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Inflation persistence: The path of labor market structural reforms☆

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ABSTRACT

In this paper, using a monetary policy framework where the central banker is considered as conservative, we investigate the role of labor market structural reforms in inflation dynamics. Our theoretical model suggests that a more deregulated labor market reduces inflation persistence. Using data from a large sample of OECD countries over the period 2000–2012, we empirically confirm our theoretical proposition. The main policy implication is that the reduction of inflation persistence can be addressed not only by central banks, but also by governments through the path of labor market structural reforms.

1. Introduction

The current debt crisis in the Eurozone has renewed, among others, a traditional political dispute regarding structural reforms. Utilization of structural reforms in a wide range of social, political and economic life is considered as a safe path promoting social welfare, and establishing a long run sustainable growth. While structural reforms are considered as the main policy tool that can promote economic development,[1] they have renewed interest in policy making via the implied trade-offs between fiscal adjustments and structural reforms. In this strand of the literature Tagkalakis (2009) shows empirically the role played by labor and product market institutions in determining the likelihood of initiating and successfully concluding a fiscal adjustment.

After the financial crisis of 2007–2008 and the economic slug following it, a common discussion in policy forums was how to kick start economic growth. Up to today, it's almost a common ground among scholars and policy makers that governments need to do more in reducing economic rigidities and enhance competitiveness, through the ground of structural reforms in the markets. In the OECD toolkit structural reforms are the main policy tool to initialize or to enhance economic growth.

However, structural reforms are not only of concern in growth literature and fiscal policy literature, but have also gained attention in monetary policy (see Driscoll and Holden, 2002, 2004; Guerrieri et al., 2010; Biroli et al., 2010; Jaumotte and Morsy, 2012). In our research, we focus on the nexus between labor market structural reforms and a major concern of active monetary policy, namely inflation persistence. Given that structural reforms are more of a legislative issue, it cannot be modeled explicitly. Therefore, in order to capture structural reforms we resort to its implications on labor mobility across sectors. A highly deregulated labor market allows for increased labor mobility, while less deregulated labor markets decrease labor mobility. We capture this effect through the relative sectoral wage composition. To the best of our knowledge, this is the first attempt in the literature to formally connect theoretically the labor market structural reforms and inflation persistence.

The issue of inflation persistence is highlighted by the recent research on inflation both in a framework of a monetary union and in the case of a single economy. One of the main challenges is to find the appropriate specification of the inflation persistence determination, or in other words, to map observed persistence into the underlying economic structures that produce it. For instance, in a monetary union inflation differentials are mainly attributed to the so called "Balassa-Samuelson effect", or to an exchange rate effect which differs from country to country because of the different levels in extra-union trade. However, inflation persistence might be the result of different institutions and asymmetries in the implementation of structural reforms. The latter has also an impact on inflation, by reducing mark-ups and the price level. Moreover, the role of monetary policy is not insignificant, affecting considerably the dynamics of inflation.

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[1] OECD has provided extensive overviews and studies on the importance of structural reforms.

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In this context, several authors have proposed different mechanisms to build inflation persistence into the deep structure of the economy. Inflation persistence has been considered as an intrinsic structural feature by focusing on price and wage stickiness, and indexation or staggered wage contracts (see Blanchard and Gali, 2007; Calvo, 1983; Calvo et al., 2002; Christiano et al., 2005; Fuhrer and Moore, 1995; Taylor, 1980). Another strand of the literature focuses on the effects of labor and product markets regulation on inflation dynamics. Driscoll and Holden (2002, 2004) argue that inflation persistence is the result of coordination failure in the labor market, implying a negative relationship between the autoregressive parameter of inflation and the extent of labor market coordination. Guerrieri et al. (2010) find that an increase in market competition reduces firms' mark-ups and puts a downward pressure on inflation. In the same spirit, Biroli et al. (2010) show that a tighter product market regulation, higher minimum wage and union density increase inflation persistence. Jaumotte and Morsy (2012) also demonstrate that more regulated labor markets are responsible for high and persistent inflation, while the effects of increased product markets regulation are mixed.

On the other hand, inflation persistence may be the result of changes in monetary policy orientation (Taylor, 2000; Goodfriend and King, 2001; Westelius, 2005; Conrad and Eife, 2012; Meller and Nautz, 2012; Qin et al., 2013; Çiçek and Akar, 2013, 2014; Noriega et al., 2013; Baxa et al., 2015). The role of central banks characteristics such as independence or transparency has important implications on inflation persistence and thus, on the transmission mechanism and the ability of monetary policy to stabilize the economy (Diana and Sidiropoulos, 2004; Dincer and Eichengreen, 2014). Such characteristics of monetary policy enhance the credibility of policymakers, reducing thus the inflation expectations of price makers and wage setters. Therefore, inflation inertia may be affected by the optimal monetary policy design, as the result of the strategic game between monetary authorities and economic agents.

This paper aims to take a further look at the impact of labor market regulation (structural reforms) on inflation dynamics, employing a sample of 29 OECD countries over the period 1990–2012. We attempt to reveal that long run policies, i.e., structural reforms in the labor market, may also have short run implications regarding inflation dynamics using a monetary policy framework where the central banker is conservative. In particular, the objective is to evaluate the impact of labor market deregulation on inflation persistence both theoretically and empirically.

The paper is structured as follows. Section 2 presents the theoretical framework. Section 3 describes the data, sets out the econometric model used to measure the strength of these effects, and reports the empirical results. Section 4 concludes.

2. Theoretical framework

In this section we present our theoretical model which explores the link between labor market structural reforms and inflation dynamics. To do so, we utilize a la Barro-Gordon (1983) monetary game as in Diana and Sidiropoulos (2004) where we introduce two productive sectors in the economy, allowing for stochastic output shocks in the high productivity sector, and indexed wage contracts (Gray, 1976; Fischer, 1983). Given the short run properties of our model we follow Diana and Sidiropoulos (2004) and we assume for simplicity that physical capital remains constant.

The aggregate production of the economy is given by the sum of production of the two productive sectors. We assume that there exists one high productive sector, which is affected by stochastic output shocks and a low productivity one, where productivity remains unaffected. So, aggregate output is given by:

$$Y_t = Y_t^H + Y_t^L, \tag{1}$$

where superscripts H and L denote the high and low productivity sector respectively and Y denotes output. The high productivity sector's production technology is:

$$Y_t^H = \left(L_t^H\right)^a U_t, \tag{2}$$

where $1>a>0$ and U_t denotes the stochastic process that productivity follows. The low productivity sector's production technology is:

$$Y_t^L = \left(L_t^L\right)^b, \tag{3}$$

where $1>b>0$.

Eqs. (2) and (3) can be written in logarithms[2] as:

$$y_t^H = al_t^H + u_t, \tag{4}$$

and

$$y_t^L = bl_t^L, \tag{5}$$

where u_t is the measure of productivity shocks that follows a typical first order autoregressive process as:

$$u_t = \varphi u_{t-1} + \varepsilon_t, \tag{6}$$

where $1\geq\varphi\geq 0$ and the stochastic term ε is normally distributed with zero mean and variance varying with the parameter φ. Standardizing the variance of u_t to σ_u^2 we get $\varepsilon_t \sim N[0,(1-\varphi^2)\sigma_u^2 I]$. The motivation behind the Eq. (6) is the need of a simple way to allow the generation of inflation persistence in this model (see Bleaney, 2001; Diana and Sidiropoulos, 2004), rather than from overlapping wage contracts as in Taylor (1980).

We also assume that labor is homogenous, which is a strong assumption, but helps us isolate the effects stemming from the degree of job protection legislation, collective and individual dismissals and labor market frictions. The latter comes from the level of regulation and interventionism in the labor market, or structural reforms in the labor market. Otherwise, if we let the agents be asymmetric, we would have to take into account human capital accumulation, education and differentiated labor skills. This would cause limitations in labor mobility across sectors that would possibly render the effects of labor market structural reforms less tractable, which is beyond the scope of this paper.

Firms in each sector employ labor up to the point where the marginal product of labor equals the real wage. That is for the H sector:

$$\frac{\partial Y_t^H}{\partial L_t^H} = \frac{\partial\left(L_t^H\right)^a U_t}{\partial L_t^H} = \frac{W_t^H}{P_t} \Rightarrow \ln\alpha + \ln\left(L_t^H\right)^{a-1} + \ln U_t = \ln\left(\frac{W_t^H}{P_t}\right), \tag{7}$$

where W_t^H is the H sector nominal wage and P_t is the price level. From Eq. (7) we derive labor demand for the H sector:

$$l^{dH} = \eta + \frac{1}{1-a}\left(p_t - w_t^H + u_t\right), \quad \text{where } \eta = \frac{\ln a}{1-a}. \tag{8}$$

For sector L we have:

$$\frac{\partial Y_t^L}{\partial L_t^L} = \frac{\partial\left(L_t^L\right)^b}{\partial L_t^L} = \frac{W_t^L}{P_t} \Rightarrow \ln b + \ln\left(L_t^L\right)^{b-1} = \ln\left(\frac{W_t^L}{P_t}\right), \tag{9}$$

which yields the following demand function for the L sector:

$$l^{dL} = \overline{\eta} + \frac{1}{1-b}\left(p_t - w_t^L\right) \quad \text{where } \overline{\eta} = \frac{\ln b}{1-b}. \tag{10}$$

[2] Lower case letters will therefore denote logarithms.