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The impact of fiscal-monetary policy interactions on government size and macroeconomic performance☆

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ABSTRACT

This paper analyzes the relationship between inflation, output and government size by reexamining the time inconsistency of optimal monetary and fiscal policies in a general equilibrium model with staggered timing structure for the acquisition of nominal money *à la* Neiss (Neiss, Katharine S. (1999), Discretionary Inflation in a General Equilibrium Model, Journal of Money, Credit and Banking, 31(3), pp. 357–374.), and public expenditure financed by means of a distortive tax. It is shown that, with predetermined wages, the equilibrium rate of inflation is above the Friedman rule and the equilibrium tax rate is below the efficient level. In particular, the discretionary rate of inflation is nonmonotonically related to the natural output, positively related to government size, and negatively related to the degree of central bank conservatism. Finally, a regime with commitment leads to welfare improvements over a regime with discretion.

1. Introduction

During the 1990s, many OECD countries had declining rates of inflation while their unemployment rates were also falling (see Fig. 1). This is clearly in contrast with the negative relationship between inflation and unemployment predicted by a standard Phillips curve. Moreover, Fig. 2 depicts a positive (average) relationship between inflation and government size in the same period.[1] Grilli et al. (1991) and Campillo and Miron (1997), for instance, also find a positive correlation between inflation and the size of government in the major OECD countries. This paper analyzes these macroeconomic outcomes in terms of time inconsistency in a game theoretical model with three players: the central bank (CB), fiscal authority (FA) and wage setters.

Since the influential papers of Kidland and Prescott (1977) and Barro and Gordon (1983), several authors have addressed the issue of time inconsistency and the desire of policy makers to raise output above its market-clearing level due to the existence of distortions. The optimal monetary policy of low inflation is not credible in the absence of binding commitments; and the time-consistent but sub-optimal monetary policy leaves unemployment unaffected and generates an excessively high rate of inflation.

The bulk of this literature on the importance of dynamic inconsistency has focused on the relationship between institutional aspects governing the CB and inflation. For example, empirical evidence suggests that appointing a conservative CB is important for reducing inflation (see, e.g., Alesina, 1989; Grilli et al., 1991; Cukierman et al., 1992). Although this point has been acknowledged in the aforementioned works, the connection between macroeconomic performance, government size and the problem of time consistency of monetary policy has not been modeled explicitly in a fully micro-founded model.[2] These connections are particularly important because, in most industrialized countries, monetary and fiscal policies are set by two authorities which are, in general, at least partially independent.

The paper builds on Neiss (1999), where a money-in-the-utility-function framework together with staggered timing provide a theoretical basis for a micro-founded inclusion of inflation as a cost in the policymaker's objective function. Public expenditure enters into the utility function and is financed by means of a distortive tax, while

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[1] Countries shown in Figs. 1 and 2 have been chosen among the most industrialized OECD countries with trade union density larger than 30%.

[2] The role played by institutions in the creation of European unemployment has recently received increasing attention: see, for example, Blanchard and Giavazzi (2003) and Nickell et al. (2005).

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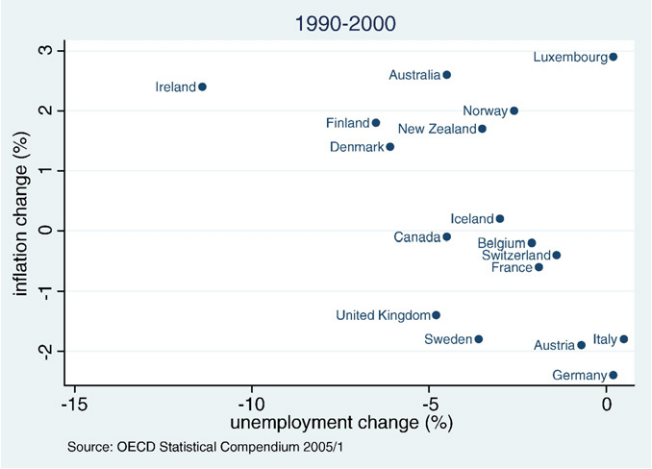

Fig. 1. Change in inflation and unemployment 1990–2000.

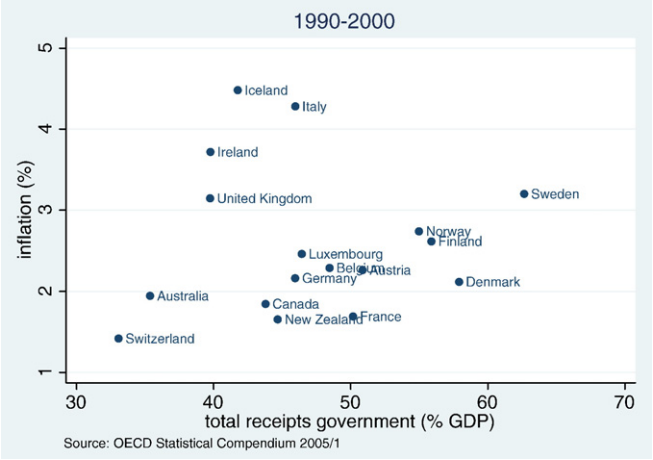

Fig. 2. Inflation and total receipts government 1990–2000.

labor markets are characterized by monopolistic distortions and nominal rigidities.[3] In particular, there are three areas in which our model provides insights into the relationship between inflation, output and macroeconomic institutions.

First, countries' performance in terms of inflation and unemployment shown in Fig. 1 may be explained by monopolistic distortions in labor markets and the CB's incentive to raise inflation. A reduction in unemployment rate has two contrasting effects on the equilibrium rate of inflation. On the one hand, it causes an increase in the marginal costs of inflating by lowering leisure. However, as unemployment decreases and output rises, the demand for real money rises as well. This implies that, for a given rate of inflation and tax rates, the marginal cost of inflating falls because it is decreasing and convex in real balances. These counterbalancing effects lead to a non-monotonic relationship between the discretionary level of inflation and the rate of unemployment.

Second, the model shows that the discretionary level of inflation is positively related to the weight attached to public expenditure in the utility and to the size of government spending in the economy. In fact, an increase in government size enlarges the gap between efficient and natural output and raises real money demand. Both effects induce the CB to overinflate. An increase in the degree of CB conservatism has instead a negative impact on the discretionary rate of inflation.

Finally, the strategic interaction between the policymakers is analyzed under a regime with discretion or with commitment. The regime with commitment always improves welfare over the discretionary regime. In fact, the level of natural output is equal in the two regimes, while inflation is higher with discretion. This result relies upon the possibility for policymakers of affecting output. With binding commitments, unexpected inflation and/or taxation are ruled out and both fiscal and monetary policy are ineffective on output. However, since fiscal policy is endogenous, the level of tax distortion and, as a consequence, the level of public expenditure is not invariant to the regime change. Thus, a movement from a discretionary regime to a regime with commitments yields a higher level of government spending reducing the government incentive to set a lower tax rate.

The paper is organized as follows: Section 2 presents the model. Section 3 investigates the benchmark cases of a benevolent social planner and fully flexible wage setting. Section 4 considers the strategic interaction between fiscal and monetary policy in presence of pre-determined wage setting under a regime with discretion and commitment, and the effects of a change in economy parameters on the inflation bias and government spending. This is followed by concluding remarks.

2. Economic setup

The essential elements of the economy setup are taken from the general equilibrium model developed by Neiss (1999). The structure of the model is a staggered timing for the acquisition of nominal money within a money-in-the-utility-function framework. The novelty of the paper is the introduction of real frictions via monopolistic competition in the factor markets and distortive taxation on top of public spending entering in the utility function.

2.1. Firms

A profit-maximizing competitive firm produces a single consumption good using imperfectly substitute labor types, $N_t(j)$, as inputs with $j \in [0,1]$. The firm is price taker in both product and labor markets.[4] The production function exhibits decreasing return to scale as follows

$$Y_t = N_t^{\frac{1}{\alpha}} \quad \alpha > 1, \tag{1}$$

where α measures the returns to scale in production. Aggregate employment N_t is assumed to be a composite made of a continuum of differentiated labor types with a constant elasticity of substitution between labor types

$$N_t = \left[\int_0^1 N_t(j)^{\frac{\sigma-1}{\sigma}} dj\right]^{\frac{\sigma}{\sigma-1}} \quad \sigma > 1, \tag{2}$$

where σ measures the elasticity of input substitution.

For a given level of production, demands of each labor type j in period t solve the dual problem of minimizing total cost, $\int_0^1 W_t(j)N_t(j)dj$, subject to the employment index (2), where $W_t(j)$ denotes the nominal

[3] In most countries in the OECD, wage setting takes place through collective bargaining between employers and trade unions at the plant, firm, industry or at aggregate level. There is some evidence that labor market institutions, mainly labor union power in wage setting, has a considerable impact on unemployment (Nickell et al., 2005).

[4] Differently from Neiss (1999), monopolistic competition is introduced in the input market instead of the product one.