



Are survey expectations theory-consistent? The role of central bank communication and news [☆]



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ABSTRACT

In this paper we analyze whether central bank communication can facilitate the understanding of key economic concepts. Using survey data for consumers and professionals, we calculate how many of them have expectations consistent with the Fisher Equation, the Taylor rule and the Phillips curve and test, by accounting for three different communication channels, whether central banks can influence those. A substantial share of participants has expectations consistent with the Fisher equation, followed by the Taylor rule and the Phillips curve. We show that having theory-consistent expectations is beneficial, as it improves the forecast accuracy. Furthermore, consistency is time varying. Exploring this time variation, we provide evidence that central bank communication as well as news on monetary policy can facilitate the understanding of those concepts and thereby improve the efficacy of monetary policy.

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1. Introduction

If people have better knowledge of the economy, they can make better informed decisions. Especially central banks argue that the effectiveness of the transmission channel increases if people have a sound understanding of monetary policy goals and strategies (see e.g. [Bernanke, 2007](#)). In this paper, we try to infer the extent to which people have an understanding of key economic concepts and whether policymakers can facilitate this understanding. We apply the concept of theoretical consistency to evaluate how monetary policy announcements are perceived and how they are factored into economic decision making.

For this purpose, we look at macroeconomic expectations and assess whether they are consistent with key economic concepts. We then evaluate whether having theory-consistent expectations is beneficial for consumers' inflation forecasting accuracy and if we can explain part of its variation by changes in central bank communication and monetary news. This evaluation has considerable policy implications, as it tests to what extent central banks can improve the understanding of

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monetary policy via their communication and whether they have been successful in doing so. Over the last 20 years, central banks around the world have increased their effort in communicating to the general public, reiterating its importance for guiding expectations of the public. Nevertheless, it is not yet clear what should be the best way to conduct central bank communication. [Morris and Shin \(2002, 2007\)](#) conjecture that too much information might even deteriorate the understanding of monetary policy. While there is some evidence that communication can help in predicting future interest rate changes with respect to professional forecasters (see, e.g., [Sturm and de Haan, 2011](#)), there is as yet no evidence as to whether this improvement is linked to a sound understanding of monetary policy. [Sims \(2010\)](#) argues that while financial market participants and professional forecasters are likely to be very attentive to even the smallest change in the policy statement, the effects may be very different regarding individuals. Consistent with this view, [Blinder et al. \(2008, p. 941\)](#) argue: “Virtually all the research to date has focused on central bank communication with the financial markets. It may be time to pay some attention to communication with the general public.”

Using the microdata from the Surveys of Consumers conducted by the University of Michigan (henceforth MS) and the Survey of Professional Forecasters conducted by the Federal Reserve Bank of Philadelphia (henceforth SPF), we evaluate how the changes in the Federal Open Market Committee's (FOMC) communication influence individual consistency with a version of the “Fisher” equation applied to income expectations, the Phillips curve, and the Taylor rule. Specifically, we test whether consumers' expectations correctly distinguish between real and nominal expected income, implying consistency with the Income Fisher equation. Regarding the Phillips curve, we analyze if consumers use the short-run trade-off between inflation and unemployment for forecasting. Although this is an empirical relationship which might not be realized in every period, the Phillips curve trade-off is embedded in many forecasting models for inflation (see, e.g., [Stock and Watson, 2008](#) and [Faust et al., 2013](#)).¹ Finally, we evaluate whether consumers form expectations regarding interest rates, inflation, and unemployment (or the output gap) in line with the Taylor rule. Similarly to our definition of consistency with the Phillips curve, we have to be careful in identifying consistency with the Taylor rule. Following [Carvalho and Nechio \(2014\)](#), we avoid endogeneity issues by excluding periods with large monetary policy shocks, i.e., the period before 1987 and further exclude the period where the correlation between borrowing rates and the federal funds rate dropped, i.e., the zero lower bound (ZLB) period from 2008 onwards.² Note that throughout the paper, the term “consistent expectations” denotes consistent with an economic concept.

We consider three channels of central bank communication: the sender channel (central bank announcements), the transmission channel (the volume of news in the media), and the receiver channel (consumers' reported perception of news). For the first channel, we look at milestones of changes in the FOMC's communication strategy as identified by [Middeldorp \(2011\)](#) and [Bernanke \(2007\)](#). For the latter two channels, we generate a new dataset capturing media news in leading US newspapers, and use data provided in the MS on perceived news. The use of perceived news can be motivated by theories of rational inattention, where agents have limited information-processing capacity and therefore cannot absorb all available information. There is an empirical evidence that under these circumstances, the media have a strong impact on the expectation formation of the general public. For instance, [Hamilton \(2004\)](#) and [Soroka \(2006\)](#) report that the media report more “bad” news than “good” news and that especially bad news may influence the information set. Therefore, the media might potentially introduce a bias in this part of the transmission channel, as especially consumers may be relatively more exposed to bad news compared to good news.

While our focus is on consumers' consistency, we also study professional forecasters, which allows us to draw comparisons between the two groups and evaluate the importance of different transmission channels for central bank communication. Using the SPF brings some additional advantages, as we benefit from a longer panel dimension and the fact that the interest rate question directly asks for quantitative forecasts of the policy rate. Furthermore, we can account for the issue of nowcasting when defining consistency, as the most recent GDP and inflation rate is unknown to the survey participants when making one-year-ahead predictions.

Before proceeding with the analysis of communication effects on the shares of consistent expectations, we briefly discuss the results for average levels of consistency. It is not surprising that the highest share of consistent expectations for both consumers as well as professionals is observed for the Fisher equation, as this is a fundamental relationship. There is, however, a big gap between consumers and professionals. While the share of forecasts consistent with the Fisher equation is around 84% for professionals, only half of the consumers have consistent expectations. Regarding the Taylor rule, the average shares are very similar, as about half of the population of consumers as well as professionals have consistent expectations. Regarding the Phillips curve, there are again fewer consumers consistent than professionals, 34% compared to 51%. However, on average only 6% of consumers form theory-consistent expectations with respect to all three concepts in a given period. At about 31%, this share is considerably higher for professionals. We observe strong time-variation in consistency shares for both groups. Furthermore, we can show that consistency on average improves the forecast accuracy of

¹ We furthermore check the extent to which demand and supply shocks affect the propensity to form consistent expectations and control for different phases of the business cycle and movements in oil prices.

² Endogeneity issues may arise as monetary shocks were known to be larger before 1987 ([Leeper et al., 1996](#)). Also, [Judd and Rudebusch \(1998\)](#) have argued that the Taylor rule became a better approximation for monetary policy in the Greenspan era. Furthermore, as the MS asks for expectations on borrowing rates and not for the federal funds rate, the link might be much weaker in the aftermath of the financial crisis when some interest rates hit the ZLB ([Carvalho and Nechio, 2014](#)). Note that for professional forecasters, the ZLB period is included as the survey asks for the 3-month Treasury bill rate, which is highly correlated with the federal funds rate also in the ZLB period.

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