[Monetary Policy with Ambiguity Averse Agents](#)

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Communication and transparency have become more important for central banks in recent decades. Since the Great Recession, central banks have adopted a range of unconventional monetary policy measures: great emphasis has also been put on enhanced communication, aimed at clarifying the policymakers' reaction function. As with all policy actions, it is crucial to have models that can help us understand how improved central bank communications affect the economy. Addressing this question however is possible only in a model that relaxes the commonly held assumption that all the laws of motion of the variables in the economy are perfectly known by the agents.

In this paper we study a prototypical new-Keynesian model in which agents are averse to ambiguity, or Knightian uncertainty, and where the ambiguity regards the monetary policy rule. By ambiguity we mean a situation in which there is uncertainty about the probability distribution over contingent states of the world. Agents have a set of probability distributions over the model outcomes, rather than a single one, when forming their expectations and they are unable to discriminate among these models. The ambiguity is specifically about the monetary policy rate.

When agents are dislike this uncertainty, *i.e.* are averse to ambiguity, they will make their decisions *as if* the worst-case scenario were to materialise. In our baseline model, the worst-case steady state is the one in which agents act *as if* the interest rate were lower than that implied by rational expectations. This results in a ``too high'' demand for consumption on the part of the agents, which generates an increase in the marginal costs firms face, in inflation and consequently in the interest rate set by the central bank.

As a consequence, in a world with lower ambiguity inflation and the policy rate will tend to be lower, and welfare will be higher. Indeed, clearer and more transparent central bank communications since the 1990s plausibly reduced ambiguity about monetary policy and could, in principle, be a concurrent explanation for the Great Moderation.

We also highlight how the design of monetary policy can be affected by the presence of ambiguity. In the presence of ambiguity, the degree of responsiveness to inflation of the central bank plays a

role in determining welfare. In particular, higher degrees of responsiveness to inflation reduce the negative effects of ambiguity.

We conclude our analysis studying the transitional dynamics from a high-ambiguity steady state to a low-ambiguity steady state, which we see as a proxy for a situation in which effective central bank's communication reduces the degree of ambiguity improving welfare.