



The Experience Formation Mechanism

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Abstract

We show that inflation expectations of households causally depend on remembered rather than actually experienced inflation rates. Specifically, we asked German households for their remembered average and peak inflation rates and investigate how inflation experiences are formed and what they depend on. We establish five facts: (i) What matters for expectations is what households believe they have lived through, which cannot be proxied well by actual circumstances. (ii) On average, households overestimate current and lifetime inflation, although they are mostly confident in their estimates. (iii) Negative emotions associated with inflation raise the bias in perception and memory. (iv) High inflation rates are perceived and remembered more correctly. (v) Higher remembered inflation rates cause higher inflation expectations. We present a theoretical model that accounts for the empirical evidence.

Keywords: Household expectations, inflation expectations, inflation experience, Bundesbank household survey

JEL classification: E31, D84, E71.

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1 Introduction

It is well documented that individual experiences matter significantly for expectations and economic decisions (Malmendier and Nagel, 2011, 2016), which explains certain deviations from rational expectations (D’Acunto et al., 2024). Much less is known, however, about how these experiences are formed in the first place. Previous studies on this topic proxy experience with the (weighted) average of relevant official statistics over an individual’s lifetime. But what if agents remember economic circumstances differently than reflected in official statistics? In this paper, we focus on how inflation rates are memorized and recalled later by households. We uncover the following five main facts: (i) What matters for expectations is what households believe they have lived through, which cannot be proxied well by official statistics. (ii) On average, households overestimate current and lifetime inflation, although they are mostly confident in their estimates. (iii) Negative emotions associated with inflation raise this bias in perception and memory. (iv) High inflation rates are perceived and remembered more correctly. (v) Higher remembered inflation rates lead to higher inflation expectations. We propose a coherent framework aligned with these observations, based on the memory model in Gennaioli et al. (2026).

Our study uses survey data from the Bundesbank Online Panel Households, a representative sample of German households, to which we added several questions about the average and peak inflation rates respondents recall experiencing throughout their lifetime. We did so during periods of both relatively low and unprecedentedly high inflation. In both episodes, we find that households exhibit an upward bias in their estimates of personal lifetime inflation and their perceptions of current inflation rates, with remembered inflation rates positively influencing expectations. Perceptions and memory gaps are lower for households with more education. Furthermore, households perceive and remember higher inflation more accurately, while negative emotions associated with inflation increase the upward bias. Those negative emotions are reported more often among households with lower incomes and larger household sizes. Due to these idiosyncratic factors, memories cannot be well proxied by actual circumstances. As a result, households with similar statistical experiences often display highly heterogeneous memories. In fact, remembered lifetime inflation has an independent and stronger impact on expectations than a weighted average of realized inflation rates, even if the weights were chosen to best explain individual expectations. We also observe that older experiences generally receive lower weights in memory formation, except during early adulthood. This period of early economic independence has a disproportionately large impact on average inflation rates recalled later in life.

To establish a causal relationship from memories to expectations, we conduct a randomized controlled trial in the survey. Specifically, we provide respondents with the average inflation rate over their individual lifetime and again elicit, in a different format, inflation expectations. Given that this treatment leads to a significant downward revision in (previously too high) inflation expectations, we conclude that causality runs from individuals’ memory database of past inflation rates to expectations, rather than the other way around. In the latter case, expectations would be independent of the knowledge of past rates and hence of the information provision, too.

We conduct a large variety of robustness checks to verify our results. Although respondents were explicitly asked about aggregate inflation (with a short explanation given), we

control for the community they live in, for state-level inflation, for expenditure shares on goods categories, whether they live in a major city with large rental price increases, and whether they are responsible for grocery shopping in their household. None of this changes our results, nor do several alternative checks.

Our theoretical explanation builds on insights from psychology. As our point of departure, we take the model of Gennaioli et al. (2026), which incorporates the findings from Kahana (2012) that experiences which occurred recently or very early in one’s lifetime, or that are similar to current developments, are remembered better than those in between (phenomena of recency, primacy, and similarity).¹ This, however, implies that potential mistakes in reporting averages of past inflation rates are attributed solely to biases in weighting the time series of correctly observed rates. We extend their model by adding potential biases in observing and storing current inflation rates in one’s memory database. Specifically, we allow for a bias in this process that depends on both the individual and aggregate variables. Given the commonly made observation that households perceive inflation to be higher than it actually is, this bias is typically positive. Building on insights from cognitive psychology (Kensinger et al., 2007; Kensinger, 2009) and neuroscience (LaBar and Cabeza, 2006), we focus on emotions as one of the (potentially many) determinants of the bias.² We furthermore follow the psychological literature on the so-called reminiscence bump (Jansari and Parkin, 1996; Rubin et al., 1998; Glück and Bluck, 2007). That is, we replace the concept of primacy in the model of Gennaioli et al. (2026) by allowing for a larger weight on memories made during early adulthood, i.e., during times of first economic independence. In addition, higher inflation rates raise attention and hence reduce the bias (Bracha and Tang, 2024; Weber et al., 2025).

The model predictions align with our empirical observations. Households display an individual perception bias: those who overestimate current inflation also overestimate their lifetime inflation, since they already perceived inflation as too high in the past. This upward bias in memories and perceptions alike is larger among households that report that inflation had negative effects on their lives, which we interpret as negative emotions toward inflation. In line with the model predictions, negative emotions also translate into higher inflation expectations. Moreover, early adulthood plays a larger role in shaping memories.³

The remainder of this paper is organized as follows. The rest of the introduction discusses related literature, and Section 2 develops the theoretical model. Section 3 presents the data, and Section 4 shows our empirical analysis. There, we examine, in turn, households’ inflation perceptions, memories, expectations, and the ability of averages of past inflation rates to explain memories and expectations. Section 5 establishes causality from memories to expectations using an RCT. Section 6 concludes, and the appendix includes survey questions and additional material.

¹Bordalo et al. (2022) review the psychological literature on the characteristics of salient stimuli and how they influence economic behavior. Relatedly, Bordalo et al. (2026) propose a model of problem-solving where people pay attention only to the salient features of the problem (and correctly use the associated statistics) while neglecting non-salient ones.

²In contrast to D’Acunto et al. (2021) and Agarwal et al. (2022), we do not find evidence for a large role of the process of grocery shopping for inflation perceptions in our sample.

³Giuliano and Spilimbergo (2025) survey the literature on the impact of aggregate shocks (recessions, war, inflation experiences etc.), which finds stronger effects on preferences/beliefs during early adulthood.

Related literature Our analysis contributes to the literature examining how households’ lifetime experiences shape their expectations.⁴ Malmendier and Nagel (2011, 2016) show that inflation (stock market) experiences throughout an individual’s entire lifetime matter for the formation of inflation (stock market) expectations. Similarly, Pedemonte et al. (2025) find a positive correlation between average lifetime inflation experience and inflation expectations of US households. Using survey data from 15 countries, Hajdini et al. (2024) show that cohort-specific average inflation experiences positively affect an indirect measure of inflation expectations based on utility theory, while Malmendier and Nagel (2026) find that experience effects can explain anchored inflation expectations. Conrad et al. (2022) demonstrate that inflation experiences affect qualitative inflation expectations (i.e., the expected direction of future inflation) but less so quantitative expectations. The latter are more related to the information channels households use to inform themselves about monetary policy (e.g., traditional versus social media).⁵ The effect of experience also extends to action: Using household data from 22 European countries, Malmendier and Wellsjo (2024) show that higher lifetime inflation experience explains homeownership within and between countries. Similarly, Cenzone and Szabó (2024) show that higher (and more volatile) lifetime inflation experience of households in nine European countries is associated with a lower probability of holding a fixed-rate mortgage and lower willingness to take financial risks. Malmendier et al. (2021) and Madeira (2025) use the adaptive learning model of Malmendier and Nagel (2016) to derive experience-based inflation expectations for central bankers. These expectations have predictive power for their voting decisions, policy rates, and the hawkishness of speech tone. Similarly, Bordo and Istrefi (2023) show that the time when a FOMC member was born has predictive power for their monetary policy preferences.⁶

A closely related strand of this literature examines how past inflationary shocks shape the formation of inflation expectations. For example, Braggion et al. (2023) show that German households who currently live in areas with higher local inflation during the hyperinflation of the 1920s have higher inflation expectations than other households. Binder and Makridis (2022) show that the negative impact of rising gas prices on consumer sentiment is strongest for households who lived through the recessionary oil crises of the 1970s. Similarly, Link et al. (2026) find that Germans who experienced the oil crisis of the 1970s updated their inflation expectations upwards more strongly in reaction to the recent surge in inflation. Goldfayn-Frank and Wohlfart (2020) show that, on average, East Germans expect higher inflation than West Germans. This difference relates to the inflation shock East Germans experienced after German reunification. Using survey data from 42 countries, Magud and Pienknagura (2025) demonstrate that greater exposure to

⁴See Malmendier and Wachter (2024) for an overview. A related strand of the literature analyzes the role of socioeconomic characteristics for inflation expectations (Bruine de Bruin et al., 2010; Das et al., 2020). Among these characteristics, age, financial literacy, gender, household income, and years of education are usually the most relevant predictors.

⁵Inflation expectations are not the only expectations affected by individual experiences. For example, Kuchler and Zafar (2019) show that local house prices affect aggregate house price expectations in the Survey of Consumer Expectations of the New York Fed. Also, those who find a job out of unemployment become more optimistic about nationwide unemployment.

⁶Extending the analysis to the role of experience for firm actions, Garcia et al. (2025) show that CEOs who experienced higher inflation during their youth exhibit greater inflation attention following inflation shocks, leading to reduced cash holdings and increased borrowing and employment.

past inflationary episodes is associated with greater concern about rising prices. The relationship is stronger for individuals who experienced high inflation later in their working lives and when respondents are surveyed during a high-inflation regime.

Regarding theoretical explanations for the effect of experiences on expectations, Malmendier (2021) reviews the neuroscientific foundations of experience-based learning in the context of finance and establishes four key findings: a) long-lasting effects of past experiences, b) a stronger impact of more recent experiences, c) domain specificity; e.g., past stock market experiences do not affect bond market participation, d) robustness to expert knowledge; experience effects are also present for highly educated individuals such as central bankers. Bordalo et al. (2023) propose a model of belief formation in which individuals estimate probabilities of future events by retrieving experiences from a memory database based on similarity, which is disturbed by interference from an alternative hypothesis and/or irrelevant data. Using COVID as an example, Bordalo et al. (2024) build a model of belief formation for ‘novel risks’ based on selective memory, where different experiences compete in recall and retrieved experiences are used to simulate the event based on similarity. Extending Bordalo et al. (2023), Graeber et al. (2024) find a story-statistics gap in memory, i.e., the effect of stories on beliefs fades less quickly. While statistics are considered more informative on impact and shift beliefs more strongly, this effect reverses over time. The gap is driven by similarity: recall of a story increases when its qualitative content is more similar to a memory prompt. Gennaioli et al. (2026) develop, as discussed above, a model of memory and selective recall in which similarity in current developments triggers recall of otherwise forgotten memories.

A common characteristic of the empirical studies is that they link expectations to *actual* inflation rates, as reported by the statistical offices. In contrast, we investigate the role of both *remembered* and *actual* experiences for inflation expectations. Similarly, the theoretical literature typically assumes an unbiased storage of experiences in the memory database, while we allow for biases during storage. To our knowledge, the only other paper that explores the role of remembered inflation for inflation expectations is the contemporaneous and independent work of Salle et al. (2026). With a different focus, they analyze whether remembered episodes of substantial decreases/increases in inflation explain households’ inflation expectations. Their main finding is that Dutch households who recall having lived through periods of *disinflation* tend to have lower inflation expectations than other respondents. Beutel and Stockerl (2026) elicit memories of past events to explore the role of recency and primacy, as well as similarity and interference effects, on households’ tail beliefs about the stock market. Outside the field of household expectations, Jiang et al. (2025) show that positive stock market returns induce Chinese retail investors to selectively recall episodes of rising markets, such that remembered stock market experiences have explanatory power for return expectations and dominate actual stock market experiences.

2 Theoretical Motivation

In this section we sketch our theoretical model. The model lets us structure, and thus interpret, our empirical findings in the following sections. We build on the memory model of Gennaioli et al. (2026), who develop a theoretical foundation for how memories are recalled. In doing so, they assume that the memory database people draw on consists of all official inflation rates they have lived through. This approach aligns with the available data, but it effectively assumes that all cognitive distortions occur during the process of recalling inflation rates (i.e., information retrieval). We extend the model by allowing for distortions in the process of perceiving and then storing information. Specifically, we assume person- and state-dependent perceptions that may be influenced by emotions. Moreover, we assume a more flexible function in the retrieval process that can replace the primacy effect with the notion that experienced inflation rates during the individual’s ‘formative years’ are remembered better.⁷

2.1 Storage

Each individual i of age $a_{i,t}$ at time t has a database $\mathcal{M}_{i,t} = (\hat{\pi}_{i,t-s})_{s=1\dots a_{i,t}}$ of stored memories, consisting of inflation rates $\hat{\pi}_{i,t-s}$ that were subjectively perceived at times $t-s, s = 1, \dots, a_{i,t}$. Here, age refers to the time of the first inflation memories. Regarding the formation of these rates, we assume a general perception function

$$\hat{\pi}_{i,t-s} = g(\pi_{t-s}, c_i, e_{i,t-s}) + \varepsilon_{i,t}^p,$$

where π_{t-s} are actual rates, as recorded by statistical offices, c_i is a time-invariant individual constant that might bias inflation-rate storage, and $e_{i,t-s}$ are individual i ’s emotions toward inflation in period $t-s$. The term $\varepsilon_{i,t}^p$ reflects non-systematic noise in inflation perception and has a mean of zero. Specifically, we assume the simplest functional form for the perception function that qualitatively captures our model modifications:

$$\hat{\pi}_{i,t-s} = \pi_{t-s} + \frac{c_i}{\pi_{t-s} + x} + e_{i,t-s} + \varepsilon_{i,t}^p, \quad (1)$$

where the second and third terms together constitute the time-varying perception bias. The second term implies that this bias becomes less relevant as actual inflation increases. This is consistent with Bracha and Tang (2024) and Weber et al. (2025), who find that attention to inflation increases with inflation. The normalizing constant x is sufficiently large to prevent $\hat{\pi}_{i,t}$ from reaching excessively high levels when inflation rates are very low. The third term, $e_{i,t-s}$, introduces an upward bias when individuals have negative emotions about their inflation experience. For some individuals, these negative emotions can be positively related to the inflation rate itself. We assume a simple linear functional form $e_{i,t-s} = e_i \pi_{t-s} + \varepsilon_{i,t}^e$ for the emotion function, with $\varepsilon_{i,t}^e$ summarizing all other factors unrelated to the level of inflation. Depending on the individual, the stored inflation rate may hence increase over- or underproportionally with the actual inflation rate.

⁷See the introduction for references to the psychological and neuroscientific literature that motivate these changes.

2.2 Memory recall and expectations

The way memories are recalled when forming expectations about the future follows Gennaioli et al. (2026). The similarity function S relates memories in an agent’s database to the cue and determines which memories come to mind when contemplating future inflation rates. Specifically, given the cue $\pi_{i,t,\mathbb{R}}$, the probability of recalling the past subjective experience $\hat{\pi}_{t-s}$ from one’s database is

$$Pr(\hat{\pi}_{i,t-s}|\pi_{i,t,\mathbb{R}}) \propto S(\hat{\pi}_{i,t-s}, \pi_{i,t,\mathbb{R}}).$$

The cue consists of three elements: the time t at which the forecast is made, the inflation $\hat{\pi}_{i,t}$ the agent currently perceives, and the average remembered inflation rate, $\bar{\pi}_{i,t}$, in an agent’s database.⁸ Unlike in Gennaioli et al. (2026), however, this cue is idiosyncratic even for agents of the same age, as each individual may, currently and in the past, perceive a different current inflation rate. Similarity decreases exponentially with the discrepancy d : $S(\hat{\pi}_{i,t-s}, \pi_{i,t,\mathbb{R}}) = e^{-d(\hat{\pi}_{i,t-s}, \pi_{i,t,\mathbb{R}})}$, where the discrepancy function takes the form

$$d(\hat{\pi}_{i,t-s}, \pi_{i,t,\mathbb{R}}) = \sigma_1 \cdot (\hat{\pi}_{t-s} - \bar{\pi}_{i,t})^2 + \sigma_2 \cdot (\hat{\pi}_{t-s} - \hat{\pi}_{i,t})^2 + \beta(s, a_{i,t}) + \varepsilon_{i,t,t-s}^r.$$

The first two terms capture numerical similarity, adjusted for perceived rather than officially recorded rates: past perceived inflation rates $\hat{\pi}_{t-s}$ similar to average perceived rates are easier to recall. The same holds for perceived rates similar to the perceived current inflation context $\hat{\pi}_t$. The term $\varepsilon_{i,t,t-s}^r$ reflects noise in the recall process, with a mean of zero and potentially increasing variance with temporal distance to the memorized inflation. Furthermore, as in Gennaioli et al. (2026), we define $\sigma_1 = \sigma(1-q)$ and $\sigma_2 = \sigma q$, with $q \in [0, 1]$, and include a potential normalization constant to keep $d \geq 0$. The function $\beta(s, a_{i,t})$, which weights past observations independently of their values, captures the systematic effects of temporal distance. We choose a specification for $\beta(s, a_{i,t})$ that deviates from Gennaioli et al. (2026):

$$\beta(s, a_{i,t}) = -\beta_1 \cdot \mathbb{I}(a_{i,t} - s \in fy) + \beta_2 \cdot (s/a_{i,t}),$$

where fy denotes the formative years of early economic independence. That is, subjective experiences from the more distant past are less likely to be remembered (the recency effect), with the potential exception of experiences from early adulthood. A normalization constant ensures that probabilities add to one. Point expectations are then given by the average retrieved value (sum over the probabilities of recalling a certain inflation level times that specific level):

$$\mathbf{E}(\pi_{t+1}|\pi_{i,t,\mathbb{R}}) = \sum_{\hat{\pi}_{i,t-s} \in \mathcal{M}_{i,t-s}} Pr(\hat{\pi}_{i,t-s}|\pi_{i,t,\mathbb{R}}) \hat{\pi}_{i,t-s}.$$

⁸In case individuals are considering the likelihood of specific inflation ‘events’ E , such as future inflation being between 0% and 2%, the cue can be modified accordingly, see Gennaioli et al. (2026). Instead, we directly consider the case in which individuals make a point prediction and hence $E = \mathbb{R}$, such that all remembered rates can influence expectations.

To obtain the point estimate, we take a linear approximation around $\beta_1 = \beta_2 = \sigma = 0$, $e_i = \bar{e}$, and $c_i = \bar{c}$.

$$\begin{aligned} \mathbf{E}(\pi_{t+1} | \pi_{i,t,\mathbb{R}}) &\approx \bar{\pi}_{i,t}^l + \bar{\pi}_t(e_i - \bar{e}) + \overline{(\pi_t + x)^{-1}}(c_i - \bar{c}) + \beta_1 \frac{n^{fy}}{a} \left(\bar{\pi}_{i,t}^{fy} - \bar{\pi}_{i,t}^l \right) \\ &\quad - \beta_2 \mathbf{Cov} \left(\frac{s}{a_{i,t}}, \hat{\pi}_{i,t-s} \right) - \sigma(1-q) \mathbf{Cov} \left[\left(\hat{\pi}_{i,t-s} - \bar{\pi}_{i,t}^l \right)^2, \hat{\pi}_{i,t-s} \right] \\ &\quad - \sigma q \mathbf{Cov} \left[\left(\hat{\pi}_{i,t-s} - \hat{\pi}_{i,t} \right)^2, \hat{\pi}_{i,t-s} \right], \end{aligned} \quad (2)$$

where n^{fy} is the number of formative years, $\bar{\pi}_{i,t}^{fy}$ is the average stored inflation rate during those years and $\bar{\pi}_{i,t}^l$ the average stored inflation rate over the whole lifetime, evaluated at $\bar{e}$ and $\bar{c}$.

2.3 Model predictions

The model retains the recall properties of Gennaioli et al. (2026), except that the primacy effect is replaced by the formative-years result and that remembered rates matter. Together with the storage function (1), the model predicts:

Storage

1. Household i has a bias c_i when storing inflation
2. The higher the inflation, the higher the attention, i.e., the better the storage
3. Negative emotions associated with inflation increase stored rates

Recall

4. Remembered (rather than actual) rates influence expectations
5. Older memories have a lower impact on expectations
6. *Exception:* rates during an individual's formative years receive additional weight
7. Frequent memories have an overproportional impact on expectations
8. Memories close to the current perception have an overproportional impact on expectations

We confront predictions 1-6 with our empirical results after describing the data. As we lack data on respondents' inflation memories of individual years, except the peak year, predictions 7 and 8 cannot be tested with our data set.

3 Data

The Bundesbank Online Panel Households (BOP-HH) is a representative survey of German households conducted monthly since April 2020. The survey targets individuals aged 16 and older, with respondents participating up to three times in a row. The core survey collects information on households’ inflation expectations and socioeconomic characteristics. We focus on responses from Waves 31 (July 2022) and 57 (September 2024), to which we contributed several questions asking households for their remembered average and peak inflation during their lifetime. In Appendix A, we list the official translations of the German questions that we contributed. Those questions were asked in the survey after households had reported their qualitative and quantitative inflation expectations and had answered a variety of other questions. Table A.1 in the appendix provides details on the construction of all variables.

3.1 Perceptions and expectations

The BOP-HH elicits households’ quantitative inflation expectations and perceptions of current inflation monthly. In our main analysis, we denote the inflation rate the respondents perceived/expect over the past/next twelve months by $\pi_{t-12:t|t}$ and $\pi_{t:t+12|t}$, where t is the month in which the survey is conducted.⁹ The latter are also used as prior inflation expectations, $\pi_{t:t+12|t}^{prior}$, in the randomized controlled trial (RCT) described below.

3.2 Remembered inflation experiences

To measure subjective lifetime inflation rates, we asked each individual to state the average annual inflation rate they believe to have experienced over their lifetime and to assess their confidence in their answer.¹⁰ As we are interested in memories rather than current or recent perceptions, in Wave 31 we asked respondents to ignore the period of high inflation that started in 2021. We also asked households to rate their confidence in their memories on a scale of 1 to 5. Next, we asked respondents what the highest inflation rate they had personally experienced was and in which year it occurred, again only up to the end of 2020 in Wave 31. As a robustness check, we drop respondents who locate peak inflation in 2020, the latest year households could select in Wave 31, to rule out that households nevertheless consider the recent inflation surge. We were also interested in the emotions they associated with this highest rate. Specifically, we asked whether this highest inflation rate had a negative, no, or positive impact on their lives (very negative = 1, up to very positive = 5).

In total, our sample consists of 5,862 households that answered the above questions (3,357 in Wave 31 and 2,505 in Wave 57). We focus on the subset of observations with complete information on remembered inflation, inflation expectations, and socioeconomic characteristics (as described below). Respondents in Wave 31 were also required to provide their perception of current inflation. In Wave 57, this question was asked only to a third of respondents, making this wave less suitable for our main analysis. We also

⁹To ease notation, we do not use an index i although perceptions and expectations are idiosyncratic.

¹⁰Questions that contain the words ‘inflation rate’ include an info box defining inflation as the annual increase in the general price level.

exclude individuals who state that they were not born in Germany (around 3% of the sample). This step is necessary because inflation rates experienced in other countries may differ substantially from those experienced in Germany.¹¹ To eliminate outliers from the remaining observations, we trim all quantitative inflation expectations and lifetime inflation experiences by 1% from the top and bottom.¹² The final data set includes 5,253 individuals (2,963 in Wave 31 and 2,290 in Wave 57).

3.3 RCT

We included an information provision experiment in Wave 57. This was located after the questions on the estimated lifetime inflation rate and socioeconomic characteristics, including age, so we could compute the actual average lifetime inflation rate based on official statistics and the respondent’s age. We treated three-quarters of respondents with both their stated remembered inflation and the actual average inflation rate. Subsequently, we again elicited from all respondents 12-month-ahead inflation expectations, using a different question format. Specifically, we follow Coibion et al. (2024) and asked respondents for a likely future low, medium, and high inflation rate. We use the medium rate to measure posterior inflation expectations, $\pi_{t:t+12|t}^{post}$. Our results are robust to instead using the average over the three inflation scenarios. That is, to confirm a causal relationship, we manipulated the individual memory database and then assess the impact on inflation expectations.

3.4 Socioeconomic characteristics

In the following analysis, we use participants’ socioeconomic characteristics, i.e., age (*age*), household size (*hhsiz*), monthly household income (*income*), and years of education (*yoe*). We also include indicator variables for individuals who lived in East Germany before reunification (*east1989*), gender (*female*), and full employment (*fullemploy*). Following D’Acunto et al. (2021), we also consider, where appropriate, the variable *grocery*, which equals one if the respondent is responsible for most grocery shopping in the household and zero otherwise.

Panel B of Table A.2 presents summary statistics for the socioeconomic variables. The average age in Wave 31 is approximately 57 years. 15% of respondents lived in East Germany in 1989, 34% are female, 45% are full-time employed, and 51% are responsible for grocery shopping in their household. The average household size is slightly above two individuals. Average monthly household income is slightly above 4,000 euros, and the average individual has nearly fourteen years of education.

¹¹Due to data protection issues, we do not have access to information on the specific country of origin, so the influence of earlier inflation experiences cannot be analyzed for this group.

¹²In addition, we exclude 37 respondents who stated that they experienced the highest annual inflation rate before they were born.

4 Empirical Analysis

We provide some descriptive statistics regarding households' inflation memories in Section 4.1. We investigate how households perceive current circumstances in Section 4.2, which will help us understand the determinants of memories of past inflation rates in Section 4.3. We then analyze how memories and perceptions affect expectations in Section 4.4. Lastly, we explore whether averages of past inflation rates can explain memories and expectations in Section 4.5. At each step, we will compare the results with the predictions of the theory presented in Section 2.

4.1 Descriptive statistics

Average lifetime inflation Panel A of Table 1 presents summary statistics for the (trimmed) sample for Wave 31, where Rem_{avg} denotes the respondents' remembered average lifetime inflation, as elicited in question P3104.¹³ Here and in the following, we mainly focus on results for Wave 31 because of the low number of observations regarding perceived inflation in Wave 57.¹⁴ We also report the corresponding numbers separately for individuals who lived in the Federal Republic of Germany (West Germany) and those who lived in the German Democratic Republic (GDR, East Germany) at the time of the German reunification. The cross-sectional average of Rem_{avg} is 3.89%. When distinguishing between West and East Germans, the remembered average inflation is 3.97% and 3.48%, respectively. The histogram of the individual responses in the upper-left plot of Figure 1 shows that remembered average lifetime inflation is highly dispersed.

For comparison, still in Panel A of Table 1, we report the actual average lifetime inflation, denoted by Act_{avg} , for the two respondent subgroups. Importantly for our analysis, the inflation experience of people who lived in the GDR differs from that of West Germans, since the inflation rates they experienced before 1990 were essentially zero. We calculate Act_{avg} as the equally weighted average of all annual inflation rates that materialized throughout respondents' lives since birth (excluding 2021 and 2022 for Wave 31).¹⁵ The average of Act_{avg} over all respondents is 2.09%. Thus, remembered lifetime inflation exceeds actual lifetime inflation by 1.8 percentage points (pp.) on average; about 80% of respondents overestimate average lifetime inflation.¹⁶ Moreover, those individuals who underestimate average lifetime inflation do so by very small amounts, in contrast to those

¹³In the main text we refer to the question numbers in Wave 31, with those for both waves provided in the appendix.

¹⁴However, unless noted otherwise, all discussed results are robust to considering Wave 57 or the pooled sample, see Table A.3 and the pooled regressions in the appendix.

¹⁵We conduct robustness checks starting at ages 14 and 18 instead of using the entire lifetime. We set actual inflation to 0% for all East Germans before 1990 and conduct robustness checks using West German respondents only throughout the paper, or use only the subsample of West Germans where appropriate.

¹⁶Figure A.1 in Appendix A shows the actual average lifetime inflation for West German respondents as a function of age (dotted line). The solid line represents the median across all West German respondents of a specific age. As shown, independent of age, respondents' median remembered average inflation exceeds actual average inflation. Thus, households have an upward bias in their perception of average lifetime inflation at all ages.

Table 1: Summary statistics for remembered versus actual average and peak inflation

Panel A: Remembered and actual average inflation					
	Obs.	Mean	Std. dev.	Min.	Max.
<i>Rem_{avg}</i>	2963	3.89	4.50	0.80	50.00
• West Germans	2505	3.97	4.66	0.80	50.00
• East Germans	458	3.48	3.43	1.00	50.00
<i>Act_{avg}</i>	2963	2.09	0.55	0.74	2.55
• West Germans	2505	2.28	0.33	1.35	2.55
• East Germans	458	1.06	0.26	0.74	1.70
Panel B: Confidence in remembered average inflation					
	Obs.	Very	Fairly	Somewhat	Not very
	2963	165	1496	1168	134
		(5.57%)	(50.49%)	(39.42%)	(4.52%)
Panel C: Remembered and actual peak inflation					
	Obs.	Mean	Std. dev.	Min.	Max.
<i>Rem_{peak}</i>	2963	5.87	2.72	1.00	30.00
• West Germans	2505	5.93	2.58	1.00	30.00
• East Germans	458	5.51	3.35	1.00	30.00
<i>Act_{peak}</i>	2963	5.26	1.81	0.50	7.10
• West Germans	2505	5.55	1.81	0.50	7.10
• East Germans	458	3.64	0.50	2.60	3.90
Panel D: Impact of remembered peak inflation					
	Obs.	Negative	None	Positive	
	2963	1063	1816	84	
		(35.88%)	(61.29%)	(2.83%)	

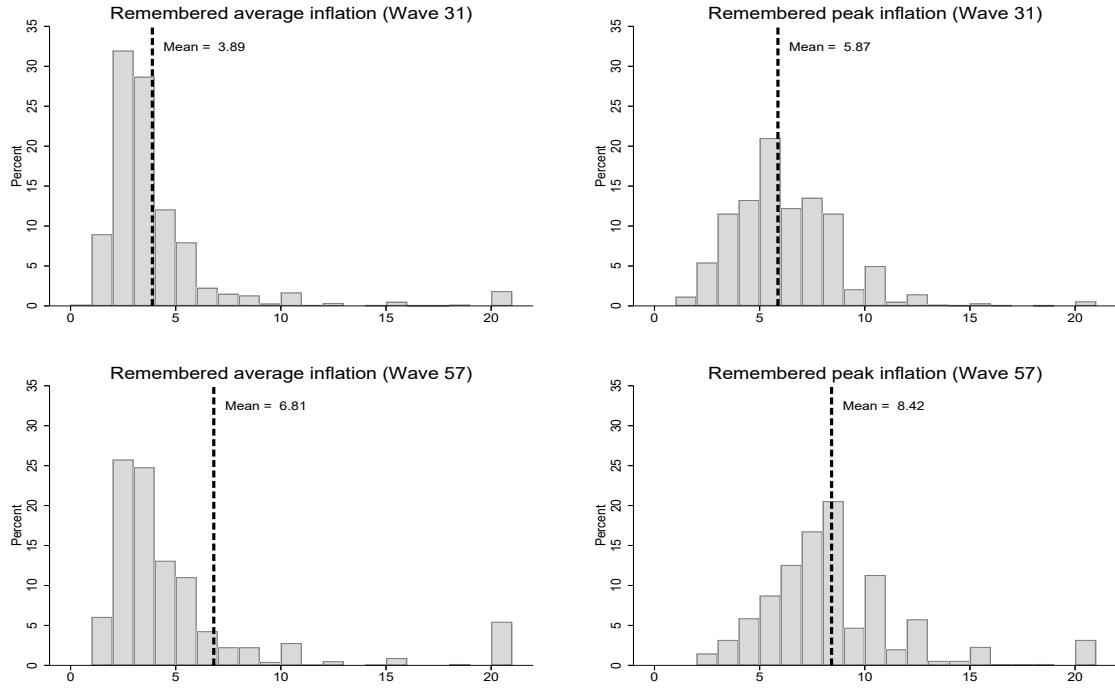
Notes: Panel A shows summary statistics for remembered and actual average inflation experiences of participants in Wave 31 (July 2022). Panel B describes respondents' confidence in their response for remembered average inflation. Panel C shows summary statistics for remembered and actual peak inflation experiences. Panel D reports on the impact of remembered peak inflation on respondents' lives.

who overestimate. Unsurprisingly, average lifetime inflation is much less dispersed than remembered average inflation.¹⁷

The findings above also hold for West and East Germans separately. Given the zero-inflation rates in East Germany before 1990, the difference between actual and remembered inflation is larger for East Germans. Although the correlation between *Act_{avg}* and average (median) remembered lifetime inflation, both age-specific, is 0.31 (0.22) for West Germans, the correlation drops to 0.03 at the individual level. That is, most heterogeneity occurs within age groups, not across them, pointing to individual rather than cohort differences in memory formation. We will analyze the relation between remembered and actual lifetime inflation in detail in Section 4.3.

¹⁷Note that for two individuals of the same age, *Act_{avg}* takes the same value unless one individual is from West and the other from East Germany.

Figure 1: Histograms of remembered average and peak lifetime inflation



Notes: The upper and lower panels show the distributions of (trimmed) remembered average and peak inflation in Waves 31 and 57, respectively. The rightmost bars include all observations with values of 20 or above. Vertical dashed lines represent the corresponding sample means.

Confidence in memories Panel B shows that most individuals report being very (5.57%) or fairly (50.49%) in their response regarding remembered inflation (question P3105). This allows us to interpret the answers as true beliefs about past inflation, rather than pure guesses.

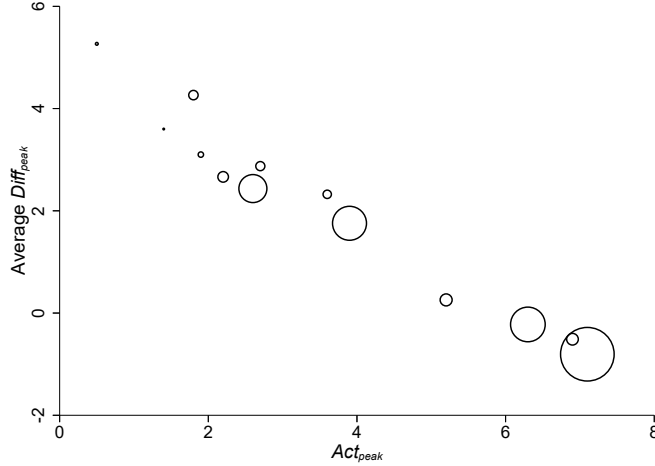
Peak lifetime inflation We also asked for the remembered peak inflation rate (question P3106), which we denote by Rem_{peak} . The upper-right plot in Figure 1 shows the histogram of Rem_{peak} . Panel C of Table 1 shows that the average remembered peak inflation rate is 5.87%, which, as expected, is above the average of the remembered average inflation rates in Panel A.¹⁸ The responses for Rem_{peak} are also less dispersed than those for Rem_{avg} . As before, we compare the survey responses to actual experiences. The actual peak inflation rate, Act_{peak} , is calculated as the highest annual inflation rate that occurred between the year in which the individual turned 14 and 2020.¹⁹ The average actual peak inflation rate is 5.26%.²⁰ Thus, while respondents also tend to overestimate peak inflation, the

¹⁸Still, for 280 (9.45% of) respondents the reported Rem_{avg} exceeds Rem_{peak} . Despite this logical inconsistency, we keep these observations in the sample for the following analyses and conduct robustness checks without this group.

¹⁹As Pedemonte et al. (2025), we disregard inflation rates that occurred during an individual's youth. We use 14 as a cutoff because the youngest individuals in Wave 31 are 16 years old, so they were exactly 14 years old in 2020, which automatically makes the 2020 inflation rate their highest experienced inflation.

²⁰The correlation between individual Rem_{peak} and Act_{peak} is only 0.16 for West Germans, while the correlation between the average (median) remembered peak inflation for each age group—one group for each life year—and actual peak inflation is 0.62 (0.68).

Figure 2: Higher inflation peaks are remembered more accurately



Notes: Circles show the average difference between (trimmed) remembered and actual peak inflation rates, i.e., the average $Diff_{peak} = Rem_{peak} - Act_{peak}$, for West German respondents in Wave 31, grouped by their actual peak inflation rate Act_{peak} shown on the x-axis. The circle size is proportional to the number of respondents in each group.

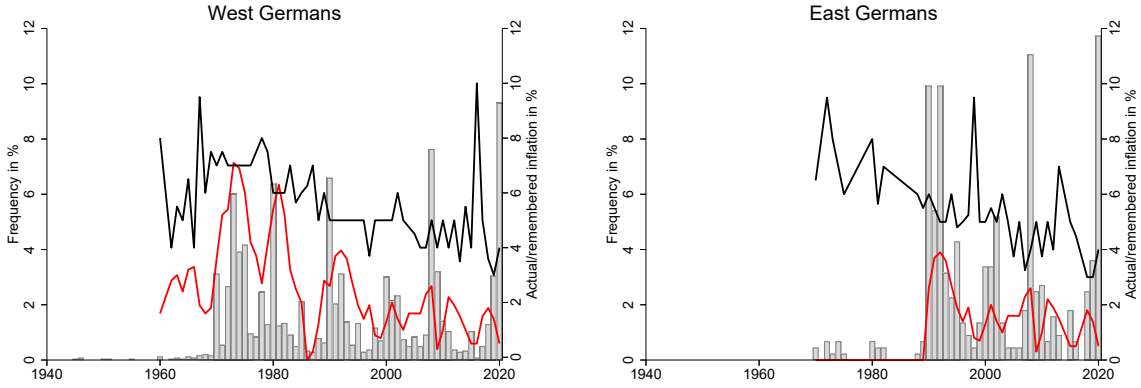
average gap between remembered and actual peak inflation is much smaller than the corresponding gap for average inflation. This suggests that respondents remember episodes of unusually high inflation better than they recount inflation experiences throughout their entire life. Figure 2 shows this relationship more clearly. We plot the actually experienced peak inflation rate (Act_{peak} , on the x-axis) of all individuals with the same actual peak inflation rate versus the average perception gap ($Diff_{peak} = Rem_{peak} - Act_{peak}$, on the y-axis). A negative relationship obtains: higher actual inflation rates are remembered more accurately.

Impact of inflation on own life Panel D of Table 1 shows that around 61% of respondents believe that inflation at its peak had no impact on their lives. Only 36% (3%) report a negative (positive) impact of the peak inflation rate.²¹ The share of respondents reporting a negative impact is thus much lower than the corresponding share for Dutch households in Salle et al. (2026), where around 60% state that inflation surges had negative consequences for their lives. However, because we asked to disregard the latest inflation surge in Wave 31, the remembered peak inflation occurred a considerable time ago. The corresponding number in our data set for Wave 57, after the recent inflation surge, is actually very close to 60%; see Table A.3.

Remembered timing of peak inflation Next, we consider whether individuals correctly remember the year they experienced their peak inflation. The red lines in Figure 3 show the annual German inflation rate in West and East Germany since 1960. The West German inflation rate shows notable peaks in 1973 (7.1%), 1981 (6.3%), 1992 (3.9%), and 2008 (2.6%). For the East German time series, the inflation rate peaked in 1992. For each

²¹Since very few individuals stated that the peak inflation rate had a very negative (positive) impact on their lives, we combine the very negative (very positive) and fairly negative (fairly positive) subcategories.

Figure 3: Remembered year of peak inflation versus actual inflation



Notes: Red lines show actual annual inflation rates in West Germany (left) and East Germany (right) in Wave 31. Gray bars represent the share of respondents who stated that they experienced peak inflation in a given year. Black lines show median remembered peak inflation among those who stated they experienced peak inflation in a given year.

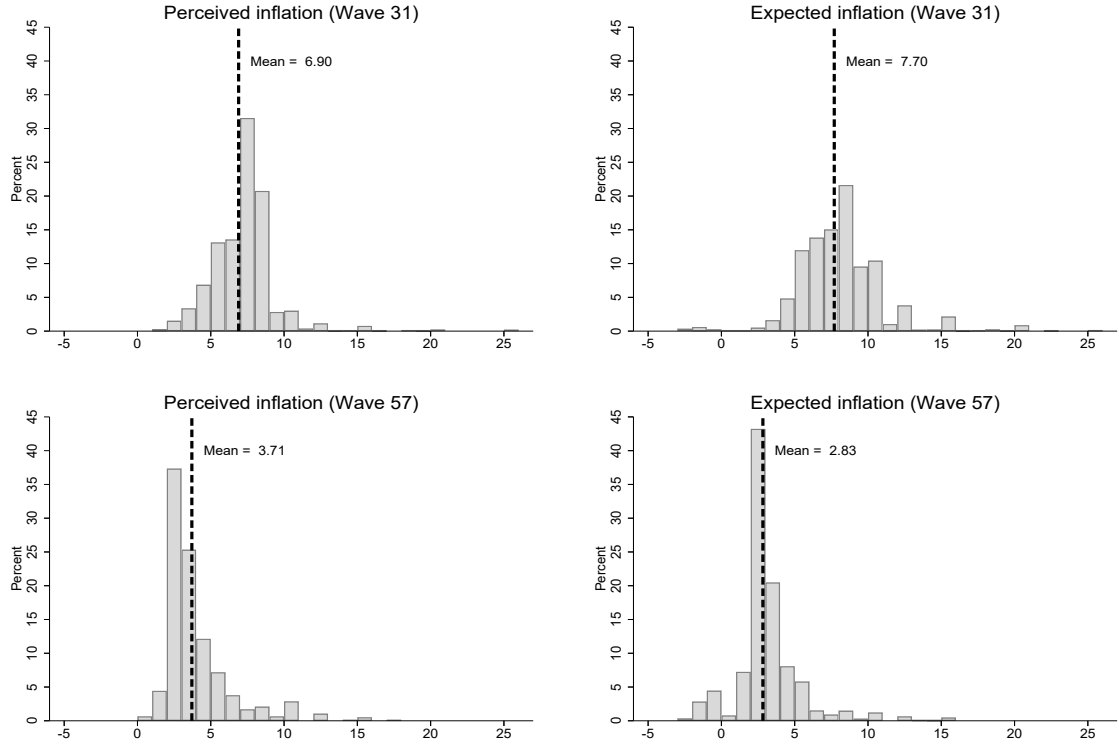
year, the gray bars show the share of respondents who said they experienced peak inflation in that year. The five most frequently mentioned years are 1973 (5% of responses), 1980 (5%), 1990 (7%), 2008 (8%), and 2020 (10%). The distribution of responses shows clear comovement with the peaks in actual inflation. Thus, a considerable share of households remember the high-inflation episodes of the 70s/80s/90s approximately correctly. Nonetheless, the share of exactly correct responses is rather low. Only 8% of respondents correctly remember the year of their peak inflation experience exactly. The share rises to 34% when allowing for a gap between the remembered and the actual year of peak inflation of at most five years.²² Consistent with Goldfayn-Frank and Wohlfart (2020), East Germans state more frequently than West Germans that they experienced peak inflation in 1990 (10% vs. 7%). Furthermore, a sizeable fraction of respondents say their lifetime peak inflation occurred in 2008, during the great financial crisis, although actual inflation was only slightly elevated then. This assessment aligns with Andre et al. (2022), who find that households often adhere to a ‘supply-side view’ of the economy.

The black lines show the median remembered peak inflation rate among all respondents who stated they experienced peak inflation in that year. The upward bias in individuals’ perceptions of peak inflation is noticeably smaller when actual inflation (and the share of responses) is high, again pointing to better memories of high-inflation episodes. At the same time, the discrepancy between the remembered peak and the actual inflation rate is particularly high around the physical introduction of the euro in 2002 (see also Cestari et al., 2008).

Perceptions and expectations Figure 4 shows histograms of quantitative perceptions and expectations, while Panel A of Table A.2 in the appendix presents summary statistics. Average perceived inflation is 6.90% in Wave 31 and 3.71% in Wave 57 (based on a much smaller sample). For comparison, actual inflation was 6.70% in June 2022 and 1.90% in August 2024 (inflation rates for July 2022 and September 2024 had not been released

²²Figure A.2 shows a very large degree of heterogeneity in the beliefs about the remembered timing of peak inflation, which is consistent with the evidence in Salle et al. (2026).

Figure 4: Histograms of perceived and expected inflation



Notes: The upper and lower panels show the distributions of the (trimmed) responses for perceived and expected inflation in Waves 31 and 57, respectively. Vertical dashed lines represent the corresponding sample means.

when households participated in the two survey waves). Average expected inflation is 7.70% in Wave 31 and 2.83% in Wave 57.

Relation to theory Prediction 1 in Section 2.3 states that households display an upward bias when storing inflation. This aligns with the descriptive statistics above: First, the perception error is evident from households overestimating current inflation in both waves. Second, households display an (upward) bias when reporting summary measures of experienced inflation later on: $Rem_{avg} > Act_{avg}$ and $Rem_{peak} > Act_{peak}$. Prediction 2 states that higher inflation increases attention, which in turn improves information retention. Again, the descriptive statistics above support this: while households still show an upward bias of 0.2 pp. in perceiving current inflation—which stood at 6.7%—in Wave 31, this gap is much smaller than in Wave 57, when inflation was 1.9%, and the bias widened to 1.8 pp. This also shows that the heightened attention toward inflation is not long-lasting once inflation recedes to lower levels. Moreover, remembered lifetime peak inflation is closer to the actual rate than average lifetime inflation, and even more so for higher actual peak inflation (Figure 2). Households also tend to remember the year of their personal peak inflation rate more or less accurately.

4.2 Perceptions

Table 2 presents estimates for regressions of households’ inflation perceptions on remembered and actual lifetime inflation as well as socioeconomic characteristics (controls include *age*, *east1989*, *female*, *fullemploy*, *hhsz*, the natural logarithm of *income* and *yoe*, effects shown in Table B.1). The reported standard errors are heteroskedasticity-consistent. To facilitate a meaningful interpretation of the coefficient estimates on Rem_{avg} , Act_{avg} , Rem_{peak} , and Act_{peak} , we scale those variables by their respective standard deviations from Table 1 prior to estimation.

Column (1) shows that remembered average inflation has a significantly positive effect on inflation perceptions, $\pi_{t-12:t|t}$. That is, a one-standard-deviation increase in remembered average inflation, corresponding to 4.5 pp., is associated with 0.39 pp. higher inflation perceptions. In contrast, the estimate for actual average inflation, Act_{avg} , is significantly negative. This might seem surprising at first glance, but can be rationalized by our theoretical model of Section 2. There, the upward bias in perceiving current inflation in equation (1) is idiosyncratic and influences stored inflation rates. We therefore take the difference between remembered and actual average lifetime inflation $Diff_{avg} = Rem_{avg} - Act_{avg}$ as a proxy for this individual perception bias. Column (2) shows that this variable is highly correlated with current inflation perceptions: households that in the past perceived inflation rates higher than they actually were also perceive current rates too high. That is, past and current rates get ‘stored’ with an upward bias, corresponding to a high c_i in the model. In Column (3), we include remembered and actual peak inflation rates. The coefficient on remembered peak inflation is positive, while the coefficient on actual peak inflation is negative, with the same interpretation as for Rem_{avg} and Act_{avg} , respectively. We therefore transform these variables analogously to $Diff_{avg}$ to $Diff_{peak} = Rem_{peak} - Act_{peak}$ in Column (4). This is an alternative proxy for the perception bias, constructed differently and with additional explanatory power. In Column (5), we include answers to whether consumers are (fairly or very) certain about their memories of average lifetime inflation (*confident*) and whether they felt a negative impact of the peak inflation rate on their lives (*negimpact*). Only the latter is positive and statistically significant. Negative feelings about experienced inflation rates are hence correlated with perceiving current inflation rates as rather high, in line with Prediction 3 from the model. Respondents who associate inflation with negative emotions have an additional upward bias in perceiving inflation, denoted by e_i in the model. As we will show below, these negative feelings are partly explained by having lived through higher peak inflation. Column (6) shows that, as households generally overestimate their lifetime inflation, factors that raise inflation perceptions—such as $Diff_{avg}$, $Diff_{peak}$, and *negimpact*—also increase the absolute perception error $|e_{t-12:t|t}|$, i.e., perceptions minus the current, actual inflation rate. We also find that consumers who feel confident about their memories of their average lifetime inflation have *higher* perception errors regarding the current inflation rate.

Table B.1 in Appendix B shows the effects of the control variables (omitting the first eight rows from Table 2). We find that older respondents tend to have higher inflation perceptions, years of education have a negative influence. Women display a higher perception error, while income and education reduce it. Table B.2 repeats the regressions of Table 2 for the pooled sample of waves 31 and 57. Results remain largely unchanged. As expected, the dummy for Wave 57 is significantly negative, as inflation was considerably

Table 2: The role of lifetime inflation experiences for inflation perceptions

	(1)	(2)	(3)	(4)	(5)	(6)
	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$ e_{t-12:t t} $
Rem_{avg}	0.39*** (0.08)					
Act_{avg}	-0.20** (0.09)					
$Diff_{avg}$		0.40*** (0.08)		0.34*** (0.08)	0.34*** (0.08)	0.21*** (0.07)
Rem_{peak}			0.32*** (0.06)			
Act_{peak}			-0.40*** (0.10)			
$Diff_{peak}$				0.30*** (0.06)	0.28*** (0.06)	0.14*** (0.05)
<i>confident</i>					0.09 (0.08)	0.14** (0.06)
<i>negimpact</i>					0.31*** (0.09)	0.23*** (0.07)
Constant	8.59*** (0.74)	8.27*** (0.71)	8.13*** (0.72)	7.80*** (0.70)	7.40*** (0.69)	2.49*** (0.49)
Observations	2,963	2,963	2,963	2,963	2,963	2,963
Controls	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.04	0.04	0.03	0.05	0.05	0.04

Notes: Parameter estimates from regressions of households' inflation perceptions on remembered and actual average/peak inflation experiences and socioeconomic characteristics (shown in Table B.1). Inflation perceptions and remembered inflation experiences are trimmed by 1% from top and bottom. Perception gaps are defined as $Diff_{avg} = Rem_{avg} - Act_{avg}$ and $Diff_{peak} = Rem_{peak} - Act_{peak}$. Rem_{avg} , Act_{avg} , $Diff_{avg}$, Rem_{peak} , Act_{peak} , and $Diff_{peak}$ are scaled by their respective standard deviations prior to estimation. Heteroskedasticity-consistent standard errors in parentheses. Asterisks '*', '**', and '***' indicate significance at the 10%, 5%, and 1% critical level, respectively.

lower than during Wave 31. The absolute perception error, however, is higher during Wave 57, in line with the notion that lower inflation leads to lower attention.

Robustness Table 3 presents several robustness checks. Specifically, we replicate Column (5) of Table 2 for alternative specifications. To account for remaining outliers after trimming, we use Huber (1964) regressions in Column (1). Column (2) focuses on the subsample of West Germans only. Column (3) excludes respondents aged 74 and older for whom we do not have complete lifetime inflation data. In Columns (4) and (5), we use different thresholds for calculating Act_{avg} , which enters $Diff_{avg}$. Column (4) uses the age of 14 and Column (5) takes 18 years as the starting date to calculate actual inflation experiences. Column (6) excludes respondents who report that their peak inflation oc-

Table 3: The role of lifetime inflation experiences for inflation perceptions (robustness)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	$\pi_{t-12:t t}$ Huber robust	$\pi_{t-12:t t}$ West Germans	$\pi_{t-12:t t}$ $age \leq 73$	$\pi_{t-12:t t}$ age cutoff 14 years	$\pi_{t-12:t t}$ age cutoff 18 years	$\pi_{t-12:t t}$ excl. peak in 2020	$\pi_{t-12:t t}$ excl. inconsist.
$Diff_{avg}$	0.16*** (0.03)	0.30*** (0.08)	0.34*** (0.09)	0.32*** (0.08)	0.32*** (0.08)	0.31*** (0.09)	1.22*** (0.22)
$Diff_{peak}$	0.16*** (0.03)	0.27*** (0.07)	0.29*** (0.06)	0.20*** (0.04)	0.20*** (0.04)	0.28*** (0.06)	0.16*** (0.06)
<i>confident</i>	0.08 (0.05)	0.07 (0.09)	0.09 (0.09)	0.06 (0.08)	0.07 (0.08)	0.09 (0.09)	0.10 (0.08)
<i>negimpact</i>	0.26*** (0.05)	0.40*** (0.10)	0.27*** (0.09)	0.33*** (0.09)	0.32*** (0.09)	0.29*** (0.09)	0.26*** (0.09)
Constant	5.88*** (0.46)	7.78*** (0.71)	6.95*** (0.73)	7.41*** (0.70)	7.39*** (0.70)	7.15*** (0.75)	6.79*** (0.68)
Observations	2,922	2,505	2,560	2,963	2,950	2,565	2,683
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.04	0.05	0.05	0.05	0.05	0.05	0.06

Notes: Parameter estimates from regressions of households' inflation perceptions on perception gaps and socioeconomic characteristics (not shown). Inflation perceptions and remembered inflation experiences are trimmed by 1% from top and bottom. Perception gaps are defined as $Diff_{avg} = Rem_{avg} - Act_{avg}$ and $Diff_{peak} = Rem_{peak} - Act_{peak}$. $Diff_{avg}$ and $Diff_{peak}$ are scaled by their respective standard deviations prior to estimation. Column (1) presents Huber robust regressions. Column (2) focuses on West German households. Column (3) excludes respondents aged 74 and older. In Columns (4) and (5), Act_{avg} and Act_{peak} are based on inflation rates experienced since ages 14 or 18. Column (6) excludes respondents who report that their peak inflation occurred in 2020. Column (7) excludes inconsistent responses with $Rem_{avg} > Rem_{peak}$. Heteroskedasticity-consistent standard errors in parentheses. Asterisks '*', '**', and '***' indicate significance at the 10%, 5%, and 1% critical level, respectively.

curred in 2020. Column (7) excludes inconsistent responses with $Rem_{avg} > Rem_{peak}$. We asked respondents to consider aggregate inflation in all our questions. However, to control for the effects of local developments, we also include, in turn, a) dummies for whether respondents live in the five or seven biggest cities in Germany (these cities also displayed the largest increases in house prices in the past), b) community fixed effects, and c) state-level inflation rates, where available.²³ Results are largely unchanged for all variations, except for the Huber-regressions, which reduce point estimates but not significance, and for the exclusion of respondents with inconsistent answers in Column (7) of Table 3. The effect of $Diff_{avg}$, the misperception of lifetime inflation, almost quadruples in this case. Lastly, all our main results, including the ones below, are robust to excluding age as a control variable.

²³Results are available upon request.

4.3 Memories

Next, we examine the individual and aggregate determinants of memories. To this end, we relate individuals' remembered experiences of average and peak inflation to their socioeconomic characteristics and actual past inflation rates in Table 4.²⁴ Column (1) shows that actual average lifetime inflation has no significant impact on remembered average inflation. This unexpected result stems from the large dispersion of remembered rates across households. While socioeconomic characteristics alone are not enough to capture this variation, including the gap between remembered and actual peak inflation $Diff_{peak}$ as a proxy for the individual perception bias renders actual average inflation positively significant, see Column (2). The perception bias can explain part of the variation in remembered inflation across respondents, unveiling the impact of actual inflation on remembered lifetime inflation. $Diff_{peak}$ itself is also significantly positive in Column (2). Hence, both proxies for the perception bias ($Diff_{avg}$ and $Diff_{peak}$) are, as expected, correlated, see Column (3). Concerning socioeconomic characteristics, we find that memories are lower, and hence more accurate, among more educated individuals. Women tend to report higher remembered average inflation rates. We include a dummy that indicates whether the respondent is mainly responsible for grocery shopping in the household; this dummy is insignificant throughout.

Column (4) shows that remembered peak inflation is higher for those who have indeed lived through a higher peak episode. Additionally, the higher the actual rate, the better the memory of this peak rate, visible by the below-unity coefficient on Act_{peak} and explicitly in columns (5) and (6), where we use $Diff_{peak}$ and its absolute value as dependent variables. This aligns with our theory: higher inflation rates raise attention, perhaps because of personal experience or more media coverage of inflation. Women tend to report lower peak inflation rates.

Consistent with Prediction 3 from the theoretical model, the dummy for negative emotions regarding inflation, *negimpact*, positively affects memories.²⁵ That is, if respondents associate inflation with negative personal circumstances, they tend to remember higher average and peak inflation rates. In Column (7) we correlate these negative emotions with socioeconomic household characteristics and actual inflation rates. We find that the likelihood of having negative emotions about inflation is higher for higher actual peak inflation rates (remember that the question concerning *negimpact* asked about the negative impact of the peak inflation rate). Regarding socioeconomic characteristics, emotions are more negative for lower income (as those households are hit harder by inflation, see Charalampakis et al. 2022), larger household sizes (potentially because of higher expenditures), and fully employed household heads (controlling for income).

In Column (8), we use the difference between the year respondents remember experiencing peak inflation and the actual year of their peak inflation as the dependent variable. Households with memories of higher average lifetime inflation or a negative impact of the inflation peak tend to locate their peak inflation more recently, underscoring the salience of such episodes. Women and respondents from larger households recall the peak year

²⁴Note that we do not include age as a control in these regressions, as its correlation with actual average lifetime inflation distorts the estimates. We do, however, use age cohorts in a robustness check.

²⁵Since $Diff_{peak}$ is also affected by this dummy, as predicted by the model and confirmed in Column (4), *negimpact* turns insignificant once we include $Diff_{peak}$ in columns (2) and (3).

Table 4: Determinants of experience perception gaps

	(1) Rem_{avg}	(2) Rem_{avg}	(3) $Diff_{avg}$	(4) Rem_{peak}	(5) $Diff_{peak}$	(6) $ Diff_{peak} $	(7) $negimpact$	(8) $Diff_{year}$
Rem_{avg}								0.46*** (0.09)
Act_{avg}	0.02 (0.23)	0.79*** (0.26)					-0.01 (0.04)	
Act_{peak}				0.19*** (0.03)	-0.81*** (0.03)	-0.20*** (0.03)	0.02** (0.01)	
$Diff_{peak}$		0.31*** (0.05)	0.32*** (0.04)					-2.26*** (0.17)
<i>confident</i>	-0.61*** (0.18)	-0.44** (0.18)	-0.44** (0.18)	-0.52*** (0.10)	-0.52*** (0.10)	-0.18** (0.08)		0.85 (0.55)
<i>negimpact</i>	0.41** (0.17)	0.20 (0.17)	0.20 (0.17)	0.72*** (0.11)	0.72*** (0.11)	0.26*** (0.09)		1.54*** (0.55)
<i>east1989</i>	-0.35 (0.33)	0.19 (0.34)	0.43** (0.19)	-0.02 (0.17)	-0.02 (0.17)	-0.23 (0.16)	0.06 (0.05)	2.48*** (0.65)
<i>female</i>	0.55*** (0.21)	0.63*** (0.21)	0.64*** (0.21)	-0.45*** (0.11)	-0.45*** (0.11)	-0.00 (0.09)	-0.02 (0.02)	0.70 (0.61)
<i>fullemploy</i>	-0.13 (0.16)	-0.41*** (0.16)	-0.40** (0.16)	-0.19* (0.11)	-0.19* (0.11)	-0.24*** (0.09)	0.06** (0.02)	-3.64*** (0.56)
<i>grocery</i>	-0.08 (0.18)	-0.13 (0.18)	-0.13 (0.18)	-0.12 (0.11)	-0.12 (0.11)	-0.06 (0.09)	-0.02 (0.02)	-0.56 (0.59)
<i>hhsiz</i>	-0.07 (0.09)	-0.15* (0.09)	-0.14 (0.09)	-0.06 (0.06)	-0.06 (0.06)	0.01 (0.05)	0.05*** (0.01)	-0.50* (0.28)
$\ln(income)$	-0.47** (0.22)	-0.44* (0.22)	-0.46** (0.22)	0.09 (0.11)	0.09 (0.11)	-0.19** (0.10)	-0.14*** (0.02)	-1.12* (0.61)
<i>yoe</i>	-0.11*** (0.02)	-0.12*** (0.02)	-0.11*** (0.02)	0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)	-0.43*** (0.07)
Constant	9.54*** (1.79)	7.74*** (1.75)	7.36*** (1.74)	4.51*** (0.91)	4.51*** (0.91)	5.11*** (0.77)	1.32*** (0.16)	25.00*** (4.83)
Observations	2,963	2,963	2,963	2,963	2,963	2,963	2,963	2,840
$\bar{R}^2$	0.03	0.06	0.07	0.05	0.24	0.02	0.02	0.25

Notes: Parameter estimates from regressions of households' remembered average/peak inflation experiences or perception gaps on remembered and actual average/peak inflation experiences and socioeconomic characteristics (excluding *age*). Inflation perceptions, inflation expectations, and remembered inflation experiences are trimmed by 1% from top and bottom. Perception gaps are defined as $Diff_{avg} = Rem_{avg} - Act_{avg}$, $Diff_{peak} = Rem_{peak} - Act_{peak}$ and $Diff_{year} = Rem_{year} - Act_{year}$. Heteroskedasticity-consistent standard errors in parentheses. Asterisks *, **, and *** indicate significance at the 10%, 5%, and 1% critical level, respectively.

less accurately, while years of education and income have the opposite effect.²⁶ Table B.3 in Appendix B shows the same table for the pooled sample, confirming the results from Wave 31. In the pooled sample, however, negative emotions toward inflation play an even larger role: *negimpact* has a positive, and significant impact on all dependent variables. Furthermore, there we have enough observations to include the variables financial wealth (variable *wealth*) and real-estate debt (*debt*), which are available for a subset of the respondents only (all results are nevertheless robust to including or excluding these

²⁶These findings result from a regression using the absolute value of the difference as the dependent variable (not shown).

variables). Households that hold higher financial wealth or real-estate debt at the time of the survey have lower, and hence more correct, estimates of past inflation, most likely due to their heightened financial interest in tracking inflation rates.

Robustness Table B.4 in Appendix B displays several robustness checks for columns (3) and (5) of Table 4. We again use Huber regressions in addition to trimming the data in columns (1) and (2), and consider only West Germans in columns (3) and (4). Columns (5) and (6) include only households with consistent answers. Results are robust to all changes. Different households have different consumption baskets, which might influence their personal inflation memories. Although we asked for the aggregate inflation rate throughout, we still control for households’ expenditure shares across a variety of categories. The results are in columns (7) and (8). Results remain unchanged, and only entertainment spending (e.g., restaurant visits, cultural events, gym) has a (negative) impact on remembered lifetime inflation. This might be due to modest restaurant-price inflation until 2020 (Federal Statistical Office of Germany, 2026). Expenditures on services reduce the remembered peak somewhat.

A regression that includes 10-year age cohorts renders the effects of Act_{avg} insignificant, as well as the effect of Act_{peak} on Rem_{peak} (not shown), most likely a distortion of the estimates due to the correlation of the cohorts with actual average inflation. The remaining results, however, are strengthened. Using 18 years as the starting date for calculating the actual lifetime inflation and excluding respondents who report that their peak inflation occurred in 2020 hardly changes the coefficients (not shown).

4.4 Expectations

After analyzing the determinants of subjective memories, we now investigate their role for inflation expectations $\pi_{t:t+12|t}$. Column (1) of Table 5 shows that remembered average and peak lifetime inflation positively affect inflation expectations for the coming year. Importantly, this is not the case for inflation rates individuals have actually lived through, neither the average nor the peak rate over their lifetime, as reported in Column (2).²⁷ This is in line with our theory—Prediction 4 in Section 2, which states that expectations depend on remembered inflation rates, not actual lifetime inflation. Column (3) includes perceived inflation as a control variable and confirms that remembered inflation has an impact on expectations beyond its influence on inflation perceptions.²⁸ Column (4) restates the impact of subjective memories by replacing subjective inflation rates with the difference between remembered and actual average inflation rates, a proxy for the individual bias in the perception of inflation. This variable enters significantly, as also predicted by equation (2) of our model. Column (5) includes the variables *confident* and *negimpact*. While confidence in remembered rates does not directly affect expectations, negative emotions toward inflation enter positively and significantly. Finally, Column (6) uses the absolute forecast error as the dependent variable. The results are very similar to Column (5) because expectations are generally too high.

²⁷This, as all other main results, is robust to excluding age as a control variable.

²⁸The literature has shown that inflation expectations are closely related to perceptions of current inflation (Jonung, 1981; Weber et al., 2022; Candia et al., 2023; Huber et al., 2023).

Table 5: The role of remembered inflation experiences for inflation expectations

	(1)	(2)	(3)	(4)	(5)	(6)
	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$ e_{t:t+12 t} $
Rem_{avg}	0.36*** (0.09)	0.35*** (0.09)	0.17** (0.07)		0.17** (0.07)	0.14*** (0.05)
Rem_{peak}	0.22*** (0.07)	0.23*** (0.07)	0.09 (0.06)	0.09 (0.06)	0.06 (0.06)	0.05 (0.04)
Act_{avg}		-0.21 (0.16)	-0.18 (0.15)	-0.16 (0.15)	-0.17 (0.15)	-0.07 (0.11)
Act_{peak}		-0.17 (0.18)	0.02 (0.16)	0.02 (0.16)	-0.01 (0.16)	-0.13 (0.12)
$Diff_{avg}$				0.17** (0.07)		
$\pi_{t-12:t t}$			0.55*** (0.03)	0.55*** (0.03)	0.54*** (0.03)	0.43*** (0.03)
<i>confident</i>					-0.02 (0.10)	-0.03 (0.08)
<i>negimpact</i>					0.48*** (0.10)	0.21*** (0.08)
Constant	10.26*** (0.89)	10.57*** (1.01)	6.30*** (0.97)	6.30*** (0.97)	5.79*** (0.97)	1.08 (0.72)
Observations	2,963	2,963	2,963	2,963	2,963	2,963
Controls	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.05	0.06	0.21	0.21	0.22	0.22

Notes: Parameter estimates from regressions of households' inflation expectations on remembered and actual average/peak inflation experiences and socioeconomic characteristics (shown in Table B.5). Inflation perceptions, inflation expectations, and remembered inflation experiences are trimmed by 1% from top and bottom. The perception gap is defined as $Diff_{avg} = Rem_{avg} - Act_{avg}$. Rem_{avg} , Act_{avg} , $Diff_{avg}$, Rem_{peak} , and Act_{peak} are scaled by their respective standard deviations prior to estimation. Heteroskedasticity-consistent standard errors in parentheses. Asterisks *, **, and *** indicate significance at the 10%, 5%, and 1% critical level, respectively.

Table B.5 in Appendix B shows the impacts of the control variables. As often found in the literature, women have higher inflation expectations, while higher income and education reduce expectations. Table B.6 shows the corresponding estimates for the pooled sample, with very similar results.

Robustness Table B.7 in Appendix B shows various robustness checks for Column (5) of Table 5. As before, we check whether the results are robust to using Huber (1964) regressions in addition to trimming the data and for the subsamples of West Germans and those with complete lifetime inflation data. We also use 14 and 18 years as cutoffs for calculating lifetime inflation and exclude respondents with inconsistent answers, i.e., $Rem_{avg} \geq Rem_{peak}$. The results are similar to those in Table 5.

In Column (7), we replace the reported point forecasts regarding future inflation with the variable *infl_exp*, which captures the answers to a qualitative question about expected changes in inflation (i.e., whether inflation will increase, stay the same, or decrease). We report the average marginal effects from an ordered probit regression for the probability that individuals expect an increase in the inflation rate. While the different scale changes the coefficients, the signs and significances remain the same, except for the influence of peak inflation. It now has a negative effect on inflation expectations, significant at the 5% level. This could again be due to its role for our proxy for attention: keeping the actual inflation peak constant, a higher remembered peak is associated with less accurate perceptions in our interpretation, as it is generally too high to start with.

Column (8) replaces one-year-ahead forecasts with five-year-ahead forecasts as the dependent variable. The results are very similar. This aligns with our theoretical model: households with an individual upward bias in perceiving inflation are likely to predict high inflation rates further into the future, rather than seeing it as a short-term phenomenon.

4.5 Weighting of remembered inflation rates

The results in Column (1) of Table 4 suggest that there is no significant relation between actual average inflation and remembered average inflation, which is in line with the observation in Section 4.1 that the correlation between the two is close to zero. This may be because past perceived inflation rates differ from actual rates or because respondents did not assign equal weights to all past inflation rates when remembering average past inflation. To shed light on the latter, we next relate remembered average inflation to a weighted average of past actual inflation rates.

4.5.1 Monotonic decay

In a first step, we follow Malmendier and Nagel (2011) and model the lifetime inflation experience of individual i as

$$MN_{avg}(\lambda) = \sum_{k=2}^{age_i-1} w_i(k, \lambda) \pi_{2022-k}, \quad (3)$$

where π_{2022-k} is the annual inflation rate in (West/East) Germany in year $2022 - k$, and

$$w_i(k, \lambda) = \frac{(age_i - k)^\lambda}{\sum_{k=2}^{age_i-1} (age_i - k)^\lambda}. \quad (4)$$

We restrict λ to be non-negative. For $\lambda = 0$, all lags receive the same weight (such that $MN_{avg} = Act_{avg}$); for $\lambda > 0$, the weights decline from lag one onward. The latter parameterization aligns with the theoretical Prediction 5 from Section 2 that individuals are usually influenced more by recent inflation experiences, which was also found empirically (Malmendier and Nagel, 2016). Nevertheless, for sufficiently small λ , individuals can attach considerable weight even to observations from the distant past. In the regressions below, we repeatedly estimate each specification over a grid of λ values and then search for the value that minimizes the sum of the squared residuals.

Table 6: Does MN_{avg} explain remembered and expected inflation?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Rem_{avg}	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$
Rem_{avg}			0.41*** (0.09)	0.19*** (0.07)		0.41*** (0.09)	0.19*** (0.07)	0.17*** (0.07)
MN_{avg}	0.28*** (0.09)	0.02 (0.07)	-0.00 (0.07)	-0.00 (0.07)	-0.14 (0.10)	-0.13 (0.10)	-0.08 (0.10)	0.01 (0.10)
$\pi_{t-12:t t}$				0.56*** (0.03)			0.55*** (0.03)	0.55*** (0.04)
Constant	6.36*** (1.98)	11.24*** (1.24)	10.66*** (1.21)	6.10*** (1.12)	11.92*** (0.96)	11.04*** (0.95)	6.29*** (0.90)	6.12*** (0.96)
Observations	2,963	2,963	2,963	2,963	2,963	2,963	2,963	2,505
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
λ	3.80	3.80	3.80	3.80	0.20	0.20	0.20	0.40
$\bar{R}^2$	0.03	0.03	0.05	0.21	0.03	0.05	0.21	0.22

Notes: Parameter estimates from regressions of households' inflation expectations on the MN_{avg} measure of inflation experience, remembered average inflation experience, and socioeconomic characteristics excluding age (not shown). Inflation expectations, inflation perceptions, and remembered inflation experiences are trimmed by 1% from top and bottom. The explanatory variables Rem_{avg} and MN_{avg} are scaled by their respective standard deviations prior to estimation. As a dependent variable, Rem_{avg} in Column (1) is not scaled. Column (8) focuses on West German households only. Heteroskedasticity-consistent standard errors in parentheses. Asterisks '*', '**', and '***' indicate significance at the 10%, 5%, and 1% critical level, respectively.

In Column (1) of Table 6, we choose λ to best explain inflation memories Rem_{avg} . We obtain a highly significant, positive coefficient estimate for MN_{avg} with a weight parameter of 3.8. Thus, the appropriately weighted average of past inflation rates has explanatory power for remembered average inflation. If MN_{avg} increases by one standard deviation (0.11 pp.), Rem_{avg} rises by 0.39 pp. Still, the adjusted R^2 is only 0.03. In Column (2), we regress inflation expectations on MN_{avg} , with the weights from Column (1). MN_{avg} is insignificant in this case. That is, an average of experienced inflation rates with declining weights that mimics subjective memory cannot explain households' inflation expectations.

In Column (3), we regress expected inflation on remembered average inflation and the weighted inflation experience, and add perceived inflation as an additional control in Column (4). While remembered average inflation has a positive and significant effect, the weighted lifetime inflation experience remains insignificant in both columns. Thus, Rem_{avg} contains information about the expectation formation process beyond what is contained in the weighted average of past actual inflation rates. This is likely due to the considerable cross-sectional heterogeneity in the remembered inflation rates of individuals of the same age, while the MN_{avg} measure assigns the same experience to those individuals.

Recall that up to here, the evidence was based on the value of the parameter λ that we found to be optimal in Column (1) for explaining Rem_{avg} . In Column (5), we choose λ to maximize the explanatory power of MN_{avg} for inflation expectations. This yields an optimal value of 0.2, making MN_{avg} close to the unweighted average of lifetime experiences, Act_{avg} . However, even with this re-optimized value MN_{avg} is not significant for inflation expectations. In Column (6), we additionally include Rem_{avg} , and in Column (7) we further add perceived inflation. In both columns, remembered inflation is highly sig-

nificant while MN_{avg} remains insignificant. That again shows that memories, which affect expectations, are more complex than a weighted average of actual experiences.²⁹ Next, we seek to better understand whether specific periods in life matter for shaping memories and expectations.

4.5.2 Flexible weighting scheme

As inflation memories might not fade away linearly, we investigate whether a more flexible weighting scheme has more explanatory power. In particular, as discussed in Section 2, we suspect that experiences made during early adulthood have a more lasting impact on memories. This, however, applies mainly to West Germans, as East Germans above a certain age experienced their early adulthood either during the GDR or during the transition from socialism to capitalism, which, among other particularities, featured abnormally high inflation rates (Goldfayn-Frank and Wohlfart, 2020). We therefore focus on West Germans from now on. Before continuing, we first confirm that the previous result also holds for West Germans only. Column (8) in Table 6 repeats the exercise of Column (7), with very similar results.

To allow for a more flexible weighting, we replace the weighting scheme in equation (3) with the following Beta weights:

$$w_i(k, \lambda_1, \lambda_2) = \frac{\left(\frac{k}{age_i+1}\right)^{\lambda_1-1} \left(1 - \frac{k}{age_i+1}\right)^{\lambda_2-1}}{\sum_{k=2}^{age_i-1} \left(\frac{k}{age_i+1}\right)^{\lambda_1-1} \left(1 - \frac{k}{age_i+1}\right)^{\lambda_2-1}},$$

where the parameters λ_1 and λ_2 allow a peak at any point during a lifetime, not only at the beginning or in the current period.³⁰ Table 7 displays the results. In Column (1), as in Table 6, we optimize these two parameters so that the remembered average inflation is best explained by experienced inflation rates, using the weighting scheme above. This results in a statistically significant correlation. The left panel of Figure 5 plots the distribution of the resulting weights over the lifetime of a 50-year-old West German household head, where k on the horizontal axis measures distance to today. Most of the weight falls on inflation experienced between 10 and 30 years ago, i.e., when the household head was between 20 and 40, broadly in line with our hypothesis that experiences in early adulthood receive greater weight in forming lasting memories. However, as shown in Column (2) of Table 7, this flexibly weighted average, like the linear scheme, explains inflation expectations poorly. The remembered average, in contrast, still significantly predicts expectations, see Column (3). This result also holds once we add perceived inflation to the regression in Column (4). That is, past inflation rates do affect memories of lifetime inflation, but even a more sophisticated weighting scheme cannot approximate these memories well enough to inherit their predictive power for expectations.

Because of this failure, we re-optimize the parameters λ_1 and λ_2 to best explain inflation expectations in Column (5). In this case, the flexibly weighted inflation rates are

²⁹Our results are also robust to re-optimizing λ after including Rem_{avg} and perceived inflation, or to setting $\lambda = 1$ as in Cenoz and Szabó (2024) and Malmendier and Wellsjo (2024).

³⁰Under the restriction $\lambda_1 = 1$ and $\lambda_2 > 0$, the weights decline from the beginning. Setting $\lambda_1 = 1$ and $\lambda_2 = \lambda + 1$ recovers the weighting scheme in equation (4) as a special case.

Table 7: The role of flexibly-weighted lifetime experiences for inflation expectations

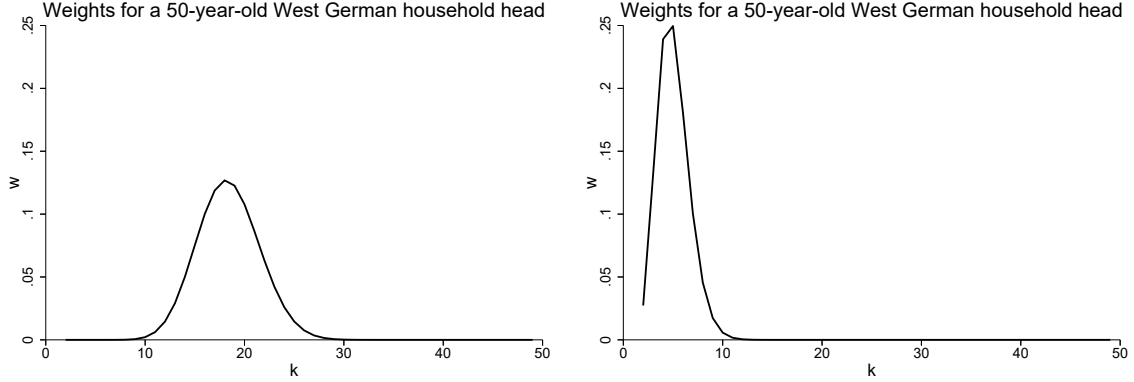
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Rem_{avg}	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$
Rem_{avg}			0.36*** (0.09)	0.17** (0.07)		0.36*** (0.09)	0.17** (0.07)
$Flex_{avg}$	0.08*** (0.02)	0.10 (0.07)	0.07 (0.07)	0.02 (0.06)	0.21*** (0.07)	0.20*** (0.07)	0.10 (0.06)
$\pi_{t-12:t t}$				0.55*** (0.04)			0.55*** (0.04)
Constant	1.65*** (0.45)	11.10*** (1.01)	10.50*** (0.97)	6.05*** (0.96)	9.23*** (1.23)	8.55*** (1.21)	5.02*** (1.17)
Observations	2,505	2,505	2,505	2,505	2,505	2,505	2,505
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
λ_1	22.00	22.00	22.00	22.00	9.00	9.00	9.00
λ_2	39.00	39.00	39.00	39.00	82.00	82.00	82.00
$\bar{R}^2$	0.03	0.03	0.05	0.22	0.04	0.05	0.22

Notes: West Germans only. Parameter estimates from regressions of households' inflation expectations on the flexibly weighted measure of inflation experience, remembered average inflation experience, and socioeconomic characteristics excluding age (not shown). Inflation expectations, inflation perceptions, and remembered inflation experiences are trimmed by 1% from top and bottom. Rem_{avg} and $Flex_{avg}$ are scaled by their respective standard deviations prior to estimation. Heteroskedasticity-consistent standard errors in parentheses. Asterisks ‘*’, ‘**’, and ‘***’ indicate significance at the 10%, 5%, and 1% critical level, respectively.

significant in predicting expectations, to some extent by construction. The right panel of Figure 5 shows that almost all weight is placed on the last ten years of experienced inflation rates in this case. While this confirms that recent experience is important for expectations, the remembered average still has additional explanatory power. It enters significantly once added to the regression, see Column (6). It also remains significant when we control for inflation perceptions in Column (7), unlike the flexibly weighted lifetime inflation. This is not surprising, given that this average is more or less a proxy for recent inflation experiences. We again conclude that the remembered average is more relevant for inflation expectations than a weighted average of past inflation rates, even when flexibly optimized to predict expectations.

Robustness Table B.8 in the appendix presents robustness exercises for both weighting schemes. Specifically, we replicate columns (4) and (7) of tables 6 and 7 without respondents who give inconsistent answers ($Rem_{avg} > Rem_{peak}$). As with the other tables, this increases the effect sizes. Further, we include age cohorts (covering ten years each). Our main results are again largely unchanged. The weighted actual rates have a negative effect in this case. We interpret this via their role in our proxy for the perception bias: holding fixed Rem_{avg} , higher actual rates imply a lower perception bias and hence lower expectations.

Figure 5: Importance of age for memory formation



Notes: The left panel shows the optimal flexible weighting scheme based on Column (1) of Table 7. The right panel shows the optimal flexible weighting scheme based on Column (5).

5 Causality

The hypothesis underlying the above regressions is that memories cause expectations: perceptions enter households' databases and are recalled when expectations are formed. While this is our preferred causal chain, endogeneity could arise if households formed expectations based on current observations and, at the same time, backcasted inflation from contemporaneous observations, in the sense that they believe they witnessed these rates. In this case, causality would run from perceptions and expectations to memories. To show that the memory database causally affects expectations, we introduced a randomized controlled trial in a subsequent wave of the same survey, as described in Section 3.3. In this RCT, we manipulated the memory database for a subset of participants and measured whether this affected expectations. If subjective memories merely reflected current perceptions and expectations, such a manipulation should have no impact on expectations.

Specifically, a random selection of three-quarters of the surveyed households were first reminded of the value of Rem_{avg} they had reported, and then received the actual average inflation rate over their lifetime, i.e., the individual Act_{avg} , as an information treatment. Finally, we elicited expectations again from all households and compare the treated households' inflation expectations with those of untreated households.³¹ Column (1) of Table 8 shows that there is a significant treatment effect. The posterior expectations of treated households are, on average, 0.18 pp. lower than those of untreated households. Given that most households overestimate past inflation rates, this signals a positive causal link between (manipulated) database entries and expectations. In Columns (2) and (3), we split the sample into households that overestimated past inflation, i.e., $Diff_{avg} = Rem_{avg} - Act_{avg} > 0$, and those that underestimated it. For households with $Diff_{avg} > 0$, Column (2) shows that the treatment effect is -0.19 pp. when $Diff_{avg}$ is at its average of 5.41%. The interaction of the treatment with $Diff_{avg}$ is significantly positive. The left panel of Figure 6 plots the corresponding marginal effect as a function of $Diff_{avg}$. The figure confirms that households which learn that they overestimated past inflation report lower posterior expectations. This effect becomes weaker as $Diff_{avg}$

³¹We use the middle rate of the ex-post elicited expectations as the posterior expectation for the baseline estimates.

Table 8: RCT results

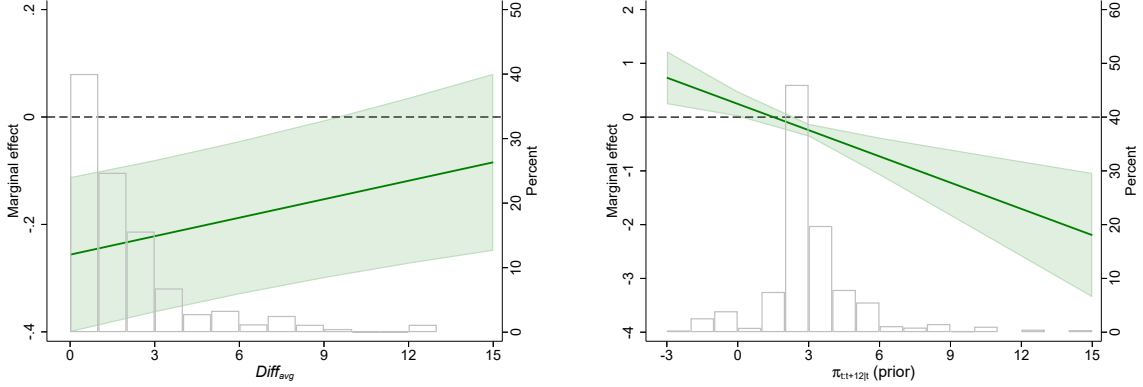
	(1)	(2)	(3) $\pi_{t:t+12 t}^{post}$	(4)	(5)
<i>Treatment</i>	-0.18** (0.08)	-0.19** (0.09)	-0.18 (0.18)	-0.20*** (0.07)	-0.21*** (0.07)
<i>Diff_{avg}</i>		-0.00 (0.00)	0.04 (0.64)		-0.01* (0.00)
<i>Treatment</i> $\times$ <i>Diff_{avg}</i>		0.01** (0.00)	-0.04 (0.68)		0.01* (0.00)
$\pi_{t:t+12 t}^{prior}$				0.43*** (0.05)	0.43*** (0.05)
<i>Treatment</i> $\times$ $\pi_{t:t+12 t}^{prior}$				-0.16*** (0.06)	-0.17*** (0.06)
Constant	4.48*** (0.51)	4.80*** (0.57)	1.63* (0.96)	3.36*** (0.45)	3.48*** (0.51)
Observations	1,841	1,478	363	1,841	1,478
Controls	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.02	0.03	0.00	0.25	0.27

Notes: Parameter estimates from regressions of West German households' posterior expectations on treatment status, $Diff_{avg} = Rem_{avg} - Act_{avg}$, prior expectations, and socioeconomic characteristics (not shown). Prior and posterior inflation expectations, as well as remembered inflation experiences, are trimmed by 1% from top and bottom, and conditioned on those respondents with $\pi_{t:t+12|t}^{post} \leq 20$. The estimation sample in Columns (2) and (5) is restricted to those with $Diff_{avg} \geq 0$, whereas Column (3) focuses on those with $Diff_{avg} < 0$. $Diff_{avg}$ and $\pi_{t:t+12|t}^{prior}$ are demeaned prior to estimation. Heteroskedasticity-consistent standard errors in parentheses. Asterisks '*', '**', and '***' indicate significance at the 10%, 5%, and 1% critical level, respectively.

increases, suggesting that households that are far off are less responsive to new information. Their expectations, ex-ante and ex-post, may be driven mainly by factors other than actual past rates, such as emotions. In contrast, as shown in Column (3), treated households with $Diff_{avg} < 0$ show no significant response, potentially due to the limited sample size. They make up only one-fifth of all households.

Column (4) strengthens our previous evidence by showing that the treatment causally affects the link between prior and posterior inflation expectations. As expected, for treated households, the link becomes considerably weaker. The marginal effect of the treatment is the strongest for households with high prior expectations (see the right panel of Figure 6). According to our model, the mechanism is as follows: When treated with $Act_{avg} < Rem_{avg}$, households are more/less likely to recall lower/higher past subjectively experienced inflation rates than when they computed their prior expectation before the treatment. This change in the subjective assessment of the likelihood of potential future outcomes leads to a downward revision in the posterior relative to the prior expectation. Similarly, for

Figure 6: Marginal treatment effects



Notes: The figure shows average marginal effects of receiving the treatment on posterior expectations as a function of $Diff_{avg}$ (left panel) and $\pi_{t:t+12|t}^{prior}$ (right panel) along with 90% confidence intervals, based on the regressions in Columns (2) and (4) of Table 8. The bars show the distribution of $Diff_{avg}$ and $\pi_{t:t+12|t}^{prior}$ in the respective estimation sample (measured on the right y-axes).

treated households with $Act_{avg} \geq Rem_{avg}$, the marginal effect is stronger the lower the prior expectation was. Those households, however, update upwards so that posterior expectations are higher than prior expectations (see the right panel of Figure 6 again). In Column (5), we re-estimate the same regression for households with $Diff_{avg} > 0$ and additionally include $Diff_{avg}$ and its interaction with the treatment. This confirms that the size of the treatment effect depends on both the update of remembered inflation and the prior expectation.

Robustness In Table B.9 in the appendix, we use a weighted average over the low, medium, and high rates as the dependent variable, instead of the medium rate. Our results still hold.

6 Conclusion

The main takeaway from our study is that remembered experiences, rather than actual experiences, matter for inflation expectations. This makes a difference because households systematically misperceive their lifetime inflation experience, with idiosyncratic factors influencing this misperception. We find that this likely reflects an individual bias: respondents who overestimate past average and peak inflation rates also perceive current rates as too high. Our theoretical explanation assumes a perception bias that leads to biased stored inflation rates in individuals' memory database. This bias is empirically particularly high for respondents who associate negative emotions with past inflation spikes, in line with literature from cognitive psychology and neuroscience.

We also find that a simple weighting of actual lifetime inflation rates does not have the same explanatory power for inflation expectations, even when we choose the weights to maximize it. Instead, when weights are more flexible, most weight goes to recent inflation rates when predicting expectations. If weights are chosen to mimic remembered average lifetime inflation, early adulthood receives the largest share, resembling the 'reminiscence bump' discussed in the psychological literature.

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A Variables and Descriptive Statistics

Translation of our contributed questions

P3104/P5708: We would now like to ask you about how you have personally experienced inflation throughout your life. [*Wave31*: Please ignore the current period of high inflation starting in 2021.] How high do you estimate the average of all annual inflation rates that you have personally experienced [*Wave31*: up to the end of 2020] to be?

Note: You should not take experience of inflation from time spent abroad into account here, the exception being if you lived in another country before moving to Germany for the first time. That experience should be taken into account.

P3105/P5709: How confident are you in the answer you have just given regarding the average of all annual inflation rates that you have personally experienced [*Wave31*: up to the end of 2020]?

- Very confident (1)
- Fairly confident (2)
- Somewhat confident (3)
- Not very confident (4)

P3106/P5710: What do you think was the highest inflation rate that you personally experienced [*Wave 31*: up to the end of 2020], and in what year did it occur?

Note: If you are unsure, please enter the values that you think are most likely.

P3107/P5711: In your opinion, did this highest inflation rate have a negative impact, no impact, or a positive impact on your life at the time?

- Very negative impact (1)
- Fairly negative impact (2)
- No impact (3)
- Fairly positive impact (4)
- Very positive impact (5)

P5712 [Treatment]: You entered [Rem_{avg}] percent as the average of all annual inflation rates that you have experienced. The average of all annual inflation rates experienced by people of your age in Germany (West Germany before 1990) is [Act_{avg}] percent.

[All respondents] We would finally like to know what future inflation rate developments you consider possible. What scenarios do you think are possible for the inflation rate in Germany over the next twelve months?

- A high rate would be [input] percent
- A middle rate would be [input] percent
- A low rate would be [input] percent

Table A.1: Variable construction

Variable	BOP-HH Questionnaire	Description
Average inflation experience		
Rem_{avg}	rem_Infl_avg (P3104/P5708)	Remembered average of the annual inflation rates an individual experienced over their lifetime in percent
$confident$	$rem_Infl_avg_confidence$ (P3105/P5709)	Equals one if $rem_Infl_avg_confidence$ equals ‘very confident’ or ‘fairly confident’, and zero otherwise.
Act_{avg}	–	Equally-weighted average over the annual inflation rates an individual experienced over their lifetime in percent.
$Diff_{avg}$	–	Perception gap for average inflation. Defined as $Rem_{avg} - Act_{avg}$.
MN_{avg}	–	Weighted average over the annual inflation rates an individual experienced over their lifetime in percent.
$Flex_{avg}$	–	Flexibly-weighted average over the annual inflation rates an individual experienced over their lifetime in percent.
Peak inflation experience		
Rem_{peak}	$remInfl_a$ (P3106/P5710)	Remembered highest annual inflation rate an individual experienced over their lifetime in percent.
$negimpact$	$infl_effect$ (P3107/P5711)	Equals one if $infl_effect$ equals 1 (‘very negative impact’) or 2 (‘fairly negative impact’), and zero otherwise.
Act_{peak}	–	Highest annual inflation rate an individual experienced over their lifetime in percent (considering only years when the individual was aged 14 or older).
$Diff_{peak}$	–	Perception gap for peak inflation. Defined as $Rem_{peak} - Act_{peak}$.
Rem_{year}	$remInfl_b$ (P3106/P5710)	Year in which the individual recalls having experienced peak inflation.
Act_{year}	–	Year in which the individual experienced peak inflation.
$Diff_{year}$	–	Perception gap for the year in which the individual experienced peak inflation occurred. Defined as $Rem_{year} - Act_{year}$.
Inflation perceptions and expectations		
$\pi_{t-12:t t}$	$devinfpoin$ (CQ002)	Perceived German inflation rate over the previous twelve months in percent.
$ e_{i,t-12:t t} $	$devinfpoin$ (CQ002)	Absolute perception error. Defined as $ \pi_{i,t-12:t t} - \pi_t $, where π_t is the German CPI inflation rate in June 2022 (6.7%) or August 2024 (1.9%).
$\pi_{t:t+12 t}$	$infdef$ (CM002) and $inflexppoint$ (CM003)	Expected German inflation rate over the next twelve months in percent. Equals $inflexppoint$ if $infdef$ equals ‘Inflation’ and $(-1) \cdot inflexppoint$ if $infdef$ equals ‘Deflation’.
$ e_{i,t:t+12 t} $	$infdef$ (CM002) and $inflexppoint$ (CM003)	Absolute forecast error. Defined as $ \pi_{i,t:t+12 t} - \pi_{t+12} $, where π_{t+12} is the German CPI inflation rate in June 2023 (6.4%) or August 2025 (2.2%).
$infl_exp$	$expmacroquali_e$ (CM001)	Expected direction of the German inflation rate over the next twelve months: $\begin{cases} = -1 & \text{if } expmacroquali_e \text{ equals ‘decrease significantly’ or ‘decrease slightly’,} \\ = 0 & \text{if } expmacroquali_e \text{ equals ‘stay roughly the same’,} \\ = 1 & \text{if } expmacroquali_e \text{ equals ‘increase slightly’ or ‘increase significantly’.} \end{cases}$
$\pi_{t:t+60 t}$	$inflexppoint_long_a$ (CM008A)	Expected German inflation rate over the next five years in percent.

Notes: Construction of the variables used in the empirical analysis. In the middle column, we refer to the original variable names as listed in the Wave 31 (July 2022) and Wave 57 (September 2024) of the BOP-HH questionnaires.

Table A.1: Variable construction (cont.)

Variable	BOP-HH Questionnaire	Description
Socioeconomic characteristics		
<i>age</i>	<i>age</i>	Age of individual. Set to 80 if <i>age</i> equals ‘80 years or older’.
<i>debt</i>	<i>netwealth_detail_f</i>	Outstanding loans secured by real estate (mortgage loans) in €100,000 (using interval midpoints), with intervals starting at €1; €25,000; €50,000; €100,000; €150,000; €200,000; €300,000; €500,000, and 0 if <i>netwealth_detail_f</i> equals ‘No loans’, and 8.75 if <i>netwealth_detail_f</i> equals ‘€750,000 or more’.
<i>east1989</i>	<i>eastwest1989</i>	Equals one if <i>eastwest1989</i> equals ‘eastern Germany’, and zero otherwise.
<i>female</i>	<i>gender</i>	Equals one if <i>gender</i> equals ‘female’, and zero otherwise.
<i>fullemploy</i>	<i>employ</i> (CS003)	Equals one if <i>employ</i> equals ‘employed, full-time’, and zero otherwise.
<i>grocery</i>	<i>mainshopper_a</i> (CS011)	Equals one if <i>mainshopper_a</i> equals ‘mostly me’ or if <i>hhsiz</i> equals ‘1’ (single-person households), and zero otherwise.
<i>hhsiz</i>	<i>hhsiz</i> (CS006)	Household size. Set to 6 if <i>hhsiz</i> equals ‘6 or more’.
<i>income</i>	<i>hhinc</i> (CS008)	Monthly household income in €1,000 (using interval midpoints) with intervals starting at €0; €500; €1,000; €1,500; €2,000; €2,500; €3,000; €3,500; €4,000; €5,000; €6,000; €8,000, and 11.00 if <i>hhinc</i> equals ‘€10,000 or more’.
<i>wealth</i>	<i>netwealth_detail_c</i> , <i>netwealth_detail_d</i>	Sum of assets in the form of securities (shares, bonds including funds/ETFs) and ownership of or equity in unlisted businesses or companies, in €100,000 (using interval midpoints) with intervals starting at €1; €2,500; €5,000; €10,000; €25,000; €50,000; €100,000; €250,000, and 0.000 if <i>netwealth_detail_c/d</i> equals ‘No securities/No equity’, and 7.50 if <i>netwealth_detail_c/d</i> equals ‘€500,000 or more’.
<i>yoe</i>	<i>eduschool</i> (CS001) and <i>eduwork</i> (CS002)	Years of education of individual following SOEP-IS Group (2017): { = 7 if <i>eduschool</i> equals ‘Still at school’, = 7 if <i>eduschool</i> equals ‘No school-leaving certificate’, = 9 if <i>eduschool</i> equals ‘Completed lower secondary school’, = 10 if <i>eduschool</i> equals ‘Completed higher secondary school’, = 10 if <i>eduschool</i> equals ‘Other school-leaving certificate’, = 10 if <i>eduschool</i> equals ‘Polytechnical secondary school certificate (10th grade)’, = 13 if <i>eduschool</i> equals ‘University of applied sciences entrance diploma / completed technical school’, = 13 if <i>eduschool</i> equals ‘General or subject-specific university entrance diploma / senior school-leaving certificate’, = 18 if <i>eduwork</i> equals ‘Bachelor’, = 18 if <i>eduwork</i> equals ‘Master / diploma’, = 18 if <i>eduwork</i> equals ‘Doctorate’.

Notes: Construction of the variables used in the empirical analysis. In the middle column, we refer to the original variable names as listed in the Wave 31 (July 2022) and Wave 57 (September 2024) of the BOP-HH questionnaires.

Table A.2: Summary statistics for inflation expectations and socioeconomic characteristics

Panel A: Quantitative perceptions/expectations					
	Obs.	Mean	Std. dev.	Min.	Max.
Wave 31					
$\pi_{t-12:t t}$	2963	6.90	2.23	1.50	25.00
$\pi_{t:t+12 t}$	2963	7.70	3.01	-3.00	25.00
Wave 57					
$\pi_{t-12:t t}$	766	3.71	2.27	0.00	17.00
$\pi_{t:t+12 t}$	2290	2.83	2.23	-2.80	15.00
Panel B: Socioeconomic characteristics					
	Obs.	Mean	Std. dev.	Min.	Max.
Wave 31					
<i>age</i>	2963	57.43	14.44	16	80
<i>east1989</i>	2963	0.15	0.36	0	1
<i>female</i>	2963	0.34	0.47	0	1
<i>fullemploy</i>	2963	0.45	0.50	0	1
<i>grocery</i>	2963	0.51	0.50	0	1
<i>hhszise</i>	2963	2.20	1.02	1	6
<i>income</i>	2963	4.13	2.01	0.25	11
<i>yoe</i>	2963	13.53	3.78	7	18
Wave 57					
<i>age</i>	2290	54.19	15.94	16	80
<i>east1989</i>	2290	0.15	0.36	0	1
<i>female</i>	2290	0.32	0.47	0	1
<i>fullemploy</i>	2290	0.49	0.50	0	1
<i>grocery</i>	2290	0.49	0.50	0	1
<i>hhszise</i>	2290	2.28	1.12	1	6
<i>income</i>	2290	4.51	2.19	0.25	11
<i>yoe</i>	2290	13.79	3.78	7	18

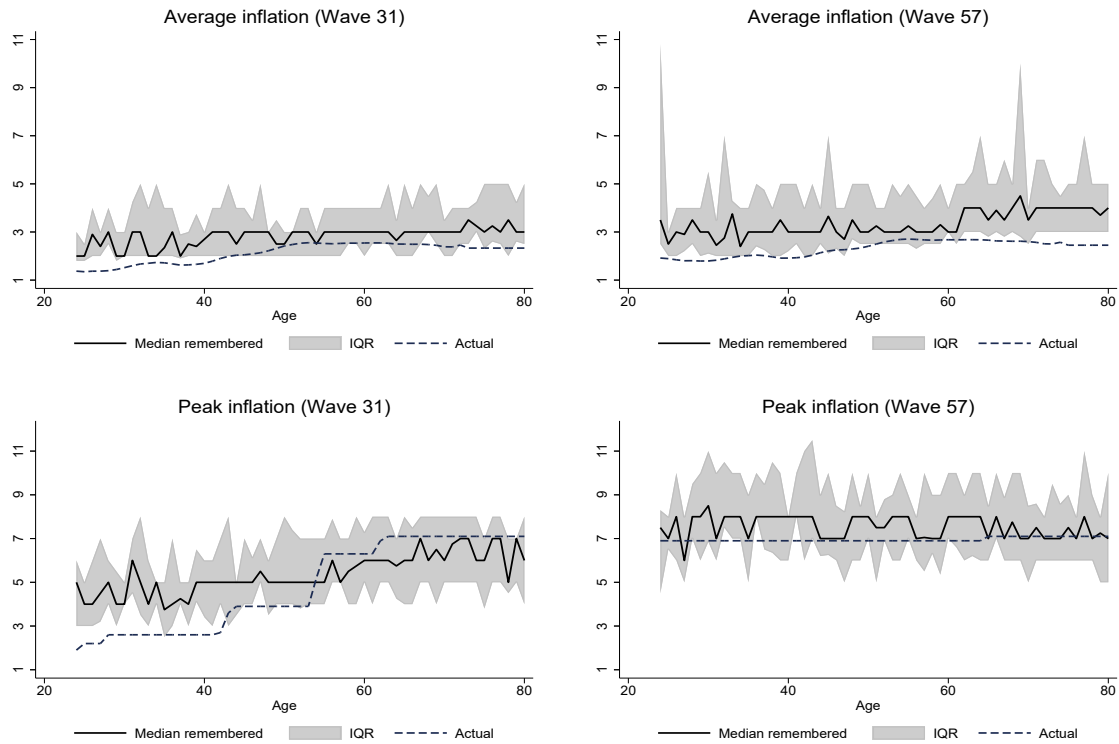
Notes: Panel A shows summary statistics for the quantitative inflation perceptions/expectations of BOP-HH participants. Inflation perceptions/expectations are trimmed at the 1% level from top and bottom. Panel B presents summary statistics for the socioeconomic characteristics. Household income is expressed in €1,000.

Table A.3: Summary statistics for remembered versus actual average and peak inflation (Wave 57)

Panel A: Remembered and actual average inflation					
	Obs.	Mean	Std. dev.	Min.	Max.
<i>Rem_{avg}</i>	2290	6.81	14.14	1.00	100.00
• West Germans	1941	6.69	13.99	1.00	100.00
• East Germans	349	7.48	14.96	1.00	100.00
<i>Act_{avg}</i>	2290	2.22	0.46	0.93	2.71
• West Germans	1941	2.37	0.30	1.79	2.71
• East Germans	349	1.39	0.32	0.93	2.02
Panel B: Confidence in remembered average inflation					
	Obs.	Very	Fairly	Somewhat	Not very
	2290	83	866	1128	213
		(3.62%)	(37.82%)	(49.26%)	(9.30%)
Panel C: Remembered and actual peak inflation					
	Obs.	Mean	Std. dev.	Min.	Max.
<i>Rem_{peak}</i>	2290	8.42	5.14	2.00	50.00
• West Germans	1941	8.29	4.78	2.00	50.00
• East Germans	349	9.14	6.79	2.00	50.00
<i>Act_{peak}</i>	2290	6.96	0.09	6.90	7.10
• West Germans	1941	6.97	0.09	6.90	7.10
• East Germans	349	6.90	0.00	6.90	6.90
Panel D: Impact of remembered peak inflation					
	Obs.	Negative	None	Positive	
	2290	1362	887	41	
		(59.48%)	(38.73%)	(1.79%)	

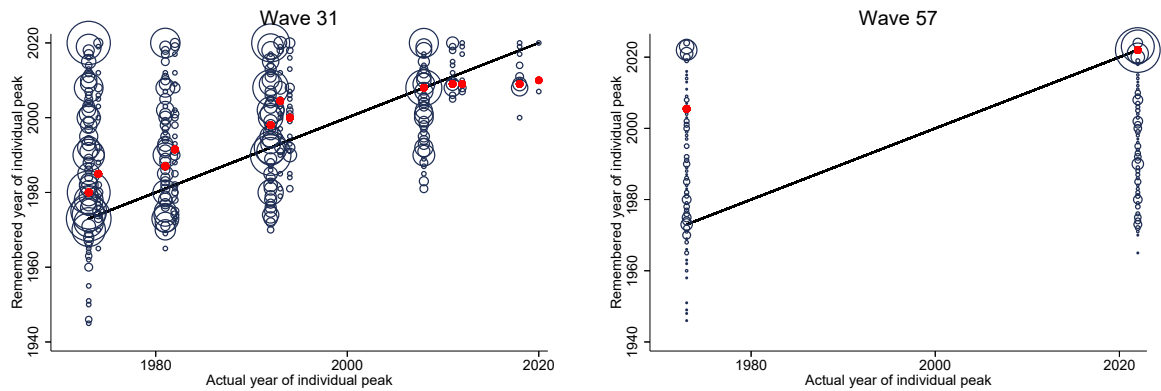
Notes: Panel A shows summary statistics for remembered and actual average inflation experiences of participants in Wave 57 (September 2024). Panel B describes respondents' confidence in their response for remembered average inflation. Panel C shows summary statistics for remembered and actual peak inflation experiences. Panel D reports on the impact of remembered peak inflation on respondents' lives.

Figure A.1: Remembered versus actual inflation experience (West Germans)



Notes: The solid lines show age-specific median remembered average inflation (upper panel) and median remembered peak inflation (lower panel) of West German BOP-HH participants along with the corresponding interquartile ranges (shaded areas). The dashed lines show actual average inflation and actual peak inflation.

Figure A.2: Remembered versus actual year of peak inflation experience



Notes: The blue circles show households' year in which they recall having experienced peak inflation against the actual year in which they experienced peak inflation. Circle size is proportional to the number of respondents with that specific year-on-year combination. Red dots represent the median responses for each actual year of peak experience. The black line is the 90-degree line.

B Additional Regression Results

Table B.1: The role of lifetime inflation experiences for inflation perceptions
(only control variables shown)

	(1)	(2)	(3)	(4)	(5)	(6)
	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$ e_{t-12:t t} $
<i>age</i>	0.01 (0.00)	0.00 (0.00)	0.02*** (0.01)	0.01*** (0.00)	0.01** (0.00)	-0.00 (0.00)
<i>east1989</i>	-0.28 (0.24)	0.06 (0.12)	-0.19 (0.16)	-0.05 (0.12)	-0.06 (0.12)	0.02 (0.08)
<i>female</i>	0.03 (0.09)	0.01 (0.09)	0.12 (0.09)	0.06 (0.09)	0.08 (0.09)	0.13** (0.06)
<i>fullemploy</i>	-0.04 (0.11)	-0.09 (0.10)	-0.06 (0.10)	-0.07 (0.10)	-0.09 (0.10)	-0.03 (0.07)
<i>hhsize</i>	-0.00 (0.05)	-0.01 (0.05)	-0.02 (0.05)	-0.01 (0.05)	-0.03 (0.05)	0.05 (0.04)
$\ln(\text{income})$	-0.16* (0.10)	-0.17* (0.10)	-0.19** (0.10)	-0.17* (0.10)	-0.13 (0.10)	-0.11* (0.07)
<i>yoe</i>	-0.02* (0.01)	-0.02 (0.01)	-0.03*** (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.02** (0.01)
Constant	8.59*** (0.74)	8.27*** (0.71)	8.13*** (0.72)	7.80*** (0.70)	7.40*** (0.69)	2.49*** (0.49)
Observations	2,963	2,963	2,963	2,963	2,963	2,963
$\bar{R}^2$	0.04	0.04	0.03	0.05	0.05	0.04

Notes: Specifications for individual columns as in Table 2.

Table B.2: The role of lifetime inflation experiences for inflation perceptions
(pooled sample)

	(1)	(2)	(3)	(4)	(5)	(6)
	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$\pi_{t-12:t t}$	$ e_{t-12:t t} $
<i>Rem_{avg}</i>	0.35*** (0.07)					
<i>Act_{avg}</i>	-0.23*** (0.08)					
<i>Diff_{avg}</i>		0.35*** (0.07)		0.28*** (0.06)	0.28*** (0.07)	0.18*** (0.06)
<i>Rem_{peak}</i>			0.39*** (0.05)			
<i>Act_{peak}</i>			-0.18** (0.07)			
<i>Diff_{peak}</i>				0.32*** (0.05)	0.31*** (0.05)	0.22*** (0.05)
<i>confident</i>					0.14* (0.07)	0.19*** (0.06)
<i>negimpact</i>					0.30*** (0.08)	0.21*** (0.06)
<i>Wave57</i>	-2.81*** (0.13)	-3.17*** (0.09)	10.69* (5.58)	-3.18*** (0.09)	-3.23*** (0.09)	0.28*** (0.09)
Constant	8.94*** (0.64)	8.56*** (0.60)	8.31*** (0.61)	8.11*** (0.60)	7.65*** (0.59)	2.68*** (0.45)
Observations	3,729	3,729	3,729	3,729	3,729	3,729
Controls	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.27	0.27	0.28	0.29	0.29	0.06

Notes: Specifications for individual columns as in Table 2.

Table B.3: Determinants of experience perception gaps (pooled sample)

	(1) <i>Rem_{avg}</i>	(2) <i>Rem_{avg}</i>	(3) <i>Diff_{avg}</i>	(4) <i>Rem_{peak}</i>	(5) <i>Diff_{peak}</i>	(6) <i> Diff_{peak} </i>	(7) <i>negimpact</i>	(8) <i>Diff_{year}</i>
<i>Rem_{avg}</i>								0.12*** (0.03)
<i>Act_{avg}</i>	0.38 (0.37)	1.31*** (0.40)					-0.12*** (0.03)	
<i>Act_{peak}</i>				0.22*** (0.04)	-0.78*** (0.04)	-0.16*** (0.03)	0.04*** (0.01)	
<i>Diff_{peak}</i>		0.58*** (0.09)	0.58*** (0.09)					-0.79*** (0.08)
<i>confident</i>	0.02 (0.31)	0.07 (0.30)	0.06 (0.30)	-0.08 (0.12)	-0.08 (0.12)	0.07 (0.11)		0.83 (0.54)
<i>negimpact</i>	0.99*** (0.30)	0.59** (0.30)	0.59** (0.30)	0.83*** (0.12)	0.83*** (0.12)	0.33*** (0.10)		1.62*** (0.56)
<i>Wave57</i>	2.80*** (0.32)	2.31*** (0.29)	2.36*** (0.30)	1.95*** (0.14)	1.95*** (0.14)	0.78*** (0.12)	0.18*** (0.02)	-5.76*** (0.59)
<i>wealth</i>	-0.17** (0.07)	-0.19*** (0.07)	-0.18*** (0.07)	0.04 (0.03)	0.04 (0.03)	-0.06** (0.03)	-0.01 (0.01)	-0.33* (0.20)
<i>debt</i>	-0.14** (0.07)	-0.15** (0.07)	-0.15** (0.07)	-0.02 (0.04)	-0.02 (0.04)	-0.02 (0.03)	0.01 (0.01)	-0.29 (0.19)
<i>east1989</i>	0.57 (0.55)	0.97* (0.56)	0.64 (0.42)	0.34 (0.21)	0.34 (0.21)	0.28 (0.20)	-0.03 (0.03)	-2.13*** (0.56)
<i>female</i>	0.49 (0.36)	0.56 (0.35)	0.55 (0.35)	-0.20 (0.14)	-0.20 (0.14)	0.21* (0.12)	0.01 (0.02)	0.10 (0.63)
<i>fullemploy</i>	-0.56* (0.31)	-0.83*** (0.31)	-0.85*** (0.31)	-0.14 (0.13)	-0.14 (0.13)	-0.14 (0.12)	0.08*** (0.02)	-10.30*** (0.56)
<i>grocery</i>	-0.45 (0.35)	-0.52 (0.35)	-0.52 (0.35)	-0.03 (0.13)	-0.03 (0.13)	-0.06 (0.12)	0.01 (0.02)	-1.51** (0.60)
<i>hhsiz</i>	-0.27* (0.14)	-0.37** (0.14)	-0.38*** (0.14)	0.01 (0.07)	0.01 (0.07)	0.08 (0.06)	0.06*** (0.01)	-1.84*** (0.27)
<i>ln(income)</i>	-0.42 (0.36)	-0.33 (0.35)	-0.30 (0.35)	0.00 (0.14)	0.00 (0.14)	-0.27** (0.12)	-0.16*** (0.02)	0.55 (0.64)
<i>yoe</i>	-0.16*** (0.04)	-0.16*** (0.04)	-0.17*** (0.04)	-0.01 (0.02)	-0.01 (0.02)	-0.03** (0.01)	-0.00* (0.00)	-0.45*** (0.07)
Constant	9.35*** (2.68)	6.69** (2.63)	7.26*** (2.62)	4.62*** (1.11)	4.62*** (1.11)	5.37*** (0.98)	1.55*** (0.14)	19.60*** (5.07)
Observations	4,820	4,820	4,820	4,820	4,820	4,820	4,820	4,681
$\bar{R}^2$	0.03	0.08	0.08	0.10	0.08	0.02	0.09	0.17

Notes: Specifications for individual columns as in Table 4.

Table B.4: Determinants of experience perception gaps (robustness)

	(1) <i>Diff_{avg}</i> Huber robust	(2) <i>Diff_{peak}</i> Huber robust	(3) <i>Diff_{avg}</i> West Germans	(4) <i>Diff_{peak}</i> West Germans	(5) <i>Diff_{avg}</i> excl. inconsist.	(6) <i>Diff_{peak}</i> excl. inconsist.	(7) <i>Diff_{avg}</i> expend. shares	(8) <i>Diff_{peak}</i> expend. shares
<i>Act_{peak}</i>		-0.75*** (0.02)		-0.81*** (0.03)		-0.81*** (0.03)		-0.81*** (0.06)
<i>Diff_{peak}</i>	0.14*** (0.01)		0.33*** (0.05)		0.25*** (0.02)		0.34*** (0.08)	
<i>confident</i>	-0.23*** (0.04)	-0.58*** (0.07)	-0.43** (0.20)	-0.51*** (0.10)	-0.23*** (0.06)	-0.52*** (0.10)	-0.59* (0.31)	-0.44** (0.19)
<i>negimpact</i>	0.17*** (0.04)	0.58*** (0.07)	0.18 (0.19)	0.68*** (0.11)	0.23*** (0.06)	0.74*** (0.11)	-0.08 (0.30)	0.73*** (0.20)
<i>east1989</i>	0.96*** (0.05)	-0.20** (0.09)			0.78*** (0.07)	-0.05 (0.18)	0.39 (0.33)	0.00 (0.31)
<i>female</i>	0.03 (0.04)	-0.52*** (0.07)	0.71*** (0.23)	-0.52*** (0.11)	0.10 (0.06)	-0.54*** (0.11)	1.24*** (0.41)	-0.38* (0.21)
<i>fullemploy</i>	-0.27*** (0.04)	-0.24*** (0.08)	-0.44** (0.17)	-0.19* (0.11)	-0.44*** (0.06)	-0.19* (0.11)	-0.33 (0.30)	-0.27 (0.20)
<i>grocery</i>	-0.09** (0.04)	0.03 (0.08)	-0.18 (0.20)	-0.13 (0.11)	-0.06 (0.05)	-0.06 (0.11)	-0.23 (0.33)	0.07 (0.19)
<i>hhsiz</i>	-0.09*** (0.02)	-0.04 (0.04)	-0.17 (0.11)	-0.06 (0.06)	-0.12*** (0.03)	-0.09 (0.06)	-0.24 (0.15)	0.02 (0.12)
<i>ln(income)</i>	-0.01 (0.04)	0.29*** (0.08)	-0.42* (0.25)	0.05 (0.12)	-0.07 (0.06)	0.11 (0.12)	-0.41 (0.43)	0.07 (0.23)
<i>yoe</i>	-0.02*** (0.00)	0.02* (0.01)	-0.12*** (0.02)	0.01 (0.01)	-0.03*** (0.01)	0.00 (0.01)	-0.14*** (0.04)	0.02 (0.02)
<i>exp. (major)</i>							0.00 (0.01)	-0.00 (0.01)
<i>exp. (essential)</i>							-0.00 (0.01)	0.00 (0.01)
<i>exp. (clothing)</i>							-0.01 (0.02)	-0.00 (0.01)
<i>exp. (entert.)</i>							-0.05*** (0.02)	-0.00 (0.01)
<i>exp. (mobility)</i>							0.00 (0.02)	-0.01 (0.01)
<i>exp. (services)</i>							0.01 (0.02)	-0.03** (0.01)
<i>exp. (travel)</i>							-0.01 (0.01)	0.00 (0.01)
<i>exp. (housing)</i>							-0.01 (0.01)	0.00 (0.01)
Constant	1.44*** (0.32)	2.22*** (0.59)	7.29*** (1.93)	4.88*** (0.99)	2.18*** (0.46)	4.62*** (0.94)	8.23** (3.73)	4.48** (1.95)
Observations	2,804	2,940	2,505	2,505	2,683	2,683	948	948
$\bar{R}^2$	0.26	0.34	0.06	0.25	0.30	0.24	0.08	0.23

Notes: Parameter estimates from regressions of households' remembered average/peak inflation experiences or perception gaps on remembered and actual average/peak inflation experiences and socioeconomic characteristics (excluding *age*). Remembered inflation experiences are trimmed by 1% from top and bottom. Perception gaps are defined as $Diff_{avg} = Rem_{avg} - Act_{avg}$ and $Diff_{peak} = Rem_{peak} - Act_{peak}$. Columns (1) and (2) present Huber robust regressions. Columns (3) and (4) focus on West German households. Columns (5) and (6) exclude inconsistent responses with $Rem_{avg} > Rem_{peak}$. Columns (7) and (8) include expenditure shares. *entert.* stands for entertainment. Heteroskedasticity-consistent standard errors in parentheses. Asterisks *, **, and *** indicate significance at the 10%, 5%, and 1% critical level, respectively.

Table B.5: The role of lifetime inflation experiences for inflation expectations
(only control variables shown)

	(1)	(2)	(3)	(4)	(5)	(6)
	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$ e_{t:t+12 t} $
<i>age</i>	0.00 (0.00)	0.02* (0.01)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	-0.00 (0.01)
<i>east1989</i>	0.54*** (0.16)	-0.07 (0.34)	0.07 (0.31)	0.07 (0.31)	0.04 (0.31)	0.11 (0.24)
<i>female</i>	0.76*** (0.12)	0.79*** (0.12)	0.75*** (0.11)	0.75*** (0.11)	0.76*** (0.11)	0.54*** (0.09)
<i>fullemploy</i>	0.17 (0.14)	0.25 (0.16)	0.28** (0.14)	0.28** (0.14)	0.26* (0.14)	0.14 (0.11)
<i>hhsize</i>	0.07 (0.07)	0.07 (0.06)	0.09 (0.06)	0.09 (0.06)	0.06 (0.06)	0.09** (0.04)
$\ln(\text{income})$	-0.38*** (0.11)	-0.35*** (0.11)	-0.27*** (0.10)	-0.27*** (0.10)	-0.21** (0.10)	-0.15* (0.08)
<i>yoe</i>	-0.06*** (0.01)	-0.07*** (0.02)	-0.05*** (0.01)	-0.05*** (0.01)	-0.05*** (0.01)	-0.04*** (0.01)
Constant	10.26*** (0.89)	10.57*** (1.01)	6.30*** (0.97)	6.30*** (0.97)	5.79*** (0.97)	1.08 (0.72)
Observations	2,963	2,963	2,963	2,963	2,963	2,963
$\bar{R}^2$	0.05	0.06	0.21	0.21	0.22	0.22

Notes: Specifications of individual columns as in Table 5.

Table B.6: The role of lifetime inflation experiences for inflation expectations
(pooled sample)

	(1)	(2)	(3)	(4)	(5)	(6)
	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$ e_{t:t+12 t} $
<i>Rem_{avg}</i>	0.34*** (0.07)	0.33*** (0.07)	0.18*** (0.05)		0.17*** (0.06)	0.14*** (0.04)
<i>Rem_{peak}</i>	0.23*** (0.06)	0.24*** (0.06)	0.05 (0.05)	0.05 (0.05)	0.03 (0.05)	0.02 (0.04)
<i>Act_{avg}</i>		-0.19* (0.11)	-0.06 (0.10)	-0.05 (0.10)	-0.06 (0.10)	-0.06 (0.08)
<i>Act_{peak}</i>		-0.13 (0.10)	-0.08 (0.09)	-0.08 (0.09)	-0.10 (0.09)	-0.11* (0.07)
<i>Diff_{avg}</i>				0.18*** (0.05)		
$\pi_{t-12:t t}$			0.57*** (0.03)	0.57*** (0.03)	0.57*** (0.03)	0.46*** (0.03)
<i>confident</i>					-0.01 (0.09)	-0.04 (0.07)
<i>negimpact</i>					0.42*** (0.09)	0.14** (0.07)
<i>Wave57</i>	-4.42*** (0.11)	5.83 (7.62)	3.64 (6.68)	3.23 (6.67)	4.85 (6.69)	9.40* (5.09)
Constant	10.39*** (0.76)	10.75*** (0.81)	5.93*** (0.76)	5.94*** (0.76)	5.42*** (0.77)	1.18** (0.59)
Observations	3,729	3,729	3,729	3,729	3,729	3,729
Controls	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.34	0.34	0.47	0.47	0.47	0.27

Notes: Specifications of individual columns as in Table 5.

Table B.7: The role of lifetime inflation experiences for inflation expectations (robustness)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\pi_{t:t+12 t}$ Huber robust	$\pi_{t:t+12 t}$ West Germans	$\pi_{t:t+12 t}$ <i>age</i> ≤ 73	$\pi_{t:t+12 t}$ age cutoff 14 years	$\pi_{t:t+12 t}$ age cutoff 18 years	$\pi_{t:t+12 t}$ excl. inconsist.	<i>infl_exp</i> qual. expec.	$\pi_{t:t+60 t}$ five-year- ahead
<i>Rem_{avg}</i>	0.20*** (0.05)	0.16** (0.07)	0.21*** (0.08)	0.17** (0.07)	0.17** (0.07)	1.16*** (0.23)	0.03** (0.01)	0.32*** (0.11)
<i>Rem_{peak}</i>	0.04 (0.04)	0.05 (0.06)	0.06 (0.07)	0.06 (0.06)	0.06 (0.06)	-0.11 (0.07)	-0.02** (0.01)	0.02 (0.07)
<i>Act_{avg}</i>	-0.02 (0.10)	-0.04 (0.17)	-0.21 (0.15)	-0.39 (0.32)	-0.46 (0.30)	-0.11 (0.15)	-0.02 (0.02)	-0.18 (0.17)
<i>Act_{peak}</i>	-0.19* (0.11)	0.00 (0.18)	-0.12 (0.17)	0.04 (0.12)	0.08 (0.11)	-0.19 (0.16)	-0.03 (0.02)	-0.22 (0.19)
$\pi_{t-12:t t}$	0.46*** (0.02)	0.54*** (0.04)	0.52*** (0.04)	0.54*** (0.03)	0.55*** (0.03)	0.52*** (0.04)	0.02*** (0.00)	0.56*** (0.05)
<i>confident</i>	-0.05 (0.07)	0.01 (0.11)	-0.05 (0.11)	-0.03 (0.10)	-0.03 (0.10)	-0.02 (0.11)	-0.02 (0.02)	-0.17 (0.13)
<i>negimpact</i>	0.39*** (0.07)	0.49*** (0.11)	0.47*** (0.11)	0.48*** (0.10)	0.50*** (0.10)	0.47*** (0.11)	0.06*** (0.02)	0.33** (0.13)
Constant	4.98*** (0.66)	5.76*** (1.03)	5.24*** (1.02)	5.65*** (0.88)	5.74*** (0.89)	5.13*** (0.98)		5.58*** (1.23)
Observations	2,930	2,505	2,560	2,963	2,950	2,683	2,960	2,924
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.26	0.22	0.20	0.22	0.22	0.22	—	0.18

Notes: Parameter estimates from regressions of households' inflation expectations on remembered and actual average/peak inflation experiences and socioeconomic characteristics (not shown). Inflation perceptions, inflation expectations and remembered inflation experiences are trimmed by 1% from top and bottom. *Rem_{avg}*, *Act_{avg}*, *Rem_{peak}*, and *Act_{peak}* are scaled by their respective standard deviations prior to estimation. Column (1) presents Huber robust regressions. Column (2) focuses on West German households. Column (3) excludes respondents aged 74 and older for whom we do not have complete lifetime inflation data. In Columns (4) and (5), we calculate *Act_{avg}* and *Act_{peak}* based on inflation rates experienced since ages 14 or 18. Column (6) excludes inconsistent responses with *Rem_{avg}* > *Rem_{peak}*. Column (7) replaces the dependent variable with qualitative inflation expectations and reports marginal effects for an increase in inflation. Column (8) uses five-year-ahead inflation expectations as the dependent variable. Heteroskedasticity-consistent standard errors in parentheses. Asterisks '*', '**', and '***' indicate significance at the 10%, 5%, and 1% critical level, respectively.

Table B.8: The role of weighted averages of lifetime inflation experiences for inflation expectations (robustness)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$	$\pi_{t:t+12 t}$
Rem_{avg}	1.08*** (0.20)	1.09*** (0.20)	0.19*** (0.07)	0.19*** (0.07)	1.08*** (0.21)	1.08*** (0.21)	0.17** (0.07)	0.17** (0.07)
MN_{avg}	-0.03 (0.07)	-0.09 (0.10)	0.14 (0.22)	-0.32** (0.16)				
$Flex_{avg}$					-0.06 (0.07)	0.14** (0.07)	0.12 (0.11)	-0.34** (0.13)
$\pi_{t-12:t t}$	0.52*** (0.04)	0.52*** (0.04)	0.55*** (0.03)	0.55*** (0.03)	0.53*** (0.04)	0.52*** (0.04)	0.54*** (0.04)	0.54*** (0.04)
Constant	5.75*** (1.26)	5.67*** (0.92)	3.99 (3.27)	6.72*** (0.94)	6.03*** (1.15)	4.13*** (1.12)	5.57*** (1.02)	7.77*** (1.14)
Observations	2,683	2,683	2,963	2,963	2,268	2,268	2,505	2,505
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FE	No	No	Yes	Yes	No	No	Yes	Yes
λ	4.60	0.30	5.60	0.00	—	—	—	—
λ_1	—	—	—	—	3.00	10.00	52.00	36.00
λ_2	—	—	—	—	9.00	94.00	95.00	100.00
$\bar{R}^2$	0.21	0.21	0.21	0.21	0.22	0.22	0.22	0.22

Notes: Parameter estimates from regressions of households' inflation expectations on the MN_{avg} measure of inflation experience (Columns (1)-(4)) or the flexibly weighted measure of inflation experience (Columns (5)-(8)), remembered average inflation experience, perceived inflation, and socioeconomic characteristics (not shown). Columns (1), (2), (5), and (6) exclude inconsistent responses with $Rem_{avg} > Rem_{peak}$. Columns (3), (4), (7), and (8) include dummy variables for age cohorts (covering ten years each). The optimal values of λ , λ_1 , and λ_2 are based on specifications with Rem_{avg} (odd-numbered columns) or $\pi_{t:t+12|t}$ (even-numbered columns) as dependent variable that do not include Rem_{avg} or perceived inflation. Columns (5)-(8) use West German households only. Inflation expectations, inflation perceptions, and remembered inflation experiences are trimmed by 1% from top and bottom. Rem_{avg} , MN_{avg} , and $Flex_{avg}$ are scaled by their respective standard deviations prior to estimation. Heteroskedasticity-consistent standard errors in parentheses. Asterisks ‘*’, ‘**’, and ‘***’ indicate significance at the 10%, 5%, and 1% critical level, respectively.

Table B.9: RCT results (robustness)

	(1)	(2)	(3) $\pi_{t:t+12 t}^{post}$	(4)	(5)
<i>Treatment</i>	-0.20** (0.08)	-0.20** (0.09)	-0.26 (0.17)	-0.23*** (0.07)	-0.23*** (0.07)
<i>Diff_{avg}</i>		-0.00 (0.00)	-0.02 (0.62)		-0.00 (0.00)
<i>Treatment</i> $\times$ <i>Diff_{avg}</i>		0.01** (0.00)	0.06 (0.65)		0.01* (0.00)
$\pi_{t:t+12 t}^{prior}$				0.44*** (0.05)	0.45*** (0.05)
<i>Treatment</i> $\times$ $\pi_{t:t+12 t}^{prior}$				-0.17*** (0.06)	-0.19*** (0.06)
Constant	4.88*** (0.52)	5.20*** (0.59)	1.78** (0.89)	3.74*** (0.45)	3.82*** (0.50)
Observations	1,795	1,440	355	1,795	1,440
Controls	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.03	0.04	0.01	0.30	0.31

Notes: Parameter estimates from regressions of West German households' posterior expectations on treatment status, $Diff_{avg} = Rem_{avg} - Act_{avg}$, prior expectations, and socioeconomic characteristics (not shown). Weighted average over the three scenarios (with 25%/50%/25% weights) as the dependent variable. Prior and posterior inflation expectations, as well as remembered inflation experiences, are trimmed by 1% from top and bottom, and conditioned on those respondents with $\pi_{t:t+12|t}^{post} \leq 20$. The estimation sample in Columns (2) and (5) is restricted to those with $Diff_{avg} \geq 0$, whereas Column (3) focuses on those with $Diff_{avg} < 0$. $Diff_{avg}$ and $\pi_{t:t+12|t}^{prior}$ are de-meaned prior to estimation. Heteroskedasticity-consistent standard errors in parentheses. Asterisks '*', '**', and '***' indicate significance at the 10%, 5%, and 1% critical level, respectively.