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Optimal monetary policy in a currency area

Pierpaolo Benigno*

New York University, Department of Economics, 269 Mercer Street, New York, NY 10003, USA

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Abstract

This paper investigates how monetary policy should be conducted in a two-region general equilibrium model with monopolistic competition and price stickiness. This framework delivers a simple welfare criterion based on the utility of the consumers that can be used to evaluate monetary policy in a currency area. If the two regions share the same degree of nominal rigidity, the terms of trade are completely insulated from monetary policy and the optimal outcome is obtained by targeting a weighted average of the regional inflation rates. These weights coincide with the economic sizes of the region. If the degrees of rigidity are different, the optimal plan implies a high degree of inertia in the inflation rate. But an inflation targeting policy in which higher weight is given to the inflation in the region with higher degree of nominal rigidity is nearly optimal.

Keywords: Optimal monetary policy; Currency area; Sticky prices; Welfare analysis; Terms of trade

JEL classification: E52; F41

> *"What is the appropriate domain of a currency area? It might seem at first that the question is purely academic since it hardly appears within the realm of political feasibility that national currencies would ever be abandoned in favor of any other arrangement"*[1]

With the creation of the European Central Bank, what seemed to be a pure academic speculation has become a reality. Following Mundell's seminal work, several contributions have emphasized the conditions under which a currency area is optimal. However, the monetary aspects of a currency area have been neglected mainly because, as suggested by

* Tel.: +1-212-998-8958; fax: +1-212-995-4186.
E-mail address: pierpaolo.benigno@nyu.edu (P. Benigno).

[1] Robert Mundell (1961), p. 657.

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the above quotation, the abandonment of national currencies was considered politically infeasible.

The primary purpose of this paper is to investigate the optimal conduct of monetary policy in a currency area characterized by asymmetric shocks across regions. Whether monetary policy should stabilize an aggregate measure of inflation or output or whether it should take into account the dispersion of inflation or output across regions is an unsolved question. This issue has received an increasing interest in the current policy debate on the conduct of monetary policy within the Euro area.[2] This paper contributes to the debate in two ways: first, a stylized model that helps to understand how currency areas work and second, a micro-founded welfare criterion that allows normative analysis.[3] Our main conclusion is that monetary policy should follow a particular inflation targeting policy in which higher weight is given to the inflation rate in the region with higher degree of nominal rigidity.

This work presents a two-region model, where each region is specialized in the production of a bundle of differentiated goods and where labor is immobile across regions.[4] Money is not neutral because there are rigidities in prices. Monopolistic competition rationalizes the existence of price stickiness. A two-region model represents the minimum requirement in order to study the important role of relative prices. When different regions experience asymmetric shocks, movements in the terms of trade are important in explaining the transmission mechanism of monetary policy.

The normative results are rooted in the analysis of the existing distortions. In our framework there are three sources of inefficiency: (i) the monopolistic distortion that induces an inefficient level of output; (ii) inflation in each region that creates an inefficient dispersion of prices; and (iii) price stickiness that may create a non-efficient path of the terms of trade in response to asymmetric disturbances. By using a deadweight loss evaluation, as in monetary models by Rotemberg and Woodford (1997) and King and Wolman (1998), it is possible to build a welfare criterion that accounts for the exact magnitude of these distortions. In this context the optimal policy is the one that provides the most efficient allocation of resources. Abstracting from the inefficiencies induced by monopolistic competition, monetary policy makers would be expected to stabilize prices within each region, thus avoiding the dispersion of output across resources produced using the same technology, and would be expected to induce

[2] Among others, Bean (1998) and Dornbusch et al. (1998) present an overview of the issues concerning the implementation of monetary policy in the EMU. Peersman and Smets (1999), Rudebush and Svensson (2000) and Svensson (1999a) evaluate alternative monetary policy rules in the EMU by using closed-economy models. Weerapana (1998) studies the performance of monetary policy rules in a large open economy.

[3] The model presented in this work can also be used for the analysis of the exchange rate determination in a two-country world, in which each country maintains the conduction of its own monetary policy. Indeed, Section 6 of Benigno (2001) analyzes the welfare implication of the model when the exchange rate is free to fluctuate. Benigno and Benigno (2001) study the relation between exchange rate and monetary policy rules.

[4] Benigno (2001) and a companion Appendix, posted under the homepage of the author (now at http://homepages.nyu.edu/~pb50), present an extension to a K-region area.