

## What can search frictions tell us about the labor market?

*Labor, Credit, and Goods Markets: The Macroeconomics of Search and Unemployment.* By Nicolas Petrosky-Nadeau and Etienne Wasmer. Cambridge, MA: The MIT Press, 2017, 272 pp., \$75 hardcover.

An important issue with macroeconomic models is accounting for observed labor market volatility, such as the one seen in the 2006 U.S. housing bubble and the 2007–09 recession. In *Labor, Credit, and Goods Markets: The Macroeconomics of Search and Unemployment*, Nicolas Petrosky-Nadeau and Etienne Wasmer address this issue by proposing a three-market model—a credit–labor–goods (CLG) model—to describe how search frictions in the financial (credit), labor, and goods markets explain labor market volatility. Search frictions are impediments to a match, or agreement, between two parties for a partnership or transaction. In credit markets, the parties include a firm evaluating an investment project and a creditor that could finance it. In labor markets, the parties are the employer and the person seeking employment. Finally, when a project is financed and workers are able to produce a good, the good is not sold until a consumer is matched with it. In the book, Petrosky-Nadeau and Wasmer develop a theory to explain volatility over time and extend labor market search theory, while also being upfront about the advantages and disadvantages of their approach.

The authors' central variable for gauging labor market behavior is labor market tightness, which is measured as the ratio of job vacancies to unemployment level. When the labor market is tight—that is, when the ratio of vacancies to unemployment is high—jobseekers quickly find jobs while firms put more effort into filling vacancies. According to the authors, standard labor models designed to account for the

### LABOR, CREDIT, AND GOODS MARKETS

The Macroeconomics of Search and Unemployment



Nicolas Petrosky-Nadeau and Etienne Wasmer

**Adib Ahmad**

[ahmad.adib@bls.gov](mailto:ahmad.adib@bls.gov)

Adib Ahmad is an economist in the Office of Prices and Living Conditions, U.S. Bureau of Labor Statistics.

business cycle fail to predict fluctuations in labor market tightness. In particular, unemployment volatility and its persistence after a shock are lower in such models than what is observed in the data. Persistence, which reflects how far the effect of an initial economic shock propagates into the future, is of special importance. For example, the U.S. unemployment rate peaked nearly 2 years after the onset of the 2007–09 recession. In a standard labor model, the response curve measuring labor market volatility would be concurrent with the initial economic shock. In the recent literature, however, many authors have used search frictions to model labor markets.

To link market frictions and economic volatility, Petrosky-Nadeau and Wasmer argue that transaction costs arising from search frictions in credit, labor, and goods markets make the macroeconomy more sensitive to shocks. This argument informs a search model that can successfully incorporate interacting search frictions from various markets and then describe the observed volatility and persistence of labor market tightness in the data. The authors state that their generalizations and applications of search frictions are permitted by supplier and demander idiosyncratic preferences that mirror a search-and-match function. In systematically analyzing and integrating the various markets, the authors develop new tools and concepts, providing rich interpretations of the results obtained from the search model. For example, in incorporating the goods market into the model, Petrosky-Nadeau and Wasmer calculate an added persistence in the mismatch between transacting parties. They attribute this added persistence to many competing firms entering the goods market during an economic boom. Under such conditions, the rate at which a product finds a consumer decreases, and rising product supply lowers prices, causing a decline in firm profits. This decline moderates the rate at which firms create job vacancies during a boom. In addition, as incomes rise and prices are bargained over, consumers increase their search efforts in the goods market. As demand increases, firms are more likely to find a consumer at a higher price point, and this potential match provides incentives for firms to create more vacancies after the initial shock. Therefore, the authors conclude that incorporating goods and financial market frictions generates volatility and persistence in the search model.

To systematically lay out their arguments and analyses, Petrosky-Nadeau and Wasmer divide the book into two sections. The first section derives the main labor market model, which is based on a matching function between vacancies and unemployment. The model's initial labor market parameters are the job separation rate, the matching rate, vacancy costs, bargaining weights, and the value of nonemployment. Later in the section, unemployment, the wage-bargaining equilibrium, and the job creation condition are also introduced. Then, the labor market model is solved, and potential policy implications are discussed. In the labor market model, the authors explore two model improvements by introducing wage and fixed job creation costs, both of which reduce the amount of surplus to firms entering the labor market and increase wage rigidity. Because of the reduction in labor surplus, a firm's hiring decision is more sensitive to potential shocks. While these model improvements sufficiently amplify unemployment volatility, the persistence estimated by the labor market model does not match the persistence observed in the data.

The second section of the book extends the model to the credit and goods markets. The credit market parameters are the separation rate, bargaining weights, project search costs, creditor search costs, the matching curvature, and the risk-free rate. The goods market parameters are the goods matching separation rate, the matching curvature, the cost function level, the cost function elasticity, bargaining weights, and the marginal utility of matched consumers. In this expanded model, potential shocks can be accounted for by incorporating search frictions in the credit market, such as those that arise when firms share rents from a created job with creditors, diminishing firm surplus. These credit frictions amplify volatility. Finally, the CLG model introduces a new stage in

the life cycle of a firm. In this stage, firms face the opportunity cost of searching for a consumer while paying wages, thus incurring losses without making revenue.

In my view, the three-market search frictions model builds on standard labor market search theory. According to the authors, the main novelty of their work is the inclusion of goods market frictions in the search frictions model. For this model, estimated volatility matches the observed volatility in the data when a firm's profit share from a labor match is small either because of large worker surplus or because of high job vacancy search costs. Another consideration is that nonwork benefits provide a floor for wages. One may extend the authors' approach by revising existing or introducing new parameters in the CLG model.

*Labor, Credit, and Goods Markets: The Macroeconomics of Search and Unemployment* is an excellent blend between a survey of the search and matching literature and a methodological extension that adopts a multimarket frictional approach. The book is well suited for graduate students and anyone with a background in economics, providing a starting point into understanding the effects of market interactions on the business cycle, the impacts of frictions in various markets, and the role of search market frictions in explaining these dynamics. The writing is cogent and well organized.