



# Optimal monetary policy rules with labor market frictions

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## Abstract

This paper studies optimal monetary policy rules in a framework with sticky prices, matching frictions and real wage rigidities. Optimal policy is given by a constrained Ramsey plan in which the monetary authority maximizes the agents' welfare subject to the competitive economy relations and the assumed monetary policy rule. I find that the optimal rule should respond to unemployment alongside with inflation. This is so since models with matching frictions (unlike standard new Keynesian models) feature a congestion externality that makes unemployment inefficiently high. A strong response to inflation remains optimal while a response to output is always welfare detrimental.

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## 1. Introduction

Nowadays most central banks follow (or at least so they state) inflation targeting or price stability rules with little weight assigned to output stabilization and almost

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no attention devoted to other economic indicators such as unemployment. One common argument for such choice is that stabilizing prices optimizes the output-inflation volatility trade-off which implies that inflation stabilization can be achieved with a relatively small output cost. Theoretically this hypothesis is true in models with nominal rigidities and walrasian labor markets. This paper assesses the importance of responding to other real economic variables in a model with sticky prices, non-walrasian labor markets and real wage rigidities.

To conduct such an analysis I employ a unitary framework which combines nominal and real rigidities and which has become common in the recent new Keynesian literature. More specifically the model economy is characterized by monopolistic competition, adjustment costs on pricing, matching frictions in the labor market and real wage rigidity.<sup>1</sup> The assumption of monopolistic competition and adjustment cost on pricing a' la Rotemberg (1982) is needed to obtain non-neutral effects of monetary policy and to make a meaningful comparison across different monetary policy rules. Introducing matching frictions a' la Mortensen and Pissarides (1999) in the labor market allows to consider frictional unemployment in the steady state and provides a rich dynamics for the formation and dissolution of employment relations. The introduction of this congestion externality helps to recover a trade-off between the cost of volatile inflation and the cost of inefficient unemployment fluctuations.<sup>2</sup> Such trade-off, absent in standard new Keynesian models, is an essential feature to determine whether optimal monetary policy should deviate from full price stabilization. Finally I introduce real wage rigidity since some authors have shown that this helps to resolve some inconsistencies between the standard matching friction model and the empirical evidence.<sup>3</sup>

Our economy is characterized by three sources of inefficiency, both in the long and in the short run. The first is monopolistic competition, which induces an inefficiently low level of output thereby calling for mild deviations from strict price stability.<sup>4</sup> The second type of distortion stems from the cost of adjusting prices which reduces output thereby calling for closing the 'inflation gap'. Finally the search theoretic framework is characterized by a congestion externality that tends to tighten the labor market. The chance that workers and firms have to match depends on the number of unemployed people or vacant firms in the market; if either of the two is too high the reduction in the probability of forming a match induces an inefficiently high level of unemployment. Whether there is excessive vacancy creation or an excessive number of searching workers depends on the workers' bargaining power: when the workers' share of the matching surplus is too small (hence firms' share is too high) there will

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<sup>1</sup>The laboratory economy that I use is very close to the one proposed in Krause and Lubik (2007). Several other authors, ranging from Walsh (2003) to Blanchard and Gali' (2006), have recently introduced matching frictions and real wage rigidity into New Keynesian models.

<sup>2</sup>Erceg et al. (2000) and Blanchard and Gali' (2005, 2006) present models in which an unemployment/inflation trade-off emerges because of the nominal wage rigidity.

<sup>3</sup>Hall (2005) and Shimer (2005) noticed that in models with matching frictions labor market adjustment takes place solely through wages. The introduction of real wage rigidity shifts part of the adjustment on employment and reduces real wage volatility in accordance with empirical evidence.

<sup>4</sup>See Schmitt-Grohe and Uribe (2004a) and Faia (2005) among others.

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