



Worker search effort as an amplification mechanism[☆]



Paul Gomme^{a,b}, Damba Lkhagvasuren^{a,b,c,*}

^a Department of Economics, Concordia University, 1455 de Maisonneuve Blvd. West, Montréal, QC Canada H3G 1M8

^b CIREQ, Montréal, QC, Canada

^c Department of Economics, National University of Mongolia, Baga Toiruu 4, Ulaanbaatar, Mongolia

ARTICLE INFO

Article history:

Received 18 June 2012

Received in revised form

4 February 2015

Accepted 7 February 2015

Available online 9 March 2015

Keywords:

Variable search effort

Unemployment and vacancies

Beveridge curve

Search intensity

Time use

ABSTRACT

It is well known that the Diamond–Mortensen–Pissarides model exhibits a strong trade-off between cyclical unemployment fluctuations and the size of rents to employment. Introducing endogenous job search effort reduces the strength of the trade-off while bringing the model closer to the data. Ignoring worker search effort leads to a large upward bias in the elasticity of matches with respect to vacancies. Merging the American Time Use Survey and the Current Population Survey, new evidence in support of procyclical search effort is presented. Average search effort of the unemployed is subject to cyclical composition biases.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

The Diamond–Mortensen–Pissarides (DMP) model of search and matching is a widely accepted model of equilibrium unemployment. Shimer (2005) argues that the textbook version of the model underpredicts, by an order of magnitude, the cyclical variability in key labor market variables that are central to this theory, namely vacancies and unemployment; similar results are also found in Andolfatto (1996) and Merz (1995). In this paper, worker search effort is introduced as in Pissarides (2000, Chapter 5). As a result, workers can take direct action to affect the outcome of their labor market search, a channel absent from most previous quantitative studies of the DMP model, an exception being Merz (1995). Search effort by the unemployed can serve as a strong amplification mechanism.

An innocuous change is made to the DMP framework, dropping what Rogerson et al. (2005) refer to as the black box of the Nash bargaining solution determination of wages in favor of competitive search which entails wage posting by firms and directed search on the part of the unemployed; see Moen (1997) and Rogerson et al. (2005).¹ Wage posting is motivated by the following considerations. First, as documented by Hall and Krueger (2012), wages of newly hired workers with less than college education are predominantly determined through wage posting, not bargaining. Second, working with data from the Current Population Survey (CPS) reveals that over 85% of the cyclical variation in unemployment is due to individuals with

[☆] Previously titled: “The Cyclical of Search Intensity in a Competitive Search Model”.

* Corresponding author at: Department of Economics, Concordia University, 1455 de Maisonneuve Blvd. West, Montréal, QC Canada H3G 1M8.

E-mail addresses: paul.gomme@concordia.ca (P. Gomme), damba.lkhagvasuren@concordia.ca (D. Lkhagvasuren).

¹ Adopting competitive search is innocuous in the sense that the bulk of the literature that employs Nash bargaining imposes parameter restrictions that deliver constrained-efficient allocations; competitive search of the variety used here delivers the same constrained-efficient allocations as Nash bargaining.

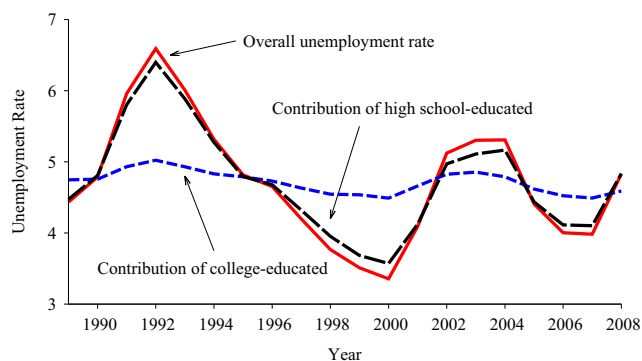


Fig. 1. Decomposition of variation of aggregate unemployment. *Notes:* ‘Contribution of college-educated’ measures that portion of the cyclical variation in the overall unemployment rate that can be attributed to college educated individuals. Specifically, it computes a hypothetical aggregate unemployment rate that holds the unemployment rate of high school-educated individuals fixed at its sample mean. Similarly, ‘Contribution of high school-educated’ computes a hypothetical unemployment rate holding the unemployment rate of college-educated at its sample mean. This figure shows that aggregate unemployment fluctuations are mainly driven by unemployment of less educated workers. The coefficients of variation of these two time series over the sample period are 0.035 (contribution of college-educated) and 0.154 (contribution of high school-educated) whereas the coefficient of variation of overall unemployment is 0.182. In other words, unemployment of the less educated group accounts approximately 85% of aggregate unemployment variation over the sample period. The series are constructed from the Current Population Survey of the Bureau of Labor Statistics, which is available from the NBER website. The sample includes adult civilians aged 20–65 years who are in the labor force.

less than college education; see Fig. 1. Third, on the theoretical side, competitive search with wage posting avoids having to take a stand on how variable search effort enters bargaining.

Workers’ search cost is central to this paper. This cost function is governed by two parameters: a scale or level parameter, and a curvature parameter. The benchmark calibration chooses the scale parameter such that the flow value of being unemployed, net of search costs, is 71% of productivity based on the detailed analysis of Hall and Milgrom (2008), and imposes a quadratic search cost, a restriction that is consistent with the available empirical evidence (see Yashiv, 2000 who used Israeli data, Christensen et al., 2005 who used micro data from Denmark, and Lise, 2013 who used data on white males in the U.S.) and recent calibration work (Nakajima, 2012). Under this calibration, the model accounts for nearly 40% of the variability of vacancies, unemployment, and the vacancy–unemployment ratio. Endogenous search effort is an important ingredient of the model, and its effects work most strongly through unemployment, and so the vacancies–unemployment ratio. To see this, the model is also solved with fixed search intensity. In this case, volatility of labor market variables drops sharply, and the model exhibits a very steep, thin, short streak of points defining its Beveridge curve, measured at an annual frequency. In contrast, when search effort is endogenous, the Beveridge curve is much flatter, more spread out, and stretched in the sense that it covers a wider range of values for vacancies and unemployment.

In the literature, match surplus, defined as productivity less the flow value of unemployment, is a key determinant of the success of the DMP model (Mortensen and Nagypál, 2007; Hagedorn and Manovskii, 2008). An interesting analytical finding presented below is that in the presence of endogenous worker search effort, labor market volatility is mainly determined by gross flow income while unemployed (relative to productivity), which is consistent with Hagedorn and Manovskii (2008). Further, in the model with search effort, match surplus is higher because of a lower net flow income while unemployed. Thus, endogenous worker search effort reduces the strength of the severe trade-off between the match surplus and cyclical fluctuations in unemployment and vacancies. In the benchmark calibration, match surplus is 29% of productivity. Relative to a model with fixed search effort, this calibration more than doubles the volatility of labor market variables.

To understand the role of search effort in the model, first consider the model without an effort dimension. As described in Shimer (2005), an increase in productivity increases the value of a match. As a consequence, firms post more vacancies which boosts workers’ job finding rate, raising their outside option (the value of being unemployed). The net result is that wages rise, eating up much of the gain received by firms associated with the increase in productivity, thereby lowering the response of vacancies. *With effort*, the productivity increase leads the unemployed to search more intensively which dampens the rise in the value of being unemployed, and so the increase in the wage. In this case, the smaller increase in the wage leaves more of the surplus for firms, thus amplifying the response of vacancies. There is a sort of virtuous circle in which the increase in vacancies leads workers to search more which leads to more vacancies, and so on.

The results in this paper would be vacuous if the choice of the search cost function were unconstrained. Section 5 shows analytically that the properties of this cost function are constrained by the elasticity of the matching function with respect to the vacancy–unemployment ratio. Empirical plausibility then places strong restrictions on the search cost. While these analytical results point to the importance of variable search intensity in the model, highly elastic search intensity would likely be inconsistent with the data on unemployment and vacancies, and particularly the elasticity of matches with respect to the vacancies–unemployment ratio.

A key prediction from standard search models with endogenous search effort is that effort is procyclical. Introspection provides little help in determining the plausibility of this result. Search effort will be countercyclical if, during recessions, the unemployed are motivated to search more intensively in the face of an otherwise falling job-finding rate. Alternatively,

Download English Version:

<https://daneshyari.com/en/article/7368724>

Download Persian Version:

<https://daneshyari.com/article/7368724>

[Daneshyari.com](https://daneshyari.com)