



What determines households inflation expectations? Theory and evidence from a household survey[☆]



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ABSTRACT

The purpose of the present paper is to study how households form inflation expectations using a novel survey dataset of Italian households. We extend the existing 'inattentiveness' literature by incorporating explicitly inflation targets and distinguishing between aggregate and disaggregate dynamics based on demographic groups. We also consider both the short- and long-run dynamics as households update their inflation expectations. While we find clear distinctions between the various demographic groups behavior, households tend to absorb professionals forecast. The short-run dynamics also indicate they not only overreact when updating their expectations but also adjust asymmetrically to any perceived momentum change of future inflation.

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1. Introduction

Most models explaining aggregate outcomes, such as business cycles and inflation dynamics, include household (or non-expert) expectations. Nevertheless, how households form their expectations about the macroeconomy is less well-studied or understood. In an innovative recent paper, [Fuhrer \(2012\)](#) includes actual survey expectations, rather than the usual stylized expectations, in a DSGE model and finds that it performs considerably better by exhibiting strong correlations to key macroeconomic variables. Consequently, he proposes methods for endogenizing survey expectations in general equilibrium macro models improving monetary policy. Clearly, this asks for a greater understanding of the nature and dynamics of survey expectations. Hence, the heterogeneity amongst different demographic groups and the non-monotonic convergence

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of expectations found in the present analysis give clearer insights into how to generate better general equilibrium macro models and understanding actual inflation dynamics and persistence.

The purpose of the paper is to study how households form their inflation expectations. The underlying premise of the present analysis is also the one that motivates rational inattentive behavior, that is, the cost of acquiring relevant information. The paper investigates these issues using a novel survey-based dataset of households' opinions of inflation, which was compiled on a monthly basis from February 2003 for Italy and within the framework of the harmonized project of the European Commission, covering the period of explicit inflation-targeting by the ECB. The initial empirical analysis follows the aggregate approach of the sticky information expectations literature. Subsequently, we extend the analysis, accounting for individual household characteristics, using a pseudo-panel approach. It enables us to investigate household behavior at the disaggregate level distinguishing between various demographic groups.

A number of recent influential papers have introduced the notion of 'rational inattentive' behavior to explain how non-experts form expectations of the macroeconomy. Specifically, [Reis \(2006a, 2006b\)](#) argues that both consumers and producers update their information set sporadically. Producers do not continuously update their production plans but choose a price for their output and an optimal time at which to be inattentive, that is they receive no news about the economy until it is time to plan again. Similarly, time-constrained consumers optimize their utility and undertake consumption decisions infrequently. The slow diffusion of information among the general population is due to the costs of acquiring information as well as the costs of reoptimization. Such sticky information expectations have been used to explain not only inflation dynamics ([Mankiw and Reis, 2002](#)) but also aggregate outcomes in general ([Mankiw and Reis, 2007](#)) and the implications for monetary policy ([Ball et al., 2005](#)).

[Carroll \(2003, 2006\)](#) put forward a specific form of sticky information expectations that best explains how households form their expectations about the macroeconomy. 'Epidemiological expectations' argue that households form their expectations by observing professional forecasts which are reported in the news media. They, however, observe the professional forecasts imperfectly by 'absorbing' over time and, eventually, the professional forecasts are transmitted throughout the entire population. This proposition is verified empirically using a US household-based survey (Michigan SRC) and the Survey of Professional Forecasters (SPF). [Lanne et al. \(2009\)](#) considered an interesting extension of Carroll's epidemiological model. They showed empirically that a hybrid version of the sticky information model explains how households form their expectations; partly forming their expectations naïvely on recently released inflation rates and partly on professional forecasts. When analyzing households and non-experts in general it is useful not to consider them homogeneously. Indeed, [Bryan and Venkatu \(2001a, 2001b\)](#) focused on demographic differences (specifically gender differences) when investigating households forming inflation expectations and perceptions. It is also important to highlight at this stage that recently the study of inattentiveness has also been extended to professional forecasters and financial market experts (see [Andrade and Le Bihan \(2010\)](#) and [Coibion and Gorodnichenko \(2010\)](#)).

The empirical results clearly indicate that households absorb professional forecasts when forming expectations. We also find that household expectations are also determined by current inflation (or perceptions of current inflation). The estimated inflation expectations of all households are also considerably higher than the European Central Bank (ECB) targets for the period, despite their absorbing professional forecasts, which approximates the inflation targets. In addition, households' inflation expectations tend to be lower with education (the university-educated having the lowest). Similarly, the absorption rates (the rate at which the professional forecasts are embodied in the households' expectations) increase with education. There are also clear differences in behavior between male and females for all categories of households considered.

Our analysis further considers the role of current inflation signals when households form their expectations. We find that current signals are used to determine the future direction of inflation rates, and households respond to them asymmetrically. In fact, the nonlinear absorption rates of all households increase considerably when they expect future inflation rates to rise. Our investigations also consider another aspect of households' absorption rates: we test whether or not households overreact when they initially receive professional forecasts. When agents absorb or update their expectations imperfectly or update their information sporadically, one cannot rule out that they may overreact in the short run to new information. In most cases they may choose to update their expectations during periods of macroeconomic uncertainty or volatility and may simply be reflecting this.

The paper contributes to the existing literature and debates as follows: firstly, it studies the important issue of inattentiveness focusing on households using a novel dataset which covers the period of explicit inflation targeting by the European Central Bank (ECB). We explicitly allow for the possibility that inflation targets are part of a household's inflation expectations formation. Furthermore, the sample period covers the current economic crisis in the Eurozone, thereby enabling us to consider any possible variations in households' inflation expectations formation. Secondly, we also investigate the heterogeneity of households' behavior by distinguishing inattentiveness between different demographic groups. As [Dovern et al. \(2012\)](#) show, disagreements between professional forecasters are an important aspect of assessing their expectations formation. The present investigation also outlines and distinguishes between both the aggregate and the disaggregate approach. Thirdly, the current analysis distinguishes between the short- and long-run dynamics of households when forming inflation expectations. It not only considers the dynamics of the determinants' household expectations formation but also their adjustment. We find that in the short run, expectations tend to overshoot, or overreact, and, therefore, converge non-monotonically. Finally, the present analysis considers and finds that households update their expectations nonlinearly indicating that household inattentiveness tends to be state-varying.

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