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The Importance of Hiring Frictions in Business Cycles

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Is there a direct role for hiring frictions in business cycles and are they important? Can they explain volatile labor market outcomes? This paper suggests that the answer to these questions is positive. This view runs counter to key models in major strands of the macroeconomic literature, which give negative answers.

Labor market frictions in the tradition of Diamond, Mortensen, and Pissarides, have been found to play a negligible direct role in explaining business cycle fluctuations. In a survey of the literature, Rogerson and Shimer (2011) conclude that, by acting like a labor adjustment cost, search frictions dampen the volatility of employment. If anything then, they exacerbate the difficulties of the frictionless New-Classical paradigm to account for the cyclical behaviour of the labor market. These models typically abstract from price frictions, emphasized by the canonical New Keynesian approach.

When labor market frictions, as modelled in Diamond, Mortensen, and Pissarides, have been explicitly incorporated within New Keynesian models, they still do not contribute directly to the explanation of business cycles. In particular, the propagation of shocks is virtually unaffected by the presence of these frictions (see Galí (2011)). Frictions in the labor market have been found to be important, but only indirectly. They create a match surplus, allowing for privately efficient wage setting that involves wage stickiness, which, in turn, has business cycle implications.

The contribution of this paper is to show that there is a direct role of hiring frictions in business cycle dynamics. Hence, hiring frictions matter per se, and not just because they allow for privately efficient wage rigidity. We begin by presenting a simple model of the business cycle that includes price frictions. We show that in this set-up conventional shocks yield non-standard and non-obvious macroeconomic outcomes in the presence of hiring frictions. Namely, we find that hiring frictions are an important source of propagation and amplification of technology shocks, that they play a key role in the transmission of monetary policy shocks, and that they generate endogenous wage rigidity. Hiring frictions are shown to overturn some mechanisms that have received much attention

in the literature. Thus, for a sub-set of the parameter space, positive technology shocks may still be expansionary in employment, and monetary policy shocks may still have negligible effects, in line with the predictions of new classical models, and despite price rigidity.

Our model relies on two essential ingredients, for which there is strong empirical macro and micro-based evidence. The first is the explicit modelling of internal costs of hiring, such as training costs. These are different from the canonical vacancy posting costs, which depend on external market conditions. We show that the latter costs can be included in the model but cannot be the exclusive source of frictions. The second key ingredient is that hiring costs are output costs, that is, they entail disruption to production.

Our model reproduces two well-known results as special cases: first, the result obtained in the Diamond-Mortensen-Pissarides literature, whereby hiring frictions operate as adjustment costs, implying that they mitigate responses, hence precluding any significant effects of frictions in explaining volatile labor market variables. But this result only arises in the special case where price frictions are shut down or restricted to be quantitatively negligible. Second, we also show that our model can recover the result obtained in the New-Keynesian literature, whereby hiring frictions do not matter much, per se. But this result only arises in the special case where hiring costs derive only from vacancies or, more generally, whenever internal hiring costs are assumed to be implausibly small. As we depart from these knife-edge assumptions, the interaction of price frictions and hiring frictions produces a host of interesting results.

The intuition for the mechanism is as follows. Consider an expansionary TFP shock, which increases productivity and, everything else equal, output supply. If prices are sticky, they cannot drop and stimulate aggregate demand enough to restore equilibrium in the output market. This generates excess supply. In the textbook New Keynesian model, employment unambiguously falls to clear the market. In our model instead, excess capacity entails a fall in the marginal cost of hiring. Indeed, because hiring costs are modelled as forgone output, hiring entails an opportunity cost of production, which falls as a result of excess capacity. Hence, firms have an incentive to increase hiring and employment, as the existing workforce is used to train new workers. In equilibrium, employment may rise if the fall in marginal hiring costs is sufficiently strong.

Now consider an expansionary monetary policy shock. This induces excess output demand, as prices do not increase enough to clear the market. In the textbook New Keynesian model, employment unambiguously increases to restore the equilibrium. In our model instead, excess demand entails an increase in marginal hiring costs, which are an opportunity cost of production. This increase in the cost of hiring offsets the initial incentive to raise employment. In equilibrium, hiring may increase or fall, depending on how strong is the response of the cost of hiring. Ultimately, the endogenous

response of hiring costs to the underlying shocks operates so as to offset, and possibly reverse the standard New Keynesian propagation. We show that the sensitivity of marginal hiring costs to both technology and monetary policy shocks is proportional to the value of a job to the firm.

While the empirical literature on price frictions has reached a relatively mature stage of development, empirical work that tries to measure hiring frictions is still relatively scant. Much more work is needed for business cycle models to confidently rely on a specific calibration. In this paper we inspect how the transmission of shocks yields different outcomes allowing for both hiring frictions and price frictions, using a grid of plausible parameterizations. This analysis illustrates how hiring frictions matter for the transmission of shocks in business cycle models. Specifically, hiring frictions are just as important as price frictions for the propagation of shocks in New Keynesian models. At the same time, the macro modelling of labor market dynamics needs to recognize the important role played by price frictions in its interaction with hiring frictions. This interaction, or confluence of frictions, is key.