

Inattention in individual expectations[☆]

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Abstract

This paper investigates the expectations formation process of economic agents about inflation rate. Using the Market Expectations System of Central Bank of Brazil, we perceive that agents do not update their forecasts every period and that even agents who update disagree in their predictions. We then focus on the two most popular types of inattention models that have been discussed in the recent literature: sticky-information and noisy-information models. Estimating a hybrid model we find that, although formally fitting the Brazilian data, it happens at the cost of a much higher degree of information rigidity than observed.

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JEL classification: C14; C52; D84; E37

Keywords: Expectations; Inflation; Imperfect information; Rational inattention

Resumo

Este artigo investiga o processo de formação de expectativas de inflação de agentes econômicos. Utilizando o Sistema de Expectativas de Mercado do Banco Central do Brasil, percebemos que os agentes não atualizam suas projeções em todos os períodos e mesmo aqueles agentes que o fazem discordam sobre os valores previstos. Neste sentido, investigamos os dois tipos de modelos mais populares sobre inatención discutidos na literatura recente: informação com rigidez e informação com ruído. Com base

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na estimação de um modelo híbrido, concluímos que, embora formalmente o modelo seja capaz de se ajustar aos dados brasileiros, tal resultado ocorre ao custo de um grau muito maior de rigidez informacional do que o observado.

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Palavras-chave: Expectativas; Inflação; Informação imperfeita; Inatenção racional

1. Introduction

The expectations formation process of economic agents about macroeconomic variables has long been one of the most debated questions in macroeconomics. Nevertheless remains an open question how expectations are formed, and how best to model it. In much classical theory, there is no room for disagreement in expectations, since it is usually assumed that all agents form expectations conditional on a common information set. However if not everyone has the same expectations and the information frictions are large and economically significant, the degree of information rigidity may have significant implications for macroeconomic dynamics and optimal policy.

What we aim to do is related to the recent empirical work trying to determine the nature of the expectations formation process. Rational expectations models with information frictions such as [Mankiw and Reis \(2002\)](#), [Reis \(2006a,b\)](#), [Sims \(2003\)](#) and [Woodford \(2003\)](#) have been associated to agents' inattention to new information, due to costs of collecting and processing information. These models have the key advantage of parsimoniously explaining some patterns of individual expectations observed in the data – such as disagreement across forecasters and predictable forecast errors – that are conflicting with the standard hypothesis of perfect information.

The sticky-information models proposed by [Mankiw and Reis \(2002\)](#) and [Reis \(2006a,b\)](#) are based on the assumption that the agents do not have access to information instantly. In [Mankiw and Reis \(2002\)](#), for instance, it is assumed that the acquisition of information follows a Poisson process in which, at each date, agents face a given and constant probability λ of being able to get new information. Nevertheless, once agents update their information set, they obtain perfect information and form expectations rationally. Thus we refer to λ as the attention degree for the sticky-information model and $(1 - \lambda)$ can be seen as the degree of information rigidity.

The infrequent update implies that, each period, only a fraction of the agents has access to the latest macroeconomic news and the expectations and actions of those who did not update their information sets continue to be based on their old information. As a result, agents who updated their information sets in the same period must make the same forecasts and agents who did not have access to new information should not revise their last prediction.

On the other hand, in the noisy-information models developed by [Sims \(2003\)](#) and [Woodford \(2003\)](#), although agents continuously track variables and update their information set, they only observe noisy signals about the true state. As agents know they have an imperfect access to the news they get at each period, they do not completely pass it onto their forecast. More precisely, forecasts are a weighted average of the new and the previous information received, so the weight on previous beliefs is taken as the degree of information rigidity.

Following [Andrade and Le Bihan \(2013\)](#), we will focus on these two most popular types of inattention models that have been discussed in the recent literature: sticky-information and noisy-information models. The model – developed by these authors – is a hybrid one: it assumes that, at each date, every forecaster faces a given probability of being able to update his information set and that, when updating, he gets a noisy perception of the state of the economy. The model is then estimated by a Minimum Distance Estimation (MDE) procedure, which allows us to test if the model is capable of quantitatively fitting the data, particularly the forecast errors and the disagreement among forecasters.

As far as we know, we are one of the first authors to use expectations data on inflation in Brazil in order to try to model it based on inattention models.¹ As the response of agents to macroeconomic dynamics is strongly impacted by the way individual expectations are formed, modeling the expectations formation process is important for better conduct of economic policy and better understanding its implications. An advantage over [Andrade and Le Bihan's](#)

¹ [Guillén \(2008\)](#) investigates a set of expectations theories using Brazilian data and concludes that the median inflation forecast is more likely to conform to the sticky-information theory.

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