Appendix Table B.1. The shaded areas show one standard deviation confidence bands.

The dotted (dashed) lines show the predicted response for an MPC of 100 (10), i.e., 100% (10%) of the transfer received is consumed within the first year. Two key observations emerge. First, when the perceived MPC is high, the initial impact of a transfer shock on GDP growth is larger but dissipates more quickly. Conversely, with a low MPC, the initial response of GDP growth is weaker, yet the effect persists longer. Second, a high MPC amplifies the impact of both the transfer and the interest rate shock on inflation. In conclusion, the role of the MPC in shaping the macroeconomic impact of shocks, as highlighted by HANK models, appears to be also present in the reasoning of the government officials.

High vs. low ECB independence. To further explore how differing perceptions influence economic expectations, we analyze whether government officials’ views on the independence of the ECB shape their assessment of the macroeconomic effects of shock scenarios. Specifically, we adapt the regression model from Equation (2) by replacing the variable mpc_i with $indep_i$, where $indep_i$ captures the belief of government official i about the factual independence of the ECB’s monetary policy from political or state influence in the future, ranging from 0 to 100 with 100 indicating full independence. The results of this regression are presented in Appendix Table B.2. Figure 4 compares the expected responses of GDP and inflation to both transfer and interest rate shocks, conditional on officials’ beliefs about the future ECB independence. The dotted (dashed) lines show the predicted responses for an ECB independence belief of 100 (30), which corresponds to the maximum (minimum) response in the survey sample.

Figure 4: Expectation Changes in Response to Shock – High vs. Low ECB Independence



Notes: The figures show, based on the regression coefficient estimates of Appendix Table B.2, the predicted effects $\delta_{i,h}$ of the shock scenarios on the government officials’ expectations for GDP growth (left-hand panel) and inflation (right-hand panel) conditional on the government officials believing that the factual ECB independence in the future is, on a scale from 0 to 100, either high (i.e., 100) or low (i.e., 30). The shaded areas show one standard deviation confidence bands.

The results yield two key insights. First, officials who perceive lower ECB independence expect a stronger initial GDP growth contraction to the interest rate shock, while those with higher independence beliefs anticipate a milder response. In contrast, for the trans-

fer shock, GDP growth expectations do not vary with the level of ECB independence. Second, while beliefs regarding ECB independence do not influence the expected impact of the monetary policy shock on inflation, but they do so for the transfer shock scenario. When officials anticipate low ECB independence, a markedly stronger inflation response to the transfer shock is expected than when officials believe in full ECB independence. These findings align with the FTPL, which suggests that lower perceived central bank independence can heighten inflation expectations, particularly in response to fiscal shocks (e.g., Leeper, 1991; Sims, 1994; Woodford, 1995; Cochrane, 1998).

4 Fiscal Responses to a Monetary Policy Shock

In this section, we explore the fiscal policy adjustments proposed by the government officials in response to the monetary policy shock scenario. To begin, we outline the government’s budget constraint and then describe how the officials adjust fiscal policy instruments following an unexpected interest rate hike. Next, we examine the heterogeneity in adjustments across officials and whether different fiscal instruments are used as substitutes or complements. Additionally, it is shown that the government officials often propose a simultaneous use of multiple adjustment instruments (“mixed adjustment”). Finally, we conduct a counterfactual analysis to disentangle how each fiscal adjustment instrument influences the expected GDP and inflation effects of the monetary policy shock.

Government budget constraint. We assume that the government faces government expenditure G_t , administers different tax systems, where τ_t summarizes the tax revenues and has the possibility of making lump sum transfers T_t to households. The government can also issue debt B_t , on which it pays the amount of interest $r_t^b B_{t-1}$. The intertemporal budget constraint of the government is given by

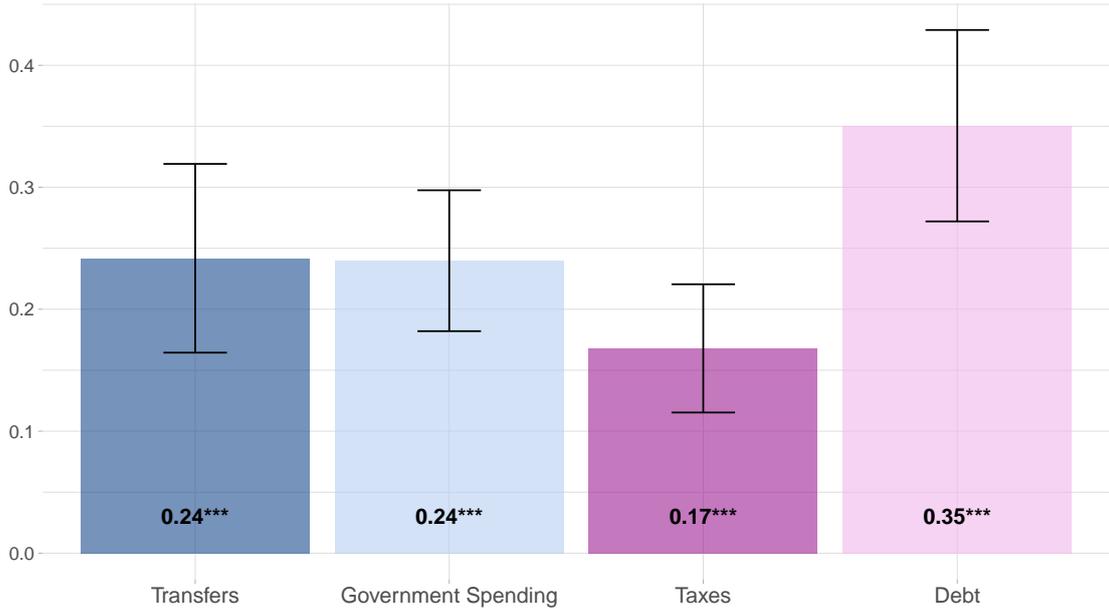
$$r_t^b B_{t-1} + G_t + T_t = \tau_t + B_t - B_{t-1}. \quad (3)$$

In the survey, we presented the government officials with a vignette featuring an unexpected increase in the interest rate. Depending on the treatment arm, the survey respondents were presented with an increase in the yearly interest costs $r_t^b B_{t-1}$ by either €10 or €20 billion. This increase creates an imbalance in the government’s budget constraint. We asked the government officials to rebalance the budget constraint. They could do this by increasing tax revenues τ_t , decreasing public transfers T_t , decreasing government spending G_t and/or letting public debt B_t increase. Notably, the respondents were free to decide whether they wanted to rebalance the budget constraint by adjusting just one, more than one or all of the four categories.

Adjustment propensities. We now assess how the government officials reacted to this unexpected change in monetary policy and the resulting imbalance. We examine the aggregate response of the government officials to the unexpected interest rate hike. By normalizing the adjustments made by the ministry officials in response to the interest rate hike by the size of the additional interest costs, we gain insight into the fiscal adjustment propensities. Figure 5 shows these propensities for fiscal adjustment in response to the interest rate hike shock scenario, examining each component – transfers, government spending, taxes and debt. The figure exposes the nuances of the fiscal adjustments: The significant propensity to manage the increased interest costs through an increase in debt suggests that ministry officials prefer borrowing as a means of compensating for higher interest expenditures. Intermediate propensities are observed for transfers and government spending, suggesting a balanced but cautious approach to reducing these expenditures. Conversely, taxes show the lowest propensity for adjustment, indicating a reluctance to increase the tax burden in response to rising interest rate expenditures.⁸

⁸In Appendix Table B.3, we further explore the possibility of non-linear effects, but we do not find any statistical evidence for this.

Figure 5: Adjustment Propensities for Different Categories

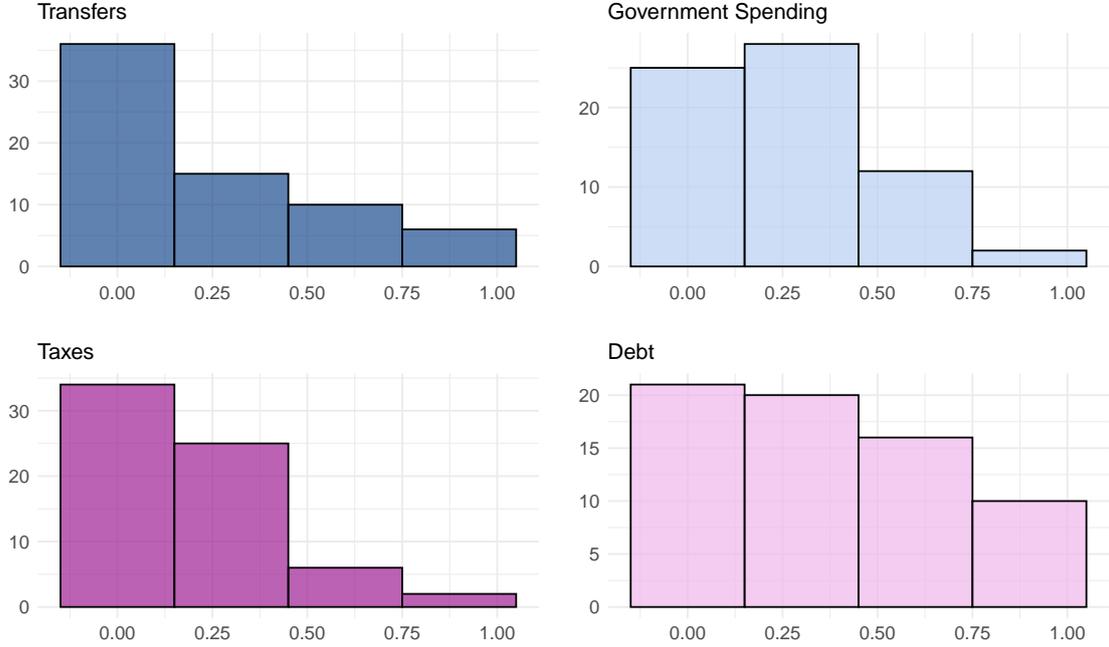


Notes: The figure shows government officials' average propensities to take certain fiscal instruments (reduction in government transfers, reduction in government spending, increase in taxes and increase in public debts) in response to the scenario of an unexpected increase in interest costs. We compute the propensities for each respondent by dividing their individual responses by the size of the interest cost increase the respondent was confronted with in the survey. Expressed formally, the propensity of respondent i to reduce government transfers is equal to $\Delta T_{i,t} / \Delta r_{i,t}^b B_{t-1}$, where $\Delta r_{i,t}^b B_{t-1}$ is either €10 billion or €20 billion, depending on which treatment group the respondent belongs to. Respondent i 's propensities to reduce spending, increase taxes and increase debts are calculated accordingly. The average propensities are obtained by regressing the individual fiscal adjustment propensities on a constant. The error bars represent 90% confidence intervals. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Heterogeneity across respondents. Further, our survey offers the possibility to examine the heterogeneity of fiscal responses across the government officials. Figure 6 shows the distributions of the individual adjustment propensities for the different fiscal instruments. The distributions of transfers and taxes show a concentration of the probability mass around zero, indicating that most government officials prefer minimal adjustment or no use of these fiscal instruments. For government spending, we observe a relatively more evenly distributed probability mass at moderate adjustments, suggesting a tendency towards more substantial but not drastic changes. In contrast, the distribution of debt exhibits a higher probability mass above 0.5, in comparison to the other categories. This

is consistent with the observed preference for using borrowing to cope with higher interest costs.

Figure 6: Fiscal Adjustment Heterogeneity



Notes: The figure depicts the distributions across the individual government officials' propensities to reduce transfers, lower government spending, increase taxes and/or let public debts increase in response to an unexpected increase in interest costs.

Active control group approach. Another way of analyzing the government officials' fiscal adjustments in response to the monetary policy shock is to exploit the active control group design of our survey.⁹ Specifically, we implement the following regression model:

$$\Delta z_i = \beta_0 + \mathbf{x}_i \boldsymbol{\beta} + d_i \gamma + \epsilon_i, \quad (4)$$

where Δz_i is either the government spending reduction ΔG_i , the tax revenue increase $\Delta \tau_i$, the public transfer decrease ΔT_i , or the public debt ΔB_i indicated by respondent i in order to rebalance the public budget in response to the interest rate shock, \mathbf{x}_i is a vector of control variables and d_i is a dummy variable taking value one if the respondent

⁹See Haaland, Roth and Wohlfart (2023) for a discussion of the advantages of active control groups.

is in the group with the interest cost increase of €60 billion and zero if they are in the group facing an interest cost increase of €30 billion. The latter group serves as an active control group. The coefficient γ captures the difference in the fiscal adjustments between the two treatment groups. We estimate the regressions with OLS. As shown in Table 1, public transfers are reduced by an additional amount of €10.4 billion in response to the cost increase of €60 billion cost as compared to the cost increase of €30 billion. Government spending is reduced by €3.0 billion and taxes are increased by €4.6 billion. The remaining €12.0 billion are balanced by higher debts. Overall, these results confirm the previous findings on the propensities to adjust: the increase in the interest costs is to some part financed by an increase in public debt and to another part by lower (transfer) spending, while tax increases play only a minor role for the rebalancing of the public budget. For the purpose of transparency, Appendix Table B.4 repeats Table 1 showing the coefficient estimates of all control variables in the regression. In addition, Table B.4 shows the results when the regression in Equation (4) is run excluding all control variables. Further, Table B.5 and Table B.6 present re-estimates of Equation (4) using winsorized data and robust Huber regressions. The results change only slightly. Moreover, Table B.7 shows re-estimates of Equation (4) with inverse probability weighting (see Section 2.2). The results remain robust under this specification as well.

Correlation of adjustment instruments. Observing the use of fiscal instruments on an individual level allows us to also examine the correlation between adjustments in the variables transfers, government spending, taxes and debt. We find that fiscal instruments are not used in isolation. Figure 7 reveals that debt and transfers are the most strongly interconnected. Specifically, an increase in debt is associated with a lesser reduction in transfers (correlation coefficient of -0.48), indicating a substitution effect between spending and income categories. We also observe a notable substitution effect within the spending categories, where a stronger reduction of government spending is accompanied by a lesser reduction in transfers (correlation coefficient of -0.21). Additionally, an in-

Table 1: Fiscal Adjustment (Active Control Group Setup)

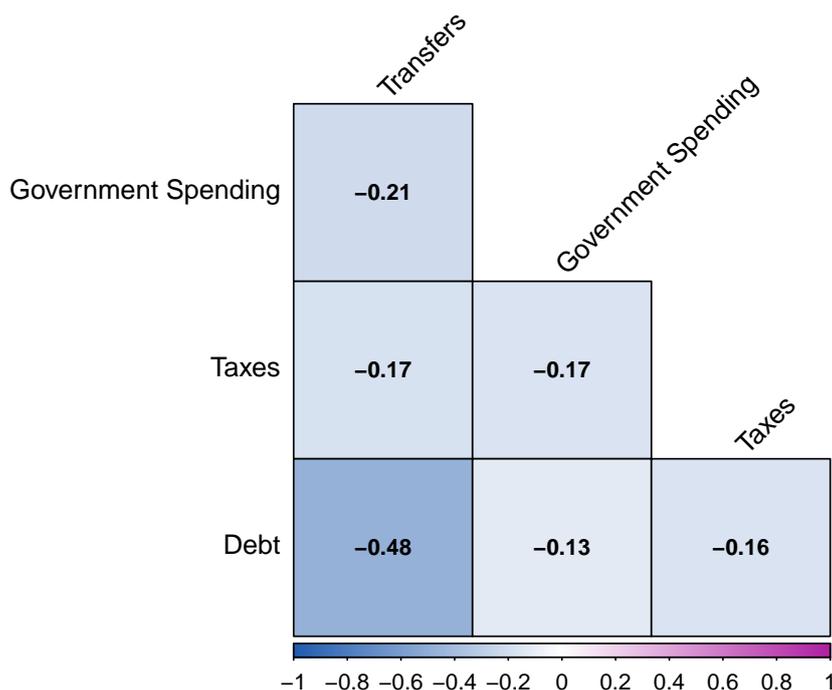
	Transfer Decrease	Spending Decrease	Tax Increase	Debt Increase
Interest cost increase: high	10.40** (4.32)	2.98 (2.82)	4.64* (2.73)	11.99*** (4.21)
Controls	Yes	Yes	Yes	Yes
Observations	67	67	67	67

Notes: The table reports the OLS estimates of four individual-level regressions according to Equation (4), with the dependent variables being the budget adjustment in public transfers, government spending, taxes or public debt, respectively, made by the government officials in response to an unexpected increase in the interest costs. The regressions include a constant term, various control variables (not shown here; see Table B.4) and a dummy variable which is set to one for respondents who have been randomized to the high interest cost treatment arm (i.e., cost increase of €60 billion) and zero for those in the low interest cost treatment arm (i.e., cost increase of €30 billion). Compared to the full sample of 74, the sample size for the regressions is seven observations smaller, as some respondents did not answer all survey questions used in the regression analysis. Standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

crease in taxes is negatively correlated with a decrease in transfers, spending as well as debt, highlighting again the substitution between the different fiscal instruments.

Simultaneity of fiscal adjustments. Figure 8 depicts the number of different fiscal instrument used simultaneously in response to the unexpected change in the interest costs. Slightly more than 20% of the government officials propose the use of only one fiscal instrument. 28% use two instruments and 42% rely on the combination of three different instruments. 9% even made use of all four fiscal instrument at their disposal. This shows that the majority of government officials combine different fiscal instruments in order to rebalance the budget constraint. Appendix C provides an in-depth analysis of the probabilities associated with various combinations of fiscal instruments. It examines the likelihood of different fiscal policies being implemented together, as well as the probabilities of specific instruments being utilized in isolation.

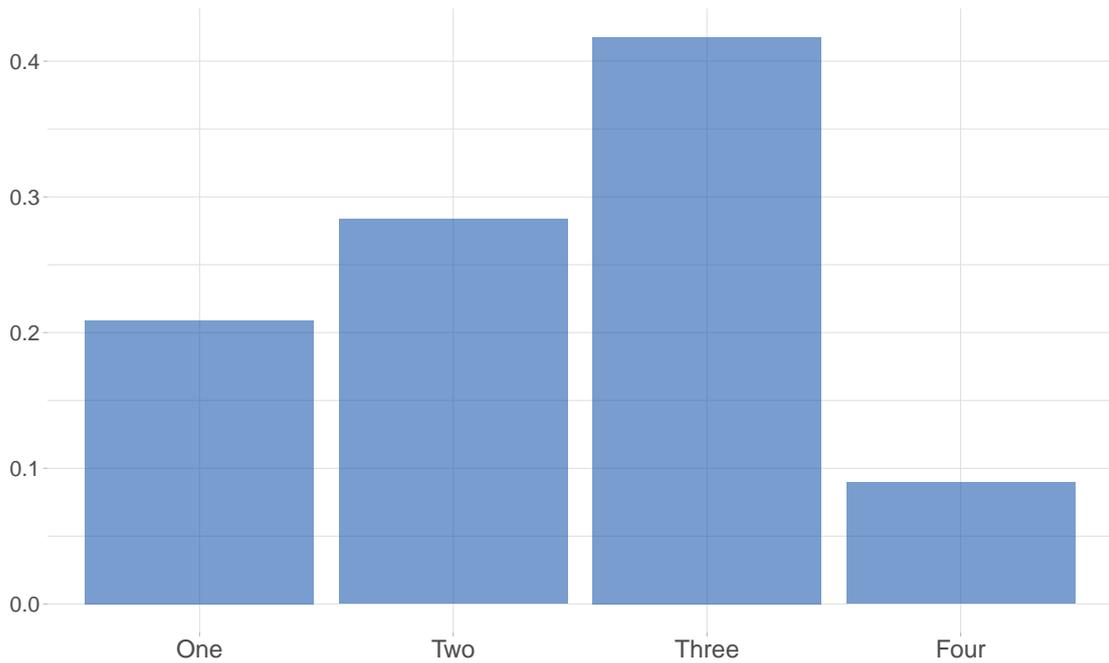
Figure 7: Correlations in Fiscal Components



Notes: The figure shows the Pearson correlation across respondents between the different fiscal adjustment variables (reduction in public transfers, reduction in government spending, increase in taxes, increase in public debt) to a monetary policy shock.

Expected effects under mixed fiscal adjustment. Column 1 of Table 2 presents the macroeconomic effects that government officials expect following the interest rate shock. The values shown are averages of the effects across all survey participants. To ensure comparability across both treatment groups (interest rate shocks of 100 and 200 basis points), we normalize them as described in Section 3, namely by dividing the effects of the 200 basis point group by two. For GDP, a cumulative loss of 3.5% is projected over the period from 2023 to 2030. The expected effects on the price level are less pronounced: due to the shock, the consumer price index (CPI) in 2030 is projected to be approximately 1.4% lower. Notably, these expected effects incorporate the fiscal adjustments proposed by the officials to restore the government’s budget constraint in response to the increased interest costs. As discussed above, all fiscal instruments—transfers, spending, taxes and debt—are adjusted simultaneously, and the expected effects thus reflect a mixed fiscal adjustment.

Figure 8: Simultaneity of Fiscal Instruments



Notes: The figure depicts the frequency of simultaneous adjustments of public transfers, government spending, taxes and public debt.

Counterfactual analysis. It is instructive to consider how the expected effects change if government officials adjusted only one of the four instruments to meet the budget constraint, while assuming that all other variables and estimated model parameters remain unchanged (*ceteris paribus* assumption). To investigate this, we regress the cumulative GDP growth and CPI level effects expected by the government officials on their adjustment propensities and several control variables (see Appendix Table B.8). Using the estimated model parameters, we then project the expected GDP growth and CPI level effects under the counterfactual that each survey participant proposes to rebalance the budget solely through either transfer reductions, spending cuts, tax increases or higher deficits.¹⁰ Our findings indicate that expected GDP losses are particularly high when the

¹⁰The results pattern remains very similar when we consider the cumulative inflation effect over the period 2023–2030, rather than the CPI level effect in 2030.

Table 2: Expected Macroeconomic Effects of Interest Rate Shock

	Unconditional		Conditional		
	(1) Mixed Adjustment	(2) Transfer Decrease	(3) Spending Decrease	(4) Tax Increase	(5) Debt Increase
GDP growth, 2023-2030	-3.46	-1.78	-6.77	-4.20	-3.24
CPI level, 2030	-1.41	-0.90	-2.70	-2.81	-0.71

Notes: The table reports, in Column 1, the government officials' estimates of the cumulative GDP growth loss over the 2023–2030 period and the effect on the CPI level in 2030 resulting from the interest rate shock. The values presented are averages across all surveyed officials, with the expected effects normalized to reflect an interest rate increase of 100 basis points. Columns 2 to 5 present the expected effects on GDP growth and the CPI level under the counterfactual that the officials propose to rebalance the budget solely through reductions in transfers, spending cuts, tax increases or higher deficits.

adjustment is made exclusively through spending cuts (Column 3 of Table 2). In contrast, financing the increased interest rate costs with higher deficits yields comparatively lower GDP losses (Column 5). The GDP losses resulting from an adjustment via higher taxes fall between these two scenarios (Column 4). Remarkably, these expectations from government officials align well with findings in the HANK literature. For instance, Kaplan, Moll and Violante (2018) find that a monetary policy shock produces the most substantial GDP effects when the government responds by adjusting spending and the smallest effects when it allows deficits to change (see Table 8 in the cited paper). The GDP effects in the case of tax adjustments lie between these two outcomes and, similar to our findings, are closer to those observed with the deficit-financing response. Regarding the impact of the interest rate shock on prices, it is notable that when the budget adjustment is implemented through deficit increases, the expected effects on the price level are significantly smaller than those associated with spending cuts or tax increases. Thus, the government officials expect the negative impact of the monetary policy shock on prices to be partially offset when the increased interest burden is deficit-financed. A question for future research is whether government officials are guided by HANK logic or the FTPL in this context. Under HANK, deficit spending stimulates demand, driving in-

flation; under FTPL, it raises inflation through equilibrium effects (e.g., Angeletos, Lian and Wolf, 2024). Overall, our findings suggest that the officials understand the critical role the fiscal response mechanism plays in either amplifying or mitigating the effects of monetary policy shocks. Moreover, the effects inferred from their expectations align with recent insights from macroeconomic research.

5 Conclusion

This paper investigates the fiscal responses to monetary policy shocks through a survey experiment conducted with senior officials from the German Ministry of Finance and the German Ministry of Economic Affairs. By examining the officials' propensities to adjust transfers, government spending, taxes and debt in response to an unexpected interest rate increase, we provide novel empirical insights into the interaction between fiscal and monetary policies.

Our study contributes to the HANK literature by providing empirical evidence on the propensities to use the various fiscal instruments in response to monetary shocks. Additionally, we contribute to the macroeconomic survey experiment literature by studying the expectation formation of government officials involved in fiscal policy making, expanding the scope beyond households and firms.

Our findings reveal that officials adopt a multi-instrument approach, adjusting both spending and income-side fiscal instruments, with a marked reluctance to modify taxes and a rather high preference to adjust via changes in public debt. Future research could build a model that incorporates a mixture of fiscal adjustments directly into the objective function of fiscal policy, providing a more comprehensive understanding of the dynamic interplay between these policies.

References

- Andre, Peter, Carlo Pizzinelli, Christopher Roth, and Johannes Wohlfart.** 2022. “Subjective Models of the Macroeconomy: Evidence From Experts and Representative Samples.” *Review of Economic Studies*, 89(6): 2958–2991.
- Andre, Peter, Ingar Haaland, Christopher Roth, and Johannes Wohlfart.** 2023. “Narratives about the Macroeconomy.” *CESifo Working Paper*, 10535. CESifo, Munich.
- Angeletos, George-Marios, Chen Lian, and Christian K Wolf.** 2024. “Deficits and Inflation: HANK meets FTPL.” *NBER Working Paper*, 33102. National Bureau of Economic Research.
- Armantier, Olivier, Scott Nelson, Giorgio Topa, Wilbert Van der Klaauw, and Basit Zafar.** 2016. “The Price Is Right: Updating Inflation Expectations in a Randomized Price Information Experiment.” *Review of Economics and Statistics*, 98(3): 503–523.
- Armona, Luis, Andreas Fuster, and Basit Zafar.** 2018. “Home Price Expectations and Behaviour: Evidence from a Randomized Information Experiment.” *Review of Economic Studies*, 86(4): 1371–1410.
- Ash, Elliott, Heiner Mikosch, Alexis Perakis, and Samad Sarferaz.** 2024. “Seeing and Hearing is Believing: The Role of Audiovisual Communication in Shaping Inflation Expectations.” *KOF Working Papers*, 515. KOF Swiss Economic Institute, ETH Zurich.
- Auclert, Adrien.** 2019. “Monetary Policy and the Redistribution Channel.” *American Economic Review*, 109(6): 2333–2367.

- Auclert, Adrien, Matthew Rognlie, and Ludwig Straub.** 2020. “Micro Jumps, Macro Humps: Monetary Policy and Business Cycles in an Estimated HANK Model.” *NBER Working Paper*, 26647. National Bureau of Economic Research.
- Baumann, Ursel, Annalisa Ferrando, Dimitris Georgarakos, Yuriy Gorodnichenko, and Timo Reinelt.** 2024. “SAFE to Update Inflation Expectations? New Survey Evidence on Euro Area Firms.” *NBER Working Paper*, 32504. National Bureau of Economic Research.
- Bilbiie, Florin O.** 2019. “Monetary Policy and Heterogeneity: An Analytical Framework.” *Journal of Money, Credit and Banking*, 51: 103–119.
- Bouscasse, Paul, and Seungki Hong.** 2023. “Monetary-Fiscal Interactions in the United States.” Available at https://www.paul-bouscasse.com/files/bh_fiscal-monetary.pdf.
- Breitenlechner, Max, Martin Geiger, and Mathias Klein.** 2024. “The Fiscal Channel of Monetary Policy.” *Working Papers in Economics and Statistics*, 2024-07. University of Innsbruck.
- Cavallo, Alberto, Guillermo Cruces, and Ricardo Perez-Truglia.** 2017. “Inflation Expectations, Learning, and Supermarket Prices: Evidence from Survey Experiments.” *American Economic Journal: Macroeconomics*, 9(3): 1–35.
- Christelis, Dimitris, Dimitris Georgarakos, Tullio Jappelli, Luigi Pistaferri, and Maarten Van Rooij.** 2019. “Asymmetric Consumption Effects of Transitory Income Shocks.” *Economic Journal*, 129(622): 2322–2341.
- Christelis, Dimitris, Dimitris Georgarakos, Tullio Jappelli, Luigi Pistaferri, and Maarten Van Rooij.** 2021. “Heterogeneous Wealth Effects.” *European Economic Review*, 137: 103805.

- Cochrane, John H.** 1998. “A Frictionless View of U.S. Inflation.” *NBER Macroeconomics Annual*, 1998(13): 323–384.
- Coibion, Olivier, Dimitris Georgarakos, Yuriy Gorodnichenko, and Maarten Van Rooij.** 2023. “How Does Consumption Respond to News About Inflation? Field Evidence From a Randomized Control Rrial.” *American Economic Journal: Macroeconomics*, 15(3): 109–152.
- Coibion, Olivier, Yuriy Gorodnichenko, and Michael Weber.** 2022. “Monetary Policy Communications and Their Effects on Household Inflation Expectations.” *Journal of Political Economy*, 130(6): 1537–1584.
- Coibion, Olivier, Yuriy Gorodnichenko, and Saten Kumar.** 2018. “How Do Firms Form Their Expectations? New Survey Evidence.” *American Economic Review*, 108(9): 2671–2713.
- Coibion, Olivier, Yuriy Gorodnichenko, and Tiziano Ropele.** 2020. “Inflation Expectations and Firm Decisions: New Causal Evidence.” *Quarterly Journal of Economics*, 135(1): 165–219.
- Coibion, Olivier, Yuriy Gorodnichenko, Saten Kumar, and Jane Ryngaert.** 2021. “Do You Know That I Know That You Know...? Higher-Order Beliefs in Survey Data.” *Quarterly Journal of Economics*, 136(3): 1387–1446.
- Consensus Economics.** 2022. “Dataset CFNov2022.xlsx attached to Consensus Forecasts – G7 & Western Europe.” November 2022 Edition, www.consensuseconomics.com/publications/consensus-forecasts-g7-western-europe.
- Dibiasi, Andreas, Heiner Mikosch, and Samad Sarferaz.** 2024. “Uncertainty Shocks, Adjustment Costs and Firm Beliefs: Evidence From a Representative Survey.” *American Economic Journal: Macroeconomics*, Forthcoming.

- Dräger, Lena, Michael J Lamla, and Damjan Pfajfar.** 2024. “How to Limit the Spillover From an Inflation Surge to Inflation Expectations?” *Journal of Monetary Economics*, 144: 103546.
- Drechsel, Dirk, Heiner Mikosch, Samad Sarferaz, and Matthias Bannert.** 2015. “How are Firms Affected by Exchange Rate Shocks? Evidence from Survey Based Impulse Responses.” *KOF Working Papers*, 371. KOF Swiss Economic Institute, ETH Zurich.
- Eusepi, Stefano, and Bruce Preston.** 2018. “Fiscal Foundations of Inflation: Imperfect Knowledge.” *American Economic Review*, 108(9): 2551–2589.
- Faia, Ester, Andreas Fuster, Vincenzo Pezone, and Basit Zafar.** 2024. “Biases in Information Selection and Processing: Survey Evidence From the Pandemic.” *Review of Economics and Statistics*, 106(3): 829–847.
- Fuster, Andreas, and Basit Zafar.** 2023. “Survey Experiments on Economic Expectations.” In *Handbook of Economic Expectations*, ed. Rüdiger Bachmann, Giorgio Topa and Wilbert van der Klaauw, 107–130. Academic Press.
- Fuster, Andreas, Greg Kaplan, and Basit Zafar.** 2021. “What Would You Do With \$500? Spending Responses to Gains, Losses, News and Loans.” *Review of Economic Studies*, 88(4): 1760–1795.
- Fuster, Andreas, Ricardo Perez-Truglia, Mirko Wiederholt, and Basit Zafar.** 2022. “Expectations with Endogenous Information Acquisition: An Experimental Investigation.” *Review of Economics and Statistics*, 104(5): 1059–1078.
- Gornemann, Nils, Keith Kuester, and Makoto Nakajima.** 2021. “Doves for the Rich, Hawks for the Poor? Distributional Consequences of Systematic Monetary Policy.” *Federal Reserve Bank of Philadelphia Research Department Working Papers*, 12-21/R. Federal Reserve Bank of Philadelphia.

- Haaland, Ingar, Christopher Roth, and Johannes Wohlfart.** 2023. “Designing Information Provision Experiments.” *Journal of Economic Literature*, 61(1): 3–40.
- Jappelli, Tullio, and Luigi Pistaferri.** 2014. “Fiscal Policy and MPC Heterogeneity.” *American Economic Journal: Macroeconomics*, 6(4): 107–36.
- Jappelli, Tullio, and Luigi Pistaferri.** 2020. “Reported MPC and Unobserved Heterogeneity.” *American Economic Journal: Economic Policy*, 12(4): 275–97.
- Kaplan, Gregory, Benjamin Moll, and Giovanni L. Violante.** 2018. “Monetary Policy According to HANK.” *American Economic Review*, 108(3): 697–743.
- Leeper, Eric M.** 1991. “Equilibria under ‘Active’ and ‘Passive’ Monetary and Fiscal Policies.” *Journal of Monetary Economics*, 27(1): 129–147.
- Link, Sebastian, Andreas Peichl, Christopher Roth, and Johannes Wohlfart.** 2023. “Attention to the Macroeconomy.” *CESifo Working Paper*, 10858. CESifo, Munich.
- Luetticke, Ralph.** 2021. “Transmission of Monetary Policy with Heterogeneity in Household Portfolios.” *American Economic Journal: Macroeconomics*, 13(2): 1–25.
- Mangiante, Giacomo, and Pascal Meichtry.** 2023. “On the Distributional Effects of Conventional Monetary Policy and Forward Guidance.”
- McKay, Alisdair, Emi Nakamura, and Jón Steinsson.** 2016. “The Power of Forward Guidance Revisited.” *American Economic Review*, 106(10): 3133–3158.
- Mikosch, Heiner, Christopher Roth, Samad Sarferaz, and Johannes Wohlfart.** 2023. “Uncertainty and Information Acquisition: Evidence From Firms and Households.” *American Economic Journal: Macroeconomics*, 16(2): 375–405.
- Ravn, Morten O, and Vincent Sterk.** 2020. “Macroeconomic Fluctuations with HANK & SAM: An Analytical Approach.” *Journal of the European Economic Association*, 19(2): 1162–1202.

- Roth, Christopher, and Johannes Wohlfart.** 2020. “How Do Expectations About the Macroeconomy Affect Personal Expectations and Behavior?” *Review of Economics and Statistics*, 102(4): 731–748.
- Sims, Christopher A.** 1994. “A Simple Model for Study of the Determination of the Price Level and the Interaction of Monetary and Fiscal Policy.” *Economic Theory*, 4(3): 381–399.
- Stantcheva, Stefanie.** 2023. “How to Run Surveys: A Guide to Creating Your Own Identifying Variation and Revealing the Invisible.” *Annual Review of Economics*, 15: 205–234.
- Sterk, Vincent, and Silvana Tenreyro.** 2018. “The Transmission of Monetary Policy Through Redistributions and Durable Purchases.” *Journal of Monetary Economics*, 95: 124–138.
- Weber, Michael, Bernardo Candia, Tiziano Ropele, Rodrigo Lluberas, Serafin Frache, Brent H Meyer, Saten Kumar, Yuriy Gorodnichenko, Dimitris Georgarakos, Olivier Coibion, et al.** 2023. “Tell Me Something I Don’t Already Know: Learning in Low and High-inflation Settings.” *NBER Working Paper*, 31485. National Bureau of Economic Research.
- Werning, Iván.** 2015. “Incomplete Markets and Aggregate Demand.” *Econometrica*, 83(5): 1877–1917.
- Woodford, Michael.** 1995. “Price Level Determinacy without Control of a Monetary Aggregate.” *Carnegie-Rochester Conference Series on Public Policy*, 43: 1–46.

Fiscal Responses to Monetary Policy:
Insights From a Survey of Government Officials
– Online Appendix –

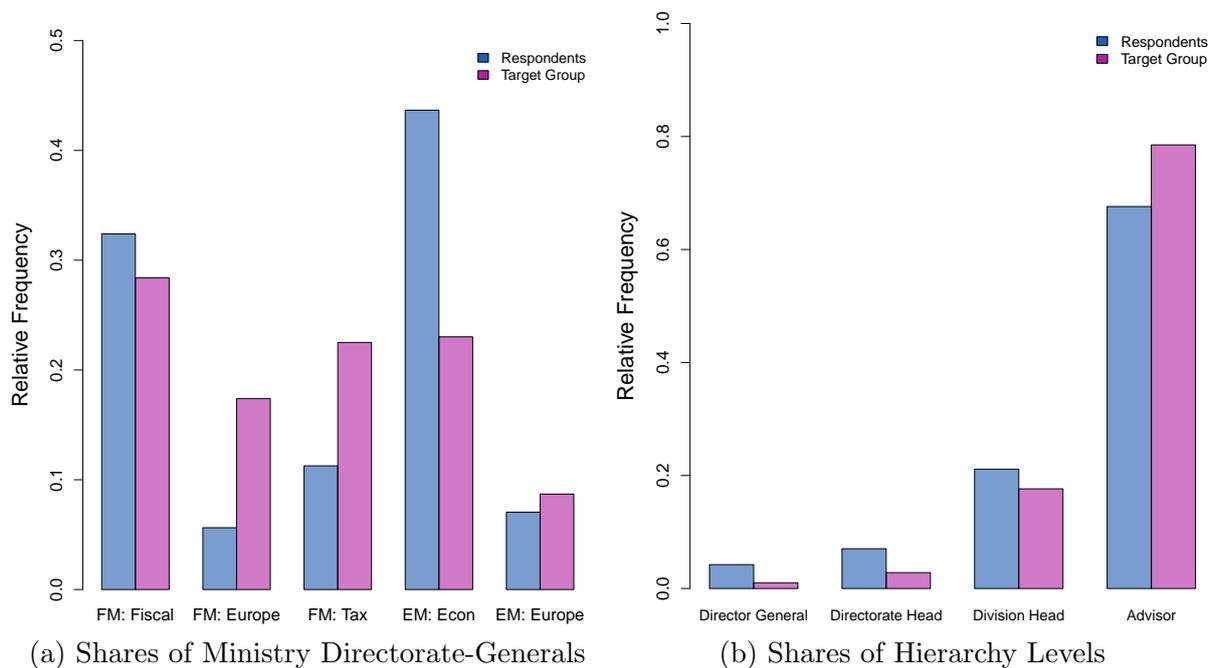
Andreas Dibiasi, Heiner Mikosch, Samad Sarferaz and Armin Steinbach

November 6, 2025

This appendix provides supplementary material. Section A presents additional information on the survey, including statistics on the surveyed group of government officials, summary statistics of the collected variables, a graphical overview of the survey and treatment group balance checks. Section B includes additional regressions results. Section C provides evidence on the government officials' probabilities of fiscal adjustment in response to the monetary policy shock scenario. Section D shows the survey questionnaire.

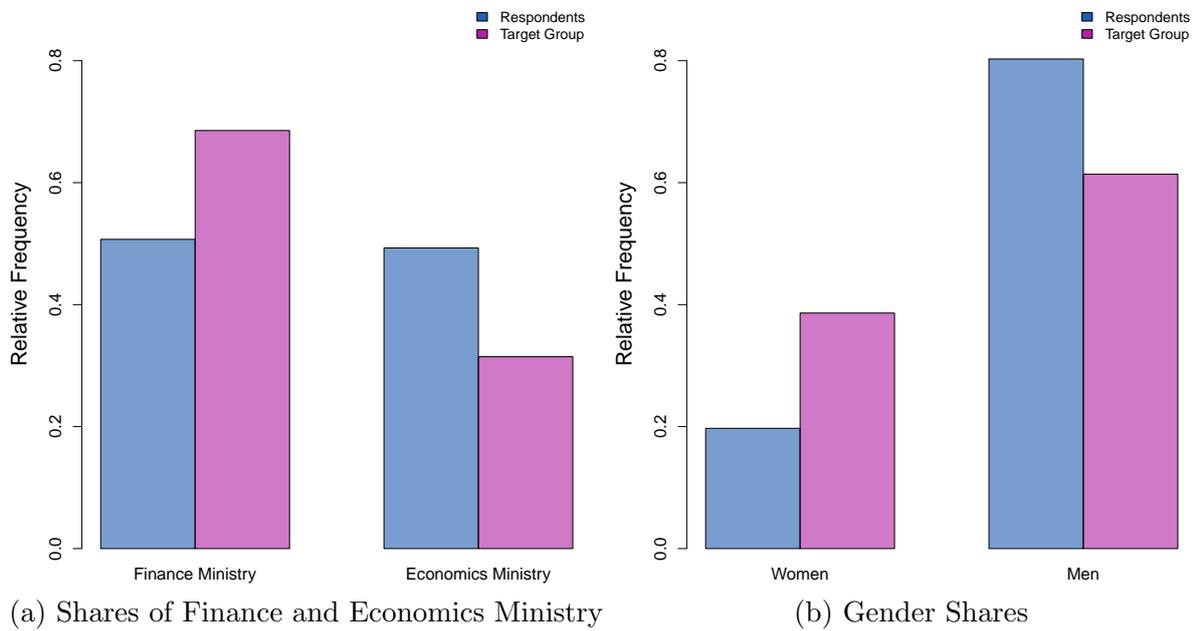
A Additional Material on the Survey

Figure A.1: Respondents vs. Target Group: Directorate-General and Hierarchy Shares



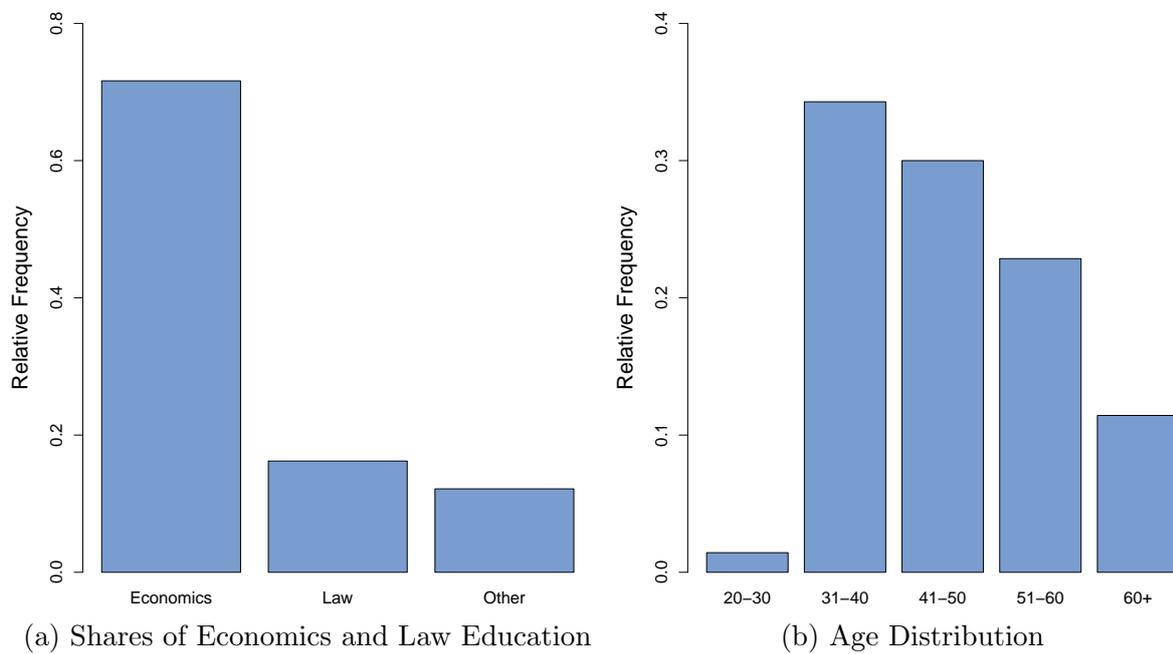
Notes: The figures compare the response group and the target group (i.e., the contacted set of senior government officials in the considered ministry Directorate-Generals) in terms of the shares of the different ministry Directorate-Generals (panel a) and ministry hierarchy levels (panel b). The Directorate-Generals in the Ministry of Finance are the Fiscal Policy & Economics Directorate-General (FM: Fiscal), the European Policy & International Fiscal Affairs Directorate-General (FM: Europe) and Directorate A and B in the Tax Directorate-General (FM: Tax). In the Ministry of Economic Affairs, the Directorate-Generals are the Economic Policy Directorate-General (EM: Econ) and the European Policy Directorate-General (EM: Europe). The target group comprises 393 persons and the response group consists of 74 persons (response rate of 19%).

Figure A.2: Respondents vs. Target Group: Ministry and Gender Shares



Notes: The figures compare the response group and the target group (i.e., the contacted set of senior government officials in the considered ministry Directorate-Generals) in terms of the shares of the Ministry of Finance and the Ministry of Economic Affairs (panel a) and in terms of gender shares (panel b). The target group comprises 393 persons and the response group consists of 74 persons (response rate of 19%).

Figure A.3: Education and Age of Respondents



Notes: The figures depict the shares of respondents with economics, law and other education (panel a) and the respondents' age distribution (panel b). These statistics were not available for the target group.

Table A.1: Summary Statistics

			Mean	Median	Min	Max	Std
Pre-treatment baseline projection:	GDP growth	2023	0.02	0.00	-6.50	2.90	1.35
Pre-treatment baseline projection:	GDP growth	2024	1.56	1.50	-0.50	4.00	0.93
Pre-treatment baseline projection:	GDP growth	2025	1.82	2.00	0.00	5.00	0.81
Pre-treatment baseline projection:	GDP growth	2030	1.59	1.50	-1.00	4.00	0.79
Transfer scenario projection:	GDP growth	2023	0.40	0.30	-6.00	3.50	1.30
Transfer scenario projection:	GDP growth	2024	1.63	1.55	0.00	4.00	0.91
Transfer scenario projection:	GDP growth	2025	1.81	2.00	-0.10	5.00	0.86
Transfer scenario projection:	GDP growth	2030	1.60	1.50	-1.00	4.00	0.80
Interest rate scenario projection:	GDP growth	2023	0.10	0.00	-6.50	3.00	1.47
Interest rate scenario projection:	GDP growth	2024	1.48	1.50	-0.50	4.00	0.93
Interest rate scenario projection:	GDP growth	2025	1.72	1.80	-0.10	4.50	0.85
Interest rate scenario projection:	GDP growth	2030	1.54	1.50	-1.10	4.00	0.80
Pre-treatment baseline projection:	Inflation	2023	7.44	7.90	2.80	12.00	1.73
Pre-treatment baseline projection:	Inflation	2024	4.84	4.50	2.00	10.00	1.92
Pre-treatment baseline projection:	Inflation	2025	3.27	3.00	1.00	8.00	1.39
Pre-treatment baseline projection:	Inflation	2030	2.48	2.00	-1.00	8.00	1.35
Transfer scenario projection:	Inflation	2023	8.04	8.00	3.00	15.00	1.98
Transfer scenario projection:	Inflation	2024	5.13	5.00	2.00	10.00	1.98
Transfer scenario projection:	Inflation	2025	3.40	3.00	1.00	9.00	1.53
Transfer scenario projection:	Inflation	2030	2.55	2.00	-1.00	8.00	1.50
Interest rate scenario projection:	Inflation	2023	7.56	7.50	2.50	14.00	1.83
Interest rate scenario projection:	Inflation	2024	4.71	4.05	1.80	10.00	1.99
Interest rate scenario projection:	Inflation	2025	3.12	2.65	1.00	7.00	1.33
Interest rate scenario projection:	Inflation	2030	2.50	2.00	0.00	8.00	1.33
Propensity to reduce overall spending			0.48	0.50	0.00	1.00	0.35
Propensity to increase overall income			0.52	0.50	0.00	1.00	0.35
Propensity to reduce public transfers			0.24	0.00	0.00	1.00	0.32
Propensity to reduce public spending			0.24	0.17	0.00	1.00	0.24
Propensity to increase taxes			0.17	0.10	0.00	1.00	0.22
Propensity to increase public debt			0.35	0.34	0.00	1.00	0.33
Marginal propensity to consume (MPC)			70.64	77.50	10.00	100.00	19.26
Share hand-to-mouth (h-t-m) consumers			41.51	40.00	2.00	100.00	27.87
ECB independence			76.34	80.00	30.00	100.00	17.4
Gender: Woman			0.18	0.00	0.00	1.00	0.38
Age			46.09	45.00	25.00	67.00	10.89
Education: Economics			0.74	1.00	0.00	1.00	0.44

Notes: The table summarizes the variables used in this paper. The first column denotes the variable. The columns Mean, Median, Min, Max and Std indicate the mean, median, minimum, maximum and standard deviation of the variable. The variables “Marginal propensity to consume (MPC)”, “Share hand-to-mouth (h-t-m) consumers” and “ECB independence” are the respondents’ beliefs on the marginal propensity to consume in the German population (i.e., what percentage of the transfer received in the transfer program vignette is consumed on average within the first year (2023)), on the share of hand-to-mouth consumers in the German population (i.e., what proportion of people in the total population consumes 100% of the transfer received within the first year (2023)) and on the degree of factual independence of the ECB in the next ten years (on a scale from 0% = no independence to 100% = complete independence), respectively. The variable “Age” was collected in the form of ordinal dummy variables, with Age: 20-30, Age: 31-40, Age: 41-50, Age: 51-60 and Age: 60+. The regressions in the paper use this set of dummy variables. For this summary statistics table, the dummy variables have been converted into a cardinal variable, based on the midpoints of the respective age categories and with 67 as the maximum age (the official retirement age in Germany). “Gender: Women” is a dummy variables being one if the respondent is a woman and zero otherwise. “Education: Economics” is a dummy variable being one if the respondent has an academic education in economics and zero if they have an academic education in another subject (e.g., law).

Figure A.4: Survey Overview

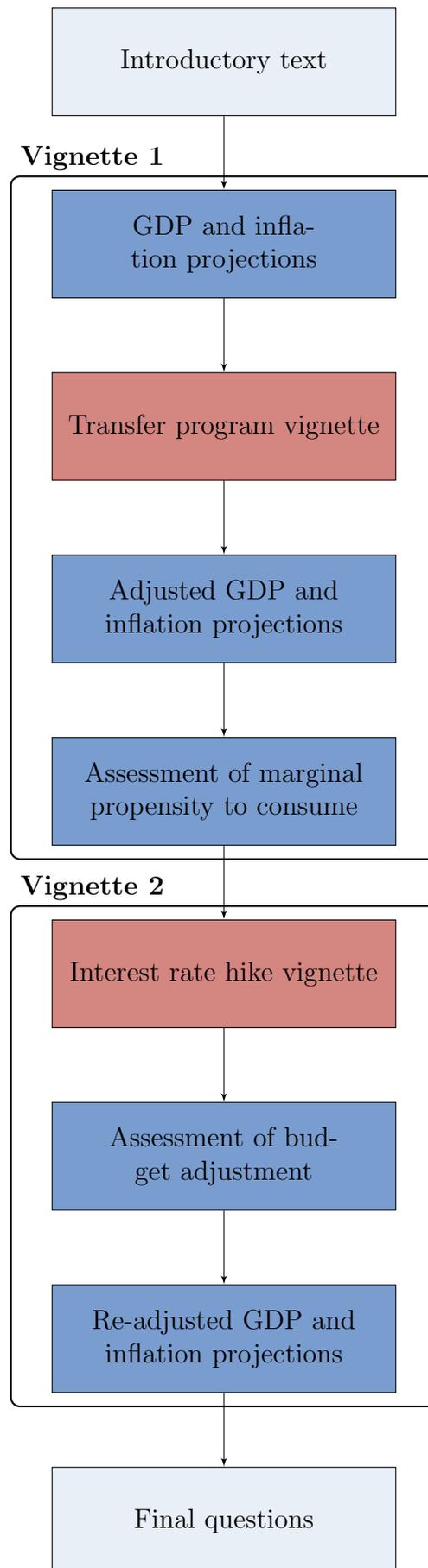
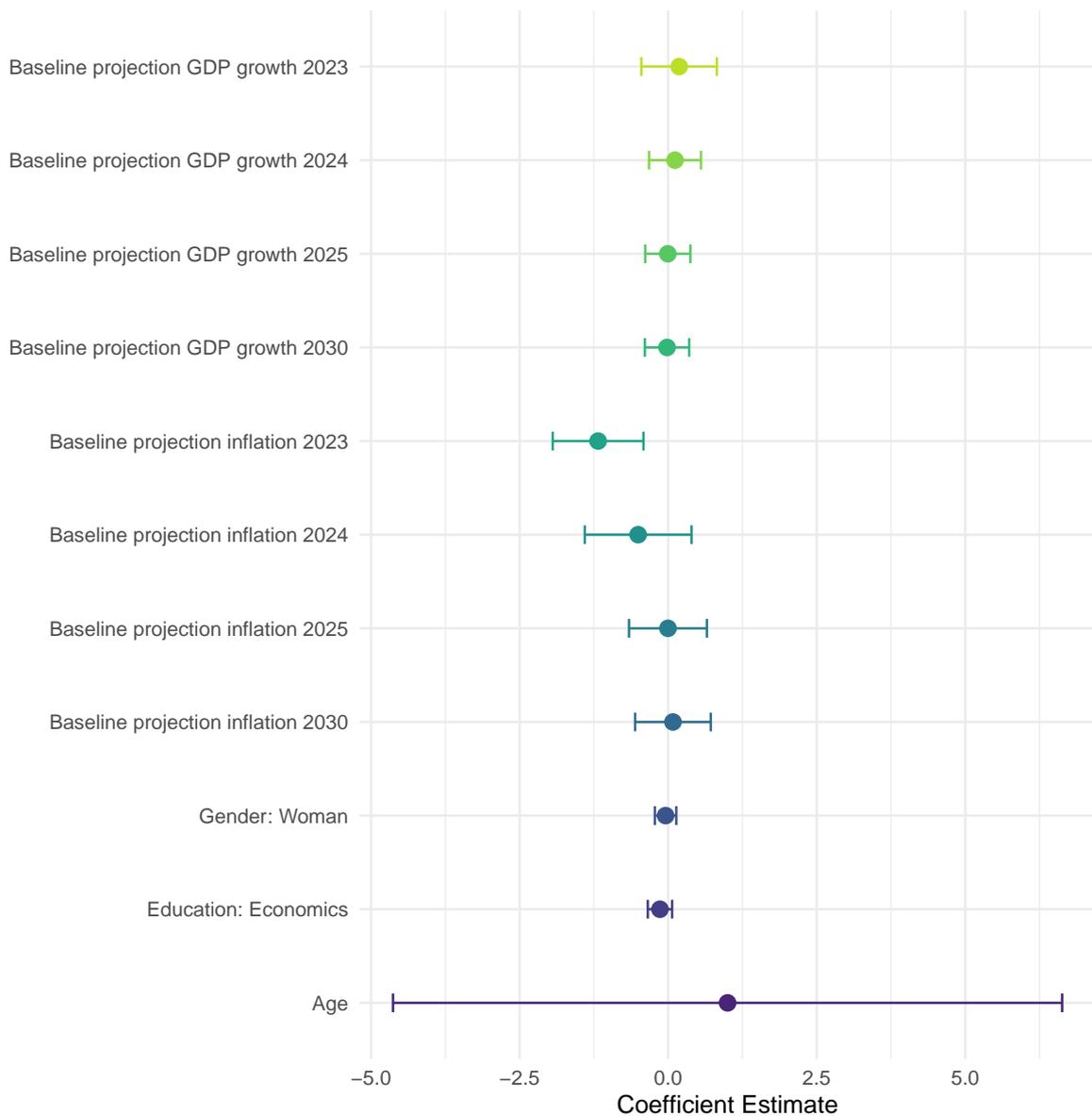
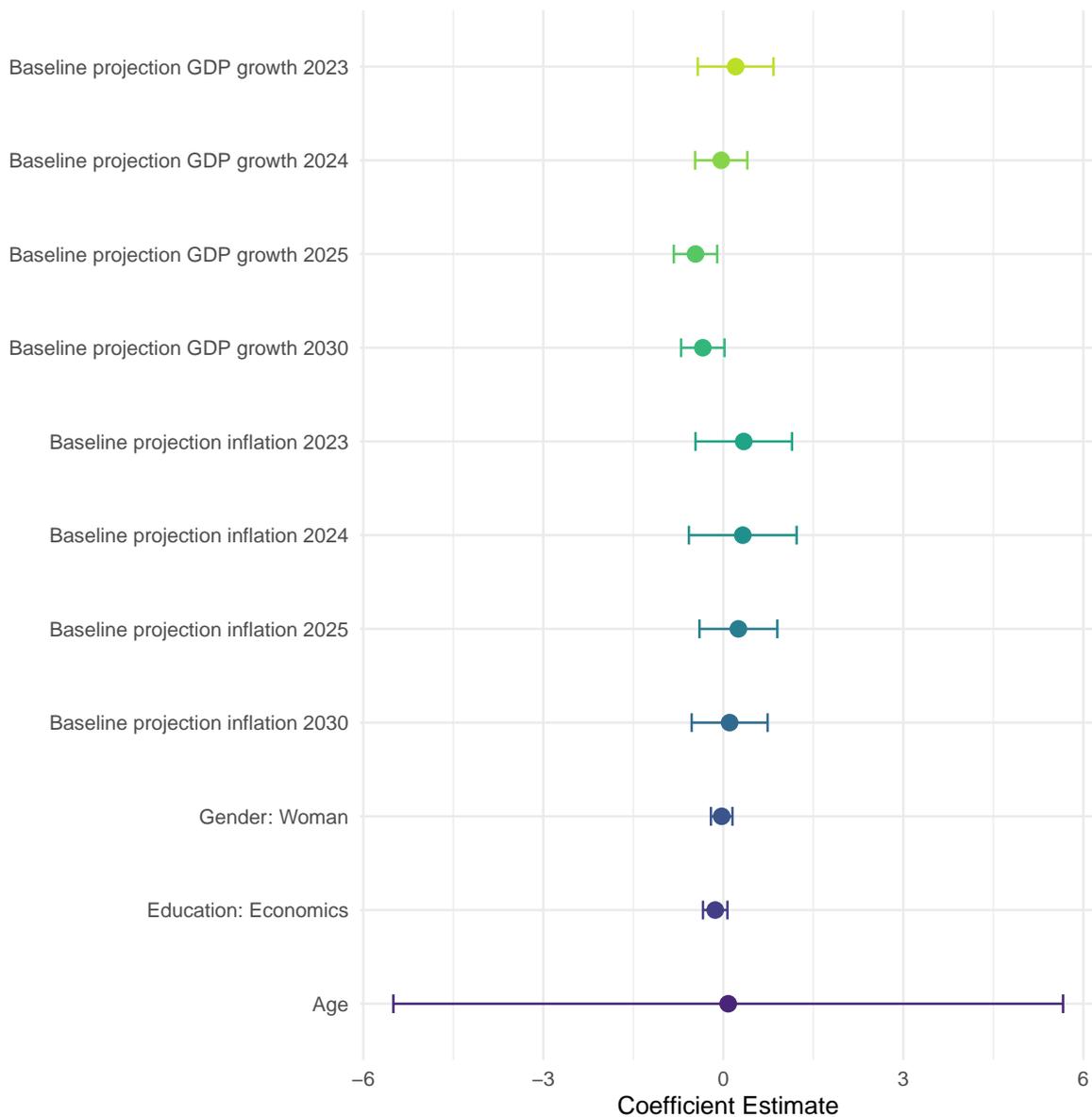


Figure A.5: Transfer Program Vignette: Balance Checks for Treatment Groups



Notes: The figure shows the coefficient estimates (shown by the dots) from separately regressing the variables printed on the y-axis on a constant and an indicator variable that takes value one (zero) if the respondent has been assigned to the high transfer (low transfer) treatment group (see Section 2.3). The whiskers show the 95% confidence intervals around the coefficient estimates. The employed estimation method is OLS.

Figure A.6: Interest Rate Hike Vignette: Balance Checks for Treatment Groups



Notes: The figure shows the coefficient estimates (shown by the dots) from separately regressing the variables printed on the y-axis on a constant and an indicator variable that takes value one (zero) if the respondent has been assigned to the high interest cost (low interest cost) treatment group (see Section 2.3). The whiskers show the 95% confidence intervals around the coefficient estimates. The employed estimation method is OLS.

B Additional Empirical Results

Table B.1: Change in Expectations in Response to Shock – High vs. Low MPC

	Transfer Shock		Interest Rate Shock	
	GDP	Inflation	GDP	Inflation
	(1)	(2)	(3)	(4)
Year: 2023	0.116 (0.098)	0.282 (0.247)	-0.139 (0.155)	-0.410 (0.314)
Year: 2024	0.078 (0.098)	0.036 (0.247)	-0.145 (0.155)	-0.316 (0.314)
Year: 2025	-0.096 (0.098)	-0.086 (0.247)	-0.020 (0.155)	-0.288 (0.314)
Year: 2030	-0.061 (0.098)	-0.128 (0.247)	0.098 (0.155)	-0.151 (0.314)
MPC x Year: 2023	0.001 (0.001)	0.003 (0.003)	0.00002 (0.001)	-0.004 (0.003)
MPC x Year: 2024	-0.001 (0.001)	0.003 (0.003)	0.001 (0.001)	-0.004 (0.003)
MPC x Year: 2025	0.0001 (0.001)	0.003 (0.003)	-0.0002 (0.001)	-0.003 (0.003)
MPC x Year: 2030	-0.0002 (0.001)	0.003 (0.003)	-0.002 (0.001)	-0.003 (0.003)
Controls	Yes	Yes	Yes	Yes
Observations	296	296	280	280

Notes: The table reports the OLS estimates of four individual-level regressions according to Equation (2), with the dependent variables being the percentage point change in the government officials' GDP growth forecasts or inflation forecasts in response to either the transfer shock scenario or the interest rate shock scenario. The control variables include the respondents' age, educational (disciplinary) background and gender. Standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table B.2: Change in Expectations in Response to Shock – ECB Independence

	Transfer Shock		Interest Rate Shock	
	GDP	Inflation	GDP	Inflation
	(1)	(2)	(3)	(4)
Year: 2023	0.246** (0.104)	0.771*** (0.267)	-0.340*** (0.121)	-0.343 (0.248)
Year: 2024	-0.018 (0.104)	0.408 (0.267)	-0.187 (0.121)	-0.051 (0.248)
Year: 2025	-0.107 (0.104)	0.110 (0.267)	-0.153 (0.121)	-0.323 (0.248)
Year: 2030	-0.061 (0.104)	-0.017 (0.267)	-0.217* (0.121)	-0.315 (0.248)
ECB Indep. x Year: 2023	0.0003 (0.001)	-0.004 (0.003)	0.002 (0.002)	-0.001 (0.003)
ECB Indep. x Year: 2024	0.001 (0.001)	-0.003 (0.003)	0.001 (0.002)	-0.003 (0.003)
ECB Indep. x Year: 2025	0.001 (0.001)	0.00003 (0.003)	0.001 (0.002)	0.002 (0.003)
ECB Indep. x Year: 2030	0.001 (0.001)	0.001 (0.003)	0.002 (0.002)	0.003 (0.003)
Controls	Yes	Yes	Yes	Yes
Observations	296	296	280	280

Notes: The table reports the OLS estimates of four individual-level regressions according to Equation (2), except that the government officials' assessment of the populations' MPC, mpc_i , is replaced by their assessment of the future ECB independence, $indep_i$. The dependent variables in the regressions are the percentage point change in the government officials' GDP growth forecasts or inflation forecasts in response to either the transfer shock scenario or the interest rate shock scenario. The control variables include the respondents' age, educational (disciplinary) background and gender. Standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table B.3: Test for Non-linearity in the Adjustment Propensities

	Propensity of							
	Transfer Decrease		Spending Decrease		Tax Increase		Debt Increase	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.21*** (0.06)	1.11** (0.51)	0.28*** (0.04)	-0.09 (0.41)	0.18*** (0.04)	-0.08 (0.37)	0.34*** (0.06)	0.05 (0.53)
Interest cost incr: high	0.07 (0.08)	0.06 (0.09)	-0.07 (0.06)	-0.10 (0.07)	-0.03 (0.05)	-0.00 (0.06)	0.03 (0.08)	0.04 (0.09)
GDP growth 2023		-0.02 (0.03)		0.00 (0.02)		0.01 (0.02)		0.00 (0.03)
Inflation 2023		0.01 (0.03)		0.02 (0.02)		-0.01 (0.02)		-0.02 (0.03)
MPC		-0.00 (0.00)		-0.00 (0.00)		0.00 (0.00)		0.00 (0.00)
Share h-t-m consumers		0.00 (0.00)		0.00 (0.00)		0.00 (0.00)		-0.00 (0.00)
ECB independence		-0.00* (0.00)		-0.00 (0.00)		0.00 (0.00)		0.00 (0.00)
Age: 31-40		-0.63* (0.34)		0.34 (0.27)		0.22 (0.25)		0.08 (0.35)
Age: 41-50		-0.61* (0.34)		0.31 (0.27)		0.13 (0.24)		0.17 (0.35)
Age: 51-60		-0.68* (0.34)		0.32 (0.27)		0.16 (0.24)		0.20 (0.35)
Age: 60+		-0.84** (0.35)		0.19 (0.28)		0.33 (0.25)		0.32 (0.36)
Education: Economics		0.04 (0.11)		-0.01 (0.09)		0.10 (0.08)		-0.13 (0.11)
Gender: Woman		0.04 (0.12)		0.01 (0.09)		-0.07 (0.08)		0.02 (0.12)
Transfer program: high		0.12 (0.09)		0.01 (0.07)		-0.03 (0.06)		-0.10 (0.09)
Observations	67	67	67	67	67	67	67	67

Notes: The table reports the OLS estimates of four individual-level regressions, with the dependent variables being the fiscal adjustment propensity variables presented in Section 4. The regressions include a constant term, a dummy variable (named “Interest cost increase: high”) which is set to one for respondents who have been randomized to the high interest cost treatment arm (i.e., cost increase of €60 billion) and zero for those in the low interest cost treatment arm (i.e., cost increase of €30 billion) and various control variables (see Table A.1). The variables “GDP growth 2023” and “Inflation 2023” are the respondents’ pre-treatment baseline projections of annual GDP growth and annual inflation in 2023, respectively. The variable “Transfer program: high” is a dummy variable which is set to one for respondents who have been randomized to the high transfer treatment arm (i.e., transfer of €1000) and zero for those in the low transfer treatment arm (i.e., transfer of €500). Standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table B.4: Fiscal Adjustment (Active Control Group Setup), With or Without Controls

	Transfer		Spending		Tax		Debt	
	Decrease		Decrease		Increase		Increase	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	6.21**	40.87	8.29***	-2.25	5.44***	-2.81	10.06***	-5.81
	(2.70)	(25.88)	(1.71)	(16.88)	(1.70)	(16.35)	(2.63)	(25.22)
Interest cost increase: high	10.46***	10.40**	3.83	2.98	3.80	4.64*	11.91***	11.99***
	(3.85)	(4.32)	(2.44)	(2.82)	(2.42)	(2.73)	(3.74)	(4.21)
GDP growth 2023		-0.92		0.12		0.24		0.56
		(1.56)		(1.02)		(0.99)		(1.52)
Inflation 2023		-0.27		0.76		-0.21		-0.28
		(1.39)		(0.91)		(0.88)		(1.36)
MPC		-0.07		-0.06		-0.03		0.17
		(0.16)		(0.11)		(0.10)		(0.16)
Share h-t-m consumers		0.02		0.02		0.03		-0.08
		(0.11)		(0.07)		(0.07)		(0.11)
ECB independence		-0.21*		0.04		0.00		0.17
		(0.13)		(0.08)		(0.08)		(0.12)
Age: 31-40		-17.52		9.52		7.18		0.82
		(17.31)		(11.29)		(10.94)		(16.87)
Age: 41-50		-15.12		8.09		5.15		1.88
		(17.21)		(11.23)		(10.88)		(16.77)
Age: 51-60		-17.64		6.91		4.64		6.10
		(17.29)		(11.28)		(10.92)		(16.84)
Age: 60+		-27.78		3.03		14.75		10.01
		(17.75)		(11.58)		(11.22)		(17.30)
Education: Economics		3.25		-1.79		4.63		-6.09
		(5.48)		(3.58)		(3.46)		(5.34)
Gender: Woman		1.94		1.10		-2.59		-0.45
		(6.00)		(3.91)		(3.79)		(5.84)
Transfer program: high		4.85		-0.79		0.00		-4.06
		(4.52)		(2.95)		(2.86)		(4.41)
Observations	67	67	67	67	67	67	67	67

Notes: The table reports the OLS estimates of four individual-level regressions according to Equation (4), with the dependent variables being the budget adjustment in public transfers, government spending, taxes or public debt, respectively, made by the government officials in response to an unexpected increase in the interest costs. The regressions include a constant term, a dummy variable (named “Interest cost increase: high”) which is set to one for respondents who have been randomized to the high interest cost treatment arm (i.e., cost increase of €60 billion) and zero for those in the low interest cost treatment arm (i.e., cost increase of €30 billion) and various control variables (see Table A.1). The variables “GDP growth 2023” and “Inflation 2023” are the respondents’ pre-treatment baseline projections of annual GDP growth and annual inflation in 2023, respectively. The variable “Transfer program: high” is a dummy variable which is set to one for respondents who have been randomized to the high transfer treatment arm (i.e., transfer of €1000) and zero for those in the low transfer treatment arm (i.e., transfer of €500). Standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table B.5: Fiscal Adjustment (Active Control Group Setup), Winsorized

	Transfer Decrease	Spending Decrease	Tax Increase	Debt Increase
Interest cost increase: high	9.22** (3.79)	3.12 (2.67)	3.14 (1.93)	10.53*** (3.79)
Controls	Yes	Yes	Yes	Yes
Observations	67	67	67	67

Notes: The table reports the OLS estimates of four individual-level regressions according to Equation (4), with the dependent variables being the budget adjustment in public transfers, government spending, taxes or public debt, respectively, made by the government officials in response to an unexpected increase in the interest costs. The regressions are estimated using data winsorized at the 5th and 95th percentiles and include a constant term, various control variables (not shown here; see Table B.4) and a dummy variable which is set to one for respondents who have been randomized to the high interest cost treatment arm (i.e., cost increase of €60 billion) and zero for those in the low interest cost treatment arm (i.e., cost increase of €30 billion). Standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table B.6: Fiscal Adjustment (Active Control Group Setup), Huber

	Transfer Decrease	Spending Decrease	Tax Increase	Debt Increase
Interest cost increase: high	8.41** (4.26)	2.55 (2.75)	3.35 (2.21)	10.39** (4.22)
Controls	Yes	Yes	Yes	Yes
Observations	67	67	67	67

Notes: The table reports the Huber estimates of four individual-level regressions according to Equation (4), with the dependent variables being the budget adjustment in public transfers, government spending, taxes or public debt, respectively, made by the government officials in response to an unexpected increase in the interest costs. The regressions are estimated using robust Huber regressions and include a constant term, various control variables (not shown here; see Table B.4) and a dummy variable which is set to one for respondents who have been randomized to the high interest cost treatment arm (i.e., cost increase of €60 billion) and zero for those in the low interest cost treatment arm (i.e., cost increase of €30 billion). Robust standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table B.7: Fiscal Adjustment (Active Control), Inverse Propensity Weighting

	Transfer Decrease	Spending Decrease	Tax Increase	Debt Increase
Interest cost increase: high	11.23** (4.39)	2.84 (2.82)	4.66* (2.73)	11.27*** (4.09)
Controls	Yes	Yes	Yes	Yes
Observations	67	67	67	67

Notes: The table replicates Table 1 using inverse probability weights to correct for potential biases resulting from selective answering behavior. The table reports the OLS estimates of four individual-level regressions according to Equation (4), with the dependent variables being the budget adjustment in public transfers, government spending, taxes or public debt, respectively, made by the government officials in response to an unexpected increase in the interest costs. The regressions include a constant term, various control variables (not shown here; see Table B.4) and a dummy variable which is set to one for respondents who have been randomized to the high interest cost treatment arm (i.e., cost increase of €60 billion) and zero for those in the low interest cost treatment arm (i.e., cost increase of €30 billion). We weight each observation according to stabilized inverse probability weights, obtained from estimating the likelihood of participation in the survey (0 = not participated in the survey, 1 = participated in the survey) based on the covariates of ministry affiliation, ministry directorate-general affiliation, hierarchy level and gender. We then estimate a binomial model using a probit link with a 0.1 winsorization of the weights. Standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table B.8: Expected Macroeconomic Effects of Interest Rate Shock

	GDP growth, 2023-2030	CPI level, 2030
	(1)	(2)
Transfer Reduction	−2.473 (4.590)	−2.750 (2.833)
Spending Reduction	−7.470 (5.277)	−3.733 (3.258)
Tax Increase	−4.893 (5.504)	−4.069 (3.397)
Debt Increase	−3.932 (4.914)	−2.646 (3.033)
Controls	Yes	Yes
Observations	67	67

Notes: The table displays OLS regression results, with the adjustment propensities of government officials as the primary independent variables, alongside control variables for age, education and gender. The dependent variable is either the officials' expectations of cumulative GDP growth effect of the interest rate shock for the period 2023–2030 or their expected effect on the CPI level in 2030. The expected shock effects are normalized as outlined in Section 3, i.e., the GDP growth and CPI effects reported by respondents exposed to a 200 basis point shock scenario are divided by 2. The adjustment propensities are normalized in the same way by construction, as described in Section 3. Standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

C Fiscal Adjustment Probabilities

In this section, we examine the probability of fiscal adjustments by ministry officials in response to unforeseen changes in interest rates. Our focus here is on the variations in transfers, government spending, taxes and debt levels. Table C.1 shows the distinct probabilities for adjustments across different fiscal components. For example, the probability of a change in government spending is notably high at 67.2%. However, the likelihood of changing only one fiscal component is significantly lower across all categories. This demonstrates a nuanced approach to fiscal policy adjustments. Specifically, transfers have a 47.8% chance of being adjusted. Among the components that are adjusted, they have a 7.5% chance of being the only one adjusted and a 19.4% chance of being excluded from adjustments when other components are taken into account. In contrast, the data shows that debt adjustments have the highest overall probability at 68.7%, indicating a strong tendency to use debt leverage as a responsive instrument to rate changes.

Table C.1: Probability of Adjustment

	Adjust	Only	All, but
Public Transfers	47.8%	7.5%	19.4%
Government spending	67.2%	1.5%	3.0%
Taxes	55.2%	3.0%	10.4%
Public Debt	68.7%	9.0%	9.0%

Notes: The table shows the probability of ministry officials responding to an unanticipated interest rate change with a reduction in public transfers and government spending and an increase in taxes and public debt. The first column displays the overall probability of adjustment. The second column indicates the probability of adjusting only one fiscal component, while the third column shows the probability of adjusting all other fiscal components except the one specified in the respective row.

Table C.2 presents the conditional probabilities associated with the utilization of various fiscal instruments. For example, the table indicates that if a government agent employs the fiscal instrument “Transfers”, there is a 48.9% probability that they will also employ the fiscal instrument “Spending”. This demonstrates the interdependence between different fiscal instruments and provides insights into common patterns of fiscal policy implementation.

Table C.2: Conditional Probability of Adjustment

	Public Transfers	Government Spending	Taxes	Public Debt
Public Transfers	100.0%	48.9%	43.2%	34.8%
Government spending	68.8%	100.0%	73.0%	71.7%
Taxes	50.0%	60.0%	100.0%	54.3%
Public Debt	50.0%	73.3%	67.6%	100.0%

Notes: The table reports the conditional probabilities of using different fiscal instrument. For instance, the probability that a government agent who uses the fiscal instrument “Public Transfers” also uses the fiscal instrument “Government Spending” is 48.9%.

D Questionnaire

Welcome to the online survey by the KOF Swiss Economic Institute at ETH Zurich. Your responses support a current empirical research project on expectation formation in economic policy.

Please note that the survey is not intended to evaluate your answers. There are no right or wrong answers for any of the questions asked.

The survey is conducted in an anonymized form. For each participant, we will donate €20 to a charitable cause that you can choose at the end of the survey.

Please remember for the entire survey: If entering a decimal number in an answer field, please use a dot (instead of a comma). For example, 1.5% (instead of 1,5%).

1. I expect the following average annual growth of real Gross Domestic Product (GDP) for Germany (in % with one decimal place):

2023 %

2024 %

2025 %

2030 %

2. I expect the following average annual consumer price inflation rate (in % with one decimal place):

2023 %

2024 %

2025 %

2030 %

In the following, consider the following scenario:

The Federal Government is considering the introduction of a transfer program in 2023. It is to have a volume of €40 billion and be equipped as follows: Every person in Germany will receive a one-time payment of €500 at the beginning of 2023 for immediate and free use. The program is to be announced at the beginning of January 2023 and implemented immediately. Until this point, no information is publicly available.

The €40 billion is to be added to the previously planned budget. The transfer program is to be financed by an increase in new borrowing. For the purposes of this study, assume hypothetically that the German debt brake and the European debt rules do not stand in the way of the program.

In order to be able to estimate the economic effects of the transfer program, you are asked for your assessment.

As a reminder, your previous forecast for annual real GDP growth in % (i.e., your forecast without the transfer program):

- 2023: Previously indicated value %
- 2024: Previously indicated value %
- 2025: Previously indicated value %
- 2030: Previously indicated value %

3. According to your rough estimate: What annual growth in real Gross Domestic Product (GDP) (in %) do you expect taking into account the transfer program?

2023	<input type="text"/>	%
2024	<input type="text"/>	%
2025	<input type="text"/>	%
2030	<input type="text"/>	%

As a reminder, your previous forecast for the inflation rate in % (i.e. your forecast without the transfer program):

- 2023: Previously indicated value %
- 2024: Previously indicated value %
- 2025: Previously indicated value %
- 2030: Previously indicated value %

4. What annual consumer price inflation (in %) do you expect, taking into account the transfer program?

2023	<input type="text"/>	%
2024	<input type="text"/>	%
2025	<input type="text"/>	%
2030	<input type="text"/>	%

People can either consume or save the unexpected income transfer resulting from the federal government's program described above.

5. Please give a rough estimate: What percentage of the transfer received (€500) will be consumed on average within the first year (2023)? *

% of the amount received

6. Please give a rough estimate: What proportion of people in the total population consumes at least 80% (i.e., €400 or more) of the transfer received within the first year (2023)? *

% of the total population

7. Please give a rough estimate: What proportion of people in the total population will consume 100% of the transfer received within the first year (2023)? *

% of the total population

8. Please give a rough estimate: What proportion of people in the total population does not consume the transfer they receive at all (i.e., 0%) within the first year (2023)? *

% of the total population

Explanation:

Consumption is to be understood as: Purchases of goods and services, i.e., consumer goods such as food, clothing, cosmetics, travel, vacations and entertainment as well as durable goods such as cars, home improvement, furniture and electronics. Saving includes deposits in current or savings accounts, investments in securities (shares, bonds, etc.) and the repayment of debts.

The federal government's transfer program plans described above are currently only known to selected circles within the government. The European Central Bank (ECB) has no knowledge of this.

Irrespective of the German government's plans, the ECB has decided to increase interest rates more than expected in order to counteract the current inflationary pressure. This interest rate increase implies an unexpected increase in the federal government's interest costs from 2023 of €10 billion per year on average over the next 3 years. Cumulatively over 3 years, the federal government's interest costs will therefore increase unexpectedly by €30 billion.

Please give your assessment of how, in view of the additional interest costs (€30 billion), the revenue and expenditure policy should be adjusted over the next 3 years. Specifically, the following adjustments are under consideration:

- Reduction of the planned transfer program
- Reduction of other government spending
- Increase in taxes
- Increased new debt

9. Change in revenue/expenditure 2023-2025 in billions by:

Reduction of the planned transfer program	<input type="text"/>
Reduction of other government spending	<input type="text"/>
Increase in taxes	<input type="text"/>
Increased new debt	<input type="text"/>

As a reminder, your previous forecast for annual real GDP growth in % (i.e., your forecast incl. transfer program, but without interest rate increase and without adjusted revenues/expenditures):

- 2023: Previously indicated value %
- 2024: Previously indicated value %
- 2025: Previously indicated value %
- 2030: Previously indicated value %

10. Please provide an estimate: What annual growth in real GDP (in %) do you expect in the new scenario (i.e., taking into account the transfer program, the interest rate increase and the adjusted income/expenditure)

2023	<input type="text"/>	%
2024	<input type="text"/>	%
2025	<input type="text"/>	%
2030	<input type="text"/>	%

As a reminder: Your previous forecast for the inflation rate in % (i.e., your forecast including the transfer program, but without the interest rate increase and without adjusted income/expenditure):

- 2023: Previously indicated value %
- 2024: Previously indicated value %
- 2025: Previously indicated value %
- 2030: Previously indicated value %

11. Please enter your new forecast for the inflation rate in % here (i.e., your forecast taking into account the transfer program, the interest rate increase and any adjusted income/expenditure):

2023	<input type="text"/>	%
2024	<input type="text"/>	%
2025	<input type="text"/>	%
2030	<input type="text"/>	%

12. We would now like to ask you for your assessment of the independence of the European Central Bank. The independence of the central bank refers to the freedom of monetary policy decision-makers from political or state influence on the implementation of monetary policy.

What degree of independence do you think the European Central Bank will have in the next ten years? In percent (0% = no independence to 100% = complete independence)

%

13. Age *

- 20 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 60 +
- Not Specified

14. Gender *

- Male
- Female
- Diverse
- Not Specified

15. Professional Background

- Economist
- Lawyer
- Other
- Not Specified

If Other, please specify:

16. For your participation, we will donate €20 to a charitable cause. You can either specify the charitable cause or the charitable organization.

Charitable cause / organisation:

- No donation desired