

# Incorporating labour market frictions into an optimising-based monetary policy model

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## Abstract

This paper examines the effects of introducing a non-Walrasian labour market into the “New Neoclassical Synthesis” framework. A dynamic stochastic general equilibrium model is formulated, solved and calibrated in order to evaluate its ability to replicate the main features of the Euro area economy. This framework allows us to study the effects of labour market rigidities, nominal rigidities and other frictions to give account of the impact of monetary policy, technology and public spending shocks. Our simulations show that: (i) real rigidities do not act as a substitute for nominal rigidities but as a necessary complement; (ii) the Beveridge and Phillips relations are reproduced; (iii) hours worked are too sensitive an adjustment variable; and (iv) the real wage dynamics is still procyclical. © 2004 Elsevier B.V. All rights reserved.

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By placing amplification and persistence mechanisms in formal general equilibrium models, contributors to modern fluctuations research achieve a degree of clarity missing from earlier macroeconomics. Without consideration of unemployment, models explained persistence in employment largely through persistence in driving forces. Where unemployment is considered explicitly, persistence arises naturally

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from the time consuming process of placing unemployed workers in jobs following an adverse impulse. Robert E. Hall (1999, p. 1139)

## 1. Introduction

What are the effects of labour market frictions on the dynamics of the economy and the propagation of shocks? Even though such a question is central to macroeconomics and economic policy, very few studies sought to answer it in a general equilibrium framework.

Yet the consequences of labour market rigidities on employment, output and inflation constitute an issue of great importance for both economists and policymakers. As explained in a recent study on labour market mismatches provided by the European Central Bank (ECB, 2002), there is a gap between the european unemployment level and the difficulties in recruiting workers. This coexistence of unsatisfied labour market supply and demand suggests an insufficient ability of the euro area to match labour supply and demand. Moreover, it is generally agreed that the unemployment rate in the euro area is hardly cyclical, and that its dynamics is mainly explained by institutional and structural features. Unfortunately, such european labour market characteristics as the low mobility of manpower across countries and the high level of regulation create a rigid labour market configuration (Bertola, 1999; Cadiou and Guichard, 1999; Cadiou et al., 1999).

The persistently high rate of unemployment (8.6%), the low level of participation (68.6%) and the uneven labour market performance accross euro area countries indicate that these intrinsic frictions cannot be neglected and that the understanding of labour market matching processes is of considerable importance for monetary policy. Firstly, bottlenecks in the labour market may trigger inflationary pressures. And secondly, differences in the labour market functioning and the impossibility to use country specific monetary or exchange rate policies leads to asymmetrical effects following a symmetric or asymmetric shock. Consequently, less friction on euro area labour market should reduce the short-run effects of monetary policy on the real economy. It is no longer possible to circumvent the modelling of labour market frictions in a macroeconomic model on which policy recommendations are to be based.

Although recent general equilibrium models focusing on the euro area economy, like Smets and Wouters (2003), are successful at explaining a number of phenomena, their lack of implications about the labour market and its effects on the overall economy is indeed a drawback. This paper addresses this issue by incorporating a non-Walrasian labour market instead of a nominal wage rigidity into the new generation of small scale monetary business models called “New Neoclassical Synthesis” models.<sup>1</sup> We think that the matching model may provide a simple and elegant representation of european labour market characteristics in capturing the salient features of the theory of unemployment. Indeed, the literature on labour market search and real business cycles models has shown that such a mechanism generates realistic dynamics in employment and increases the magnitude and

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<sup>1</sup> See the seminal papers of Goodfriend and King (1997), Clarida et al. (1999) or Woodford (2003) for a presentation of the New Neoclassical Synthesis framework.

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