Monetary strictness and labour market outcomes under incomplete transparency☆

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ABSTRACT

This paper extends the workhorse model of strategic wage setting and monetary policy to the case of incomplete central bank transparency. In contrast with the existing literature, the paper shows that an increase in the degree of monetary strictness may lead to a simultaneous rise in real wages and unemployment. This is the likely outcome when the central bank's policies are perceived to be rather accommodating and unpredictable. When monetary policy is instead conducted in a conservative and transparent fashion, we obtain the standard result that greater monetary strictness induces wage discipline and lower unemployment.

1. Introduction

The literature has extensively analysed the strategic interaction between the central bank and trade unions, demonstrating that labour market outcomes are sensitive to the degree of monetary accommodation. Among those contributions assuming that the economy is characterised by non-atomistic wage setters and complete information about the monetary regime, a strict monetary rule is found to discipline wage setting, thereby reducing unemployment (Bratsiotis and Martin, 1999; Soskice and Iversen, 2000; Holden, 2005) or both unemployment and real wages (Coricelli et al., 2004). More recently, Spyromitros and Zimmer (2009) have questioned the result that a strict monetary rule reduces unemployment in an environment of incomplete information. These authors reveal that, when implemented by a relatively accommodating and unpredictable central bank, a stricter monetary rule is likely to translate into higher unemployment (even as the real wage remains unchanged, owing to the authors' assumptions of constant returns to labour and Bertrand price competition among firms). Overall, thus, the existing literature has not identified any case where monetary strictness may lead to a simultaneous rise in real wages and unemployment.

The purpose of this paper is to state conditions under which, in the presence of incomplete central bank transparency, it is possible that a stricter monetary rule induces not only employment losses but also a rise in real wages. In order to allow for changes in real wages, we adopt Coricelli et al.'s (2004; 2006) characterisation of firms as being monopolistically competitive while also facing a demand that increases with aggregate real money balances. Concerning incomplete monetary transparency, it is introduced by assuming that trade unions are unsure as to how changes in their wage claims affect the policy rule, as also done by Sorensen (1991), Grüner (2002), Grüner et al. (2005) and Spyromitros and Zimmer (2009). Both our modelling approach and our focus on real labour market variables distinguish us from Dai and Sidiropoulos (2008), who investigate the roles of central bank conservativeness and transparency for nominal wages and inflation volatility.

Our set-up enables us to extend the literature on strategic wage setting by showing that a less accommodating monetary policy may raise both real wages and unemployment. This is the likely outcome when the central bank is seen as rather accommodating and opaque, which hampers the disciplining impact of a stricter monetary rule on the behaviour of unions. By having real wages – and not simply unemployment – react to monetary conditions, we allow for a better characterisation of the comovement between labour market outcomes. This aligns well with the robust evidence that real wages tend to move in the same direction as unemployment rates (see *e.g.* OECD, 1997, 2004).

2. The model

We set up a framework that broadly resembles those of Coricelli et al. (2004, 2006), and especially the latter study which develops a closed-economy set-up. These two papers can be consulted for modelling details.[1] This paper deviates from them in allowing for uncertainty in the monetary policy rule.[2] The economy considered here consists of N symmetric sectors indexed by i ($i = 1, \ldots, N$). Workers of each sector are organised in a single labour union, so there are N labour unions in the economy (also indexed by i). Each sector is populated by monopolistically competitive firms (indexed by j) producing goods according to technology $Y_i = L_i^\alpha$, where L_i is the labour input and $\alpha \in (0, 1)$ denotes the latter's share in the total output. The firms are evenly distributed over the unit interval and their mass is 1. Each firm faces demand $Y_{ij}^d = (P_{ij}/P)^{-\eta}(M/P)$, where P_{ij} and P are respectively the price of the individual firm and the general price level, M is the nominal money stock, and $\eta > 1$ is the elasticity of demand facing the individual firm with respect to its relative price (in absolute value). A given firm's real profits equal $(P_{ij}/P)Y_{ij}^d - (W_i/P)L_{ij} = (P_{ij}/P)^{1-\eta}(M/P) - (W_i/P)[(P_{ij}/P)^{-\eta}(M/P)]^{1/\alpha}$. Profit maximisation leads to

$$p_{ij} - p = \theta + \frac{1}{\alpha + \eta(1-\alpha)}[\alpha(w_i - p) + (1-\alpha)(m - p)] \tag{1}$$

where $\theta \equiv \{\alpha/[\alpha + \eta(1-\alpha)]\}\log\{\eta/[\alpha(\eta - 1)]\}$ and lower case symbols denote natural logarithms. We shall use price level p and inflation π interchangeably, owing to the normalisation (p's previous period value equal to 0). The price level can be found by averaging over firms in (1), which gives

$$p = -(1-\alpha)\rho + \alpha w + (1-\alpha)m \tag{2}$$

where $\rho \equiv -[\alpha/(1-\alpha)]\log\{\eta/[\alpha(\eta - 1)]\}$ is a constant and w the economywide wage level.

The unemployment rate, u_i, is defined as the difference between the number of workers attached to each sector (l_0) and the average labour demand for a firm represented by union i:

$$u_i = l_0 + \frac{1}{\alpha}[\eta(p_i - p) - (m - p)] \tag{3}$$

with labour demand being a function of sector i's relative price and aggregate real money balances.

The nominal money supply is set by the central bank in reaction to wage decisions, as captured by the monetary rule

$$m = \mu + \gamma w \tag{4}$$

where $\mu \equiv [l_0 - \rho(1-\alpha)/\alpha][\alpha + \gamma(1-\alpha)] + \rho(1-\alpha)(1-\gamma)$ and γ is the degree of accommodation of monetary policy. Eq. (2) can be rewritten to explicitly expose an inverse relation between real wages and real money balances:

$$(m - p) = \rho - \frac{\alpha}{1-\alpha}(w - p). \tag{5}$$

Intuitively, higher real money balances induce a higher demand for goods (and thus labour), which – in the light of our technological assumption of decreasing returns to labour – must be associated with lower real wages.

The central bank is allowed to be not fully transparent. In consequence, trade unions can only partly anticipate the monetary response to their wage claims. They only know two features of the degree of monetary accommodation, namely, the mean $E(\gamma) = \bar\gamma$ and the variance $\sigma_\gamma^2 = E[(\gamma - \bar\gamma)^2]$. A lower $\bar\gamma$ is interpreted as a stricter monetary policy, while a higher σ_γ^2 represents a stronger degree of monetary policy uncertainty.[3]

Union i's expected loss function is given by

$$E\Omega_i = -2E(w_i - p) + AEu_i^2 \tag{6}$$

where A measures the relative concern for the stability in unemployment.

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[1] Acocella et al. (2008) have adopted a similar framework for studying the way in which the attitude of monetary authorities to inflation affects the strategic considerations behind wage setting behaviour under different (full-information) scenarios.

[2] Coricelli et al. (2006) allow trade unions to be concerned about inflation. If this concern is sufficiently strong, their model generates cases where a stricter monetary rule may lead to higher real wages and unemployment. The authors however conclude that, for realistic parameter values, that condition would not be satisfied. For this reason, we abstract from unions' concerns about inflation when trying to show that monetary strictness can give rise to a scenario of higher real wages and unemployment.

[3] The uncertainty regarding parameter γ should be interpreted as arising from lack of transparency about central bank preferences. Let the central bank's loss function be $\Gamma = u^2 + \chi\pi^2$, where $\chi \geq 0$ is the weight on price stability versus unemployment stability. One can then write $\gamma \equiv [1 - \alpha(1-\alpha)\chi]/[1 + (1-\alpha)^2\chi]$, with $\gamma \in [-\alpha/(1-\alpha), 1]$.