Macroeconomic volatilities and the labor market: First results from the euro experiment

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ABSTRACT

We analyze the effects of labor market institutions (LMIs) on inflation and output volatility. The eurozone offers an unprecedented experiment for this exercise: since 1999, no national monetary policies have been implemented that could account for volatility differences. We use a New Keynesian model with unemployment to predict the effects of LMIs. In our empirical estimations, we find that higher labor turnover costs have a significant negative effect on output volatility, while replacement rates have a positive effect, both in line with theory. While LMIs have a large effect on output volatility, they do not matter much for inflation volatility.

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1. Introduction

What are the effects of different labor market institutions on the volatility of macroeconomic variables (macroeconomic volatilities henceforth), such as inflation and output? With risk averse agents and inflation costs, the answer to this question has important welfare and policy implications. It is highly relevant both for the (optimal) design of labor market institutions and for (optimal) fiscal and monetary policy. Further, it sheds light on the question which institutions should be integrated into labor market and business cycle models. There is a broad theoretical literature that touches this issue indirectly and a very recent empirical cross-country literature dealing with it more directly.[1] However, so far there is no generally accepted view on the effect of labor market institutions on macroeconomic volatilities. We will argue below that the eurozone offers an unprecedented and so far largely unexplored experiment to analyze this question empirically.

The existing macro labor theory, which is centered around the search and matching model, indirectly touches the question how different labor market institutions affect macroeconomic volatilities. Hagedorn and Manovskii (2008) show that a high value of

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[1] Note that our paper focuses on business cycle volatility, while there is a broad literature on growth volatility (see, e.g., Klomp and de Haan (2009) for a recent empirical contribution), which we will not touch.

leisure (i.e., more generous unemployment benefits) increases the volatility of labor market variables in the search and matching model. Hall (2005) shows that real wage rigidities also have a positive effect on the volatility of labor market variables.[2] These papers are very insightful from a theoretical point of view, but they cannot make any predictions on inflation volatility, as they assume perfectly flexible prices. Further, they do not tackle the empirical question whether labor market institutions actually affect macroeconomic volatilities, as predicted by the models.

There is a recent empirical cross-country literature (Abbritti and Weber (2008), Rumler and Scharler (2009)) that directly analyzes the effects of labor market institutions on macroeconomic volatilities. However, it suffers from two problems. (i) When two countries are hit by different macroeconomic shocks, macroeconomic volatilities would differ, even though they may have exactly the same labor market institutions.[3] (ii) Even when two countries are hit by the same shocks and when they have the same labor market institutions, different monetary policy reactions may lead to completely different macroeconomic volatilities (see, e.g., Blanchard and Galí (2007), and an illustrative example later in this paper).

Our own paper is complementary to the above, while circumventing the two problems of cross-country studies, by making use of a natural experiment, the eurozone, whose members have substantially different labor market institutions. However, since 1999, the twelve founding states have been subject to the same monetary policy, and thus, differences in macroeconomic volatilities cannot be attributed to this factor. In addition, business cycles within the eurozone have shown a substantial synchronization. While there are countries like Ireland that have had a better growth performance, periods of high and low growth have been very similar in the entire eurozone.[4] Therefore, after 10 years of existence, the eurozone provides an excellent opportunity, largely unexplored so far,[5] to learn more about the effects of different labor market institutions. We are well aware that the euro experiment also suffers from some shortcomings, such as the short observation period and the limited number of member states. However, we think that our approach generates interesting new insights that can be tested in a more detailed manner once more data becomes available on both the time dimension and the admission of more countries to the eurozone.

We proceed in two steps: first, we use a New Keynesian model that contains a new type of labor market model (see Lechthaler et al., 2010), which has so far not been used for this type of question, to analyze the effects of labor market institutions on macroeconomic volatilities, namely those of inflation and output. We use the second moments of the model economy to make theoretical predictions on the effects of firing costs (as they are known to be important in Europe[6]) and unemployment benefit replacement rates (as they play an important role in the theoretical debate). Second, we run cross-country regressions on the effects of labor market institutions on macroeconomic volatilities.

Our analysis delivers the following results. As predicted by our model, there is a negative and significant correlation between labor turnover costs and output volatility, and there is a positive correlation between the replacement rate and output volatility. The picture looks different for inflation volatility, where labor market institutions in general do not have a great explaining power. We can rationalize this by our theoretical framework. Other than for output volatility, the effects of labor market institutions on inflation volatility depend on whether aggregate supply or demand shocks are at work.[7] When both play an important role, the theoretical framework would not predict a clear-cut relationship between labor market institutions and inflation volatility.

The rest of the paper is structured as follows: Section 2 shortly describes the underlying labor market model, used to analyze macroeconomic volatilities. Section 3 presents the second moments, Section 4 presents the empirical strategy. Section 5 analyzes the connection between the theoretical and the empirical part and discusses open questions. Section 6 briefly concludes.

2. The model

2.1. Intuitive description

To illustrate the theoretical effects of labor market institutions on macroeconomic volatilities, we need to choose a model framework that is both suitable for business cycle analysis and rich enough to capture several labor market institutions. Therefore, we choose a standard New Keynesian sticky price model (to capture the business cycle dimension) which is enhanced by a labor market with match suitability shocks and labor turnover costs. The model details are laid out in Lechthaler et al. (2010) and Faia et al. (2009).[8]

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[2] This literature was initiated by Costain and Reiter (2008) and Shimer (2005). All these papers discuss the ability of the search and matching model to replicate the volatility of labor market variables (e.g., unemployment, vacancies and the job-finding rate). In contrast, we focus on output volatility for empirical reasons. The quality of output data in the eurozone is much better than the quality of employment data (due to structural breaks, comparability problems, etc.). It can, however, be shown in our model simulations that labor market institutions have the same qualitative effects on employment and output volatilities.

[3] Abbritti and Weber circumvent this first problem in the most recent draft of their paper, by employing a panel Vectorautoregression approach.

[4] For instance, Benalal et al. (2006) write that while there remains some dispersion of real GDP growth rates, "the degree of synchronisation of business cycles across the euro area countries seems to have increased since the beginning of the 1990s, [and] the degree of correlation currently appears to be at an historic high" (p. 4).

[5] The only papers analyzing the impact of labor market institutions on macroeconomic fluctuations in a monetary union are Abbritti and Mueller (2007) and Campolmi and Faia (forthcoming). However, the first paper does not contain an empirical part, and the second only focuses on the effects of replacement rates on inflation differentials.

[6] Blanchard and Wolfers (2000) show that the evolution of European unemployment can be explained by the interaction of shocks and labor market institutions. Among the latter, employment protection is significant in most of the cases. However, they only consider level effects and not the second moments. The role of labor turnover costs in macroeconomic models has recently been pointed out by Lechthaler et al. (2010) and Faia et al. (2009).

[7] We use shocks to the conduct of monetary policy (i.e., an aggregate demand shock) and productivity shocks (i.e., an aggregate supply shock). In contrast to inflation volatility, the effect of labor market institutions on output volatility does not depend on the type of shocks.

[8] For the model in partial equilibrium, see Snower and Merkl (2006).