Labour Economics 24 (2013) 161–169

Contents lists available at ScienceDirect

Labour Economics

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

# The ins and outs of unemployment in a two-tier labor market ☆

José I. Silva [a,b], Javier Vázquez-Grenno [c,*]

[a] University of Kent, School of Economics, Keynes College, Canterbury, CT2 7NP, United Kingdom
[b] Universitat de Girona, Spain
[c] Universitat de Barcelona, Institut d'Economia de Barcelona, Av. Diagonal 690, 08034 Barcelona, Spain

## HIGHLIGHTS

- We analyze the dynamics of the Spanish dual labor market.
- We analyse the cyclicality of the different transition rates.
- We compute the contribution of the different transitions to unemployment volatility
- Employment duality is the key to understand the unemployment volatility in Spain

## ARTICLE INFO

*Article history:*
Received 11 May 2012
Received in revised form 19 July 2013
Accepted 5 August 2013
Available online 31 August 2013

*JEL classification:*
E24
E32
J6

*Keywords:*
Job finding rate
Job separation rate
Unemployment

## ABSTRACT

This paper aims to shed some light on the dynamics of the Spanish labor market, using data from the Spanish Labor Force Survey for the period 1987 to 2010. We examine transition rates in a three-state model and compare our results with those reported for the UK and the US. Explicitly, introducing the employment duality present in the Spanish labor market, we study labor market dynamics in a four-state model set-up and we compute the contribution of the different transitions rates to unemployment fluctuations. Our main findings are as follows: i) around 85% the employment–unemployment gross flows involve temporary contracts; ii) the transition rates involving temporary employment account for around 60% of the fluctuations in the unemployment rate; iii) almost 80% of the unemployment rate volatility – explained by movements between unemployment and employment – involves the transition rates to/from temporary jobs. Our overall conclusion points out that the employment duality is the key to understanding the unemployment volatility and the functioning of the Spanish labor market.


## 1. Introduction

Changes in aggregate labor market outcomes (employment/unemployment) hide a large variation in gross worker flows.[1] In particular, the contribution of ins and outs of unemployment to the dynamics of unemployment has been debated since the eighties, initially in the United States (US) and subsequently in other developed countries. More recently, focusing on transition rates, Hall (2006) and Shimer (2012)[2] report that the job finding rate provides the key to understanding the fluctuations in the US unemployment rate. By contrast, Fujita and Ramey (2009) and Elsby et al. (2009) show that the separation rate accounts for almost half the variation in unemployment and leads to cyclical changes in unemployment. Drawing on data for three Western European countries, the findings reported by Petrongolo and Pissarides (2008) are in line with those reported in these last two papers. Specifically, using the Spanish Labor Force Survey (SLFS), they find that inflows and outflows of unemployment contribute in almost equal parts to the country's unemployment volatility. Smith (2011), exploiting the British Household Panel Survey and using a decomposition based on actual unemployment instead of steady state unemployment, finds that during recessions the separation rate drives unemployment. However, in periods of moderation, she finds that the role played by the job finding rate acquires greater relevance.

☆ We are grateful to the editor Susan Vroman and to the two anonymous referees for many useful comments and suggestions. We would like to thank Per-Anders Edin, Peter Fredriksson and Shigeru Fujita for their insightful comments and suggestions. José I. Silva acknowledges the financial support from the Spanish Ministry of Science (ECO2012-13081). Javier Vázquez-Grenno acknowledges financial support from the Spanish Ministry of Science (ECO2010-16934) and the Catalan Government (SGR2009-600 and XREPP). Part of this project was conducted while the second author was visiting the UCLS at Uppsala University.

* Corresponding author. Tel.: +34934031158.
*E-mail addresses:* jose.silva@udg.edu (J.I. Silva), jvazquezgrenno@ub.edu (J. Vázquez-Grenno).

[1] See for instance, Abowd and Zellner (1985), Blanchard and Diamond (1990) and Davis et al. (2006).

[2] The first version of this paper appeared on 16 January 2005.

0927-5371/$ – see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.labeco.2013.08.009

In common with many other European countries over the last few decades, Spain implemented a labor market reform (1984) that gave greater flexibility to the use of fixed-term contracts[3] and maintained a relatively high level of employment protection for permanent employees. The World Bank (2009) estimates that in 2006 the total costs of firing a worker with 20 years of permanent contract were equivalent to 56 weeks of weekly wages in Spain (while the OECD average is 35.1 weeks). In turn, fixed-term contracts have almost no firing costs but are usually subject to restrictions such as limited renewals and maximum durations.[4] As a result, the Spanish labor market has been characterized by an intensive use of temporary work, which has in turn increased the volume of worker flows (via hiring and firing).

This paper aims to shed some light on the dynamics of the Spanish labor market, using data from the SLFS over the last twenty-three years (from the third quarter of 1987 to the second quarter of 2010). More specifically, our paper analyzes the dynamics of the Spanish labor market by explicitly considering this employment duality (fixed-term contracts, on the one hand, and permanent employment, on the other).

Our paper contributes to the literature in the following ways. First, we analyze the flow data from the SLFS by explicitly considering the employment duality in the Spanish labor market, which can be considered a useful point of reference for other dual labor markets. Second, the period of analysis considered here offers additional advantages to those provided in previous empirical studies of Spain (e.g. Petrongolo and Pissarides, 2008). Specifically, our period covers two complete business cycles: two periods of expansion (1987–1992 and 1995–2007) and two of recession (1993–1994 and 2008–2010). Finally, as regards our analysis of the current downturn (the most severe recession in developed countries since World War II), the Spanish perspective is interesting given the different responses of the labor market outcomes compared to those in other European labor markets (see Bentolila et al., 2012).

For descriptive purposes, we first conduct a flow analysis of the Spanish labor market focusing on its gross worker flows. Then, in line with the most recent literature, we turn to examine transition rates. More specifically, we study the dynamics of the labor market in a three-state set-up (employment, unemployment and inactivity) and in a four-state set-up that takes into account the employment dualism of the Spanish labor market (employment — both permanent and temporary, unemployment and inactivity). Second, we compare the transition rates in Spain with those found in two more flexible labor markets, namely those in the United Kingdom (UK) and the US. Third, to analyze business cycle behavior, we examine the comovement between *GDP* and the transition rates using unconditional cross-correlations. Finally, we present a decomposition of the relative importance of the transition rates to equilibrium unemployment dynamics in a four-state set-up (i.e. explicitly considering the employment duality of the Spanish labor market) extending the methodologies introduced by Fujita and Ramey (2009) and Shimer (2012) to the four-state set-up.

All our analyses point to a broadly similar conclusion. The employment duality is the key to understanding the unemployment volatility and the functioning of the Spanish labor market. Specifically, we find that the predominance of employees with fixed-term contracts appears to account for the employment–unemployment movements, concretely around 85% of those gross flows involve temporary contracts. In general, Spain's transition rates are lower than those recorded in the UK and the US.

We also find a positive (negative) and strong relationship between economic activity and transition rates from unemployment to temporary employment (from temporary employment to unemployment) over the business cycle. These results are consistent with the fact that firms use fixed-term contracts as the main channel for hiring and firing workers. More in detail, we find that the transition rates involving temporary employment account for almost 60% of the fluctuations in the unemployment rate and explain 80% of the contribution of the employment–unemployment transition rates to unemployment volatility. In addition, we also find that separations from permanent jobs are counter-cyclical and account for around one third of the contribution of aggregate separations to unemployment volatility, supporting the idea that during recessions firms also fire permanent employees. In contrast, the transition rate from unemployment to permanent employment is a-cyclical.

The rest of the paper is structured as follows. In Section 2, we introduce the database and explain the methodology. Section 3 presents our analysis of the transition rates. The business cycle properties of these transition rates are analyzed in Section 4. Section 5 considers a decomposition of unemployment fluctuations and Section 6 concludes.

## 2. Database and methodology

### 2.1. Database

#### 2.1.1. Data: Labor Force Survey — flows

The SLFS rotating quarterly survey is conducted by the Spanish National Statistical Institute (*Instituto Nacional de Estadística*, INE). The sample size of the SLFS consists of approximately 65,000 households per period (about 180,000 adult individuals) drawn from the population living in family dwellings in the Spanish national territory. The main goal of the Survey is to reveal the characteristics of that population with regard to the labor market.[5] The interviewers contact respondents either in person or by telephone. The total sample is divided into six sub-samples called rotation groups. Each household remains in the sample for six periods, and a sixth is renewed each quarter. This means that in any two consecutive quarters there are five overlapping rotation groups. In theory, owing to this rotation scheme, five sixths of the sample in any two consecutive quarters can be matched.

Taking into account the structure of this database, we can obtain the gross labor market flows by calculating the quarter-on-quarter transitions made by individual workers between different labor market states. Specifically, we obtain the gross flows using a four-state model (permanent employment, temporary employment, unemployment, and inactivity).[6]

Our use of the survey data to construct these flows encounters two main problems. First, temporary or permanent attrition makes it impossible to match all individual workers across quarters (i.e. a margin of error) which leads to the omission of possible transitions from the survey data. For the SLFS, the unconditional non-responses vary from 7 to 17% in the first and sixth waves respectively.[7] We solve this problem using the missing-at-random method which drops the missing observations and re-weights the measured transitions. The second problem concerns the point-in-time measurement of worker status, which fails to capture transitions within the period (quarters). For instance, if a worker is employed in the first month of the quarter, loses her job in the second and is reemployed in the third, our quarterly data do not detect any of those transitions. However, the multiple transitions within the period can be overcome by calculating the weekly transition rates from the observed quarterly rates (for details see Section 2.2).

#### 2.1.2. Descriptive analysis: average gross flows

Fig. 1 summarizes the quarterly average worker flows between the four labor market states temporary employment, permanent

[3] Along this work we will take "fixed-term contracts" and "temporary contracts" as synonymous.

[4] For more details on the institutional background and on the duality of the Spanish labor market see Osuna (2005), Bentolila et al. (2008) and Cebrián et al. (2011).

[5] We consider all individuals 16 years old and older.

[6] Our definition of temporary employment considers all workers with a fixed-term contract. All other workers (including the self-employed) are included within permanent employees.

[7] For an in-depth analysis of sample attrition when using the SLFS, see Jiménez-Martín and Peracchi (2002).