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Abstract

We provide evidence on the dynamics, drivers, and consequences of attention to the macroeconomy using tailored panel surveys of German firms and households. Drawing on novel measures of attention based on open-ended questions collected before and during a historic shock to inflation, we document three sets of results: First, attention to the macroeconomy is characterized by large and persistent individual heterogeneity, responds strongly to changes in the economic environment, and is negatively correlated with attention to household- or firm-level topics. Second, more attentive respondents are more likely to adjust inflation expectations during the shock, have higher confidence in their beliefs, and hold smaller misperceptions about realized inflation, yet their expectations about future inflation deviate more strongly from professional forecasts. Third, personal experiences are associated with households' attention allocation and belief formation during the shock in a time-varying way, consistent with similarity-based recall. Our results have implications for modeling attention allocation and expectation formation about the economy.

JEL Classification: D83, D84, E71.
Keywords: Attention, expectation formation, personal experiences, inflation.

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1 Introduction

How economic agents allocate their scarce attention is central to macroeconomic models that depart from the full-information rational expectations assumption. These theories differ in their assumptions about how agents allocate their attention: Attention is exogenously fixed (Mankiw and Reis, 2002) or responds to changes in economic conditions (Maćkowiak et al., 2023); attention to different relevant topics increases or decreases jointly (Reis, 2006a,b) or is subject to crowd-out (Mackowiak and Wiederholt, 2009); attention is allocated fully rationally (Sims, 2003) or is shaped by personal experience and memory (Bordalo et al., 2023c; Malmendier and Nagel, 2016); and higher attention shifts agents' beliefs toward the full-information rational expectations benchmark (Mackowiak and Wiederholt, 2009; Reis, 2006a) or amplifies deviations from it (Andrade and Le Bihan, 2013; Van Nieuwerburgh and Veldkamp, 2009). According to all of these theories, agents' attention to the macroeconomy plays a key role in shaping business cycle fluctuations and the transmission of policy. However, the dynamics of attention and its link to macroeconomic expectation formation are not well understood empirically, mainly due to a lack of direct data on agents' attention allocation.

In this paper, we fill this gap by collecting panel data in which we directly measure both attention to the macroeconomy, based on open-ended survey responses, and economic expectations. We conduct quarterly surveys with up to 5,000 German households per wave from a representative online panel and up to 3,500 German firms per wave from the ifo Business Survey between December 2020 and March 2023, i.e., before and during a historic shock to inflation. We construct our measures of attention to the macroeconomy as dummy variables indicating whether a respondent wrote about a particular macroeconomic topic – such as inflation, monetary policy, or economic growth – when prompted to think about their economic situation. As such, our measure captures "what comes to mind", which could reflect the information that agents recently received from the external world or more distant experiences retrieved from their memory database, as conceptualized in Gennaioli and Shleifer (2010). Our data allow us to establish a set

of novel stylized facts about the dynamics, origins and consequences of attention to the macroeconomy. These stylized facts are intended to inform future theoretical work that incorporates realistic assumptions about attention allocation and expectation formation into macroeconomic models.

We document three main sets of results. In a first step, we characterize the heterogeneity and dynamics of attention to the macroeconomy. There is substantial variation in attention to the macroeconomy both across and within the household and the firm samples. On average, firms are more attentive than households. Moreover, attention to macroeconomic variables is strongly persistent at the individual level, with individual fixed effects explaining around 41% and 33% of the total variation in the allocation of attention to the macroeconomy in the household and the firm sample, respectively. The fixed effects are strongly correlated with proxies for information acquisition costs and for economic exposure to the variable of interest, consistent with attention being allocated according to its costs and benefits (Gabaix, 2014, 2019; Gabaix and Graeber, 2023; Maćkowiak et al., 2023).

Over the course of the recovery from the coronavirus recession and amidst a historic shock to inflation, both households and firms become more attentive to inflation. While in December 2020 3% of households and 5% firms are attentive to inflation, up to 38% of households and 43% of firms are attentive to inflation over the course of 2022. These patterns are in line with models in which economic agents become more attentive and better informed when the environment becomes more volatile (Gabaix, 2014; Maćkowiak and Wiederholt, 2015; Reis, 2006a,b; Sims, 2003). In addition, these patterns may reflect an increased supply of media coverage of inflation.

Turning to the joint dynamics of attention to different topics, we document that attention to aggregate variables is negatively correlated with attention to household-level or firm-level variables. By contrast, attention is positively correlated across different aggregate variables. These relationships hold both in the cross-section and conditional on individual fixed effects. This suggests that attentional crowd-out in the spirit of Mackowiak and Wiederholt (2009) occurs mostly between macroeconomic and personal topics and less between different aggregate variables.

In a second step, we zoom in on inflation to examine the relationship between attention and belief formation. More attentive households are more likely to adjust their inflation expectations from one wave to the next, which is consistent with them being more likely to notice the rapidly changing inflation outlook over our sample period. Attention is strongly positively associated with confidence in expectations. More attentive respondents have smaller misperceptions about realized inflation, but their expectations of future inflation deviate more strongly upward from professional forecasts. Finally, more attentive households have somewhat lower disagreement in expectations than inattentive households, but there is no systematic relationship between attention and expectation dispersion in the firm sample. The patterns on updating, confidence in expectations and misperceptions of realized inflation are consistent with predictions of canonical models of information frictions (Mackowiak and Wiederholt, 2009; Reis, 2006a). However, the patterns on expectation dispersion and deviations from professional forecasts are less supportive of these models, and point to mechanisms such as source heterogeneity (Fuster et al., 2022; Van Nieuwerburgh and Veldkamp, 2009), disagreement about structural relationships in the economy (Andrade et al., 2016; Andre et al., 2022a; Laudenbach et al., 2023), or memory and experience shaping respondents' attention allocation (Bordalo et al., 2023a).

In a third step, we show that experience does indeed appear to play an important role in shaping both baseline levels of attention and how attention responds to the shock.[1] Consistent with models of associative memory (Bordalo et al., 2023a,c), negative personal experiences related to high inflation increase households' attention to inflation. Consistent with another prediction of these models, the relationship between experiences and attention becomes stronger during the inflation shock – i.e., as the context becomes more similar to the experiences of high inflation in the memory database. We also show that the stronger increase in attention over the course of the shock among households with negative personal experiences is reflected in a stronger increase in inflation expectations,

[1]For this step, we focus on households as we elicited rich measures of their inflation experiences in the pre-shock period.

pushing their expectations further away from professional forecasts. Thus, similarity-based recall seems to contribute to extrapolative belief formation in the context of inflation, consistent with recent evidence on stock return expectations (Jiang et al., 2023). We provide evidence against several alternative explanations for the time-varying relationship of experiences with attention and expectations. To confirm the external validity of our findings, we also provide evidence on how experiences are correlated with the updating of inflation expectations in response to the shock using data from the US Survey of Consumer Expectations.

We contribute to a growing empirical literature studying the determinants of information acquisition and attention allocation to the economy. Some recent work has used experiments to shed light on the causal determinants of information acquisition, e.g., studying the role of perceived uncertainty (Mikosch et al., 2023) or perceived stakes (Fuster et al., 2022; Roth et al., 2022). Coibion et al. (2018) survey firm managers in New Zealand and show that managers who have greater incentives to track inflation are better informed about recent inflation and monetary policy. Weber et al. (2023) conduct information provision experiments in different countries and at different points in time to show that agents respond less to exogenously provided information in high inflation contexts, consistent with higher attention and stronger priors about inflation.[2]

Other papers have studied attention using existing surveys and other observational data. Flynn and Sastry (2023) document that, in aggregate downturns, US public firms' attention to macroeconomic conditions increases and the size of their input-choice mistakes decreases. Coibion and Gorodnichenko (2015) measure information rigidities among professional forecasters leveraging the predictability of ex-post forecast errors from ex-ante forecast revisions, uncovering increased inattention during the Great Moderation. Goldstein (2023) documents increases in attention after large shocks using the persistence of a forecaster's deviation from the mean forecast as a measure of inattention. Pfäuti (2023) uses data on professional forecasts to show that attention to inflation declined steadily during the Great Moderation. Korenok et al. (2022) uses data from Twitter and Internet

[2]Capozza et al. (2022) provide a review of the literature studying information acquisition.

searches to show that attention to inflation increases once inflation exceeds certain thresholds. Bracha and Tang (2022) document similar results using the accuracy of consumers' perceptions of current economic conditions as a measure of attention. Studies in finance have used logins as a measure of attention to financial accounts (Sicherman et al., 2016). For example, Giglio et al. (2021) show that attention as proxied by a higher number of logins is associated with a stronger pass-through of households' beliefs to portfolio decisions.

We contribute to this literature by collecting new panel data, including direct individual-level measures of households' and firms' attention to different economic variables based on open-ended survey questions. The richness of our micro data allows us to paint a comprehensive picture of the joint dynamics of attention and beliefs over the course of a historic inflation shock, and to speak to the origins and consequences of attention to the macroeconomy. Unlike measures of attention computed from survey expectations, our measure based on a separate open-ended question allows us to examine the relationship between attention and beliefs rather than assuming that the two are related in a particular way.

Our paper is closely related to a recent literature that examines how economic beliefs are shaped by personal experiences (D'Acunto et al., 2021; Goldfayn-Frank and Wohlfart, 2020; Laudenbach et al., 2023; Malmendier and Veldkamp, 2022; Malmendier and Shen, 2022; Malmendier and Nagel, 2011; Malmendier et al., 2021) and memory (Afrouzi et al., 2023; Bordalo et al., 2023a,b,c, 2020; Enke et al., 2023; Graeber et al., 2022; Hartzmark et al., 2021; Jiang et al., 2023). We build on the seminal work of Malmendier and Nagel (2016), who show that inflation experiences persistently affect households' inflation expectations but do not examine how people's personal experiences shape their attention allocation, and how the link between experiences and beliefs varies with the economic environment. Our paper adds to this literature by presenting new evidence on the time-varying relationship of experiences with attention and expectations, which is consistent with an important role for similarity-based recall.

2 Data

2.1 Setting

Our data collection took place between December 2020 and March 2023, covering the period just before and during a historic surge in inflation. The rise of inflation occurred in the aftermath of the Covid-19 pandemic 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 close to zero, at -0.3%, at the start of our sample period. It started increasing in mid-2021 and accelerated further after Russia's invasion of Ukraine, reaching levels of around 10% by the end of the year 2022 before reverting back to around 7% in mid-2023. The figure highlights that the surge in inflation was unexpected by households, firms and also professional forecasters. In response to the increase in inflation, the European Central Bank (ECB) started raising interest rates from the zero lower bound in mid-2022, reaching a level of 3.5% in March 2023. While inflation rose, aggregate unemployment remained fairly stable at values between 5% and 6% from mid-2021.

2.2 Samples

Household panel We conducted quarterly surveys of German households between December 2020 and March 2023 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 previously conducted waves. We then supplemented the data collection with new respondents to obtain an overall sample size of approximately 5,000 respondents for each wave. From the March 2022 wave onward, the sample size was smaller at around 2,500 respondents.[3] Panels A and B of Appendix Figure A.2 highlight the composition of our sample by the wave a respondent entered the panel and by tenure. Attrition is typically the strongest between

[3]We drop partial responses and duplicate responses to any given wave from the sample.

Table 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	40,516
Age	51.19	52.53	40.00	50.00	60.00	13.85	40,516
East	0.17	0.17	0.00	0.00	0.00	0.38	40,516
Log(HH net income)	7.96	7.78	7.60	8.01	8.36	0.69	40,516
At least highschool	0.39	0.50	0.00	1.00	1.00	0.50	40,516
Employed	0.64	0.59	0.00	1.00	1.00	0.49	38,421
Homeowner	0.49	0.47	0.00	0.00	1.00	0.50	38,092
Stockowner	0.26	0.42	0.00	0.00	1.00	0.49	38,092
Panel B: Firms							
Employees		1237.50	14.00	40.00	120.00	96047.19	32,534
Export share		0.14	0.00	0.01	0.20	0.23	19,959
Manufacturing firm		0.29	0.00	0.00	1.00	0.45	32,612
Services firm		0.41	0.00	0.00	1.00	0.49	32,612
Construction firm		0.08	0.00	0.00	0.00	0.27	32,612
Retail/wholesale firm		0.22	0.00	0.00	0.00	0.41	32,612
High influence on decisions in firm		0.78	1.00	1.00	1.00	0.42	2,799

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. The survey question on a respondent's influence in firm decisions is only available in survey wave 3.

the first and the second wave a respondent participates, 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 4.6 times.

Panel A of Table 1 shows summary statistics of our household sample pooled across all survey waves and a comparison with benchmarks from the 2020 wave of the German Socioeconomic Panel (GSOEP), a representative household survey. Our sample is roughly representative of the population in terms of gender, age, region, and total household income. The main difference of our sample to the population is a higher average educational attainment, 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 long-standing monthly survey of a large and representative panel of German firms.[4] Respondents to the online portion of the regular IBS received a separate link to our survey module in the invitation email to the regular IBS of the last month in each quarter. Approximately half of the participants in the regular online portion of the IBS participated in our survey module, giving us an overall sample size of around 3,000 firms per wave at the start of our sample period, which increased to around 3,500 at the end of the period. Panels C and D of Appendix Figure A.2 display the composition of the firm samples for each wave by the first wave a firm participated and by tenure in the panel. Attrition is lower than in the household survey. For instance, among respondents 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 average 7.0 times.

Panel B of Table 1 shows summary statistics for the firms who completed our survey. 29 percent of the firms operate in the manufacturing sector, 41 percent in services industries, eight percent in construction, and 22 percent are retailers or wholesalers. The median number of employees is 40 and the average share of exports in the firms' revenue is 14 percent. In wave 3 we elicited the respondent's influence on the firm's decisions regarding investment, production, personnel, and price setting. 78 percent of managers report to have "very high influence" on decisions in at least one of these areas. This is in line with Sauer et al. (2023), who document that the vast majority of respondents to the regular IBS are in an upper management position such as owner, CEO, or department head.

[4]The IBS provides the basis for 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., 2021, 2013, 2019; Buchheim et al., 2022; Enders et al., 2019).

2.3 Measuring attention

Measurement We elicit households' and firms' attention to topics relevant for their current own economic situation using the following open-ended question:

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

This open-ended question allows us to get a unique snapshot of the topics that are on top of our respondents' minds when they think about their household's/company's economic situation. We use "the economic situation of your household/company" as a prompt to put respondents into the relevant mindset for their economic decision-making. Depending on respondents' attention allocation, we would expect them to think of either aggregate or more personal/firm-specific economic topics when confronted with this prompt. Open-ended elicitations have recently become more commonly used to measure individuals' reasoning in economic and political contexts (Andre et al., 2022a,b; Bursztyn et al., 2023; Ferrario and Stantcheva, 2022). Compared to more structured question formats, the key advantage of open-ended elicitations is that they allow to measure attention allocation towards different topics without priming respondents on response options and thereby changing respondents' attention. Another advantage of the open-ended elicitations is that, compared to structured measures, they should be less prone to experimenter demand effects (de Quidt et al., 2018).

The survey contains several other questions, which we introduce throughout the paper when discussing the exercises that make use of them. Appendix C provides instructions of key survey questions in German and translated to English.

Interpretation of attention measure Economic models vary in their conceptualization of attention. Our open-ended data captures attention as the issues that are on top of people's mind when they think about their economic situation, which is close to the conceptualization of attention in Gennaioli and Shleifer (2010) and Bordalo et al. (2023a). What is

on top of mind could reflect information people recently received from the external world but also more distant experiences retrieved from their memory database.

Other economic models define attention more restrictively as the amount of information about the external world an agent possesses. For instance, in sticky information models, higher attention is modeled as a higher frequency of updating information sets about the state of the economy (Reis, 2006a). In rational inattention models, agents receive a signal about the state of the economy, and the degree of noise in the signal negatively depends on how much attention they pay (Maćkowiak et al., 2023). In such models, being attentive could mean acquiring more information but also processing given pieces of information in a more effective way.

Coding scheme To quantitatively 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 be assigned multiple codes. Table 2 provides an overview of the main factors in our coding scheme along with example responses. Our main categories of interest are mentioning (i) any macroeconomic topic, (ii) the Covid-19 pandemic, (iii) inflation, (iv) interest rates or monetary policy, (v) growth, and (vi) any household- or firm-level topic.

We instruct several research assistants to apply our coding scheme to the open-text responses. Appendix Table A.1 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 survey wave. These patterns corroborate the reliability and validity of our coding scheme.

Validation 1: News consumption To validate our measure of attention constructed from the open-ended data, we correlate it with structured measures of news consumption that are included in some of our survey waves. First, referring to inflation in the open-ended data is strongly positively correlated with the number of reports on inflation a respondent states to have read in the news, to have seen on TV, or to have heard

Table 2: Coding scheme and example responses for the open-ended data

Category	Explanation	Examples
Macro	Covid-19, inflation, (un-)employment, growth, monetary policy, fiscal policy, regulation, structural transformation, trade, pension system, health system, education system, inequality, migration, environment/climate change, stock market, housing market, uncertainty, sustainability, demographic change, exchange rate, Russia's invasion of Ukraine, energy supply, other macro	"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."
Covid-19	Covid-19, coronavirus, pandemic, lockdown, mask production	"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"
Inflation	Inflation, purchasing power, rising prices, price level, increase in price	"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."
Monetary policy	Monetary policy, interest rates, central bank, ECB, banking system, negative interest	"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	General state of the economy, economic growth, GDP, general economic situation, business cycle, upswing, downswing, insolvencies, company bankruptcies, orders, industry, 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."
Household-level	Income, spending, saving, investment, debt, employment, rent/housing cost, health issues, insurance, overall household situation, other household-level	"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."
Firm-level	Working processes, government aid programs, R&D, regulation, costs, supply chain, demand, profits, liquidity, financing, labor input, short-time work, productivity, health issues, housing cost and rent, capacity, product, overall firm situation, other firm-level	"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 specialist 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 topic, and example extracts from open-text responses (translated into English). All example responses – except for the firm-level categories – draw on the household survey.

on the radio over the last three months, both among households and among firms (Appendix Figure A.3 Panels A and C). Second, it is strongly positively associated with the number of minutes a household or firm manager reports to have spent consuming news about inflation over the last week (Figure A.3 Panels B and D). These patterns validate the open-ended data and motivate its use to study predictions of macroeconomic models of inattention, in which attention and information acquisition about the external world are closely linked (Gabaix, 2014; Maćkowiak et al., 2023; Reis, 2006a).

Validation 2: Structured attention measure We provide another validation using an additional data collection with a sample of German households. The survey was conducted in September 2023 on the platform Prolific, which is widely used in the social sciences (Peer et al., 2021). 502 respondents completed our survey, out of which 34 did not pass a simple screener question and were dropped from the sample.

Participants first respond to our main open-ended question on attention allocation. On the next survey screen, they are again asked which topics come to their mind when thinking about the economic situation of their household. However, instead of responding in an open-text box, the participants are now asked to tick all relevant topics from a list presented to them, where the order of the topics is randomized. Compared to the open-ended elicitation, the alternative structured elicitation mitigates the concern that respondents may be unwilling or unable to articulate their thoughts. At the same time, the structured elicitation mechanically changes attention by exposing respondents to cues in the form of the included response options.

As shown in Appendix Figure A.4, the baseline fractions of respondents indicating attention to different aggregate and household-level topics is 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., 2022a). However, conditional on these baseline differences, the variation of attention across topics looks very similar in the two elicitation modes. Attention as measured in the open-ended question is strongly correlated with attention as measured in the structured question across respondents for the

key topics that we use in the analysis below (Appendix Table A.2).

Validation 3: Google Trends data As a final validation, we compare the evolution of our survey measure of attention to different macro variables with the evolution of Google searches, a commonly used measure of attention in the social sciences (Choi and Varian, 2012; Fetzer et al., 2021). Google Trends offers a platform to explore search data, delivering a search intensity metric for each query that ranges from 0 to 100. A score of 100 indicates the peak popularity of the terms queried within a specific area and period. Users can formulate queries using single search terms or broader topics that include multiple related terms. We follow the latter approach in our validation exercise.

In this validation exercise, we focus on attention to inflation, growth, and monetary policy.[5] To gather data from Google Trends, we rely on their weekly data for the respective topic categories. To make the searches comparable in relative terms, we select the three topics at the same time. Appendix Figure A.5 shows a similar evolution of attention over our sample period and similar relative attention paid to the different variables according to our survey data (Panel A), Google Trends data from Germany (Panel B), and Google Trends data from the US (Panel C).

3 Attention to the macroeconomy: Descriptive facts

3.1 Characterizing heterogeneity in attention allocation

Attention allocation across topics and groups of agents We start by describing how households' and firms' attention varies across different topics, pooling all our survey waves. 75% of households pay attention to at least one household-level topic, while 28% are attentive to at least one macroeconomic topic. Panel A of Figure 1 shows that among macro topics, inflation is the most frequently attended topic (19%), followed by Covid-19 (6%). Households' attention to growth, monetary policy, and interest rates is very low

[5] We do not include searches about COVID-19 as many of those are likely primarily motivated by health motives rather than economic ones.

at 1%. Within personal topics, income (22%), consumption/spending (16%), and housing costs (13%) are most important.

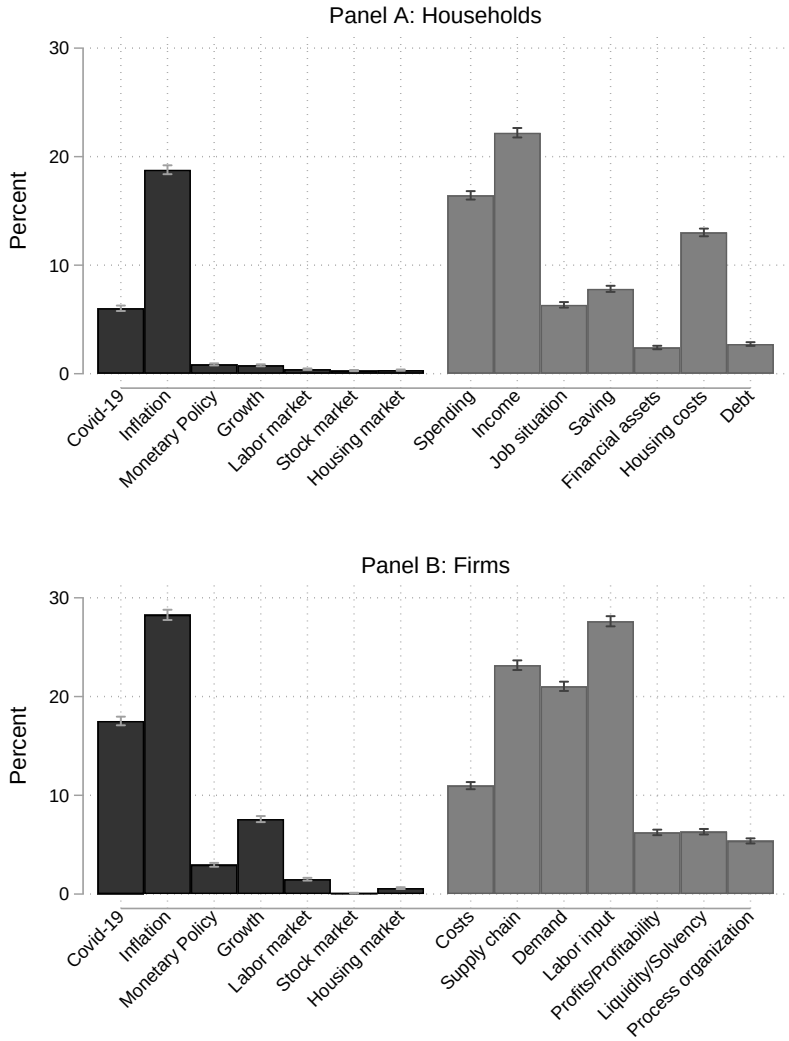
Among firms, 80% mention at least one firm-specific topic. A similarly high fraction (67%) pay attention to at least one macroeconomic topic. Panel B of Figure 1 shows that, within macro topics, inflation is by far the most attended (28%), followed by Covid-19 (17%), growth (8%), and monetary policy (3%). The overall higher levels of attention to macroeconomic topics among firms than among households are consistent with other recent evidence on information frictions (Link et al., 2023). Within firm-specific topics, issues regarding labor input (28%), supply chains (23%), and demand for their own product/service (21%) are the most frequently reported.

Variance decomposition How much of the overall variation in attention allocation is explained by systematic changes over time and by persistent individual-level heterogeneity?[6] We shed light on this issue by decomposing the panel variation of attention into three components: fixed individual characteristics, common variation over time, and a residual that captures idiosyncratic time variation at the individual level. To do this, we regress our main measures of attention on (i) individual fixed effects, (ii) time fixed effects, 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 attention to a set of macroeconomic topics as well as dummy variables for paying attention to at least one macroeconomic or to at least one household- or firm-level topic, respectively.

The results are shown in Table 3. Panel A is based on the samples of respondents that appear at least twice in our data, i.e., the largest possible samples for this exercise. Individual fixed effects are an important source of variation in attention in the household sample (Column 1). Across topics, the individual fixed effects by themselves explain be-

[6]We use the term "individual" interchangeably for both households and firms abstracting from the fact that different waves of the firm survey can potentially be answered by different persons working at the same firm. In practice, however, the questionnaires are usually answered by the same person and churn rates are very low, see Sauer et al. (2023) for details.

Figure 1: Distribution of topics, pooled across all waves



Notes: This figure presents the distribution of attention to different macroeconomic topics (black) and household-/firm-level topics (grey) pooled across all waves from December 2020 to March 2023. The bars indicate the fractions of respondents paying attention to a given topic. The measure of attention 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.

tween 25% and 42% of the variation in attention, while time fixed effects by themselves account for at most 10% of the variation in attention to a given topic (Column 2). Including individual and time fixed effects together leaves between 57% and 75% of the variation in attention to a given topic 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 attention in the firm sample (Columns 5-7). The importance of individual fixed effects is comparable among firms and households. By contrast, time effects play a slightly smaller role among firms than among households, except for Covid-19. For inflation, 8.0% of the variation is explained by time fixed effects, while for all other topics (except Covid-19) less than 1% of the variation is explained by time effects. Between 59% and 72% of the variation in attention is idiosyncratic firm-level variation. Panels B and C restrict the samples to households or firms that appear at least four times or at least six times in our panels. The results of the variance decomposition are very similar in these restricted samples.

Sources of individual fixed effects in attention What respondent characteristics are driving the strong individual persistence in the tendency to pay attention to particular topics? We regress the individual fixed effects (estimated by regressing attention jointly on time and individual fixed effects) on a set of respondent characteristics. The results are shown in Appendix Table A.3. Households' self-reported exposure to movements in a given variable is positively related to how much attention they pay to this variable, in line with recent experimental evidence (Roth et al., 2022). Conversely, self-reported information acquisition costs are strongly negatively related to attention, in line with other studies (D'Acunto et al., 2023; Mikosch et al., 2023). These patterns align with theories positing that attention is allocated endogenously depending on costs and benefits (Gabaix, 2014, 2019; Maćkowiak et al., 2023). Moreover, older and more educated household respondents are more likely to pay attention to both macroeconomic and household-level topics, while the patterns by employment status and income are less systematic. Appendix Table A.4 shows the results for the firm sample. We find similar patterns for exposure as for households. Firm size is positively associated with attention to both macroeconomic and firm-level topics. Moreover, attention to inflation is more pronounced in the manufacturing sector compared to the services and retail/wholesale sectors. In Section 3.3, we provide evidence on the long-lasting effects of prior experiences as another potential

Table 3: Variance decomposition of attention allocation

	Households R2 (%) of panel regression				Firms R2 (%) of panel regression			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Indiv. FE	Time FE	Time FE + Indiv. FE	Obs.	Indiv. FE	Time FE	Time FE + Indiv. FE	Obs.
Panel A: At least two non-missing observations								
Any macro topic	41.1	3.2	43.3	31,348	33.0	0.7	33.7	27,554
Inflation	38.1	10.1	44.9	31,348	31.8	8.0	38.7	27,554
Monetary policy	27.9	0.0	28.0	31,348	34.3	0.7	35.0	27,554
Growth	25.2	0.1	25.3	31,348	27.4	0.5	27.8	27,554
Covid-19	37.9	2.7	39.6	31,348	32.2	10.5	41.1	27,554
Any personal/firm-specific topic	42.3	1.4	43.3	31,348	32.2	2.0	33.7	27,554
Panel B: At least four non-missing observations								
Any macro topic	37.1	3.3	39.7	24,076	30.3	0.8	31.0	23,839
Inflation	34.0	9.8	41.6	24,076	29.0	8.2	36.5	23,839
Monetary policy	24.2	0.1	24.3	24,076	31.7	0.6	32.4	23,839
Growth	20.3	0.1	20.4	24,076	24.1	0.5	24.5	23,839
Covid-19	31.2	2.7	33.2	24,076	28.8	10.4	38.4	23,839
Any personal/firm-specific topic	37.4	1.5	38.6	24,076	28.6	2.0	30.1	23,839
Panel C: At least six non-missing observations								
Any macro topic	34.6	3.6	37.8	15,303	28.6	0.8	29.4	19,086
Inflation	30.9	9.9	39.7	15,303	26.6	8.9	35.0	19,086
Monetary policy	21.6	0.1	21.7	15,303	30.7	0.7	31.4	19,086
Growth	16.2	0.1	16.3	15,303	21.1	0.5	21.5	19,086
Covid-19	27.6	2.9	30.1	15,303	27.0	10.5	37.1	19,086
Any personal/firm-specific topic	34.4	1.5	35.8	15,303	26.4	1.9	28.1	19,086

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.

source of persistent differences in attention across individuals.

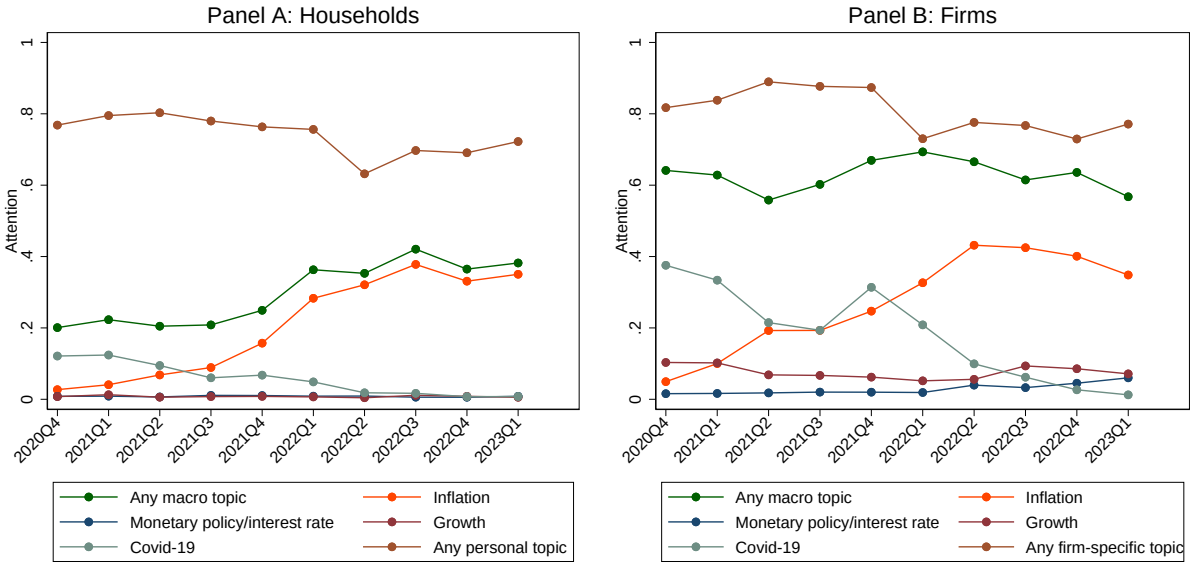
Attention allocation over time We next turn to how attention to different variables systematically evolves over time. Panel A of Figure 2 highlights that households' attention to Covid-19 steadily declines over our sample period. Attention to growth decreases strongly over the first half of 2021. At the same time, the fraction of households paying attention to inflation increases from close to 0% in December 2020 to 38% in September 2022, and then remains at this elevated level. Panel B of Figure 2 shows broadly similar

changes in attention over time for firms as for households: while attention to Covid-19 declines, there is a steady increase in attention to inflation from close to 0% in December 2020 to a maximum level of 43% in June 2022, and subsequently a slight decline until the end of the sample period. Both firms and households persistently pay little attention to monetary policy over our sample period.

These changes in attention allocation mirror the business cycle movements in Germany over our sample period: while the economy recovered from the coronavirus recession, it experienced increasing inflationary pressures, which were aggravated by Russia's invasion of Ukraine and the associated energy shortages. The increase in attention to inflation amidst increasing inflationary pressures is in line with models in which attention and information acquisition endogenously respond to changes in the economic environment. In particular, these models predict that agents become more attentive when the environment becomes more volatile (Gabaix, 2014; Maćkowiak and Wiederholt, 2015; Reis, 2006a,b; Sims, 2003). In addition, the increase in attention could reflect increased media coverage of inflation over our sample period. Remarkably, the sharp rate hikes by the ECB from 0% to 3.5% were not associated with strong increases in households' or firms' attention to monetary policy.

Co-movement of attention We next turn to the question of how attention to different variables co-moves. On the one hand, in sticky information models, agents face an exogenous probability of acquiring full information (Mankiw and Reis, 2002) or endogenously decide when to acquire full information (Reis, 2006a). This implies a positive co-movement of attention to different variables. On the other hand, according to theories of limited attention, acquiring more information about a given topic may reduce the available capacity to acquire and process other pieces of information (Gabaix, 2014). For instance, some theories predict attentional crowd-out between aggregate and local (sector-specific) information (Mackowiak and Wiederholt, 2009). To shed light on the empirical co-movement of attention to different variables, we estimate specifications of the

Figure 2: Attention to different topics 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 brown and green lines summarize all household-/firm-level topics and all topic related to the macroeconomy, respectively. The remaining lines refer to specific macroeconomic topics, i.e., inflation, monetary policy/interest rates, growth, and Covid-19.

following type:

$$\text{Attention topic A}_{it} = \beta_0 + \beta_1 \text{Attention topic B}_{it} + \boldsymbol{X}_{\boldsymbol{it}}'\boldsymbol{\Pi} + \phi_t + \epsilon_{it}, \tag{1}$$

where the attention variables indicate whether a respondent has thoughts about topic A or B in the response to the open-ended question. $\boldsymbol{X_{it}}$ includes a set of basic controls, which in some specifications is replaced by individual fixed effects. In addition, all specifications include survey wave fixed effects, ϕ_t.[7]

Panel A of Table 4 shows the results for the household sample. Attention to inflation and attention to monetary policy are strongly positively associated with each other.

[7]Specifically, we control for gender, age, education, employment status, income, homeownership, and stock ownership in the household sample, which are mostly elicited in the first wave a household participates in the panel. In the firm sample, we control for firms' number of employees (in logs), export share, dummies for broad industry group, and a dummy taking value one if the respondent reports having "very high" influence on the firm's decisions regarding investment, production, personnel, or price setting, which is elicited in survey wave 3.

Specifically, being attentive to monetary policy or interest rates increases the likelihood of being attentive to inflation by 28.5 p.p. according to our pooled OLS estimates (Column 3, $p < 0.01$) and by 13.0 p.p. conditional on individual fixed effects (Column 4, $p < 0.01$). Attention to economic growth is weakly positively related to attention to inflation or monetary policy (Columns 1, 2, 5, and 6). Lastly, attention to macroeconomic topics and attention to household-level topics are strongly negatively associated with each other, with attention to household-level topics reducing attention to aggregate topics by 18.2 p.p. and 27.9 p.p. according to pooled OLS and individual fixed effects estimates, respectively (Columns 7 and 8, $p < 0.01$). Panel B of Table 4 shows broadly similar results for the firm sample.

Appendix Table A.5 shows that the negative relationships between attention to macroeconomic and attention to 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. Another concern is that the open-response format mechanically produces negative relationships between attention to different topics, as respondents are only willing to provide a response of a certain length. Given that attention is strongly *positively* correlated across some topics (e.g., inflation and monetary policy), this concern seems less severe. In addition, respondents only providing a response of a certain length could reflect limits to their actual attention span rather than additional filtering introduced by the response format.

Our results on the co-movement of attention to different topics have important implications for modeling. Our data are consistent with attentional crowd-out between different variables, as predicted by theories featuring costly acquisition and processing of information (e.g., Gabaix, 2014; Mackowiak and Wiederholt, 2009). Our results suggest that this crowd-out does not occur across different macroeconomic variables. Instead, the positive correlation of attention across different aggregate topics, in particular between inflation and monetary policy, points to a role for attentional spillovers in this domain. Such spillovers could be driven by the fact that aggregate topics tend to be covered jointly in the news. By contrast, our results are consistent with attentional crowd-out between aggre-

Table 4: Co-movement of attention to different topics

	Attention to inflation				Attention to monetary policy		Attention to macro topics	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Households								
Attention to growth	0.133***	0.064**			0.006	0.012		
	(0.027)	(0.031)			(0.008)	(0.008)		
Attention to monetary policy			0.285***	0.130***				
			(0.031)	(0.031)				
Attention to personal topics							-0.182***	-0.279***
							(0.007)	(0.008)
Observations	32,520	34,980	32,520	34,980	32,520	34,980	32,520	34,980
R-squared	0.11	0.11	0.12	0.11	0.01	0.00	0.07	0.11
Panel B: Firms								
Attention to growth	0.030***	-0.004			0.029***	0.010**		
	(0.011)	(0.011)			(0.005)	(0.005)		
Attention to monetary policy			0.210***	0.112***				
			(0.019)	(0.020)				
Attention to firm-specific topics							-0.301***	-0.281***
							(0.007)	(0.008)
Observations	28,885	28,885	28,885	28,885	28,885	28,885	28,885	28,885
R-squared	0.10	0.10	0.11	0.10	0.02	0.01	0.07	0.06
Controls	Yes	No	Yes	No	Yes	No	Yes	No
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual 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) attention to a given topic – i.e., an indicator taking value one if the topic is mentioned in response to the open-ended survey question – on dummy variables indicating attention to another topic. Attention to macroeconomic topics in general (Columns 7 and 8) includes all macro topics. Attention to household-level or firm-level topics covers all local-level topics. Columns 1, 3, 5, and 7 control for the individual's gender, age, education, employment status, household income, homeownership, and stock ownership, and the respondent's influence on decisions in the firm, the firm's number of employees (in logs) and export share, as well as dummies for four broad industry groups, respectively. Columns 2, 4, 6 and 8 instead control for household and firm fixed effects, respectively. 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.

gate and local (household- or firm-level) topics, in line with Mackowiak and Wiederholt (2009).

Summary Our first set of results can be summarized as follows:

Result 1.

(a) Households' and firms' attention varies strongly across topics, with attention being highest for household- and firm-level topics. Attention to macroeconomic topics is high and dominated by attention to Covid-19 and inflation.

(b) Among both households and firm managers, individual fixed effects are an important source of variation in attention allocation.

(c) Over the course of the recovery from the coronavirus recession and amidst increasing inflationary pressures, households and firms become less attentive to growth and Covid-19 and more attentive to inflation.

(d) Attention to aggregate topics is negatively correlated with attention to household- and firm-level economic topics, while attention is positively correlated across different macroeconomic topics.

3.2 Attention and beliefs

Workhorse models predict that attention to the macroeconomy affects economic outcomes mainly through its effects on economic agents' beliefs (Bordalo et al., 2018; Maćkowiak and Wiederholt, 2015; Reis, 2006a). In this section, we document the empirical relationship between attention and households' and firms' expectations. We focus on inflation, for which there is a major shift in the environment and strong variation in attention over our sample period. This exercise is purely correlational and should be interpreted cautiously. Nevertheless, we consider it a useful starting point to empirically understand the role of attention in macroeconomic expectation formation.

Belief data In each wave of our household and firm surveys, we elicit respondents' expectations about the inflation rate over the next 12 months, as well as their confidence

in their inflation expectations on a five-point categorical scale. We winsorize inflation expectations at 30% to reduce the impact of outliers. 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.6), which suggests that our expectations data are of high quality.

Cross-sectional facts We start by analyzing differences in beliefs between attentive and inattentive households. In particular, we regress different aspects of respondents' beliefs about inflation on a dummy variable for being attentive to inflation as well as a set of control variables and time fixed effects. More attentive households should be more likely to take note of the rapid and unexpected changes in the economic environment that took place during our sample period (Appendix Figure A.1). In line with this notion, households that are attentive to inflation are 2.2 p.p. more likely to change their expectations about 12-month-ahead inflation from one survey wave to the next by at least 0.5 p.p., compared to an overall fraction of 78% reporting such changes in beliefs (Table 5 Panel A Column 1, $p < 0.01$). They are also 0.17 standard deviations more confident in their expectations, consistent with higher levels of information acquisition (Column 2, $p < 0.01$).

The association between the level of inflation expectations and attention should depend on the economic environment. In our context of a significant and unexpected surge in inflation, more attentive households should be more likely to take note of the rapid changes in the economic outlook and exhibit higher inflation expectations. Indeed, attentive households expect 0.18 p.p. higher inflation compared to inattentive households on average over our sample period (Column 3, $p < 0.05$). However, higher attention is not associated with a smaller absolute deviation of respondents' expectations from the average professional forecast.[8] In fact, the inflation expectations of attentive house-

[8]We rely on professional forecasts from FocusEconomics, a company that provides economic analyses and forecasts for almost all countries in the world. Their economic forecasts are based on the consensus of a diverse range of reputable sources including investment banks, economic think tanks, and interna-

holds differ more strongly from professional forecasts than the expectations of inattentive households, albeit not significantly so (Column 4, $p = 0.23$). In the firm sample, we find similar patterns for the frequency of updating, confidence, levels of expectations, and deviations from professional forecasts as among households, as shown in Column 1-4 of Panel B. Lastly, in the household survey, we elicit perceptions of realized inflation over the previous 12 months, i.e., the current inflation rate at the time of the survey. Attentive households, on average, exhibit 0.16 p.p. lower inflation perceptions over the combined pre-shock and shock period (Column 5, $p < 0.05$), resulting in a 0.52 p.p. lower absolute misperception of realized inflation (Column 6, $p < 0.01$).

Appendix Table A.6 shows a version of Table 5 that includes individual fixed effects and therefore only exploits variation in attention and beliefs within the same household or firm over time. The estimates are mostly similar to the pooled OLS estimates, although they are somewhat smaller and less precise. This is encouraging, given that this exercise shuts down most of the available variation, particularly in the household sample, where some respondents only participate a few times.

Disagreement How is attention associated with disagreement in expectations? Table 6 illustrates how the cross-sectional dispersion in inflation expectations as measured by the standard deviation, the interquartile range, and the difference between the 90th and the 10th percentile differs between attentive and inattentive respondents. To only capture within-wave disagreement, the inflation expectations are purged of survey wave fixed effects before calculating dispersion. The table illustrates these differences separately for households and for firms both for the full sample period and for different subperiods.

The table shows that disagreement in inflation expectations is lower among households that are attentive to inflation than among inattentive households according to the

tional organizations. We rely on professional forecasts, as they are the only ex-ante benchmark available. Although professional forecasts themselves may be biased (Andre et al., 2022a), they are typically much less dispersed than household or firm expectations (Candia et al., 2021). Using the actual realization of inflation as an ex-post benchmark is less meaningful, as our sample period is short and contains extreme realizations of inflation. Thus, respondents with lower forecast errors were not necessarily better calibrated from an ex-ante perspective.

Table 5: Attention and beliefs: Cross-sectional facts

	Absolute change in expectation $\geq$ 0.5 p.p.	Confidence (z)	Expected inflation	Absolute deviation from expert forecast	Perceived current inflation	Absolute deviation from current level
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Households						
Attention to inflation	0.022***	0.172***	0.179**	0.107	-0.155**	-0.519***
	(0.007)	(0.017)	(0.090)	(0.089)	(0.076)	(0.064)
Observations	19,210	32,520	32,520	32,520	21,947	21,947
R-squared	0.02	0.12	0.16	0.10	0.12	0.07
Mean dep. var.	0.78	0.03	6.94	4.83	6.03	2.70
SD dep. var.	0.41	1.00	6.58	6.26	5.27	4.32
Panel B: Firms						
Attention to inflation	0.013**	0.043**	0.211***	0.198***		
	(0.006)	(0.017)	(0.046)	(0.045)		
Observations	18,426	27,126	28,112	28,112		
R-squared	0.02	0.02	0.49	0.23		
Mean dep. var.	0.80	0.03	5.47	3.00		
SD dep. var.	0.40	1.01	3.44	2.72		
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table displays regressions of households' (Panel A) and firms' (Panel B) beliefs on attention to inflation – i.e., an indicator taking value one if inflation is mentioned in response to the open-ended survey question. The dependent variables are an indicator that is one if the respondent changed 12-month ahead inflation expectations by at least 0.5 p.p. between the previous and the current survey wave (Column 1), a respondent's confidence in their own inflation forecast (z-scored, Column 2), expected inflation over the next twelve months (Column 3), the absolute deviation of expected inflation from the mean professional forecast from FocusEconomics (Column 4), a respondent's perception of the current inflation rate over the last 12 months (Column 5), and the absolute deviation of this perception from the actually realized current inflation rate (Column 6). Besides survey wave fixed effects, all regressions control for the individual's gender, age, education, employment status, household income, homeownership, and stock ownership, and the respondent's influence on decisions in the firm, the firm's number of employees (in logs) and export share, as well as dummies for four broad industry groups, respectively. For a version with individual fixed effects, see Appendix Table A.6. Standard errors clustered at the individual/firm level are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

cross-sectional standard deviation and the difference between the 90th and the 10th percentile. The interquartile range is more similar between attentive and inattentive households, suggesting that attention is mostly reflected in the width of the tails of the distribution of inflation expectations. Differences in dispersion between attentive and inattentive

households exist in all the different sub-periods of our sample period, i.e., both before and during the period of elevated inflation. The differences are quantitatively large. For instance, the difference between the 90th and the 10th percentile is 9.7 p.p. among inattentive households and only 8.0 p.p. among attentive households. Among both attentive and inattentive households, dispersion first decreases in response to the inflation shock and then reverts to higher levels following Russia's invasion of Ukraine. Appendix Table A.7 highlights that also disagreement about realized inflation is substantially lower among attentive than among inattentive households.

In contrast to the patterns among households, the differences in expectation dispersion between attentive and inattentive firms are smaller and less systematic. If anything, dispersion seems to be somewhat higher among attentive firms than among inattentive firms. Consistent with Link et al. (2023), dispersion in inflation expectations is much smaller among firm managers than among households. Among firms, dispersion increases somewhat over the course of the shock, reverting back in the period of decreasing inflationary pressures starting in December 2022. However, these changes over time are less pronounced than among households.

Taken together, our second main result is the following:

Result 2. *Higher attention is associated with a higher frequency of expectation adjustment, higher confidence in beliefs and smaller misperceptions about realized inflation. Yet, attentive respondents' inflation expectations deviate more strongly from professional forecasts. Attentive households disagree less about future inflation than inattentive households, while expectation dispersion is at a similar level among attentive firms as among inattentive firms.*

Relation to theory How do the results on respondents' attention and beliefs speak to different theories? The findings that attentive respondents update their expectations more frequently over the course of the shock and are more confident in their beliefs are consistent with standard theories such as sticky information models (e.g., Mankiw and Reis, 2006) or noisy information models (e.g., Woodford, 2003). These theories also predict that attentive groups disagree less about the future, for which we find support in the

Table 6: Attention and disagreement about future inflation

	Households			Firms		
	(1) SD	(2) IQR	(3) p90-p10	(4) SD	(5) IQR	(6) p90-p10
Full Sample: Dec 2020 - Mar 2023						
(A) Attentive to inflation	4.93	3.00	8.00	2.65	2.40	4.70
(IA) Inattentive to inflation	6.43	2.94	9.72	2.40	1.70	3.97
p-value: (A)=(IA)	0.00			0.00		
Period 1: Dec 2020 - Jun 2021						
(A) Attentive to inflation	5.75	2.30	8.45	2.05	1.26	2.67
(IA) Inattentive to inflation	7.20	2.80	11.95	1.95	1.03	2.47
p-value: (A)=(IA)	0.00			0.38		
Period 2: Sep 2021 - Dec 2021						
(A) Attentive to inflation	3.84	2.07	5.50	2.29	1.67	3.27
(IA) Inattentive to inflation	5.79	2.00	7.57	2.07	1.73	3.23
p-value: (A)=(IA)	0.00			0.04		
Period 3: Mar 2022 - Sep 2022						
(A) Attentive to inflation	5.32	3.42	8.80	2.93	2.85	6.00
(IA) Inattentive to inflation	6.46	3.80	12.00	2.91	2.75	5.50
p-value: (A)=(IA)	0.00			0.79		
Period 4: Dec 2022 - Mar 2023						
(A) Attentive to inflation	4.57	3.53	8.47	2.55	2.50	5.00
(IA) Inattentive to inflation	5.38	3.43	9.20	2.64	3.00	5.00
p-value: (A)=(IA)	0.00			0.92		

Notes: This table displays the standard deviation, the interquartile range, and the range between the 90th and 10th percentile of inflation expectations separately for respondents that pay attention to inflation 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 Levene's tests of the equality of standard deviations between respondents that are attentive (A) and respondents that are inattentive (IA) to inflation according to the open-ended measure.

household but not in the firm sample. Similarly, these models posit that higher attention should bring beliefs closer to "rational" benchmarks. Misperceptions about realized inflation are indeed smaller among attentive than among inattentive households. However, among both households and firms, attentive respondents' expectations about future inflation are – if anything – further away from professional forecasts, the only ex-ante

benchmark available. There are different explanations for these empirical relationships of attention with disagreement and convergence to benchmarks. For instance, source heterogeneity (e.g., Van Nieuwerburgh and Veldkamp, 2009) or disagreement about structural relationships in the economy (e.g., Andrade et al., 2016; Andre et al., 2022a) could contribute to these patterns. Alternatively, these patterns could reflect that attention allocation is shaped by mechanisms related to the recall of different experiences, leading to differential updating of inflation expectations in response to the shock. We provide direct evidence consistent with this mechanism in Section 3.3.

3.3 Personal experiences, attention, and beliefs

In this section, we provide evidence on the role of personal experiences as a driver of households' attention to the macroeconomy as well as their expectations. We focus on households, as we collected direct measures of inflation experiences in the pre-shock period for this sample. We supplement our evidence from our self-collected panel datasets from Germany with data from the US.

3.3.1 Main evidence

Theoretical predictions Theories of associative memory posit that what individuals pay attention to strongly depends on the experiences in their memory database (Bordalo et al., 2023c). In addition, these theories predict that the context determines which experiences individuals retrieve through similarity-based recall. In particular, individuals should become more likely to retrieve a specific experience – and be attentive to the corresponding topic – once the context becomes more similar to that experience (Bordalo et al., 2023a; Enke et al., 2023). We test these predictions by studying correlations between experiences with inflation and attention allocation, and how the strength of these correlations responds to the inflation shock.

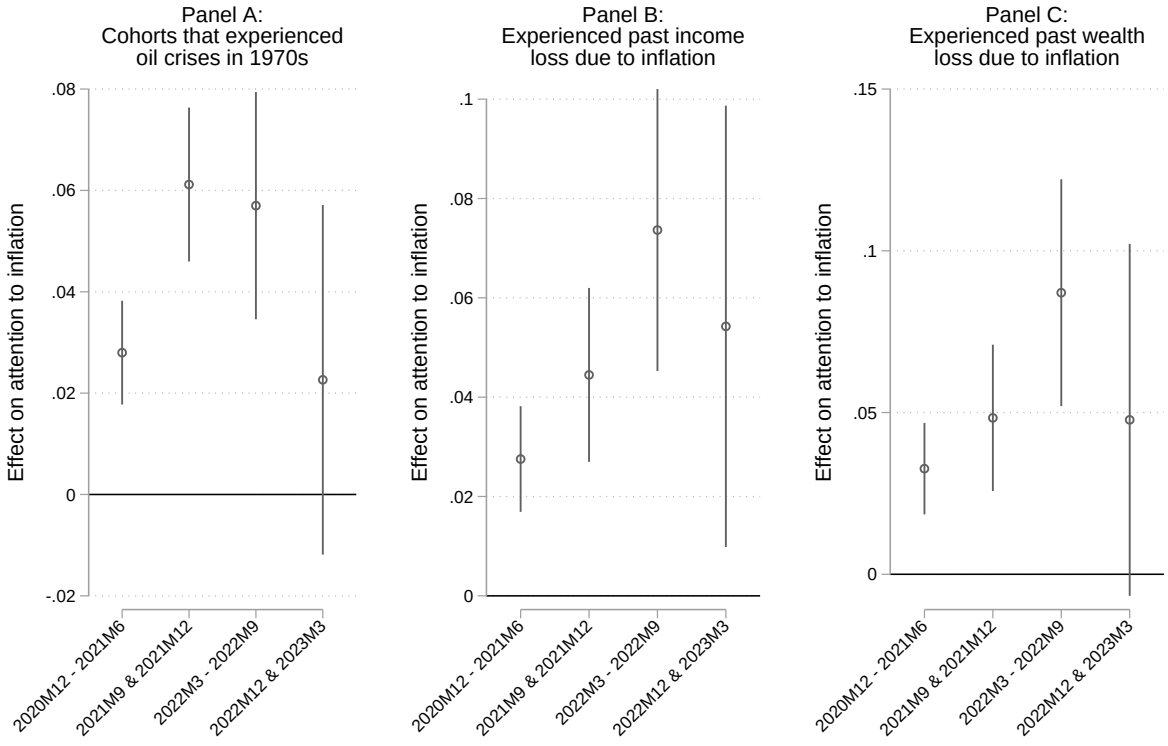
Empirical approach In our empirical analysis, we consider two different types of experiences. First, we consider a collective cohort-level experience: having lived through the oil crises of the 1970s, when inflation reached historically high levels. We build on prior work by Binder and Makridis (2022), who use an indicator for whether the respondent was born before 1965 as a proxy for experiencing the oil crises. We similarly define a dummy variable indicating those cohorts that were at least teenagers by the late 1970s.[9] Given that the oil price shocks of the 1970s were large and persistently pushed up inflation, we would expect respondents with such experiences to be more likely to retrieve memories of extreme inflation outcomes. Second, we use survey measures of more personal experiences, such as ever having incurred substantial real income drops or real wealth losses due to increases in inflation. These measures were elicited in waves 2 and 3 of the data collection in March and June 2021, i.e., prior to the surge in inflation.[10]

Results: attention Panel A of Figure 3 shows that individuals who experienced the oil crises are 2.8 p.p. more likely to pay attention to inflation in the pre-shock period ($p < 0.01$), conditional on a set of control variables. This difference in attention becomes significantly more pronounced – reaching a level of 6.1 p.p. – when the inflation shock first hits the economy in September and December 2021 (p-value of the interaction < 0.01). It then remained at a similarly high level during the period following Russia's invasion of Ukraine (March to September 2022). During the period of decreasing inflationary pressures starting in December 2022, cohort differences in attention revert back to a lower level of 2.3 p.p. We find similar patterns – i.e., higher baseline levels of attention as well as a stronger increase in attention once inflation rises – when focusing on our direct measures of personal experiences with inflation, though the increase in attention occurs some-

[9]We elicited respondents' age using a question with six brackets. Thus, we cannot precisely pin down a respondent's birth year and classify those aged 55 or older as having experienced the oil crises. This captures cohorts born 1965 or earlier for respondents who entered the panel in 2020 and cohorts born 1968 or earlier for respondents who entered the panel in 2023.

[10]We decided against eliciting positive experiences with inflation, as such experiences should mostly concern debtors, which constitute a small fraction of the German population, and because inflation is negatively encoded by most individuals.

Figure 3: Experiences and attention over time



Notes: This figure displays the effects of different experience measures on households' attention to inflation as captured in the open-ended text data during the different time periods displayed on the x-axes. Panel A uses an indicator for cohorts aged 55+ at the time of the survey, i.e., those who were at least teenagers during the oil crises of the 1970s. Panels B and C use information on whether the respondent has ever experienced a real income loss or a real wealth loss due to inflation elicited in the pre-shock period (March and June 2021) and assign this value to all waves. We use the first observation for those that responded to the question in multiple waves. The coefficients shown are from interaction terms of dummies for time periods with the respective experience measure. Further, the regressions control for gender, age (only Panels B and C), education, employment status, household income, homeownership, and stock ownership, as well as survey wave fixed effects. Standard errors are clustered at the household level. Confidence intervals refer to the 95% level.

what more gradually over the course of the shock (Panels B and C). Columns 1-3 of Table 7 show that changes in the effect of experiences on attention over the course of the shock are robust to including individual fixed effects.

Results: inflation expectations We also explore whether experience-driven attention allocation is reflected in respondents' updating of their inflation expectations. Columns

4-6 of Table 7 display fixed-effects regressions of inflation expectations on interactions of experience measures with dummy variables for the periods of high inflation, using the pre-shock period as omitted base period. Cohort-level and personal experiences of adverse inflation outcomes are associated with a significantly stronger increase in inflation expectations in response to the inflation shock. For instance, individuals who have lived through the oil crisis exhibit a 0.56 p.p. (Column 4, $p < 0.01$) stronger updating of inflation expectations when the inflation shock first hits the economy in the second half of 2021. The effect increases to 1.02 p.p. in the period following Russia's invasion of Ukraine in 2022 ($p < 0.01$). Interestingly, differences in expectations by experiences remain at a high level during the period of decreasing inflationary pressures starting in December 2022.

The changes in beliefs in line with the retrieval of extreme inflation experiences by subsets of our respondents imply that inflation expectations are extrapolative in response to the shock. Thus, associative memory seems to be a source of extrapolation in the context of inflation.

Columns 7-9 show that the stronger increases in inflation expectations among individuals with previous inflation experiences is reflected in a stronger increase in the absolute distance of their expectations to professional forecasts. This suggests that similarity-based recall can be a source of deviations of beliefs from benchmarks. Taken together, our third main result is the following:

Result 3. *Individuals that have had negative experiences with inflation in the past pay more attention to inflation. The effects of experiences on attention increase during the inflation shock, consistent with similarity-based recall, and are reflected in a stronger updating of inflation expectations.*

Alternative explanation 1: News supply Instead of similarity-based recall, the time-varying relationship of experiences with attention and beliefs could reflect time-invariant differences in news consumption across households coupled with an increase in the sup-

Table 7: Experiences, attention, and beliefs

	Attention to inflation			Expected inflation next 12 months			Absolute deviation from expert forecast		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cohorts that experienced oil crises									
× 1(t ∈ {21m9, 21m12})	0.037***			0.559***			0.550***		
	(0.009)			(0.130)			(0.127)		
× 1(t ∈ {22m3, 22m6, 22m9})	0.030**			1.019***			0.937***		
	(0.013)			(0.161)			(0.157)		
× 1(t ∈ {22m12, 23m3})	0.003			1.020***			0.913***		
	(0.016)			(0.187)			(0.180)		
Infl. experience: Income loss									
× 1(t ∈ {21m9, 21m12})		0.025***			0.175			0.185	
		(0.010)			(0.137)			(0.135)	
× 1(t ∈ {22m3, 22m6, 22m9})		0.050***			0.681***			0.657***	
		(0.014)			(0.176)			(0.172)	
× 1(t ∈ {22m12, 23m3})		0.050***			0.606***			0.533***	
		(0.018)			(0.209)			(0.203)	
Infl. experience: Wealth loss									
× 1(t ∈ {21m9, 21m12})			0.025**			0.030			0.066
			(0.012)			(0.176)			(0.173)
× 1(t ∈ {22m3, 22m6, 22m9})			0.046***			0.582**			0.581**
			(0.018)			(0.232)			(0.229)
× 1(t ∈ {22m12, 23m3})			0.017			0.635**			0.610**
			(0.023)			(0.258)			(0.253)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	34,980	24,661	24,661	40,552	28,493	28,493	40,552	28,493	28,493
R-squared	0.11	0.12	0.12	0.19	0.21	0.21	0.06	0.07	0.07
Mean dep. var.	0.08	0.07	0.07	0.07	0.06	0.06	0.07	0.06	0.06
SD dep. var.	0.27	0.26	0.26	0.26	0.24	0.24	0.26	0.24	0.24

Notes: The dependent variables are a household's attention to inflation as measured in the open-ended data (Columns 1-3), the household's expected inflation over the next 12 months (Columns 4-6), and the absolute deviation of the household's expected inflation from the mean professional forecast reported to FocusEconomics (Columns 7-9). The first experience measure is an indicator for cohorts aged 55+ at the time of the survey, i.e., those who were at least teenagers during the oil crises of the 1970s. The second and third measure use information on whether the respondent has ever experienced a real income loss or a real wealth loss due to inflation elicited in the pre-shock period (March and June 2021) and assign this value to all waves. We use the first observation for those that responded to the question in multiple waves. The interaction terms interact dummies for time periods with the respective experience measure, i.e., they estimate a differential effect relative to the base period (December 2020-June 2021). All specifications include individual fixed effects and survey wave fixed effects. Standard errors are clustered at the household level. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

ply of inflation-related news in response to the shock. To address this possibility, we repeat the fixed-effects estimations presented in Table 7 including additional control variables. Specifically, we control for interactions of dummy variables for the shock periods with a dummy variable indicating whether the respondent reported above-median news

consumption regarding inflation in the pre-shock period. As shown in Columns 2, 5, and 8 of Appendix Tables A.8 and A.9, our main coefficient estimates are unaffected by this exercise.

Alternative explanation 2: Current exposure to inflation Alternatively, individuals who have had adverse inflation experiences in the past could live in households that are generally more exposed to inflation shocks. Their differential tendency to increase attention to inflation may therefore reflect their current exposure to inflation rather than memory-related factors. To address this possibility, we repeat our fixed effects estimations additionally controlling for respondents' assessment of the extent to which their household's economic situation depends on the inflation rate as measured in the pre-shock period, interacted with dummy variables for the shock periods. Columns 3, 6, and 9 of Appendix Tables A.8 and A.9 show that the time-varying relationships of experiences with attention to inflation and inflation expectations are robust to these additional controls.

Placebo Columns 10-12 of Appendix Table A.8 show that experiences with inflation are unrelated to the evolution of attention to macro topics *other than inflation or monetary policy* over the course of shock. Thus, consistent with similarity-based recall, individuals with inflation experiences think specifically of inflation once the environment becomes more inflationary.

3.3.2 External validity: Evidence from the US

To probe the external validity of our findings to a different setting, we examine how inflation experiences are associated with the updating of inflation expectations over the course of the historic shock to inflation using household panel data from the US.

Data We leverage the New York Fed's Survey of Consumer Expectations (SCE), a high-quality probability-based monthly panel dataset of the US population that includes rich

data on inflation expectations. The SCE is widely used in economics research (Armantier et al., 2017, 2016, 2015; Armona et al., 2019; Crump et al., 2022; Fuster et al., 2022). The SCE has a rotating panel structure: every month, a set of new respondents enter the survey and stay in the panel for a maximum of 12 months. Given that our identification hinges on within-person variation and that inflation in the US started increasing to elevated levels from April 2021, we focus on the period between April 2020 and November 2022, the most recent available wave of the panel.[11] Our final sample consists of 5,957 distinct households. Appendix Table A.10 provides summary statistics for our sample.

Empirical specification Similarly as in our analysis on the German household panel, our experience measure is an indicator for the cohorts born before 1965, i.e., those who were at least teenagers during the oil crises of the 1970s. Our main specification includes individual fixed effects, survey wave fixed effects, as well as interaction terms of dummies for the period of increasing inflation (April 2021-June 2022) and the period of decreasing inflation (July 2022-November 2022) with a dummy for being born before 1965. The coefficients on the interaction terms indicate how individuals with different experiences differentially update their inflation expectations in response to the shock compared to the pre-shock period from April 2020 to March 2021.

Results Table 8 displays the results for expectations about inflation over the next 12 months and inflation between 24 and 36 months after the survey. The table confirms the patterns from Germany with US data for both measures of inflation expectations. Individuals who have lived through the oil crises update their inflation expectations more strongly once inflation rises to higher levels between April 2021 and June 2022. As in the German data, this updating is not reversed during the period of still elevated but decreasing inflation between July and November 2022. Relative to the pre-shock period, respondents from these cohorts exhibit 0.57 and 0.85 percentage points stronger increases in 12-month inflation expectations than younger cohorts ($p < 0.05$) over these two peri-

[11] Inflation increased to above 4.1% in April 2021 from 2.6% in March 2021.

Table 8: Experiences and beliefs: Evidence from the US

	Expected inflation	
	(1) 12 mths.	(2) 2-3 yrs.
Cohort < 1965	0.572**	0.668**
× 1(t ∈ {21m4, 22m6})	(0.284)	(0.262)
Cohort < 1965	0.848**	0.691*
× 1(t ∈ {22m7, 22m11})	(0.406)	(0.368)
Time FE	Yes	Yes
Individual FE	Yes	Yes
Distinct respondents	5,957	5,954
Observations	39,699	39,708
R-squared	0.02	0.01
Mean dep. var	7.77	6.20
SD dep. var	7.97	7.56

Notes: This table examines the relationship between households' experiences and updating of inflation expectations over the shock period using data from the New York Fed's Survey of Consumer Expectations (SCE). The dependent variable is a household's point expectation about inflation over the next 12 months (Column 1) or over the time period between 24 and 36 months after the survey (Column 2). The experience measure is an indicator for the cohorts born before 1965, i.e., those who were at least teenagers during the oil crises of the 1970s. The interaction terms interact dummies for time periods with the experience measure, i.e., they estimate a differential effect relative to the base period (April 2020-March 2021). All specifications include individual fixed effects and survey wave fixed effects. Standard errors are clustered at the household level. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

ods, respectively.

Taken together, the evidence from the US corroborates the time-varying effects of personal experiences that we uncovered in the German setting and lends further support to the relevance of similarity-based recall for understanding expectation formation.

4 Conclusion and implications

We study the nature, origins, and consequences of attention to the macroeconomy leveraging newly gathered panel data from German households and firms, both prior to and

during a significant inflation shock. We uncover three novel sets of stylized facts. First, attention to the macroeconomy displays substantial and sustained variation across individuals, shifts towards inflation over the course of the shock, and is negatively associated with attention to household- and firm-level topics. Second, attentive respondents adjust their inflation expectations more frequently during the shock, are more confident in their expectations, and hold smaller misperceptions regarding realized inflation. Yet, the expectations of attentive respondents differ more strongly from professional forecasts. Third, experiences are correlated with households' attention allocation and expectation formation over the course of the shock in a time-varying way, consistent with similarity-based recall.

What features would a macroeconomic model consistent with our findings need to have? While formulating a full theory is beyond the scope of our paper, we briefly sketch how such a model could look like. A model that could generate many of the patterns we document should feature a limited capacity to acquire or process information, leading to pronounced inattention to many topics. It should feature an important role for experiences and memory, which draw agents' attention to different macroeconomic or local topics depending on the context through similarity-based recall, e.g., as in Bordalo et al. (2020). Limited cognitive resources in turn lead to shifts in attention between macroeconomic and local topics. Heterogeneity in experiences, exposure and cognitive resources generates strong heterogeneity in attention to the macroeconomy, part of which is persistent at the individual level. Attention to the macroeconomy affects economic outcomes by changing agents' beliefs and increasing agents' confidence in their beliefs. Exploring business cycle dynamics and the transmission of policies through the lens of such a model could be a fruitful avenue for future theoretical work.

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Online Appendix: Attention to the Macroeconomy

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Summary of the Online Appendix

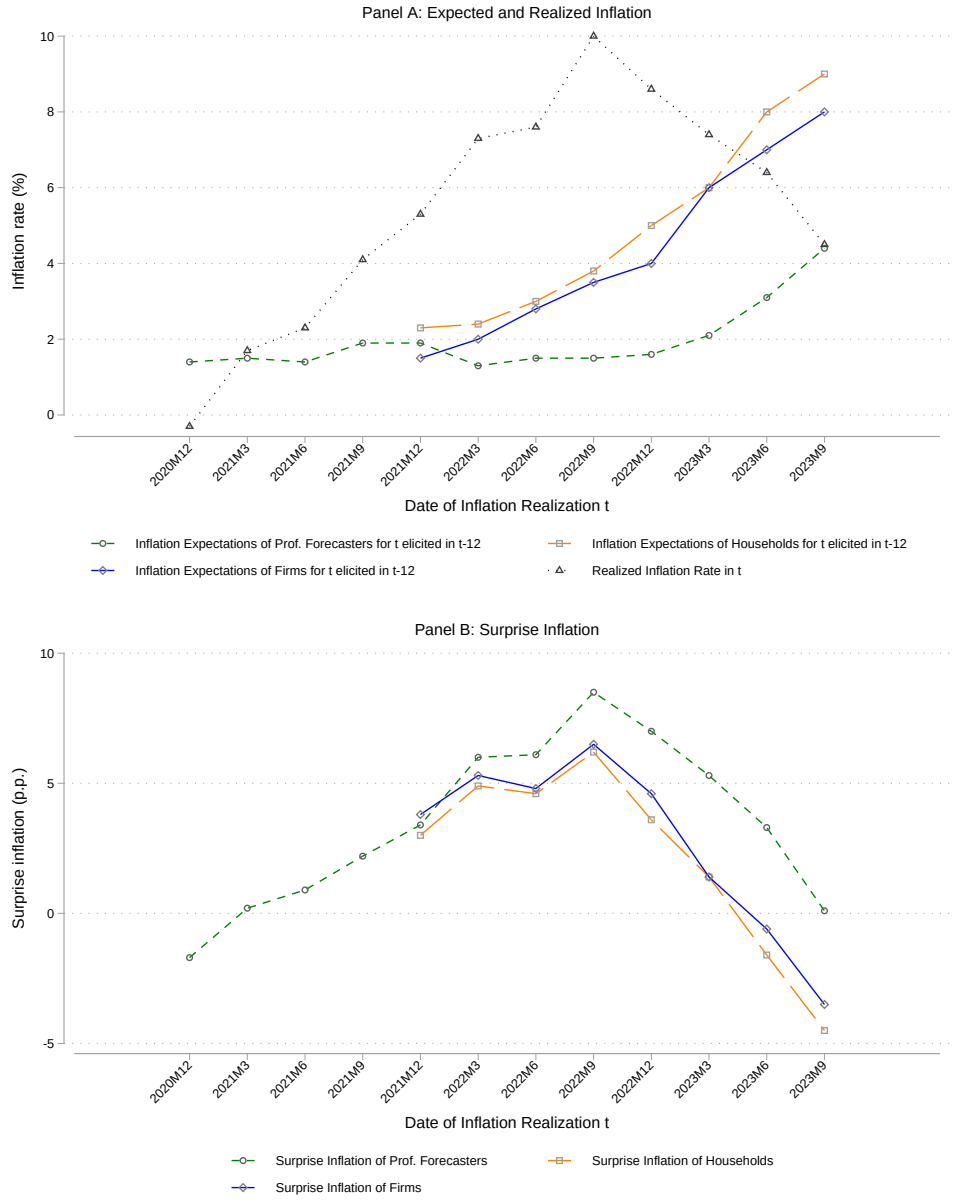
Section A contains additional figures.

Section B contains additional tables.

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

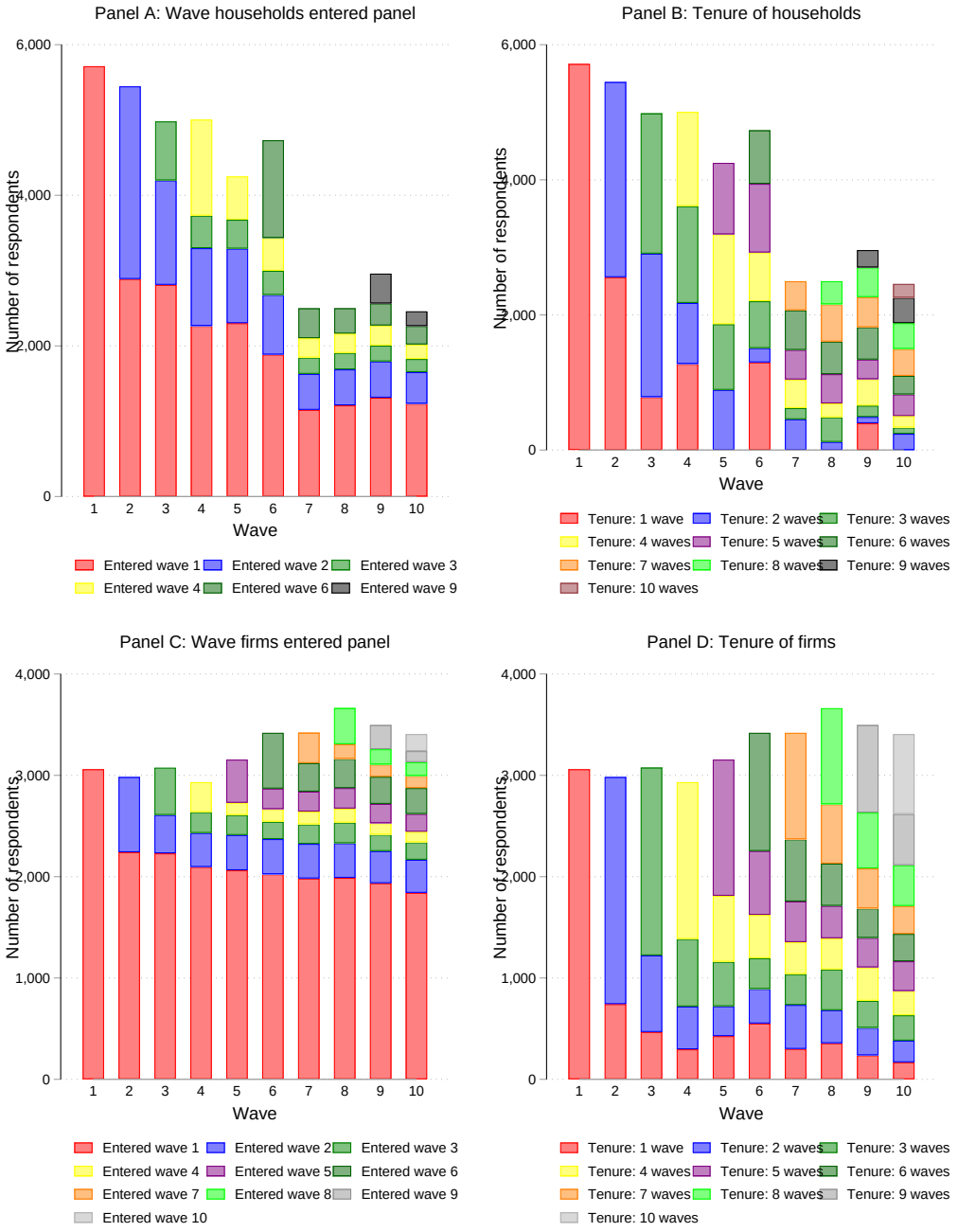
A Additional figures

Figure A.1: Unexpected shock to inflation



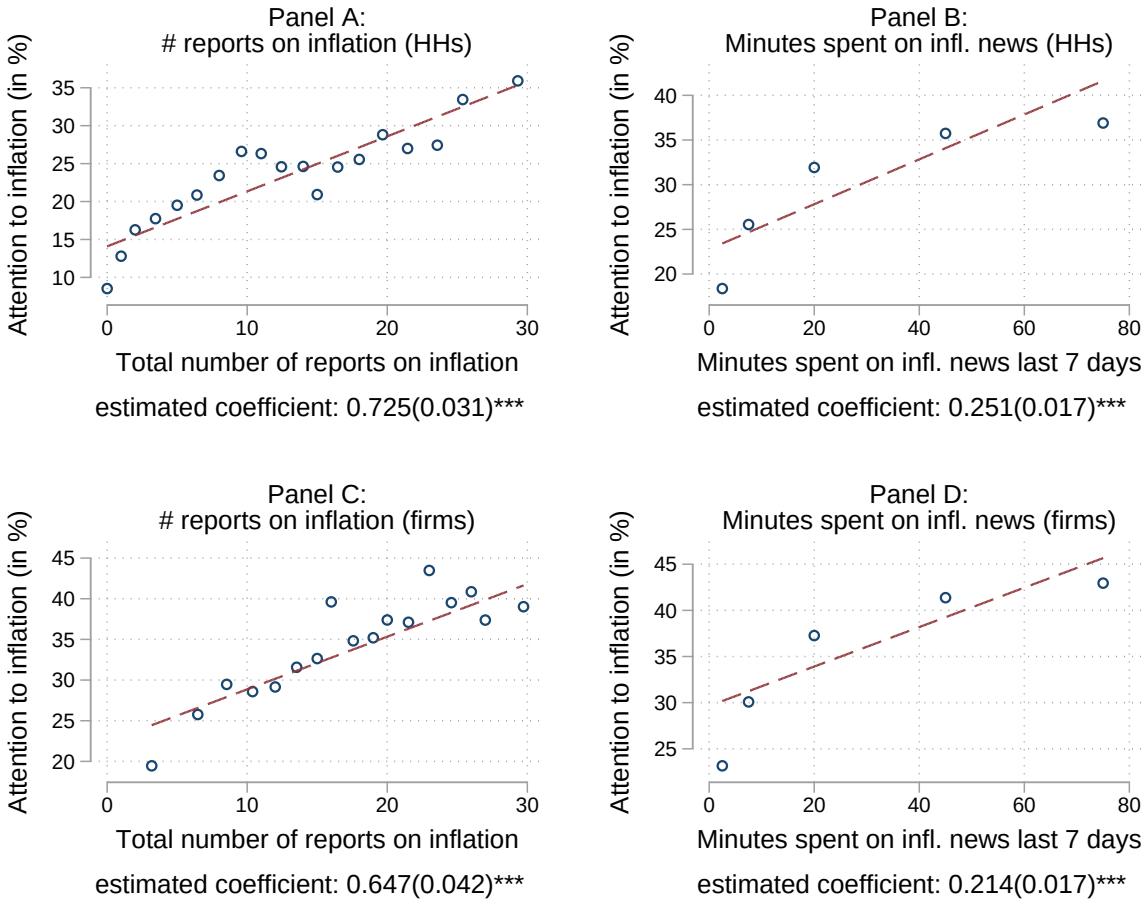
Notes: Panel A displays the median expected inflation rate over the next 12 months among households and firms along with the average professional forecast from FocusEconomics and the ex-post realized inflation rate in Germany. Expectations are shifted by 12 months such that the dates depicted on the x-axis refer to the date of the inflation realization, i.e., the date the expectations refer to. Panel B displays the "surprise inflation", i.e., the difference between forecasts and ex-post realized inflation rates in percentage points.

Figure A.2: Survey participation across waves



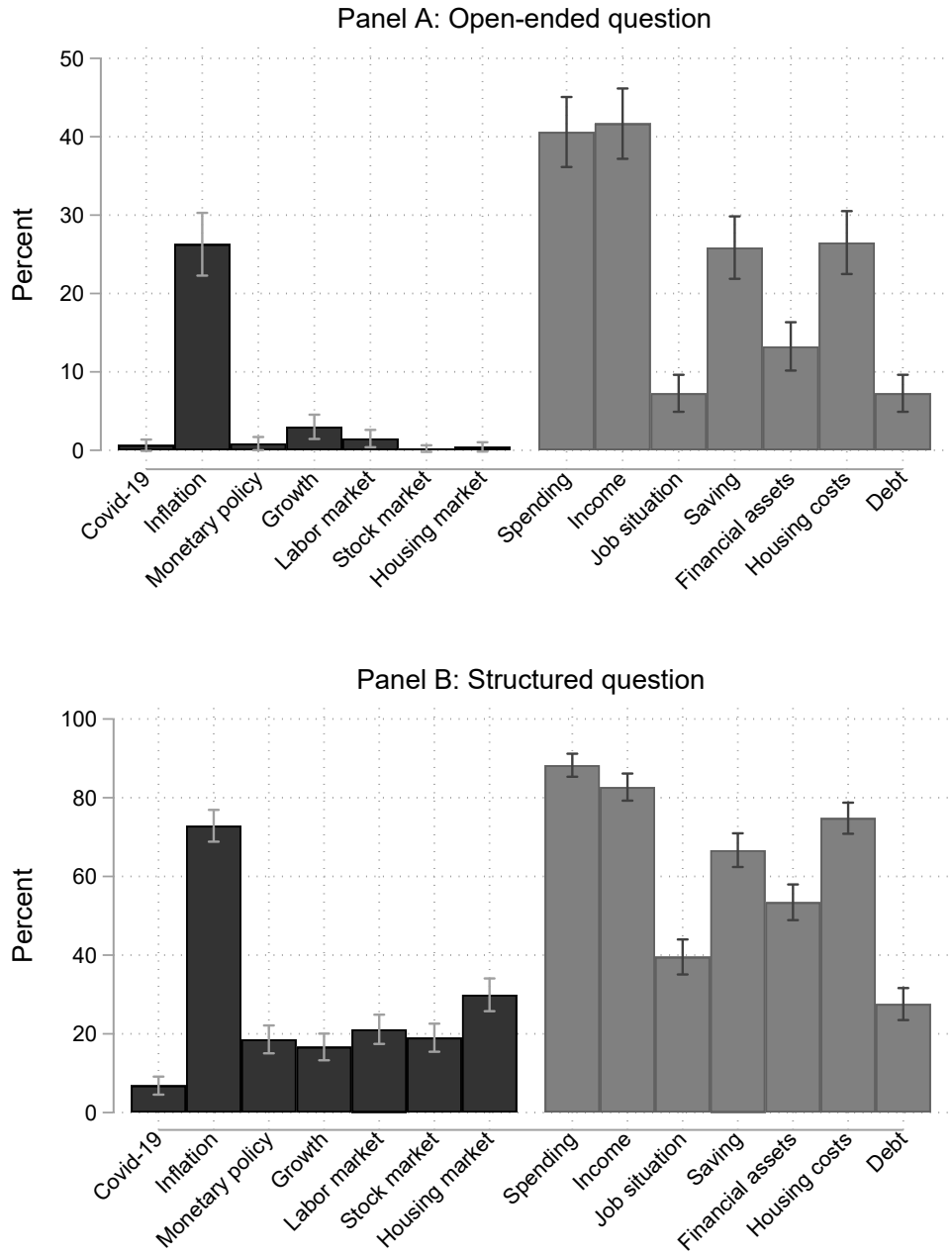
Notes: This figure displays the composition of the different survey waves in terms of the wave responding households and firms entered the panel (Panels A and C) and in terms of their tenure in the panel (Panels B and D).

Figure A.3: Correlation between attention as measured in open-ended question and news consumption



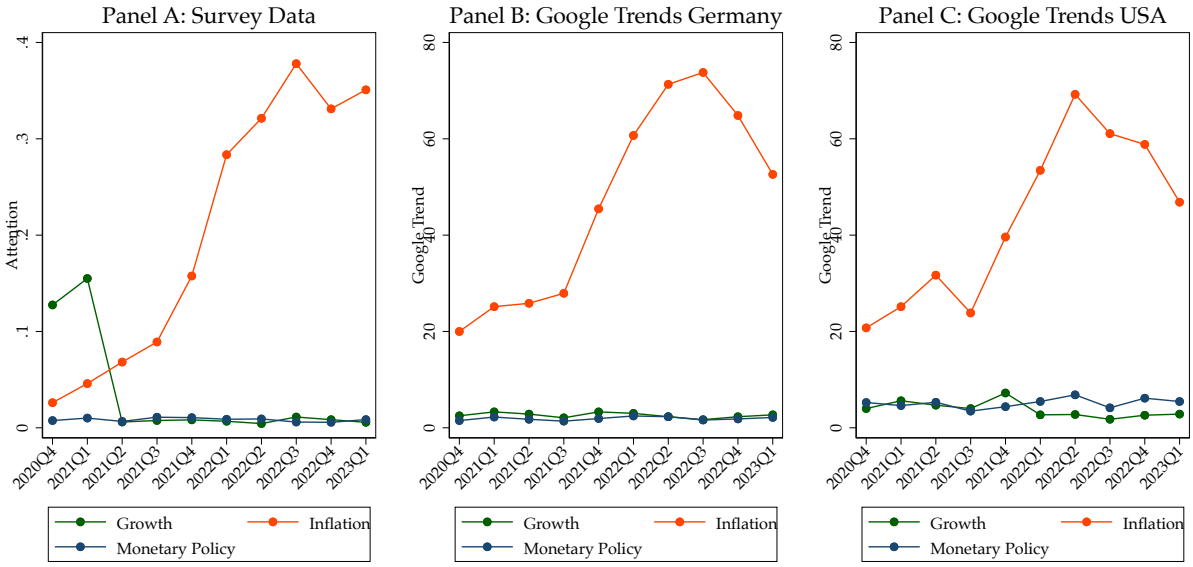
Notes: This figure displays binned scatter plots regressing attention to inflation – i.e., an indicator taking value one (expressed as 100% for expositional reasons) if inflation is mentioned in response to the open-ended survey question – on different measures of news consumption regarding inflation. Panels A and C regress attention 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 in the radio over the last three months. Panels B and D regress attention 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.4: Allocation of attention as measured in open-ended and as measured in structured survey question



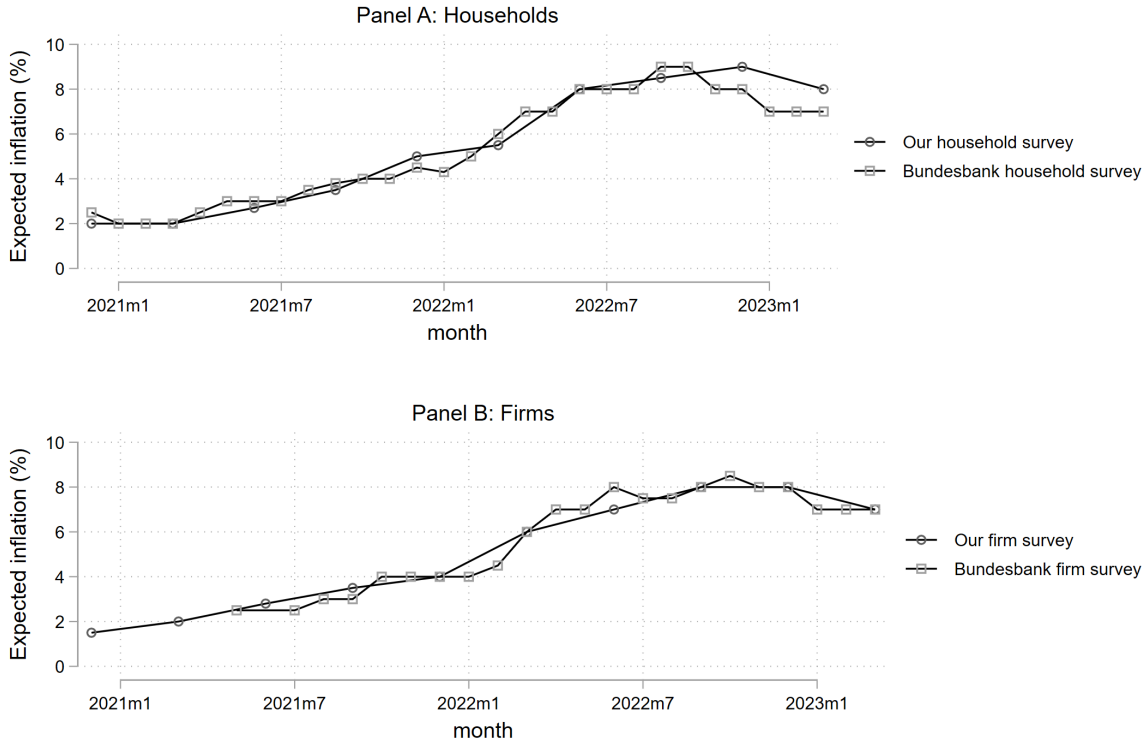
Notes: This figure presents a validation exercise of our hand-coded attention data based on an additional German household survey run with Prolific in September 2023. It shows the fractions of respondents paying attention to different topics according to the open-ended question (Panel A) and according to a structured question included later in the survey (Panel B), including error bands. Aggregate topics are displayed in black, while household-level topics are displayed in grey.

Figure A.5: Attention as measured in open-ended question and Google Trends data



Notes: This figure displays the evolution of the fractions of household respondents that raise different topics in the open-ended survey question across survey waves (Panel A) and the Google Trends data for Germany (Panel B) and the US (Panel C). The lines refer to specific macroeconomic topics: inflation, monetary policy, and growth. Google Trends offers a platform to explore search data, delivering a search intensity metric for each query that ranges from 0 to 100. A score of 100 indicates the peak popularity of the terms queried within a specific area and period. We aggregate the respective topics quarterly (initially, weekly data) for comparability to the survey data. Note that due to the quarterly aggregation, the peak searches within our period (in our case, inflation) are below 100, as the peak refers to the weekly data.

Figure A.6: 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 population of interest.

B Additional tables

Table A.1: Relationship b/w hand-coded data and word count: Attention to inflation

	Hand-coded					Automated word count	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Inflation	Price	Cost	Expen-sive	Joint word count	hand-coded vs. joint word count
Panel A: Households							
Wave 1: 2020m12	0.03	0.01	0.02	0.01	0.03	0.05	0.60
Wave 2: 2021m3	0.04	0.01	0.02	0.01	0.03	0.06	0.75
Wave 3: 2021m6	0.07	0.02	0.04	0.02	0.04	0.10	0.81
Wave 4: 2021m9	0.09	0.04	0.05	0.02	0.05	0.13	0.78
Wave 5: 2021m12	0.16	0.07	0.07	0.02	0.04	0.17	0.88
Wave 6: 2022m3	0.28	0.09	0.14	0.04	0.06	0.27	0.88
Wave 7: 2022m6	0.32	0.21	0.17	0.05	0.06	0.39	0.82
Wave 8: 2022m9	0.38	0.20	0.20	0.08	0.06	0.43	0.86
Wave 9: 2022m12	0.33	0.23	0.19	0.06	0.07	0.42	0.80
Wave 10: 2023m3	0.35	0.23	0.18	0.06	0.08	0.44	0.82
Total (Waves 1-10)	0.19	0.09	0.09	0.03	0.05	0.22	0.84
Panel B: Firms							
Wave 1: 2020m12	0.05	0.01	0.04	0.01	0.03	0.09	0.69
Wave 2: 2021m3	0.10	0.01	0.07	0.01	0.04	0.14	0.79
Wave 3: 2021m6	0.19	0.02	0.15	0.03	0.03	0.23	0.87
Wave 4: 2021m9	0.19	0.03	0.14	0.04	0.06	0.28	0.78
Wave 5: 2021m12	0.25	0.07	0.16	0.04	0.02	0.28	0.89
Wave 6: 2022m3	0.33	0.09	0.24	0.07	0.02	0.39	0.76
Wave 7: 2022m6	0.43	0.19	0.24	0.07	0.03	0.48	0.82
Wave 8: 2022m9	0.42	0.19	0.28	0.10	0.02	0.52	0.75
Wave 9: 2022m12	0.40	0.20	0.22	0.09	0.02	0.46	0.76
Wave 10: 2023m3	0.35	0.20	0.16	0.06	0.02	0.41	0.79
Total (Waves 1-10)	0.28	0.11	0.17	0.05	0.03	0.34	0.81

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" (Column 4) + at least one out of the following: "steig", "stieg", "erhöh", "anheb", or "hoch"; "teuer" or "teurer" (Column 5). Column 6 shows the fraction of respondents for which at least one of the words and word combinations from Columns 2-5 is mentioned. Column 7 depicts the correlation coefficient between hand-coded data (Column 1) and automated word count (Column 6). Panel A focuses on households, while Panel B focuses on firms.

Table A.2: Correlation between attention as measured in open-ended and as measured in structured survey question

	Open-ended					
	(1)	(2)	(3)	(4)	(5)	(6)
	Covid-19	Inflation	Monetary policy	Growth	Any macro	Any personal
Structured: Covid-19	0.098*	-0.032	-0.012*	0.012		
	(0.053)	(0.086)	(0.007)	(0.040)		
Structured: Inflation	0.008*	0.159***	0.008*	0.002		
	(0.005)	(0.041)	(0.004)	(0.014)		
Structured: Monetary policy	-0.008	0.040	0.032	0.039*		
	(0.005)	(0.059)	(0.024)	(0.023)		
Structured: Growth	-0.018*	0.089	-0.006	0.072**		
	(0.010)	(0.062)	(0.020)	(0.029)		
Structured: Any macro					0.151***	-0.032
					(0.049)	(0.050)
Structured: Any personal					-0.072	0.469**
					(0.203)	(0.192)
Mean dep. var.	0.01	0.26	0.01	0.03	0.29	0.79
Observations	468	468	468	468	468	468
R-squared	0.10	0.04	0.02	0.04	0.01	0.02

Notes: This table presents a validation exercise of our hand-coded attention data based on an additional German household survey run with Prolific in September 2023. It regresses dummy variables indicating whether a respondent pays attention to a given topic according to the open-ended data on dummy variables indicating whether a respondent pays attention to a given topic 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.3: Correlates of fixed effects in attention: Households

	Attention inflation	Attention monetary policy	Attention growth	Attention any macro topic	Attention any personal topic
	(1)	(2)	(3)	(4)	(5)
Self-reported exposure (z)	0.067***	0.004***	0.004***	0.077***	0.012***
	(0.003)	(0.001)	(0.001)	(0.004)	(0.004)
Information acquisition costs (z)	-0.015***	-0.001	0.000	-0.023***	-0.024***
	(0.003)	(0.001)	(0.001)	(0.004)	(0.004)
Female	0.006	-0.003***	-0.002	0.005	0.048***
	(0.006)	(0.001)	(0.001)	(0.007)	(0.008)
Age	0.002***	0.000**	-0.000**	0.002***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
At least high school	0.004	0.005***	0.000	0.027***	0.024***
	(0.006)	(0.001)	(0.001)	(0.008)	(0.008)
Employed	-0.011	-0.002	-0.001	-0.009	-0.017*
	(0.008)	(0.002)	(0.002)	(0.009)	(0.010)
Log(Income)	0.006	0.000	0.001	-0.006	0.010
	(0.005)	(0.001)	(0.001)	(0.006)	(0.007)
Home owner	-0.006	0.005***	-0.000	-0.008	-0.004
	(0.007)	(0.002)	(0.001)	(0.009)	(0.008)
Stock owner	-0.013*	0.003*	0.002	-0.018*	0.020**
	(0.007)	(0.002)	(0.002)	(0.009)	(0.009)
Observations	6,441	6,441	6,441	6,441	6,441
R-squared	0.10	0.02	0.01	0.08	0.05

Notes: This table displays regressions of the individual fixed effect of a household's attention to a given topic (indicated at the top) as measured in the open-ended data after purging for survey wave fixed effects on a set of covariates. "Self-reported exposure" indicates the individual fixed effect (again purged for survey wave fixed effects) of the respondents' reports on whether the respective variable is relevant for the economic situation of the household, which is elicited on a categorical five-point scale ranging from "not important" to "very important". Exposure to macro topics refers to a respondent's mean exposure across inflation, monetary policy, and growth, and exposure to personal topics refers to a respondent's mean exposure across occupation-level labor market developments and local costs of living. "Information acquisition costs" capture a household's perceived difficulty of finding relevant information about the development of the economy on a categorical five-point scale. The exposure and information acquisition costs measures are standardized using the mean and standard deviation in the sample. We further control for a respondent's gender, age, education, employment status, household income, homeownership, and stock ownership. Robust standard errors are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.4: Correlates of fixed effects in attention: Firms

	Attention inflation	Attention monetary policy	Attention growth	Attention any macro topic	Attention any firm-specific topic
	(1)	(2)	(3)	(4)	(5)
Self-reported exposure (z)	0.059***	0.022***	0.016***	0.054***	
	(0.004)	(0.002)	(0.003)	(0.005)	
High influence on decisions in firm	-0.027**	-0.003	-0.007	-0.005	0.057***
	(0.013)	(0.005)	(0.008)	(0.015)	(0.012)
Log(Employees)	0.008***	0.000	0.003**	0.014***	0.013***
	(0.003)	(0.001)	(0.002)	(0.003)	(0.003)
Export share	-0.023	-0.011	0.029*	0.047*	-0.056***
	(0.022)	(0.007)	(0.015)	(0.026)	(0.021)
Services firm	-0.115***	0.021***	-0.003	-0.003	-0.046***
	(0.010)	(0.004)	(0.007)	(0.012)	(0.010)
Construction firm	0.007	0.041***	0.004	0.000	-0.027*
	(0.017)	(0.008)	(0.010)	(0.018)	(0.015)
Retail/Wholesale firm	-0.040***	0.011***	-0.017**	0.011	-0.021*
	(0.012)	(0.004)	(0.007)	(0.013)	(0.011)
Observations	4,514	4,514	4,514	4,514	4,514
R-squared	0.11	0.06	0.02	0.04	0.03

Notes: This table displays regressions of the individual fixed effect of a firm's attention to a given topic (indicated at the top) as measured in the open-ended data after purging for survey wave fixed effects on a set of covariates. "Self-reported exposure" indicates the individual fixed effect (again purged for survey wave fixed effects) of the respondents' reports on whether the respective variable is relevant for the economic situation of the firm, which is elicited on a categorical five-point scale ranging from "not important" to "very important". Exposure to macro topics refers to a firm's mean exposure across inflation, monetary policy, and growth. We did not elicit a firm's exposure to local topics, which is why this variable is not included in the specification in Column 5. The exposure measure is standardized using the mean and standard deviation in the sample. We further control for the respondent's influence on decisions in the firm, the firm's number of employees (in logs) and export share, as well as dummies for four broad industry groups. Robust standard errors are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.5: Co-movement of attention to different topics: Robustness

	Attention to macro topics (baseline)		Attention to macro topics excl. Covid-19	
	(1)	(2)	(3)	(4)
Panel A: Households				
Attention to personal topics	-0.182***	-0.279***	-0.153***	-0.245***
	(0.007)	(0.008)	(0.007)	(0.007)
Observations	32,520	34,980	32,520	34,980
R-squared	0.07	0.11	0.10	0.13
Panel B: Firms				
Attention to firm-specific topics	-0.301***	-0.281***	-0.275***	-0.266***
	(0.007)	(0.008)	(0.008)	(0.008)
Observations	28,885	28,885	28,885	28,885
R-squared	0.07	0.06	0.08	0.08
Controls	Yes	No	Yes	No
Time FE	Yes	Yes	Yes	Yes
Individual FE	No	Yes	No	Yes

Notes: This table displays regressions of dummy variables indicating households' (Panel A) and firms' (Panel B) attention to macroeconomic topics – 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 attention to household-level or firm-level topics, respectively. Columns 1 and 2 replicate the baseline results displayed in Columns 7 and 8 of Table 4. In Columns 3 and 4 Covid-19 is dropped from the macroeconomic topics (and also not coded as a household- or firm-level topic). Columns 1 and 3 control for the individual's gender, age, education, employment status, household income, homeownership, and stock ownership, and the respondent's influence on decisions in the firm, the firm's number of employees (in logs) and export share, as well as dummies for four broad industry groups, respectively. Columns 2 and 4 instead control for household and firm fixed effects, respectively. 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.

Table A.6: Attention and beliefs: Within-individual patterns

	Absolute change in expectation $\geq$ 0.5 p.p.	Confidence (z)	Expected inflation	Absolute deviation from expert forecast	Perceived current inflation	Absolute deviation from current level
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Households						
Attention to inflation	0.014	0.022*	0.430***	0.406***	0.114*	0.013
	(0.009)	(0.013)	(0.071)	(0.070)	(0.068)	(0.057)
Observations	20,983	34,980	34,980	34,980	24,407	24,407
R-squared	0.01	0.02	0.21	0.07	0.22	0.01
Mean dep. var.	0.79	0.03	7.08	4.88	6.32	2.67
SD dep. var.	0.41	0.99	6.49	6.17	5.26	4.26
Panel B: Firms						
Attention to inflation	0.005	0.023*	0.168***	0.163***		
	(0.008)	(0.013)	(0.033)	(0.032)		
Observations	18,426	27,126	28,112	28,112		
R-squared	0.02	0.02	0.59	0.30		
Mean dep. var.	0.80	0.03	5.47	3.00		
SD dep. var.	0.40	1.01	3.44	2.72		
Controls	No	No	No	No	No	No
Time FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table displays regressions of households' (Panel A) and firms' (Panel B) beliefs on attention to inflation – i.e., an indicator taking value one if inflation is mentioned in response to the open-ended survey question. The dependent variables are an indicator that is one if the respondent changed 12-month ahead inflation expectations by at least 0.5 p.p. between the previous and the current survey wave (Column 1), a respondent's confidence in their own inflation forecast (z-scored, Column 2), expected inflation over the next twelve months (Column 3), the absolute deviation of expected inflation from the mean professional forecast from FocusEconomics (Column 4), a respondent's perception of the current inflation rate over the last 12 months (Column 5), and the absolute deviation of this perception from the actually realized current inflation rate (Column 6). Besides survey wave fixed effects, all regressions control for household or firm fixed effects. For a version without fixed effects, see Table 5. 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: Attention and disagreement about the current inflation rate

	Households		
	(1) SD	(2) IQR	(3) p90-p10
Full Sample: Sep 2021 - Mar 2023			
(A) Attentive to inflation	4.06	2.67	5.16
(IA) Inattentive to inflation	5.25	2.80	6.82
p-value: (A)=(IA)	0.00		
Period 2: Sep 2021 - Dec 2021			
(A) Attentive to inflation	3.19	2.00	3.90
(IA) Inattentive to inflation	5.21	2.50	5.13
p-value: (A)=(IA)	0.00		
Period 3: Mar 2022 - Sep 2022			
(A) Attentive to inflation	4.36	2.85	5.41
(IA) Inattentive to inflation	5.54	3.15	7.51
p-value: (A)=(IA)	0.00		
Period 4: Dec 2022 - Mar 2023			
(A) Attentive to inflation	4.00	2.34	6.00
(IA) Inattentive to inflation	4.76	3.00	7.84
p-value: (A)=(IA)	0.00		

Notes: This table displays the standard deviation, the interquartile range, and the range between the 90th and 10th percentile of the perceived inflation rate over the 12 months before the survey separately for respondents in the household panel that pay attention to inflation 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 Levene's tests of the equality of standard deviations between respondents that are attentive (A) and respondents that are inattentive (IA) to inflation according to the open-ended measure.

Table A.8: Experiences and attention: Robustness

	Attention to inflation									Attention to macro without inflation or mon. pol.		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Cohorts that experienced oil crises												
× 1(t ∈ {21m9, 21m12})	0.037***	0.038***	0.038***							0.013		
	(0.009)	(0.009)	(0.009)							(0.011)		
× 1(t ∈ {22m3, 22m6, 22m9})	0.030**	0.026*	0.025*							0.021*		
	(0.013)	(0.013)	(0.013)							(0.011)		
× 1(t ∈ {22m12, 23m3})	0.003	0.006	0.005							0.009		
	(0.016)	(0.017)	(0.017)							(0.012)		
Infl. experience: Income loss												
× 1(t ∈ {21m9, 21m12})				0.025***	0.025**	0.020**					-0.011	
				(0.010)	(0.010)	(0.010)					(0.012)	
× 1(t ∈ {22m3, 22m6, 22m9})				0.050***	0.050***	0.036**					-0.014	
				(0.014)	(0.014)	(0.014)					(0.013)	
× 1(t ∈ {22m12, 23m3})				0.050***	0.050***	0.042**					-0.019	
				(0.018)	(0.018)	(0.018)					(0.014)	
Infl. experience: Wealth loss												
× 1(t ∈ {21m9, 21m12})							0.025**	0.025**	0.020			-0.003
							(0.012)	(0.012)	(0.012)			(0.015)
× 1(t ∈ {22m3, 22m6, 22m9})							0.046***	0.044**	0.030*			-0.015
							(0.018)	(0.018)	(0.018)			(0.017)
× 1(t ∈ {22m12, 23m3})							0.017	0.018	0.008			-0.015
							(0.023)	(0.023)	(0.023)			(0.017)
News consumption on inflation (pre-shock, z)												
× 1(t ∈ {21m9, 21m12})		0.006			0.002			0.001				
		(0.005)			(0.005)			(0.005)				
× 1(t ∈ {22m3, 22m6, 22m9})		0.009			0.006			0.004				
		(0.007)			(0.007)			(0.007)				
× 1(t ∈ {22m12, 23m3})		0.002			-0.002			-0.003				
		(0.008)			(0.009)			(0.009)				
Self-reported exposure to infl. (pre-shock, z)												
× 1(t ∈ {21m9, 21m12})			0.016***			0.014***			0.014***			
			(0.005)			(0.005)			(0.005)			
× 1(t ∈ {22m3, 22m6, 22m9})			0.046***			0.043***			0.044***			
			(0.007)			(0.007)			(0.007)			
× 1(t ∈ {22m12, 23m3})			0.028***			0.021**			0.024***			
			(0.009)			(0.009)			(0.009)			
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	34,980	28,559	28,559	24,661	24,661	24,661	24,661	24,661	24,661	34,980	24,661	24,661
R-squared	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.01	0.01	0.01

Notes: The dependent variables are a household's attention to inflation (Columns 1-9) and a household's attention to macroeconomic topics excluding inflation and monetary policy as measured in the open-ended data (Columns 10-12). The first experience measure is an indicator for cohorts aged 55+ at the time of the survey, i.e., those who were at least teenagers during the oil crises of the 1970s. The second and third measure use information on whether the respondent has ever experienced a real income loss or a real wealth loss due to inflation elicited in the pre-shock period (March and June 2021) and assign this value to all waves. We use the first observation for those that responded to the question in multiple waves. The interaction terms interact dummies for time periods with the respective experience measure, i.e., they estimate a differential effect relative to the base period (December 2020-June 2021). All specifications include individual fixed effects and survey wave fixed effects. "News consumption on inflation" captures the average of how many times a respondent reported to have informed themselves about inflation (elicited on a scale from 0 to 10 times or more and expressed in terms of standard deviations) in the three months prior to the survey elicited during the pre-shock period. "Self-reported exposure to inflation" is the average of respondents' assessment during the pre-shock period of whether inflation is relevant for the economic situation of the household, which is elicited on a categorical five-point scale ranging from "not important" to "very important" and expressed in standard deviations. Standard errors are clustered at the household level. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.9: Experiences and beliefs: Robustness

	Expected inflation next 12 months								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cohorts that experienced oil crises									
× 1(t ∈ {21m9, 21m12})	0.559***	0.608***	0.606***						
	(0.130)	(0.130)	(0.129)						
× 1(t ∈ {22m3, 22m6, 22m9})	1.019***	0.991***	0.984***						
	(0.161)	(0.166)	(0.165)						
× 1(t ∈ {22m12, 23m3})	1.020***	0.953***	0.928***						
	(0.187)	(0.195)	(0.194)						
Infl. experience: Income loss									
× 1(t ∈ {21m9, 21m12})				0.175	0.170	0.093			
				(0.137)	(0.137)	(0.141)			
× 1(t ∈ {22m3, 22m6, 22m9})				0.681***	0.676***	0.557***			
				(0.176)	(0.177)	(0.179)			
× 1(t ∈ {22m12, 23m3})				0.606***	0.612***	0.477**			
				(0.209)	(0.209)	(0.212)			
Infl. experience: Wealth loss									
× 1(t ∈ {21m9, 21m12})							0.030	0.010	-0.062
							(0.176)	(0.177)	(0.178)
× 1(t ∈ {22m3, 22m6, 22m9})							0.582**	0.573**	0.439*
							(0.232)	(0.233)	(0.234)
× 1(t ∈ {22m12, 23m3})							0.635**	0.675***	0.482*
							(0.258)	(0.256)	(0.261)
News consumption on inflation (pre-shock, z)									
× 1(t ∈ {21m9, 21m12})		0.060			0.042			0.046	
		(0.070)			(0.074)			(0.075)	
× 1(t ∈ {22m3, 22m6, 22m9})		0.037			0.041			0.020	
		(0.087)			(0.092)			(0.092)	
× 1(t ∈ {22m12, 23m3})		-0.105			-0.086			-0.116	
		(0.101)			(0.109)			(0.109)	
Self-reported exposure to infl. (pre-shock, z)									
× 1(t ∈ {21m9, 21m12})			0.234***			0.251***			0.262***
			(0.063)			(0.069)			(0.068)
× 1(t ∈ {22m3, 22m6, 22m9})			0.409***			0.370***			0.390***
			(0.082)			(0.090)			(0.090)
× 1(t ∈ {22m12, 23m3})			0.413***			0.395***			0.403***
			(0.097)			(0.104)			(0.104)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40,552	34,130	34,130	28,493	28,493	28,493	28,493	28,493	28,493
R-squared	0.19	0.20	0.20	0.21	0.21	0.21	0.21	0.21	0.21

Notes: The dependent variable is a household's expected inflation over the next 12 months. The first experience measure is an indicator for cohorts aged 55+ at the time of the survey, i.e., those who were at least teenagers during the oil crises of the 1970s. The second and third measure use information on whether the respondent has ever experienced a real income loss or a real wealth loss due to inflation elicited in the pre-shock period (March and June 2021) and assign this value to all waves. We use the first observation for those that responded to the question in multiple waves. The interaction terms interact dummies for time periods with the respective experience measure, i.e., they estimate a differential effect relative to the base period (December 2020-June 2021). All specifications include individual fixed effects and survey wave fixed effects. "News consumption on inflation" captures the average of how many times a respondent reported to have informed themselves about inflation (elicited on a scale from 0 to 10 times or more and expressed in terms of standard deviations) in the three months prior to the survey elicited during the pre-shock period. "Self-reported exposure to inflation" is the average of respondents' assessment during the pre-shock period of whether inflation is relevant for the economic situation of the household, which is elicited on a categorical five-point scale ranging from "not important" to "very important" and expressed in standard deviations. Standard errors are clustered at the household level. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table A.10: Summary statistics: Survey of Consumer Expectations

	SCE sample					
	(1) Mean	(2) p25	(3) Median	(4) p75	(5) SD	(6) N
Female	0.49	0.00	0.00	1.00	0.50	39,849
Age	50.00	37.00	49.00	63.00	15.50	39,857
Census region: Midwest	0.25	0.00	0.00	1.00	0.43	39,865
Census region: Northeast	0.19	0.00	0.00	0.00	0.39	39,865
Census region: South	0.35	0.00	0.00	1.00	0.48	39,865
Census region: West	0.21	0.00	0.00	0.00	0.41	39,865
Log(HH gross income)	11.11	10.71	11.12	11.74	0.82	39,502
At least highschool	0.58	0.00	1.00	1.00	0.49	39,851
Employed	0.68	0.00	1.00	1.00	0.47	39,866
Homeowner	0.72	0.00	1.00	1.00	0.45	39,859

Notes: This table provides summary statistics for our sample from the New York's Fed Survey of Consumer Expectations (SCE). The sample includes observations from between April 2020 and November 2022.

C Instructions 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 C.1 provides instructions translated to English, while Section C.2 provides the original instructions in German.

C.1 English translation

C.1.1 Core instructions included in all waves

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

_____

Inflation expectations 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)?
__%

How certain are you about your previous estimate?
very uncertain ☐ ☐ ☐ ☐ ☐ very certain

C.1.2 Additional instructions included in subsets of the waves

Inflation perceptions What do you think was the inflation rate in Germany over the last 12 months (i.e., from XXX to XXX)?
__%

How certain are you about your previous estimate?
very uncertain ☐ ☐ ☐ ☐ ☐ very certain

Experiences Has your household income ever increased significantly less than the general price level?
☐ Yes ☐ No

Has your wealth ever lost significant value due to inflation?
☐ Yes ☐ No

News consumption How much time in the last 7 days do you estimate you have spent consuming news about inflation in various media (television, newspaper, news websites, radio, etc.)?
☐ 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

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

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
- Development of monetary policy of the ECB (e.g., interest rate policy)
  0 times ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 times or more
- Development of economic growth in Germany
  0 times ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 times or more
- Development of the unemployment rate in Germany
  0 times ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 times or more
- Development of the labor market in my industry/in my occupation
  0 times ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 times or more
- Development of costs in my industry/living costs in my area
  0 times ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 times or more
- Development of demand for products in my industry
  0 times ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 times or more

Information acquisition costs Imagine that you wanted to inform yourself about the development of the economy (e.g., inflation) in Germany. How difficult would it be for you to find relevant information about the development of the economy?
very easy ☐ ☐ ☐ ☐ ☐ very difficult

Perceived importance for own situation To what extent do you agree with the following statements?

- Inflation in Germany is important for the economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree
- Monetary policy of the ECB (e.g., interest rate policy) is important for the economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree
- Economic growth in Germany is important for the economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree
- The unemployment rate in Germany is important for the economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree
- The labor market conditions in our industry/my occupation are important for the economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree
- The production costs in our industry/costs of living in our location are important for the economic situation of my firm/household.
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree
- The demand for products of our industry is important for the economic situation of my firm
  strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree

C.2 Original instructions in German

C.2.1 Core instructions included in all waves

Attention Welche Themen kommen Ihnen in den Sinn, wenn Sie an die wirtschaftliche Situation Ihres Unternehmens/Haushalts denken?

_____

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

Wie sicher sind Sie sich bei dieser Einschätzung?
sehr unsicher ☐ ☐ ☐ ☐ ☐ sehr sicher

C.2.2 Additional instructions included in subsets of the waves

Inflation perceptions Was denken Sie, wie hoch war die Inflationsrate in Deutschland über die letzten 12 Monate (also über den Zeitraum von XXX bis XXX)? (Angaben mit einer Nachkommastelle möglich)
__%

Wie sicher sind Sie sich bei dieser Einschätzung?
sehr unsicher ☐ ☐ ☐ ☐ ☐ sehr sicher

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

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

News consumption 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

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

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
- Entwicklung der Geldpolitik der EZB (z.B. Zinspolitik)
  gar nicht ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 mal und öfter
- Entwicklung des Wirtschaftswachstums in Deutschland
  gar nicht ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 mal und öfter
- Entwicklung der Arbeitslosenquote in Deutschland
  gar nicht ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 mal und öfter
- Entwicklung des Arbeitsmarktes in Ihrem Wirtschaftszweig/für Ihre Berufsgruppe
  gar nicht ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 mal und öfter
- Entwicklung der Produktionskosten (HA: Einkaufspreise, DL: Kosten der Dienstleistungserbringung) in Ihrem Wirtschafszweig/Lebenshaltungskosten in Ihrer Wohngegend
  gar nicht ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 mal und öfter
- Entwicklung der Nachfrage nach Produkten (HA: Waren DL: Dienstleistungen, Bau: Bauleistungen) Ihres Wirtschaftszweigs
  gar nicht ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 10 mal und öfter

Information acquisition costs Stellen Sie sich vor, Sie wollen sich über die Entwicklung der Wirtschaft (wie z.B. der Inflation) in Deutschland informieren. Wie schwierig wäre es für Sie, relevante Informationen über die Entwicklung der Wirtschaft zu finden?
sehr leicht ☐ ☐ ☐ ☐ ☐ sehr schwierig

Perceived importance for own situation Inwiefern stimmen Sie den folgenden Aussagen zu?

- Die Inflation in Deutschland ist wichtig für die wirtschaftliche Situation unseres Unternehmens/meines Haushalts.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu

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

- Das Wirtschaftswachstum in Deutschland ist wichtig für die wirtschaftliche Situation unseres Unternehmens/meines Haushalts.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu

- Die Arbeitslosenquote in Deutschland ist wichtig für die wirtschaftliche Situation unseres Unternehmens/meines Haushalts.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu

- Der Arbeitsmarkt in unserem Wirtschaftszweig/für meine Berufsgruppe ist wichtig für die wirtschaftliche Situation unseres Unternehmens/meines Haushalts.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu

- Die Produktionskosten in unserem Wirtschaftszweig/Lebenshaltungskosten in meiner Wohngegend sind wichtig für die wirtschaftliche Situation unseres Unternehmens/meines Haushalts.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu

- Die Nachfrage nach Produkten unseres Wirtschaftszweigs ist wichtig für die wirtschaftliche Situation unseres Unternehmens.
  stimme nicht zu ☐ ☐ ☐ ☐ ☐ stimme voll zu