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## Journal of Economic Dynamics & Control

journal homepage: www.elsevier.com/locate/jedc



## Fiscal stimulus and labor market policies in Europe



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#### ARTICLE INFO

Article history:
Received 20 September 2011
Received in revised form
25 May 2012
Accepted 11 September 2012
Available online 23 September 2012

JEL classification:

E62 H30

J20 H20

Keywords: Fiscal multipliers Fiscal packages Labor markets Short-time work unemployment

#### ABSTRACT

Several contributions have recently assessed the size of fiscal multipliers both in RBC models and in New Keynesian models. This paper computes fiscal multipliers within a labor selection model with turnover costs and Nash bargained wages. We find that demand stimuli yield small multipliers, as they have little impact on hiring and firing decisions. By contrast, hiring subsidies, and short-time work (German "Kurzarbeit") deliver large multipliers, as they stimulate job creation and employment.

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#### 1. Introduction

During the recent global recession large expansionary fiscal packages have been implemented around the globe. The discussion on the evaluation of their effectiveness initiated a vivid debate on the estimates of the fiscal multipliers. Following Romer and Bernstein (2009) estimates of the impact of an increase in government spending on GDP and employment in the United States, several other authors have provided less favorable scenarios with much smaller fiscal multipliers (see the brief literature review below). The previous literature focused on RBC or New Keynesian models and compared broad fiscal measures (increases in government expenditure versus tax cuts), with no reference to specific targets, such as labor market subsidies or short-time work. A close look at the fiscal packages, implemented globally in the aftermath of the crisis, shows that a large percentage of the budget was devoted to labor market measures. The following trend emerges. In the US labor market interventions were mainly targeted at facilitating job creation: an example is given by the American Jobs Act passed recently by the Obama administration. In Europe, instead, most measures were devoted to

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reduce firms' reliance on lay-offs and preserve jobs: several countries have implemented short-time work compensations, a policy which allows firms to reduce employees' working hours, hence their wage bills, while preserving employees' previous income. Examples of this are the German Kurzarbeit, the Italian Cassa Integrazione and the French chômage partiel (Appendix A contains some institutional details on short-time work). In this paper, we measure the effectiveness of fiscal stimuli, with a special focus on measures targeted toward the labor market. To this purpose, the model used features both, a hiring and a firing margin, hence allows us to implement a variety of measures. We devote special attention to one measure, the German Kurzarbeit: the latter may indeed have been successful in guaranteeing stable employment during the Great Recession and a non-jobless recovery.

The model used features a labor selection process with Nash bargained wages and labor turnover costs. In the model workers have heterogenous operating costs and participate in a labor selection process: at each point in time unemployed workers file an application to one firm, which then selects them according to their suitability, determined by the realization of the random operating cost. Hiring and firing decisions are determined endogenously: a worker is hired when the discounted stream of profits she generates exceeds the costs of hiring. An incumbent worker is fired when the stream of profits she generates is lower than the firing cost. In this environment, labor market measures have a direct impact on hiring and firing decisions, hence on job creation and destruction. The assumption of heterogeneity in workers' operating costs coupled with endogenous hiring and firing margins, renders the dynamics of employment and worker flows highly volatile. This feature, which is in line with the empirical evidence, contributes to amplify the effectiveness of policies aimed at encouraging hiring and dampening firing. Wages in the model are determined through Nash bargaining between the firm and the median incumbent worker. This assumption represents well the collective bargaining agreement characterizing several euro area countries. The assumption of price rigidity is introduced in the model to make our measures of the multipliers comparable to the recent literature using New Keynesian models. Short-run and long-run multipliers are computed for the following interventions: increases in government spending, income tax cuts, hiring subsidies and short-time work (German "Kurzarbeit"). Note that the assumption of workers' heterogeneity in our model is essential for modeling short-time work compensation. The presence of such schemes implies that the threshold for the marginal retained worker is shifted toward larger operating costs and thus fewer workers are fired.

We find that multipliers are small but positive for government spending and large for hiring subsidies and short-time work. The size of the long-run multiplier for income tax cuts depends on the persistence of the measure. If tax cuts are very persistent, they can generate larger long-run multipliers than government spending. Hiring subsidies reduce firms' marginal cost and increase the hiring threshold. Income tax cuts reduce bargained wages. Both measures increase the value of a match, therefore increasing job creation and employment. The assumption of collective bargaining between incumbent workers and firms, coupled with turnover costs, induces involuntary unemployment.<sup>2</sup> Hiring subsidies and income tax cuts, by reducing firms' costs of new entrants, bring job creation closer to Pareto efficiency. Short-time work schemes increase employment, since firms are more reluctant to fire workers. The effects on productivity are ambiguous. On the one hand, workers with low productivity are retained; this decreases average productivity. On the other hand, the working time of unproductive workers is reduced; this increases average productivity.

To add realism to the model, we test the robustness of our results with a lower persistence of the fiscal and labor market measures. We also relax the assumption of a balanced government budget and introduce fiscal rules: the results remain robust in this alternative set-up. At last, we explore the extent of the widespread concern that large fiscal stimuli induce potential free-riding from neighboring countries due to a shift in competitiveness associated with both, demand spillovers and changes in relative wages. For this reason, we extend the model to an open economy context (specifically to a currency area with a specific focus on the euro area) and consider both, perfect and imperfect financial integration. In the model, terms of trade affect both, net exports and relative wages across countries, therefore creating both, demand and labor market spillovers. Both spillovers dampen the multipliers for government spending, albeit mildly.

Our model is related to the recent literature which measures fiscal multipliers in RBC (Uhlig, 2009) and New Keynesian models (e.g., Cogan et al., 2010; Christiano et al., 2011). A comprehensive overview of the literature on fiscal multipliers can be found in Coenen et al. (2010, 2012) and Hebous (2011). Some authors have also computed fiscal multipliers in models featuring unemployment (e.g., Bosca et al., 2010; Brückner and Pappa, 2010; Mayer et al., 2010; Monacelli et al., 2010; Campolmi et al., 2011), though using different modeling frameworks. There are several novel features in our analysis. The above mentioned papers have measured fiscal multipliers either in standard New Keynesian models or in models with search and matching frictions: We use a labor selection model in which worker flows are determined through match-specific heterogenous productivities. This model structure allows us to replicate a number of empirically appealing features. Faia et al. (2009) and Lechthaler et al. (2010) show, for example, that selection models can generate strong labor market amplification effects in response to aggregate shocks, i.e. there is no Shimer (2005) puzzle. In addition, they can generate substantial employment and output persistence. Our model is particularly suitable to analyze policy

<sup>&</sup>lt;sup>1</sup> Our model is closely related to the one in Faia et al. (2009) and Lechthaler et al. (2010), but with a richer specification of the fiscal sector. See Brown et al. (2010) for details on the labor selection process.

<sup>&</sup>lt;sup>2</sup> This model also features involuntary unemployment (e.g., Lindbeck and Snower, 1988), as many unemployed workers would be willing to work at the prevailing wages set by the median incumbent worker. Policy corrections on wages can then reduce the region of inefficient unemployment.

<sup>&</sup>lt;sup>3</sup> A similar approach is taken in Garibaldi and Violante (2005) who assume that job creation (or job destruction) takes place if the productivity draw upon meeting is sufficiently large (or low).

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