

# **Wage growth and occupational mobility in Spain: Movers *versus* Stayers**

## **Abstract**

The role of labour mobility as a mechanism for improving the productivity and the allocative efficiency of workers has been a main topic in economics for last years. A particular issue that has received considerable interest for the economics research has been the effects of job mobility on the workers' wage growth. In this context, this paper attempts to shed knowledge for the Spanish case about the relationships between job mobility status, occupational career and wage growth. In particular, it is verified whether the type of job-to-job mobility (voluntary or involuntary) has some influence on the occupational mobility and whether the type of occupational change has some effect on wage growth for both movers and stayers. The data used come from the Living Condition Survey (INE, 2005-2010), and panel data methodology is applied to estimate the models specified for the occupational mobility and the wage growth.

**JEL Classification:** C40, J61, J62

**Keywords:** Movers, stayers, occupational mobility, wage growth.

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# Wage growth and occupational mobility in Spain: Movers *versus* Stayers<sup>\*</sup>

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## 1. Introduction

The role of labour mobility as a mechanism for improving allocative efficiency of workers has been a main topic in labour economics for the last years. A particular subject that has attracted the interest of numerous studies has been the effects of job mobility on the workers' wage growth.

Concerning inter-firm job mobility, some models as the mover-stayer model (Blumen *et al.* 1955) or the job search model (Mortensen, 1986), suggest that if the productivity of the workers is known *ex-ante* the effect of job mobility on their wages should disappear once their personal and job characteristics are controlled in the wage equation that is estimated. Opposite to this theories, job-matching model (Jovanovic, 1979) and raiding model (Lazear, 1986) argue instead that if productivity is unknown *ex-ante*, an own effect of job mobility on wages is possible. *A priori* the type of influence on earnings has an ambiguous sign, it depends on the transferability of skills (specific human capital) between firms, the improvement of the match between employer and employee, and the type of inter-firm job mobility, that is, involuntary or voluntary. If the worker has been fired, a lower wage than the previous one can be expected as a result of the loss in job-specific human capital, while if he is a quitter (that is, the worker has left its employment voluntarily) wage gains are expected as a result of the previous process of search and selection of alternative jobs.

Empirical evidence is more in accordance with models that assign a role to inter-firm mobility on wage growth. For example, for the young men in the US, Topel and Ward (1992) find that about one third of wage growth occurs due job changes. Additionally, Gladden and Taber (2000) reveals for the US that the distinction between voluntary or involuntary job changes is important, since a positive effect on wage is measured for the first group, while for the second one is observed a negative influence on labour earnings.

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As regard to within-firm job mobility, the theory of internal labour market (Doeringer and Piore, 1971 ) suggests that the processes involved in job changes within a firm are different from those one associated with job switches between firms. As a consequence, wage growth are tied to the jobs and not only to the workers' characteristics. Second, human capital theory (Becker, 1975 ) predicts that within-firm wage growth is a result of the workers' investment in specific human capital. As a consequence, workers finance their training through reduced initial wages, expecting salary increases in the future. Third, the efficiency wage hypothesis (Lazear, 1981) explains within-job wage growth as a result of the firm's strategy to increase workers' effort level and reduce the shirking by employees. In this way, if wages don't equal the worker's productivity<sup>2</sup>, promotions can act as a wage premium or a mechanism for providing incentives. Some empirical evidence has verified the predictions of the theses theories. For example for the U.S, McCue (1996) estimates that between 9% and 18% of the average within-firm wage growth over the life cycle is due to promotions.

For the Spanish case, most empirical studies have focused on the influence of interfirm job mobility on wage growth, finding that voluntary job mobility is a relevant factor to explain workers' ascending wage dynamic. Some examples are Caparrós (2003) , Blázquez (2009) and Davia (2010), all of them use longitudinal data provided by the European Community Household Panel for Spain (INE, 1995-2001). Caparrós (2003) finds a positive and significant influence of voluntary changes on wages, which is greater for individuals with university studies. In particular, workers with short-cycle university studies have a relative wage 57% higher than it would have been if they had not changed of firm. Blázquez (2009) analyses the relationship between earnings mobility, inter-firm job mobility and contractual arrangement, its main result is that earnings mobility, both down or upgrading, is more likely for workers who change jobs between firms and, moreover, it also depends of the type of transitions between contracts. Davia (2010) observes a positive effect of voluntary change between firms that decreases along time if the changes between jobs are repeated during a longer period. Moreover, a negative effect of long-term labour interruptions on wage

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<sup>2</sup> This fact can appears when information is costly and there are monitoring costs.

growth is found. This last result is as well detected by García and Rebollo (2004) for a group of European countries (including Spain).

Less attention in the international economic research has received the relationships between, change of firm, occupational mobility and wage dynamic. In particular, to the best of my knowledge, there are no studies in the Spanish economic literature that have examined this issue. This paper attempts to fill this gap, in some way, analysing the causality between job mobility status, occupational career and wage growth. Hence, the objective of this research is twofold: first, it will be verified whether the type of job-to-job mobility (voluntary, involuntary or another type) has some influence on the occupational mobility and, second, whether the type of occupational change has some effect on wage growth for both movers and stayers.

To carry out the empirical analysis proposed in this paper, it is essential to have a database that informs about the labour trajectories of individuals over time. This requirement is fulfilled by the Living Condition Survey, which is the survey used in this study and conducted for the National Statistics Institute (INE). The reporting period covers the years between 2005 and 2010 (both inclusive), that adds interest to the paper, to the extent that its possible to observe the patterns of labour mobility in the recent Spanish economic crisis .

The remainder of the paper is organized as follows. Section 2 presents the models and econometric specifications. Section 3 describes the samples and explanatory variables used in the estimates. Empirical results are discussed in section 4. Finally, section 5 contains the concluding remarks.

## **2. Models and econometric specifications**

This section is devoted to the presentation of the econometric models used to examine the factors affecting occupational mobility and, subsequently its influence on workers' wage growth.

To achieve these aims, first, it is necessary to define a variable that shows downward and upward occupational changes, and not occupational change. Through the Living Condition Survey is possible generate a proxy to this variable, since occupations are coded according to the National

Classification of Occupation (CNO-94), which establishes an occupational hierarchy based on the performance area and qualification required to carry out the job<sup>3</sup>. Excepting employees of the armed forces, the first code corresponds to the managers and the last one to the unskilled workers, so the movements of workers between the different codes will be proxies for the various modalities of occupational mobility considered. So, the worker  $i$  can be found at period  $t+1$  compared to  $t$  in the following settings: the individual registers a downward occupational mobility, remains in the same occupation or experiences an upward occupational mobility.

These three situations are modelled using a random effect panel multinomial logit model to account for unobserved heterogeneity. In this model, the probability of being in the state  $s$  ( $s=1,2,3$ ) conditional on observed characteristics  $X_{it}$  that, initially, vary between individuals and over time and unobserved individual effects,  $\alpha_{is}$ , has the following form<sup>4</sup>:

$$P(Y_{it+1} = s | X_{it}, \alpha_{is}) = \frac{\exp(X'_{it}\beta_s + \alpha_{is})}{\sum_{k=1}^S \exp(X'_{it}\beta_k + \alpha_{ik})} \quad (1)$$

with  $i=1,\dots,N$ ;  $t=1,\dots,T$ ;  $k=1,\dots,S$  ( $S=3$ , the number of situations).  $X_{it}$  is a set of covariates observed in  $t$ , including personal characteristics (gender, educational level, marital status), job characteristics (type of contract, working time, number of years in paid employment), dummies showing the region and degree of area's urbanization where the individual resides.  $\beta_s$  is a vector of unknown parameters, and is considered to be fixed effects. For the random intercepts,  $\alpha_{is}$ , it is assumed a multivariate normal distribution with zero expectation and unstructured covariance matrix  $\Sigma$ , that is,  $\alpha_i = (\alpha_{i1}, \alpha_{i2}, \alpha_{i3}) \sim N(0, \Sigma)$ . To identify the model,  $\alpha_{11}$  and  $\beta_1$  are normalised to zero, the chosen reference situation corresponds to not occupational change.

<sup>3</sup> Performance area means the area of work activity defined by the type and nature of work performed, while the level of qualification is the amount and quality of education, training and experience required in the workplace

<sup>4</sup> The difference between the random effects and the standard multinomial logit model is that in the latter the choice probability is conditional only to the exogenous variables ( $X_{it}$ ), while the former relaxes the IIA (independence from irrelevant alternatives) assumption.

This econometric model is estimated with the sample resulting of pooling both stayers and movers, including a dummy variables to distinguish them. This allows us to identify whether, all else equal, movers are more likely than stayers to experience some type of occupational change. Subsequently, the model is estimated separately for stayers and for movers (for the latter group, dummies variables indicating the type of inter-firm mobility are added as regressors). In this way, it will be possible to determine whether the influence of others regressors on occupational mobility differ between movers and stayers.

The sample likelihood for the multinomial logit with random intercepts is:

$$l = \prod_{i=1}^N \int_{-\infty}^{\infty} \prod_{t=1}^T \prod_{j=1}^S \left[ \frac{\exp(X'_{it}\beta_s + \alpha_{is})}{\sum_{k=1}^S \exp(X'_{it}\beta_k + \alpha_{ik})} \right]^{d_{i,s,t}} f(\alpha) d\alpha \quad (2)$$

where  $d_{i,s,t}=1$  if the individuals appears in the alternative  $s$  at time  $t+1$  and zero otherwise.

Maximum likelihood estimation of parameters in equation (2) requires integer over the distribution of the unobserved heterogeneity and, there is not analytical solution for this problem. To obtain estimates of the parameters, it is necessary to use numerical integration techniques. In particular, maximum likelihood estimation is implemented with the software *Gllamm* (Generalized Linear Latent and Mixed Models) programmed by Rabe-Hesketh *et al.* (2004) and included in the statistical package Stata. *Gllamm* uses adaptative quadrature to approximate the integral of equation (2).

The second purpose of this paper is to analyze the effect of occupational mobility on wage growth for both movers and stayers, once controlled the influence of the rest of regressors. Concerning this matter, the difference of the logarithms of the individual's monthly wage between the periods  $t+1$  and  $t$  ( $w_{it+1} - w_{it}$ ), is modelled following the next equation:

$$w_{it+1} - w_{it} = x'_{1it}\beta_1 + x'_{2it}\beta_2 + u_i + \varepsilon_{it} \quad (3)$$

where  $x_{1it}$  is a vector of covariates including personal and job characteristics.  $x_{2it}$  is a vector containing the categorical variable for the occupational change.  $u_i$  is the individual specific

unobserved effects and  $\varepsilon_{it}$  represents the idiosyncratic error.  $\beta_1$  and  $\beta_2$  are vectors of unknown coefficients to be estimated.

One of the main econometric issue to be tackled in the estimation of equation (3) is the endogeneity of the variables included in  $x_{2it}$  that indicates the type of occupational mobility, which can arise from the correlation between unobserved factors affecting both the wage growth as the decision of occupational change. To take account this econometric subject, it is applied a two-step procedure of Heckman type to correct the endogeneity of occupational mobility in a panel data framework. In the first step, it is used the estimates of the previous random effects multinomial logit model for occupational mobility to compute the inverse Mills ratios, following the specification of Dubin and McFadden (1984):

$$\lambda_{ist} = \sum_{\substack{j=0 \\ j \neq s}}^2 \left( \frac{\hat{P}_{ijt} \ln \hat{P}_{ijt}}{1 - \hat{P}_{ijt}} - \ln \hat{P}_{ist} \right) \quad (4)$$

where  $\hat{P}_{ist} = \hat{P}(Y_{it+1} = s)$ . So now, including the inverse Mills ratio, the wage growth regression is expressed as follows:

$$w_{it+1} - w_{it} = x'_{1it} \beta_1 + x'_{2it} \beta_2 + \lambda'_{it} \beta_3 + u_i + \varepsilon_{it}^* \quad (5)$$

where  $\lambda'_{it}$  is a vector collecting the inverse Mills ratios that are used as controls for the endogeneity of the dummies of occupational change. For the estimation of equation (5), panel data econometric techniques are used.

### 3. Data

The data set used in this paper comes from the Living Condition Survey (LCS) provided by the National Statistics Institute (INE). The LCS, that replaces the EU Households Panel Data for Spain (INE, 1994-2001), generates data with both transverse and longitudinal dimension. This study employs the longitudinal component that allows follow the individuals during consecutives years. Specifically, the structure of the longitudinal data from the LCS corresponds to a rotating panel.

Each year the panel is composed of 4 subpanel, whose maximum duration in the survey is of four years. So, one of the subsamples is replaced by another one each year. The covered period by this analysis corresponds to the years 2005-2010.

The main sample used in this study is constituted by individuals whose main activity has been paid-employment during all the observed periods. Moreover, they must appear at least during two years in the sample. Once taken into account this restriction, the initial sample is composed by 31,061 observations of which 92% correspond with individuals who have remained in the same firm, and the remaining 8% with workers who have registered a employer change between two consecutive periods of employment. Among the reasons for mobility, the higher proportion is corresponding to quitters (workers who left their jobs voluntarily), with 48.5% of mobile workers, followed by layoffs (37%), that is, workers who have changed of firm by contract termination or involuntary discharges (37%), and workers who have changed of firm by other reasons as, for example, family circumstances (14,50%).

Table 1 shows the distributions of individuals according to their occupational mobility and interfirm labour mobility status.

**Table 1. Occupational transitions year-to-year by interfirm labour mobility status**

<b>Interfirm labour mobility status</b>	<b>Downward occupational mobility</b>	<b>Same occupation</b>	<b>Upward occupational mobility</b>	<b>Total % (obs)</b>
<b>Stayers</b>	7.08	85.44	7.48	100 (28420)
<b>Quitters (<i>workers who left their jobs voluntarily</i>)</b>	20.53	49.96	29.51	100 (1281)
<b>Layoffs (<i>Contract ended and non renewed or involuntary discharge</i>)</b>	23.13	55.78	21.08	100 (977)
<b>Others reasons for change of company (<i>family circumstances</i>)</b>	25.07	47.52	27.42	100 (383)
<b>Total</b>	8.36	82.57	9.06	100 (31061)

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

The results note that the highest percentage of occupational mobility (downward or upward) correspond to individuals who change of firm. Since approximately 50% of these workers have occupations other than those they had in their previous jobs, while for stayers only the 14.5% have

an occupational change between two consecutive years. Within the group of mobile workers, the highest share of workers with upward occupational change is observed for quitter (29.5%), while the highest proportion of individuals with downward occupational mobility corresponds to those workers who change of firm by reasons not related to the labour market or to the relationship with the employer (25%).

Frequency distributions of workers for transitions between occupational codes<sup>5</sup> appear in tables 2-6, for all the sample and according to their job mobility status (quitter, layoff or other type of inter-firm mobility).

**Table 2. Occupational transitions year-to-year**

Transition between the period t (row) and t+1 (column)	Management of companies	Scientific and techn.	Support techn and profess.	Adm. type employees	Catering, personal services	Workers skilled agricult.	Craftsmen and skilled manufact.	Install. and mach. operators	Unskilled workers	Total
Management of companies	<b>73.50</b>	8.88	6.01	7.51	1.50	0.27	1.23	0.55	0.55	100
Scientific and technicians	1.35	<b>91.02</b>	4.92	1.59	0.66	0.02	0.32	0.08	0.04	100
Support techn. and prof.	1.98	7.94	<b>71.1</b>	10.03	4.36	0.15	2.09	1.16	1.19	100
Adm. type employees	1.15	1.81	5.21	<b>87.39</b>	1.88	0.02	0.66	0.39	1.49	100
Catering, personal services	0.89	1.00	3.01	1.96	<b>85.96</b>	0.34	1.53	0.71	4.60	100
Skilled workers in agricul.	0.50	0.50	1.00	0.50	1.74	<b>78.61</b>	4.48	2.49	10.20	100
Craftsmen and skilled manuf.	0.45	0.27	1.56	0.78	1.58	0.42	<b>83.21</b>	5.29	6.43	100
Install. and mach. operators	0.34	0.27	1.37	0.62	1.64	0.51	9.95	<b>79.79</b>	5.50	100
Unskilled workers	0.14	0.17	1.13	1.64	5.00	1.61	8.23	4.96	<b>77.12</b>	100

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

**Table 3. Occupational transitions year-to-year: Stayers**

Transition between the period t (row) and t+1 (column)	Management of companies	Scientific and techn.	Support techn. and profess.	Adm. type employees	Catering, personal services	Workers skilled agricult.	Craftsmen and skilled manufact.	Install. and mach. operators	Unskilled workers	Total
Management of companies	<b>74.64</b>	8.4	5.84	7.26	1.42	0.28	1.14	0.43	0.57	100
Scientific and technicians	1.24	<b>92</b>	4.40	1.42	0.61	0.02	0.25	0.06	0.02	100
Support techn. and prof.	1.8	7.24	<b>73.78</b>	9.42	3.79	0.13	1.83	1.11	0.92	100
Adm. type employees	1.14	1.48	4.67	<b>89.09</b>	1.53	0.02	0.58	0.29	1.19	100
Catering, personal services.	0.48	0.78	2.75	1.29	<b>89.51</b>	0.25	1.14	0	3.36	100
Skilled workers in agricul.	0.28	0.28	1.12	0.28	1.12	<b>84.03</b>	3.36	1.68	7.84	100
Craftsmen and skilled manuf.	0.2	0.18	1.37	0.67	1.04	0.35	<b>86.82</b>	4.51	4.85	100
Install. And mach. operators	0.26	0.19	1.11	0.56	1.07	0.37	9.08	<b>82.81</b>	4.56	100
Unskilled workers	0.03	0.08	0.99	1.32	3.82	1.46	6.57	4.15	<b>81.58</b>	100

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

**Table 4. Occupational transitions year-to-year: Quitters**

Transition between the period t (row) and t+1 (column)	Management of companies	Scientific and techn.	Support techn and profess.	Adm. type employees	Catering, personal services	Workers skilled agricult.	Craftsmen and skilled manufact.	Install. and mach. operators	Unskilled workers	Total
Management of companies	<b>33.33</b>	25	25	8.33	0	0	8.33	0	0	100
Scientific and technicians	5	<b>67.62</b>	20	4	0	0	3.38	0	0	100
Support techn. and prof.	6.21	17.24	<b>37.24</b>	15.86	11.03	0	6.21	2.07	4.14	100
Adm. type employees	1.68	10.92	14.29	<b>57.14</b>	7.56	0	1.68	3.36	3.36	100
Catering, personal services.	4.15	5.07	6.91	9.68	<b>52.07</b>	1.38	4.61	2.76	13.36	100
Skilled workers in agricul.	4.76	4.76	0	0	14.29	<b>23.81</b>	19.05	9.52	23.81	100
Craftsmen and skilled manuf.	3.24	1.44	3.96	1.44	6.83	1.08	<b>54.32</b>	12.95	14.75	100
Install. And mach. operators	0.86	1.72	6.03	0	9.48	3.45	25	<b>41.38</b>	12.07	100
Unskilled workers	1.36	0.91	3.18	5.91	15.91	2.27	20.91	11.82	<b>37.73</b>	100

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

<sup>5</sup> Employees of the armed forces are excluded from this analysis given their special characteristics.

**Table 5 Occupational transitions year-to-year: Layoffs**

Transition between the period t (row) and t+1 (column)	Management of companies	Scientific and techn.	Support techn and profess.	Adm. type employees	Catering, personal services	Workers skilled agricul.	Craftsmen and skilled manufact.	Install. and mach. operators	Unskilled workers	Total
Management of companies	<b>66.67</b>	16.37	0	0	16.67	0	0	0	0	100
Scientific and technicians	2.53	<b>60.76</b>	20.25	8.86	6.33	0	0	1.27	0	100
Support techn. and prof.	1.18	12.94	<b>45.88</b>	21.18	7.06	1.18	1.18	2.35	7.06	100
Adm. type employees	0	3.49	11.63	<b>63.95</b>	6.98	0	2.33	0	11.63	100
Catering, personal services...	0.73	2.92	6.57	5.84	<b>61.31</b>	0.73	5.84	1.46	14.6	100
Skilled workers in agricul...	0	0	0	6.25	0	<b>37.5</b>	12.5	12.5	31.25	100
Craftsmen and skilled manuf.	0.82	0.41	1.63	1.63	5.31	1.22	<b>54.29</b>	8.57	26.12	100
Installat. and mach. operators	0	1.19	3.57	1.19	7.14	0	11.9	<b>53.57</b>	21.43	100
Unskilled workers	0	0.84	0.42	1.27	11.81	2.53	18.14	9.7	<b>55.27</b>	100

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

**Table 6. Occupational transitions year-to-year: Others reasons for change of company**

Transition between the period t (row) and t+1 (column)	Management of companies	Scientific and techn.	Support techn and profess.	Adm. type employees	Catering, personal services	Workers skilled agricul.	Craftsmen and skilled manufact.	Install. and mach. operators	Unskilled workers	Total
Management of companies	<b>50</b>	8.33	0	33.33	0	0	0	8.33	0	100
Scientific and technicians	7.69	<b>76.92</b>	3.85	11.54	0	0	0	0	0	100
Support techn. and prof.	5.26	18.42	<b>42.11</b>	7.89	10.53	0	10.53	0	5.26	100
Adm. type employees	2.13	6.38	17.02	<b>57.45</b>	8.51	0	2.13	0	6.38	100
Catering, personal services.	9.2	0	3.45	6.9	<b>45.98</b>	1.15	4.6	6.9	21.84	100
Skilled workers in agricul.	0	0	0	0	0	<b>55.56</b>	0	0	44.44	100
Craftsmen and skilled manuf.	2.74	1.37	4.11	2.74	2.74	0	<b>49.32</b>	15.07	21.92	100
Install. and mach. operators	6.45	0	3.23	6.45	12.9	3.23	29.03	<b>25.81</b>	12.9	100
Unskilled workers	1.69	0	0	3.39	15.25	5.08	23.73	10.17	<b>40.68</b>	100

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

The results reveal for all workers (table 2) that the more stable occupation is “scientific or technician”, as the 91% of the observations of this occupation in t remains in the same occupational status in period t+1. Within downward transitions in the occupational ladder, the highest proportion is recorded by the movement of skilled workers in agriculture or fishing into unskilled workers (10.20%), while the highest percentage observed in upward occupational transitions corresponds to the mobility from operator to skilled manufacturing worker (9.95%). When the analysis focuses only for stayers, the percentages of individuals who do not change of occupation increase for all occupational codes (table 3).

The tables 4-6 report about the occupational transitions by type of interfirm labour mobility. In all of them, it is detected a reduction in the occupational stability by periods. For example, the percentage of skilled workers in agriculture or fishing that remains in their occupation is 23.8 % for quitters and 37.5 % for layoffs, which contrast with the 84% observed for stayers. Again, the upward occupational transition most represented is observed between operators and skilled workers in the industry, although in this case the percentages are more highest than that those observed for

stayers (25% for quitters, 12% for layoffs and 29 % for the rest of mobile workers). With respect to the downward occupational mobility, the most frequent transition is between skilled workers in agriculture or fishing and unskilled workers (23% for quitters, 31% for layoffs and 44 % for the rest of mobile workers).

As indicated in the previous sections, the second objective of this paper is to analyze the influence of occupational mobility on wage growth according to the interfirm labour mobility status of the workers. The LCS asks individuals to inform about their annual earnings from paid employment obtained in the previous year. In this way, to achieve a measure of the wage growth, workers must appear during three consecutive years in the panel, this causes that the initial sample is reduced until 16,296 observations of which 7.5% correspond with individuals who have registered an employer change between two consecutive periods of employment. Another aspect, to take into account, is that the individuals may have worked a different number of months in the years observed. So the variable annual wage would be not suitable, since it would be conditioned by the presence of spell of unemployment and/or inactivity. For this reason, the variable used is the monthly wage that is generated from the annual wage and the number of months worked in each year. The descriptive statistics of this variable for the period  $t$  and  $t+1$  are displayed in the table 7.

First, it is noted that the monthly wage depends significantly on the type of occupational mobility and, also, on whether the worker is a stayer or a mover. Second, the average monthly wage of stayers is always higher than the corresponding to stayers in all situations considered. Third, unlike the stayers, the movers (in almost all cases) shows positive wage growth for all the types of occupational mobility, reaching the highest value if the occupational mobility has been ascending. For example, for the quitters, the average monthly wage growth increase a 10, 04 % between two consecutive years.

**Table 7. Descriptive statistics of the monthly wage<sup>a</sup> by interfirm labour mobility status**

<i>Interfirm labour mobility status</i>	<i>Monthly wage (Euros)</i>			
	<i>Period t</i>		<i>Period t+1</i>	
	<i>Mean</i>	<i>Std. desv</i>	<i>Mean</i>	<i>Std. des.</i>
<i>Stayers (15073 obs.)</i>	1797	1060	1726	883
<i>Downward occupational change(7.5%)</i>	1816	1179	1735	888
<i>Not occupational change (85%)</i>	1796	1032	1729	887
<i>Upward occupational change(7.5%)</i>	1784	1243	1687	823
<i>Movers (1223obs. )</i>	1455	1139	1517	1214
<i>Downward occupational change(22%)</i>	1365	1183	1501	1439
<i>Not occupational change(54%)</i>	1506	1126	1488	851
<i>Upward occupational change(24%)</i>	1421	1122	1597	1620
<i>Quitters (628 obs.)</i>	1519	1201	1570	1349
<i>Downward occupational change (23%)</i>	1390	743	1534	1765
<i>Not occupational change(51%)</i>	1592	1371	1555	767
<i>Upward occupational change (26%)</i>	1487	1157	1653	1767
<i>Layoffs (434 obs.)</i>	1388	1102	1424	909
<i>Downward occupational change (22%)</i>	1368	1645	1403	830
<i>Not occupational change (57%)</i>	1400	797	1393	715
<i>Upward occupational change (21%)</i>	1379	1140	1530	1361
<i>Other reasons for change of firm (162 obs.)</i>	1385	967	1560	1354
<i>Downward occupational change (22%)</i>	1256	1170	1546	1287
<i>Not occupational change (56%)</i>	1496	908	1587	1318
<i>Upward occupational change(22%)</i>	1225	889	1510	1532
<i>All workers (16296 obs.)</i>	1771	1070	1710	914
<i>Downward occupational change(8%)</i>	1727	1193	1689	1025
<i>Not occupational change (83%)</i>	1782	1039	1717	887
<i>Upward occupational change(9%)</i>	1708	1227	1668	1042

**Note:**

(a) The monthly wage is expressed in euro from 2011.

**Source:** Own elaboration based on the Living Condition Survey (INE, 2005-2010).

Finally, in the table A1 and A2 of the appendix, it is possible to find information about the statistics descriptive of the rest of variables included in the models that are estimated.

#### 4. Results

This section is devoted to the presentation of the results obtained from estimating the models specified in section 2.

Table 8 displays the outcomes from the random effect panel multinomial logit model (for all sample and for both movers and stayers). In particular, in this table appears the odds-ratio to this model. First, it is confirmed the presence of unobserved heterogeneity and of a positive correlation between the alternatives of occupational mobility. Second, based on the results for all sample, it is observed that the individual's interfirm mobility status exerts a positive and significance importance on the occupational mobility (both for downward and upward) . This result is coherent with the predictions of the theory of career mobility formulated by Sicherman and Galor (1990), where the

change of firm can be considered as an optimum decision to maximize the labour future earnings. On one hand, the individual decide to leave its firm if he gets a promotion in an outside company and, on other hand, and, he may accept a downward occupational mobility if the probability of promotion is higher in the new firm than in the previous one. Third, among the group of movers, it is found that leave the company voluntarily has positive effects on their careers, once controlled the effects of the remaining regressors. In particular, the probability of upward occupational mobility for quitters duplicates the corresponding one to the rest of movers. They are likely to undertake job while employed, whereas the laid-off worker may engage in job search after separation, which favours that the former receive better job offers. Moreover, according to the signalling theory (Blanchard and Diamond, 1994), the layoffs have more probability of downward occupational mobility, as employers are unable to observe the productivity of job applicants, unemployed people will be offered a lower quality of job compared to quitters.

With respect to the personal characteristics, on the one side, male workers have higher probability of occupational mobility than female workers in almost all situations. The only one exception appears among the movers, where the gender is not a factor influencing upward occupational mobility. On the other side, human capital variables are important to explain the transitions between occupations. For all workers and for stayers, it is noticed that the probability of getting a promotion increases with the educational level. In particular, those workers with higher education have a probability of upward occupational mobility that triples the corresponding one to individuals with primary education or without education. For movers, only workers with university studies show more career advancement options than the rest of individuals. These results show that in Spain higher education has a poor career specific component. So, work-related skills are not obtained completely via pre-work training in the educational system. These findings differ with those obtained by Moscarini and Vela (2003) for the United States, where it is found a significant and negative correlation between formal education and occupational mobility.

**Table 8. Estimation of the multinomial logit model with random effects<sup>a</sup>**

Regressors <sup>b</sup>	All workers		Movers		Stayers	
	Downward occupational change	Upward occupational mobility	Downward occupational change	Upward occupational mobility	Downward occupational change	Upward occupational mobility
<i>Type of inter-firm mobility</i>	Coefficient <sup>c</sup>	Coefficient <sup>c</sup>	Coefficient <sup>c</sup>	Coefficient <sup>c</sup>	Coefficient <sup>c</sup>	Coefficient <sup>c</sup>
<i>Mover</i>	11.25 ***	12.04 ***				
Quit			0.91 **	2.04 ***		
Family circumstances			1.29	2.12 **		
<i>Gender</i>						
Male	1.32 ***	1.20 **	1.61 **	0.82	1.30 ***	1.30 ***
<i>Education</i>						
Lower secondary education	1.09	1.36 ***	1.06	1.13	1.12	1.42 **
Upper secondary education	0.80 **	1.72 ***	1.27	2.03 **	0.73 **	1.72 **
Upper vocational and technical training	0.51 **	1.95 **	0.81	3.53 **	0.48 **	1.75 **
Higher education	0.32 ***	2.96 ***	0.49 **	3.09 ***	0.29 ***	3.00 ***
<i>Marital Status</i>						
Married	0.97	0.97	0.86	0.76	0.99	1.01
<i>Labour characteristics</i>						
<i>Number of years in paid employment</i>	0.98 ***	1.00 **	0.99	1.00	0.99 **	1.00 *
<i>Type of contract</i>						
Fixed-term contract	1.06	0.87 **	0.80 *	0.69 **	1.15 *	0.93
<i>Working time</i>						
Part-time contract	0.35	0.53 ***	1.19	0.98	0.26 ***	0.46 ***
<i>Current Spanish region of residence</i>						
Center	1.14	0.81 **	1.14	0.87	1.17	1.12 **
East	1.19 **	1.28 **	1.08	1.27	1.23	1.30 **
Madrid	1.42 **	1.46 **	0.68	1.09	1.60 **	1.49 ***
Northeast	1.03	0.75 **	0.85	0.82	1.08	0.73 **
Northwest	0.98	0.82 **	1.11	1.61 *	1.02	0.73 **
<i>Degree of urbanization</i>						
Medium	0.94	0.93	1.17	1.42 *	0.92	0.46 *
Low	1.13 *	1.14 ***	1.28	1.31	1.10	1.10
<b>Constant</b>	0.01	0.08 ***	0.10 ***	0.84	0.10	0.84
<i>Variance (unobserved individual effect)</i>						
Alternative 1	3.34***		2.06***		4.81***	
Alternative 2		3.17***		3.23***		4.18**
<i>Covariance (unobserved individual effects, alternative 1 and 2)</i>	3.26***		2.58***		4.49***	
<b>Number of observations</b>	31,061		2,641		28,420	

**Notes:**

(a) The reference is a female individual with primary school education, without partner, and that in the period t, had been employed with a full-time and open-ended contract and living in the South region in a geographical area with a high degree of urbanization.

(b) The influence of the previous occupation is controlled in the model by introducing occupational and dummy variables, respectively.

(c) (\*\*\*) Significant at 1%, (\*\*) at 5%, (\*) at 10%.

**Source:** Own elaboration based on the Living Condition Survey (INE, 2005-2010).

Concerning job characteristics, as main result, it is observed that the precarious employment affects negatively the probability of going up in the occupational ladder. First, for stayers, the results display that the probability of downward occupational mobility for workers with fixed-term contract is 1.15 times that of the workers with open-ended contract; while, for movers, permanent workers have a probability of upward occupational mobility 1.44 times that of the temporary

workers. Finally, in relation to area of residence of workers, stayers residing in Madrid show a probability of promotion 50% higher than those workers residing in the South region.

Once the determinants of occupational mobility has been analyzed distinguishing among movers or stayers, the next step is to estimate the influence of the occupational mobility on wage growth. As pointed out in the section 3, the dependent variable considered is the monthly wage growth, which implies that workers must appear at least during three consecutive years in the panel. Moreover, to taking into account the endogeneity of the dummies variables showing the type of occupational mobility, is necessary to apply a two-step procedure of Heckman type. The first step consist in the estimates of the multinomial logit model with the random effect to compute the inverse Mills ratios (equation 4) which are included in the wage growth model (equation 5). As mentioned in section 3, the sample must be restricted to individuals that appear at least three years in the panel. The results obtained in the first step appears in the table A3 of the appendix.

In the second step, equation 5 is estimated assuming that the individual specific effect  $u_i$  is a random variable uncorrelated with the explanatory variables. For this reason and for the presence of time-invariant regressors, the estimator chosen to get the influence of the regressor on the wage growth is the random effect estimator. The results are displayed in table 9 for stayers, movers and, as an special case, for quitters. First, it is noticed that the occupational mobility has a significant influence on wage growth, once controlled the effect of the rest of regressors. As expected, to obtain a promotion has a positive effect on earnings for all the groups analyzed. In particular, the quitters show the highest wage growth (9%) *versus* the rest of movers. This highlights the importance of the active participation of the worker in the search and selection of employment for the achievement of a significant salary improvement. Moreover a promotion for a quitter, from an outside firm, must carry a higher wage growth that offsets the costs of mobility. Other interesting finding is that demotion only have a negative effect on wages if it occur within the same company, while if it is associated with a change of company, differences are not observed compared to the movers or quitters that do not change of occupation. This result is explained because, given the way

of selecting the sample, the workers change of employers through short spells of unemployment, so that their wages in outside firms at least will be very closed to the individual's reservation wage in the previous period.

**Table 9. Wage growth equation estimates by interfirm mobility status<sup>a</sup>**

Regressors	Stayers		Movers		Quitters	
	Coefficient <sup>b</sup>		Coefficient <sup>b</sup>		Coefficient <sup>b</sup>	
<b>Gender</b>						
Male	0.09	***	0.17	***	0.17	***
<b>Education</b>						
Lower secondary education	0.06	***	-0.02		0.08	
Upper secondary education	0.19	***	-0.01		0.14	*
Upper vocational and technical training	0.27	***	0.19		0.30	
Higher education	0.38	***	0.30	***	0.42	**
<b>Marital Status</b>						
Married	0.05	***	0.05		0.08	^
<b>Labour characteristics</b>						
<i>Number of years in paid employment</i>	0.02	***	0.02	**	0.01	*
<i>Number of years in paid employment squared</i>	-0.01	***	-0.01	**	-0.01	
<b>Type of contract</b>						
Fixed-term contract	-0.12	***	0.01		0.01	
<b>Working time</b>						
Part-time contract	0.04	*	-0.08		0.02	
<i>Logarithm of the monthly wage in t (Euros from 2011)</i>	-0.90	***	-0.66	***	-0.71	***
<b>Current Spanish region of residence</b>						
Center	-0.05	***	-0.01		-0.06	
East	0.01		0.06		0.06	
Madrid	0.03	***	0.18	**	0.23	**
Northeast	0.06	***	0.12	**	0.10	^
Northwest	0.01		0.06	**	0.09	
<b>Occupational mobility</b>						
Upward	0.05	***	0.06	^	0.09	*
Downward	-0.05	***	-0.02		-0.02	
<b>Mills ratio</b>						
Upward	-0.01	**	0.01		0.04	^
Downward	-0.05	***	-0.02	^	-0.01	
Constant	4.68	***	6.06	***	4.46	***
<b>Number of observations</b>	15,073		1,223		628	
<b>R-square</b>	0.25		0.43		0.33	

Notes:

(a) The reference is a female individual with primary school education, without partner, and that in the period t-1, had been employed with a full-time and open-ended contract and living in the South region.

(b) (\*\*\*) Significant at 1%, (\*\*) at 5%, (\*) at 10%, (^) at 15%.

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

Regarding personal characteristics, first, it is noticed that the gender is a significant factor to explain wage growth. Thus, males have a monthly wage growth (between the period t and t+1) that

is higher than women in 18,5%<sup>6</sup> for movers and in 9.4% for stayers. Second, for stayers, all the dummies variables showing the worker's educational level have positive and significant coefficients, being the highest wage growth for workers with university studies (46% higher than the corresponding one to workers with primary education). For movers, and specially for quitters, the education is a differentiating factor only for workers with higher education. Third, being married has a positive relationship with wage growth.

Concerning job characteristics, it is verified that experience in paid employment has a positive effect on labour earnings. In particular, a year more of experience generates a wage growth of 2% for stayers and movers as a whole, and of 1% for quitters. Moreover, with the exception of the quitters, it is verified a concave shape of the experience–wage growth profile, because of the negative sign of the coefficient corresponding to the experience squared. Other outcomes of interest are, on one side, that temporary workers have a wage growth 12% lower than the existing one for permanent workers. On other side, the higher is the previous monthly wage, the lower is the wage growth in the following period. This result might be due to the fact that, above a certain threshold, it becomes harder to increase productivity with the existing technology.

By region of residence, it is observed that the wage growth is not independent of the geographical area, being the regions of Madrid and Northeast where workers have higher increases in their salaries. For example, the workers who left their firm voluntarily and reside in Madrid has a wage growth a 25% higher than the corresponding one to the quitters residing in the South region.

## **5. Conclusions**

This article has shed empirical evidence on some aspects of the determinants of success career of workers in Spain, using data from the Living Condition Survey (INE, 2005-2010). In particular, the issues analysed has been the relationships between inter-firm mobility, occupational mobility and wage growth.

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<sup>6</sup> Since the model is semi-logarithmic, the effect of the dummies variables are estimated by calculating the exponential of its coefficient and subtracting 1 (see Halvorsen and Palmquist, 1980).

From a descriptive point of view, it has been proved that movers are those who have higher percentages of occupational change and, among movers, they are quitters who are more likely to move up the occupational ladder. These results hold after estimating the random effect panel multinomial logit model and are coherent with the predictions of the theory of career mobility proposed by Schierman and Galor (1990), that is, inter-firm mobility can be used by the worker as a mechanism to achieve upward career. This conclusion would justify the implementation of active labour market policies that increase the transparency in the markets, decrease the asymmetries of information between workers and employers and improve the adjustment process between offer and demand of jobs. Other interesting result is that the accumulation of human capital has a positive and significant influence on promotions both for movers and stayers, getting the highest probability of upward occupational for workers with higher education. This evidence that the university education has a poor career specific component in Spain, that is, work-related skills are not obtained absolutely via pre-work training in the educational system.

The second set of findings are related to the results obtained after estimating the wage growth models. First, for all groups of workers, promotion is a suitable mechanism for improving worker's wages. In particular, the wage gain relative to workers who do not change of occupation is between 5% for stayers and 9% for quitters. To the extent that upward occupational change is related with the acquisition of human capital, this result is an incentive for the encouragement of the life-long learning. Finally, for movers, it is observed that demotion doesn't have negative effect of wage growth if the spells of unemployment between jobs are of short duration.

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## Appendix

**Table A1. Descriptive statistics of the variables used in the estimation of the occupational mobility model (initial sample)**

Variables	All workers						Stayers						Movers					
	Downward occupational mobility		Not occupational change		Upward occupational mobility		Downward occupational mobility		Not occupational change		Upward occupational mobility		Downward occupational mobility		Not occupational change		Upward occupational mobility	
Personal characteristics	Mean	Desv.	Mean	Desv.	Mean	Desv.	Mean	Desv.	Mean	Desv.	Mean	Desv.	Mean	Desv.	Mean	Desv.	Mean	Desv.
<i><b>Gender</b></i>																		
Male	0.66	0.47	0.61	0.48	0.66	0.47	0.65	0.47	0.61	0.48	0.68	0.46	0.69	0.46	0.61	0.48	0.62	0.48
Female	0.34	0.47	0.49	0.48	0.34	0.47	0.34	0.47	0.39	0.48	0.32	0.46	0.31	0.46	0.39	0.48	0.38	0.48
<i><b>Education</b></i>																		
Primary education	0.25	0.40	0.16	0.43	0.25	0.40	0.15	0.30	0.17	0.44	0.18	0.43	0.36	0.40	0.18	0.35	0.17	0.44
Lower secondary education	0.25	0.43	0.23	0.42	0.25	0.43	0.24	0.43	0.22	0.41	0.25	0.43	0.29	0.45	0.27	0.44	0.27	0.44
Upper secondary education	0.24	0.43	0.22	0.41	0.24	0.42	0.23	0.42	0.22	0.41	0.21	0.41	0.27	0.44	0.22	0.41	0.26	0.44
Upper vocational and technical training	0.01	0.09	0.01	0.09	0.01	0.09	0.01	0.08	0.01	0.09	0.01	0.09	0.01	0.10	0.01	0.11	0.01	0.13
Higher education	0.35	0.47	0.38	0.48	0.35	0.47	0.37	0.48	0.38	0.40	0.36	0.48	0.27	0.44	0.32	0.46	0.29	0.45
<i><b>Marital Status</b></i>																		
Married	0.61	0.48	0.64	0.47	0.61	0.48	0.65	0.47	0.64	0.47	0.62	0.48	0.47	0.50	0.48	0.50	0.42	0.50
No married	0.39	0.48	0.36	0.47	0.39	0.48	0.35	0.47	0.36	0.47	0.38	0.48	0.53	0.50	0.52	0.50	0.58	0.50
<i><b>Labour characteristics</b></i>																		
<i><b>Number of years in paid employment</b></i>	18.28	11.34	19.49	11.51	18.28	11.34	19.58	11.22	19.80	11.49	19.04	11.54	13.80	1056	13.95	10.51	13.06	10.49
<i><b>Type of contract</b></i>																		
Open-ended contract	0.75	0.43	0.81	0.39	0.75	0.43	0.82	0.38	0.83	0.38	0.82	0.39	0.50	0.50	0.45	0.50	0.48	0.50
Fixed-term contract	0.25	0.43	0.19	0.39	0.25	0.43	0.18	0.38	0.17	0.38	0.18	0.39	0.50	0.50	0.55	0.50	0.52	0.50
<i><b>Working time</b></i>																		
Part-time contract	0.02	0.14	0.04	0.20	0.02	0.14	0.02	0.13	0.04	0.20	0.02	0.14	0.02	0.15	0.03	0.17	0.03	0.17
Full-time contract	0.98	0.14	0.96	0.20	0.98	0.14	0.98	0.13	0.96	0.20	0.98	0.14	0.98	0.15	0.97	0.17	0.97	0.17
<i><b>Inter-firm mobility status</b></i>																		
Change of firm	0.22	0.41	0.05	0.22	0.22	0.41	-	-	-	-	-	-	-	-	-	-	-	-
No change of firm	0.78	0.41	0.95	0.22	0.78	0.41	-	-	-	-	-	-	-	-	-	-	-	-
<i><b>Type of inter-firm mobility (for movers)</b></i>																		
Quit	-	-	-	-	-	-	-	-	-	-	-	-	0.54	0.50	0.46	0.50	0.54	0.49
Layoff	-	-	-	-	-	-	-	-	-	-	-	-	0.30	0.45	0.40	0.50	0.30	0.45
Other reasons	-	-	-	-	-	-	-	-	-	-	-	-	0.16	0.20	0.14	0.18	0.16	0.20
<i><b>Current Spanish region of residence</b></i>																		
Center	0.15	0.36	0.14	0.35	0.13	0.34	0.15	0.35	0.14	0.35	0.14	0.34	0.17	0.38	0.15	0.39	0.13	0.33
East	0.26	0.44	0.24	0.42	0.27	0.44	0.26	0.43	0.24	0.42	0.28	0.44	0.26	0.44	0.24	0.43	0.26	0.43
Madrid	0.09	0.28	0.07	0.25	0.08	0.27	0.09	0.29	0.07	0.25	0.08	0.27	0.06	0.24	0.09	0.28	0.08	0.27
Northeast	0.16	0.37	0.17	0.38	0.15	0.36	0.16	0.37	0.18	0.38	0.16	0.36	0.15	0.35	0.17	0.37	0.14	0.33
Northwest	0.12	0.32	0.13	0.34	0.11	0.31	0.12	0.33	0.14	0.34	0.10	0.30	0.10	0.31	0.10	0.30	0.13	0.33
South	0.22	0.41	0.25	0.43	0.26	0.44	0.22	0.40	0.23	0.38	0.24	0.37	0.26	0.44	0.25	0.43	0.26	0.44
<i><b>Degree of urbanization</b></i>																		
High	0.51	0.50	0.51	0.50	0.50	0.50	0.53	0.50	0.51	0.49	0.51	0.50	0.45	0.50	0.51	0.49	0.45	0.50
Medium	0.20	0.40	0.22	0.41	0.21	0.41	0.20	0.40	0.22	0.41	0.20	0.40	0.23	0.41	0.21	0.41	0.25	0.43
Low	0.29	0.45	0.27	0.44	0.29	0.45	0.27	0.44	0.27	0.20	0.29	0.45	0.32	0.46	0.28	0.45	0.30	0.45
<b>Number of observations</b>	2598		25648		2815		2013		24281		2126		585		1367		689	

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

**Table A2. Descriptive statistics of the variables used in the estimation of the occupational mobility model  
( sample conditional on the availability of data for the variable wage growth)**

Variables	Stayers						Movers					
	Downward occupational mobility		Not occupational change		Upward occupational mobility		Downward occupational mobility		Not occupational change		Upward occupational mobility	
Personal characteristics	Mean	Desv.	Mean	Desv	Mean	Desv.	Mean	Desv.	Mean	Desv.	Mean	Desv.
<b>Gender</b>												
Male	0.67	0.46	0.61	0.48	0.70	0.45	0.69	0.46	0.61	0.48	0.60	0.48
Female	0.33	0.46	0.39	0.48	0.30	0.45	0.31	0.46	0.39	0.48	0.40	0.48
<b>Education</b>												
Primary education	0.13	0.35	0.17	0.44	0.17	0.44	0.12	0.34	0.29	0.46		
Lower secondary education	0.21	0.41	0.22	0.41	0.25	0.43	0.30	0.46	0.25	0.43	0.29	0.43
Upper secondary education	0.22	0.41	0.22	0.41	0.22	0.41	0.29	0.45	0.22	0.41	0.24	0.43
Upper vocational and technical training	0.01	0.08	0.01	0.09	0.01	0.08	0.01	0.06	0.01	0.10	0.02	0.14
Higher education	0.39	0.48	0.38	0.49	0.35	0.48	0.28	0.45	0.33	0.47	0.32	0.47
<b>Marital Status</b>												
Married	0.68	0.46	0.67	0.47	0.66	0.47	0.45	0.50	0.53	0.49	0.45	0.50
No married	0.32	0.46	0.33	0.47	0.34	0.47	0.55	0.50	0.47	0.49	0.55	0.50
<b>Labour characteristics</b>												
<b>Number of years in paid employment</b>	20.02	10.87	20.16	11.25	19.91	11.33	13.36	10.03	14.51	10.51	12.37	9.79
<b>Type of contract</b>												
Open-ended contract	0.84	0.37	0.84	0.37	0.83	0.38	0.53	0.50	0.46	0.50	0.50	0.50
Fixed-term contract	0.16	0.37	0.16	0.37	0.17	0.38	0.47	0.50	0.54	0.50	0.50	0.50
<b>Working time</b>												
Part-time contract	0.02	0.14	0.04	0.20	0.01	0.11	0.03	0.16	0.03	0.17	0.02	0.15
Full-time contract	0.98	0.14	0.96	0.20	0.99	0.11	0.97	0.16	0.97	0.17	0.98	0.15
<b>Type of inter-firm mobility (for movers)</b>												
Quit	-	-	-	-	-	-	0.52	0.50	0.48	0.50	0.57	0.49
Layoff	-	-	-	-	-	-	0.34	0.47	0.37	0.48	0.30	0.46
Other reasons	-	-	-	-	-	-	0.14	0.33	0.15	0.60	0.13	0.35
<b>Current Spanish region of residence</b>												
Center	0.17	0.38	0.15	0.35	0.14	0.35	0.18	0.38	0.15	0.35	0.15	0.36
East	0.26	0.44	0.24	0.42	0.29	0.45	0.28	0.45	0.24	0.43	0.24	0.42
Madrid	0.08	0.27	0.07	0.26	0.07	0.26	0.06	0.23	0.10	0.30	0.09	0.29
Northeast	0.18	0.38	0.18	0.38	0.16	0.37	0.15	0.36	0.16	0.37	0.16	0.36
Northwest	0.13	0.33	0.13	0.34	0.10	0.30	0.10	0.30	0.09	0.29	0.12	0.32
South	0.78	0.37	0.23	0.42	0.24	0.41	0.23	0.40	0.26	0.43	0.24	0.42
<b>Degree of urbanization</b>												
High	0.52	0.50	0.52	0.50	0.50	0.50	0.45	0.45	0.51	0.50	0.46	0.50
Medium	0.20	0.40	0.22	0.41	0.20	0.40	0.22	0.41	0.22	0.41	0.24	0.42
Low	0.28	0.45	0.26	0.44	0.30	0.45	0.33	0.46	0.27	0.44	0.30	0.45
<b>Number of observations</b>	1105		12855		1113		268		662		293	

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).

**Table A3. Estimation of the multinomial logit model with random effects with the sample restricted<sup>a</sup>**

Regressors <sup>b</sup>	Movers		Stayers	
	Downward occupational change	Upward occupational mobility	Downward occupational change	Upward occupational mobility
<i>Type of inter-firm mobility</i>	Coefficient <sup>c</sup>	Coefficient <sup>c</sup>	Coefficient <sup>c</sup>	Coefficient <sup>c</sup>
<b><i>Mover</i></b>				
Quit	1.02	1.67 **		
Family circumstances	0.74	0.95		
<b><i>Gender</i></b>				
Male	1.90 *	0.76	1.38 **	1.34 **
<b><i>Education</i></b>				
Lower secondary education	2.20 **	2.14	0.76 **	1.31 **
Upper secondary education	2.69 **	2.51 **	0.55 ***	1.60 **
Upper vocational and technical training	0.20	3.35	0.32 **	1.30
Higher education	0.80	4.26 **	0.25 ***	2.64 ***
<b><i>Marital Status</i></b>				
Married	0.66	0.38	1.00	1.01
<b><i>Labour characteristics</i></b>				
<i>Number of years in paid employment</i>	0.99	0.98 *	0.99	1.00
<b><i>Type of contract</i></b>				
Fixed-term contract	0.67	0.58 **	1.02	0.96
<b><i>Working time</i></b>				
Part-time contract	1.04	0.63	0.31 ***	0.26 ***
<b><i>Current Spanish region of residence</i></b>				
Center	1.14	1.08	0.91 **	0.91
East	1.31	1.51	1.43 **	1.43 **
Madrid	0.42	1.31	1.19 *	1.19
Northeast	2.34	0.99	0.81	0.81
Northwest	1.05	1.75	0.76 *	0.76
<b><i>Degree of urbanization</i></b>				
Medium	1.07	1.43	0.84	0.84 *
Low	1.60	1.65 *	1.09	1.09
<b>Constant</b>	0.04 **	0.77	0.06 ***	0.06
<b><i>Variance (unobserved individual effect)</i></b>				
Alternative 1	5.75***		3.74***	
Alternative 2		4.65***		3.73**
<b><i>Covariance (unobserved individual effects, alternative 1 and 2)</i></b>	4.05***		3.73***	
<b>Number of observations</b>	1,223		15,073	

**Notes:**

(a) The reference is a female individual with primary school education, without partner, and that in the period t-1, had been employed with a full-time and open-ended contract and living in the South region in a geographical area with a high degree of urbanization.

(b) The influence of the previous occupation is controlled in the model by introducing occupational and dummy variables, respectively.

(c) (\*\*\*) Significant at 1%, (\*\*) at 5%, (\*) at 10%.

Source: Own elaboration based on the Living Condition Survey (INE, 2005-2010).