

# The Role of Inflation Rate Experience on Inflation Expectations Formation

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Preliminary Results. Please do not circulate.

What determines households' inflation expectations? Recent contributions in the literature suggest that personal inflation experience can shape inflation expectations (see Malmendier and Nagel (2016) and Conrad et al. (2022)) and they attempt to answer this question using household survey data. We are instead interested in inflation rate experience to correctly represent the true cost of living experienced by different types of households. We do this by combining micro-level data on households' expenditure with Consumer Price Index data. Office for National Statistics in the UK shows that inflation rate experience varies across groups of households. Similarly, Brainard (2022) noted that it would be useful for policymakers to use group, instead of national aggregate, inflation rate. In this paper, we are interested in understanding how the inflation rate experience of different households groups can affect the formation of their inflation expectations.

The non-linearities in households experience may be exacerbated by the rising inflation affecting certain households more prominently. In the UK, CPI inflation has risen to 11% over the last few months, with some specific components – such as energy and food – contributing particularly strongly to that. When inflation is high, households may find it more beneficial to invest in the construction of their forecasts and thus would pay more attention to inflation. Using U. S. data, Mitchell and Zaman (2022) examine the predictive relationship between the full distribution of future inflation and various inflation expectations measures. They find a strong evidence of non-linear relation between household expectations and future inflation. For quantiles of inflation below 4% and above 80%, household expectations are more accurate than professionals.

This paper is related to the extensive literature on how households form their expectation on future inflation (among many, Reis (2006) and Weber et al. (2021)). More recently, there is a growing work studying the link of inflation expectation and inflation experience (see Malmendier and Nagel (2016), Kaplan and Schulhofer-Wohl (2017), Kuchler and Zafar (2019), and D'Acunto et al. (2021)). Most of these works use U.S. data, with the exceptions of Conrad et al. (2022) on German households focusing on the role that information channels and lifetime

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experience play in households' inflation expectations formation. This paper aim to fill the gap by studying the expenditure pattern of different cohorts that affects their inflation expectations formation.

To answer the research question, we use a synthetic panel dataset and pseudo-panel methodology. Preliminary results suggest that experiencing inflation rate of certain consumption baskets can have a disproportionately larger effect on the way that some households form their expectations. Furthermore, we find that there is substantial heterogeneity across different groups of households (for example, across age groups).

We create a novel synthetic panel dataset that will be designed to identify inflation expectations and households' expenditure that do not exist in the UK. Using a long run survey on households spending, we can identify the groups' inflation rate and combine it with households' inflation expectations. The data for inflation expectations comes primarily from the quarterly Bank of England Inflation Attitude Survey (BEIAS) which is a very rich dataset that the Bank publishes. One-year ahead inflation expectations can be derived from responses to the following question: "And how much would you expect prices in the shops generally to change over the next twelve months?" Then, to calculate price indices for individual groups of households, in this project we will be using micro-level data from the Living Costs and Food Survey (LCFS) and the CPI at the Classification of Individual Consumption According to Purpose (COICOP) class-level. The LCFS allow us to calculate the sub-group expenditure shares of the CPI baskets. We can then construct the sub-group inflation rates using CPI basket with the LCFS expenditure weights. Our sample period currently available for exploration is 2003Q1 – 2020Q1.

It is important to combine the two survey datasets carefully. These data do not have a panel data structure, i.e. individual households are not followed through time. However, the survey is in continuous so that it provides a random sample of the population each year that allows us to create a synthetic panel data for our analysis (Browning et al., 1985). We identify the common demographic in the two surveys, including age groups, house tenure, gender and region. By classifying households into particular groups, we are implicitly assuming that group transitions are not a significant concern. We follow Verbeek (1995) and Cloyne et al. (2017) to calculate propensity score matching approach that tackles the concerns about endogenous changes in the group composition.

The empirical analysis proceeds entirely in terms of group means that enables us to run pseudo-panel regressions. We estimate the following equation:

$$E\pi_{i,t|t+12} = \alpha + \beta^i Experience_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t}$$

where  $E\pi_{i,t|t+12}$  is the average of one-year ahead inflation expectations of group  $i$  made at time  $t$ .  $Experience$  is the inflation rate experience of the cohort ( $CPI_j \times Share_j$ ) and  $Share_j$  is

the LCFS expenditure weights.  $X_{i,t}$  is the control variables such as age group and house tenure.

The dataset captures a number of macroeconomic events since 2003 and thus we can estimate the effect of monetary policy shocks on inflation expectations given the different groups of households following Cloyne et al. (2019) and Romer and Romer (2004) by regressing one-year ahead inflation expectations on a distributed lag of the monetary policy shocks:

$$E\pi_{i,t|t+12} = \alpha_0^i + \alpha_1^i trend + \beta^i(L)E\pi_{i,t-12|t} + \nu^i(L)MPS_{t-1} + \gamma X_{i,t} + u_{it}$$

Using state-dependent local projections, we study how the effect could be different in low and high inflationary regime:

$$E\pi_{i,t|t+12} = \alpha_0^i + \alpha_1^i trend + \beta^{low \pi}(L)E\pi_{i,t-12|t} + \beta^{high \pi}(L)E\pi_{i,t-12|t} + \nu^i(L)MPS_{t-1} + \gamma X_{i,t} + u_{it}$$

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