



A longitudinal analysis of search frictions and matching in the U.S. labor market [☆]

Grégory Jolivet

University of Bristol, Department of Economics, 8 Woodland Road, Bristol BS8 1TN, United Kingdom

ARTICLE INFO

Article history:

Received 18 August 2007
 Received in revised form 10 September 2008
 Accepted 12 September 2008
 Available online 24 September 2008

JEL classification:

E24
 J23
 J31
 J63–64

Keywords:

Labor market frictions
 Job-to-job mobility
 Wage distributions
 Matching

ABSTRACT

This paper takes a partial equilibrium on-the-job search model to a decade (1996–2006) of repeated cross-sections from the U.S. Current Population Survey. Each month, a set of parameters ruling worker mobility between labor market states and along the wage ladder is estimated using wage distributions and individual transitions. In particular, job-to-job mobility is decomposed into a voluntary component (on-the-job search) and an involuntary one (job reallocation). The resulting time series of transition parameters are first used in a longitudinal analysis of labor turnover and search frictions. Job reallocations are shown to be key in the acyclical behavior of the job separation rate, and in the procyclical behavior of the probability of changing job. Moreover, an index of search frictions is computed and shown to follow no cyclical pattern. The paper then turns to an estimation of the matching function with both unemployed and employed job seekers. The transition parameters from the job search model are used as weights in an aggregate indicator of labor supply. The inclusion of employed workers increases the estimates of the elasticities of the matching function with respect to its two inputs (labor supply and job vacancies).

© 2008 Elsevier B.V. All rights reserved.

1. Introduction

Although on-the-job search models have been extensively used in the analysis of labor turnover and wage distributions (see [Mortensen, 2002](#)), there have been few attempts to take the search structure to data over a long period. The present paper uses repeated cross-sections from the U.S. Current Population Survey (CPS thereafter) to estimate a partial equilibrium on-the-job search model on a series of monthly intervals covering eleven years, from 1996 to 2006. Its first contribution is thus to produce time series of estimates of structural parameters ruling labor turnover and mobility along the wage ladder. These series are used in two applications: a longitudinal analysis of job separation, job-to-job mobility and search frictions, and an estimation of the matching function accounting for both unemployed and employed job seekers. Before presenting these two applications in more details, the next two paragraphs unveil the main characteristics of the model used for estimation.

The analysis builds on a simple partial equilibrium on-the-job search model. Workers go in and out of employment but also up and down the wage ladder through job-to-job transitions. When not employed, workers can be in either one of three states: unemployed, marginally participating or non participating in the labor market. Employed workers can experience two types of job-to-job transitions. First, on-the-job search allows them to sample outside job offers, which they accept if changing job leads to an increase in utility. Second, they can lose their current job and instantaneously get an outside offer. If this happens, the worker is said to be reallocated between jobs. The former type of job change is a feature of most on-the-job search models following [Burdett and Mortensen \(1998\)](#). The latter type of job-to-job transitions has been considered recently by [Shimer \(2005\)](#) and [Jolivet, Postel-Vinay, and Robin \(2006\)](#) to explain some facts of labor turnover that fall out of the predictions of a standard on-the-job search model.

The model assumes that job values are increasing functions of current wages. This assumption is key to disentangle between the two sources of job-to-job mobility. The job offer distribution is assumed to be the same for all groups of job seekers. This assumption will be empirically supported by comparing wages drawn by workers leaving unemployment with those drawn by workers entering the labor force. It is then possible to estimate the wage offer distribution, also called the wage ladder, directly from the data. Adding this offer distribution to the wage distributions among employed workers and job changers

[☆] I would like to thank Pierre Cahuc, Elise Coudin, Fabien Postel-Vinay, Jean-Marc Robin, Sébastien Roux, Hélène Turon, Gerard Van den Berg, the editor and an anonymous referee as well as seminar participants at CREST, University of Bristol and Tinbergen Institute for their comments and remarks. I am responsible for the remaining errors.

E-mail address: gregory.jolivet@bristol.ac.uk.

and to individual transitions yields enough information to identify all the parameters ruling mobility between labor market states and along the wage ladder.¹ A set of transition parameter estimates is thus produced for each monthly interval and the resulting series are used in two applications.

The first application consists in using structural estimates from an on-the-job search model for a longitudinal analysis of the U.S. labor market. There has recently been a renewal in the descriptive studies of worker and job flows (starting more than thirty years ago with e.g. Hall, 1972) as economists have questioned the cyclical behavior of the mechanisms ruling worker transitions. This paper contributes to this literature by using wage distributions among different groups of workers (employed, job entrants, job changers) as additional sources of information. In particular, this approach can disentangle between voluntary job changes and job reallocations. Including the latter type of mobility in an indicator of job separation (together with job-to-non employment transitions) brings additional support to the recent findings of Hall (2005) and Shimer (2005) about the acyclical behavior of the probability to leave a job (involuntarily).

In addition to analyzing the job finding and job separation rates, the recent studies of labor turnover have paid particular attention to job-to-job mobility. For instance, Shimer (2005) derives a model in which job changes are procyclical as a result of the behavior of the job finding and job separation rates. In a recent contribution, Nagypál (2008) shows the relevance of job changes not only from a purely descriptive approach but also for an analysis of the labor market response to economic fluctuations. Using wage distributions, this paper decomposes job-to-job transitions into voluntary job changes and job reallocations, and shows that the latter component has followed a procyclical pattern between 1996 and 2006 whereas the former was only slightly procyclical.

Then, this paper presents a longitudinal description of a search friction index. If there were no search frictions, all workers would be at the top of the wage ladder (at equilibrium the wage ladder would have only one rung, the highest one). Yet, job search is costly and takes time so workers climb the rungs of the wage ladder through on-the-job search. At the same time, their job can be terminated so they can go back to the bottom of the ladder (become non employed) or be reallocated to a random rung (job reallocation). The ratio between the arrival rates of these positive and adverse shocks is usually considered in the job search literature (see Ridder and Van den Berg, 2003) as an index of search frictions. The present analysis allows to compute this index for each month and to study its pattern, which appears to be acyclical. In addition, this paper produces a time series of the search friction index obtained when imposing a steady-state assumption for each month and compares it with the one estimated from the benchmark non-stationary model.

The second application is an estimation of the matching function that accounts for both unemployed and employed workers. Allowing for different types of job seekers, including employed ones, in the estimation of the matching function has already been considered e.g. by Blanchard and Diamond (1989) or Petrongolo and Pissarides (2001). However, there has been no attempt to use the estimates from an on-the-job search model as weights for the search efforts of these different groups. This is the approach followed in the present paper.

In particular, this approach accounts for recently laid-off workers who will match right away with a job vacancy. Indeed, workers who experience a job reallocation shock can be considered as workers who left unemployment as soon as they got in. They might thus match very differently with the stock of job vacancies than workers who spend at least a month in unemployment. The literature on stock-flow matching

(see Coles and Smith, 1998) considers such heterogeneity in the matching process. It assumes that among the inflow into unemployment, some workers will find a match rapidly in the current stock of job vacancies while others will wait for the new inflow into vacancies. A recent paper by Coles and Petrongolo (forthcoming) shows that this approach is more consistent with the data than the standard random matching approach. While the present paper cannot completely address stock-flow matching, as this requires data on inflows into both unemployment and job vacancies, accounting for recently laid off workers allows for a specific inflow into unemployment to match with the stock of vacancies and thus fills part of the gap between the random and stock-flow matching approaches.

The paper is organized as follows: Section 2 derives the partial equilibrium on-the-job search model and Section 3 presents the CPS data together with some descriptive statistics. Identification and estimation of the model are discussed in Section 4. Section 5 consists of a longitudinal analysis of labor turnover and search frictions based on the series of transition parameter estimates. Section 6 presents the estimation of the matching function and comments the results. Section 7 concludes.

2. The model

This section presents the modeling of labor turnover and wage distributions between two consecutive months, m and $m+1$. The structural parameters are indexed by m and are assumed to be constant during this interval. Some variables, such as the unemployment rate, can vary between m and $m+1$. The subscript t will then indicate whether these dynamic variables are considered at the beginning ($t=m$) or at the end ($t=m+1$) of the period. The empirical analysis presented in the following sections will be conducted on a series of $M=131$ monthly intervals (from January 1996 to December 2006).

2.1. Individual labor market transitions

Consider a population of workers, constant between m and $m+1$. At any date $t \in \{m, m+1\}$, workers can be out of the labor market (with probability o_t), unemployed (with probability u_t) or employed (with probability $e_t = 1 - o_t - u_t$). Non employed workers look for jobs and accept any offer.² Workers out of the labor force can be very heterogeneous with respect to their search effort. Some might be looking for a job while others might not want to work. Several studies (see Jones and Riddell, 1999, 2000) have shown that this distinction can have important consequences for the analysis of labor market flows. Therefore, workers out of the labor market are grouped into two categories: non-participating workers (who neither want nor search for a job) and (marginally-) participating workers. The probability of the former state is denoted as n_t and that of the latter as p_t . Naturally, $o_t = n_t + p_t$.

All shocks are ruled by Poisson processes. The shock arrival rates, which we assume to be constant between m and $m+1$, will be the main targets of estimation. Since the model is written in discrete time, the arrival rate of a shock is equal to the probability that an individual experiences such a shock between m and $m+1$. The model allows for four states: employment (E), unemployment (U), non participation (N) and marginal participation (P). For any pair $(S, S') \in \{E, U, N, P\}^2$, $S \neq S'$, the probability of going from state S to S' between m and $m+1$ is denoted as $\lambda_{SS'}^m$. For instance the probability that an unemployed worker finds a job is λ_{UE}^m , employed workers go out of the labor market at rate $\lambda_{EN}^m + \lambda_{EP}^m$, etc. Note that λ_{NE} is not set to zero as the data will show that some workers who are not participating at month m are employed at $m+1$.

¹ An article by Bowlus and Robin (2004) studies the evolution of income inequalities in the U.S. using a model, derived from the job search literature, in which shocks reallocate workers along the wage ladder. The present analysis departs from this article as it empirically links wage mobility to job-to-job mobility.

² In equilibrium, firms have no interest in making an offer that workers with the lowest reservation value would not accept. It is thus assumed that all non employed workers share the same reservation value, even though their search effort can differ.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات