Wage restraint and monetary union ☆

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ABSTRACT

Existing work on wage bargaining predicts more aggressive wage setting under monetary union. This is exemplified by Cukierman and Lippi (2001) who postulate that wages are set having area-wide prices in mind. The insight of aggressive wage behaviour has not been confirmed by the EMU experience, which has been characterised by wage moderation. The present paper investigates the possibility of wage restraint using a monetary union model which, realistically, assumes that trade unions set wages with national prices in mind. Drawing on plausible ranges for all parameter values (and macroeconomic shocks), our simulations show that a monetary union elicits real wages that are broadly comparable to those obtained under monetary autonomy. The confidence bounds around these results are rather wide, in particular including scenarios of wage restraint.

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1. Introduction

The experience and prospects of monetary integration around the world have attracted a wide-ranging literature over the last fifty years. Some analyses have addressed the role of the interaction between monetary policy and wage-setting institutions. In their oft-cited study, Cukierman and Lippi (2001; henceforth CL) show that, with unionised labour markets, monetary union entails higher real wages than in a national monetary policy setup. CL is the workhorse model for the strategic interaction between (free-riding) wage setters and the ECB.[1] It is an appealing framework in that it models a number of trade unions within each of two countries, and it shows that a monetary arrangement (EMU) can have effects not only on nominal but real variables. CL derive implications for some key macro variables: inflation, nominal and real wages, unemployment.

CL's result that monetary union entails higher real wages than in the national case has been challenged by Posen and Gould (2006) in light of the evidence for the period since the Euro area was created in 1999. In particular, these authors report that real wage growth appears to have fallen short of productivity growth (be it per hour worked or in multi-factor terms) in the post-EMU period.[2] Fig. 1 presents evidence that real compensation per employee has overall been moderate since 1996, including when compared with labour productivity per person employed. Table 1 reports available data for the wage share in total Euro area income. Adopting a longer-run standpoint, it is not possible to ascertain whether the underlying trend in the wage share has shifted one way or another since the late 1990s. Moreover, the fall in the wage share that has been registered over time appears not to be purely the result of a reallocation of output towards sectors where the wage share is lower.

Our assumption that trade unions care about national prices when setting wages brings into the analysis the output side of the economy. Coricelli et al. (2004, 2006) postulate a schedule for real demand, in particular allowing for the latter's interest rate sensitiveness. Otherwise, these authors follow CL in assuming that trade unions care about area-wide price developments — an assumption also maintained elsewhere (Cukierman, 2004). The only model suited for our goal is Sánchez (2009b), who models the output side of the economy in an environment where, realistically, trade unions still care about national prices after the respective countries have joined a

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[1] Supply-side free-riding problems of the type examined here raise short-run stabilisation issues of a different nature from the fiscal free-riding operating on the demand side (Sánchez, 2008).

[2] Posen and Gould (2006) look more generally at the evidence of wage restraint (as measured by the contained gap between real wage and productivity developments) across OECD countries. They mention that, excluding Greece, some other countries (including from the Euro area) would exhibit a significant gap between productivity growth measures and real wage growth.
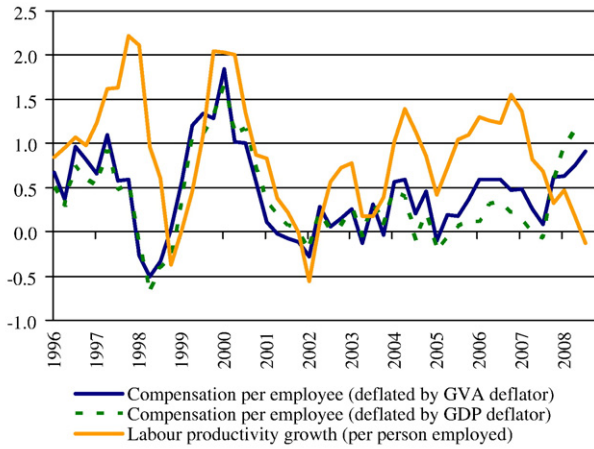
Fig. 1. Euro area labour compensation and labour productivity, 1996–2008 in annual percentage growth rates.

Table 1
Decomposition of the Euro area wage share.

Changes over 5-year periods (in %)					
	1980–1985	1985–1990	1990–1995	1995–2000	2000–2005
Total	−2.8	−2.2	−1.4	−1.1	−1.5
Intra-sectoral effect	−2.1	−1.6	−0.6	−0.7	−1.0
Structural effect	−0.8	−0.6	−0.8	−0.4	−0.5
Static effect	−0.8	−0.4	−0.8	−0.5	−0.4
Dynamic effect	0.0	−0.2	0.0	0.1	−0.1

Sources: Sánchez (2009c) on the basis of EU KLEMS data.
Notes: the Euro area does not include Cyprus, Malta, Slovakia and Slovenia. Values may not add up due to rounding.

monetary union.[3] Instead of using this model for welfare analysis,[4] the present paper employs it to thoroughly evaluate the likelihood of wage restraint in a monetary union. In order to do this, we proceed in the following steps. Prior to the substantive analytical results, we present the general set up, which models developments in the markets for labour set and goods while allowing for shocks to both productivity and real demand. We distinguish between two monetary arrangements, namely, national monetary policy and a currency union. We then adopt two approaches to studying wage restraint in a monetary union. First, we examine the effect of the formation of a currency union on macroeconomic variables (with a focus on real wages) for the two main cases studied by CL in a determinist environment, namely, a monetary union between identical countries and a monetary union between heterogeneous countries that do not care about inflation. Second, since we find that — unlike CL — the effects are parameter-dependent, we turn to performing simulations considering the full range of relevant parameter values. Our simulations concern parameters featuring in the systematic part of structural equations, as well as shocks hitting the economies. This approach to simulation draws on the methods used by Canova and Pappa (2007) and Canova et al. (2008) in different contexts.

The remainder of the paper is structured as follows. Sections 2 and 3 of this paper lay out the models for the analysis of autonomous monetary policy and a currency union, respectively. Section 4 assesses how monetary union formation impacts macroeconomic variables, concentrating on consequences for real wages. Section 5 describes the general simulation results allowing for all plausible types of country-specificities concerning shocks and parameter values. Finally, Section 6 presents our main conclusions.

2. The case of national monetary policy

This paper considers two monetary policy regimes, one where the interest rate is set at the country level (labelled regime N), and the other where the "single" monetary authority takes decisions for the whole of the two-country currency union (labelled regime D). Let us begin by analysing the case when a given country i ($i = 1,2$)[5] pursues national monetary policy. Country i comprises N_i labour unions

(indexed by j). The preferences of a typical union are described by the loss function

$$\Omega_{ij} = -2w_{ij}^r + Au_{ij}^2 + B\pi_i^2 \tag{1}$$

where $w_{ij}^r \equiv w_{ij} - \pi_i$ denotes the (log of the) real wage associated with union j in country i,[6] w_{ij} is the (log of the) corresponding nominal wage, and u_{ij} and π_i are, respectively, the (log of the) real wage, the unemployment rate among members of union j in country i, and the inflation rate. In addition, monetary policy is conducted by a central bank who dislikes variability in both inflation and output (y_i) at home:

$$\Gamma_i = y_i^2 + \chi\pi_i^2 \tag{2}$$

where χ is the central bank weight on inflation aversion relative to output stabilisation.

Goods markets are assumed to be imperfectly competitive, with firms setting prices as a mark-up over marginal cost. We postulate that all firms employ CES production function (in levels) $Y_i = \left[\tau(K_i)^{\frac{\sigma-1}{\sigma}} + (1-\tau)(X_iL_i)^{\frac{\sigma-1}{\sigma}}\right]^{\frac{\sigma}{\sigma-1}}$, where X_i is the level of labour-augmenting technology, τ a distribution parameter between 0 and 1, and σ the elasticity of substitution between capital (K_i) and labour (L_i). By assumption, K_i is constant throughout the analysis.

Moreover, let $\overline{w}_i^r$ be the country-level average of the (log of the) real wage,[7] $w_i^{rc} \equiv d_i - 1/\alpha$ be the (log of the) competitive real wage at which the national labour market clears in the absence of shocks (i.e. $\overline{u}_i = 0$ and $x_i = 0$), and $\Phi_{ij} \equiv w_{ij}^r - w_i^{rc}$ be the real wage premium (over the competitive real wage). Under the assumptions that goods markets are imperfectly competitive and labour is rewarded according to marginal productivity, firms' optimisation thus implies that output (in percentage deviations from the competitive, deterministic steady state) is $y_i = -\eta(\overline{w}_i^r - w_i^{rc} - x_i) = -\eta(\overline{\Phi}_i - x_i)$, where x_i is a technology shock, $\eta \equiv s_L\kappa\sigma/(\kappa - s_L)$, $\kappa \equiv 1 - 1/\lambda$ is the inverse of the price mark-up, λ is the price elasticity of demand faced by firms, and s_L is the (steady-state value of) the labour share, $\kappa(1-\tau)[Y_i/(X_iL_i)]^{\frac{1-\sigma}{\sigma}}$.[8]

Let L_i denote country i's labour supply. Labour is uniformly distributed over N_i unions and is supplied inelastically.[9] The typical union faces the labour demand:

$$L_{ij}^d = \left[\frac{\alpha(1-x_i)}{N_i}\left(d_i - w_{ij}^r\right) - \gamma_i\left(w_{ij}^r - \overline{w}_i^r\right)\right]L_i \tag{3}$$

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[3] For evidence on the Euro area, see e.g. CESifo (2007), European Commission (2007) and OECD (2005).

[4] Sánchez (2009b) pursues that route, showing how welfare results depend on the distribution of (technology and demand) shocks across the union, as well as on key structural parameters.

[5] Moreover, we often characterise the two countries as being i and k.

[6] Note that we normalise the previous-period price level to 1 (0 in logs).

[7] National aggregates across trade unions are denoted by an upper bar; for instance, $\overline{w}_i^r = \sum_{j=1}^{N_i} w_{ij}^r / N_i$.

[8] Assuming that in the deterministic case $X_i = 1$, then $x_i \cong X_i - 1$. In the following, we also think of x_i as being a small number in absolute terms; we thus use the approximations $x_i/(1+x_i) \cong x_i$, $1/(1+x_i) \cong 1 - x_i$, and $x_i/(1+x_i)^2 \cong 1 - 2x_i$.

[9] This assumption is not very realistic. It is however maintained in the related literature for simplicity — a decision that can be justified since relaxing the assumption is unlikely to overturn the qualitative results obtained. For instance, the outcome of wage aggressiveness (restraint) should be partly, but not totally, reversed if one allows the amount of labour supplied to rise (fall) in direct response to developments in real earnings.