# EARNINGS MOBILITY AND LOW-WAGE EMPLOYMENT IN SPAIN: THE ROLE OF JOB MOBILITY AND CONTRACTUAL ARRANGEMENTS[♦]

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## Abstract

The aim of this paper can be summarized as follows. First, I analyze the dynamic nature of the relationship between earnings mobility, job mobility and changes in the contractual arrangements. Second I focus on the evolution of earnings mobility over time. And finally, I concentrate on low-wage employment and the opportunities of getting a better paid job for those workers at the bottom of the earnings distribution. For these purposes, I use the European Community Household Panel Survey (ECHP, 1995-2001), from which a sample of Spanish workers aged 16-65 years old has been drawn. Results show that overall job mobility contributes to increase earnings mobility. Movement into permanent employment status is associated with earnings upgrading overall. For males changes into temporary employment tend to be more strongly related with downgrading only when individuals remain with their current employer. The same is observed for females. However, for females, switching into temporary employment and changing employer at the same time tend to lead to either earnings upgrading or downgrading. Overall, earnings mobility remains mostly unchanged over time, although clear differences, both in terms of levels and trends, can be perceived among different types of workers. Finally I find evidence that switching into permanent employment, either with the current employer or with a change of employer, significantly increases the likelihood of getting a better paid job for those workers located at the bottom of the earnings distribution.

**JEL Classification:** J30, J41, J60

**Key words**: Earnings mobility, job mobility, type of contract, low-wage employment.

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## 1. Introduction

The economic and institutional changes experienced by many industrialized countries over the last decades have influenced the distribution of wages both over time and among different groups of individuals in the labour market. In most European countries the distribution of earnings has become more dispersed giving rise to increased analysis of those workers who are considered to be *low paid*. This naturally has stressed the need for dynamic analytical approaches to address the question whether particular individuals or groups are trapped in low-paid segments of the labour market, or whether low pay is a transitory phenomenon.

From the perspective of individual workers, their earnings levels and its evolution over the course of their working lives are important determinants of their level of economic well-being. The distribution of earnings also has consequences for public policy. For example, the prevalence of low-paid employment and unstable earnings influences the need for and costs of social insurance and anti-poverty programmes.

Low-wage employment has been a focus of research and policy interest both at a macro level, and from a micro perspective (OECD, 1996; Asplund et al., 1998; Lucifora and Salverda, 1998; Salverda et al., 2000; Marx and Salverda, 2005). Most of these works have paid particular attention to differences between some European countries and the USA regarding the incidence of low-wage employment. Recently, the European Commission has provided some comparative data about the incidence of low-wage employment among the European countries[1]. The study provides evidence of little variation in the incidence of low pay between 1995 and 2000, with a decrease from

[1] European Community: "Labour market transitions and advancement: temporary employment and low pay in Europe", chap 4, in *Employment in Europe*, 2004.

15.6% in 1995 to 14.9% in 1998, rising again but only marginally in 1999 and 2000 to 15.1%. However, there exist wide variations between different Member States, with the highest incidence of low pay in the UK and Ireland (19.4% and 18.7% respectively in 2000), and lowest in Denmark and Italy (8.6% and 9.7% respectively). The analysis also reveals a marked decline of the incidence of low-wage employment in Spain (from 18.9% in 1995 to 15.6% in 2000) and Portugal (from 14.4% to 10.9%), while the Netherlands and Germany have experienced an appreciable increase (from 13.3% in 1995 to 16.6% in 2000 in the Netherlands, and from 13.9% in 1998 to 15.7% in 2000 in Germany).

Apart from the significant changes in the distribution of earnings, major changes in the distribution of employment and unemployment also occurred in the labour force, with declining employment rates and growing joblessness in many European countries. In this context, some have argued for the existence of a (negative) trade-off between the extent of joblessness and the overall wage dispersion, advocating for greater labour market flexibility to reduce unemployment. In fact, the growing interest in the development of low-wage employment in Europe in the last twenty years has firstly been due to the prospect of reducing unemployment through the creation of large number of low-paid, low-skill jobs.

Among European countries, Spain is well known for displaying one of the highest unemployment rates, with an average unemployment rate close to 20% since the mid 1980s. Employment creation has been one of the major issues that Spanish governments have been confronted with since the 1980. In 1984 the tripartite Economic and Social Agreement (AES) introduced a wide range of measures for temporary employment, which have probably been responsible for the good record of employment

creation that came about between 1984 and 1991. These measures included fixed-term contracts free of hiring costs and temporary contracts, which were confined to unemployed and to workers under the age of 25 years old. As the protection of permanent workers remained essentially unchanged, this deregulation brought about a significant labour-market segmentation. By 1994 one third of the Spanish workforce was hired under temporary contracts, one of the highest levels in the EU. Furthermore, more than 90% of all new contracts were temporary. The 1994 reform put specific limits on the use of fixed-term contracts, and it also extended the subsidies and incentives to promote the conversion of fixed-term contracts into permanent ones. However, with this reform the socialist government unsuccessfully attempted to reduce the rate of temporary employment of 34%. These employees with non-standard work arrangements, particularly those on fixed-term contracts, have often been found to have lower wages than their counterparts holding open-ended work contracts[2]. Much of the debate concerning contingent work has centred on whether such jobs are dead-end, or that they offer opportunities to move into better jobs.

The aims of this paper can be summarized as follows. First I will analyze the dynamic nature of the relationship between earnings mobility, job mobility and changes in the contractual arrangement. The study will be made for males and females separately, so that gender differences can be analyzed in this respect. On the one hand, I will consider whether a switch from temporary to permanent employment status tends to imply earnings upgrading, and whether the converse also holds. That is, how far does the change from permanent to temporary employment status involve earnings downgrading? On the other hand, I will examine how these effects change when job mobility is also taken into account.

[2] Jimeno and Toharia (1993), Bentolila and Dolado (1994).

Second, I will analyze the evolution of earnings mobility over time. The selected technique for this analysis is based on transition matrices for which the Shorrocks mobility index is calculated. Finally, I concentrate on those workers at the bottom of the earnings distribution and I analyze how job mobility and changes in the contractual arrangements affect the likelihood of leaving a low pay situation.

The results point to interesting findings about the relationship between earnings mobility, job mobility and changes in the contractual arrangements. When a change in the earnings distribution occurs, upgrading is marginally more frequent than downgrading for both males and females. However, downgrading is found to be slightly more likely amongst females. Furthermore, for females the effect of job mobility on both up-, and downwards earnings mobility is larger than for males. Overall, movements into permanent employment status are associated with earnings upgrading. For both males and females changes into temporary employment tend to be more strongly related with downgrading when individuals remain with their current employer. Switching into temporary employment and changing employer at the same time tend to lead to either earnings upgrading or downgrading only for females. The results also suggest that males and females who remain employed on a temporary basis and change employer at the same time tend to be more likely to experience both earnings upgrading and downgrading than those who remain with their current employer and continue to be employed on a permanent basis. Overall, earnings mobility is found to remain more or less unchanged during the period 1995-2001. However, differences can be observed, both in terms of levels and trends, among the different stayer/mover/switcher possibilities. Finally the results provide evidence that switching into permanent

employment significantly increases the individual likelihood of leaving a low-pay situation.

The paper is organized as follows. The next section provides a short review of the theoretical models that relate earnings mobility, job mobility and the type of work contract. Section 3 discusses how to measure earnings mobility. Section 4 illustrates the data set used, while Section 5 concentrates on the relationship between earnings mobility, job mobility and changes in the contractual arrangement. Section 6 analyses the evolution of earnings mobility over time. Section 7 focuses on low-paid workers and Section 8 concludes.

## 2. Theoretical Background

Some previous work has focused on the impact of job mobility on wages. Examples include Keith and McWilliams (1997; 1999), Bartel and Borjas (1981), Mincer (1986), Topel and Ward (1992), Loprest (1992), and Antel (1983; 1986). The common finding of these studies is that job mobility leads to wage gains (in levels) during transitions.

More recently, Davia (2005) studies the rewards to job mobility and how it affects wage growth at the beginning of the employment career for thirteen different European countries. She finds that, in the mid term, job mobility positively affects wage growth, but there is a point in which wages do not grow any longer with more mobility. The work of Arranz et al. (2005) focuses on the effects of employment transitions on wage dynamics in Germany, Spain, Italy, France, Portugal and UK. They find that workers who experience employment transitions with an intermediate spell of unemployment, suffer relative wage loses when they enter re-employment. In the same

line, García and Rebollo (2004) find that job mobility through unemployment has negative returns in Spain, Germany, Portugal and France.

Several alternative theories try to explain the link between job mobility and earnings mobility. Basically, it is possible to distinguish three main theoretical approaches, the job search approach, the human capital approach and the job matching approach. The Job Search approach (Burdett, 1978) implies that shorter job tenure and mobility wage gains are strongly correlated. Once the individual gets a job, he/she is able to continuing searching. The more intensely the worker search, the higher will be the arrival rate of external wage offers. In this context we would expect movers being more likely than stayers to experience an earnings upgrading.

The Human Capital theory stresses the relevance of investments in specific human capital among stayers, which are not transferable to other firms or jobs (Becker, 1962; Parsons, 1972; Hashimoto, 1981). This increases productivity which, at the same time, gives the potential for on-the-job wage growth as the firm and the worker share the return generated by specific human capital investments. As a consequence, earnings upgrading would be expected to be more likely among those workers who remain with their current employer[3]. The Training approach (Mortensen, 1988) would lead the same reasoning. An individual may be willing to accept a pay cut when switching jobs in order to receive a higher rate of wage growth in the new job. Thus, earnings downgrading would be expected to be more likely among those changing employer.

[3] Nonetheless, some works point out the impossibility to specify any hypothesis about the link between job mobility and earnings growth, because basically it depends on the ability to transfer human capital acquisition (Light and McGarry, 1998).

The Job Matching Theory predicts a possible positive effect of job mobility on earnings mobility. This could happen when workers voluntarily leave their current jobs in the pursuit of a better matching in the labour market (Jovanovic, 1979a).

It can be said, therefore, that *a priori* the expected sign of the effect of job mobility on earnings mobility is ambiguous. It depends not only on the transferability of specific human capital and the improvement of job matches, but also on whether mobility is voluntary or involuntary. The aforementioned theories rely on the assumption of voluntary job mobility, so that they basically explain the outcomes of quitters. However, in a segmented labour market there is also scope for involuntary mobility. Both, theory and empirical evidence are more clear regarding the effects of involuntary separations. From both a human capital and job matching approach, job losers would be expected to experience earnings downgrading.

Regarding the effect of contractual arrangements on earnings mobility, concern arises that temporary workers are the most likely to incur fewer opportunities for career advancement and to receive lower wages. In this sense, we would expect workers switching into temporary employment status being more likely to experience earnings downgrading. This negative effect on earnings could be enhanced when the worker also changes job. For instance, in an environment of high unemployment, a permanent worker switching into temporary employment may suffer a substantial higher wage penalty when also changing employer. But, on the other hand, switching into temporary employment could lead to earnings upgrading, for example when workers change employer voluntarily. Thus, changing from permanent to temporary employment could lead to either earnings upgrading or downgrading. Conversely, switching into permanent employment would be expected to positively affect earnings upgrading.

Thus, an empirical analysis seems to be necessary in order to disentangle the puzzle on the relationship between job mobility, earnings mobility and changes in the contractual arrangement.

## 3. Measures of Earnings Mobility

Some people would just wish to see their income rise in absolute levels (absolute mobility), while others would like to see their income improved compared to other people (relative mobility). According to standard economic theory, people are assumed to be primarily interested in the absolute changes of their (real) income. However, Hirsch (1995) suggested that even if someone cared only for the purchasing power of his/her own income, his/her rank in the distribution still matters, as it determines his/her ability to acquires "positional" or status goods. Hence the relative position of an individual in the distribution matters more.

In order to account for changes in the relative position in the earnings distribution, I distinguish three categories: *low*, *medium* and *high-pay*. The distinction between these categories is based on the existing literature on low-wage employment. Proposed low-pay thresholds are typically expressed as some fraction of the median earnings. In particular, most studies define low-paid workers as those earning less than two-thirds of the median. Based on this threshold value, I will consider as *low-paid* those workers earning below two-thirds of the median, *high-paid* those earning above one-and-a-half times the median earnings, and *medium-paid* those in between these two thresholds. It should also be noted that earnings are computed on a gross hourly basis. Basing the analysis on hourly earnings has a number of advantages. In particular, it allows both full-time and part-time employees to be included and compared on a meaningful basis.

Thus, when an individual moves from *low-to-medium*, *low-to-high* or *medium-to-high*, I will consider that he/she has experienced "earnings upgrading". In contrast, "earnings downgrading" would imply a transition from *high-to-low*, *high-to-medium* or *medium-to-low*.

## 4. Data

Longitudinal data are essential to conduct both cross-sectional and dynamic analysis. In this paper I use data from the European Community Household Panel, which forms the most closely co-ordinated component of the European system of social surveys. This survey gathers information of several socio-economic aspects in the European Union. It occupies a central position in the development of comparable social statistics across Member States on income including social transfers, labour, poverty and social exclusion, housing, health, as well as various other indicators relating to the living conditions of private households and persons. It is, therefore, a harmonized longitudinal survey that makes it possible to follow up and interview the same private households and persons over several consecutive years.

The present analysis is based on the 1995-2001 waves of the ECHP for Spain. The selected sample consists of wage and salary workers aged between 16 and 65 years old, working more than 15 hours per week[4], who are observed during at least two consecutive years, and for whom I have information on earnings, type of contract and the year when started with the current employer. Hourly earnings are derived from information about monthly gross wages and the number of hours worked in a week.

[4] I focus the analysis on the seven latest waves of the survey since the type of contract is not observed in the 1994 survey. Furthermore, people working less than 15 hours per week are not included in the analysis since information on the number of hours worked in a week is not available for them. Self-employed and unpaid family-employed workers are not included in the analysis.

Based on the observed changes in the contractual arrangements, I can distinguish four types of transitions. We refer to “P-P” and “T-T” transitions when individuals remain employed under permanent and temporary contracts, respectively. And “P-T” and “T-P” transitions include those workers who experience a change in the type of contract from permanent to temporary and from temporary to permanent, respectively. Finally, the survey also allows me to distinguish between those who remain with their current employer, “stayers”, and those who change employer between the survey dates, “movers”. Combining job mobility and changes in the contractual arrangement I can then construct eight different categories of transitions: SPP, SPT, STT, STP, MPP, MPT, MTT, and MTP.

# 5. Determinants of Earnings Mobility

## 5.1 Descriptive analysis

This section is aimed at providing a full descriptive analysis of the relationship between earnings mobility, job mobility and changes in the type of contract. The transition rates reported in the following tables are annual averages over the period 1995-2001.

Table 1 provides for both, males and females, information on job and earnings mobility. For the sample as a whole remaining in the same earnings category is much the most common outcome overall. When a change in the earnings distribution occurs, upgrading is marginally more frequent than downgrading for both males and females. However, downgrading is found to be slightly more likely amongst females (9.7% of females make a transition of this type, while the corresponding percentage for males is 8.6%). Regarding job mobility, the results reveal that women tend to change employer

less frequently than men: only 14.3% of females change job between two consecutive years, in contrast to 16.8% of males.

Table 2 examines job mobility for those individuals switching the type of contract. For both males and females, transitions from temporary to permanent employment usually occur when the individual remains with the same employer (only around 12% of those switching into permanent contract also change employer). The major gender differences occur among those switching into temporary contracts. For males, transitions from permanent to temporary employment are more frequently associated with job changes than for females (45% of males switching into temporary contract also change employer, while the corresponding percentage for females is around 32%).

Table 3 inspects the relationship between earnings mobility and changes in the contractual arrangements for stayers and movers separately. More than half of the total sample of both males and females continue to be employed on a permanent basis. The second most common outcome concerns to those who remain employed under a temporary contract (around 30%). Finally, transitions from temporary to permanent employment represent around 12% of total transitions while the corresponding percentage for "P-T" transitions is around 5%. Nonetheless, when looking at stayers and movers separately, remaining employed on a temporary basis is much the most common outcome among those who change employer (70% of movers continue being temporary workers). And the second most common outcome regards to those changing from permanent to temporary employment (around 15% of males and 12% of females changing employer switch into temporary employment, while the corresponding percentage among stayers is around 4%). It can be said, therefore, that transitions from

permanent to temporary employment are found to be more frequently associated with job mobility.

Comparing stayers and movers, the results suggest that those remaining employed on a temporary basis and changing employer at the same time tend to be more likely to experience earnings upgrading and downgrading than those who remain with their current employer and continue employed on a permanent basis.

Regarding gender differences, it can be observed that for females the effect of job mobility on both up-, and downwards earnings mobility is higher than for males. However, the difference is slightly higher for earnings downgrading (while 8.16% of males and 8.98% of females who remain with the same employer experience earnings downgrading, the corresponding percentages among movers are 10.94% and 13.41% respectively).

In Table 4 I analyse the relationship between earnings mobility and changes in the contractual arrangements looking at stayers and movers together. For both stayers and movers, switching into permanent contract is more frequently associated with upgrading than with downgrading. In contrast, a change into temporary employment status tends to be more related with downgrading only when the individual remains with his/her current employer. But when a change of employer occurs, transitions from permanent to temporary are more associated with upgrading than with downgrading. Furthermore, this positive effect of job mobility on upgrading is significantly higher for females.

### 5.2 Multinomial logit model for earnings mobility

In this section I proceed with a more-in-depth analysis of the determinants of earnings mobility. Given that I am working with categorical response data obtained from a longitudinal survey, the appropriate model is the multinomial logit model[5].

Table 5 presents the estimation results for males and females separately. As explanatory variables I include both personal and job characteristics: age, education, educational mismatch, a dummy to identify individuals in their first job, part-time vs full-time employment, on-the-job training and type of firm. Furthermore, I control for the full range of stayer/mover/switcher possibilities using a set of dummy variables (SPP, SPT, STT, STP, MPP, MPT, MTT, MTP ), with the omitted category being the continuation of employment under a permanent contract with the same employer (SPP).

The main results are in line with those obtained from the descriptive analysis and they can be summarized as follows. Overall earnings mobility, both up and downgrading, is more likely among workers changing employer. This confirms the idea about the impossibility to specify any hypothesis about the link between job mobility and earnings growth (Light and McGarrry, 1998). If human capital investments are not transferable to other firm or jobs, the specific human capital accumulated is lost when employment with the firm is finished and, as a consequence, movers would be more likely to experience earnings downgrading. However, job mobility can also lead to earnings upgrading if the acquired human capital acquisition is transferable.

For both males and females, switching into permanent employment, either with the current employer or accompanied with a job change, significantly increases the likelihood of upgrading. Besides, continuing employment on a temporary basis and changing employer at the same time increases earnings mobility, both up and

[5] I also estimate the model accounting for unobserved heterogeneity assuming that the constant term in the multinomial logit differs across heterogeneous groups of individuals. However, the LR test provides no evidence of unobserved individual effects.

downgrading. This pattern is, again, observed for both genders. However, a more striking finding is that females also exhibit a higher probability of earnings up-, and downgrading when they change employer and switch into temporary employment.

Other gender differences become visible when analyzing earnings downgrading. For males, a change from permanent to temporary work increases the likelihood of downgrading only for those who remain with the same employer. However, among females this is observed either when they remain with their current employer or when they change employer. Furthermore, for females, all stayer variables, different from the omitted category, increase the probability of earnings downgrading, while for males this is only observed when the contractual arrangement switch into temporary[6].

For both males and females, being initially on a part-time work increases the likelihood of earnings downgrading. In contrast, only for females working part-time reduces the probability of upgrading.

No gender differences can be appreciated when analyzing the influence of age on earnings mobility. In general, the probability of downgrading is not significantly affected by age. In contrast, for both males and females the youngest workers exhibit a higher likelihood of upgrading. This result is in line with the occupational mobility theory (Rosen, 1972; Sicherman and Galor, 1990). This theory suggests that new entrants to the labour market tend to occupy unskilled jobs. But over time they gain experience and occupation-specific human capital through training which allows them to move to better paid jobs.

Being in the first job positively affects the likelihood of upgrading for males, but the effect is mostly non-significant for females. This result suggests that males tend to enter the labour market occupying low-paid jobs, but these jobs are "stepping stones"

[6] Figures 1 and 2 report the predicted probabilities for the three possible outcomes: same earnings category, upgrading, and downgrading; and for the full range of stayer/mover/switcher possibilities.

that provide them with the skills needed to get better paid job. This does not seem to be the case amongst females. However, the results show that over-education significantly increases the likelihood of upgrading only for females.

Having received training during the last year does not significantly affect the probability of upgrading, but it reduces the likelihood of downgrading for both genders.

Finally, the results reveal that being employed in the public sector diminishes the probability of upgrading for both males and females.

## 6. Earnings Mobility and Evolution over Time

This section is aimed at a more-in-depth analysis of the evolution of earnings mobility in Spain during the period 1995-2001. In order to analyze earnings mobility over time, I use a transition matrix approach. More formally, define $p_{jk}$ as the probability that an individual in category *j* in period *t* moves into category *k* in period *t+1*. Then, the matrix *P* with elements $p_{jk}$ (such that $\sum_k p_{jk}=1$) is the transition matrix.

I first construct the following transition matrix *A* based on 3 states: low (*j=1*), medium (*j=2*) and high pay (*j=3*).

$$A=\begin{pmatrix} a_{1,1} & a_{1,2} & a_{1,3} \\ a_{2,1} & a_{2,2} & a_{2,3} \\ a_{3,1} & a_{3,2} & a_{3,3} \end{pmatrix} \quad (1)$$

Then I follow a "decile=10" approach, so that the mobility measure is based on year-to-year transitions of working individuals across deciles. A new transition matrix, $B$ is then constructed as follows:

$$B = \begin{pmatrix} b_{1,1} & b_{1,2} & b_{1,3} & ... & b_{1,10} \\ b_{2,1} & b_{2,2} & b_{2,3} & .. & b_{2,10} \\ b_{3,1} & b_{3,2} & b_{3,3} & .. & b_{3,10} \\ : & : & : & & : \\ b_{10,1} & b_{10,2} & b_{10,3} & & b_{10,10} \end{pmatrix} \quad (2)$$

where the index for rows denotes the decile position in year *t*, the index for the columns represent the decile position in year *t+1*, and $\sum_k b_{jk} = 1$.

In both cases I use the standard mobility index for transition matrices (Shorrocks index[7]) in order to analyze the evolution of earnings mobility. The index is defined as:

$$M(P) = \frac{J - trace(P)}{J - 1} = \frac{J - \sum_{j=1}^{J} p_{jj}}{J - 1} \quad (3)$$

where $P = \{A, B\}$, $p = \{a, b\}$ and *J* is the total number of states.

The index uses the information in the diagonal of the transition matrix and relates it to the total possible mobility within the diagonal. The maximum level of the mobility index is 1 and the minimum is 0.

Figure 3 reports the Shorrocks index of mobility for the two alternative transition matrices[8]. As expected the level of the mobility index is lower when the transition matrix includes only 3 states. When the transition matrix includes 10 states, the values of the mobility index seem to be in line with those obtained by Cantó (2000). Using the Spanish Household Panel Survey (*Encuesta Continua de Presupuestos Familiares*) for the period 1985-1992, she found that income mobility (between two consecutive quarters) increased over time (from 0.63 to 0.71). For the period 1995-2001 I find a value of the Shorrocks index which is slightly above 0.7. But, in contrast to the

[7] See Shorrocks, A. (1978).

[8] M(A) denotes the mobility index when transition matrix includes 3 states, while M(B) is the corresponding mobility index for the case of 10 states. In both cases M mobility is mobility between two consecutive years.

increasing trend observed during the period 1985-1992, earnings mobility remains more or less unchanged during the period 1995-2001. However, clear differences, both in terms of levels and trends, can be perceived when looking at the different stayer/mover/switcher possibilities separately.

Figures 4 and 5 shows the Shorrocks index of mobility by changes in the type of contract and job mobility respectively, and when the transition matrix is based on the year-to-year transitions of working individuals across deciles of the wage distribution. Regarding changes in the contractual arrangement, the highest index of mobility is observed amongst those workers switching into temporary employment. Furthermore, the index presents a remarkably increasing trend for this group of workers. Comparing stayers and movers, it can be observed that the level of the index is significantly higher among those workers changing employer. However, the Shorrocks index remains more or less unchanged for those workers who remain with the same employer, while it slightly decreases for those changing employer.

## 7. Low-wage employment

In this section I concentrate on those workers located at the bottom of the wage distribution. Tables 6 a) and b) shows how important the low-paid segment is for the total picture. The analysis is made for males and females separately. Some points are worth of mentioning. First, for both males and females, of total earnings mobility around 25% corresponds to workers initially earning more than one-and-a-half times the median earnings. However, the major gender differences are observed in the low-paid segment. Only 10% of males were initially in a low-paid job, while the corresponding percentage for females is 17%. Second, more than half of the low-paid males (58.75%) move to a better paid job at any moment during the period under analysis. In contrast,

the corresponding percentage among females is considerably lower (44%). Finally, looking at only those individuals who experience earnings upgrading, it can be observed that, among males, no significant differences can be appreciated when comparing those initially in a low-, or medium-pay situation (of the total amount of earnings upgrading 52% corresponds to males initially low-paid and the remaining 48% to males initially in medium-paid jobs). However, this is not the case among females for whom almost 64% of earnings upgrading corresponds to females initially in low-paid jobs.

The aim of the rest of this section is twofold. First, I will analyze the characteristics of either, workers and jobs, that are more closely related to low wage rate and how the pattern of low-wage employment has evolved over time. And second, I will examine the determinants of leaving a low pay situation using an analytical framework that can account for the endogeneity of initial conditions.

### 7.1 Characteristics of low-paid workers

Figure 6 presents the evolution of low-wage employment by gender. Females are clearly more likely to find themselves in a low-pay situation. Furthermore, the gender differences become larger at the end of the period under analysis. In 1995, 24% of females were employed in a low-paid job, while the corresponding percentage for males was less than 15%. In 2001 the corresponding percentages were 22% and 10% for females and males respectively.

In Figure 7 I report the evolution of low-wage employment for different age groups. In particular, I consider three different age groups: people aged between 16-29 years old, those aged 30-49 years old, and those between 50-65 years old. Comparisons across the age groups show a remarkably higher incidence of low-wage employment amongst the youngest persons. This is not surprising since the Spanish youth labour market is characterized by low wages relative to adults, as well as high relative rates of

unemployment. Furthermore, we observe that the differences between young and adult workers become smaller after 1997. This result can be linked to the substantial rise in the ratio between youth and adult minimum wages that has gone from 40% before 1990 to 77% in 1995 and to 89% in 1997, the latter increase was due to the agreement of equalizing teenage minimum wage to the adult level.

These results confirm that females and young workers in Spain not only are the most affected by the highest unemployment rates but they also suffer from a higher incidence of low pay. In this sense, we can confirm that both females and young workers may be considered as disadvantaged groups in the Spanish labour market.

Finally, Figure 8 shows the evolution of the percentage of people falling below two-thirds of the median earnings at different educational levels: primary, secondary and tertiary education. As expected, individuals with just primary education completed are the most likely of being in a low-paid job, while those with tertiary education completed exhibit the lowest incidence of low pay. In 1995, for instance, around 25% of people with primary education were in a low-paid job, while the corresponding percentage for those with tertiary education was around 5%, and these differences remain more or less unchanged over the whole period.

### 7.2 Characteristics of low-paid jobs

With concerned to job characteristics, I first analyse the evolution of low-wage employment by different types of firm. I first distinguish between public and private sector, and then, within the private sector, between small (less than 50 employees), medium (50-500 employees) and large firms (more than 500 employees). As can be observed in Figure 9, clear differences become apparent between the types of firms. Small private firms are clearly the most likely to have a high incidence of low pay. This is not surprising, since small firms are far more likely than the average to have no union

recognition and be outside collective bargaining frameworks. In contrast, the lowest incidence of low-wage employment occurs in the public sector[9]. These differences remain quite significant over the whole period. However, one can notice a decrease in the incidence of low-wage employment in small private firms (from about 25% in 1995 to 20% in 2001) while for the public sector the percentage remains unchanged (around 5%).

In Figure 10 I distinguish between part-time and full-time jobs. Overall, low-wage employment is found to be more likely among part-timers. However, the incidence of low-wage employment among part-time workers is quite unstable. This could be linked to the profile of this type of wage earners and the effects of the 1994 and 1997 reforms. According to the *Social and Economic Council* report[10], which was based on data derived from the *Labour Force Survey* (EPA), most of part-time workers are married women over 30 years of age. They also have a low level of education and find employment in the least skilled sectors, mainly domestic services, retail and catering. After the 1994 reform there was an increase in part-time employment amongst women with a higher level of education. In contrast, male part-time employment is less significant, and male part-time workers tend to be young. Also, the higher the level of education and qualification, the greater is the tendency towards part-time employment among men. Another important change relating to part-time employment was introduced by the "April agreements" of 1997: part-time work has been redefined as "employment in which the number of hours is less than that of comparable full-time workers (i.e. in the same company or covered by the same collective agreement)".

[9] A possible explanation for the lowest percentages of low-paid in the public sector is that from 1986 to 1992, Spanish public administration went through a phase of decentralization in which many secure well-paid civil servant jobs were created for both men and women.

[10] *Social Economic Council* report. " El trabajo a tiempo parcial". September 1996.

Differences in the evolution of low-wage employment by the type of contract are shown in Figure 11. It can be observed that workers employed on a temporary basis are much more likely to experience low pay, than those holding a permanent contract. Around 25% of people employed with a temporary contract are low-paid, while the corresponding percentage amongst those employed on a permanent basis is always less than 10%.

Figures 12 a) – c) reveal that the percentages of low-paid vary greatly by occupation. The lowest percentages are found among legislators, senior officials and managers and professionals, with less than 5% of people employed in these occupations experiencing low pay. In contrast, people employed in skilled agriculture and fishery workers; service workers and shop and market sales workers; and those in elementary occupations show the highest incidence of low-wage employment.

### 7.3 Probability of leaving a low-paid job

From the welfare point of view, it is important to address the question whether low pay is a transitory phenomenon of a worker's life, as predicted by the human capital theory, or whether it is a more serious and long lasting problem. This section is aimed at analysing the main factors determining the individual likelihood of leaving a low-paid job. If initial conditions were exogenous a standard probit model would be applied. However, if being initially low-paid is not exogenous, the estimated results obtained from a standard probit model would be biased. To account for this selection bias I use a Heckman probit selection model. Thus, the conditional probability of leaving a low-paid job given that the individual is initially in a low pay situation is given by:

$$\Pr\left(y_{i2}=1 \mid y_{i1}=1\right)=\frac{\Phi_2\left(x_{i2}^{'}\beta_2, x_{i1}^{'}\beta_1, \rho\right)}{\Phi\left(x_{i1}^{'}\beta_1\right)} \tag{4}$$

where $y_{i2}=1$ if the individual *i* leaves a low pay situation and switches to a better paid job, $y_{i1}=1$ if the individual *i* is initially in a low-paid job, $x_{i1}$ is the vector of factors that determines the probability of low pay, $x_{i2}$ is the vector of factors that influences the likelihood of leaving a low pay situation, $\Phi$ is the univariate standard normal cumulative distribution function, $\Phi_2$ is the cumulative distribution function of the bivariate standard normal, $\beta_1$ and $\beta_2$ are the vectors of parameters to be estimated, and $\rho$ denotes the correlation coefficient.

In the special case where $\rho=0$ the conditional probability of leaving a low-paid job can be modelled using a standard probit approach. In contrast, if $\rho$ is non-zero the more general model given by equation (4) is required and identification restrictions are needed to make the model credible. The latter implies the inclusion of some different explanatory variables in $x_{i1}$ and $x_{i2}$. The model is estimated by maximum likelihood. The log likelihood function would be as follows:

$$\ln L(\beta_1,\beta_2,\rho)=\sum_{y_1=1,y_2=1}\ln\Phi_2\left(x_{i2}'\beta_2,x_{i1}'\beta_1,\rho\right)+\sum_{y_1=1,y_2=0}\ln\Phi_2\left(-x_{i2}'\beta_2,x_{i1}'\beta_1,-\rho\right)+\sum_{y_1=0}\ln\Phi\left(-x_{i1}'\beta_1\right) \quad (5)$$

Tables 7 a) and b) contain some descriptive statistics (mean and standard deviation) for the selected sample. In Table 7 a) I present the descriptive statistics for the variables included as explanatory factors in the selection equation (probability of being low-paid). The selected sample consists of wage and salary workers aged between 16 and 65 years old and who are observed in employment at least two consecutive years. The descriptive statistics again reveal that low-wage employment is significantly more likely among females, young workers, workers with lower levels of education, and

workers employed on a temporary basis. In Table 7 b) I present the descriptive statistics (mean and standard deviation) for explanatory factors included in the main equation (probability of leaving a low-paid job). As can be observed, around half of the sample moves to a better paid job at some moment during the period under analysis. For the rest of the sample low-wage employment seems to be a more long-lasting phenomenon. The descriptive statistics suggest that leaving a low pay situation seems to be more likely among males, young workers, workers with higher levels of education, workers switching into permanent employment, and workers receiving on-the-job training.

The results obtained from the Heckman probit model are reported in Tables 8 a) and b). These results confirm most of the results derived from the descriptive statistics. Table 8 a) presents the determinants of being in a low-paid job (selection equation), while Table 8 b) shows the factors determining the probability of leaving a low pay situation (main equation). Regarding the determinants of low-wage employment, the main results can be summarized as follows. For both, males and females, I find a remarkably higher incidence of low-wage employment amongst the youngest workers. As expected, education exerts a negative and significant effect on the individual likelihood of being low-paid. In contrast, being employed on a temporary basis clearly increases the risk of being low-paid. Furthermore, the econometric analysis reveals that working part-time significantly reduces the probability of being in a low-paid job, and the same is observed among those workers who receive on-the-job training. In contrast, low-wage employment is found to be more likely among those workers who are in their first job. Finally, the results reveal that low-wage employment is more likely among certain types of occupations.

Regarding the factors determining the probability of leaving a low-paid job, the results reported in Table 8 b) clearly indicate that switching into permanent

employment, either when continuing with the same employer or when changing employer, is an important factor for an individual to get a better paid job. Figure 9 presents the predicted probability of leaving a low-paid job for the eight categories that combine job mobility and changes in the contractual arrangement. As can be observed, the highest probability corresponds to those switching into permanent employment and changing employer at the same time. The second position is occupied by those switching into permanent but remaining with the same employer. In contrast, the lowest probability is observed among those who continue employed on a permanent basis and those who switch into temporary employment.

Regarding the effects of other explanatory variables, the results reveal that females are clearly less likely than males to leave a low pay situation. Leaving a low-paid job is found to be significantly more likely among young workers and workers with tertiary education completed. Finally, I find that being employed in large firms significantly increases the likelihood of leaving a low-paid job.

## 8. Concluding Remarks

Changes in the earnings distribution received considerable attention mainly due to the general increase of inequality in industrialized countries during recent decades. As a consequence, many studies in the recent literature have paid a great deal of attention to the relationship between earnings mobility and job mobility. In the case of Spain, these changes in the earnings distribution have been accompanied by a rapid growth of non-standard work arrangements, with temporary workers accounting for more than one-third of the workforce. In this paper I analyze the relationship between earnings mobility, job mobility and changes in the contractual arrangement. For that

purpose I use a sample of Spanish workers aged 16-65 years old, extracted from the European Community Household Panel, for the period 1995-2001.

The primary interest is in the extent to which job mobility and changes in the contractual arrangement affect earnings mobility.

The main findings of this research can be summarized as follows. Overall, earnings stability is the most frequent outcome. When a change in the earnings distribution occurs, upgrading is marginally more frequent than downgrading for both males and females. However, downgrading is found to be slightly more likely amongst females. Furthermore, for females the effect of job mobility on both up-, and downwards earnings mobility is higher than for males. For the sample as a whole, remaining employed on a permanent basis is the most common outcome, while transitions from permanent to temporary employment represent only 5% of total number of transitions. However, among those workers changing employer, transitions from permanent to temporary employment are found to be significantly higher (around 15%).

As expected, movements into permanent employment status tend to be associated with earnings upgrading. For males changes into temporary employment tend to be more related with downgrading only when individuals remain with their current employer. The same is observed for females. However, for females, switching into temporary employment and changing employer at the same time tend to lead to either earnings upgrading or downgrading. The results also suggest that males and females who remain employed on a temporary basis and change employer at the same time tend to be more likely to experience both earnings upgrading and downgrading than those who remain with their current employer and continue employed on a permanent basis.

Overall, earnings mobility remains more or less unchanged during the period 1995-2001. However, differences can be appreciated among the different

stayer/mover/switcher possibilities. Finally the results provide evidence that switching into permanent employment significantly increases the individual likelihood of leaving a low pay situation.

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# Appendix

| Table 1: Stayers, Movers and Earnings Mobility | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *MALES* | | | | *FEMALES* | | | |
| | **Same** | **Up** | **Down** | **Total** | **Same** | **Up** | **Down** | **Total** |
| *STAYERS* | 67,29 | 9,14 | 6,81 | 83,24 | 68,67 | 9,32 | 7,74 | 85,73 |
| *MOVERS* | 12,13 | 2,82 | 1,82 | 16,76 | 9,74 | 2,55 | 1,98 | 14,27 |
| *TOTAL* | 79,41 | 11,96 | 8,63 | 100 | 78,41 | 11,87 | 9,72 | 100 |

| Table 2: Change of contract and job mobility | | | | |
|---|---|---|---|---|
| | *MALES* | | *FEMALES* | |
| | **Stayers** | **Movers** | **Stayers** | **Movers** |
| *P-T* | 55,0 | 45,0 | 68,3 | 31,7 |
| *T-P* | 87,6 | 12,4 | 88,5 | 11,5 |

| Table 3: Earnings mobility and changes in the type of contract: Stayers and movers separately | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *MALES* | | | | *FEMALES* | | | |
| | | **Same** | **Up** | **Down** | **Total** | **Same** | **Up** | **Down** | **Total** |
| *STAYERS* | P-P | 51,91 | 6,00 | 4,97 | 62,88 | 52,48 | 5,17 | 4,74 | 62,40 |
| | P-T | 2,86 | 0,37 | 0,50 | 3,73 | 2,99 | 0,41 | 0,64 | 4,04 |
| | T-T | 16,56 | 2,62 | 1,84 | 21,01 | 15,45 | 2,84 | 2,13 | 20,41 |
| | T-P | 9,69 | 1,84 | 0,84 | 12,37 | 9,30 | 2,38 | 1,47 | 13,15 |
| | Total | 81,02 | 10,82 | 8,16 | 100 | 80,22 | 10,80 | 8,98 | 100 |
| *MOVERS* | P-P | 5,19 | 0,62 | 0,21 | 6,02 | 5,17 | 0,98 | 0,56 | 6,70 |
| | P-T | 11,77 | 2,15 | 1,59 | 15,51 | 7,12 | 2,93 | 1,68 | 11,73 |
| | T-T | 49,31 | 12,40 | 8,17 | 69,88 | 48,60 | 12,43 | 10,34 | 71,37 |
| | T-P | 6,30 | 1,32 | 0,97 | 8,59 | 7,40 | 1,96 | 0,84 | 10,20 |
| | Total | 72,58 | 16,48 | 10,94 | 100 | 68,30 | 18,30 | 13,41 | 100 |
| *TOTAL* | P-P | 44,23 | 5,11 | 4,19 | 53,53 | 45,87 | 4,59 | 4,16 | 54,61 |
| | P-T | 4,33 | 0,66 | 0,68 | 5,67 | 3,57 | 0,76 | 0,78 | 5,11 |
| | T-T | 21,94 | 4,22 | 2,88 | 29,05 | 20,08 | 4,18 | 3,28 | 27,53 |
| | T-P | 9,13 | 1,75 | 0,87 | 11,75 | 9,03 | 2,32 | 1,39 | 12,74 |
| | Total | 79,63 | 11,75 | 8,62 | 100 | 78,56 | 11,84 | 9,60 | 100 |

| Table 4: Earnings mobility and changes in the type of contract: Stayers and movers together | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *MALES* | | | | *FEMALES* | | | |
| | | **Same** | **Up** | **Down** | **Total** | **Same** | **Up** | **Down** | **Total** |
| *STAYERS* | P-P | 43,37 | 5,01 | 4,16 | 52,54 | 45,15 | 4,45 | 4,08 | 53,68 |
| | P-T | 2,39 | 0,31 | 0,42 | 3,12 | 2,58 | 0,35 | 0,55 | 3,47 |
| | T-T | 13,84 | 2,19 | 1,54 | 17,56 | 13,29 | 2,44 | 1,83 | 17,56 |
| | T-P | 8,10 | 1,54 | 0,71 | 10,34 | 8,00 | 2,05 | 1,27 | 11,32 |
| | Total | 67,70 | 9,04 | 6,82 | 83,56 | 69,01 | 9,29 | 7,73 | 86,03 |
| *MOVERS* | P-P | 0,85 | 0,10 | 0,03 | 0,99 | 0,72 | 0,14 | 0,08 | 0,94 |
| | P-T | 1,94 | 0,35 | 0,26 | 2,55 | 1,00 | 0,41 | 0,23 | 1,64 |
| | T-T | 8,11 | 2,04 | 1,34 | 11,49 | 6,79 | 1,74 | 1,44 | 9,97 |
| | T-P | 1,04 | 0,22 | 0,16 | 1,41 | 1,03 | 0,27 | 0,12 | 1,42 |
| | Total | 11,93 | 2,71 | 1,80 | 16,44 | 9,54 | 2,56 | 1,87 | 13,97 |
| *TOTAL* | P-P | 44,23 | 5,11 | 4,19 | 53,53 | 45,87 | 4,59 | 4,16 | 54,61 |
| | P-T | 4,33 | 0,66 | 0,68 | 5,67 | 3,57 | 0,76 | 0,78 | 5,11 |
| | T-T | 21,94 | 4,22 | 2,88 | 29,05 | 20,08 | 4,18 | 3,28 | 27,53 |
| | T-P | 9,13 | 1,75 | 0,87 | 11,75 | 9,03 | 2,32 | 1,39 | 12,74 |
| | Total | 79,63 | 11,75 | 8,62 | 100 | 78,56 | 11,84 | 9,60 | 100 |

**Table 5: Multinomial logit model for earnings mobility**

| | *MALES* | | | | *FEMALES* | | | |
|---|---|---|---|---|---|---|---|---|
| | ***Upgrading*** | | ***Downgrading*** | | ***Upgrading*** | | ***Downgrading*** | |
| | RRR | t | RRR | t | RRR | t | RRR | t |
| *Age* | | | | | | | | |
| 16-29 | - | - | - | - | - | - | - | - |
| 30-49 | 0.705 | -4.60 | 0.897 | -1.23 | 0.785 | -2.43 | 0.899 | -0.97 |
| 50-65 | 0.610 | -3.41 | 0.832 | -1.19 | 0.663 | -1.89 | 1.201 | 0.93 |
| *Education* | | | | | | | | |
| Primary | - | - | - | - | - | - | - | - |
| Secondary | 0.962 | -0.42 | 1.028 | 0.27 | 0.775 | -2.02 | 0.946 | -0.40 |
| Tertiary | 0.835 | -1.92 | 0.857 | -1.42 | 0.868 | -1.22 | 1.047 | 0.36 |
| *Switching contract and/or employer* | | | | | | | | |
| Stayer P-P | - | - | - | - | - | - | - | - |
| Stayer P-T | 0.994 | -0.03 | 1.676 | 2.73 | 1.329 | 1.08 | 2.242 | 3.62 |
| Stayer T-T | 1.193 | 1.82 | 1.036 | 0.32 | 1.716 | 4.32 | 1.407 | 2.48 |
| Stayer T-P | 1.428 | 3.23 | 0.830 | -1.27 | 2.369 | 6.44 | 1.600 | 3.01 |
| Mover P-P | 0.942 | -0.16 | 0.405 | -1.52 | 1.769 | 1.35 | 1.061 | 0.11 |
| Mover P-T | 1.365 | 1.52 | 1.263 | 1.01 | 3.526 | 4.62 | 2.393 | 2.62 |
| Mover T-T | 1.841 | 5.87 | 1.531 | 3.54 | 2.318 | 5.78 | 2.090 | 4.74 |
| Mover T-P | 1.511 | 1.58 | 1.459 | 1.27 | 2.454 | 2.87 | 1.145 | 0.31 |
| Part-time employment | 1.206 | 0.84 | 2.223 | 3.68 | 0.734 | -2.22 | 1.694 | 4.30 |
| Over-educated | 1.088 | 1.19 | 0.974 | -0.33 | 1.301 | 2.70 | 1.127 | 1.15 |
| First job | 1.348 | 3.36 | 1.175 | 1.51 | 1.185 | 1.71 | 1.043 | 0.38 |
| Training during the last year | 1.068 | 0.75 | 0.724 | -2.91 | 0.848 | -1.61 | 0.687 | -3.21 |
| *Type of firm* | | | | | | | | |
| Public | 0.743 | -2.82 | 0.839 | -1.52 | 0.649 | -3.54 | 0.686 | -2.83 |
| Private (<50) | | | | | | | | |
| Private (50-500) | 0.911 | -1.01 | 0.801 | -2.00 | 0.693 | -2.83 | 0.746 | -2.04 |
| Private (>500) | 1.066 | 0.46 | 1.163 | 0.98 | 0.789 | -1.14 | 1.085 | 0.40 |
| N | 8,782 | | | | 5,125 | | | |
| Log likelihood | -5,559 | | | | -3,299 | | | |

| Table 6 a): Wage distribution and earnings mobility (MALES) | | | | |
|---|---|---|---|---|
| | SAME | UP | DOWN | TOTAL |
| Low | 377 | 537 | - | 10.41% |
| Medium | 4886 | 497 | 371 | 65.52% |
| High | 1728 | - | 386 | 24.07% |
| Total | 79.63% | 1175% | 8.62% | 100% |
| | SAME | UP | DOWN | TOTAL |
| Low | 41.25% | 58.75% | - | 100% |
| Medium | 84.91% | 8.64% | 6.45% | 100% |
| High | 81.74% | - | 18.26% | 100% |
| | SAME | UP | DOWN | |
| Low | 5.39% | 51.93% | - | |
| Medium | 69.89% | 48.07% | 49.01% | |
| High | 24.72% | - | 50.99% | |
| Total | 100% | 100% | 100% | |

| Table 6 b): Wage distribution and earnings mobility (FEMALES) | | | | |
|---|---|---|---|---|
| | SAME | UP | DOWN | TOTAL |
| Low | 495 | 386 | - | 17.19% |
| Medium | 2462 | 220 | 295 | 58.09% |
| High | 1070 | - | 197 | 24.72% |
| Total | 78.56% | 11.84% | 9.60 | 100% |
| | SAME | UP | DOWN | TOTAL |
| Low | 56.19% | 43.81% | - | 100% |
| Medium | 82.70% | 7.39% | 9.91% | 100% |
| High | 84.45% | - | 15.55% | 100% |
| | SAME | UP | DOWN | |
| Low | 12.29% | 63.70% | - | |
| Medium | 61.14% | 36.30% | 59.96% | |
| High | 26.57% | - | 40.04% | |
| Total | 100% | 100% | 100% | |

| Table 7 a): Descriptive Statistics (Selection Equation)[11] | | | | | | |
|---|---|---|---|---|---|---|
| | *Total sample (100%)* | | *No low pay (86.46%)* | | *Low pay (13.54%)* | |
| | Mean | Std.Dev | Mean | Std.Dev | Mean | Std.Dev |
| Female | 0,370 | 0,483 | 0,351 | 0,477 | 0,489 | 0,499 |
| Married | 0,584 | 0,493 | 0,614 | 0,487 | 0,393 | 0,489 |
| Children < 12 in the household | 0,086 | 0,280 | 0,087 | 0,282 | 0,078 | 0,268 |
| *Age* | | | | | | |
| 16-29 | 0,365 | 0,481 | 0,335 | 0,472 | 0,559 | 0,494 |
| 30-49 | 0,555 | 0,497 | 0,585 | 0,493 | 0,365 | 0,479 |
| 50-65 | 0,079 | 0,270 | 0,080 | 0,271 | 0,076 | 0,265 |
| *Education* | | | | | | |
| Primary | 0,465 | 0,498 | 0,432 | 0,495 | 0,679 | 0,466 |
| Secondary | 0,211 | 0,408 | 0,212 | 0,409 | 0,200 | 0,401 |
| Tertiary | 0,324 | 0,467 | 0,356 | 0,478 | 0,119 | 0,321 |
| Temporary contract | 0,415 | 0,491 | 0,373 | 0,483 | 0,682 | 0,463 |
| Part-time employment | 0,065 | 0,246 | 0,063 | 0,242 | 0,081 | 0,271 |
| First job | 0,223 | 0,416 | 0,215 | 0,411 | 0,268 | 0,442 |
| On-the-job training | 0,280 | 0,449 | 0,312 | 0,463 | 0,077 | 0,265 |
| *Occupation* | | | | | | |
| Legislators, senior officials and managers | 0,019 | 0,137 | 0,022 | 0,146 | 0,002 | 0,027 |
| Professionals | 0,127 | 0,333 | 0,145 | 0,353 | 0,009 | 0,091 |
| Technicians and associate professionals | 0,102 | 0,303 | 0,112 | 0,315 | 0,040 | 0,196 |
| Clerks | 0,112 | 0,315 | 0,119 | 0,323 | 0,069 | 0,252 |
| Service workers and shop and market sales workers | 0,148 | 0,355 | 0,129 | 0,335 | 0,269 | 0,443 |
| Skilled agricultural and fishery workers | 0,015 | 0,121 | 0,012 | 0,108 | 0,034 | 0,180 |
| Craft and related trade workers | 0,192 | 0,393 | 0,197 | 0,397 | 0,159 | 0,365 |
| Plant and machine operators and assemblers | 0,100 | 0,300 | 0,101 | 0,301 | 0,096 | 0,294 |
| Elementary occupations | 0,170 | 0,375 | 0,149 | 0,355 | 0,303 | 0,459 |

[11] To estimate means I proceed as follows: mean(female)=(N95/N)*m95 + (N96/N)*m96 +….+ (N00/N)*m00. Where m95…m00 denote the means of the variable "female" for each year, N95…N00 the number of observations from 1995-2000, and N=N95+…+N00. The same criteria are applied for the standard deviations and for the rest of the explanatory variables.

| Table 7 b): Descriptive Statistics (Main equation) | | | | | | |
|---|---|---|---|---|---|---|
| | *Total Sample (100%)* | | *$y_{i2}$=0 (48.7%)* | | *$y_{i2}$=1 (51.3)* | |
| | Mean | Std. Dev | Mean | Std. Dev | Mean | Std. Dev |
| Female | 0.491 | 0.500 | 0.574 | 0.495 | 0.412 | 0.492 |
| *Age* | | | | | | |
| 16-29 | 0.552 | 0.497 | 0.529 | 0.499 | 0.576 | 0.494 |
| 30-49 | 0.371 | 0.483 | 0.374 | 0.484 | 0.367 | 0.482 |
| 50-65 | 0.077 | 0.266 | 0.097 | 0.296 | 0.057 | 0.232 |
| *Education* | | | | | | |
| Primary | 0.679 | 0.467 | 0.739 | 0.439 | 0.623 | 0.485 |
| Secondary | 0.200 | 0.400 | 0.183 | 0.387 | 0.215 | 0.411 |
| Tertiary | 0.120 | 0.325 | 0.076 | 0.265 | 0.162 | 0.369 |
| *Switching contract and/or employers* | | | | | | |
| Stayer P-P | 0.232 | 0.422 | 0.226 | 0.418 | 0.237 | 0.425 |
| Stayer P-T | 0.034 | 0.181 | 0.041 | 0.199 | 0.027 | 0.162 |
| Stayer T-T | 0.261 | 0.439 | 0.288 | 0.453 | 0.235 | 0.424 |
| Stayer T-P | 0.148 | 0.355 | 0.129 | 0.335 | 0.166 | 0.372 |
| Mover P-P | 0.007 | 0.081 | 0.006 | 0.079 | 0.007 | 0.083 |
| Mover P-T | 0.033 | 0.178 | 0.033 | 0.178 | 0.033 | 0.179 |
| Mover T-T | 0.219 | 0.414 | 0.207 | 0.405 | 0.230 | 0.421 |
| Mover T-P | 0.017 | 0.129 | 0.013 | 0.112 | 0.021 | 0.143 |
| Part-time | 0.081 | 0.273 | 0.087 | 0.281 | 0.076 | 0.265 |
| First job | 0.263 | 0.440 | 0.265 | 0.441 | 0.260 | 0.439 |
| On-the-job training | 0.076 | 0.266 | 0.054 | 0.226 | 0.098 | 0.297 |
| *Type of firm* | | | | | | |
| Public | 0.050 | 0.219 | 0.044 | 0.206 | 0.056 | 0.230 |
| Private (<50) | 0.773 | 0.419 | 0.806 | 0.396 | 0.742 | 0.438 |
| Private (50-500) | 0.111 | 0.315 | 0.103 | 0.305 | 0.119 | 0.324 |
| Private (>500) | 0.026 | 0.158 | 0.013 | 0.112 | 0.038 | 0.191 |
| N | 1,946 | | 947 | | 999 | |

| Table 8 a): Probit model for the probability of being low-paid (selection equation) | | |
|---|---|---|
| | Coef. | t |
| Female | 0.431 | 12.94 |
| Married | -0.285 | -8.66 |
| Children under 12 in the household | -0.134 | -2.57 |
| *Age* | | |
| 16-29 | - | - |
| 30-49 | -0.200 | -5.70 |
| 50-65 | -0.187 | -3.12 |
| *Education* | | |
| Primary | - | - |
| Secondary | -0.263 | -6.70 |
| Tertiary | -0.438 | -9.21 |
| Temporary contract | 0.463 | 14.83 |
| Part-time employment | -0.274 | -4.81 |
| First job | 0.213 | 5.73 |
| On-the-job training | -0.553 | -12.08 |
| *Occupation* | | |
| Legislators, senior officials and managers | -0.502 | -2.17 |
| Professionals | -0.755 | -6.98 |
| Technicians and associate professionals | -0.054 | -0.75 |
| Clerks | - | - |
| Service workers and shop and market sales workers | 0.527 | 9.70 |
| Skilled agricultural and fishery workers | 0.872 | 8.50 |
| Craft and related trade workers | 0.064 | 1.08 |
| Plant and machine operators and assemblers | 0.242 | 3.71 |
| Elementary occupations | 0.404 | 7.24 |
| Constant | -1.226 | -19.71 |

| Table 8 b): Heckman probit selection model for the probability of leaving a low-paid job | | |
|---|---|---|
| | Coef. | t |
| Female | -0.172 | -2.26 |
| | | |
| *Age* | | |
| 16-29 | - | - |
| 30-49 | -0.151 | -2.38 |
| 50-65 | -0.333 | -3.09 |
| | | |
| *Education* | | |
| Primary | - | - |
| Secondary | 0.046 | 0.62 |
| Tertiary | 0.230 | 2.10 |
| | | |
| *Switching contract and/or employer* | | |
| Stayer P-P | - | - |
| Stayer P-T | -0.183 | -1.24 |
| Stayer T-T | 0.098 | 1.22 |
| Stayer T-P | 0.319 | 3.63 |
| Mover P-P | -0.141 | -0.45 |
| Mover P-T | -0.011 | -0.08 |
| Mover T-T | 0.235 | 2.86 |
| Mover T-P | 0.495 | 2.39 |
| | | |
| Part-time employment | -0.046 | -0.46 |
| | | |
| First job | 0.066 | 0.99 |
| | | |
| On-the-job training | -0.106 | -0.90 |
| | | |
| *Type of firm* | | |
| Public | 0.082 | 0.68 |
| Private (<50) | - | - |
| Private (50-500) | 0.126 | 1.54 |
| Private (>500) | 0.523 | 2.90 |
| | | |
| Constant | -0.735 | -4.62 |
| | | |
| ρ | 0.560 | 4.79 |
| N | 14,594 | |
| Log likelihood | -5,908 | |

## EVALUATED PROBABILITIES FOR EARNINGS MOBILITY

Figure 1: Evaluated Probabilities for Earnings Mobility (Males)

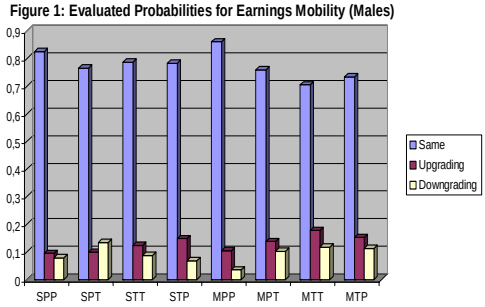
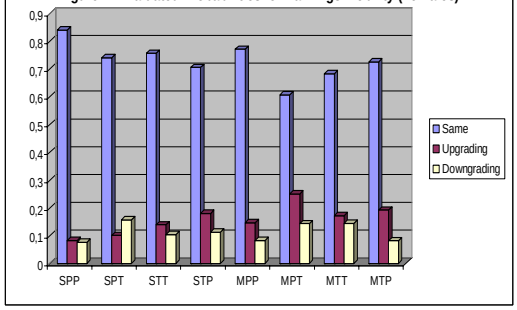



Figure 2: Evaluated Probabilities for Earnings Mobility (Females)




## EARNINGS MOBILITY

Figure 3: Shorrocks Index of Mobility

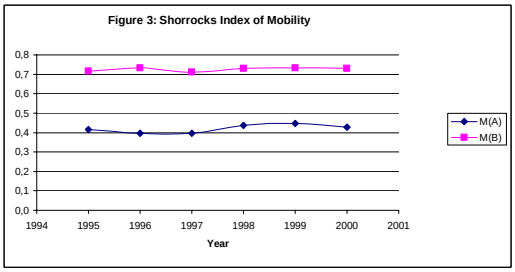



Figure 4: Shorrocks mobility index by changes in the type of contract

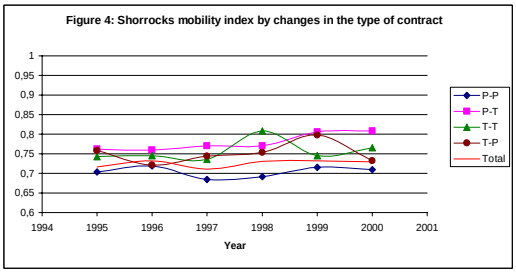
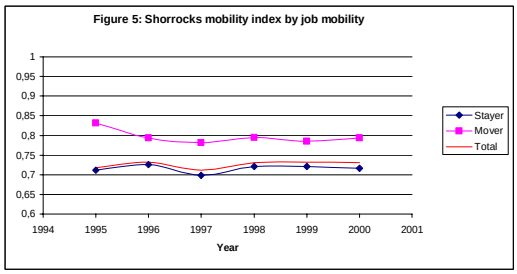



Figure 5: Shorrocks mobility index by job mobility




## CHARACTERISTICS OF LOW-PAID WORKERS

Figure 6: Evolution of low-wage employment by gender

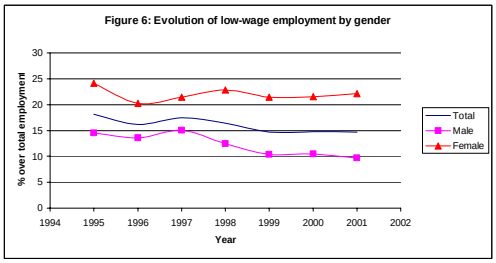



Figure 7: Evolution of low-wage employment by age

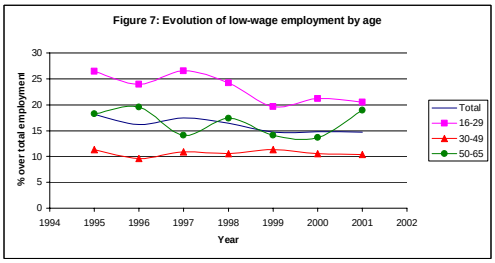
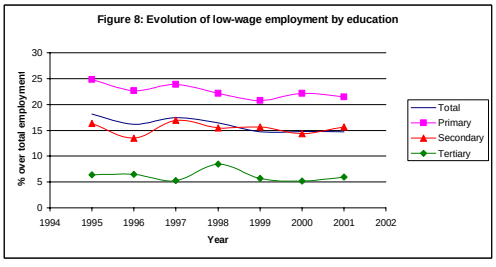



Figure 8: Evolution of low-wage employment by education



## CHARACTERISTICS OF LOW-PAID JOBS

**Figure 9: Evolution of low-wage employment by type of firm**

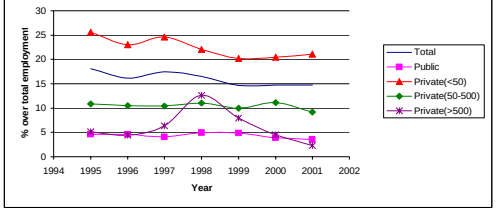



**Figure 10: Evolution of low-wage employment by full-time/part-time**

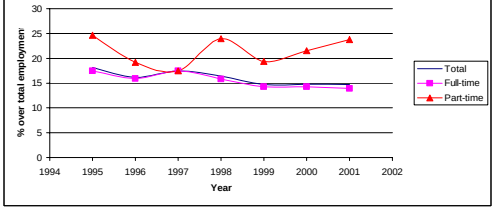
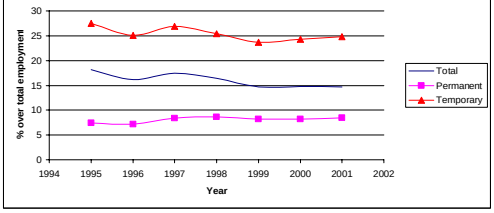



**Figure 11: Evolution of low-wage employment by type of contract**




## CHARACTERISTICS OF LOW-PAID JOBS

**Figure 12 a): Evolution of low-wage employment by occupation**

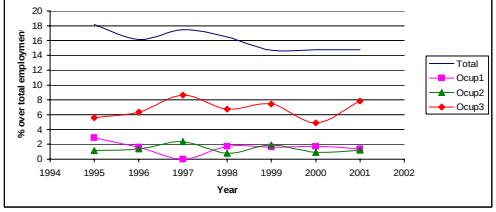



**Figure 12 b): Evolution of low-wage employment by occupation**

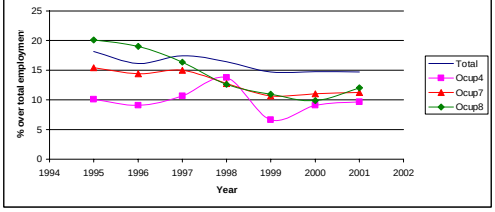



**Figure 12 c): Evolution of low-wage employment by occupation**

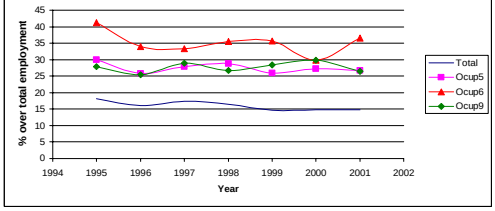


**Figure 13: Pr(leaving low pay | being initially low pay)**