Attention to the Macroeconomy*

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Abstract

We measure which economic topics are top of mind using quarterly German household and firm panels from 2020 to 2024, a period that spans the post-pandemic inflation surge and the subsequent disinflation. With these data, we study the determinants and consequences of having inflation top of mind. In line with goal-directed attention, the likelihood that inflation is top of mind rises with proxies for its true payoff relevance. At the same time, prior experiences predict whether respondents have inflation and energy prices top of mind conditional on a large set of controls for payoff relevance, and this relationship becomes stronger when the environment becomes more inflationary. Having inflation top of mind predicts stronger increases in information acquisition and inflation expectations over the shock period. At odds with goal-optimality, having inflation top of mind is associated with expectations further *away* from multiple ex-ante benchmarks. Finally, both key determinants of having inflation top of mind—payoff relevance and prior experiences—are associated with stronger shifts of expectations away from these benchmarks over the shock period.

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1 Introduction

A central question in macroeconomics is how people allocate their limited cognitive resources when forming beliefs and making economic decisions. In canonical models of limited attention, such as rational inattention, attention is *goal-optimal*: agents weigh the gains from being better informed and making improved decisions against the costs of acquiring and processing information, so that greater payoff relevance induces more attention, which in turn improves belief accuracy (Maćkowiak et al., 2023). By contrast, a growing literature in behavioral economics emphasizes that attention may be *non-goal-optimal*: for example, what comes to mind can be shaped by past experiences (Bordalo et al., 2025d), and information may be processed in systematically biased ways (Bonaglia et al., 2025; Gennaioli et al., 2025). Distinguishing between these views requires a direct measure of which economic topics people are occupied with.

We provide new large-scale evidence on the determinants and consequences of *having macroeconomic topics top of mind*, using a direct, scalable, individual-level measure drawing on open-ended survey responses. Specifically, we ask respondents what comes to mind when thinking about their economic situation. Our main measures of interest are dummy variables indicating whether a respondent refers to a specific topic, such as inflation, economic growth, or household- or firm-level economic topics. Compared with a more structured question format, the key advantage of this open-ended measure is that it does not change what comes to participants' minds or restrict which topics are captured through the displayed response options. We validate this measure using different closed-ended question formats.

We embed our open-ended measure in quarterly panel surveys of German households from a representative online panel and German firms in the ifo Business Survey. Our study period from 2020 to 2024 covers an unusual sequence of macroeconomic conditions: a sharp, unexpected surge in inflation in 2021–22, amplified by energy price shocks following Russia's invasion of Ukraine, and a subsequent disinflation in 2023–24. Each wave comprises up to 5,000 households and up to 3,700 firms. Although our evidence is mostly descriptive, it is based on naturally occurring variation in what is top of mind, large samples of households and firms, and a period featuring unexpected developments in inflation that allows us to test the predictions of different theories.

Our analysis proceeds in three steps. First, we document the determinants of having inflation top of mind. Second, we study how inflation being top of mind is linked to information acquisition. Third, we examine how having inflation top of mind affects inflation expectations, and how strongly these expectations deviate from multiple ex-ante benchmarks.

These steps speak directly to theories of attention. In goal-optimal models, what is

top of mind reflects underlying payoff relevance. In non-goal-optimal models, what is top of mind may also be influenced by other—potentially non-payoff relevant—forces, including individuals' prior experiences. Goal-optimality further predicts that when a topic is top of mind, agents acquire and process more information about it, which improves forecast accuracy and economic decisions. In the absence of goal-optimality, having a topic top of mind may still raise information acquisition and processing, but in ways that need not be accuracy-enhancing and may, in fact, move beliefs away from Bayesian benchmarks.

Following the three steps above, we present the following main results:

(1) Determinants of what is top of mind. First, we show that observable proxies for *payoff relevance* predict what is top of mind, leveraging that the development of inflation over our sample period reflects to a large extent an energy price shock. In particular, exposure to energy prices—proxied by the pre-shock energy-cost share in revenues for firms and by fossil heating use for households—is strongly associated with energy and inflation being on households' and firm managers' minds. Second, *prior experiences* predict what is top of mind even after conditioning on a rich set of controls for payoff relevance. Households who lived through the 1970s oil crises, or who report past (pre-shock) real income or wealth losses due to inflation, are substantially more likely to have inflation top of mind; for firm managers, having experienced the oil crises is associated with a greater tendency to think of energy-related topics. Third, these effects are *state-dependent*: both payoff relevance and prior inflation experiences matter more when the environment becomes more inflationary, and the effects only partially revert back once conditions normalize.

(2) From top of mind to information acquisition. We next examine how inflation being top of mind is related to information acquisition. Respondents who mention inflation in the open-ended question consume significantly more inflation-related news, indicating that top-of-mind concerns are associated with greater information acquisition. This relation is not static but increases as the inflation shock unfolds and the supply of inflation-related news increases.

(3) From top of mind to beliefs. We then turn to belief formation, asking whether having inflation top of mind alters how respondents update their expectations in response to the shock. In the pre-shock period, respondents with inflation top of mind report higher inflation expectations. These cross-sectional correlations are difficult to interpret, among others, because of potential respondent-specific omitted variables. When examining belief updating in response to the shock, we can focus on specifications that are immune to this concern.

In particular, we estimate panel regressions with respondent fixed effects that assess whether the relationship between having inflation top of mind and beliefs differs be-

tween the shock period—when new signals about inflation arrive—and the pre-shock period. These estimations show that having inflation top of mind is associated with stronger increases in inflation expectations in response to signals of high inflation. This result is robust to instrumenting whether a respondent currently has inflation top of mind with whether the respondent had inflation top of mind in the preceding episode within our sample period, alleviating concerns about reverse causality.

Having shown that inflation being top of mind is associated with stronger updating in response to new signals about inflation, we examine whether the resulting inflation forecasts are better calibrated, as predicted by goal-optimality. In the pre-shock period, respondents for whom inflation is top of mind already exhibit *larger* upward deviations from ex-ante benchmarks that serve as proxy for optimal forecasts, among both households (insignificantly so) and firms (significantly so). During the inflation shock, these deviations increase significantly more for both households and firms when inflation is top of mind—despite stronger increases in information acquisition. These patterns hold true across a large range of benchmarks, including professional forecasts, financial market expectations, and time series predictions. Overall, these results stand in contrast to a core prediction of models of goal-optimal attention.

We examine how two important determinants of whether inflation is top of mind—actual payoff relevance and prior inflation experiences—matter for whether the associated changes in inflation expectations translate into stronger deviations from ex-ante benchmarks. We find that *both* actual payoff relevance and prior inflation experiences are associated with stronger increases in deviations from different benchmarks in response to the shock. These patterns are consistent with the idea that not only experience-driven but also actual payoff-driven attention can reduce forecast accuracy.

To understand how inflation being top of mind shapes belief formation, we use an additional open-ended question asking households to describe the main considerations underlying their inflation expectations. Applying LLM-based coding of the qualitative responses, we show that inflation being top of mind is associated with a greater focus on supply-side factors, which were an important driver of inflation during our study period (Menz, 2024). Having inflation top of mind is also linked to a stronger tendency to mention recent events and inflation rates, and a reduced tendency to focus on more distant events. Together with our evidence on deviations of forecasts from benchmarks, this suggests that households with inflation top of mind may overweight recent signals, as in models of diagnostic expectations (Bordalo et al., 2022).

Finally, we ask whether what is top of mind carries over to behavior. Using the same empirical framework as in our belief analyses, we find that firms with inflation top of mind are more likely to increase prices in response to the shock, potentially as a "hedge" against further inflation increases. This suggests that agents' attention allocation, which

can be non-goal-optimal, is associated with (potentially costly) changes in decisions.

Contributions and related literature We build on a growing literature measuring attention to the macroeconomy. Experimental work tests mechanisms operating in models of goal-optimal attention, such as responses to perceived uncertainty (Mikosch et al., 2024) or stake size (Fuster et al., 2022; Roth et al., 2022), but relies on narrow, stylized measures, such as willingness to pay for forecasts. Observational approaches construct proxies for attention using data on beliefs (Bracha and Tang, 2025; Coibion and Gorodnichenko, 2015; Goldstein, 2023; Pfäuti, 2025a,b; Yotzov et al., 2025), responses to exogenous information (Weber et al., 2025), or data from internet search behavior (Korenok et al., 2023), documenting higher attention in volatile environments and, in some cases, attention being associated with improved decisions (Coibion et al., 2018; Flynn and Sastry, 2024; Song and Stern, 2025). We contribute by directly measuring which economic topics are top of mind using a scalable, open-ended survey instrument that complements these proxies. Embedding this measure in large-scale household and firm panels spanning a major macroeconomic shock, we document systematic departures from the predictions of goal-optimal theories. In particular, we provide a proof-of-concept from an important real-world context that higher attention can be associated with expectations deviating more strongly from various ex-ante benchmarks.

While macroeconomists have mostly focused on goal-optimal attention, evidence from behavioral economics suggests that attention can be non-goal-optimal. For instance, Bordalo et al. (2025c) highlight that selective attention to particular aspects of a statistical problem can distort agents' predictions. Hartzmark et al. (2021) demonstrate that ownership of a good channels attention to associated information, which in turn leads to over-reaction. Our paper provides direct evidence for non-goal-optimal attention in a macroeconomic context.

Finally, our paper contributes to a literature that examines how economic beliefs are shaped by personal experiences (D'Acunto et al., 2021; Goldfayn-Frank and Wohlfart, 2020; Malmendier and Nagel, 2011) and memory (Afrouzi et al., 2023; Bordalo et al., 2025a,b, 2023, 2025c, 2020; Cenzon, 2025; Charles and Sui, 2025; Enke et al., 2024; Garcia-Lembergman et al., 2024; Graeber et al., 2024; Jiang et al., 2025; Taubinsky et al., 2025). In seminal work, Malmendier and Nagel (2016) show that inflation experiences persistently affect households' inflation expectations. Bordalo et al. (2025a) provide evidence that experiences affect belief formation through the process of mental simulation. Most closely related, Gennaioli et al. (2025) demonstrate that a model of selective recall can quantitatively account for the post-pandemic increase in inflation expectations and reconcile differences between point and distributional beliefs. Their model and survey evidence on inflation expectations from the US highlight that expectations are rigid when inflation is anchored but unstable when surges in inflation trigger

the retrieval of past inflationary episodes. Overweighting of past experiences that are similar to the current context could be one mechanism underlying non-goal optimality of attention as suggested by our findings. Complementary to the evidence in Gennaioli et al. (2025), we provide direct evidence on the relationship between experiences and what comes to mind.

The paper proceeds as follows. Section 2 describes the environment, samples, and measurement. Section 3 lays out the conceptual framework and predictions. Section 4 presents evidence on the determinants of what is top of mind, while Section 5 analyzes its consequences for information acquisition, beliefs and decisions. Section 6 concludes.

2 Data and setting

In this section, we describe the macroeconomic environment during our data collection, our samples, and our key survey measures.

2.1 Macroeconomic environment

We collected our data from December 2020 to December 2024, covering the time from just before to after the post-pandemic inflation surge. The rise in inflation occurred amidst supply-chain disruptions and labor shortages, as well as demand-side pressures from loose monetary policy and fiscal stimulus programs. As shown in Appendix Figure A.1, German CPI inflation was -0.3% at the start of our sample period. Around mid-2021, inflation breached the European Central Bank's (ECB) 2% target and kept increasing, with a further acceleration following Russia's invasion of Ukraine in early 2022, reaching levels of around 10% by the end of 2022. Inflation reverted back over the course of 2023, and then remained at around 2% in 2024. While inflation reverted back from the end of 2022, energy prices remained elevated until the end of our sample period. In response to the increase in inflation, the ECB started raising interest rates from the zero lower bound in mid-2022, reaching a level of 4.5% in September 2023. Interest rates were then gradually lowered to 3.15% by the end of 2024. While inflation rose, aggregate unemployment fluctuated between 4.9% and 6.4% during our study period.

2.2 Samples

Household panel We conducted quarterly surveys with German households between December 2020 and December 2024 in collaboration with the online panel provider Dynata, which is widely used in the social sciences (Haaland et al., 2023). In each wave,

we recontacted all respondents who participated in at least one of the previous waves. We then supplemented the data collection with new respondents to obtain an overall sample size of about 5,000 respondents for each wave. Between June 2022 and March 2023, we only aimed for a sample size between approximately 2,500 and 3,000 respondents. From June 2023 onward, we only recontacted employed respondents, which resulted in sample sizes between approximately 1,300 and 2,000 observations per wave.[1] We drop partial responses and (rare) duplicate responses to any given wave. Panel A of Appendix Figure A.2 depicts the composition of our sample by the wave a respondent entered the panel. Attrition is typically highest between the first and the second wave of participation, and more limited thereafter. For instance, among respondents to wave 1, 51% participated in wave 2 and 49% participated in wave 3. Conditional on participating more than once, respondents participated on average 5.4 times.[2]

Panel A of Appendix Table A.1 shows summary statistics of our household sample pooled across all waves and a comparison with the 2020 wave of the German Socio-economic Panel (GSOEP), a representative household survey. Our sample is roughly representative of the population in terms of gender, age, region, and household income. The main difference is higher average education in our sample, a common feature in online surveys (Haaland et al., 2023).

Firm panel In parallel to the household surveys, we conducted surveys containing mostly identical questions with firms participating in the ifo Business Survey (IBS), a large and representative monthly panel survey of German firms.[3] Respondents to the online portion of the regular IBS received a separate link to our module in the invitation email to the regular IBS of the last month in each quarter. More than half of the invited participants responded to our module, resulting in an overall sample size of approximately 3,300 firms per wave on average that fluctuates between 2,900 and 3,700 responses per wave. Panel B of Appendix Figure A.2 displays the composition of the firm samples for each wave by the first wave a firm participated in the panel. Attrition rates are lower than for households. For instance, of those who responded to wave 1 of the firm survey, 73.2% also participated in wave 2 and 72.8% participated in wave 3. Conditional on participating more than once, respondents participated on

[1] From June 2023, the data was originally collected for a different project, which focused on employed individuals.

[2] In Appendix C, we provide a more detailed analysis of attrition for the household and firm samples. Attrition in the household sample is primarily associated with being unemployed, having lower income, and being younger. In the firm sample, owners and respondents from larger firms are less likely to drop out. Importantly, conditional on individual fixed effects, neither inflation being top of mind nor deviations of inflation expectations from expert benchmarks predict attrition. Finally, none of our main results vary qualitatively with respondents' survey tenure.

[3] The IBS is the basis of the ifo Business Climate Index, the most recognized leading indicator of the German business cycle. See Sauer et al. (2023) for details on the IBS. The IBS micro data have been used extensively in previous research in economics (e.g., Bachmann et al., 2019, 2025, 2013; Born et al., 2025; Buchheim et al., 2022; Enders et al., 2019).

average 8.1 times.

Panel B of Appendix Table A.1 shows summary statistics for the firms who completed our survey. 30% of the firms operate in manufacturing, 39% in service industries, and 9% in construction, and 22% are retailers or wholesalers. The median number of employees is 38 and the average share of exports in the firms' revenue is 17%. In wave 3, we asked respondents about their influence on the firm's decisions regarding investment, production, personnel, and price setting. 78% of managers report having "very high influence" in at least one of these areas. Moreover, the May 2023 IBS wave elicited the respondents' positions in their firm, which can be merged for 82% of our sample. Among these respondents, 51% identify as firm owners, 35% as managing directors, authorized signatories, or executive board members, and 7% as department heads. To maintain the sample size, missing values for the control variables are coded as zero, and dummies indicating missings are added to the regressions.[4]

2.3 Measuring what is top of mind

Measurement We think of "what is top of mind" as the set of topics that most readily come to people's minds at a given moment. We focus on which *economic* topics are top of mind, including aggregate issues such as inflation, economic growth, and monetary policy, as well as household- or firm-level issues such as the personal job situation or investment projects.

A key challenge is that the measurement itself should ideally not change what comes to mind. For example, it should not prime individuals on a specific topic—say, inflation—and thereby alter the topics occupying their minds. We address this challenge using an open-ended question format that allows participants to provide written responses, an approach increasingly common in economics (Haaland et al., 2025). To elicit which *economic* topics are top of mind, we use a prompt that places respondents in the mindset relevant for their economic decision-making without suggesting specific content:

> *What topics come to mind when you think about the economic situation of your household/company?*

Written responses to this question provide a snapshot of which topics are top of mind at the time of the survey. Depending on what occupies the respondent, we would expect them to write about aggregate economic developments or more household- or firm-specific issues.

Although our prompt may still influence what comes to mind, it is broad, relatively

[4]None of our findings are sensitive to excluding observations with missing values instead.

neutral, and avoids priming on specific macroeconomic or household-/firm-level topics. Compared to closed-ended formats, our open-ended elicitation does not influence or restrict participants' responses through the displayed response options. Overall, our open-ended elicitation minimizes concerns that the measurement itself changes the object of interest.

We classify a survey response as having a specific topic *top of mind* if the respondent mentions that topic in response to the open-ended question. While responses are coded as having or not having a given issue top of mind, these measures inevitably contain noise, e.g., due to differences in how respondents interpret the prompt or in how explicitly they articulate the issues that are currently top of mind (Haaland et al., 2025). For instance, respondents may mention only the issues that are most important to them, leaving other topics unreported. Thus, while our measure captures variation in the extent to which a topic is top of mind, it would be misleading to view it as capturing a binary distinction between full and zero consideration.

The surveys include additional questions, which we introduce when discussing the related exercises. Appendix F provides the original and translated instructions of key survey questions.

Coding scheme To analyze the unstructured text data, we devise a coding scheme that contains codes for a range of macroeconomic and household- or firm-level topics. Each response can receive multiple codes. Table 1 displays the main factors in our scheme along with example responses, while Appendix B.1 provides the complete list of codes for macroeconomic, household-level, and firm-level topics along with the explanations contained in our original coding manual. Our main codes of interest capture four macroeconomic topics: the Covid-19 pandemic, inflation, interest rates or monetary policy, and economic growth. In some of our analyses, we zoom in on energy costs and shortages, a subset of the issues subsumed under inflation. We also define variables that aggregate all macroeconomic or all household- or firm-level codes contained in our scheme ("Any macro topic", "Any household-level topic", and "Any firm-level topic", respectively).

We instruct research assistants to apply the coding scheme to the text responses. All coders are either Bachelor's or Master's students in economics. 87.5% of the open-text responses from the household survey and 98.0% of firm managers' responses can be assigned at least one code from our scheme. For a subset of the data (1,896 responses from waves 3 to 6 of the household survey and 1,540 responses from waves 1 to 5 of the firm survey), two research assistants code the responses independently of each other, and conflicts are resolved through discussion between the reviewers. We detect a high inter-rater reliability: when one coder assigns a given code to a household's response, there is a 78.6% chance that the other coder does so too. The corresponding number is

Table 1 Coding scheme and example responses for the open-ended data

Category	Explanation	Examples
Any macro	Covid-19, inflation, monetary policy, growth, labor market, stock market, housing market, fiscal policy, regulation, structural transformation, trade, pension system, health system, education system, inequality, migration, environment/climate change, uncertainty, other macro topics.	"Taxes"; "The labor market"; "Politics is increasingly burdening me through levies and taxes, and through regulations on the industry, which in the end also affect me again through rising consumer prices"; "The war in Ukraine and the inflation."; "Debt crisis, financial crisis, economic upswing."; "I am afraid of the effects of the war."; "Firstly, climate change and, as a result of it, the energy crisis, which of course is also extremely intensified due to the war in Ukraine. And of course, like everyone else, we are also affected by inflation."
Inflation	Inflation, rising prices, price level, price increase, purchasing power, energy prices (gas, gasoline, electricity etc.).	"Rising food prices"; "Difficult times and skyrocketing prices"; "Inflation rate and the monetary value of one's own savings"; "Currently the very high inflation rate"; "Price increase in food, higher energy costs, saving not possible"; "Electricity has become very expensive."
Inflation: Energy	Subset of category "inflation" that refers to energy prices (gas, gasoline, electricity etc.).	"Price increase in food, higher energy costs, saving not possible"; "Electricity has become very expensive."
Covid-19	Covid, corona, pandemic, lockdown.	"Due to Corona, I have been on short-time work for a year already. Therefore, my financial situation doesn't look too rosy. The government urgently needs to take action here."; "Tense due to Covid-19"; "Income has been halved since Corona"
Monetary policy	Interest rates, monetary policy, central bank, ECB, negative interest rate.	"Interest rates and investment"; "Low interest rates"; "No interest on assets, uncertainty in stock investment."; "Pension adjustments, interest rates, DAX."; "That credit interest rates are becoming increasingly expensive and prices are rising. Hopefully, there will be a salary increase soon."
Growth	Economic growth, GDP, general economic situation, aggregate economy, business cycle, upswing, downturn, insolvencies, company bankruptcies, aggregate demand, overall industrial production, economic crisis, recession.	"Recession, Economic Crisis"; "The faltering economy and rising inflation"; "One economic crisis after another is eroding my retirement savings, so that I will soon become a welfare case."; "The economic situation in Germany is stable, in my eyes."; "Economic crisis. High prices for food and energy."
Any household-level	Overall household situation, spending, income, job situation, saving, financial assets, housing costs, debt, health issues, insurance, uncertainty, other household-level topics.	"Concern about job loss in the future."; "We are doing well. No debt. A vacation is possible."; "Relatively secure, due to fixed income from pension"; "old-age poverty"; "I'm just barely making ends meet with my money."; "The economic situation is bad, with only one earner with a low pension among two adults."; "We are getting along well and don't have to cut back. In addition to everyday expenses, there is also enough money left over for vacation and leisure activities."
Any firm-level	Overall firm situation, costs, supply chain, demand, labor input, profits/profitability, liquidity/solvency, process organization, government aid programs, R&D, regulation, financing, short-time work, capacity utilization, rent/housing costs, uncertainty, other firm-level topics.	"Automation + process optimization"; "Sustainability, innovation, product life cycles"; "increasing material and energy costs, personnel costs, parts supply"; "Liquidity bottlenecks, difficult storage, dissatisfaction with the banks"; "How do I get specialized staff, especially mathematicians and computer scientists?"; "There is hardly any suitable skilled personnel, investment backlog and tough competition"; "Investment in digitization and expansion of our product portfolio."

Notes: This table provides an overview of the main topics in our coding scheme, an explanation for each code, and example extracts from open-text responses (translated to English). All example responses – except for the firm-level categories – draw on the household survey. For the codes "Inflation", "Inflation: Energy", "Covid-19", "Monetary policy", and "Growth", the explanations correspond to the instructions in the coding manual handed out to research assistants. For "Any macro", "Any household-level", and "Any firm-level", the explanations include all codes in the coding scheme that are subsumed under these aggregate categories. The complete coding scheme handed out to research assistants can be found in Appendix B.1.

79.9% for the firm survey. The inter-rater reliability increases to 88.4% for households and to 87.9% for firms when it is calculated based on the subset of topics that most of our analysis focuses on, namely Covid-19, inflation, monetary policy, and economic growth.

To further check the quality of the hand-coding, we conduct two additional exercises. First, Appendix Table A.2 shows for the case of inflation that our hand-coded data are strongly positively correlated with simple counts of inflation-related words, both in the pooled sample and within each wave. Second, we use a large language model to code a subset of the responses from the March 2023 household wave.[5] Appendix Figure A.3 compares the topic distribution between the hand-coded and the AI-coded data, while Appendix Table A.3 displays cross-sectional correlations between hand-coded and AI-coded measures for key topics. Both exercises demonstrate a high degree of agreement between the two methods. Overall, these patterns suggest that the hand-coded data capture the content of the open-ended responses well.

Validation To validate our open-ended measure of what is top of mind, we rely on two alternative closed-ended survey questions.

First, we apply a closed-ended survey question using the same wording as our open-ended question. We included this question in an additional data collection with German households. The survey was conducted in September 2023 on the platform Prolific, which is widely used in the social sciences (Peer et al., 2022). We use a different sample than our main sample to avoid contaminating responses to the open-ended question in future waves of our main panel. Of the 502 respondents who completed our survey, we drop 34 who do not pass a simple screening question.

Participants first respond to our main open-ended question. On the next screen, they are again asked which topics come to their mind when thinking about the economic situation of their household. However, instead of writing their response into a text box, they now select all relevant topics from a list presented to them, where the order of the topics is randomized. Compared to the open-ended elicitation, the structured elicitation mitigates the concern that respondents may be hesitant or unable to articulate their thoughts. At the same time, the structured elicitation mechanically changes what is top of respondents' minds by exposing respondents to the included response options. Appendix G provides the instructions in German and translated to English.

As shown in Appendix Figure A.4, the baseline fractions of respondents raising dif-

[5] We use Scikit-LLM's zero-shot multi-label classifier with GPT-4 as the underlying AI model (Pedregosa et al., 2011) and focus on a random subsample ($n = 200$) from the March 2023 wave. The codes are reformulated into whole sentences, as recommended by the Scikit-LLM guidelines, using exclusively information provided in the coding scheme handed to the research assistants who initially hand-coded the responses. The codes assigned by the multi-label classifier (by default, no more than ten per response) are then compared to the codes assigned in the hand-coding.

ferent aggregate and household-level topics are higher in the structured measure across all topics, which is a common finding when comparing structured and open-ended elicitations (see, e.g., Andre et al., 2022). This pattern may indicate a lower effort cost of indicating that a particular topic matters as well as mechanical increases driven by priming through the displayed response options. However, given these baseline differences, the variation across topics appears very similar in the two elicitation modes. In the cross-section, the open-ended measure is highly correlated with the structured measure for most of the key topics analyzed below (Appendix Table A.4).

Second, our notion of what is top of mind is tightly connected to agents' *perceived importance* of different topics. We therefore validate our open-ended measure with a closed-ended measure that directly elicits respondents' perceived importance of different topics for their own economic situation. These questions were included in several waves of our main household and firm panels. In particular, we present respondents with statements such as the following: *"Inflation in Germany is important for the economic situation of my household/firm."* The respondents indicate the extent to which they agree with the statement on five-point categorical scales ranging from "strongly disagree" to "strongly agree".

As shown in Appendix Table A.5, there is a strong positive cross-sectional correlation between perceived importance as measured in the closed-ended and what is top of mind as captured with our open-ended measure.

Repeated participation One measurement concern is that after the initial question on which economic topics are top of respondents' minds, each wave of our panel survey includes several questions on macroeconomic issues. Recontacted respondents may recall the survey topic and therefore express more thoughts about macroeconomic topics in the open-ended question. To check whether this is the case, we regress dummy variables indicating raising a given topic on a dummy variable indicating whether the response is from a recontacted participant, time fixed effects and individual fixed effects. As shown in Appendix Table A.6, repeated participation is not associated with a systematic increase in the tendency to write about aggregate topics such as inflation, neither among households nor among firms.

Summary Taken together, we use an open-ended survey question to measure which economic topics are top of mind. A parallel closed-ended measurement and a structured measure of perceived importance support the validity of this measure. While our focus lies on a macroeconomic context, the measure is broadly applicable to understanding what is top of people's minds. For example, it could be used in contexts such as consumer finance, political behavior and voting decisions, job search, interpersonal relationships, parenting choices, or long-term investments in human capital.

3 Conceptual framework

In this section, we briefly describe theories of goal-optimal and non-goal-optimal attention allocation.

Macroeconomic theories of limited attention, such as rational inattention, mostly model attention as goal-optimal (Gabaix, 2019; Maćkowiak and Wiederholt, 2015; Pfäuti, 2025a,b; Reis, 2006; Sims, 2003; Woodford, 2003). According to such theories, what is top of mind depends positively on the expected payoff impact of making decisions under attention compared to making decisions under inattention, i.e., the true payoff relevance of different topics. What is top of mind is thus goal-directed. Payoff relevance interacts with the volatility of the economic environment: higher uncertainty about a variable increases the likelihood that agents for which this variable is payoff-relevant have it top of mind.

If a particular variable is top of mind, agents acquire and process more information about that variable. Importantly, attention is allocated in a goal-optimal way. This means that agents allocate their information acquisition efficiently across different relevant variables. Moreover, acquired information is processed optimally, i.e., rationally and without any systematic biases. As a result, agents that have a topic top of mind form more accurate beliefs about related variables and make better decisions. In our setting, having inflation top of mind should move inflation expectations closer to ex-ante benchmarks.

According to theories of non–goal-optimal attention (e.g., Bordalo et al., 2025c; Hartzmark et al., 2021), what comes to mind can reflect the true payoff relevance of a topic but also additional influences unrelated to current payoffs—i.e., what is top of mind may not be fully goal-directed. For instance, prior experiences might shape the topics agents are concerned with. Research on associative memory suggests that these experience effects can vary with the environment (Kahana, 2012): when the present context more closely resembles the context in which an experience was made, that experience is more likely to be recalled, making the associated topic more likely to be top of mind (Bordalo et al., 2025d).

Similarly to goal-optimal attention, if a topic is top of mind, agents acquire more information about that topic. However, a variable being top of mind could lead agents to pay a suboptimally high attention to that variable. Moreover, agents do not necessarily process the additional information optimally (Bonaglia et al., 2025; Gennaioli et al., 2025). For instance, agents could overreact to information they attend to (Hartzmark et al., 2021), e.g., they may overweight more recent signals as in models of diagnostic expectations (Bordalo et al., 2018). As a result, a topic being top of mind does not necessarily move agents' beliefs closer to benchmarks and does not necessarily improve

Table 2 Predictions of different theories

	Goal-optimal attention	**Non-goal-optimal attention**
Determinants of what is top of mind	Payoff-relevance interacting with the volatility of the variable of interest.	Payoff-relevance but also other non-payoff-relevant determinants such as prior experiences (interacting with similarity to the decision context).
Top of mind and information acquisition and processing	A topic being top of mind optimally increases acquisition and processing of information.	A topic being top of mind increases information acquisition but not necessarily optimally; information not necessarily optimally processed.
Top of mind and beliefs	A variable being top of mind increases belief accuracy.	A variable being top of mind does not necessarily increase belief accuracy.

the quality of related economic decisions.

The predictions of theories of goal-optimal and non-goal-optimal attention are summarized in Table 2. In the next two sections, we test some of these predictions.

4 Determinants of what is top of mind

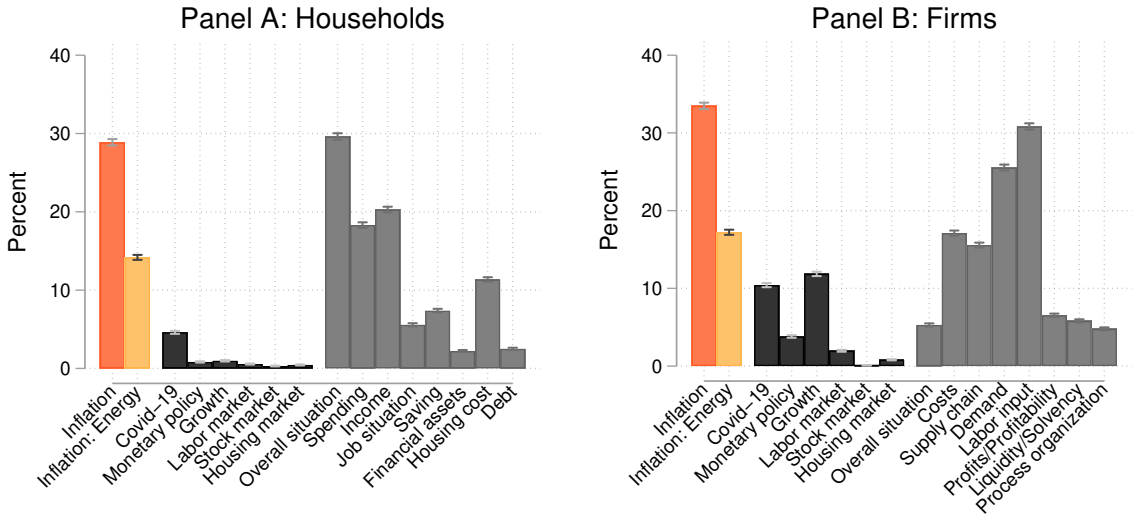
In this section, we examine the determinants of what is top of mind. We begin by documenting which topics occupy households' and firm managers' minds, and how these vary with the macroeconomic environment. We then show that both payoff relevance and prior experiences are important predictors of what is top of mind.

4.1 Variation across topics, types of agents and time

Variation across topics and types of agents We start by describing which topics are top of households' and firms' minds, pooling all our survey waves. 74% of households mention at least one household-level topic in the open-ended response, while 37% raise at least one macroeconomic topic. Panel A of Figure 1 shows that inflation is the macroeconomic topic that is most frequently mentioned by households (29%)—partly in the form of mentioning energy prices (14% of the overall sample)—followed by Covid-19 (5%). Only very few households have growth and monetary policy top of mind at 1% for each. Within household-level topics, the household's overall economic situation (30%), income (20%), consumption/spending (18%), and housing costs (11%) are most important.

Among firm managers, 82% raise at least one firm-specific topic. An almost similarly high fraction (64%) mention at least one macroeconomic topic. Panel B of Figure 1 shows that, within macro topics, firm managers mostly write about inflation (33%)—often in the context of energy prices (17% of the full sample)—followed by

Figure 1 What is top of mind across topics



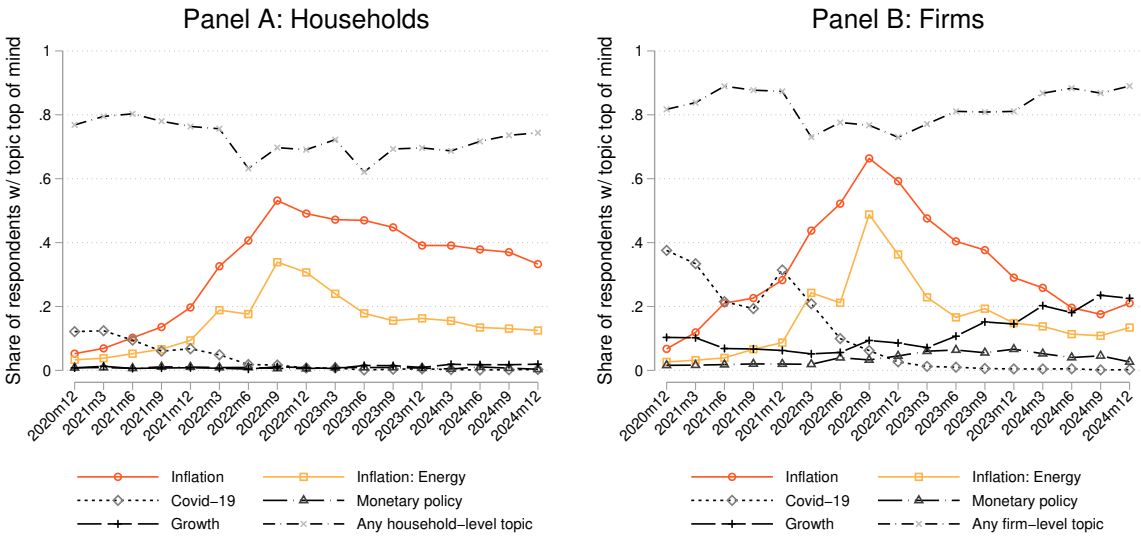
Notes: This figure presents the distribution of what is top of mind across different topics including inflation (orange), the subset of respondents with inflation top of mind that also mention energy prices (yellow), further macroeconomic topics (black), and household-/firm-level topics (gray) pooled across all waves from December 2020 to December 2024. The measure of what is top of mind is based on people's responses to our main open-ended question: *"What topics come to mind when you think about the economic situation of your company/household?"* Panel A shows results for households. Panel B displays results for firms.

growth (12%), Covid-19 (10%), and monetary policy (4%). The overall higher prevalence of macroeconomic topics among firms than among households is consistent with recent evidence on differences in information frictions across the two types of agents (Link et al., 2023). Within firm-specific topics, issues regarding labor input (31%) and demand for a firm's own product/service (26%) are the most frequently mentioned topics.[6]

Variation over time The time variation in what is top of mind largely mirrors the macroeconomic development in Germany as described in Appendix Figure A.1. According to Panel A of Figure 2, the fraction of households mentioning Covid-19 falls from around 12% in December 2020 to close to zero by June 2022, reflecting the end of the pandemic. In parallel, the share of households having inflation top of mind rises from 5% in December 2020 to 53% in September 2022—when inflation approached 10% following Russia's invasion of Ukraine in February 2022—and then declines only gradually during the subsequent period of falling inflation (2023) and inflation near the 2% target (2024), remaining at a still-elevated 33% by the end of 2024. Panel B of Figure 2 shows broadly similar patterns for firms: the share mentioning Covid-19 declines, while the fraction writing about inflation increases steadily from 7% in December 2020 to a peak of 66% in September 2022. It then falls to 21% by December 2024. The time

[6]Appendix E.1 provides an analysis of the joint distribution of what is top of mind across different topics.

Figure 2 What is top of mind over time



Notes: This figure displays the evolution of the fractions of respondents that raise different topics in the open-ended survey question among households (Panel A) and firms (Panel B) across survey waves. The "Any household-/firm-level topic" summarize all household-/firm-level topics included in the coding scheme that can be found in Appendix B.1. The remaining lines refer to specific macroeconomic topics, i.e., inflation, the subset of respondents with inflation top of mind that also mention energy prices, Covid-19, monetary policy, and growth.

variation in the importance of inflation partly reflects variation in the prominence of energy-related topics, both among firms and among households—consistent with energy prices being a major driver of the movements in inflation over the sample period. Remarkably, the ECB's sharp rate hikes—from 0% in mid-2022 to 4.5% in September 2023—were not accompanied by notable increases in monetary policy being top of households' or firms' minds. While only few households write about aggregate economic growth throughout the sample, firms begin to focus more on growth during 2023 and 2024, reflecting a widespread sense of disappointment over the post-pandemic failure to regain momentum and structural problems of the German economy.[7]

4.2 Payoff relevance, experiences, and what is top of mind

We next analyze potential drivers of what is top of mind—namely, observable proxies for actual payoff relevance and personal experiences.

Measures of payoff relevance A key challenge in selecting measures of the payoff relevance of macroeconomic topics is that the effect of different variables on payoff relevance is ex-ante ambiguous. For example, low income makes inflation hikes more painful for households if their nominal wages are sticky. At the same time, low-income

[7] Appendix E.2 provides a variance decomposition of what is top of households' and firms' minds into systematic time variation, persistent individual-level heterogeneity, and idiosyncratic variation over time.

households often exhibit hand-to-mouth behavior and do not act on their inflation expectations. Given that changes in energy costs were a major driver of inflation over our sample period, we use exposure to energy cost fluctuations as our measure of payoff relevance. For firms, this is measured as the ratio of energy costs to revenues in 2021, i.e., prior to Russia's invasion of Ukraine, as elicited in the regular IBS in April 2022. For households, we proxy payoff relevance using their primary heating energy source in December 2021—before the energy price surge— elicited retrospectively in June 2023. Our pre-determined exposure measure is a dummy variable taking value one for respondents with fossil sources (gas, oil, wood, distant heating), which experienced large cost increases over the course of the shock, and value zero otherwise.

Measures of experiences We consider two different types of experiences. First, we focus on the collective experience of having lived through the oil crises of the 1970s, when inflation reached historically high levels. In particular, we follow Binder and Makridis (2022) and construct a dummy variable for cohorts that were at least in (or close to) their teenage years by the late 1970s.[8] Second, we use survey measures of households' personal experiences, which also vary within cohorts. Specifically, in the March and June 2021 waves of the household survey, i.e., prior to the inflation surge, we elicited whether respondents ever incurred substantial real income drops or real wealth losses due to increases in inflation. These measures capture both across-cohort variation from differences in experienced aggregate inflation rates as well as within-cohort variation from (i) differential co-movement of one's income or wealth with inflation, (ii) differences in experienced household-level inflation rates, (iii) differential encoding or recall of inflation experiences, or (iv) inflation experiences that immigrants—a subset of our respondents—made in other countries. Similarly, we elicit whether a respondent ever incurred a negative income shock due to business cycle fluctuations.

Specifications Pooling data from all survey waves, we regress dummy variables indicating whether a particular topic is top of mind on energy exposure, measures of prior experiences, and a broad set of control variables. For households, we control for background characteristics such as gender, an indicator for being employed, household income (in logs), indicators for the highest educational degree attained by the respondent, indicators for homeowners and stockowners, the federal state of residence, and—when using the survey measures of households' personal experiences—the respondent's age. For firms, we include the number of employees (in logs), the export share, a dummy that is one if the respondent is the firm owner and the federal state of the firms' location. These controls should be understood as capturing fundamental aspects of the decision environment and actual payoff relevance of inflation in a flexible manner. Appendix

[8] Given differences in how age was elicited, we classify household respondents born in 1968 or earlier, and firm managers born in 1973 or earlier, as having experienced the oil crises.

Figure A.5 shows that the effects of payoff relevance and prior experiences on what is top of mind shown below are robust to a wide range of permutations of the set of included controls.

Results The results are presented in Table 3. Panel A shows that actual exposure to energy prices increases the likelihood that inflation and energy are top of mind, among both households (Columns 1 and 2) and firms (Columns 4 and 5). For instance, households using fossil heating are 7.6pp more likely to have inflation top of mind, compared to an overall fraction of 28% being concerned with inflation. This indicates that payoff relevance is linked to what is top of mind, consistent with a basic mechanism present in both goal-optimal and non–goal-optimal models.

We next turn to experience effects. Panel A focuses on specifications using the cohort-level experience measure. Experiences strongly predict what is top of mind—conditional on our rich set of controls for fundamental aspects of the decision environment and payoff relevance. The magnitudes of the effects of experiences for households are sizable: Households that lived through the oil crises are 6.5pp more likely to have inflation top of mind ($p < 0.01$, Column 1), driven mainly by energy-related topics ($p < 0.01$, Column 2). For firms, the role of prior experiences appears more specific: managers who lived through the oil crises are 2.5pp more likely to mention energy-related topics ($p < 0.01$, Column 5), while the effect on mentioning overall inflation is more muted (Column 4). Columns 3 and 6 show smaller and less significant effects of energy exposure and the oil crisis experience on households' and firms' inclination to write about economic growth.

Panel B focuses on the regressions using recalled past losses due to macroeconomic developments as a measure for prior experiences, which are available only for households. Since these experiences vary within cohorts, we now also control for the respondents' age on top of energy price exposure and the other previously used characteristics. Households that have ever incurred real income or wealth losses due to inflation are 5.7pp more likely to have inflation top of mind ($p < 0.01$, Column 1). Prior income losses due to recessions are also associated with inflation being top of mind ($p < 0.01$, Column 2), potentially reflecting the broader impact of "traumatic" experiences associated with aggregate economic conditions. That said, inflation-related losses have a stronger effect and remain more important in a horse race including both measures (Column 3). The likelihood of mentioning aggregate economic growth in the open-ended responses is significantly related to past losses from recessions ($p < 0.01$, Column 5), but unrelated to prior inflation experiences (Columns 4 and 6). Overall, these results suggest that *within-domain* experiences are most important in determining whether a particular topic comes to mind.

Table 3 Determinants of what is top of mind: Full period

	Households: ... top of mind			Firms: ... top of mind		
	(1)	(2)	(3)	(4)	(5)	(6)
	Inflation	Inflation: Energy	Growth	Inflation	Inflation: Energy	Growth
Panel A						
Experience: Oil crises	0.065***	0.056***	-0.003***	0.001	0.025***	-0.001
	(0.008)	(0.006)	(0.001)	(0.010)	(0.008)	(0.006)
Exposure: Fossil heating	0.076***	0.053***	0.002			
	(0.018)	(0.010)	(0.003)			
Exposure: High energy cost share				0.061***	0.090***	-0.007
				(0.008)	(0.007)	(0.005)
Observations	43,354	43,354	43,354	41,663	41,663	41,663
Distinct respondents	10,760	10,760	10,760	5,057	5,057	5,057
R-squared	0.14	0.08	0.00	0.14	0.13	0.04
Mean dep. var.	0.28	0.14	0.01	0.35	0.18	0.12
SD dep. var.	0.45	0.35	0.10	0.48	0.38	0.32
	Households: Inflation top of mind			Households: Growth top of mind		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B						
Experience: Inflation loss	0.057***		0.048***	0.002		0.000
	(0.008)		(0.009)	(0.001)		(0.001)
Experience: Recession loss		0.050***	0.039***		0.006***	0.005***
		(0.009)	(0.010)		(0.002)	(0.002)
Exposure: Fossil heating	0.069***	0.080***	0.072***	0.002	0.003	0.003
	(0.021)	(0.021)	(0.022)	(0.003)	(0.003)	(0.003)
Observations	30,470	30,380	28,184	30,470	30,380	28,184
Distinct respondents	5,755	5,737	4,982	5,755	5,737	4,982
R-squared	0.15	0.15	0.15	0.00	0.00	0.00
Mean dep. var.	0.27	0.27	0.27	0.01	0.01	0.01
SD dep. var.	0.44	0.45	0.45	0.10	0.10	0.09
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table displays regressions of having specific topics top of mind on measures of prior inflation experiences and payoff relevance for the entire sample period. In Panel A, the experience measure is an indicator for whether the respondent was at least a teenager during the oil crises of the 1970s as defined in Footnote 8. In Panel B, the experience measures are based on whether the respondent had ever experienced (i) a real income loss or a real wealth loss due to inflation in the past ("Inflation loss") or (ii) an income loss due to a recession ("Recession loss"), as elicited in the pre-shock period. For households, we proxy payoff relevance using a dummy that is one if the primary heating energy source was fossil in December 2021, and control for gender, employment, education, household income, homeownership and stockownership, federal state, and—in Panel B only—the respondent's age. For firms, high exposure indicates an above-median ratio of energy costs to revenues in 2021, and we control for firm size, export share, the respondent being the firm owner, and federal state. All specifications include survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

4.3 Context-dependent roles of payoff relevance and experiences

We next test whether the effects of payoff relevance and prior experiences on what is top of mind vary with the macroeconomic context.

Subperiod definitions Our sample period features large fluctuations in energy prices and inflation (Appendix Figure A.1). To study context-dependence, we define the following five subperiods of our quarterly panel dataset:

(1) **Pre-shock** (December 2020-June 2021): Inflation close to the 2% target or below, stable energy prices.

(2) **Inflation take-off** (September-December 2021): Inflation increasing from 2% to above 5%, increasing energy prices.

(3) **Post-invasion** (March-September 2022): Inflation increasing from 5% to 10% following Russia's invasion of Ukraine, skyrocketing energy prices.

(4) **Disinflation** (December 2022-September 2023): Inflation high but decreasing from 10% to 4%, partial reversal of energy prices.

(5) **Inflation at target** (December 2023-December 2024): Inflation close to the 2% target, stable but elevated energy prices.

Predictions Theories of goal-optimal attention predict that payoff relevance positively interacts with the volatility of the variable of interest in shaping whether a variable is top of mind (Maćkowiak et al., 2023). Accordingly, we would expect the effect of energy exposure on energy and inflation being top of mind to rise from the first to the third period, with a possible continued impact during the fourth and fifth periods, in which energy prices remained elevated.

Theories in which attention is shaped by memory and experiences—potentially leading to non–goal-optimality—predict that greater similarity between the current context and a past experience in the memory database increases the likelihood that the corresponding topic comes to mind (Bordalo et al., 2025d; Kahana, 2012). We therefore expect the oil crises experience to have an increasing effect on the respondents' tendency to write about energy and inflation as the environment becomes more similar to the 1970s. Prior real income losses due to inflation are expected to have an increasing and later diminishing effect on inflation being top of mind, reflecting the movement of overall inflation.

Specifications For each of the above five subperiods, we regress a dummy variable for whether inflation or a dummy variable for whether energy is top of mind on one of our experience measures, energy exposure, and the same set of controls as used in Table 3. Figure 3 plots the estimated coefficients on energy exposure and on the

experience measure for the different subperiods. Each panel displays the results of one estimation. Appendix Table A.7 highlights that the patterns displayed in Figure 3 are robust to including fixed effects at the level of individuals or firms, respectively.

Results Actual exposure to energy price fluctuations has stronger effects on households' (Figure 3, Panels A and B) and firms' (Panels C and D) tendency to have inflation and energy top of mind during periods of elevated and volatile energy prices, consistent with predictions of goal-optimal models.

Turning to the role of experiences, individuals who lived through the oil crises are already 3.6 pp ($p < 0.01$) more likely to have inflation top of mind in the pre-shock period (Panel A). The correlation increases to 6.6 pp ($p < 0.01$) when the inflation shock hits in mid-2021, increases further to 8.6 pp ($p < 0.01$) following Russia's invasion of Ukraine, and remains at an elevated level of 7.9 pp ($p < 0.1$) in the period of decreasing inflation. The effect remains positive and significant in 2024, where inflation was close to target (4.7 pp, $p < 0.01$). Panel B displays similar time-varying effects of having lived through the oil crises on whether households have energy-related topics on their mind. Panels C and D display qualitatively similar results for firms, even though the effects on having inflation top of mind are less pronounced and noisier than the effects for energy-related topics. Thus, consistent with the results shown in Table 3, experiences appear to have more nuanced effects among firm managers. Lastly, Panel E shows that past experiences of real income or wealth losses due to inflation have stronger effects on whether households' minds are occupied with inflation when the environment is more inflationary. The state-dependent effects of experiences are in line with the prediction of associative memory that what is top of mind is jointly shaped by the context and agents' experiences depending on the degree of similarity.

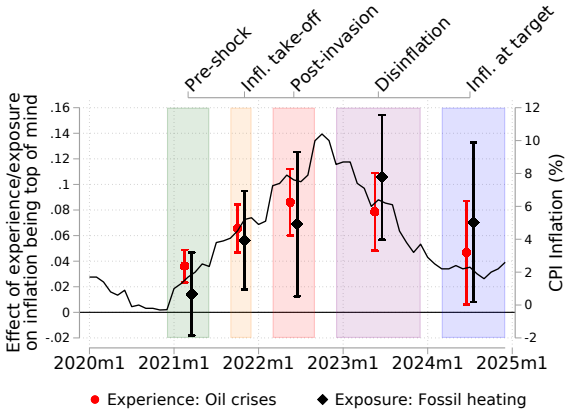
Taken together, both actual payoff relevance and prior experiences appear to shape what is top of mind in a time-varying fashion, depending on the volatility of the variable of interest and the similarity of the context to experiences in the memory database.

5 Consequences of what is top of mind

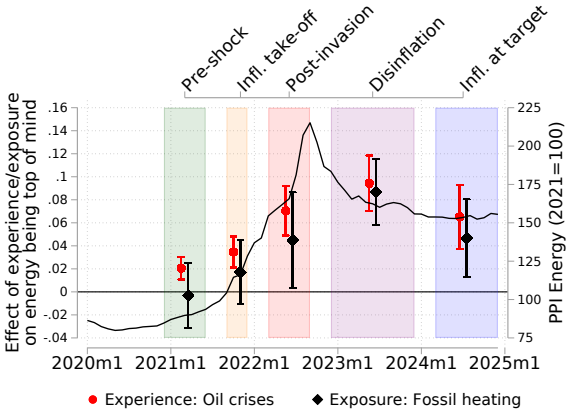
We study how *inflation being top of mind*—measured from the open-ended responses—is linked to information acquisition and inflation expectations. For both domains, we first report correlations from the pre-shock period and then estimate within-person responses to the shock. To test theories of goal-optimal attention, we then assess how inflation being top of mind is associated with the degree to which inflation expectations align with various ex-ante benchmarks. To better understand mechanisms, we then study how distinct drivers of inflation being top of mind—payoff relevance and prior experiences—are associated with updating of expectations, and explore how inflation

Figure 3 Determinants of what is top of mind: Context-dependence

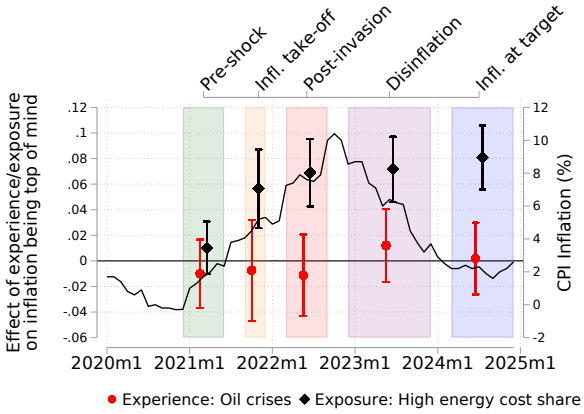
Panel A: Households: Inflation top of mind



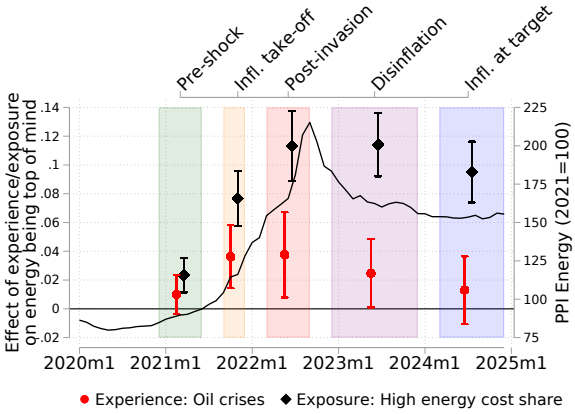
Panel B: Households: Energy top of mind



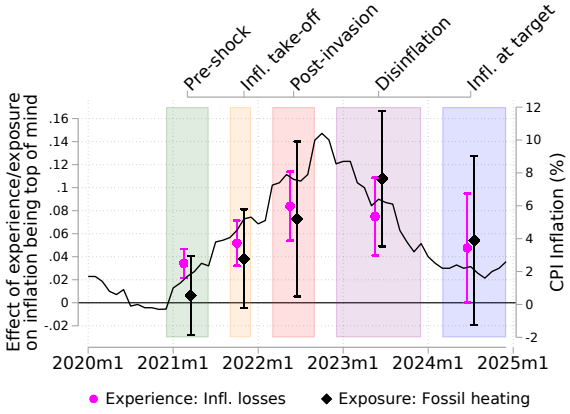
Panel C: Firms: Inflation top of mind



Panel D: Firms: Energy top of mind



Panel E: Households: Inflation top of mind



Notes: This figure shows how the effects of payoff relevance and prior experiences on what is top of mind vary with the macroeconomic context. Specifically, we run the same regressions as in Table 3 separately for each of the five shaded subperiods. In Panels A, C, and E, the dependent variable is a dummy variable for whether inflation is top of mind. Panels B and D refer to energy top of mind. Payoff relevance and experience measures are defined as in Table 3, while Panels A–D use the measure of having lived through the oil crises, and Panel E the measure of past experiences of real income or wealth losses. Confidence bands are based on standard errors clustered at the household/firm level and refer to the 95%-level. The solid lines depicted on the right-hand axis display the CPI inflation rate or the energy component of the producer price index (2021=100) in Germany, respectively.

being top of mind is reflected in the reasoning underlying expectations. Finally, we examine how having inflation top of mind shapes behavioral responses to the shock.[9]

5.1 Information acquisition

We start by examining whether *inflation being top of mind* is positively associated with the *acquisition of inflation-related information*—as predicted by both goal-optimal and non-goal-optimal theories of attention.

Measures of information acquisition Our main measure of information acquisition is based on a survey question asking households and firm managers how often they informed themselves about inflation in the last three months. This measure is available from December 2020 until March 2023. In some of our waves, we additionally ask the respondents to estimate the number of reports on inflation they have read in the news, seen on TV, or heard on the radio over the past three months, or elicit the number of minutes a household or firm manager has spent consuming news about inflation in the past week. Appendix Figure A.6 shows that these alternative measures are strongly correlated with our main measure of information acquisition, supporting its validity.

Pre-shock correlations We start by analyzing correlations between whether inflation is top of mind and information acquisition during the pre-shock period from December 2020 to June 2021, when inflation was still close to the target. In pooled regressions with wave fixed effects and our rich baseline set of controls (demographics, sector, region), inflation being top of mind is associated with a one-third of a standard deviation increase in acquisition of inflation-related information among households ($p < 0.01$, Table 4, Panel A, Column 1) and a 0.22 standard deviation increase among firms ($p < 0.01$, Column 4). These correlations are only suggestive due to the potential confounding effects of unobserved individual heterogeneity and reverse causality. We next turn to more demanding specifications.

Response to the shock: Specification The effect of inflation being top of mind on information acquisition could vary with the environment. Specifically, in inflationary environments, with a larger supply of inflation-related news, having inflation top of mind could be more strongly associated with information acquisition. To test this idea, we estimate the following quarterly panel specification over the whole period for which

[9] We focus on inflation (i) because the major shift in the macroeconomic environment during our sample period concerns inflation and (ii) because there is strong cross-sectional and time variation in inflation being top of mind.

our information acquisition measure is available (December 2020-March 2023):

$$I_{it} = \alpha_i + \gamma_t + \sum_{p=2}^{4} \beta_p \big[\text{TOM}^{\pi}_{it} \cdot \mathbf{1}(t \in p)\big] + \sum_{p=2}^{4} \delta_p \big[X'_{it} \cdot \mathbf{1}(t \in p)\big] + \varepsilon_{it}, \tag{1}$$

where I_{it} captures inflation-related information acquisition, α_i is an individual fixed effect absorbing time-invariant, respondent-specific influences, γ_t are survey wave fixed effects, TOM^{π}_{it} indicates that inflation is top of mind for respondent i in wave t, and p indexes the three shock phases in the period for which the information acquisition measure is available (as defined in Section 4.3: take-off, post-invasion, disinflation). The coefficients β_p capture how having inflation top of mind *differentially* affects information acquisition in shock period p compared to the pre-shock period. The inclusion of controls interacted with dummy variables for the shock periods, $X'_{it} \cdot \mathbf{1}(t \in p)$, accounts for period-specific influences of characteristics such as gender, age, education, income, and employment status for households, and firm size and export exposure for firms, respectively.

Response to the shock: Addressing reverse causality Acquiring more inflation-related information could make it more likely that inflation is top of mind. To address this issue, we estimate versions of specification (1) in which we instrument the contemporaneous top-of-mind indicator for inflation with a lagged value. Specifically, we rely on the division of our quarterly dataset into the pre-shock, inflation take-off, post-invasion, and disinflation subperiod. For each observation, we calculate the average of the top-of-mind indicator over the previous subperiod. We then interact this average with a dummy for the current subperiod, and use the resulting variable as an instrument for $\text{TOM}^{\pi}_{it} \cdot \mathbf{1}(t \in p)$. For instance, for observations from the post-invasion period (March-September 2022), the top-of-mind indicator is instrumented with its average value in the inflation take-off period (September-December 2021).[10]

The identifying assumption is that, conditional on respondent and survey-wave fixed effects and the included controls, inflation being top of mind in the preceding subperiod is correlated with inflation being top of mind during the current subperiod (relevance) but uncorrelated with contemporaneous innovations to information acquisition (exogeneity). There is a strong individual fixed effect in inflation being top of mind (see Appendix E.2), supporting the relevance assumption. The fact that the different subperiods correspond to different inflation regimes and start when signals about inflation change (inflation taking off, the Russian invasion, inflation peaking, inflation for the first time being back to target) supports the exogeneity assumption.

[10]When the respondent did not participate in any of the waves during the previous subperiod, we use the average value of the top-of-mind indicator from the most recent available subperiod.

Table 4 Inflation being top of mind and information acquisition

	Households: Info. acquisition (z)			Firms: Info. acquisition (z)		
	(1) OLS	(2) OLS	(3) IV	(4) OLS	(5) OLS	(6) IV
Panel A: Pre-shock period						
Inflation top of mind	0.354***			0.215***		
	(0.038)			(0.033)		
Panel B: Response to the shock						
Inflation top of mind						
× 1(Inflation take-off)		0.202***	0.045		0.169***	0.313**
		(0.022)	(0.197)		(0.022)	(0.146)
× 1(Post invasion)		0.206***	0.123		0.076***	0.167
		(0.019)	(0.211)		(0.017)	(0.216)
× 1(Disinflation)		0.268***	0.245		0.109***	0.283
		(0.024)	(0.206)		(0.022)	(0.224)
Standard controls	yes			yes		
Standard controls interacted with periods		yes	yes		yes	yes
Time FE	yes	yes	yes	yes	yes	yes
Firm/Individual FE		yes	yes		yes	yes
Observations	8,657	25,269	25,269	7,423	22,547	22,547
Distinct respondents	5,311	5,311	5,311	3,489	3,489	3,489
R-squared	0.08	0.70	0.24	0.06	0.69	0.46
First-Stage SW F-Statistic (Period 1)			47.42			77.19
First-Stage SW F-Statistic (Period 2)			48.07			67.15
First-Stage SW F-Statistic (Period 3)			51.41			68.06

Notes: This table displays regressions of households' and firms' information acquisition about inflation in the last three months (z-scored) on a dummy for whether inflation is top of mind. Panel A displays cross-sectional correlations for the pre-shock period and controls for the individual's gender, age, employment, education, income, homeownership and stockownership, and federal state for households, as well as for firm size, export share, the respondent being the firm owner, and federal state for firms. Panel B estimates how inflation being top of mind is *differentially* associated with information acquisition in shock period p compared to the pre-shock period by interacting inflation top of mind with indicators for each p and including fixed effects at the individual/firm level, as specified in Equation (1). In addition, all controls are interacted with dummy variables for the shock periods. Columns (2) and (5) apply OLS, while in Columns (3) and (6) the contemporaneous top-of-mind indicator for inflation is instrumented with the average of the top-of-mind indicator over the previous subperiod. The sample is restricted to between December 2020 and March 2023, i.e., the period for which the measure for information acquisition is available. Sanderson–Windmeijer F-statistics are displayed for each endogenous explanatory variable in the bottom panel. All specifications include survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Response to the shock: Results The results are displayed in Panel B of Table 4. Inflation being top of mind is more strongly associated with information acquisition during the shock period than during the pre-shock period according to the OLS estimates, for both households (Column 2) and firms (Column 5). For example, the effect of having inflation top of mind on households' information acquisition is 0.21 standard deviations stronger ($p < 0.01$) in the post-invasion period than in the pre-shock period. The IV estimates displayed in Columns 3 and 6 are also positive and, for firms, larger than the OLS

estimates, consistent with measurement error in TOM_{it}^{π} attenuating the OLS estimates. That said, standard errors increase by an order of magnitude in the IV estimations, such that the estimates mostly miss conventional levels of statistical significance. The Sanderson–Windmeijer F-statistics, tailored for the multiple-endogenous-explanatory-variables setting, range between 47 and 77, well above conventional weak-instrument thresholds, suggesting that the IV estimates do not reflect a weak first stage. We view the qualitative consistency between OLS and IV results as reassuring regarding concerns about reverse causality.

Taken together, the results reported in this section indicate that households and firms that have inflation top of mind permanently acquire more inflation-related information. This gap somewhat widens once the environment becomes more inflationary.

5.2 Beliefs

Having established that inflation being top of mind is associated with acquiring more information about inflation, we next examine whether this translates into systematic differences in belief updating in response to new inflation signals.

Belief data In each survey wave, we elicit respondents' expectations about the inflation rate over the next 12 months. We winsorize inflation expectations at 30% to reduce the impact of outliers. Our data contain no negative outliers for expected inflation, so we do not winsorize inflation expectations at the bottom of the distribution. None of our findings are sensitive to the exact choice of the cutoff or to whether we set to missing extreme observations instead. Median inflation expectations in our firm and household samples closely track median inflation expectations from representative firm and household surveys conducted by the Bundesbank (Appendix Figure A.7), suggesting that our expectations data are of high quality.

Pre-shock correlations In the pre-shock period, households with inflation top of mind expect somewhat higher inflation conditional on our extensive baseline set of controls, though the effect does not reach statistical significance (0.23pp, $p = 0.35$, Table 5, Panel A, Column 1). Inflation being top of mind significantly increases firm managers' expectations by 0.20pp ($p < 0.01$, Column 4). These patterns illustrate that respondents occupied with inflation start off with somewhat higher expectations *before* the arrival of inflationary signals. As in the previous section, these correlations may reflect unobserved heterogeneity or reverse causality. However, they facilitate the interpretation of differences in updating of expectations in response to the shock, which we turn to next.

Response to the shock: Specification To understand how being concerned with inflation shapes how individuals update their expectations in response to new inflationary signals—which individuals with inflation top of mind are more likely to take note

of (see Section 5.1 and Table 4)—we estimate similar fixed-effect panel regressions as for information acquisition in the last subsection, this time focusing on the full sample period:

$$Exp_{it}^{\pi} = \alpha_i + \gamma_t + \sum_{p=2}^{5} \beta_p \big[\text{TOM}_{it}^{\pi} \cdot \mathbf{1}(t \in p)\big] + \sum_{p=2}^{5} \delta_p \big[X_{it}' \cdot \mathbf{1}(t \in p)\big] + \varepsilon_{it}, \tag{2}$$

where Exp_{it}^{π} denotes respondent i's period-t expectation about 12-month-ahead inflation. The coefficients β_p indicate how the effect of having inflation top of mind on inflation expectations changes from the pre-shock period to shock period p (inflation take-off, post-invasion, disinflation, inflation at target)—i.e., how respondents with inflation top of mind differentially change their inflation expectations in the respective window. One potential concern is that changes in inflation expectations due to new inflationary signals could affect the tendency to have inflation top of mind. For example, expecting high inflation could make individuals more concerned about inflation. As in Section 5.1, we address such potential reverse causality by estimating additional IV specifications that instrument the current value of the top-of-mind indicator with its average value in the preceding subperiod. These specifications only exploit the component of top-of-mind variation that is persistent across subperiods within individual—and hence plausibly orthogonal to unexpected new inflation signals in the current subperiod.

Response to the shock: Results Panel B of Table 5 shows that both households (Column 2) and firms (Column 5) that have inflation top of mind increase their inflation expectations more strongly in response to the shock according to our OLS estimates. This is consistent with them being more likely to take note of the new inflationary signals in the economy. The effects appear strongest in the post-invasion period, but are also present for the disinflationary period and the inflation take-off. For instance, households with inflation top of mind exhibit a 0.68pp stronger increase in inflation expectations from pre-shock to post-invasion period compared to their counterparts occupied with other topics ($p < 0.01$). For comparison, being female or having below high school education—key determinants of inflation expectations according to previous literature (Armantier et al., 2016)—are associated with having 1.5pp and 1.1pp higher inflation expectations in our data, respectively. IV estimations yield even larger coefficient estimates for both households and firms. Again, standard errors increase by an order of magnitude compared to the OLS estimates. For firms, the IV estimates remain largely statistically significant, while for households they do not. We view these patterns as reassuring with respect to concerns about reverse causality. The Sanderson-Windmeijer F-statistics range between 46 and 72, suggesting that there are no concerns regarding the strength of the first-stage estimations. Overall, despite already entering the shock period with higher expectations, agents that have inflation top of mind increase their

Table 5 Inflation being top of mind and inflation expectations

	Households: Expected inflation (%)			Firms: Expected inflation (%)		
	(1) OLS	(2) OLS	(3) IV	(4) OLS	(5) OLS	(6) IV
Panel A: Pre-shock period						
Inflation top of mind	0.227			0.196***		
	(0.240)			(0.075)		
Panel B: Response to the shock						
Inflation top of mind						
× 1(Inflation take-off)		0.152	0.743		0.177***	1.142***
		(0.120)	(1.231)		(0.063)	(0.440)
× 1(Post invasion)		0.680***	2.084		0.241***	1.649**
		(0.113)	(1.368)		(0.062)	(0.714)
× 1(Disinflation)		0.317***	1.961		0.117***	1.221*
		(0.105)	(1.316)		(0.043)	(0.713)
× 1(Inflation at target)		0.208	1.316		-0.093*	1.008
		(0.148)	(1.301)		(0.051)	(0.875)
Standard controls	yes			yes		
Standard controls interacted with periods		yes	yes		yes	yes
Time FE	yes	yes	yes	yes	yes	yes
Firm/Individual FE		yes	yes		yes	yes
Observations	8,669	31,368	31,368	7,470	34,227	34,227
Distinct respondents	5,323	5,323	5,323	3,551	3,551	3,551
R-squared	0.11	0.63	0.21	0.08	0.71	0.60
First-Stage SW F-Statistic (Period 1)			45.93			71.81
First-Stage SW F-Statistic (Period 2)			47.27			64.61
First-Stage SW F-Statistic (Period 3)			48.71			64.75
First-Stage SW F-Statistic (Period 4)			52.37			63.90

Notes: This table displays regressions of households' and firms' expected inflation for the next 12 months on a dummy for whether inflation is top of mind. Panel A displays cross-sectional correlations for the pre-shock period and controls for the individual's gender, age, employment, education, income, home-ownership and stockownership, and federal state for households, as well as for firm size, export share, the respondent being the firm owner, and federal state for firms. Panel B estimates how inflation being top of mind is *differentially* associated with inflation expectations in shock period p compared to the pre-shock period by interacting inflation top of mind with indicators for each p and including fixed effects at the individual/firm level, as specified in Equation (2). Further, all controls are interacted with indicators for the shock periods. Columns (2) and (5) apply OLS, while in Columns (3) and (6) the contemporaneous top-of-mind indicator for inflation is instrumented with the average of the top-of-mind indicator over the previous subperiod. Sanderson–Windmeijer F-statistics are displayed for each endogenous explanatory variable in the bottom panel. All specifications include survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

inflation expectations more strongly in response to the shock.[11]

[11] In Appendix E.3 we study how having inflation top of mind affects respondents' confidence in their inflation expectations. Appendix E.4 describes how belief disagreement is linked to whether inflation is top of mind.

5.3 Deviations from benchmarks

Goal-optimal attention implies that having inflation top of mind leads agents to form more accurate beliefs about inflation. Does the stronger increase of inflation expectations in response to the shock among those concerned with inflation—who increase their information acquisition more strongly—reflect a shift towards more well-calibrated forecasts?

Benchmarks To examine this, we focus on several *ex-ante* benchmarks. This allows us to assess whether having inflation top of mind moves beliefs closer to the *best possible forecast given the information available at the time*. Ex-post forecast errors constructed from the subsequent realizations of inflation are not suited as a benchmark, as our short sample period is characterized by extreme draws from the distribution of potential inflation outcomes that likely had a low probability from an ex-ante perspective.[12]

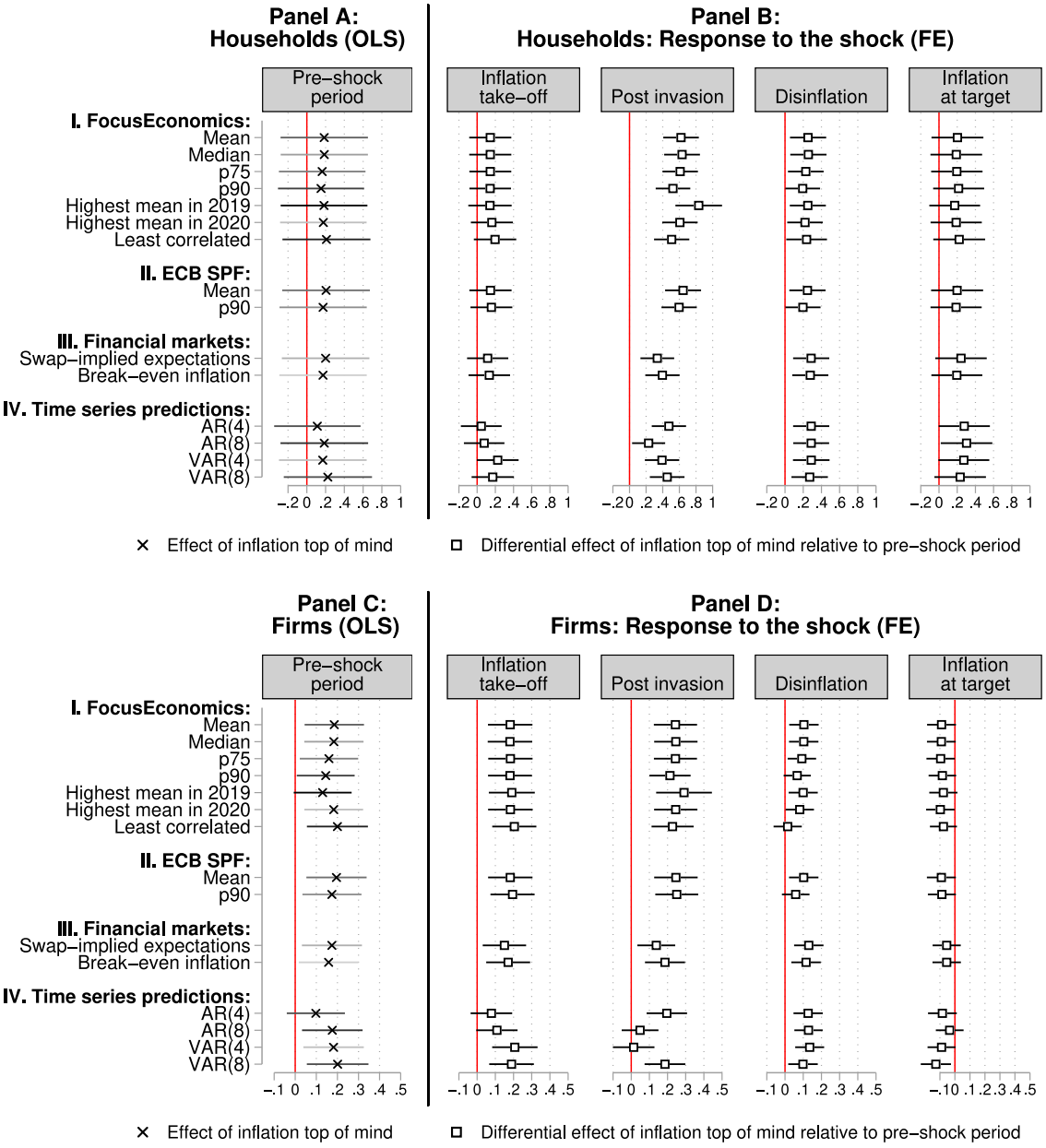
We employ three broad classes of ex-ante benchmarks. First, we use the canonical "full-attention" proxy in the literature—professional forecasts—drawn from FocusEconomics (for Germany) and from the ECB Survey of Professional Forecasters (for the euro area).[13] Although professional forecasts themselves may be biased, they are typically much less dispersed than household or firm expectations (Andre et al., 2022; Candia et al., 2024) and exhibit much smaller average forecast errors over long sample periods (Carroll, 2003). One concern is that professional forecasters have incentives to "herd" and to stick to wrong models of the economy for too long (Farmer et al., 2024; Ottaviani and Sørensen, 2006). Therefore—in addition to the average professional forecast—we employ subsets of forecasts, such as the most pessimistic forecast and the prediction of the forecaster least correlated with the average professional forecast before our sample period. Second, we rely on financial market-implied expectations constructed from inflation swaps and from breakeven inflation, which is measured as the spread between nominal and real zero-coupon yields from nominal and inflation-indexed bonds. These benchmarks reflect expectations of the marginal investor—large institutional investors with strong incentives to gather and optimally process information. Third, we construct our own benchmarks from time series models, specifically AR and VAR models, estimated in a pseudo-real-time expanding-window fashion, mimicking the information available in each period. For both the AR and the VAR models, we consider four and eight lags. Appendix D provides additional background and details on the different benchmarks.

Our analysis focuses on the *absolute deviation* of a respondent's inflation expectation

[12] For instance, benchmarks derived from ex-post forecast errors would imply that individuals who are permanently extremely pessimistic about inflation are the most well-calibrated during some episodes of our study period.

[13] Given the weight of the German economy in the euro area and the synchronization of business cycles, euro area inflation forecasts typically closely co-move with forecasts for inflation in Germany.

Figure 4 Inflation being top of mind and deviations of inflation expectations from benchmarks



Notes: This figure displays the relationship between inflation being top of mind and absolute deviations of inflation expectations from different ex-ante benchmarks based on the same empirical specifications as used in Table 5. Panels A and C display estimates of the cross-sectional relationships in the pre-shock period conditional on our standard sets of controls. Panels B and D display fixed effects estimates based on equation (2), which identify the differential association of inflation expectations with inflation being top of mind in a given shock period compared to the pre-shock period. Each row of estimates refers to regressions in which the dependent variable denotes the absolute deviation of inflation expectations from a specific ex-ante benchmark: Groups I and II draw on different moments in the micro data of professional forecasts on inflation from FocusEconomics and the European Central Bank's SPF, respectively. Group III relies on financial market-implied expectations constructed from inflation swaps and from break-even inflation measured as the spread between nominal and real zero-coupon yields from nominal and inflation-indexed bonds. Group IV uses benchmarks from time series models. Appendix D provides additional background and details on the different benchmarks. Confidence bands are based on standard errors clustered at the household/firm level and refer to the 95%-level.

from a given benchmark. This ensures that we fully capture whether a respondent is more closely aligned with the benchmark, without allowing over- and under-predictions to cancel each other out.

Results Figure 4 displays the relationship between inflation being top of mind and absolute deviations of inflation expectations from different ex-ante benchmarks. Column 1 displays estimates of the cross-sectional relationship in the base period conditional on our standard sets of controls. To illustrate how the relationship changes over the shock period relative to the base period, Columns 2–5 display fixed effects estimates from estimating Equation (2) using deviations from benchmarks as the outcome variable.

In the pre-shock period, inflation being top of mind is already associated with *larger* absolute deviations from benchmarks—significantly so among firms and more noisily among households (Column 1). These patterns are already at odds with goal-optimality, which would predict *smaller* deviations from benchmarks among those concerned with inflation. For both households and firms, this relationship strengthens significantly in response to the shock. That is, the stronger increases in inflation expectations among those with inflation top of mind are mirrored by stronger increases in the extent to which forecasts deviate from the different ex-ante benchmarks (Columns 2–4). Thus, despite acquiring more information at baseline and increasing their information acquisition more strongly in response to the shock, those with inflation top of mind become *less* well-calibrated in their forecasts. The consistency across a wide set of benchmarks suggests that these findings are not driven by shortcomings of any particular benchmark—but instead reflect a deviation from goal-optimal attention. When inflation is back at the target in 2024, the relationship becomes somewhat weaker than in the pre-shock period for firms, while it remains (insignificantly) stronger for households (Column 5). Appendix Figures A.9 and A.10 highlight that the above patterns are fully driven by upward deviations from benchmarks, i.e., having inflation top of mind appears to be associated with an overshooting of beliefs in response to the shock.[14]

5.4 Different sources of inflation being top of mind and beliefs

In Section 4, we document the importance of two distinct determinants of inflation being top of mind: *payoff relevance*, proxied by pre-shock energy exposure, and *prior inflation experiences*, captured by belonging to oil-crises cohorts and pre-shock self-reported losses from inflation. Both of these drivers are associated with stronger increases in having inflation top of mind in response to the shock. We now use these two sources of variation to examine whether the source of having inflation top of mind matters for

[14]Appendix Figure A.8 provides a visual confirmation of these patterns. It plots differences in inflation expectations between respondents with and without inflation top of mind at baseline, shows how each group updates in response to the shock, and contrasts these patterns with several ex-ante benchmarks.

the formation of expectations. Specifically, we study how payoff relevance and prior experiences shape (i) the updating of inflation expectations in response to the shock and (ii) changes in the extent to which expectations deviate from ex-ante benchmarks.

Specification We extend the panel specification (2) from Section 5.2 by replacing the top-of-mind measure with the pre-determined shifters themselves—both the exposure measure and the experience measure—and interacting these shifters with the four shock phases defined in Section 4.3:

$$(3)\quad Y_{it} = \alpha_i + \gamma_t + \sum_{p=2}^{5} \beta_p \big[\text{EXPOSURE}_i \cdot \mathbf{1}(t \in p)\big] + \sum_{p=2}^{5} \gamma_p \big[\text{EXPERIENCE}_i \cdot \mathbf{1}(t \in p)\big] + \sum_{p=2}^{5} \delta_p \big[X'_{it} \cdot \mathbf{1}(t \in p)\big] + \varepsilon_{it},$$

where Y_{it} denotes either expected inflation over the next 12 months or the absolute deviation of this expectation from an ex-ante benchmark based on professional forecasts, financial market expectations, or a time series prediction. EXPOSURE_i is the proxy for actual payoff relevance of inflation, and EXPERIENCE_i is the measure of prior inflation experiences. We interact these measures with dummy variables for the four subperiods of the shock (take-off, post-invasion, disinflation, inflation at target). The coefficients β_p and γ_p thus capture how payoff relevance and experience differentially shape the outcome in period p compared to the pre-shock period. The individual or firm fixed effects, α_i, absorb time-invariant differences across respondents, while the survey-wave fixed effects γ_t control for the common impact of aggregate conditions. We include the same controls as in our previous estimations of the effect of having inflation top of mind on information acquisition or inflation expectations, and again interact these controls with fixed effects for the different subperiods of the shock. We thus again control for time-varying effects of respondent characteristics. For our experience measure based on past losses—which varies within cohorts—this includes time-varying effects of age.

Our specification captures how two important pre-determined determinants of having inflation top of mind are associated with the updating of inflation expectations in response to the shock. While these effects plausibly operate through inflation being top of mind, it is worth keeping in mind that these variables may also influence expectation responses through alternative channels, e.g., heterogeneous processing frictions.

Payoff relevance The results are shown in Table 6. We first examine heterogeneity by actual payoff relevance of inflation. Households using fossil heating and firms with energy-intensive production—who display a larger increase in inflation being top of mind over the shock period (see Figure 3)—increase their inflation expectations more strongly when inflation increases (Columns 1 and 5). These stronger increases move

Table 6 Different sources of inflation being top of mind and inflation expectations

	Households				Firms			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Expected inflation next 12 months	Abs. dev. from mean professional forecast (FocusEconomics)	Abs. dev. from swap-implied expect-ations	Abs. dev. from AR(4) prediction	Expected inflation next 12 months	Abs. dev. from mean professional forecast (FocusEconomics)	Abs. dev. from swap-implied expect-ations	Abs. dev. from AR(4) prediction
Experience: Oil crises								
× 1(Inflation take-off)	0.647***	0.627***	0.565***	0.482***	0.044	0.049	0.060	0.085
	(0.142)	(0.140)	(0.139)	(0.137)	(0.084)	(0.080)	(0.078)	(0.074)
× 1(Post invasion)	1.050***	0.941***	0.655***	0.754***	0.082	0.094	0.091	0.098
	(0.174)	(0.169)	(0.162)	(0.164)	(0.108)	(0.105)	(0.091)	(0.096)
× 1(Disinflation)	0.895***	0.795***	0.803***	0.809***	0.177**	0.153*	0.165**	0.169**
	(0.191)	(0.186)	(0.186)	(0.185)	(0.086)	(0.079)	(0.080)	(0.078)
× 1(Inflation at target)	0.405**	0.369*	0.397**	0.410**	0.015	-0.003	0.000	0.036
	(0.200)	(0.196)	(0.195)	(0.194)	(0.076)	(0.069)	(0.070)	(0.069)
Actual relevance								
× 1(Inflation take-off)	0.725*	0.737**	0.744**	0.710**	0.115	0.148**	0.099	0.060
	(0.378)	(0.367)	(0.363)	(0.357)	(0.072)	(0.070)	(0.068)	(0.065)
× 1(Post invasion)	1.067**	1.041**	0.968**	0.932**	0.270***	0.315***	0.155**	0.252***
	(0.467)	(0.453)	(0.438)	(0.439)	(0.091)	(0.089)	(0.078)	(0.083)
× 1(Disinflation)	0.937**	0.993**	0.995**	0.924**	0.157**	0.192***	0.164**	0.165**
	(0.441)	(0.419)	(0.423)	(0.422)	(0.075)	(0.071)	(0.071)	(0.070)
× 1(Inflation at target)	0.731	0.695	0.679	0.628	-0.023	-0.007	-0.021	-0.031
	(0.517)	(0.489)	(0.492)	(0.490)	(0.067)	(0.063)	(0.064)	(0.062)
Controls interacted with periods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm/Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	38,089	38,089	38,089	38,089	35,468	35,468	35,468	35,468
Distinct respondents	6,470	6,470	6,470	6,470	3,124	3,124	3,124	3,124
R-squared	0.63	0.61	0.61	0.61	0.71	0.58	0.51	0.55
Mean dep. var.	6.18	4.11	3.66	3.73	4.62	2.27	1.81	2.13
SD dep. var.	5.92	5.61	5.54	5.54	2.94	2.38	2.10	2.21

Notes: This table reports panel estimates of how the association of inflation expectations with measures of prior inflation experience and payoff relevance differs in the four shock periods relative to the pre-shock period, as specified in Equation (3). In Columns (1) and (5), the dependent variable is expected inflation over the next 12 months; the remaining use the absolute deviation of these expectations from, respectively, the mean professional forecast from FocusEconomics, financial market-implied expectations from inflation swaps, or an AR(4) prediction (see Appendix D). Inflation experience is an indicator for having been at least a teenager during the 1970s oil crises (see Footnote 8). For households, payoff relevance is a dummy equal to one if the primary heating energy source was fossil in December 2021; we also interact gender, employment, education, household income, homeownership, stockownership, and federal state with each shock period. For firms, payoff relevance is an indicator for an above-median ratio of energy costs to revenues in 2021; we also interact firm size, export share, an owner-respondent dummy, and federal state with each shock period. All specifications include individual/firm and wave fixed effects. Standard errors, clustered at the household/firm level, are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

expectations *away* from ex-ante benchmarks among both households (Columns 2–4) and firms (Columns 6–8). For instance, the gap to the average professional forecast widens by about 1pp in the post-invasion phase for households with fossil heating compared to otherwise similar but less exposed respondents ($p < 0.05$, Column 2). These differences only slowly revert back during the disinflationary period 2023 and when inflation is back at the target in 2024—potentially reflecting continued high energy prices or inertia in expectations.

Experiences We next turn to heterogeneity by prior inflation experiences. Households who have lived through the 1970s oil crises increase their inflation expecta-

tions significantly more strongly in response to the inflation shock (Column 1), shifting their expectations away from ex-ante benchmarks (Columns 2–4). The effects are largest during the inflation take-off (September–December 2021) and post-invasion (March–September 2022) phases, when macroeconomic conditions most closely resembled past inflationary episodes. For example, the deviations of expectations from average professional forecasts widen by roughly 0.6pp in the take-off phase and 0.9pp in the post-invasion phase among households who have experienced the oil crises relative to other households ($p < 0.01$, Column 2).[15] The patterns among firm managers are qualitatively similar, though somewhat smaller in size and often miss conventional levels of statistical significance (Columns 5–8). Appendix Table A.8 shows similar results for within-cohort experiences of past inflation losses among households.

Summary Taken together, these results suggest that *both* goal-driven and non-goal-driven attention can shape the degree to which expectations are aligned with benchmarks. In both cases, forces that appear to make inflation more top of mind are also associated with larger deviations from various ex-ante benchmarks—consistent with departures from goal-optimality.

5.5 Reasoning underlying inflation expectations

Above, we have shown that having inflation top of mind is linked to acquiring more inflation-related information, a stronger updating of inflation expectations and increasing deviations of expectations from benchmarks in response to the shock. We now explore how inflation being top of mind is associated with the reasoning underlying inflation expectations.

Reasoning data We leverage an additional question included in our household surveys from December 2020 until December 2022.[16] After respondents have reported their inflation expectation for the next 12 months, they are asked an additional open-ended question: *"Please let us know how you made your prediction about the inflation rate. Which considerations play the main role for you in making this prediction?"* To analyze these open-ended responses, we develop a coding scheme and annotate the answers using OpenAI's GPT-5. The scheme contains codes for 15 different factors, which we aggregate to seven broader lines of reasoning. Each response can receive multiple codes. The details of the coding procedure, along with quality checks, are presented in Appendix B.2.

[15] The effects of experiences on inflation expectations are more persistent than the effects on inflation being top of mind (see Section 4.3). This could reflect inertia in belief formation: people hold on to expectations once formed—whereas what is top of mind changes more quickly.

[16] Due to space constraints, it was not possible to include this question in our firm surveys.

Specification Again, we start by analyzing the cross-sectional relationships between dummies indicating whether a respondent employs a particular line of reasoning and inflation being top of mind in the pre-shock period, conditional on control variables. Then, we turn to fixed effects estimations based on Equation (1), which capture how having inflation top of mind differentially shifts the tendency to invoke each reason in response to the shock.

Results The results are presented in Table 7. We detect three broad patterns.

First, inflation being top of mind appears to be linked to a stronger tendency to consider supply-side forces. Households with inflation on their mind are already 5pp more likely to invoke at least one supply-side factor in the pre-shock period ($p < 0.01$, Panel A, Column 1, compared to an average fraction of 8%), and this relationship becomes even more pronounced in response to the shock ($p < 0.01$, Panel B, Column 1). By contrast, while having inflation top of mind is also associated with a 5pp greater likelihood of citing at least one demand-side factor ($p < 0.01$, Panel A, Column 2, average fraction of 7%), this relationship does not materially change over the shock (Panel B, Column 2). These patterns are consistent with the stronger increases in inflation expectations in response to the shock among households with inflation top of mind, given that supply-side forces were a dominant driver of inflation over our study period (Menz, 2024).

Second, households with inflation top of mind appear to focus more on recent events when forming expectations. For instance, households with inflation on their mind increase their inclination to think of geopolitical factors—primarily the concurrent invasion of Ukraine by Russia—more strongly in response to the shock (Column 3), while also reducing more quickly their tendency to consider a more distant event—the pandemic (Column 4). In the same vein, those with inflation top of mind already show a somewhat, albeit insignificantly higher tendency to cite recent inflation rates as the basis for their forecasts in the pre-shock period (Panel A, Column 5, $p = 0.28$), whereas they are less likely than others to invoke normal inflation ranges (Panel A, Column 6, $p < 0.05$). This gap widens over the shock period (Panel B, Columns 5 and 6). Together with the finding that households with inflation top of mind seem to increase their inflation expectations too heavily compared to benchmarks in response to the shock (Sections 5.2 and 5.3), these patterns are consistent with overweighting of recent signals—which were inflationary in our study period—as, e.g., in models of diagnostic expectations (Bordalo et al., 2022).

Finally, having inflation top of mind is associated with a reduced tendency to rely on gut feeling or guesses ($p < 0.01$, Panel A, Column 7), and this effect becomes stronger in response to the shock ($p < 0.01$, Panel B, Column 7). This pattern is consistent with households who have inflation top of mind having more relevant information available (see Section 5.1 and Table 4), and therefore being less likely to fall back on defaults.

Table 7 Inflation being top of mind and reasoning underlying inflation expectations

	Considers topic when forming inflation expectations						
	(1) Any supply-side factor	(2) Any demand-side factor	(3) Geo-politics	(4) Covid	(5) Recent infla-tion	(6) Normal range infl-tion	(7) Guess
Panel A: Pre-shock period							
Inflation top of mind	0.048***	0.046***	0.003	0.017	0.010	-0.008**	-0.041***
	(0.013)	(0.012)	(0.002)	(0.013)	(0.009)	(0.004)	(0.010)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distinct respondents	5,298	5,298	5,298	5,298	5,298	5,298	5,298
Observations	8,644	8,644	8,644	8,644	8,644	8,644	8,644
R-squared	0.07	0.04	0.00	0.04	0.03	0.01	0.03
Mean dep. var.	0.08	0.07	0.00	0.11	0.05	0.02	0.10
SD dep. var.	0.27	0.25	0.03	0.31	0.22	0.13	0.30
Panel B: Response to the shock							
Inflation top of mind							
× 1(Inflation take-off)	0.045***	0.021*	-0.012**	0.014	-0.001	0.001	-0.026***
	(0.013)	(0.011)	(0.006)	(0.012)	(0.012)	(0.004)	(0.009)
× 1(Post invasion)	0.050***	-0.012**	0.045***	-0.013**	0.028***	-0.003	-0.022***
	(0.009)	(0.006)	(0.008)	(0.006)	(0.008)	(0.003)	(0.007)
Controls interacted with periods	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distinct respondents	5,298	5,298	5,298	5,298	5,298	5,298	5,298
Observations	23,560	23,560	23,560	23,560	23,560	23,560	23,560
R-squared	0.43	0.38	0.38	0.37	0.39	0.43	0.48
Mean dep. var.	0.13	0.07	0.06	0.09	0.11	0.02	0.12
SD dep. var.	0.34	0.25	0.24	0.29	0.31	0.13	0.33

Notes: This table reports regressions of indicator variables for whether a household uses a given line of reasoning when forming its inflation expectations, based on answers to an open-ended survey question from all waves between December 2020 and December 2022 (see Appendix B.2), on a dummy for whether inflation is top of mind. Panel A reports cross-sectional correlations in the pre-shock period and controls for gender, age, employment, education, income, homeownership, stockownership, and federal state. As specified in Equation (2), Panel B estimates how the association of inflation being top of mind with each line of reasoning *differs* in shock period p relative to the pre-shock period by interacting the top-of-mind dummy with indicators for each p and including individual fixed effects; all controls are also interacted with the shock-period dummies. All specifications include survey-wave fixed effects. Standard errors, clustered at the household level, are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

5.6 Pricing decisions

Finally, we turn to the question of how inflation being top of mind translates into firms' pricing responses to the shock.

Specification We estimate Specification (2) described in Section 5.2, replacing the outcome variable with a variable taking value one if the firm reports having recently raised the price of its main product or service based on a qualitative question on price

Table 8 Inflation being top of mind and pricing decisions

	Price increase		
	(1) OLS	(2) OLS	(3) IV
Panel A: Pre-shock period			
Inflation top of mind	0.147***		
	(0.017)		
Panel B: Response to the shock			
Inflation top of mind			
× 1(Inflation take-off)		0.087***	0.244**
		(0.016)	(0.103)
× 1(Post invasion)		0.051***	0.380***
		(0.012)	(0.137)
× 1(Disinflation)		0.008	0.191
		(0.008)	(0.141)
× 1(Inflation at target)		0.006	0.241
		(0.011)	(0.176)
Standard controls	yes		
Standard controls interacted with periods		yes	yes
Time FE	yes	yes	yes
Firm/Individual FE		yes	yes
Observations	7,351	34,257	34,257
Distinct respondents	3,505	3,505	3,505
R-squared	0.07	0.37	0.07
First-Stage SW F-Statistic (Period 1)			74.86
First-Stage SW F-Statistic (Period 2)			65.15
First-Stage SW F-Statistic (Period 3)			64.45
First-Stage SW F-Statistic (Period 4)			63.68

Notes: This table displays regressions of firms' pricing decisions on a dummy for whether inflation is top of mind by replacing the dependent variable of Equation (2) with a dummy that is one if the firm reports having recently raised the price of its main product or service. Panel A reports cross-sectional correlations in the pre-shock period and controls for firm size, export share, the respondent being the firm owner, and federal state for firms. Panel B estimates how inflation being top of mind is *differentially* associated with price setting in shock period p compared to the pre-shock period by interacting inflation top of mind with indicators for each p and including firm fixed effects. Further, all controls are interacted with indicators for the shock periods. Column (2) applies OLS, while in Column (3) the contemporaneous top-of-mind indicator for inflation is instrumented with the average of the top-of-mind indicator over the previous subperiod. Sanderson–Windmeijer F-statistics are displayed for each endogenous explanatory variable in the bottom panel. All specifications include survey wave fixed effects. Standard errors clustered at the firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

changes over the previous month elicited in the regular IBS. The individual fixed effects control for baseline differences in behavior, while the controls interacted with shock period dummies control for time-varying effects of firm characteristics. To address the concern that decisions themselves may shape what is top of mind, we again supplement the OLS with IV estimations instrumenting the top of mind indicator with its average value from the previous subperiod of our study episode.

Results The results are shown in Table 8. Firm managers with inflation top of mind are significantly more likely to raise prices in the pre-shock period (Column 1). This

relationship becomes significantly stronger during the inflation take-off and the post invasion periods, and reverts back to pre-shock levels during the disinflation period and when inflation is back at target (Column 2). The size of the estimates is higher in the IV specification (Column 3), consistent with attenuation bias in the OLS estimates. Although the standard errors are an order of magnitude larger in the IV estimation, the estimated effects during the inflation take-off and the post-invasion period remain statistically significant.

Summary The results reported in this section suggest that the stronger increase in inflation expectations among firm managers with inflation top of mind is reflected in a stronger tendency to raise prices, potentially as a "hedge" against inflation increases. This suggests that agents' attention allocation—which can be non-goal-optimal—is associated with (potentially costly) changes in decisions.

6 Conclusion

We introduce a direct, scalable measure of which economic topics are *top of mind* based on an open-ended survey question. We embed this measure in panel surveys with German households and firms that span the post-pandemic inflation surge and the subsequent disinflation to study the sources and consequences of having inflation top of mind. Organizing the evidence along the chain from what is top of mind to information acquisition and beliefs, we test central predictions of models in which attention is allocated in a goal-optimal way against the implications of non-goal optimal theories, such as memory- and experience-driven attention.

We document three central results: (i) what is top of mind is predicted by both payoff relevance and prior experiences, in a context-dependent way; (ii) individuals occupied with inflation acquire more inflation-related information, and this gap widens over the shock period; (iii) those with inflation top of mind increase their expectations more strongly in response to the shock, shifting their expectations *away* from ex-ante benchmarks. This seems to hold true regardless of whether having inflation top of mind reflects payoff relevance or prior experiences.

Taken together, our evidence challenges core ideas behind theories of goal-optimal attention—that attention is exclusively channeled towards payoff-relevant variables, and that it necessarily improves forecast accuracy and decision quality. Our results instead support models in which, alongside payoff-relevant factors, past experiences shape which topics are brought to mind. While our results reject optimal processing of attended information, there are several potential frictions at play. Our data on reasoning underlying expectations suggest that individuals with inflation top of mind tend to focus on recent signals, which might be overweighted as in models of diagnostic expec-

tations (Bordalo et al., 2022). At the same time, prior experiences—which are linked to a greater tendency to have inflation top of mind—could also distort how attended information is processed through associative recall (Gennaioli et al., 2025). In light of our findings, incorporating non-goal-optimal attention into macroeconomic models could be a fruitful way to deepen our understanding of business cycles and policies.

While our findings provide a proof of concept that attention *can be* non-goal-optimal, more evidence from other contexts is needed to understand better under which conditions attention improves and under which it may reduce forecast accuracy.

From a methodological perspective, our measure offers a rich and detailed picture of what is top of economic agents' minds. Our paper underscores the potential of using open-ended survey data to track what comes to mind across a wide range of economic contexts, from macroeconomic conditions to labor markets, consumer finance, and politics. Such measures could be incorporated into existing panel surveys of households and firms and analyzed routinely, through AI-based coding. Capturing what is top of mind in this way could provide important input for policymakers and help generate new empirical insights for theoretical work.

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Online Appendix: Attention to the Macroeconomy

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Summary of the Online Appendix

Section A contains supplementary figures and tables.

Section B presents details on the coding of the open-ended data on what is top of mind and on the reasoning underlying inflation expectations.

Section C presents a systematic analysis of attrition.

Section D provides background on our different ex-ante benchmarks.

Section E contains additional empirical results.

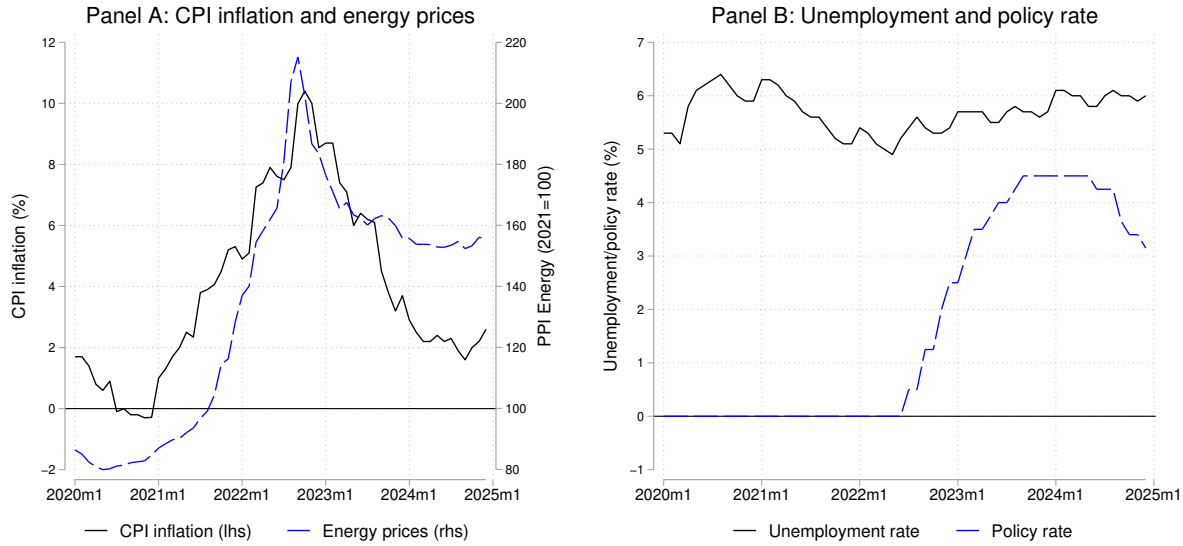
Section F provides the key survey questions from our household and firm panels.

Section G provides the key survey questions from our September 2023 validation survey.

A Supplementary exhibits

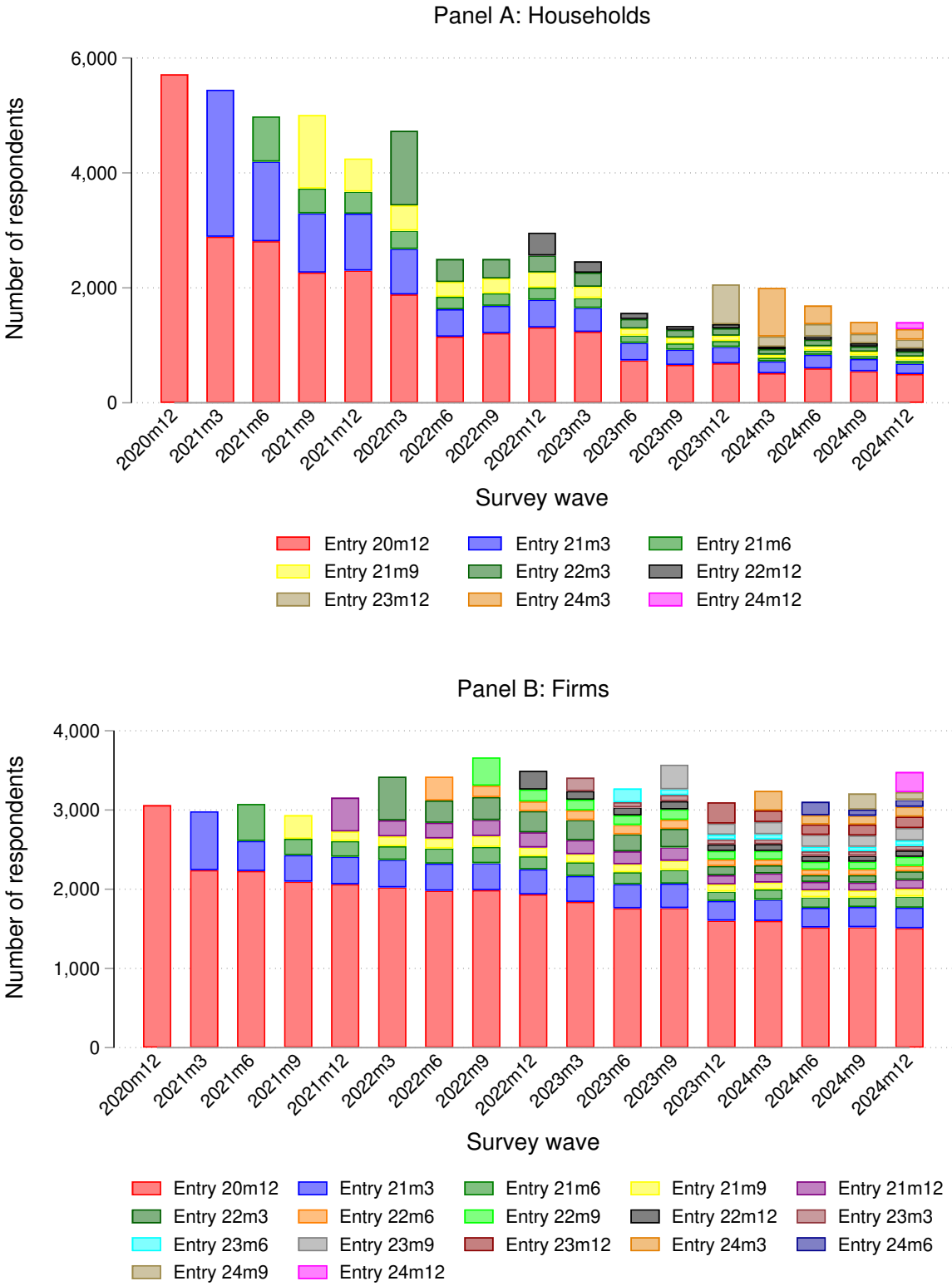
A.1 Additional figures

Figure A.1 Macroeconomic environment



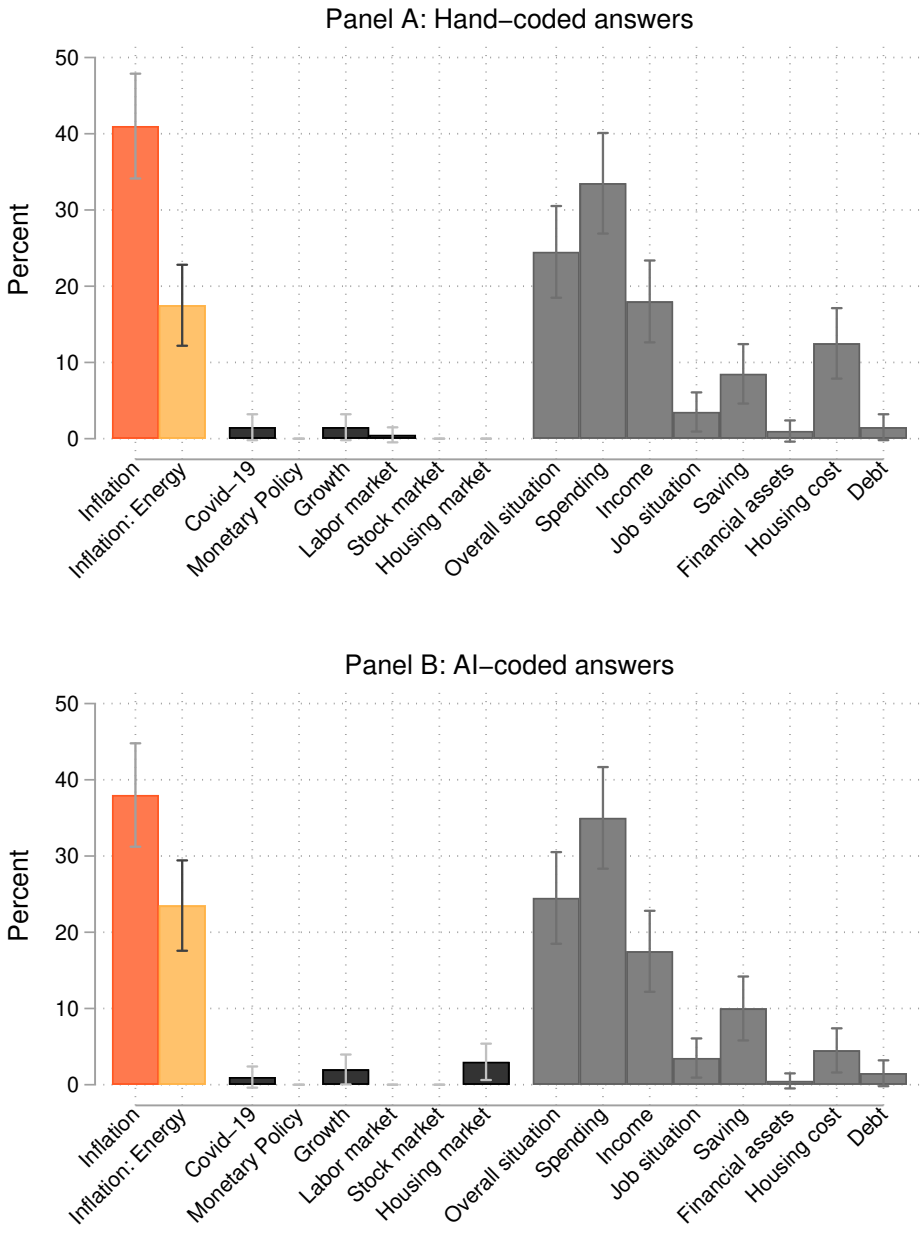
Notes: Panel A displays the CPI inflation rate (left axis) and the energy component of the producer price index (2021=100; right-hand axis) in Germany. Panel B depicts the ECB policy rate and the unemployment rate in Germany. Sources: German Federal Statistical Office; German Federal Employment Agency.

Figure A.2 Survey participation across waves



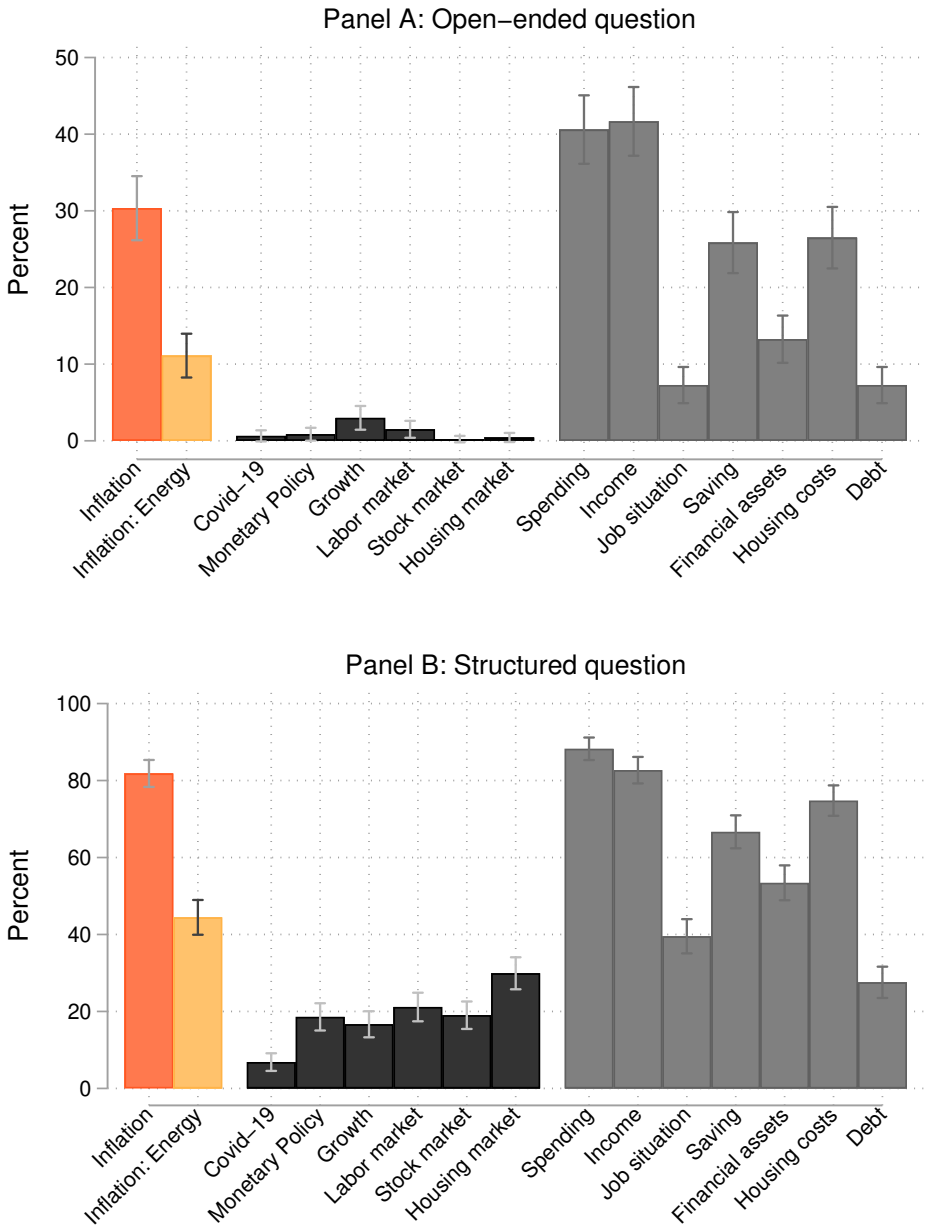
Notes: This figure displays the composition of the different survey waves in terms of the wave responding households and firms entered the panel. The drops in the size of the household sample in June 2022 and in June 2023 reflect a reduced target sample size rather than attrition.

Figure A.3 What is top of mind across topics as classified using human coding and as classified using AI-coding



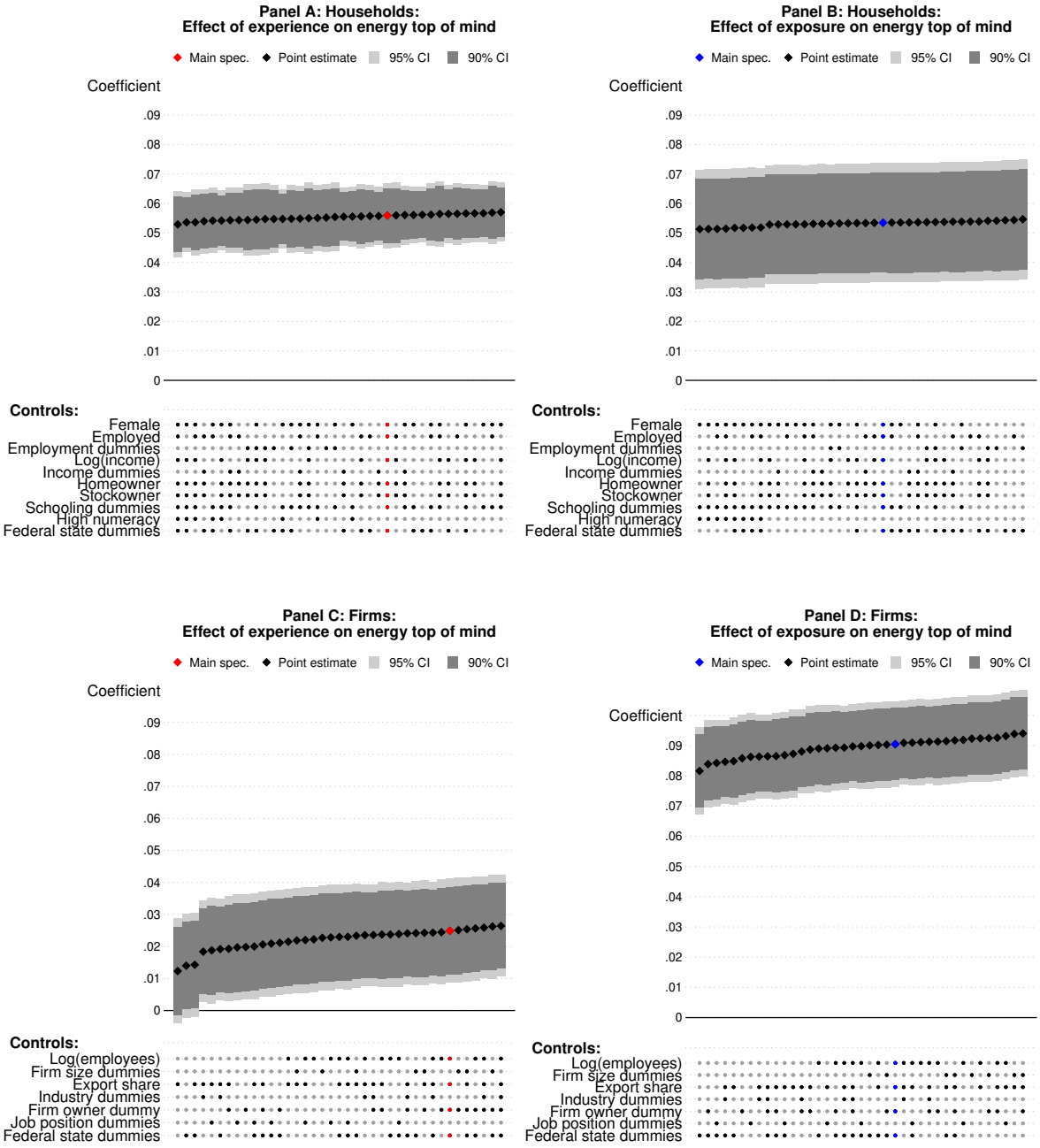
Notes: This figure presents a validation exercise for the hand-coding of the open-ended data based on a random subsample from the household survey wave in March 2023, which was both hand-coded and AI-coded using GPT-4. It shows the distribution of what is top of mind across different topics including inflation (orange), the subset of respondents with inflation top of mind that also mention energy prices (yellow), further macroeconomic topics (black), and household-level topics (gray). The measure of what is top of mind is based on people's responses to our main open-ended question: "What topics come to mind when you think about the economic situation of your household?" Panel A shows results from the hand-coding. Panel B displays results from the AI-coding. Error bars indicate 95% confidence intervals.

Figure A.4 What is top of mind across topics as measured in the open-ended and as measured in an alternative structured survey question



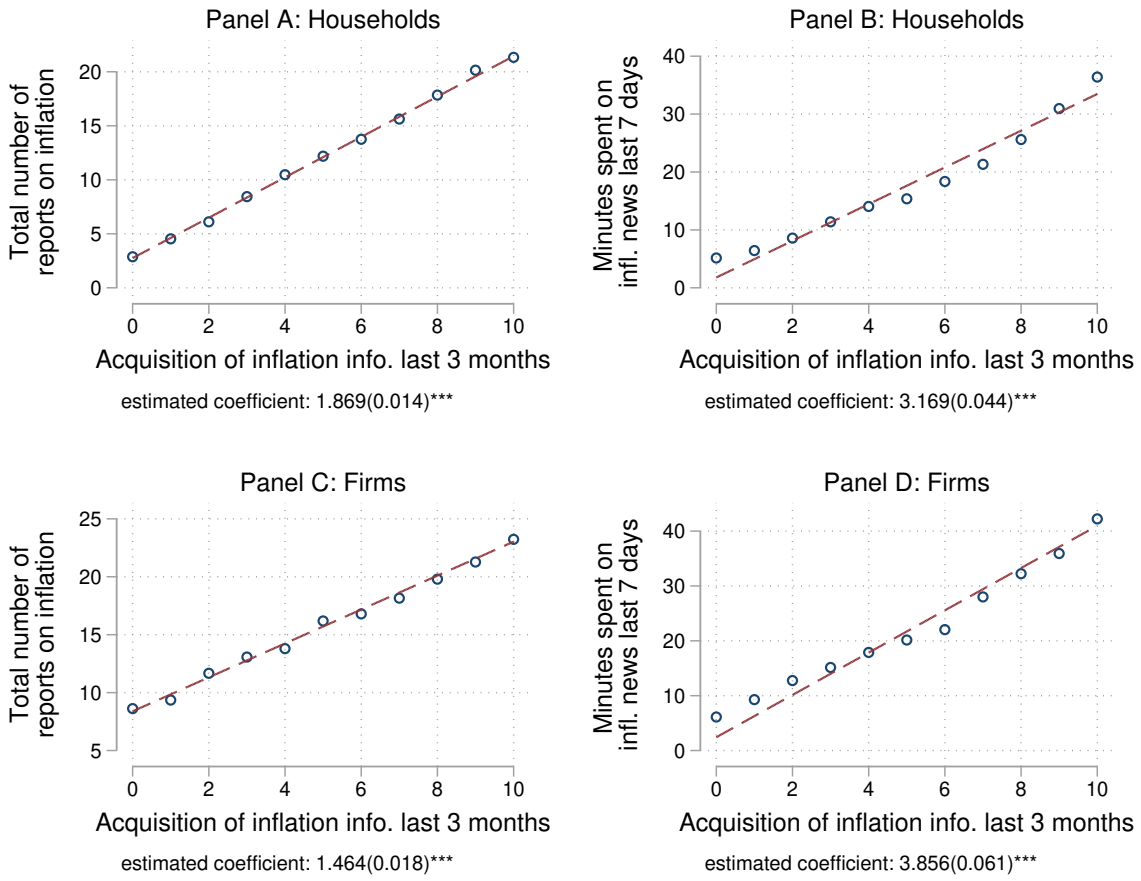
Notes: This figure presents a validation exercise of our hand-coded data on what is top of mind based on an additional German household survey run with Prolific in September 2023. It shows the fractions of respondents having different topics top of mind according to the open-ended question (Panel A) and according to a structured question included later in the survey (Panel B), including 95% confidence intervals. Having inflation top of mind is displayed in orange, the subset of respondents with inflation top of mind that also mention energy prices in yellow, further macroeconomic topics in black, while household-level topics are displayed in gray. Error bars indicate 95% confidence intervals.

Figure A.5 Determinants of what is top of mind: Robustness of full-period correlations



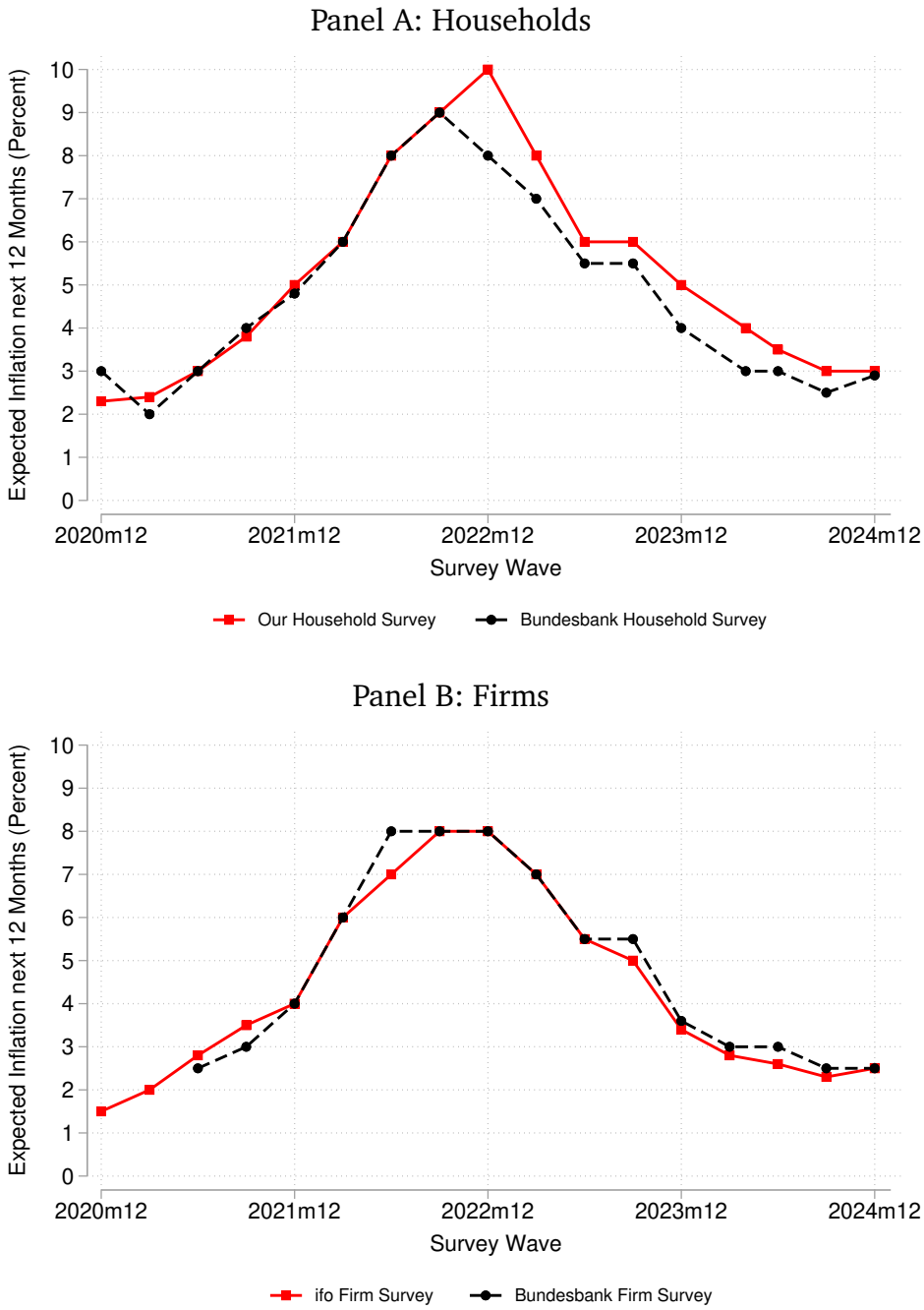
Notes: This figure shows that the associations of prior experience and payoff relevance with what is top of mind are robust to a wide range of control sets. For households, Panels A and B replicate the coefficients in Column 2 of Panel A of Table 3—for having experienced the 1970s oil crises and for payoff relevance proxied by a dummy equal to one if the household's primary heating energy source was fossil in December 2021—across alternative control specifications. These include more detailed employment categories instead of a simple employment dummy, fine-grained income brackets instead of log household income, and an additional dummy for high numeracy. Panels C and D perform analogous robustness checks for firms, based on Column 5 of Panel A of Table 3 and varying the control vector by omitting or redefining variables (e.g., finer size classes, respondent job position, and industry dummies). All specifications include survey-wave fixed effects. Standard errors are clustered at the household/firm level.

Figure A.6 Validation of information acquisition measure



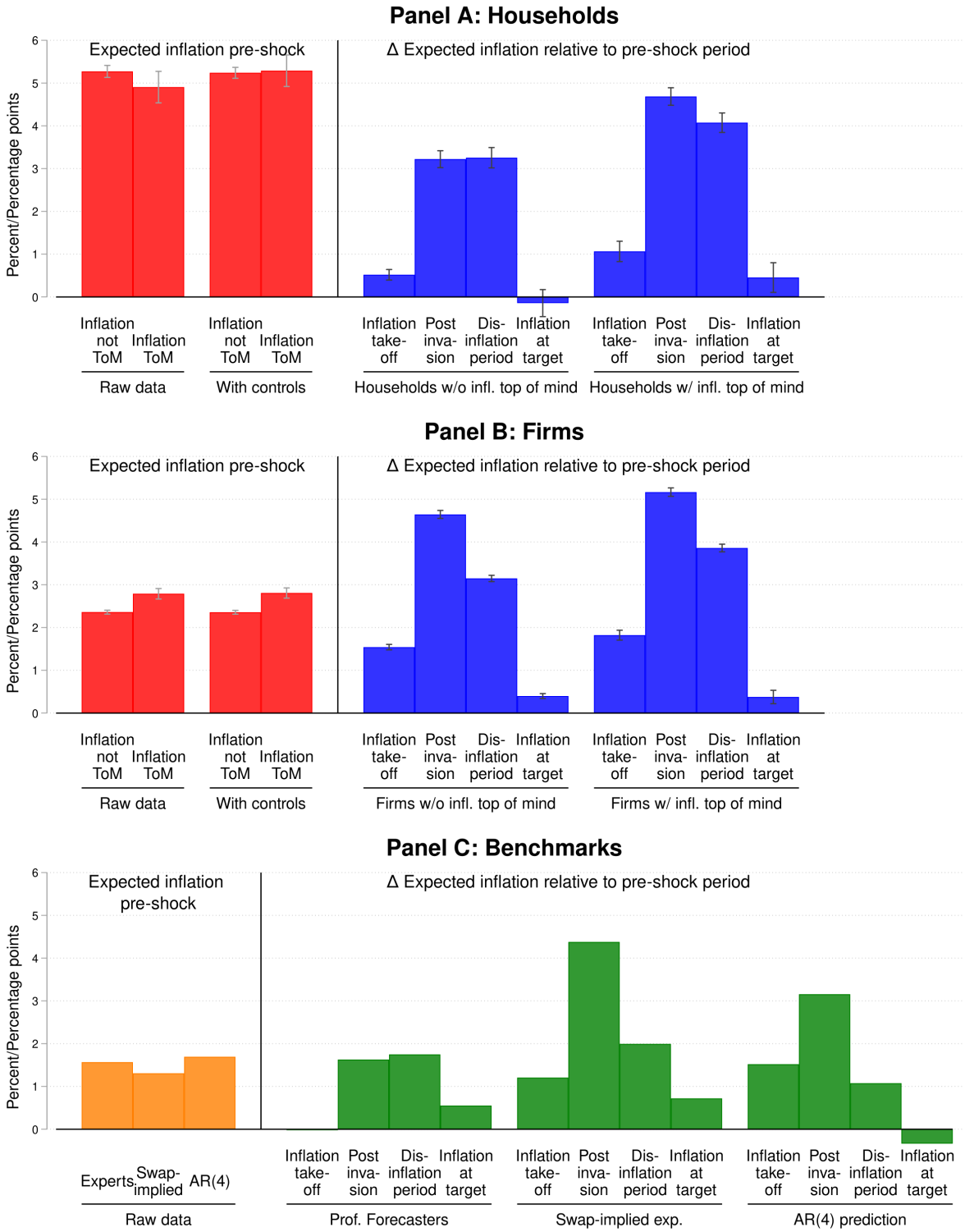
Notes: This figure displays binned scatter plots regressing information acquisition – i.e., the number of times the respondent informed herself about inflation in the three months prior to the survey (elicited on scale between 0 and 10+)—on different measures of news consumption regarding inflation. Panels A and C regress information acquisition on the total number of reports on inflation a respondent reports to have read in the news, to have seen on TV, or to have heard on the radio over the last three months. Panels B and D regress information acquisition on the number of minutes a household or firm manager reports to have spent consuming news about inflation over the last week. Panels A and B focus on households, while Panels C and D focus on firms. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Figure A.7 Median inflation expectations in our surveys compared to Bundesbank surveys



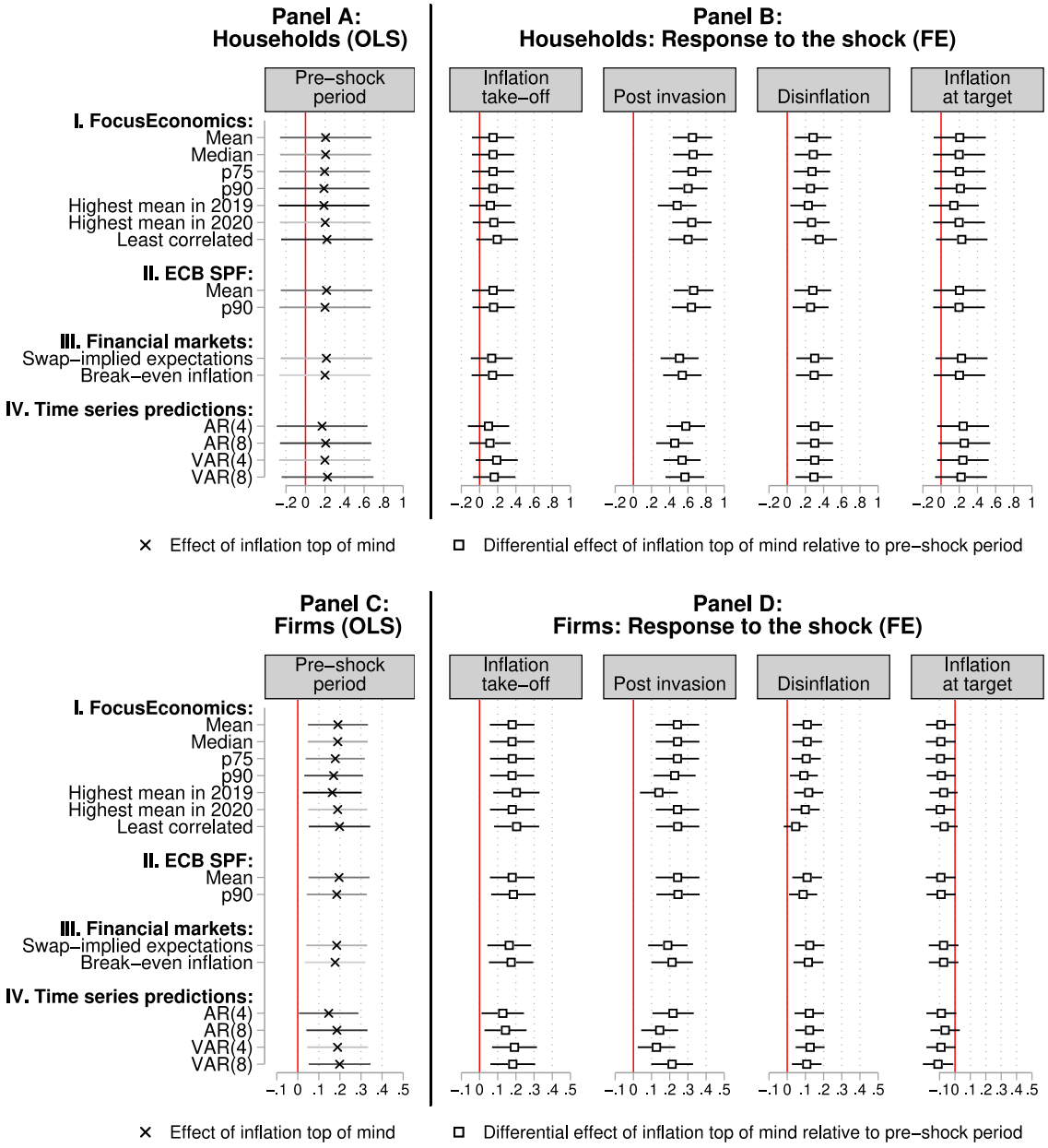
Notes: This figure compares the development of the median inflation expectations in our household and firm surveys over time to the development of median expectations in the Bundesbank Online Panels of Firms and of Households (BOP-HH and BOP-F, respectively), which aim to be representative of the underlying populations.

Figure A.8 Pre-shock inflation expectations and updating in response to the shock



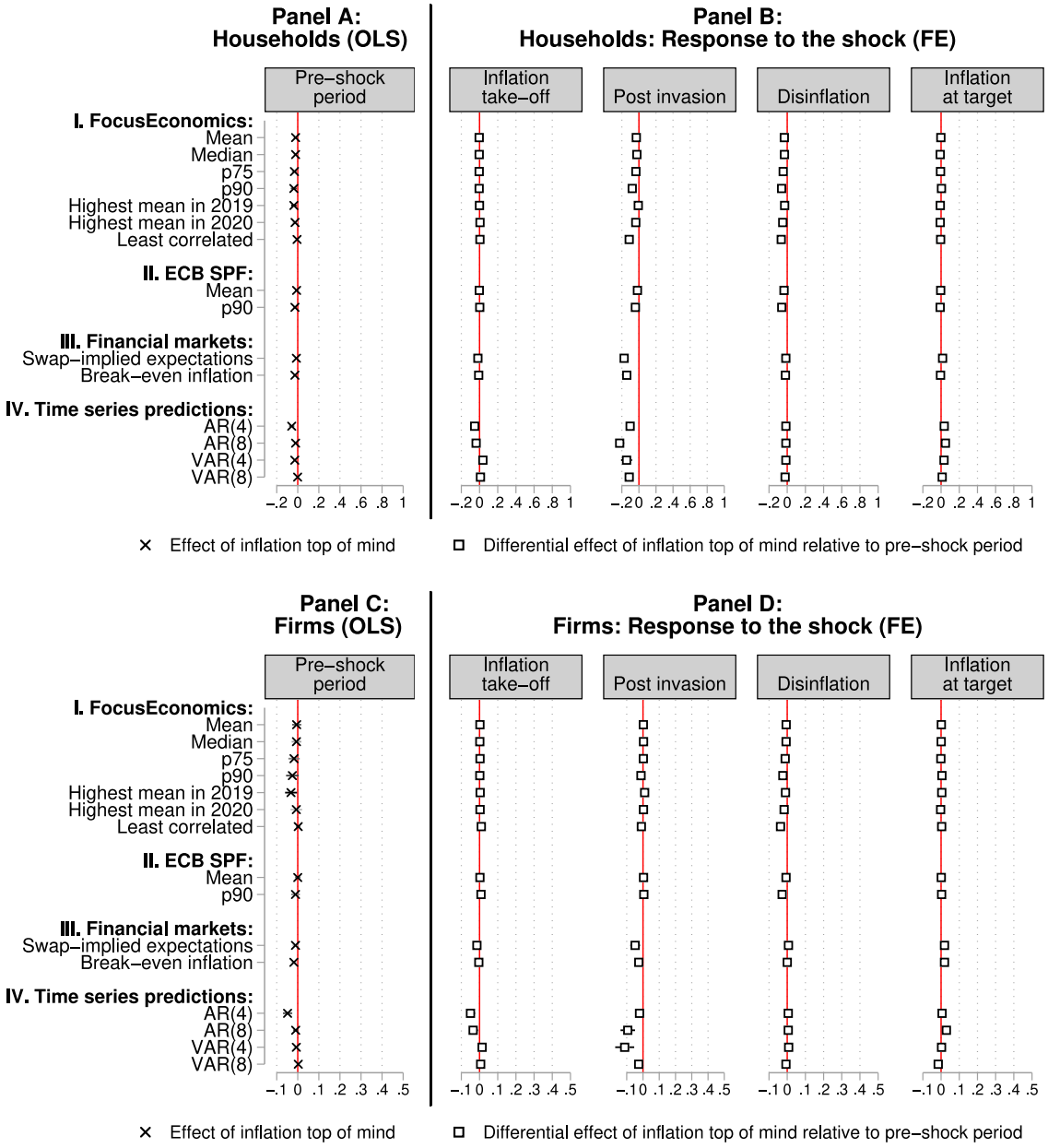
Notes: This figure contrasts inflation expectations between respondents with and without inflation top of mind in a given survey wave for households (Panel A) and firms (Panel B). The red bars on the left compare average pre-shock inflation expectations in the raw data or after purging them of the standard set of controls (centered at zero). The blue bars on the right plot updating in response to the shock, measured as the change in a respondent's inflation expectation in wave t relative to her average pre-shock expectation, separately for those with and without inflation top of mind in t. Panels A and B report 95% confidence intervals. Panel C presents the analogous pre-shock and updating patterns for several ex-ante benchmarks: the mean professional forecast from FocusEconomics, financial market-implied expectations from inflation swaps, and an AR(4) prediction (see Appendix D for details).

Figure A.9 Inflation being top of mind and *upward* deviations of inflation expectations from benchmarks



Notes: This figure displays the relationship between inflation being top of mind and upward deviations of inflation expectations from different ex-ante benchmarks based on the same empirical specifications as used in Table 5. The upward deviation is defined by the difference between each respondent's inflation expectations and the respective benchmark if this difference is positive and zero otherwise. Panels A and C display estimates of the cross-sectional relationships in the pre-shock period conditional on our standard sets of controls. Panels B and D display fixed effects estimates based on equation (2), which identify the differential association of inflation expectations with inflation being top of mind in a given shock period compared to the pre-shock period. Each row of estimates refers to regressions in which the dependent variable denotes the upward deviation of inflation expectations from a specific ex-ante benchmark: Groups I and II draw on different moments in the micro data of professional forecasts on inflation from FocusEconomics and the European Central Bank's SPF, respectively. Group III relies on financial market-implied expectations constructed from inflation swaps and from break-even inflation measured as the spread between nominal and real zero-coupon yields from nominal and inflation-indexed bonds. Group IV uses benchmarks from time series models. Appendix D provides additional background and details on the different benchmarks. Confidence bands are based on standard errors clustered at the household/firm level and refer to the 95%-level.

Figure A.10 Inflation being top of mind and *downward* deviations of inflation expectations from benchmarks



Notes: This figure displays the relationship between inflation being top of mind and absolute deviations of inflation expectations from different ex-ante benchmarks based on the same empirical specifications as used in Table 5. The downward deviation is defined by the difference between the respective benchmark and each respondent's inflation expectations and if the benchmark exceeds the beliefs and zero otherwise. Panels A and C display estimates of the cross-sectional relationships in the pre-shock period conditional on our standard sets of controls. Panels B and D display fixed effects estimates based on equation (2), which identify the differential association of inflation expectations with inflation being top of mind in a given shock period compared to the pre-shock period. Each row of estimates refers to regressions in which the dependent variable denotes the downward deviation of inflation expectations from a specific ex-ante benchmark: Groups I and II draw on different moments in the micro data of professional forecasts on inflation from FocusEconomics and the European Central Bank's SPF, respectively. Group III relies on financial market-implied expectations constructed from inflation swaps and from break-even inflation measured as the spread between nominal and real zero-coupon yields from nominal and inflation-indexed bonds. Group IV uses benchmarks from time series models. Appendix D provides additional background and details on the different benchmarks. Confidence bands are based on standard errors clustered at the household/firm level and refer to the 95%-level.

A.2 Additional tables

Table A.1 Summary statistics

	GSOEP	Survey samples					
	(1) Mean	(2) Mean	(3) p25	(4) Median	(5) p75	(6) SD	(7) N
Panel A: Households							
Female	0.51	0.45	0.00	0.00	1.00	0.50	51,617
Age	51.19	51.80	40.00	50.00	60.00	13.42	51,617
East	0.17	0.17	0.00	0.00	0.00	0.38	51,617
Log(HH net income)	7.96	7.84	7.60	8.01	8.36	0.67	51,617
At least highschool	0.39	0.51	0.00	1.00	1.00	0.50	51,594
Employed	0.64	0.68	0.00	1.00	1.00	0.47	49,877
Homeowner	0.49	0.49	0.00	0.00	1.00	0.50	48,930
Stockowner	0.26	0.44	0.00	0.00	1.00	0.50	48,930
Exposure: Fossil heating		0.87	1.00	1.00	1.00	0.33	19,415
Experience: Oil crises		0.45	0.00	0.00	1.00	0.50	52,008
Experience: Inflation loss		0.51	0.00	1.00	1.00	0.50	34,302
Experience: Recession loss		0.29	0.00	0.00	1.00	0.46	34,183
Panel B: Firms							
Employees		272.20	12.00	38.00	118.00	1866.27	55,268
Export share		0.17	0.00	0.04	0.25	0.25	50,671
East		0.14	0.00	0.00	0.00	0.34	50,671
Manufacturing firm		0.30	0.00	0.00	1.00	0.46	55,580
Services firm		0.39	0.00	0.00	1.00	0.49	55,580
Construction firm		0.09	0.00	0.00	0.00	0.29	55,580
Retail/wholesale firm		0.22	0.00	0.00	0.00	0.41	55,580
Respondent is firm owner		0.51	0.00	1.00	1.00	0.50	45,561
Exposure: Energy cost share (pre-shock)		0.06	0.01	0.04	0.08	0.08	37,424
Manager's experience: Oil crises		0.71	0.00	1.00	1.00	0.45	35,554

Notes: This table provides summary statistics for the household sample (Panel A) and the firm sample (Panel B). Column 1 shows population benchmarks from the 2020 wave of the German Socioeconomic Panel, which is representative of the German population. Column 7 indicates for how many observations in our panel dataset a particular variable is available, counting repeat respondents multiple times.

Table A.2 Inflation being top of mind and count of inflation-related words

	Inflation top of mind	Automated word count						Correl-ation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Inflation	Price	Cost	Energy	Expen-sive	Joint word count	hand-coded vs. joint word count
Panel A: Households								
Wave 1: 2020m12	0.05	0.01	0.02	0.01	0.03	0.03	0.08	0.77
Wave 2: 2021m3	0.07	0.01	0.02	0.01	0.04	0.03	0.09	0.82
Wave 3: 2021m6	0.10	0.02	0.04	0.02	0.05	0.04	0.12	0.87
Wave 4: 2021m9	0.14	0.04	0.05	0.02	0.06	0.05	0.16	0.87
Wave 5: 2021m12	0.20	0.07	0.07	0.02	0.09	0.04	0.21	0.93
Wave 6: 2022m3	0.33	0.09	0.14	0.04	0.18	0.06	0.33	0.94
Wave 7: 2022m6	0.41	0.21	0.17	0.05	0.17	0.06	0.43	0.91
Wave 8: 2022m9	0.53	0.20	0.20	0.08	0.32	0.06	0.53	0.94
Wave 9: 2022m12	0.49	0.23	0.19	0.06	0.30	0.07	0.52	0.92
Wave 10: 2023m3	0.47	0.23	0.18	0.06	0.25	0.08	0.51	0.91
Wave 11: 2023m6	0.47	0.28	0.16	0.06	0.18	0.06	0.47	0.91
Wave 12: 2023m9	0.45	0.25	0.14	0.05	0.16	0.07	0.45	0.90
Wave 13: 2023m12	0.39	0.19	0.13	0.06	0.17	0.07	0.39	0.92
Wave 14: 2024m3	0.39	0.18	0.11	0.05	0.16	0.08	0.40	0.90
Wave 15: 2024m6	0.38	0.19	0.12	0.06	0.13	0.06	0.38	0.92
Wave 16: 2024m9	0.37	0.17	0.09	0.05	0.13	0.08	0.38	0.87
Wave 17: 2024m12	0.33	0.16	0.10	0.05	0.12	0.07	0.35	0.91
Total (Waves 1-17)	0.29	0.12	0.10	0.04	0.14	0.06	0.30	0.92
Panel B: Firms								
Wave 1: 2020m12	0.07	0.01	0.04	0.01	0.03	0.03	0.12	0.70
Wave 2: 2021m3	0.12	0.01	0.07	0.01	0.04	0.04	0.17	0.78
Wave 3: 2021m6	0.21	0.02	0.15	0.03	0.04	0.03	0.25	0.87
Wave 4: 2021m9	0.23	0.03	0.14	0.04	0.06	0.06	0.30	0.80
Wave 5: 2021m12	0.28	0.07	0.16	0.04	0.08	0.02	0.32	0.91
Wave 6: 2022m3	0.44	0.09	0.24	0.07	0.21	0.02	0.47	0.88
Wave 7: 2022m6	0.52	0.19	0.24	0.07	0.18	0.03	0.55	0.89
Wave 8: 2022m9	0.66	0.19	0.28	0.10	0.45	0.02	0.69	0.90
Wave 9: 2022m12	0.59	0.20	0.22	0.09	0.33	0.02	0.59	0.91
Wave 10: 2023m3	0.48	0.20	0.16	0.06	0.21	0.02	0.50	0.90
Wave 11: 2023m6	0.40	0.15	0.13	0.07	0.16	0.02	0.44	0.86
Wave 12: 2023m9	0.38	0.15	0.14	0.08	0.19	0.04	0.45	0.82
Wave 13: 2023m12	0.29	0.08	0.11	0.08	0.15	0.04	0.37	0.79
Wave 14: 2024m3	0.26	0.07	0.10	0.08	0.14	0.04	0.35	0.74
Wave 15: 2024m6	0.20	0.05	0.09	0.06	0.11	0.03	0.29	0.73
Wave 16: 2024m9	0.18	0.04	0.08	0.05	0.12	0.04	0.28	0.71
Wave 17: 2024m12	0.21	0.04	0.10	0.07	0.14	0.04	0.32	0.71
Total (Waves 1-17)	0.34	0.10	0.15	0.06	0.16	0.03	0.39	0.84

Notes: Column 1 indicates the fraction of respondents mentioning inflation in response to the open-ended survey question based on manual coding by RAs. Columns $2-5$ show the fractions of respondents mentioning specific words based on automated counts of the following words "inflation" (Column 2), "preis" (Column 3), "koste" + at least one out of the following: "steig", "stieg", "erhöh", "anheb", or "hoch" (Column 4) ; "energie", "öl", "gas", "sprit", "diesel", "benzin" or "strom" (Column 5); "teuer" or "teurer" (Column 6). Column 7 shows the fraction of respondents for which at least one of the words and word combinations from Columns 2—6 is mentioned. Column 8 depicts the correlation coefficient between hand-coded data (Column 1) and automated word count (Column 7). Panel A focuses on households, while Panel B focuses on firms.

Table A.3 What is top of mind: Correlation between hand-coded and AI-coded open-ended data

	Hand-coded				
	(1)	(2)	(3)	(4)	(5)
	Inflation	Covid-19	Growth	Any macro	Any household-level topic
AI-coded: Inflation	0.794***	0.014	0.016		
	(0.045)	(0.014)	(0.012)		
AI-coded: Covid-19	0.001	0.993***	-0.002		
	(0.077)	(0.008)	(0.006)		
AI-coded: Growth	0.302*	-0.010	0.744***		
	(0.178)	(0.011)	(0.219)		
AI-coded: Any macro topic				0.727***	0.014
				(0.051)	(0.045)
AI-coded: Any household-level topic				0.004	0.680***
				(0.050)	(0.058)
Mean dep. var.	0.41	0.01	0.01	0.45	0.72
Observations	200	200	200	200	200
R-squared	0.64	0.67	0.75	0.53	0.52

Notes: This table presents a validation exercise for the hand-coding of the open-ended data based on a subsample from the household survey wave in March 2023, which was both hand-coded and AI-coded using GPT-4. It regresses dummy variables indicating whether a respondent has a given topic top of mind according to the AI-coding on dummy variables indicating whether a respondent has a given topic top of mind according to the hand-coding. Robust standard errors are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.4 What is top of mind: Correlation between open-ended and structured measure

	Open-ended					
	(1)	(2)	(3)	(4)	(5)	(6)
	Inflation	Covid-19	Monetary policy	Growth	Any macro topic	Any household-level topic
Structured: Inflation	0.151***	0.008*	0.008*	0.002		
	(0.045)	(0.005)	(0.004)	(0.014)		
Structured: Covid-19	-0.041	0.098*	-0.012*	0.012		
	(0.087)	(0.053)	(0.007)	(0.040)		
Structured: Monetary policy	0.034	-0.008	0.032	0.039*		
	(0.060)	(0.005)	(0.024)	(0.023)		
Structured: Growth	0.091	-0.018*	-0.006	0.072**		
	(0.063)	(0.010)	(0.020)	(0.029)		
Structured: Any macro topic					0.119**	-0.032
					(0.054)	(0.050)
Structured: Any household-level topic					-0.196	0.469**
					(0.223)	(0.192)
Observations	468	468	468	468	468	468
R-squared	0.03	0.10	0.02	0.04	0.01	0.02
Mean dep. var.	0.30	0.01	0.01	0.03	0.33	0.79

Notes: This table presents a validation exercise of our hand-coded data on topics top of mind based on an additional German household survey run with Prolific in September 2023. It regresses dummy variables indicating whether a respondent has a given topic top of mind according to the open-ended data on dummy variables indicating whether a respondent has a given topic top of mind according to a structured survey question included later in the survey. Robust standard errors are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.5 What is top of mind and perceived importance

	Households: ... top of mind			Firms: ... top of mind		
	(1)	(2)	(3)	(4)	(5)	(6)
	Inflation	Monetary policy	Growth	Inflation	Monetary policy	Growth
Perceived importance of inflation (z)	0.078***	-0.000	0.000	0.057***	-0.002*	-0.002
	(0.003)	(0.001)	(0.001)	(0.004)	(0.001)	(0.002)
Perceived importance of monetary policy (z)	0.001	0.008***	0.001**	0.020***	0.026***	0.005**
	(0.003)	(0.001)	(0.001)	(0.004)	(0.002)	(0.002)
Perceived importance of growth (z)	0.030***	-0.002**	0.002***	0.006*	-0.005***	0.016***
	(0.004)	(0.001)	(0.001)	(0.004)	(0.001)	(0.002)
Wave FE	yes	yes	yes	yes	yes	yes
Observations	30,729	30,729	30,729	23,025	23,025	23,025
R-squared	0.17	0.01	0.00	0.16	0.02	0.01

Notes: This table reports regressions of indicator variables for whether a respondent has a given topic top of mind on measures of the perceived importance of inflation, monetary policy, and growth for the economic situation of their household/firm and survey wave fixed effects. These perceptions were elicited on five-point scales from "strongly disagree" to "strongly agree" between December 2020 and March 2023 for households, and in December 2020 as well as between September 2021 and March 2023 for firms, and are standardized (z-scores) for interpretability. Standard errors, clustered at the household/firm level, are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.6 What is top of mind: New vs. recontacted respondents

	Topic top of mind						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Inflation	Inflation: Energy	Covid-19	Monetary policy	Growth	Any macro topic	Any household- or firm-level topic
Panel A: Households							
Recontact	0.011	0.007	-0.003	-0.000	-0.002	-0.009	0.005
	(0.009)	(0.007)	(0.006)	(0.002)	(0.002)	(0.010)	(0.009)
Distinct respondents	7,209	7,209	7,209	7,209	7,209	7,209	7,209
Observations	39,803	39,803	39,803	39,803	39,803	39,803	39,803
R-squared	0.47	0.38	0.36	0.23	0.20	0.45	0.39
Mean dep. var.	0.29	0.15	0.05	0.01	0.01	0.37	0.74
SD dep. var.	0.46	0.35	0.21	0.09	0.10	0.48	0.44
Panel B: Firms							
Recontact	0.014	0.008	-0.002	-0.002	-0.016**	-0.018*	-0.007
	(0.009)	(0.006)	(0.007)	(0.004)	(0.006)	(0.010)	(0.008)
Distinct respondents	6,212	6,212	6,212	6,212	6,212	6,212	6,212
Observations	46,916	46,916	46,916	46,916	46,916	46,916	46,916
R-squared	0.41	0.42	0.38	0.30	0.27	0.33	0.29
Mean dep. var.	0.33	0.17	0.10	0.04	0.12	0.64	0.82
SD dep. var.	0.47	0.38	0.31	0.19	0.32	0.48	0.38
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual/Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table displays regressions of whether a household (Panel A) or firm (Panel B) has a given topic top of mind (indicated at the top) as measured in the open-ended data on a dummy taking value zero for respondents that participate in the panel for the first time and one for those being recontacted after participating in a previous wave. All regressions control for survey wave fixed effects as well as household or firm fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.7 Determinants of what is top of mind: Robustness of context-dependent correlations to individual fixed effects

	Panel A: Households: Experience: Oil crises		Panel B: Firms: Experience: Oil crises		Panel C: Households: Experience: Inflation loss	
	(1) Inflation top of mind	(2) Energy top of mind	(3) Inflation top of mind	(4) Energy top of mind	(5) Inflation top of mind	(6) Energy top of mind
Inflation experience						
× 1(Inflation take-off)	0.025**	-0.001	0.016	0.025**	0.027**	0.013
	(0.012)	(0.009)	(0.022)	(0.012)	(0.011)	(0.008)
× 1(Russia's invasion of Ukraine)	0.046***	0.038***	0.008	0.036**	0.053***	0.031**
	(0.015)	(0.013)	(0.022)	(0.018)	(0.015)	(0.013)
× 1(Disinflation)	0.037**	0.057***	0.026	0.022	0.052***	0.015
	(0.016)	(0.013)	(0.021)	(0.016)	(0.017)	(0.013)
× 1(Inflation close to target)	0.018	0.029**	0.039*	0.016	0.032	0.009
	(0.019)	(0.014)	(0.020)	(0.015)	(0.021)	(0.015)
High payoff relevance						
× 1(Inflation take-off)	0.044*	0.009	0.045***	0.049***	0.039	0.010
	(0.026)	(0.019)	(0.017)	(0.011)	(0.027)	(0.020)
× 1(Russia's invasion of Ukraine)	0.080**	0.045*	0.069***	0.096***	0.083**	0.041
	(0.033)	(0.027)	(0.017)	(0.015)	(0.034)	(0.027)
× 1(Disinflation)	0.120***	0.102***	0.071***	0.103***	0.115***	0.100***
	(0.032)	(0.022)	(0.017)	(0.014)	(0.033)	(0.023)
× 1(Inflation close to target)	0.080**	0.059**	0.078***	0.084***	0.075**	0.045*
	(0.034)	(0.023)	(0.017)	(0.013)	(0.035)	(0.024)
Controls interacted with periods	Yes	Yes	Yes	Yes	Yes	Yes
Age interacted with periods					Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm/Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Distinct respondents	5,697	5,697	3,030	3,030	4,925	4,925
Observations	33,008	33,008	32,360	32,360	29,640	29,640
R-squared	0.47	0.37	0.38	0.39	0.46	0.37
Mean dep. var.	0.28	0.14	0.34	0.17	0.28	0.13
SD dep. var.	0.45	0.34	0.47	0.38	0.45	0.34

Notes: This table shows that the patterns in Figure 3 are robust to including individual or firm fixed effects. Adopting Equation (2), the dependent variables are indicators for having inflation (odd-numbered columns) or energy (even-numbered columns) top of mind. In Columns (1)—-(4), the experience measure is an indicator for having been at least a teenager during the 1970s oil crises (Footnote 8); in Columns (5) and (6), it captures whether the respondent had ever experienced a real income or real wealth loss due to inflation, as elicited in the pre-shock period. For households, payoff relevance is a dummy equal to one if the primary heating energy source was fossil in December 2021; we also control, separately by subperiod, for gender, employment, education, household income, homeownership, stock-ownership, federal state, and (in Columns (5) and (6) only) age. For firms, high exposure indicates an above-median ratio of energy costs to revenues in 2021; we additionally control, by subperiod, for firm size, export share, an owner-respondent dummy, and federal state. All specifications include survey-wave fixed effects. Standard errors, clustered at the household/firm level, are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.8 Different sources of inflation being top of mind and inflation expectations: Alternative experience measure

	Households			
	(1)	(2)	(3)	(4)
	Expected inflation next 12 months	Abs. dev. from mean professional forecast (FocusEconomics)	Abs. dev. from swap-implied expect-ations	Abs. dev. from AR(4) prediction
Experience: Inflation loss				
× 1(Inflation take-off)	0.200	0.212	0.139	0.098
	(0.135)	(0.132)	(0.131)	(0.129)
× 1(Post invasion)	0.572***	0.544***	0.337**	0.465***
	(0.174)	(0.171)	(0.164)	(0.165)
× 1(Disinflation)	0.369*	0.317	0.326*	0.372*
	(0.201)	(0.195)	(0.195)	(0.194)
× 1(Inflation at target)	0.008	-0.017	-0.000	0.042
	(0.242)	(0.235)	(0.234)	(0.233)
Exposure: Fossil heating				
× 1(Inflation take-off)	0.683*	0.708*	0.700*	0.682*
	(0.402)	(0.391)	(0.387)	(0.380)
× 1(Post invasion)	1.008**	1.006**	0.972**	0.917**
	(0.484)	(0.471)	(0.458)	(0.458)
× 1(Disinflation)	0.865*	0.944**	0.934**	0.853*
	(0.461)	(0.440)	(0.443)	(0.442)
× 1(Inflation at target)	0.614	0.574	0.555	0.508
	(0.541)	(0.512)	(0.516)	(0.514)
Standard controls interacted with periods	Yes	Yes	Yes	Yes
Age interacted with periods	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes
Observations	33,723	33,723	33,723	33,723
Distinct respondents	5,405	5,405	5,405	5,405
R-squared	0.62	0.60	0.60	0.60
Mean dep. var.	6.16	4.09	3.63	3.69
SD dep. var.	5.89	5.57	5.50	5.50

Notes: This table reports panel estimates of how the association of inflation expectations with measures of households' prior inflation experience and payoff relevance differs in the four shock periods relative to the pre-shock period, as specified in Equation (3). In Column (1), the dependent variable is expected inflation over the next 12 months; the remaining columns use the absolute deviation of these expectations from, respectively, the mean professional forecast from FocusEconomics, financial market–implied expectations from inflation swaps, or an AR(4) prediction (see Appendix D). The experience measure captures whether the respondent had ever suffered a real income or real wealth loss due to inflation, as elicited in the pre-shock period. Payoff relevance is a dummy equal to one if the primary heating energy source was fossil in December 2021. The controls (gender, age, employment, education, household income, homeownership, stockownership, and federal state) are interacted with each shock period. All specifications include individual and wave fixed effects. Standard errors, clustered at the household level, are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

B Details on classification of open-ended data

B.1 Classification of open-ended data on what is top of mind

In this appendix, we present the full list of codes and explanations that we initially handed out to research assistants to code the open-ended responses to the question: *What topics come to mind when you think about the economic situation of your household/company?* Each response could receive multiple codes. Some topics appear both as a macro and as a household- or firm-level code, which were meant to be used depending on the context. Research assistants were instructed to err on the side of using the household- or firm-level instead of the macro code in unclear or ambiguous cases.

Table B.1 List of codes for classification of open-ended data: Macroeconomic topics

Category	Explanation
Covid-19	Everything related to the pandemic (also if personal consequences of the pandemic for the respondent's household are mentioned – in that case indicate "corona" under "macro topic" and the specific personal consequences under the respective "personal topic"), Covid, corona, pandemic, lockdown.
Inflation	Inflation, rising prices, price level, price increase, purchasing power, energy prices (gas, gasoline, electricity etc.).
Inflation: Energy	Subset of category "inflation" that refers to energy prices: Energy, oil, gas, gasoline/Diesel, electricity, heating, heat pump, carbon tax.
Monetary policy	Interest rates, monetary policy, central bank, ECB, negative interest rate.
Growth	Economic growth, GDP, general economic situation, aggregate economy, business cycle, upswing, downturn, insolvencies, company bankruptcies, aggregate demand, overall industrial production, economic crisis, recession.
Labor market	Short-time work, employment, labor market, unemployment rate.
Stock market	DAX, stock exchange, stock market.
Housing market	Housing/residential market, real estate prices, rents
Fiscal policy	tax policy; general generosity of welfare system, government debt: overall financial situation of the government/state, deficit, public debt, public budget (deficit/surplus), value-added tax (reduction).
Regulation	Regulation, minimum wage, subsidies (R&D grants/funding).
Structural transformation	Long-term trends in the economy, digitalization, structural change, structural problems.
Trade	Imports, exports, outsourcing, foreign countries (e.g., "US elections", "Brexit"), globalization, etc.
Pension system	Pension system, old-age poverty.
Health system	Healthcare system, nursing care, shortage of nurses.
Education	Education system, vocational training, universities, schools, research, development.
Inequality	Inequality, income distribution, wealth distribution, social gap, poverty, social equity, gender inequality.
Migration	(Im-)migration, asylum seekers, refugees.
Environment/Climate	Environment, pollution, climate, climate crisis, climate change.
Uncertainty	Uncertainty about macroeconomic development.
Other	Residual code for macro topics.

Notes: This table lists all macroeconomic topics in our coding scheme and provides an explanation for each topic.

Table B.2 List of codes for classification of open-ended data: Household-level topics

Category	Explanation
Overall situation	General financial and economic situation of the household.
Spending	Expenditure/spending, consumption.
Income	Income, liquidity, money troubles, shortage/lack of money, insufficient financial security, etc.
Job situation	Job loss, job security, job search, short-time work.
Saving	Capital accumulation, retirement provision, old-age provision, building up reserves.
Financial assets	Shares, other financial investments, investment decisions.
Housing costs	Rental costs, house prices, ancillary leasing costs.
Debt	Debt, loans, amortisation payments, interest payments on existing debt, etc.
Health issues	Health risks, medical expenses.
Insurance	Insurance, protection, provision.
Uncertainty	Uncertainty about the financial and economic future of the household/the individual.
Other	Residual code for household-level topics.

Notes: This table lists all household-level topics in our coding scheme and provides an explanation for each topic.

Table B.3 List of codes for classification of open-ended data: Firm-level topics

Category	Explanation
Overall situation	Overall situation of firm.
Costs	Material costs, purchase prices, prices of intermediate inputs, labor costs, freight costs.
Supply chain	Problems with supply chain, bottlenecks in primary products/raw materials, logistics problems, suppliers.
Demand	Sales, demand, customers, orders/order situation/order backlog, competitive pressure.
Labor input	Labor shortage, shortage of skilled workers, vacancies, layoffs, personnel development, (vocational) training.
Profits/ Profitability	profits, margin, EBIT, profitability.
Liquidity/ Solvency	Liquidity, reserves, equity, insolvency.
Process organization	Work processes, digitalization, work-from-home, restructuring, process optimization.
Government aid programs	KfW loans (Investment Bank of German Government), financial aid and governmental crisis response programs (e.g., in response to Covid crisis) (all if related to own firm, only).
R&D	Innovation, quality improvement, product development.
Regulation	Approval processes/authorization procedures, bureaucracy/relation to public/tax authorities, public tender offers, taxation system/tax burden, environmental requirements (all if related to own firm, only).
Financing	Financing conditions, lending, debt.
Short time work	Employees put to short-time work, short-time work announced by the firm to the Federal Employment Agency.
Capacity utilization	Utilization of production capacities.
Rent and housing costs	Rent, housing costs.
Investment	Investment.
Uncertainty	Uncertainty regarding future development of firm.
Other	Residual code for firm-level topics.

Notes: This table lists all firm-level topics in our coding scheme and provides an explanation for each topic.

B.2 Classification of open-ended data on reasoning underlying inflation expectations

In Section 5.5, we present evidence using an open-ended question asking respondents about the considerations underlying their inflation expectations. In this appendix, we provide a detailed description of the LLM-based coding procedure we employ, the full list of codes and explanations included in the prompt for OpenAI's GPT-5, along with some examples from participants' answers, and quality checks to validate the accuracy of the method.

Coding procedure To analyze the unstructured text data, we devise a coding scheme that includes the survey context, the original question about the reasoning underlying the participants' inflation expectations, specific task instructions for the large language model, the complete list of codes with clear explanations and keywords for each category, and the desired final output format. Our main codes of interest, as presented in Table B.4, capture four supply-side factors: energy, labor input, supply chain, and other supply-related topics, aggregated in the "Any supply-side factor" category in our analysis, five demand-side factors: household spending, firm investment, monetary and fiscal policy, and other demand-related topics, aggregated in the "Any demand-side factor" category, and six general or macroeconomic factors: geopolitics, Covid-19, recent inflation, the normal range of inflation, , and other non-categorized topics. In particular, the large language model receives the following prompt:

Coding Manual: Considerations Underlying Inflation Forecasts

Original survey question following a numerical elicitation of a participant's expected rate of inflation over the next 12 months, included in a panel survey with a representative household sample from December 2020 to December 2022, i.e. prior to and during the post-pandemic inflation shock:

(original, German): "Bitte lassen Sie uns wissen, wie Sie Ihre Vorhersage zur Inflationsrate gemacht haben. Welche Überlegungen spielen für Sie bei dieser Vorhersage hauptsächlich eine Rolle?"

Task:

- Assign one or more codes to each response based on the content.
- A response can receive multiple codes if multiple distinct ideas are mentioned.
- Do not infer unstated reasons—code only what is explicitly mentioned.

- German keywords: Use common synonyms and related terms (examples provided per code) to recognize the concept.

Codes and definitions:

`energy` Mentions prices or costs of oil, gas, electricity, heating, energy shortages.
Keywords: Energie, Gas, Strom, Öl, Diesel, Heizung, Energiepreise.

`labor_input` Mentions developments to labor as a production input, such as labor shortages or wage costs.
Keywords: Arbeitskräftemangel, Lohnkosten, Löhne, Gehälter, Tarif, Gewerkschaft, Lohnforderungen.

`supply_chain` Mentions supply chain developments such as supply chain disruptions.
Keywords: Lieferkette, Engpass, Logistik, Fracht, Container, Suez, Rhein.

`other_supply` Mentions other supply-side developments to the extent they do not specifically cite topics related to energy, labor input or supply chains.
Keywords: Produktionskosten, Rohstoffe, Materialkosten, Verpackung.

`household_spending` Mentions aggregate consumer demand for goods/services. Only use this if it is clear that household/consumer spending is meant, not for broader references to demand without specifying households or consumers.
Keywords: Konsum, Kauflaune, Konsumentenstimmung.

`firm_investment` Mentions overall investment expenditure by firms.
Keywords: Investitionen, Capex, Anlageinvestitionen.

`mon_policy` Mentions monetary policy/interest rates/money supply/central bank actions.
Keywords: Zentralbank, EZB, Bundesbank, Zinsen, Leitzins, "Geld drucken", Quantitative Easing, Anleihekäufe, Geldmenge, Inflationsziel.

`fiscal_policy` Mentions government spending, taxes, subsidies, stimulus programs, VAT, CO_2 levy, price brakes.
Keywords: Staat, Staatsausgaben, Subvention, Steuern, MwSt., CO_2-Preis, Preisbremse.

`other_demand` Mentions other demand-side developments to the extent they do not specifically concern household spending, firm investment, monetary policy or fiscal policy.
Keywords: Exportnachfrage, Nachfrage, Binnennachfrage.

`geopolitics` Mentions wars, sanctions, trade embargoes, geopolitical tensions.
Keywords: Krieg, Ukraine, Russland, Sanktionen, Embargo.

`covid` Mentions direct impacts of COVID-19 (lockdowns, pandemic, aid programs).
Keywords: Pandemie, Covid, Lockdown, Impfung.

`recent_infl` Mentions recent or current overall realized inflation or inflation rates, from which the respondent (implicitly) seems to extrapolate to future inflation. Do not use this for restatements of the respondent's earlier forecast of what future overall inflation will be, nor for broader statements to current economic conditions that do not mention current or realized inflation.
Keywords: derzeitige Inflationsrate, Inflationsrate über das letzte Jahr.

`normal_range` Mentions the normal or typical level of inflation, that the inflation rate will go back to its normal levels or a generic return to normality.
Keywords: langfristige Inflationsrate, typische Inflationsrate, normalerweise.

`guess` Admits guessing, intuition, or reliance on gut feeling.
Keywords: Bauchgefühl, Schätzung, Geraten, Gefühl.

`other` Use this in case none of the above codes applies. Also use this for simple restatements of the forecast about future inflation made earlier that do not give any information on underlying considerations (e.g., "I think inflation will be 5%."), and for junk responses of gibberish.
Keywords: Weiß nicht, keine Ahnung, qwasasfasdf.

Final output format:

- Use exactly this header row and order:
  ```
  ResponseId text_responses energy labor_input supply_chain
  other_supply household_spending firm_investment mon_policy
  fiscal_policy other_demand geopolitics covid recent_infl
  normal_range guess other
  ```
- For each response: output one row with the provided `ResponseId` and full `text_responses`, then one value (`1` or `0`) for every code column above.
- Write `1` only if the response explicitly matches that code's definition; otherwise write `0`.
- Fill every code column; no blanks.
- Output the tab-separated table only—no explanations or extra lines.

Implementation details The coding procedure is implemented in an RStudio script that loads the coding prompt as a string, extracts the open-text data from the dataset into vectors, organizes the responses into batches of 100, and submits them sequentially to OpenAI's model via an HTTPS API request. The model returns, for each participant's response, a structured output of 0 or 1 for each code depending on whether the category is mentioned in the text, and the script then parses these outputs into a table that can be used directly in the empirical analysis.

Human validation To assess the quality of the AI coding, we randomly sampled 200 categorized open-text responses and hand-coded them using the same coding scheme as applied by OpenAI's GPT-5. More specifically, for each response we compared the AI's category assignments to the corresponding hand-coded assignments across all 15 categories. To do so, we computed overall validation rates by pooling category assignments across the full sample: (i) the fraction of all AI-assigned category labels that are confirmed by hand coding, and (ii) the fraction of all hand-coded category labels that are recovered by the AI. The resulting overall agreement rates are 86% and 72%, respectively, indicating a high degree of agreement between the two methods, and validating the accuracy of the LLM-based coding.

Table B.4 List of codes for classification of open-ended data: Inflation expectations

Category	Explanation	Examples
Any supply-side factor		
energy	Mentions prices or costs of oil, gas, electricity, heating, energy shortages.	"It is getting more and more expensive, as energy prices will continue to rise."; "The rising prices for oil and electricity, and therefore for food."
labor_input	Mentions developments to labor as a production input, such as labor shortages or wage costs.	"The development of the labor market makes the prices increase."; "The rising prices depend on the development of collective bargaining agreements."
supply_chain	Mentions supply chain developments such as supply chain disruptions.	"The development of the global economy is leading to a shortage of resources (materials, supplies, etc.) and to significantly higher prices in raw materials industries."
other_supply	Mentions other supply-side developments to the extent they do not specifically cite topics related to energy, labor input or supply chains.	"Current price development, especially for raw materials, in connection with the latest figures on this topic."; "The current price increases and the ones expected due to raw material shortages."
Any demand-side factor		
household_spending	Mentions aggregate consumer demand for goods/services. Only when it is clear that household/consumer spending is meant, not for broader references to demand without specifying households or consumers.	"Because I can afford fewer groceries"; "I notice it when shopping; there is hardly an item, especially food, that hasn't increased enormously."
firm_investment	Mentions overall investment expenditure by firms.	"Because of the global economic development, and the investments in renewable energy"; "If the economy invests more, then maybe things will get better."
mon_policy	Mentions monetary policy/interest rates/money supply/central bank actions.	"The inflation rate will not decline significantly. The ECB is also sticking to its interest rate policy and thus is preventing a lower rate."
fiscal_policy	Mentions government spending, taxes, subsidies, stimulus programs, VAT, CO_2 levy, price brakes.	"The developments of recent months play a role, and the new government will take on more debt, which will drive the inflation rate up."
other_demand	Mentions other demand-side developments to the extent they do not specifically concern household spending, firm investment, monetary policy or fiscal policy.	"There is high demand in the markets, low production, and a boom in some subsidized markets."; "The assessment of the economic situation in connection with import-export policy."
geopolitics	Mentions wars, sanctions, trade embargoes, geopolitical tensions.	"The current situation regarding the war in Ukraine and the associated economic effects on global trade."
covid	Mentions direct impacts of COVID-19 (lockdowns, pandemic, aid programs).	"More and more companies are being pushed to the brink of existence due to the pandemic."; "Based on experiences from the past, the economy will be better again after corona."
recent_infl	Mentions recent or current overall realized inflation or inflation rates, from which the respondent (implicitly) seems to extrapolate to future inflation (no restatements of future forecasts - no general economic conditions).	"Given the current inflation rate, I do not believe the market will calm down."; "Since we are now at almost 4 percent, it will certainly increase even more."
normal_range	Mentions the normal or typical level of inflation, that the inflation rate will go back to its normal levels or a generic return to normality.	"Inflation will continue to increase over the next few years before everything returns to normal."; "I think it will normalize a bit again."
guess	Admits guessing, intuition, or reliance on gut feeling.	"I estimated this figure based on my gut feeling; however, I don't know it for sure."
other	When none of the above codes applies, for simple restatements of the forecast about future inflation. for no underlying considerations and for junk.	"The price increases in all areas"; "I've heard the 3% figure several times now."; "The development from 2021 to 2022 and then, in addition, the constraints due to the current crises."

Notes: This table lists all categories in our coding scheme for the reasoning underlying inflation expectations and provides an explanation and several examples for each topic. The categories energy, labor_input, supply_chain and other_supply are aggregated into the "Any supply-side factor" category, while the categories household_spending, firm_investment, mon_policy, fiscal_policy and other_demand are aggregated into the "Any demand-side factor" category.

C Survey attrition

This appendix provides a detailed analysis of survey attrition in both the household and the firm panel. We document patterns of recontact, continued participation, and dropout over time, and assess whether attrition is systematically related to observables, inflation-related beliefs or inflation being top of mind, and how our main results depend on respondents' tenure in the survey.

Figure C.1 summarizes recontact rates and participation dynamics across waves. Panels A and B show that, for both households and firms, the majority of responses in each wave come from recontacted participants rather than new entrants. Recontact rates decline over time for households, whereas they remain relatively stable for firms. Panels C and D document the probability of continued participation and the implied hazard rates, restricting the samples to observations that could in principle be recontacted for the next waves. While households exhibit a declining probability of continued participation as tenure increases, hazard rates remain moderate and display no pronounced trend breaks. Firms exhibit higher and more stable continuation probabilities and correspondingly lower hazard rates throughout the sample period.

Table C.1 relates attrition to a broad set of observable characteristics. In the household sample, dropout is systematically associated with being unemployed, having lower household income, and being younger. These patterns are robust across alternative sample restrictions. In the firm sample, respondents from larger firms and firm owners are significantly less likely to drop out, while export exposure is not systematically related to attrition.

Table C.2 examines whether attrition is related to inflation being top of mind or to the absolute deviation of inflation expectations from professional forecasts. Across both households and firms, neither inflation being top of mind nor deviations from mean professional forecasts predict dropout once time fixed effects and, in particular, individual or firm fixed effects are included.[1] This indicates that selective attrition is unlikely to bias analyses that condition on within-respondent variation in inflation being top of mind or expectations.

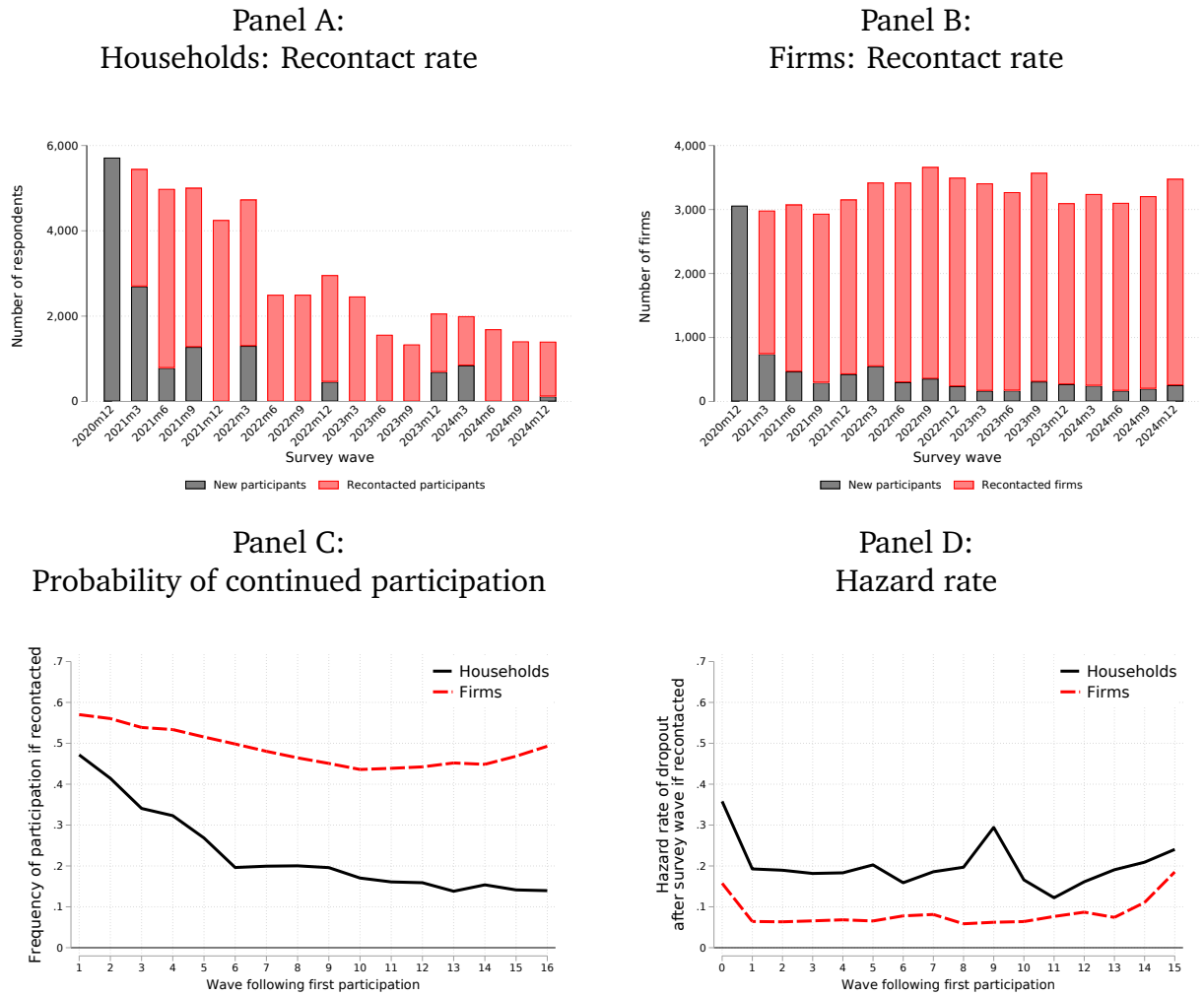
Tables C.3 and C.4 investigate whether the determinants of what is top of mind vary systematically with survey participation tenure. For this purpose, we extend the analyses presented in Table 3 and Figure 3 by interacting experience- and exposure-based predictors with indicators for below-median survey tenure. While economic experiences and exposures strongly predict inflation, energy, or growth being top of mind, these relationships mostly do not differ by respondents' tenure in the survey.

Finally, Table C.5 assesses whether the relationship between inflation being top of

[1] As we demonstrate in the paper, our results are robust to considering alternative benchmarks.

mind and inflation expectations, investigated in Table 5, varies with survey tenure. Across households and firms, the estimated effects of inflation being top of mind—and their evolution across macroeconomic phases—are mostly similar for respondents with shorter and longer participation histories. Interaction terms with below-median tenure are usually small and mostly statistically insignificant. Taken together, our main results are robust across participants with above and below median survey participation.

Figure C.1 Recontact rates and survey dropout



Notes: Panels A and B plot recontact rates across waves in the household and firm panels, respectively. The declines in the household sample size in June 2022 and June 2023 reflect a lower target sample size rather than attrition. Panel C shows, for households (solid line) and firms (dashed line), the frequency of participation in wave n after a respondent's first participation, conditional on being recontacted. Panel D shows the implied hazard rate, i.e., the probability of dropping out of the survey after participating in $n+1$ waves, conditional on remaining in the sample through wave n and being in the recontact pool in $n+1$.

Table C.1 Determinants of survey attrition

	Panel A: Households			Panel B: Firms
	(1) Drop-out next wave	(2) Drop-out next wave	(3) Drop-out next wave	(4) Drop-out next wave
Female	-0.000	-0.003	0.013	
	(0.005)	(0.005)	(0.010)	
Employed	-0.108***	-0.103***		
	(0.005)	(0.006)		
Log(household income)	-0.013***	-0.015***	-0.022**	
	(0.004)	(0.004)	(0.010)	
At least highschool	-0.006	-0.007	-0.003	
	(0.005)	(0.005)	(0.010)	
Homeowner	-0.004	-0.003	-0.003	
	(0.005)	(0.005)	(0.011)	
Stockowner	-0.004	-0.002	-0.021*	
	(0.005)	(0.005)	(0.011)	
Age	-0.004***	-0.005***	0.001	
	(0.000)	(0.000)	(0.000)	
Log(Employees)				-0.008***
				(0.001)
Export Share				-0.006
				(0.005)
Firm Owner				-0.005*
				(0.003)
Sample	All except 2023m3& 2024m12	Waves b/w 2020m12& 2022m12	Waves b/w 2023m6& 2024m9	All except 2024m12
Time FE	Yes	Yes	Yes	Yes
Federal state FE	Yes	Yes	Yes	Yes
Observations	45,526	38,092	7,434	52,102
Distinct respondents	12,026	12,026	2,308	7,971
R-squared	0.04	0.05	0.03	0.13
Mean dep. var.	0.22	0.23	0.19	0.09
SD dep. var.	0.42	0.42	0.39	0.29

Notes: This table relates survey attrition to a broad set of observable characteristics. The dependent variable is a dummy that is one if the respondent is observed in the sample in the current wave for the last time. All specifications include survey-wave and federal-state fixed effects in addition to the covariates shown. Column (1) uses the household sample for all waves except March 2023—when the sample was restricted to employed respondents—and the final wave in December 2024. Columns (2) and (3) restrict the household sample to the periods before and after this break, respectively. Column (4) uses the full firm sample excluding the final wave in December 2024. Standard errors, clustered at the household/firm level, are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table C.2 Survey attrition and inflation top of mind/expected inflation

	Panel A: Households				Panel B: Firms			
	(1) Drop-out next wave	(2) Drop-out next wave	(3) Drop-out next wave	(4) Drop-out next wave	(5) Drop-out next wave	(6) Drop-out next wave	(7) Drop-out next wave	(8) Drop-out next wave
Inflation top of mind	-0.007	-0.002			-0.000	0.004		
	(0.005)	(0.005)			(0.003)	(0.003)		
Abs. deviation of exp. inflation from mean prof. forecast			0.004***	-0.000			0.001	-0.001
			(0.000)	(0.000)			(0.001)	(0.001)
Standard controls	Yes	No	Yes	No	Yes	No	Yes	No
Individual/Firm FE	No	Yes	No	Yes	No	Yes	No	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,950	38,008	45,526	43,097	43,435	41,840	47,782	46,227
Distinct respondents	10,753	7,726	12,026	8,512	7,573	5,978	7,875	6,320
R-squared	0.04	0.33	0.05	0.33	0.13	0.30	0.13	0.29
Mean dep. var.	0.22	0.15	0.22	0.15	0.09	0.07	0.09	0.07
SD dep. var.	0.41	0.36	0.42	0.36	0.29	0.25	0.29	0.25

Notes: This table examines whether survey attrition is related to inflation being top of mind or to the absolute deviation of inflation expectations from the mean professional forecast collected by FocusEconomics. The dependent variable is a dummy equal to one if the respondent is observed in the sample for the last time in the current wave. Odd-numbered columns include standard controls: gender, age, employment, education, household income, homeownership, stockownership, and federal state for households, and firm size, export share, firm ownership, and federal state for firms. Even-numbered columns instead include household/firm fixed effects. All specifications include survey-wave fixed effects. Standard errors, clustered at the household/firm level, are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table C.3 Determinants of what is top of mind: Interactions with survey participation tenure

	Households: ... top of mind			Firms: ... top of mind		
	(1)	(2)	(3)	(4)	(5)	(6)
	Inflation	Inflation: Energy	Growth	Inflation	Inflation: Energy	Growth
Panel A						
Experience: Oil crises	0.068***	0.064***	-0.004**	-0.001	0.012	0.004
	(0.011)	(0.008)	(0.001)	(0.010)	(0.008)	(0.006)
× 1(total # waves participating < median)	-0.009	-0.018*	0.001	0.016	0.009	-0.008
	(0.013)	(0.010)	(0.002)	(0.013)	(0.011)	(0.009)
Exposure: Fossil heating	0.080***	0.052***	0.002			
	(0.019)	(0.011)	(0.003)			
× 1(total # waves participating < median)	-0.039**	0.008	0.000			
	(0.018)	(0.013)	(0.003)			
Exposure: High energy cost share				0.067***	0.095***	-0.008
				(0.011)	(0.009)	(0.007)
× 1(total # waves participating < median)				-0.020	-0.009	0.003
				(0.013)	(0.012)	(0.008)
Observations	43,354	43,354	43,354	41,663	41,663	41,663
Distinct respondents	10,760	10,760	10,760	5,057	5,057	5,057
R-squared	0.14	0.08	0.00	0.14	0.13	0.04
Mean dep. var.	0.28	0.14	0.01	0.35	0.18	0.12
SD dep. var.	0.45	0.35	0.10	0.48	0.38	0.32
	Households: Inflation top of mind			Households: Growth top of mind		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B						
Experience: Inflation loss	0.064***		0.054***	0.001		-0.000
	(0.011)		(0.012)	(0.002)		(0.002)
× 1(total # waves participating < median)	-0.022		-0.021	0.003		0.001
	(0.014)		(0.016)	(0.002)		(0.003)
Experience: Recession loss		0.056***	0.046***		0.005***	0.005**
		(0.013)	(0.013)		(0.002)	(0.002)
× 1(total # waves participating < median)		-0.017	-0.023		0.002	0.002
		(0.016)	(0.017)		(0.003)	(0.003)
Exposure: Fossil heating	0.071***	0.080***	0.072***	0.002	0.003	0.003
	(0.021)	(0.021)	(0.022)	(0.003)	(0.003)	(0.003)
× 1(total # waves participating < median)	-0.023	-0.003	-0.005	-0.001	0.000	0.001
	(0.025)	(0.026)	(0.028)	(0.004)	(0.005)	(0.005)
Observations	30,470	30,380	28,184	30,470	30,380	28,184
Distinct respondents	5,755	5,737	4,982	5,755	5,737	4,982
R-squared	0.15	0.15	0.15	0.00	0.01	0.00
Mean dep. var.	0.27	0.27	0.27	0.01	0.01	0.01
SD dep. var.	0.44	0.45	0.45	0.10	0.10	0.09
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table extends the analyses presented in Table 3 by interacting experience- and exposure-based predictors with indicators for below-median survey tenure. In the household sample, the median is defined separately for the sample of employed individuals (sampled until March 2023 only) and other individuals (all survey waves). The dependent variables are indicators for having specific topics top of mind. In Panel A, the experience measure is an indicator for whether the respondent was at least a teenager during the oil crises of the 1970s as defined in Footnote 8. In Panel B, the experience measures are based on whether the respondent had ever experienced (i) a real income loss or a real wealth loss due to inflation in the past ("Inflation loss") or (ii) an income loss due to a recession ("Recession loss"), as elicited in the pre-shock period. For households, we proxy payoff relevance using a dummy that is one if the primary heating energy source was fossil in December 2021, and control for gender, employment, education, household income, homeownership and stockownership, federal state, and—in Panel B only—the respondent's age. For firms, high exposure indicates an above-median ratio of energy costs to revenues in 2021, and we control for firm size, export share, the respondent being the firm owner, and federal state. All specifications include survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table C.4 Context-dependence of determinants of what is top of mind: Interactions with survey participation tenure

	Households: ... top of mind				Firms: ... top of mind	
	(1)	(2)	(3)	(4)	(5)	(6)
	Inflation	Inflation	Inflation: Energy	Inflation: Energy	Inflation	Inflation: Energy
Inflation experience						
× 1(Pre-shock period)	0.043***	0.038***	0.027***	0.015**	-0.008	0.012*
	(0.010)	(0.010)	(0.007)	(0.007)	(0.014)	(0.007)
× 1(total # waves participating < median)	-0.011	-0.007	-0.009	-0.006	-0.004	-0.007
	(0.012)	(0.013)	(0.009)	(0.009)	(0.020)	(0.011)
× 1(Inflation take-off)	0.066***	0.057***	0.032***	0.016*	-0.004	0.036***
	(0.014)	(0.014)	(0.009)	(0.010)	(0.021)	(0.012)
× 1(total # waves participating < median)	-0.000	-0.012	0.007	0.008	-0.018	0.004
	(0.018)	(0.020)	(0.013)	(0.014)	(0.029)	(0.017)
× 1(Post invasion)	0.089***	0.093***	0.069***	0.042***	-0.019	0.039**
	(0.017)	(0.018)	(0.014)	(0.014)	(0.018)	(0.017)
× 1(total # waves participating < median)	-0.018	-0.045	0.003	-0.022	0.026	0.005
	(0.025)	(0.034)	(0.021)	(0.027)	(0.023)	(0.021)
× 1(Disinflation)	0.075***	0.077***	0.096***	0.025*	-0.002	0.021
	(0.018)	(0.018)	(0.014)	(0.014)	(0.017)	(0.014)
× 1(total # waves participating < median)	0.011	-0.015	-0.007	0.003	0.032	0.013
	(0.031)	(0.048)	(0.025)	(0.039)	(0.020)	(0.016)
× 1(Inflation at target)	0.038*	0.038	0.061***	0.009	0.002	0.007
	(0.022)	(0.025)	(0.015)	(0.016)	(0.016)	(0.013)
× 1(total # waves participating < median)	0.051	0.127*	0.036	0.114**	0.002	0.028
	(0.054)	(0.077)	(0.041)	(0.053)	(0.020)	(0.017)
High exposure						
× 1(Pre-shock period)	0.016	0.008	-0.003	-0.008	0.009	0.023***
	(0.017)	(0.018)	(0.015)	(0.015)	(0.013)	(0.007)
× 1(total # waves participating < median)	-0.025	-0.023	-0.004	-0.002	0.004	0.002
	(0.019)	(0.021)	(0.015)	(0.016)	(0.020)	(0.012)
× 1(Inflation take-off)	0.058***	0.042*	0.018	0.006	0.049**	0.080***
	(0.020)	(0.022)	(0.014)	(0.017)	(0.020)	(0.013)
× 1(total # waves participating < median)	-0.013	-0.045	-0.002	-0.013	0.020	-0.008
	(0.027)	(0.028)	(0.018)	(0.021)	(0.030)	(0.019)
× 1(Post invasion)	0.075**	0.074**	0.046**	0.027	0.083***	0.112***
	(0.029)	(0.034)	(0.022)	(0.026)	(0.018)	(0.017)
× 1(total # waves participating < median)	-0.061*	-0.022	-0.006	-0.002	-0.032	0.004
	(0.032)	(0.061)	(0.026)	(0.047)	(0.024)	(0.023)
× 1(Disinflation)	0.113***	0.109***	0.086***	0.081***	0.082***	0.123***
	(0.025)	(0.030)	(0.015)	(0.018)	(0.017)	(0.015)
× 1(total # waves participating < median)	-0.045*	-0.008	0.007	0.056	-0.028	-0.025
	(0.026)	(0.048)	(0.020)	(0.036)	(0.023)	(0.020)
× 1(Inflation at target)	0.078**	0.056	0.046***	0.020	0.081***	0.104***
	(0.032)	(0.038)	(0.017)	(0.022)	(0.016)	(0.013)
× 1(total # waves participating < median)	-0.093**	-0.088	0.008	0.039	0.001	-0.028
	(0.044)	(0.084)	(0.029)	(0.069)	(0.023)	(0.021)
Experience measure	Oil	Loss	Oil	Loss	Oil	Oil
Exposure measure	Heating	Heating	Heating	Heating	Energy costs	Energy costs
Controls interacted with periods	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	43,354	30,470	43,354	30,470	41,663	41,663
Distinct respondents	10,760	5,755	10,760	5,755	5,057	5,057
R-squared	0.14	0.16	0.09	0.09	0.15	0.14
Mean dep. var.	0.28	0.27	0.14	0.13	0.35	0.18
SD dep. var.	0.45	0.44	0.35	0.34	0.48	0.38

Notes: This table extends the analyses presented in Figure 3 by multiplying the interaction terms of experience- and exposure-based predictors and dummies for each subperiod with additional indicators for below-median survey tenure. In the household sample, the median is defined separately for the sample of employed individuals (sampled until March 2023 only) and other individuals (all survey waves). The dependent variables are indicators for having specific topics top of mind. In Columns (1), (3), (5), and (6), the experience measure is an indicator for whether the respondent was at least a teenager during the oil crises of the 1970s as defined in Footnote 8. In Columns (2) and (4), the experience measures are based on whether the respondent had ever experienced a real income loss or a real wealth loss due to inflation in the past as elicited in the pre-shock period. For households, we proxy payoff relevance using a dummy that is one if the primary heating energy source was fossil in December 2021, and control—separately for each subperiod—for gender, employment, education, household income, homeownership and stockownership, federal state, and—Columns (2) and (4) only—the respondent's age. For firms, high exposure indicates an above-median ratio of energy costs to revenues in 2021, and we control—separately for each subperiod—for firm size, export share, the respondent being the firm owner, and federal state. All specifications include survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table C.5 Inflation being top of mind and inflation expectations: Split by survey participation

	Households: Expected inflation (%)		Firms: Expected inflation (%)	
	(1) OLS	(2) FE	(3) OLS	(4) FE
Panel A: Pre-shock period				
Inflation top of mind	0.052		0.175**	
	(0.383)		(0.081)	
× 1(total # waves participating < median)	0.274		0.037	
	(0.465)		(0.127)	
Panel B: Response to the shock				
Inflation top of mind				
× 1(Inflation take-off)		0.039		0.260***
		(0.129)		(0.091)
× 1(total # waves participating < median)		0.225		-0.181*
		(0.220)		(0.108)
× 1(Post invasion)		0.691***		0.145**
		(0.129)		(0.073)
× 1(total # waves participating < median)		-0.040		0.211**
		(0.193)		(0.096)
× 1(Disinflation)		0.309***		0.124**
		(0.112)		(0.050)
× 1(total # waves participating < median)		0.024		-0.017
		(0.206)		(0.078)
× 1(Inflation at target)		0.169		-0.087
		(0.154)		(0.063)
× 1(total # waves participating < median)		0.218		-0.021
		(0.384)		(0.104)
Standard controls	yes		yes	
Standard controls interacted with periods		yes		yes
Time FE	yes	yes	yes	yes
Firm/Individual FE		yes		yes
Observations	8,669	31,368	7,470	34,227
Distinct respondents	5,323	5,323	3,551	3,551
R-squared	0.11	0.63	0.08	0.71

Notes: This table extends the analyses presented in Table 5 by interacting the dummies for having inflation top of mind with indicators for below-median survey tenure. In the household sample, the median is defined separately for the sample of employed individuals (sampled until March 2023 only) and other individuals (all survey waves). The dependent variable is households' and firms' expected inflation for the next 12 months. Panel A restricts the sample to the pre-shock period and controls for the individual's gender, age, employment, education, income, homeownership and stockownership, and federal state for households, as well as for firm size, export share, the respondent being the firm owner, and federal state for firms. As specified in Equation (2), Panel B estimates how inflation top of mind *differentially* affects inflation expectations in shock period p compared to the pre-shock period by interacting inflation top of mind with indicators for each p and including fixed effects at the individual/firm level. In addition, all controls are interacted with dummy variables for the shock periods. All specifications include survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

D Ex-ante forecast benchmarks

D.1 Professional forecasts

We construct benchmarks from the survey of professional forecasters conducted by FocusEconomics, which provides one-year-ahead inflation forecasts for inflation in Germany. We construct seven alternative benchmarks from the underlying micro data. In particular, we calculate for each period (i) the mean, (ii) the median, (iii) the 75th percentile, and (iv) the 90th percentile of the individual forecasts. Additionally, we calculate the mean forecast among the four professional forecasters with the highest average forecasts in (v) 2019 and (vi) 2020. Finally, we calculate the mean forecast among the four professional forecasters with (vii) the lowest correlation with the average forecast before 2021 to address the issue that professional forecasters may be herding (Ottaviani and Sørensen, 2006). In addition, we employ the Survey of Professional Forecasters conducted by the European Central Bank, in which forecasters predict one-year-ahead Harmonised Index of Consumer Prices (HICP) inflation in the euro zone. For the ECB survey, we include the per-period mean and 90th percentile of forecasts for parsimony. In unreported regressions, we detected similar results using the remaining five measures listed above.

D.2 Financial market expectations

We consider two financial-market based measures of inflation expectations. The first one, the euro area one-year breakeven inflation rate, is derived from the spread between nominal and real zero-coupon yields. For the nominal yields we use the ECB's zero-coupon yield curve at the one-year maturity[2], while for the real side we rely on Refinitiv/Datastream data[3]. The breakeven rate is computed as the difference between these two series, which by construction reflects the compensation investors require for expected inflation over the horizon. The raw series consists of daily observations expressed in annual percentage terms. We aggregate the daily breakeven rates to a quarterly frequency by taking the average across all available trading days within a quarter.

The second measure we consider, the euro area 1-year inflation swap rate, is obtained from Refinitiv/Datastream[4] and corresponds to the standard one-year zero-coupon inflation swap (ZCIS) referencing the euro area HICP. This instrument exchanges fixed payments in euros for realized one-year inflation and is quoted directly in percent per annum. We use the mid-point between bid and ask quotes. As with the breakeven

[2] `https://data.ecb.europa.eu/data/datasets/YC/YC.B.U2.EUR.4F.G_N_A.SV_C_YM.SR_1Y`, series key = YC.B.U2.EUR.4F.G_N_A.SV_C_YM.SR_1Y

[3] Series ticker: EUILREAL1Y=

[4] Series ticker: EUHICP1Y=

series, we aggregate the daily swap rates to quarterly frequency by averaging across trading days within each quarter. The resulting series thus captures the mean level of market-implied one-year inflation expectations as priced in inflation swaps during the respective reporting quarter.

D.3 Time series predictions

For our time-series-model-based forecasts we rely on four key macroeconomic variables: the quarterly CPI inflation (year-over-year), the unemployment rate, real GDP growth (YoY, calendar-adjusted and chain-linked), and the ECB main refinancing rate. The raw monthly data is transformed into quarterly frequency by selecting the last observation of each quarter, resulting in a quarterly time series for Germany, spanning from 1991Q1 to 2024Q4. To generate out-of-sample forecasts of inflation expectations, we consider two model classes:

(1) Univariate Autoregressive (AR) Models, and

(2) Multivariate Vector Autoregression (VAR) Models.

We generate four-quarter-ahead ($H = 4$) forecasts using both AR(p) and VAR(p) models, with lag orders $p = 4, 8$. All forecasts are computed in a pseudo-real-time expanding-window fashion. Specifically, for each target quarter t, models are re-estimated using only data available up to the forecast origin $t - H$, closely mimicking a real-time setting. It is *pseudo*-real-time because we have to rely on the current releases of those variables and cannot use the version that was available at that particular time as these data are not consistently available.

For the AR models, the dependent variable is the quarterly year-on-year CPI inflation. A minimum sample size of $p + 9$ observations is required to ensure estimation stability. Forecasts are constructed recursively and dynamically for each available quarter where the sample is sufficient.

For the VAR models, the forecast system includes four jointly determined macroeconomic variables: CPI (YoY), real GDP growth (YoY), the unemployment rate, and the ECB policy rate. A smaller minimum of $p + 5$ observations is used. We require that the input data must be complete (no missing values at the forecast origin or in the estimation window). Thus, any quarter with incomplete data at the origin is skipped, ensuring internal consistency across all inputs.

In both model classes, forecast availability starts dynamically: the first forecastable quarter for each p is determined by when the required data and sample sizes become available. Forecasts are then produced recursively up to four quarters beyond the last available observation ($T_{\text{last}} + 4$).

While CPI inflation and the unemployment rate are available continuously throughout the sample, GDP growth is missing in early years and near the series end due to national accounts reporting lags. The ECB policy rate is only available from mid-1999 onward, following the launch of the euro. The AR forecasts depend only on CPI inflation and can be produced from the earliest quarter where the required sample and lags are available. In contrast, VAR forecasts require full multivariate data. Thus, for the VAR, missing values are handled by dropping incomplete rows from the estimation window and skipping any forecast whose origin has missing entries, ensuring that forecasts are always based on well-defined and consistent model states.

E Additional empirical results

E.1 Joint variation of what is top of mind across topics

In this appendix, we study the joint variation of different topics being top of mind. We estimate specifications of the following type:

$$\text{(4)} \qquad \text{Topic A top of mind}_{it} = \beta_0 + \beta_1 \text{Topic B top of mind}_{it} + \boldsymbol{X_{it}'\Pi} + \phi_t + \epsilon_{it},$$

where the top-of-mind variables are dummy variables indicating whether topic A or topic B is mentioned in response to the open-ended question, respectively. $\boldsymbol{X_{it}}$ includes our standard set of controls, which in some specifications is replaced by individual fixed effects. In addition, all specifications include survey wave fixed effects, ϕ_t.

Panel A of Table E.1 shows the results for households. The tendencies of inflation and monetary policy being top of mind are strongly positively correlated. Specifically, monetary policy being top of mind increases the likelihood that inflation is top of mind by 27.1pp according to pooled OLS estimates (Column 3, $p < 0.01$) and by 12.6pp conditional on individual fixed effects (Column 4, $p < 0.01$). Aggregate economic growth being top of mind is weakly positively related to inflation or monetary policy being top of mind (Columns 1, 2, 5, and 6). Lastly, the tendency to write about household-level topics is strongly negatively associated with the tendency to write about macroeconomic topics: at least one household-level topic being top of mind reduces the likelihood of at least one aggregate topic being top of mind by 18.1pp and 26.2pp according to pooled OLS and individual fixed effects estimates, respectively (Columns 7 and 8, $p < 0.01$). Panel B of Table E.1 shows broadly similar results for firms. Figure E.1 displays pairwise correlation coefficients for a broader set of macroeconomic and household- or firm-level topics.

One concern is that the open-response format might mechanically produce negative relationships between different topics being top of mind, as respondents may only provide a response of a certain length. Given that there is a strong *positive* correlation across some topics (e.g., inflation and monetary policy), this concern appears less severe. Moreover, the length of responses could reflect limits to respondents' actual cognitive capacity rather than additional filtering through the response format. A related concern is that respondents may interpret the prompt differently, leading them to refer either to aggregate or to local topics. However, (i) the interpretation of the prompt will at least partly reflect what is top of respondents' mind, and (ii) more stable differences in response behavior are shut down by individual fixed effects.

Table E.2 shows that the negative relationship between macroeconomic and more local topics being top of mind is robust to various checks. Columns 1 and 2 display the

Table E.1 Joint variation of what is top of mind across topics

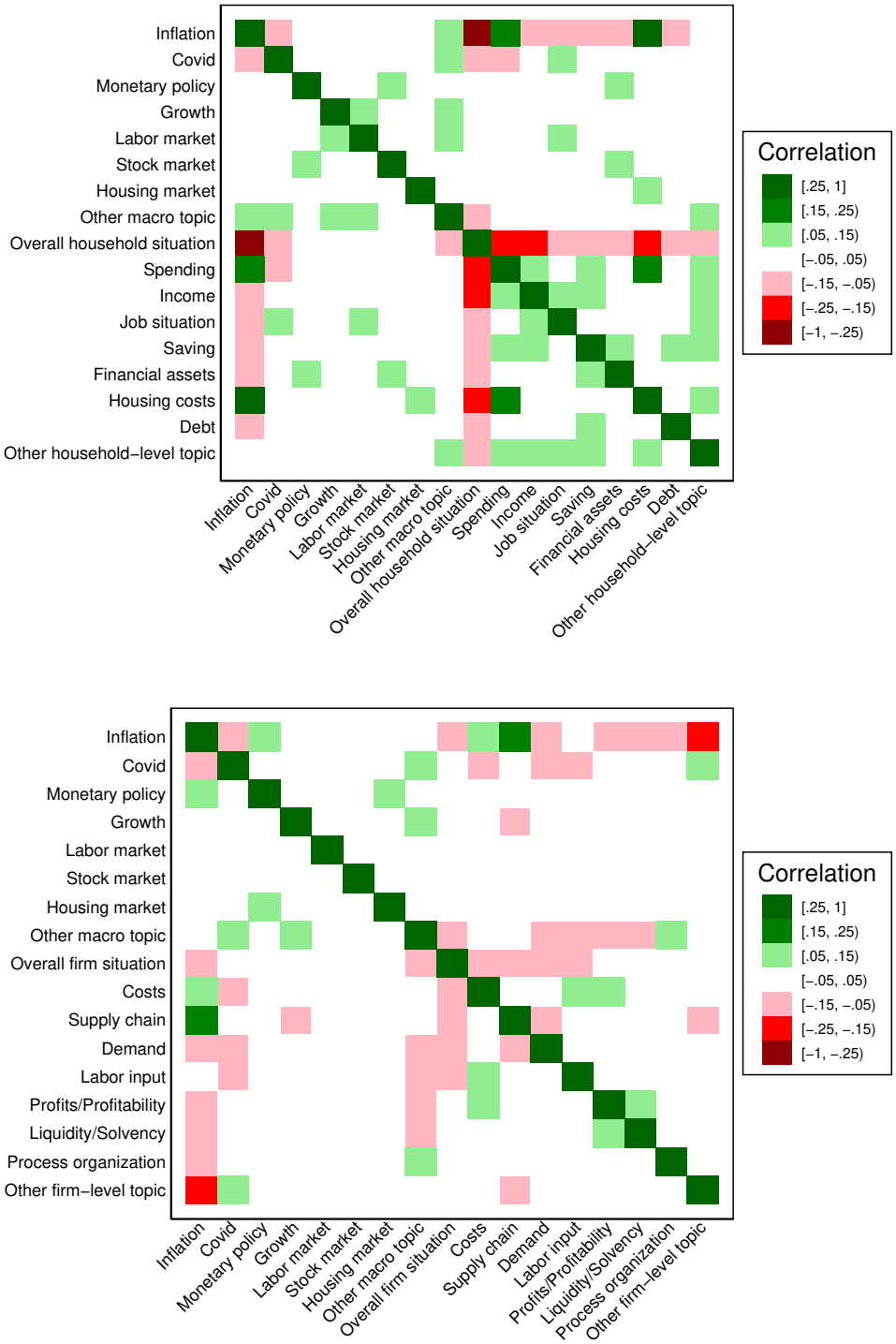
	Inflation top of mind				Monetary policy top of mind		Any macro topic top of mind	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Households								
Growth top of mind	0.117***	0.030			0.021**	0.019**		
	(0.024)	(0.024)			(0.008)	(0.008)		
Monetary policy top of mind			0.271***	0.126***				
			(0.027)	(0.026)				
Any household-level topic top of mind							-0.181***	-0.262***
							(0.007)	(0.006)
Distinct respondents	10,760	7,890	10,760	7,890	10,760	7,890	10,760	7,890
Observations	43,354	41,906	43,354	41,906	43,354	41,906	43,354	41,906
R-squared	0.14	0.48	0.14	0.48	0.01	0.24	0.09	0.48
Panel B: Firms								
Growth top of mind	0.021***	-0.014**			0.023***	0.009**		
	(0.007)	(0.007)			(0.004)	(0.004)		
Monetary policy top of mind			0.174***	0.105***				
			(0.014)	(0.013)				
Any firm-level topic top of mind							-0.291***	-0.272***
							(0.006)	(0.006)
Distinct respondents	7,855	6,266	7,855	6,266	7,855	6,266	7,855	6,266
Observations	49,535	47,946	49,535	47,946	49,535	47,946	49,535	47,946
R-squared	0.14	0.41	0.15	0.41	0.01	0.31	0.08	0.36
Controls	Yes	No	Yes	No	Yes	No	Yes	No
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual/Firm FE	No	Yes	No	Yes	No	Yes	No	Yes

Notes: This table displays regressions of dummy variables indicating households (Panel A) and firms (Panel B) having a given topic top of mind—i.e., an indicator taking value one if the topic is mentioned in response to the open-ended survey question—on dummy variables indicating to have another topic top of mind. Having macroeconomic topics top of mind in general (Columns 7 and 8) includes all macro topics. Having any household-level or firm-level topic top of mind covers all local-level topics. Odd-numbered columns control for the individual's gender, age, education, employment status, household income, homeownership, stock ownership, and federal state of residence as well as the firm's number of employees (in logs), export share, the federal state of location, and a dummy that is one if the respondent is the firm owner, respectively. Even-numbered columns instead control for individual and firm fixed effects, respectively, and thus drop singleton observations. All specifications control for survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

baseline specifications using dummy variables for writing about at least one macro-, household-, or firm-level topic. Columns 3 and 4 instead use continuous variables for the number of topics from a given family. Columns 5 and 6 exclude topics from the macro-, household-, and firm-level variables for which the classification into macro vs household-/firm-level may at times not be clear-cut.[5] Lastly, Columns 7 and 8 show

[5]Specifically, we exclude "housing market", "regulation", "uncertainty", "labor market", and "monetary policy" from the macro topics, "housing costs", "uncertainty", "job situation", and "debt" from the household-level topics, and "costs", "rent/housing costs", "uncertainty", "labor input", "regulation", "government aid programs", "short-time work", and "financing" from the firm-level topics. Hence, only 14 out of 19 macro topics, 8 out of 13 household-level topics, and 10 out of 19 firm-level topics listed in

Figure E.1 Joint variation of what is top of mind across topics



Notes: This figure presents correlation coefficients between indicators for having different topics top of mind as measured in the open-ended data. Positive correlation coefficients within specific ranges are presented in varying shades of green, while negative correlation coefficients are presented in varying shades of red. Panel A focuses on households, while Panel B focuses on firms. The categories "Other macro topic", "Other household-level topic", and "Other firm-level topic" subsume all macro, household-level, and firm-level topics in our coding scheme that are not displayed in their own columns/rows in the figure (i.e., the categories in the figure are broader than the original "other" categories in our coding scheme displayed in Appendix Tables B.1, B.2, and B.3).

Appendix Tables B.1–B.3 are still included.

Table E.2 Joint variation of what is top of mind across topics: Robustness

	Any macro topic top of mind (baseline)		Number of macro topics top of mind		Any macro topic top of mind (narrow definition)		Any macro topic top of mind excl. Covid-19	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Households								
Any household-level topic top of mind	-0.181***	-0.262***					-0.159***	-0.237***
	(0.007)	(0.006)					(0.007)	(0.006)
Number of household-level topics top of mind			-0.040***	-0.132***				
			(0.005)	(0.005)				
Any household-level topic top of mind (narrow definition)					-0.228***	-0.265***		
					(0.006)	(0.006)		
Distinct respondents	10,760	7,890	10,760	7,890	10,760	7,890	10,760	7,890
Observations	43,354	41,906	43,354	41,906	43,354	41,906	43,354	41,906
R-squared	0.09	0.48	0.05	0.45	0.12	0.49	0.13	0.49
Panel B: Firms								
Any firm-level topic top of mind	-0.291***	-0.272***					-0.275***	-0.260***
	(0.006)	(0.006)					(0.006)	(0.006)
Number of firm-level topics top of mind			-0.132***	-0.200***				
			(0.005)	(0.005)				
Any firm-level topic top of mind (narrow definition)					-0.155***	-0.149***		
					(0.006)	(0.005)		
Distinct respondents	7,855	6,266	7,855	6,266	7,855	6,266	7,855	6,266
Observations	49,535	47,946	49,535	47,946	49,535	47,946	49,535	47,946
R-squared	0.08	0.36	0.04	0.38	0.06	0.34	0.10	0.36
Controls	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	No	No	No	No	No	Yes	No	No

Notes: This table displays regressions of dummy variables indicating households (Panel A) and firms (Panel B) having macroeconomic topics top of mind—i.e., an indicator taking value one if any macroeconomic topic is mentioned in response to the open-ended survey question—on dummy variables indicating having any household-level or firm-level topic top of mind, respectively. Columns 1 and 2 replicate the baseline results displayed in Columns 7 and 8 of Table E.1. Columns 3 and 4 use continuous variables for the number of topics top of mind from a given family. Columns 5 and 6 exclude topics for which the classification into macro vs household-/firm- level may at times not be clear-cut (see Footnote 5 for details). In Columns 7 and 8, Covid-19 is dropped from the macroeconomic topics (and also not coded as a household- or firm-level topic). Odd-numbered columns control for the individual's gender, age, education, employment status, household income, homeownership, stock ownership, and federal state of residence as well as the firm's number of employees (in logs), export share, the federal state of location, and a dummy that is one if the respondent is the firm owner, respectively. Even-numbered columns instead control for individual and firm fixed effects, respectively, and thus drop singleton observations. All specifications control for survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

that the negative relationships between writing about aggregate and writing about household-/firm-level topics are robust to excluding Covid-19 from the macroeconomic topics, suggesting that the patterns are not driven by the specific circumstances of the pandemic at the beginning of our sample period.

E.2 Variance decomposition

How much of the empirical variation in what is top of mind is explained by persistent individual-level heterogeneity and how much by changes in the macroeconomic environment? To see this, we regress our main measures of what is top of mind on (i) individual fixed effects only, (ii) time fixed effects only, and (iii) both sets of fixed effects jointly, and compare the R-squared of these regressions (see Giglio et al., 2021, for such a decomposition in the context of stock return expectations). We focus on dummy variables indicating specific individual macroeconomic topics and dummy variables for at least one macro or at least one household- or firm-level topic being top of mind.

The results are shown in Table E.3. Panel A uses the largest possible samples, i.e., respondents with at least two non-missing observations. Individual fixed effects are the dominant source of systematic variation in what is top of mind. For households, they explain between 22% (growth) and 40% (inflation) of the variation in topic mentions (Column 1), while time fixed effects explain at most 12% (Column 2). Systematic time variation is most pronounced for inflation and energy. Including individual and time fixed effects together leaves between 55% and 77% of the variation in whether a given topic is mentioned unexplained (Column 3). This variation reflects idiosyncratic time variation at the household level. Similarly to the patterns for households, individual fixed effects are a central source of variation in what is top of mind among firms (Column 5). The importance of time fixed effects among firms mirrors that among households, the only difference being stronger systematic time variation in whether Covid-19 is mentioned (Column 6). Between 58% and 73% of the variation in what is top of mind is idiosyncratic time-variation at the firm-level (Column 7). Panels B and C restrict the samples to households or firms that appear at least four or six times in our panels, leaving the results very similar.

E.3 Confidence

We also examine how inflation being top of mind is linked to households' and firms' confidence in their inflation expectations. We use the same empirical approach as in Section 5.2: we first estimate cross-sectional conditional correlations in the pre-shock period and then examine how the relationship changes over the shock period in specifications with respondent fixed effects. We also include instrumental variable estimates instrumenting the top-of-mind indicator with a lagged value.

Table E.4 presents the results. Panel A shows that, in the pre-shock period, having inflation top of mind is associated with a 0.21 standard deviations higher confidence for households ($p < 0.01$) and a 0.07 standard deviations higher confidence for firms ($p < 0.05$). This is consistent with the Bayesian prediction that the higher information

Table E.3 Variance decomposition of what is top of mind

	Households R^2 (%) of panel regression				Firms R^2 (%) of panel regression			
	(1) Indiv. FE	(2) Time FE	(3) Time FE + Indiv. FE	(4) Obs.	(5) Indiv. FE	(6) Time FE	(7) Time FE + Indiv. FE	(8) Obs.
Panel A: At least two non-missing observations								
Any macro topic	41.5	5.4	45.1	41,906	30.5	2.1	32.4	47,946
Inflation	40.1	11.8	47.7	41,906	29.3	12.5	40.5	47,946
Inflation: Energy	34.2	6.3	39.0	41,906	32.2	10.1	41.5	47,946
Covid-19	34.2	3.9	36.5	41,906	24.9	17.1	38.2	47,946
Monetary policy	23.8	0.1	23.9	41,906	30.0	0.8	30.6	47,946
Growth	22.4	0.2	22.5	41,906	24.3	3.3	26.9	47,946
Any household-/firm-level topic	37.8	1.5	38.8	41,906	27.6	1.9	28.9	47,946
Panel B: At least four non-missing observations								
Any macro topic	38.0	5.3	42.1	34,302	28.5	2.1	30.5	44,005
Inflation	36.2	11.2	44.8	34,302	27.3	12.5	39.0	44,005
Inflation: Energy	30.7	6.2	35.9	34,302	30.2	10.0	39.8	44,005
Covid-19	26.5	3.9	29.4	34,302	21.5	17.0	35.6	44,005
Monetary policy	20.3	0.1	20.4	34,302	28.6	0.8	29.2	44,005
Growth	17.4	0.2	17.6	34,302	22.0	3.3	24.7	44,005
Any household-/firm-level topic	33.6	1.6	34.7	34,302	25.2	1.8	26.6	44,005
Panel C: At least six non-missing observations								
Any macro topic	36.4	5.0	40.7	26,109	27.3	2.2	29.4	39,108
Inflation	34.0	10.6	43.3	26,109	25.5	12.8	37.8	39,108
Inflation: Energy	28.3	5.9	33.8	26,109	28.9	10.3	38.8	39,108
Covid-19	22.4	4.2	26.0	26,109	19.2	17.0	34.2	39,108
Monetary policy	17.9	0.1	18.0	26,109	27.3	0.7	28.0	39,108
Growth	13.7	0.3	14.0	26,109	19.9	3.4	22.9	39,108
Any household-/firm-level topic	31.1	1.7	32.5	26,109	24.0	1.7	25.4	39,108

Notes: This table displays the R-squared from regressing dummies for mentioning different topics in the response to the open-ended question on individual fixed effects (Columns 1 and 5), time fixed effects (Columns 2 and 6), and both time and individual fixed effects (Columns 3 and 7). Columns 4 and 8 display the number of observations. For each variable, only respondents with at least two (Panel A), four (Panel B), and six non-missing observations (Panel C) for the corresponding variable are included, respectively.

acquisition among those with inflation top of mind should increase their confidence in their beliefs.

Panel B examines how the relationship between inflation being top of mind and confidence changes over the shock period. On the one hand, households with inflation top of mind increase their acquisition of inflation-related information more strongly over the shock period (see Section 5.1 and Table 4). One may thus expect an increasing association of inflation being top of mind with confidence. On the other hand, external uncertainty increases during the shock—i.e., the environment becomes more volatile—and attentive individuals are more likely to become aware of this, potentially lowering their confidence in their beliefs. Empirically, the relationship between top of mind and confidence somewhat increases during the inflation take-off and the post-invasion period. This is the case for both OLS and IV estimations, although the estimates sometimes miss statistical significance. The patterns are more mixed for the periods of disinflation and of inflation being back at the target.

Table E.4 Inflation being top of mind and confidence

	Households: Confidence (z)			Firms: Confidence (z)		
	(1) OLS	(2) OLS	(3) IV	(4) OLS	(5) OLS	(6) IV
Panel A: Pre-shock period						
Inflation top of mind	0.214***			0.071**		
	(0.037)			(0.036)		
Panel B: Reaction to the shock						
Inflation top of mind						
× 1(Inflation take-off)		0.009	0.002		0.072**	0.371**
		(0.023)	(0.224)		(0.028)	(0.188)
× 1(Post invasion)		0.036*	0.034		0.028	0.393
		(0.019)	(0.238)		(0.023)	(0.253)
× 1(Disinflation)		0.039**	-0.034		-0.006	0.411
		(0.019)	(0.232)		(0.018)	(0.258)
× 1(Inflation at target)		0.022	-0.107		-0.028	0.503
		(0.031)	(0.230)		(0.026)	(0.329)
Standard controls	yes			yes		
Standard controls interacted with periods		yes	yes		yes	yes
Time FE	yes	yes	yes	yes	yes	yes
Firm/Individual FE		yes	yes		yes	yes
Observations	8,669	31,368	31,368	7,206	32,645	32,645
Distinct respondents	5,323	5,323	5,323	3,488	3,488	3,488
R-squared	0.15	0.64	0.04	0.01	0.49	-0.02
First-Stage SW F-Statistic (Period 1)			45.93			72.17
First-Stage SW F-Statistic (Period 2)			47.27			66.30
First-Stage SW F-Statistic (Period 3)			48.71			66.24
First-Stage SW F-Statistic (Period 4)			52.37			65.67

Notes: This table displays regressions of households' and firms' confidence in their inflation expectations (z-scored) on a dummy for whether inflation is top of mind. Panel A restricts the sample to the pre-shock period and controls for the individual's gender, age, employment, education, income, homeownership and stockownership, and federal state for households, as well as for firm size, export share, the respondent being the firm owner, and federal state for firms. Panel B estimates how inflation being top of mind *differentially* affects inflation expectations in shock period p compared to the pre-shock period by interacting inflation top of mind with indicators for each p and including fixed effects at the individual/firm level. In addition, all controls are interacted with dummy variables for the shock periods. Columns (2) and (5) apply OLS, while in Columns (3) and (6) the contemporaneous top-of-mind indicator for inflation is instrumented with the average of the top-of-mind indicator over the previous subperiod. Sanderson–Windmeijer F-statistics are displayed for each endogenous explanatory variable in the bottom panel. All specifications include survey wave fixed effects. Standard errors clustered at the household/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

E.4 Belief disagreement

Table E.5 presents different measures of belief dispersion separately for respondents with inflation top of mind and those concerned with other topics. To only capture within-wave disagreement, the inflation expectations are purged of wave fixed effects before calculating dispersion. For households, the table displays dispersion in both

nowcasts and forecasts, while for firms, only forecasts are available.

For both forecasts and nowcasts, households with inflation top of mind exhibit lower dispersion as captured by the cross-sectional standard deviation and the difference between the 90th and the 10th percentile. Differences in the interquartile range are less pronounced. For firms, the differences in expectation dispersion depending on whether inflation is top of mind are smaller and less systematic. If anything, dispersion appears somewhat higher among firms with inflation top of mind.

Table E.5 Inflation being top of mind and belief disagreement

	Households			Firms		
	(1) SD	(2) IQR	(3) p90-p10	(4) SD	(5) IQR	(6) p90-p10
Expected inflation						
Inflation top of mind (a)	4.88	3.16	7.61	2.39	1.88	4.33
Inflation not top of mind (b)	6.13	3.07	9.25	2.07	1.36	3.41
p-value: (a)=(b)	0.00	0.35	0.00	0.00	0.00	0.00
Perceived current inflation						
Inflation top of mind (c)	4.33	3.00	6.25			
Inflation not top of mind (d)	5.54	2.83	7.63			
p-value: (c)=(d)	0.00	0.00	0.00			
p-value: (a)=(c)	0.00	0.13	0.00			

Notes: This table displays the standard deviation, the interquartile range, and the range between the 90th and 10th percentile of inflation expectations (both samples) and perceived current inflation (for households only) separately for respondents that have inflation top of mind according to our text-based measure and those who do not. Before calculating the dispersion measures, the data are purged of survey wave fixed effects. The displayed p-values refer to tests of the equality of standard deviations (Columns 1 and 4, Levene's test) and tests of the equality of the interquartile range and the range between the 90th and 10th percentile (remaining columns, bootstrapped) between respondents that have inflation top of mind (a) and those not (b) according to the open-ended measure. The samples are restricted to waves between September 2021 and December 2024, as perceived current inflation is only elicited in these waves.

F Instructions of panel surveys

This appendix provides an overview of the translated and original survey instructions of the key questions in the household and firm surveys. We provide an overview of the main questions (asked in all waves) as well as additional questions only asked in subsets of the waves. In principle, the survey is identical for the household and firm panels. However, some questions are only asked in the household panel due to space constraints in the firm survey. Moreover, the wording of some questions is slightly tailored to better fit the respective situation of households and firms. Section F.1 provides instructions translated to English, while Section F.2 provides the original instructions in German.

F.1 English translation

F.1.1 Core instructions included in all waves

Topics top of mind:
What topics come to mind when you think about the economic situation of your company/household? _____

Expected inflation:
What do you think, what will the inflation rate (measured by the consumer price index) likely be in Germany over the next 12 months (i.e., until XXX)? __%

Confidence in forecast:
How certain are you about your previous estimate?
very uncertain ☐ ☐ ☐ ☐ ☐ very certain

F.1.2 Additional instructions included in subsets of the waves

Perceived current inflation (households only, starting 2021m9):
What do you think was the inflation rate in Germany over the last 12 months (i.e., from XXX to XXX)? __%

Experience: Inflation loss (wealth) (households only, 2021m3 & 2021m6):
Has your wealth ever lost significant value due to inflation?
☐ Yes ☐ No

Experience: inflation loss (income) (households only, 2021m3 & 2021m6):
Has your household income ever increased significantly less than the general price level?
☐ Yes ☐ No

Experience: Recession loss (households only, 2021m3 & 2021m6):

Have you ever suffered a loss of income due to economic fluctuations?
☐ Yes ☐ No

Exposure: Energy cost share (regular firm survey 2022m4):
What share of revenue do you estimate your company had to spend on energy expenses in 2021 (energy intensity)? ___%

Exposure: Fossil heating (households: 2023m6):
Which energy source did you mainly use to heat your house/apartment in December 2021 (i.e., before the massive increase in energy prices)?
☐ Gas
☐ Heating oil
☐ Wood/wood pellets, etc.
☐ Solar, photovoltaics, self-produced electricity
☐ Electricity (purchased externally)
☐ Remote heating
☐ Other/don't know

Information acquisition about inflation (2020m12-2023m3):
What do you think: How frequently did you gather information about each of the following topics in the last 3 months before taking this survey?

- Development of inflation in Germany
  0 times ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 times or more

Minutes spent on inflation news (households: 2021m12-2022m12; firms: 2021m12-2022m9):
What do you think, how much time have you spent consuming news on inflation from various media (TV, newspaper, news websites, radio etc.) in the past 7 days?
☐ Less than 5 minutes
☐ Between 5 minutes and 10 minutes
☐ Between 10 minutes and 30 minutes
☐ Between 30 minutes and 60 minutes
☐ More than 60 minutes

Consumed reports on inflation (2021m9-2022m12):
How many reports on inflation in Germany do you estimate you have seen or heard in the last 3 months in the following media?

- Television
  none ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 or more
- Newspapers/News websites
  none ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 or more
- Radio
  none ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 or more

Perceived importance (Households: 2020m12-2023m3, firms: 2020m12; 2021m9-2023m3):
To what extent do you agree with the following statements?

- Inflation in Germany is important for the current economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree
- Monetary policy of the ECB (e.g., interest rate policy) is important for the current economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree
- Economic growth in Germany is important for the current economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree

Reasoning underlying inflation expectations (households only, 2020m12-2022m12)
Please tell us how you formed your forecast of the inflation rate. Which considerations played the main role for you in making this prediction?
Please answer in a few sentences. _____

Price changes of own goods/services (regular firm survey, all waves):
Retrospective - Developments over the last month:
Compared to the month before, our sales prices were
☐ increased
☐ remained unchanged
☐ decreased

F.2 Original instructions in German

F.2.1 Core instructions included in all waves

Topics top of mind:
Welche Themen kommen Ihnen in den Sinn, wenn Sie an die wirtschaftliche Situation Ihres Unternehmens/Haushalts denken? _____

Expected inflation:
Was denken Sie, wie hoch wird die Inflationsrate (gemessen am Verbraucherpreisindex) über die nächsten 12 Monate (also bis zum XXX) in Deutschland wahrscheinlich sein?
__%

Confidence in forecast:
Wie sicher sind Sie sich bei dieser Einschätzung?
sehr unsicher ☐ ☐ ☐ ☐ ☐ sehr sicher

F.2.2 Additional instructions included in subsets of the waves

Perceived current inflation (households only, starting 2021m9):

Was denken Sie, wie hoch war die Inflationsrate in Deutschland über die letzten 12 Monate (also über den Zeitraum von XXX bis XXX)? __%

Experience: inflation loss (wealth) (households only, 2021m3 & 2021m6):

Hat Ihr Vermögen schon einmal aufgrund von Inflation stark an Wert verloren?
☐ Ja ☐ Nein

Experience: inflation loss (income) (households only, 2021m3 & 2021m6):

Ist Ihr Haushaltseinkommen schon einmal deutlich weniger stark gestiegen als das allgemeine Preisniveau?
☐ Ja ☐ Nein

Experience: recession loss (households only, 2021m3 & 2021m6): Haben Sie schon einmal aufgrund von konjunkturellen Schwankungen Einkommenseinbußen hinnehmen müssen?
☐ Ja ☐ Nein

Exposure: Energy cost share (regular firm survey 2022m4):
Was schätzen Sie, welchen Anteil des Umsatzerlöses musste Ihr Unternehmen 2021 für Energiekosten aufwenden (Energieintensität)? ___%

Exposure: Fossil heating (households: 2023m6):
Welchen Energieträger nutzten Sie hauptsächlich für die Heizung Ihres Hauses/Ihrer Wohnung im Dezember 2021 (also vor dem massiven Anstieg der Energiepreise)?
☐ Gas
☐ Heizöl
☐ Holz/Holzpellets u.ä.
☐ Solar, Photovoltaik, Eigenstrom
☐ Strom (extern bezogen)
☐ Fernwärme
☐ anderer/weiß nicht

Information acquisition about inflation (2020m12-2023m3):

Was schätzen Sie, wie oft haben Sie sich in den letzten 3 Monaten zu den folgenden Themen informiert?

- Entwicklung der Inflation in Deutschland
  gar nicht ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 mal und öfter

Minutes spent on inflation news (households: 2021m12-2022m12; firms: 2021m12-2022m9):

Was schätzen Sie, wieviel Zeit haben Sie in den letzten 7 Tagen insgesamt damit verbracht, Nachrichten zur Inflation in verschiedenen Medien (Fernsehen, Zeitung, Nachrichten-Websites, Radio, etc.) zu konsumieren?

☐ Weniger als 5 Minuten
☐ Zwischen 5 Minuten und 10 Minuten
☐ Zwischen 10 Minuten und 30 Minuten
☐ Zwischen 30 Minuten und 60 Minuten
☐ Mehr als 60 Minuten

Consumed reports on inflation (2021m9-2022m12):
Was schätzen Sie, wie viele Berichte zur Inflation in Deutschland haben Sie in den letzten 3 Monaten in den folgenden Medien gesehen bzw. gehört?

- Fernsehen
  keine ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 und mehr
- Zeitungen/Nachrichten-Websites
  keine ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 und mehr
- Radio
  keine ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 und mehr

Perceived importance (Households: 2020m12-2023m3, firms: 2020m12; 2021m9-2023m3):
Inwiefern stimmen Sie den folgenden Aussagen zu?

- Die Inflation in Deutschland ist wichtig für die derzeitige wirtschaftliche Situation unseres Unternehmens/meines Haushalts.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu
- Die Geldpolitik der EZB (z.B. Zinspolitik) ist wichtig für die derzeitige wirtschaftliche Situation unseres Unternehmens/meines Haushalts.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu
- Das Wirtschaftswachstum in Deutschland ist wichtig für die derzeitige wirtschaftliche Situation unseres Unternehmens/meines Haushalts.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu

Reasoning underlying inflation expectations (households only, 2020m12-2022m12):
Bitte lassen Sie uns wissen, wie Sie Ihre Vorhersage zur Inflationsrate gemacht haben. Welche Überlegungen spielten für Sie bei dieser Vorhersage hauptsächlich eine Rolle? Bitte antworten Sie in einigen Sätzen. _____

Price changes of own goods/services (regular firm survey, all waves):
Rückblick - Tendenzen im letzten Monat:
Unsere Preise wurden im Vergleich zum Vormonat
☐ erhöht
☐ nicht verändert
☐ gesenkt

G Instructions of validation survey

This appendix provides an overview of the translated and original survey instructions of the key questions in the validation survey that we conducted with a sample of German households in September 2023 on the platform Prolific. Section G.1 provides instructions translated to English, while Section G.2 provides the original instructions in German.

G.1 English translation

Attention: open-ended:
What topics come to mind when you think about the economic situation of your household? _____

Attention: structured (randomized order of response options, except last):
Now please think again about the economic situation of your household. Which of the following topics come to mind? Please check all that apply.
☐ Covid-19 pandemic
☐ Inflation in Germany
☐ Interest rates and monetary policy of the European Central Bank (ECB)
☐ Economic growth in Germany
☐ The German labor market
☐ The German stock market
☐ The German real estate market
☐ Consumption spending of your household
☐ Your household income
☐ Job situation of the household members
☐ Savings behavior of your household
☐ Financial assets of your household
☐ Your expenditure on rent and housing
☐ Your household's cost of living
☐ Your household's debt
☐ None of the topics mentioned

G.2 Original instructions in German

Attention: open-ended:
Welche Themen kommen Ihnen in den Sinn, wenn Sie an die wirtschaftliche Situation Ihres Haushalts denken? _____

Attention: structured (randomized order of response options, except last):
Denken Sie nun bitte nochmals an die wirtschaftliche Situation Ihres Haushalts. Welche der folgenden Themen kommen Ihnen dabei in den Sinn? Bitte kreuzen Sie alle zutreffenden Themen an.
☐ Covid-19 Pandemie
☐ Inflation in Deutschland

☐ Zinsen und Geldpolitik der Europäischen Zentralbank (EZB)
☐ Wirtschaftswachstum in Deutschland
☐ Der deutsche Arbeitsmarkt
☐ Der deutsche Aktienmarkt
☐ Der deutsche Immobilienmarkt
☐ Konsumverhalten Ihres Haushalts
☐ Ihr Haushaltseinkommen
☐ Arbeitsplatzsituation der Haushaltsmitglieder
☐ Sparverhalten Ihres Haushalts
☐ Finanzanlagen Ihres Haushalts
☐ Ihre Ausgaben für Miete und Wohnen
☐ Lebenshaltungskosten Ihres Haushalts
☐ Schulden Ihres Haushalts
☐ Keines der genannten Themen