Macroeconomic Dynamics under Rational Inattention*

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1 Extended abstract

This paper develops a general equilibrium model with Dixit-Stiglitz preferences, monopolistic competition and rational inattention on the side of both households and firms. We show how to solve a general equilibrium model with rational inattention. We use the model to study how rational inattention affects the impulse responses of macroeconomic variables to monetary policy shocks and technology shocks.

The economy consists of a large number of households, a large number of firms and a central bank. Firms supply differentiated goods and households supply differentiated types of labor. Firm i supplies good i. Every period the firm sets the price of the good. The firm commits to supply any quantity of the good at this price. The firm also chooses the labor mix used in production. There are no adjustment costs, that is, the firm can change the price and the labor mix every period at no cost. Household j supplies labor of type j. Every period the household chooses how much to consume and which goods to consume. Furthermore, the household sets the wage for its labor services. The household commits to supply any quantity of labor services at this wage. There are no adjustment costs, that is, the household can change the wage every period at no cost. We model the idea that firms and households cannot attend perfectly to all available information. Following Sims (2003), we model the inability to attend to all available information as a constraint on information

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flow. Each firm and each household decides what to pay attention to, subject to a constraint on information flow. Finally, every period the central bank sets the nominal interest rate according to a feedback rule. The central bank commits to borrow or lend any quantity at this interest rate.

We solve the model as follows. First, we study the attention problem of an individual firm. We derive a loss function for the firm that expresses losses in profits due to suboptimal behavior as a function of deviations of actual behavior from optimal behavior. We solve the firm's attention problem by minimizing the loss function subject to the information flow constraint. The firm's information flow constraint bounds the information flow between actual behavior and optimal behavior. Second, we study the attention problem of an individual household. We derive a loss function for the household that expresses losses in utility due to suboptimal behavior as a function of deviations of actual behavior from optimal behavior. We solve the household's attention problem by minimizing the loss function subject to the information flow constraint. The household's information flow constraint bounds the information flow between actual behavior and optimal behavior. Third, we compute the rational expectations equilibrium.

We use the model to study how rational inattention affects the impulse responses of macroeconomic variables to monetary policy shocks and technology shocks.

References

[1] Sims, Christopher A. (2003): "Implications of Rational Inattention." Journal of Monetary Economics, 50, 665-690.