Job mobility and wage mobility at the beginning of the working career: a comparative view across Europe

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ABSTRACT

This piece of work is aimed at studying the rewards to job mobility and whether it is a proper tool to experience wage growth and escaping situations of low-paid jobs. The data-base used will be the European Community Household Panel Survey, from which a sample of young people (under 30 in 1994) from thirteen different countries has been drawn. The selected technique will be a fixed-effects model where job mobility endogenous nature is taken into account and where the marginal wage increase for movers is approached. Results show that, on average, young workers who move across employers (being initially worse paid than the stable ones) achieve a positive increase in their wages vis-à-vis those who remain with the same employer. However, this advantage in the wage dynamics is positive but at a decreasing rate, with too much mobility resulting in lower outcomes. Although a causal relation between job mobility is found, including control for endogeneity often wipes the explanatory power of mobility away, particularly when accumulated mobility is looked at.

NON-TECHNICAL SUMMARY

The aim of the paper is to discern whether job mobility helps to significantly improve wages at the beginning of the working career, as well as being able to disentangle potential eroding or scarring effects of intensive mobility. The data-base used is the European Community Household Panel Survey, from which a sample of young people (under 30 in 1994) from thirteen different countries has been drawn.

Results show that some of the positive rewards to voluntary mobility and negative outcomes of involuntary moves are wiped away when unobserved heterogeneity and endogeneity are taken into account. Bit we still find causal links between job mobility and recent wage mobility in a large number of countries. Despite our initial hypothesis of which countries would register higher returns or scars from job mobility, we have found that “formally highly regulated” labour markets tend to register important rewards and scars to recent moves and that, when the observation window is widened, there is no clear pattern of rewards to mobility that we can relate to institutional aspects. Job mobility pays in the mid term, even for involuntary movers, although at a decreasing rate, which means that there comes a point in which wages do not grow any more with more and more mobility, all the contrary.

0. Introduction

The impact of job mobility on wages is one of the most relevant and controversial issues to be studied in labour economics, particularly when looking at the beginning of the employment career. In most of the theoretical approaches to this issue (human capital, job search and job-matching as well as the career mobility models) youths are supposed to get positive wage gains from mobility (Bartel and Borjas, 1978), which is voluntary. Hence, in much of the seminal literature on the topic, initial job mobility is referred to as "job shopping" (Johnson, 1978). Yet in European countries young people do not always change voluntarily their jobs: either they are dismissed or their temporary contracts are just not renewed. Moreover, it has been often argued that an excessive job turnover at the beginning of employment careers may seriously damage labour market outcomes in the mid or long term.

This piece of work is aimed at studying the rewards to job mobility and whether and when it is a tool to accelerate wage growth at the beginning of the employment career in 13 different countries. To that aim, a sub-sample of young people (under 30 in 1994) has been drawn from the European Community Household Panel. Since unobserved heterogeneity and endogeneity are very relevant issues in the job mobility and wage mobility literature, the selected empirical strategy will consist of country-specific fixed-effects models where the endogenous nature of job mobility is taken into account through instrumental variables.

Results show that returns to recent mobility are positive when it is voluntary and are not always negative just after involuntary movements. Cumulative mobility tends to show good results even in the case of past involuntary mobility, but at a decreasing rate, with too many movements, even if voluntary, damaging the level of wages. Moreover, very often the link between job mobility and wage mobility, which is considered causal given that it persists in a fixed effects framework, tends to be wiped out when endogeneity, particularly in the cumulative mobility estimations, is taken into account. We think the latter phenomenon is due to "catch up" processes in wages along the observation period.

The contents of the paper are displayed as follows: Section 1 surveys the main theoretical approaches to the relation between job mobility and wage dynamics and a discussion of the expected effects of different institutional frameworks. Section 2 is used to survey empirical evidence and methodological problems. After that, the data base is presented in section 3; Section 4 is devoted to some basic descriptive analysis about the link between job mobility, wages and wage dynamics. Section 5 displays the econometric strategy. Section 6 shows the main results from all the multivariable models and finally some conclusions are drawn from those results.

1. Job mobility and wage mobility, a theoretical survey

Several alternative theories try to explain the link between job mobility and income dynamics. One of the first approaches to the problem is the movers-*stayers* model of Blumen et al (1955), with a rather psychological argument: some individuals are more mobile in nature, and this mobility is related to a lack of capacity to stay stable in one job and in other spheres of life. More unstable individuals will be less productive due to this instability and, therefore, will receive lower wages than *stayers*. The mover-*stayers* model connects explicit behaviour with unobserved inherent attitudes and preferences. Therefore the best way to test it is controlling for unobserved heterogeneity, since it implies that, after controlling for unobserved factors wages, with wanderlust being one of them, mobile and stable workers wages should not differ. Hardly any empirical evidence confirms this hypothesis.

Other models looking at the link between job mobility and wage mobility have been classified as static and dynamic (Naticchioni and Panigo, 2004) according to the acceptance or rejection of the assumption dynamism of wages within jobs. An on-the-job search approach would be classified as static, whereas a specific human capital and a job matching approach are examples of dynamic models. Static models allow for wage dynamics linked only with job switching, whereas dynamic models allow both for between and within-job wage growth.

Search models imply that shorter tenure, which indicates recent movements, and mobility wage gains are strongly correlated, with mobility being more profitable at the beginning of the working career. The same applies to Jovanovic's (1979b) version of jobs as "search goods", based on on-the-job search models (Burdett, 1978).

As for the human capital approach (Becker, 1962), Light and McGarry (1998) explain that the human capital model highlights the inverse relation between job mobility and investment in job-specific skills, but is not able to specify any hypothesis about the link between job mobility and wage growth because basically it depends on the ability to transfer human capital acquisition. The more specific human capital is transferred the lower the expected decrease in wages due to job mobility will be expected.

Another "dynamic" approach for the study of job and wage mobility is the job-worker matching model looking at jobs both as "experience goods" and as "search goods": workers move across jobs in order to find a good match which pays for their aptitudes and meets their expectations. When

individuals take jobs as "experience goods" (Jovanovic, 1979a[1]), it is not possible to know ex ante the quality of the match. In this model, wages grow through jobs as a reward to the search for better matches, even regardless the argument of the accumulation of specific human capital. A job match theory, though, will not infer a general pattern for the wage dynamics and its relationship with job mobility (Naticchioni and Panigo (2004)). In the short term workers may experience a wage loss if the new job present value is under the last job present value, but usually new jobs wages should register higher growth rates so that final outcomes after some time should be positive.

Other contributions will also predict wage mobility across jobs, but this time demand-driven: workers may select post bonds that guarantee productivity and self selection of the more stable and reliable workers into stable jobs (Lazear, 1979). Contract theories will predict a negative correlation between between-job and within-job wage growth if wages are observed in a cross-section. Later, Lazear (1986) develops a raiding model, which would go in the opposite direction as Blumen *et al* (1955): firms take previous wages as an indicator of productivity or quality of the worker, and the best workers undergo intensive job turnover since the best paying firms will poach workers to their competitors.

Needless to say after the former discussion, the expected sign of the net effect of job mobility on wages is ambiguous. It depends not only on the transferability of specific human capital and the improvement of job matches, but also on the (in)voluntary nature of mobility. The theories mentioned above rest on the assumption that mobility between employers is voluntary and they basically explain the outcomes of quitters. However, internal labour markets models and the theory of segmentation allow for involuntary mobility: when in the secondary segment or across temporary jobs, which do not provide specific human capital, it does not contribute to the progression in wages either. Occupational job mobility related to the primary segment does, though; therefore in the primary segment mobility is voluntary and worthy or profitable, whereas the opposite holds true for the secondary segment.

The effects of non-voluntary separations, such as displacements, are initially more clear in both theoretical and empirical literature. From both a human capital and a job match approach we may expect negative wage growth amongst job losers. The first argument is the loss of non transferable skills or specific human capital between jobs. The second is that, since involuntary movements are often linked to unemployment spells, and both dismissals and unemployment may be seen as poor productivity signals. Thirdly, as a result of both processes (loss of human capital and negative

[1] Jovanovic (1979b) reaches the conclusion that the worse the quality of a matching, the shorter it is. If wages reflect average productivity, then badly matched workers will find that their human capital is badly paid, so that there will be more

signalling), the new matches found in the market may well be worse than the previous ones: unemployment may therefore have scarring effects that reduce the value of future jobs. In this vein, Kahn and Low (1982) suggest that the wage gain of voluntary job changers who experience unemployment should exceed the gain of quitters who change jobs without unemployment spells.

Some of the aforementioned models have been merged to explore intermediate possibilities in various ways: Mortensen (1998) merges human capital and job search models in order to explain turnover processes, as well as Munasinghe and Sigman (2004), who develop one that shows that the effect of job mobility will depend on the distribution of the outside wage offers and firm-specific growth rate. A mixture of a matching and a job search model by Munasinghe (2000) presents a theory of turnover that explains why within job wage growth reduces the likelihood of worker-firm separations. Perticara (2002) pays attention to both voluntary and involuntary separation processes when in a job turnover/job match framework.

None of these approaches may fully describe the link between mobility and wage dynamics and they are observationally equivalent as regards the duration of workers-jobs matches. They complement each other, given that neither job search or human capital alternatives alone may explain the link between job and wage mobility. Empirical evidence is vital to disentangle which approach fits reality better.

All the previous theoretical approaches take into account either individual preferences or unobserved individual features, but none explicitly considers the role of the institutional framework. Most of the theoretical models in the paragraphs above are "designed" to fit the labour market institutional features of the U.S., whereas European labour markets do register institutional features that condition both job mobility and wage formation and, therefore, monetary returns to mobility. Naticchioni and Panigo (2004) explicitly introduce the possibility of increasing dismissal costs with time, which is in fact a very relevant feature linked to employment protection policies all over Europe. By doing that they develop a theoretical model where optimal switching conditions determine a positive correlation between job tenure and short-term mobility gains.

The institutional framework may influence both job turnover and wage dynamics in various ways. In the case of job turnover, the employment protection legislation has a very relevant role in easing dismissals and hiring on temporary bases. The most flexible labour markets are, the higher the turnover rates are expected to be, and this may diminish both the expected gain from voluntary loss due to job losses and the wage growth as a result of voluntary movements, given that cumulative

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better paid employment opportunities in the market, which generates a higher level of voluntary mobility among workers.

mobility has erosive effects on wages. In countries with higher employment protection voluntary movements should be more profitable, being only decided when the new wage implies a higher wage growth than expected in the current position in the labour market.

The second relevant institutional feature is unemployment compensation and the generosity of employment enhancing measures. Countries with a generous passive measures system may contribute to lengthen unemployment spells between jobs, widening wage gaps for job losers, although the effect is not clear for voluntary job movers.

And as regards the wage formation process, both centralization and coordination of collective bargaining, together with collective bargaining coverage, are linked to anti-inflationary policies and wage compression, whereas countries with low trade union density or low collective bargaining coverage should tend to register higher dynamism in real wages. Finally, the more decentralised the collective bargaining is, the higher wage gains and losses are expected to be.

Table A gives plenty of information about the strictness in employment protection legislation, collective bargaining rules and generosity of the welfare system. From this information we may establish the following hypotheses: the combination of flexibility, low collective bargaining coverage and centralisation, and low public effort in employment policies in UK and Ireland should derive in more intensive job mobility and wage mobility in these countries. As for the more generous systems, such as France, Finland and Denmark, wage increases due to voluntary movements are expected to be more moderated, and job losses due to dismissals or temporary jobs ends might be also softer.

In southern countries, namely Italy, Portugal, Greece and Spain the labour markets are formally quite regulated, but all of them have found ways to become more flexible, particularly at the expense of new entrants. Thus, in Spain the flexibility of strategy at the margin includes the profusely temporary hiring, in Greece, the use of informal labour relations, in Portugal, wage flexibility (despite formal employment rigidities) and in Italy the use of self-employment acting as a front for temporary employment relations. Therefore, although we see relative formal rigidities in Table A. we must admit that job turnover is some times (particularly in Spain) quite intensive and, therefore, wage gains in such contexts may be eroded. On the other hand youths have hardly any access to welfare and employment policies, which might make them accept new job offers under their initial expectations, although this is not clearly the case if we keep in mind the well knitted family solidarity net.

Besides, employers will also have incentives to dismiss those workers who are not properly matched with their posts.

2. Job mobility and wage mobility: empirical evidence and methodological issues.

When tackling the effect of job mobility on wage dynamics a first concern is the endogenous nature of the main explanatory variable, job mobility (or job tenure, the other flip side of the coin), which cause bias in the OLS estimators in a typical Mincerian wage equation. There are several strategies for overcoming this problem. One of the most widespread ones is instrumental variables approach, as an alternative to the simultaneous resolution of equation systems such in switching endogenous models. The former has been heavily used in empirical literature, particularly in the study of the effects of tenure on wages. Althonji and Shakotko (1987)[2] and Topel (1991)[3] developed smart techniques that remove the effects of correlation between wages and job duration without trying to estimate the extent of correlation, via instrumental variables (the former) or two-step procedures for differentiating between returns to experience and tenure (the latter). The same idea was used afterwards by Light and McGarry (1998), Topel (2001), Perticara (2002), Le Grand and Tåhlin (2002), Lefranc (2003), Dustman and Pereira (2003) and Naticchioni and Panigo (2004) amongst many others.

Attempts to integrate the search for an explanation to job mobility and wage mobility come from Flinn (1986), who considers simultaneously job turnover processes and wage growth in the study of labour market experiences of young people by developing a discrete time version of Jovanovic's job-match model. Antel (1991) uses mobility choice dummies that are determined by a *probit* function by to assure consistent estimates of the effect of job mobility on wages. Another very well-known piece of evidence is Topel and Ward (1992). The authors analyse both the effect of past job mobility on current wages and past wages growth on current decisions of job mobility. Job mobility, when non conditioned to wages or wage increases in the past, diminishes with tenure and experience. Perticara (2002) evaluates a hazard model for both voluntary and involuntary job separations.

More sophisticated strategies have been developed by Lillard (1999) and Abowd and Kang (2002). The proposal of Lillard tries to encounter simultaneously for job mobility and wage mobility through a multilevel estimation with three levels of sources of unobserved heterogeneity: the individual level, and employer level and the job (employer-employee match) level. He models job turnover and job duration in continuous time jointly with the wage time series for that job. And finally, Abowd and

[2] Altonji and Shakotko (1987) estimate wages using generalised least squares and substituting raw variables indicating tenure and experience with instruments consisting on the deviations of the tenure variables around their means for the sample observations on a given job match. Once they re-estimate wage profiles they find that wage increase due to tenure itself is low and that most of wage growth during a career is explained by general experience in the labour market.

[3] Topel (1991) tackles wage mobility with a two-step estimation, based on the idea that wage growth combines returns to both general and job-specific experience.

Kang (2002) resume and revise the results of the three aforementioned papers (namely, Altonji and Shakotko (1987), Topel (1991) and Lilliard (1999)) in a new simultaneous estimation of wages and tenure. Tenure is estimated through a discrete time duration model in which the decision of staying in the same job or leaving is taken every year. They find that tenure looses significance when explaining wages whereas wages gain significance to explain tenure if they are estimated simultaneously.

The second key methodological issue deals with unobserved heterogeneity, which is another problem that questions the causal nature of the link between job mobility and wage mobility. If we were to accept the hypothesis that some individuals are just more prone than others to be mobile and this wanderlust results in a lower productivity, then we should accept that, after controlling for unobserved heterogeneity amongst individuals should cancel significance of the variables reporting mobility. If, on the contrary, control for unobserved heterogeneity does not cancel explanatory power of mobility, we should accept a causal link between both variables. Anyway, even if we accept that there is a causal link between them, the rationale behind this relation, this is, the causal mechanism, is a third issue to be tackled. This is beyond the scope of this paper[4].

In this paper we use the most heavily deployed techniques to control for unobserved heterogeneity: fixed effects estimations, recent examples being Light and McGarry (1998), Arulampalam (2001), Gregory and Roberts (2001), Le Grand and Tåhlin (2002), Naticchioni and Panigo (2004) and Munasinghe and Sigman (2004). The idea is to observe not wage levels but the relative distance between wage levels in a given moment and the average across the period of observation for each individual instead of taking the previous wave as a "mobile" reference period. It is therefore a proxy for a before-after estimator.

Empirical evidence on job mobility focuses on youth very often, since it is during the early stages in the working life that workers experience more intensive job mobility and wage mobility. The availability of data-sets on early careers have also contributed to this. The seminal pieces of evidence as Bartel and Borjas (1978, 1981) observe higher mobility returns amongst youths, as well as Mincer (1986). Later on Antel (1991), Topel and Ward (1992), Light and McGarry (1998) and Perticara (2002) focus only on youths, whereas Le Grand and Tåhlin (2002) comprise young adults, aged 26 to 35, when both job and wage mobility are crucial.

[4] The causal mechanism in the job mobility-wage mobility relationship may come from either job search, job match and/or specific human capital considerations. The three arguments are not self exclusionary and it is difficult to disentangle which is the explanatory power of them all. Generally researchers deploy information about the three possible explanatory factors: for instance, tenure in previous jobs is often used as a proxy for specific human capital accumulated in former jobs, satisfaction and wages in former jobs may be used as proxy for initial quality of the previous job match, and job search intentions should play the same role as regards job search strategies.

Very often authors deal with voluntary and involuntary mobility at the same time, such as Bartel and Borjas (1978), Mincer (1986), Perticara (2002) and Munasinghe and Sigman (2004) although sometimes this distinction cannot be done or attention is simply driven towards troublesome sphere of job mobility, i.e., whenever there are unemployment spells after dismissals, such as Arulampalam (2001), Gregory and Roberts (2001) and Lefranc (2003), who study the scarring effect of unemployment, and Antel (1991), who finds out positive effects of unemployment on the basis that young unemployed search more intensively for jobs than those who register job interruptions but no unemployment.

Most of the empirical evidence on the topic refers to the U.S. labour market (Bartel Borjas (1978, 1981), Topel and Ward (1992), Light and McGarry (1998), Perticara (2002), Munasinghe and Sigman (2004) among many others) and the availability of longitudinal information has conditioned empirical evidence in other countries, with U.K (Campbell (2001), Dustman and Pereira (2003)) and Germany (Dustman and Pereira, 2003) being more studied than other cases thanks to the existence of longitudinal surveys such as BHPS and GSOEP. Exceptionally other countries have been provided with employee-employer longitudinal data-sets, such as Italy (Contini et al (2004), Natichioni and Pagani (2004) and France (Lefranc (2003). But many other countries have hardly ever been explored in comparative analysis (with the exception of Brunello and Comi, 2004), so that the availability of the ECHP provides us with exceptional opportunity to perform comparative studies (for initial exploratory and preliminary analysis, see Davia (2004) and García and Rebollo, 2004).

Comparative analysis requires researchers devoting some attention not only to hypothesis and methodological issues, but also to the institutional context. A very important part of the different determination of wages arises from differences in institutions (Employment in Europe 2003, by the E.C.). The OECD (1997) explored the connexion between institutions and wage mobility in the eighties and Cardoso (2004) focuses on two examples of very regulated (Portugal) and very flexible (U.K.) labour markets. By performing country by country estimations we try to take some of the institutional differences into account.

3. The data base: the European Community Household Panel (ECHP).

In order to gain evidence on both determinants of and rewards to job mobility, the data-base used here will be the European Community Household Panel (hereinafter, ECHP). This survey gathers information on several socio-economic aspects in the European Union, being labour market one of the most important fields considered in the survey. This data-base, produced by *Eurostat*, has two very important features which make it particularly interesting and useful for the study of labour market dynamics in the European Union: it is not only strictly comparable (being designed with that aim) but also longitudinal. The countries included in the study are Germany, Denmark, Netherlands, Belgium, France, United Kingdom, Ireland, Italy, Greece, Spain, Portugal, Austria, and Finland: all the EU-15 except Sweden and Luxembourg. Sweden has been left out because of certain difficulties for following the sample due to the implementation of the survey in that country and Luxembourg has also been excluded because of the small size of the sample.

As for the type of information we will need in our analysis, the ECHP is provided with information on characteristics of jobs such as occupation, industry, size of the firm, public or private employer, monthly (both gross and net) wage and length of working week, among many others. It is also possible to estimate tenure at the moment of the interview from the distance between the date of the interview and the beginning of the relation with the employer; and hourly gross wage can be imputed from the working week and the monthly salary.

The ECHP micro-data has been completed with several pieces of information that entail to provide with national-wide (and even regional-wide) institutional and business cycle differences. For such purpose we have been able to collect, from various statistical sources (European Commission, OECD, REGIO) relevant information on the evolution of labour costs, labour productivity growth per industry in the business sector, and regional per capita income.

As for our main explanatory variable, there is no explicit question in the survey about recent (since the last interview when the interviewee was observed as an employee and reported a positive wage) changes across employers. Therefore, job mobility is detected when an individual who was initially employed, reports tenure lower than one year in the following interview. Tenure is computed from the date of the beginning of the relationship with the current employer. Should an interviewee sign several contracts in a row with the same employer s/he would report the date when the labour relationship began and therefore no job change will be found. Every employed person will report as well whether s/he experienced unemployment before accessing the current job and why s/he left the

previous one. This information for job movers will derive in more complete variables combining movements across jobs with willingness in job mobility

We have computed as well cumulative movements since the first interview. We have added up all the voluntary and involuntary moves detected since 1994 to the current interview, which is necessarily 1994 to 2001.We are aware that our way of computing job mobility may underestimate it, since whenever more than one movement occurs between two subsequent interviews, only one is computed.

As regards the chosen sample, we are observing workers who were under 30 years old in 1994 who register at least two positive wages during the period 1995-2001. Otherwise wage increases would not be observed, and the fixed effects estimations would not be plausible. We tried in previous specifications to select only those in their first jobs at the beginning of the observation period, but this implied a very strong reduction of the sample size. By applying the selected technique we think that we control for the fact that previous mobility histories will differ across similar workers in our sample.

4. Some first evidence on wages and job mobility

We have gathered some basic figures with the evolution of wages and how wage mobility may contribute to wage formation in 13 countries, namely Germany, Denmark, Netherlands, Belgium, France, UK, Ireland, Italy, Greece, Spain, Portugal, Austria and Finland. We find, first of all, that the variety of patterns of evolution of wages for *stayers* and job movers makes it convenient to treat countries separately in this analysis: Figure 1 shows that in all countries with the exception of UK job movers and particularly those who have moved more than 2 times during the period of observation register a lower wage than *stayers*. From these pictures we could be tempted to conclude that job mobility does not pay. But the relevant question is not whether job movers are paid less in average, but whether job mobility contributes to increase wages.

Figures 2 and 3 show that job mobility contributes to increase wages. Figure 2 shows the year-in-year wage increase for wage earners classified according to the number of movements they have experienced from the beginning of the observation window (i.e, 1994 till 2001). It shows that wage mobility across movers even if only one move is observed, is, in average, interesting. In most countries, with the exception of Ireland and Germany, the second movement is followed by an average higher year-in-year increase, and it represents the most profitable number of movements to be experienced. It seems that youths who move three or more times experience lower and lower wage increases, and the

increase even turns to be negative in Denmark, Greece and Italy for those with 5 or more movements in less than 8 years.

A similar picture is shown in Figure 3, but with accumulated wage growth: job mobility seems to pay but at a decreasing rate, with the exceptions, again, if Ireland and Germany, where this decreasing job moves-wage growth link does not seem to hold.

5. The econometric strategy

A first approach: the fixed-effects model

The model used here follows the idea of those who study the scarring effect of unemployment on wages[5], such as Arulampalam (2001) and Gregory and Roberts (2001). We aim at controlling the effect of unobserved heterogeneity across different types of job movers and *stayers*. Besides, in deploying a fixed-effects technique we are getting closer to a *before-after* estimation, given that we try to determine the distance between wages at a given point in time and the average across periods.

The use of fixed effects techniques is important because there may be characteristics that are unobservable for the researcher but influence both job mobility decisions and wage growth; Examples of such variables are the prospects of promotions, the ability of the worker and the quality of the relationship between the employee and their counterparts or their superior officers. Should this occur, ordinary least square (OLS) estimations on cross-sectional data will generate biased estimators of the returns to education or experience and tenure on wages or wage growth.

In order to take into account unobserved heterogeneity, the related features are depicted in a single variable which receives the same value along the time but a different one for every individual. This peculiarity is known as fixed-effects control in estimations with panel data. The initial equation will be, therefore, the following one:

$$Y_{it} = X_{it}'\beta + C_{it}'\gamma + \alpha_i + u_{it,}$$

Where $i = 1, \ldots, n$ and $t = 1, \ldots, T$. In this equation Y_{it} is the hourly gross wage. X_{it} is a vector of observable variables referred to the worker, the job and the business cycle. They can change both along the time and between individuals. C_{it} is a set of variables expressing job mobility. α_i is the part of the error term which is constant along time, it varies across individuals, and it depicts the individual unobserved heterogeneity, At last, u_i is the random part of the error in the equation.

[5] The election of a fixed-effects model for panel data has been decided from the arguments developed in Heckman *et al.* (1999). The methodology followed here is an application of the so called *before-after estimator*, which is a technique used to evaluate the impact of active labour market policies on individual wages or income.

The eventual correlation between observable and unobservable characteristics must be taken into account through the estimation of the vector of parameters β and γ. The prior model has been estimated using intra-groups estimators, that is, fixed-effects, which is equivalent to an OLS estimation where the variables are defined as deviations around the individual means[6]. This method is a generalisation of the "differences in differences" estimation (Heckman *et al.*, 1999) that allows the researcher to observe the effect of the change between employers net of unobservable common features to individuals, such as the economic cycle, inflation and changes in institutional aspects that necessarily condition gross and net wages, such as tax wedges on labour.

As regards the equation of wage growth, the explanatory variables referred to the characteristics of the job and the worker which remain constant along the time (gender) are dropped out of the model and the remaining ones are occupational attainment, tenure and former experience in the labour market, public or private employer and size of the firm if private employer, whether the individual had formal training or education that gave him/her skills needed for the present type of work, whether there was an unemployment spell previous to the current job and whether the employment contract is permanent or not. In order to save degrees of freedom the occupation has been approached through the socio-economic status index ISEI[7] (*International Socio-Economic Index of Occupational Status*) as a proxy of occupational attainment in order to measure the effect of marginal changes across occupations towards more valued ones. And instead of controlling for industry[8] dummies, we have included (when possible) an indicator of year in year labour productivity growth in the industry where the individual works. We do so under the assumption that industries where productivity increases faster should pay higher and more increasing wages. We have added a regional indicator or per capita income[9]. This intends to measure both quality of life and average income expectations, and

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[6] In fact, following Baltagi (1995) when resolving a fixed-effects model, the mean values of the variables for the given period must be substracted from the expression $y_{it} = \alpha + \beta x_{it} + \mu_i + \nu_{it}$, so that the constant part of the error vanishes and finally, the estimation does not correspond to the dependent variable itself but to the distance between the dependent variable and its mean, and the coefficient β of explanatory variables refers also to the distance between the value of the explanatory variables in every moment and their means.

[7] The status indicator ISEI was designed for the ISCO-88 occupations classification system in 1996 (Ganzeboom and Treiman, 1996) and it measures the attributes of an occupation that may be translated into income. The scale was elaborated through wage equations so that occupations are ordered according to the wages they generate. The index is valid for occupations in many different countries and it is stable along the time. The values of the index oscillate between 16 (for cleaning services and non qualified primary sector workers) and 90 (for doctors, lawyers and judges).

[8] Industry is a relevant variable to control for characteristics of jobs, one of the most relevant one could be labour productivity. In the near future I will be provided with detailed information on labour productivity per industry, which should be a better proxy for wage differentials than the mere dummies for industry. This variable is expected to contribute to improve our results (according to European Commission, 2004, inter-industry labour productivity and prices may encounter up to 80% of across-countries wages differences)

[9] It has been measured by real purchase parity power expressed as a percentage of per capita GDP, using data from the REGIO data-set, aggregated at NUTS2 level.

we expect youths in richer regions to register higher and more increasing wages. As a final control for general conditions, we also include the year-in-year average increase in wage costs driven from Eurostat euro indicators.

As regards the key variable of the model, job mobility, two complementary specifications have been tested: the first on a couple of dummy variables reflecting, first of all, whether there has been a worker-driven or an employer-driven[10] movement since the last interview when the interviewee was observed as a wage earner. The reference category is not making any movement at all. In a second specification C_{it} gathers the accumulated voluntary and involuntary movements since the beginning of the observation period and their square terms in order to check whether the inverted U shape we observed in Figures 2 and 3 still holds in multivariate analysis.

A second approach: using instrumental variables to control for the endogeneity of job mobility

The study of wage growth differentials between two groups of workers through a Generalised Least Squares equation on wage growth including variables related to the group the individual belongs to directly is not right when the groups of workers are defined from variables that are related to the dependent variable[11], which means that there are either observable or unobservable characteristics influencing both the probability of being voluntary or involuntary (and recent or intensive) movers and the wage dynamics. In that case, the GLS coefficients driven from a fixed effects estimation will be biased and it will be necessary to tackle the problem with a somehow more accurate methodology. A possible solution to that problem consists on setting out three equations of wage increases by GLS, one for each group (voluntary movers, involuntary movers and *stayers*). However, once more, when the fact of being in either group is not an exogenous matter, the estimations in the set of equations will be biased. In order to tackle this problem, a very spread solution would consist on estimating a dummy variable through a non linear (i.e., a *logit*) model and "plug" the predicted values on the second step of a two-stage least square procedure. That might not be a proper strategy unless the fit of probability were really accurate and precise, which is really difficult to achieve. As pointed in Angrist and Krueger (Angrist and Krueger, 2001), in doing so, researchers risk specification error.

[10] We identify employer-driven movements as the ones resulting from either the end of a temporary contract or a dismissal, and we consider employee-driven job separations to those due to worker wanting a better job, to personal or family reasons, and to "other reasons". The latter category includes illness and coming back to study, among other possible answers, but we are not able to distinguish among them.

[11] Examples of such variables are working for the public or the private sector, being a temporary worker against holding a permanent position, among many others.

A smart alternative to this two-step procedure combining linear and non linear functions is the use of instrumental variables or two-step least squares (G2SLS) model (See Baltagi (2001) for an introduction to panel-data models with endogenous covariates). They take into account the endogeneity of the defining variable of the groups considered. Balestra and Varadharajan-Krishnakumar G2SLS implementation has been used since is computationally less expensive. The expression of this second specification would be as follows:

$$Y_{it} = X_{it}'\beta + (JM_{it})'\gamma + \alpha_i + u_{it,}$$

$$Where\ C_{it} = f(JM_{it})$$

We do not need to specify the functional shape of "*f*". JM_{it} is a set of variables that are used instead of the dummy indicating job mobility. It intends to cover the profile of those who have a higher probability of moving between employers. The instruments used to approach voluntary and involuntary recent mobility have been selected from a country-specific random-effects *probit* model on former mobility[12]. For every country we have tested the explanatory power of prior type of contract, past job search activity, past non-satisfaction with job security, living in a couple, presence of small children, being dependant of the head of the household and having recently (in the last three years) moved to a new house. In every country the instruments for mobility are those variables that show a significant coefficient in the mentioned model.

As for the instruments for number of movements, the procedure has been similar, but in change random effects models on the number of total moves have been estimated to decide which variables to use as instruments amongst the following ones: living in a couple, presence of small children, being dependant of the head of the household and having recently (in the last three years) moved to a new house, plus the number of waves (till the moment of the interview) when the individual has felt unsatisfied with job security, when the individual has had a temporary contract, when the individual has worked with no former specific training or education applied to the job, and the number of waves when the individual has been looking for a job even in employment[13].

For completeness, we have performed the above mentioned estimations with OLS over a pool of waves before proceeding to the within groups estimations.

[12] Results of the past mobility random effects country-specific models to decide which instruments to use in each case are not shown for the sake of brevity but are available from the author upon request.

6. Results of the multivariate estimations

Table 2 shows only the coefficients of voluntary and involuntary recent mobility. It points at the cases where job mobility maintains its explanatory power once unobserved heterogeneity and endogeneity are controlled for.

There is a group of countries where the wage prima for recent voluntary job mobility remains despite unobserved heterogeneity, showing a causal link between job mobility and wage mobility: Denmark, The Netherlands, Spain, U.K, Ireland, Greece and Portugal. The negative prima or scar for non voluntary recent moves is hardly visible (we must keep in mind we are dealing with young movers only) when endogeneity of the explanatory variable is tackled. The positive prima for voluntary recent moves remains only in The Netherlands, Spain, Greece and Portugal, whereas the expected negative effect of involuntary mobility arises in Denmark, Italy, UK, Spain and Portugal. We observe a somehow clearer link between recent job mobility and wage mobility in Southern initially regulated countries (Spain, Italy, Greece and Portugal) with strategies of flexibility in the margin than in the rest. This is, in our view, quite consistent with Naticchioni and Panigo (2004). In a context of protection to employment job moves, when voluntary, will be more rewarding than in other contexts. As expected, Finland and France show mild reactions to job mobility, which might be due to a centralised collective bargaining system, but a similar effect was expected and has not been found in Denmark.

Let us focus on cumulative mobility (Table 3). The first striking result is that even involuntary mobility shows sometimes (such as in France, Italy, Spain, Austria and Ireland) positive returns to job mobility when controlling for unobserved heterogeneity. The second result is that very often returns to cumulative mobility follow a U shape, with too many movements causing negative rewards, and finally, probably due to the latter counterbalancing effect, when endogeneity of moves is taken into account the significance of the coefficients in most cases is wiped away.

Moreover, the pattern of rewards to cumulative job mobility is not always consistent with the one to recent mobility, with cumulative involuntary mobility not showing any more the negative effects we saw in the previous estimation. We think this is due to possible processes of recovering wages along the observation period, notceable only when we open the “observation window” up to 8 years.

As for the control variables, they follow, when significant, the expected pattern.

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[13] The latter as well as former job search behaviour is not used in Germany and UK, given that the harmonised versions of GSOEP and BHPS samples used in the ECHP are not provided with that information.

The obtained results are somehow puzzling when compared with the ones we would expect from the institutional framework. We expected job mobility prima to be particularly high in UK and Ireland as well as loses due to involuntary movements, and although it is the case with recent movements, it is no longer with cumulative ones. We have found, instead, that formally highly regulated labour markets tend to register important rewards and scars to recent moves and that, when the observation window is widened, there is no clear pattern of rewards to mobility that we can relate to the institutional aspects mentioned in Section 2.

This divergence between obtained and expected results point at a relatively small explanatory power of the institutional framework we described to explain the different patterns of wage mobility. Moreover, it seems that both market forces and the unobserved individual features such as differences between the jobs people leave and the ones they get affect wage dynamics more than institutions do. This is in our in the future research agenda, which will be immediately discussed.

7. Conclusions and further research agenda

The aim of the paper was to discern whether job mobility helps to significantly improve wages at the beginning of the working career, as well as being able to disentangle potential eroding or scarring effects of intensive mobility.In order to go into the nature of wage rewards to mobility taking into account endogeneity of movements across employers, a two-step least squares method (IV) has been implemented on the former fixed effects estimations.

Results show that some of the positive rewards to voluntary mobility and negative outcomes of involuntary moves are wiped away when unobserved heterogeneity and endogeneity are taken into account. Bit we still find causal links between job mobility and recent wage mobility in a large number of countries. Despite our initial hypothesis of which countries would register higher returns or scars from job mobility, we have found that “formally highly regulated” labour markets tend to register important rewards and scars to recent moves and that, when the observation window is widened, there is no clear pattern of rewards to mobility that we can relate to institutional aspects. Job mobility pays in the mid term, even for involuntary movers, although at a decreasing rate, which means that there comes a point in which wages do not grow any more with more and more mobility, all the contrary.

As for the future research agenda, more attention should be paid to the rationale of wage mobility, which shows a causal response (persistent after controlling for unobserved heterogeneity) to job mobility. It could be very interesting, now that we know there is a persistent non casual, but causal,

link between both variables, to know if job growth deals with transferability of human capital (i.e., movements across the same or related occupations), with improvements of job-employee match quality or with job search processes, job mobility being the reward to job search form initial positions. International differences in wage returns to job mobility require further attention as well, given that the initial hypotheses as regards the institutional frameworks have not been always corroborated.

REFERENCES

❖ ·Abowd and Kang (2002) "Simultaneous Determination of Wage Rates and Tenure", Cornell University, working paper.

❖ ·Altonji, J.G. and Shakotko, R.A. (1987): Do wages rise with job seniority? Review of Economic Studies, LIV: 437-459.

❖ ·Angrist, J.A.and Krueger, A.B. (2001): Instrumental Variables and the Search for Identification: from Supply and Demand to Natural Experiments. Journal of Economic Perspectives, vol 15, num 4, fall 2001, pp 69-85.

❖ ·Antel, John J. 1991. "The Wage Effects of Voluntary Labor Mobility With and Without Intervening Unemployment," Industrial and Labor Relations Review, 44, (2), pp 299-306.

❖ ·Arnaud Lefranc (2003). "Labor Market Dynamics and Wage Losses of Displaced Workers in France and the United States," William Davidson Institute Working Papers Series 2003-614, William Davidson Institute at the University of Michigan Business School.

❖ ·Arulampalam, W. (2001): Is unemployment really scarring? Effects of unemployment experiences on wages. The Economic Journal, vol 111, November 2001, pag F585-F606.

❖ Baltagi, B.H. (1995) Econometric analysis of panel data, Wiley and Sons, NuevaYork.

❖ ·Baltagi, B. H. 2001. Econometric Analysis of Panel Data. 2d ed. New York: John Wiley and Sons.

❖ ·Bartel, A.P and Borjas, G.J, (1978): Wage Growth and Job Turnover: an Empirical Analysis. NBER working paper series number 285, NBER, Massachusetts, Cambridge.

❖ ·Bartel, A.P and Borjas, G.J, (1981): Wage growth and wage turnover: an empirical analysis. In Rosen, S. (ed)(1981) Studies in Labor Markets, National Bureau of Economic Research, Chicago.

❖ ·Becker, G. (1962), “Investment in human capital: a theoretical analysis”, Journal of Political Economy, 70 (1), S9-S49.

❖ ·Blumen, I., Kogen, M. and McCarthy, P. (1955), The industrial mobility of labor as a probability process, Cornell Studies in Industrial and Labor Relations, 6, Ithaca: New York.

❖ ·Brunello, G., and Comi, S. (2004) Education and earnings growth: evidence from 11 European countries. Economics of Education Review. Vol 23, pp 75-83.

❖ ·Cardoso, A.R., (2004). "Wage Mobility: Do Institutions Make a Difference? A Replication Study Comparing Portugal and the UK," IZA Discussion Papers 1086, Institute for the Study of Labor (IZA).

❖ ·Contini, B., Leombruni, R., Pacelli, L., Villosio, C.(2004): Wage Mobility and Dynamics in Italy 1993-1998. LABORatorio R. Revelli, working paper.

❖ Davia , M.A. (2004): Job mobility and wage mobility at the beginning of the working career:young European workers escaping from badly-paid jobs. Presented in LOWER ANNUAL CONFERENCE 2004 CEP & CASE, LSE, LONDON, 23-24TH APRIL 2004

❖ ·Dustman, C. and Pereira. S.C: (2003) : Wage Growth and Job Mobility in the U.K. and Germany, University College of London, working paper.

❖ ·European Commission (2004): Employment in Europe 2003. Directorate of Employment and Social Affaires.

❖ ·Flinn, C.J: (1986): Wages and job mobility of young workers, Journal of Political Economy, vol 94, num 3, pt 2, S88-S110.

❖ ·Ganzeboom, H.B. and Treiman, D.J. (1996): "Internationally Comparable Measures of Occupational Status for the 1988 International Classification of Occupations"; Social Science Research, num 25, pag 201-239.

❖ ·García Pérez, J.I. and Rebollo, Y (2004) Wage changes and through job mobility: Does unemployment mean a penalty in Europe? Universidad Pablo Olavide. Presented in EPUNET conference in Berlin, June 2004.

❖ ·Greene, G. (2000) Econometric Analysis, 4th edition. Prentice Hall International, Inc. Upper Saddle River, New Jersey.

❖ ·Gregory, M and Roberts, J. (2001) Unemployment and subsequent earnings: estimating scarring among British men 1984-94. The Economic Journal, vol 111, November 2001, pag F607-F625.

❖ ·Heckman, J.J., Lalonde, R.J. y Smith, J.A. (1999) The Economics and Econometrics of Active Labor Market Programs, en Ashenfelter, O.C. y Card, D (eds) Handbook of Labor Economics, vol 3A, North Holland.

❖ ·Jovanovic, B. (1979a), "Job matching and the theory of turnover", Journal of Political Economy, 87, 972-990.

❖ ·Jovanovic, B. (1979b), "Firm-specific capital and turnover", Journal of Political Economy, 87, 1246-1260.

❖ · Kahn, L.M. and Low, S.A. (1982) The Relative Effects of Employed and Unemployed Job Search, The Review of Economics and Statistics, Vol 64, Issue 2, pp 234-241.

❖ ·Lazear, E., 1986, Raids and offer matching, in R. Ehrenberg, ed., Research in Labor Economics, Vol.8 (JAI Press), 141-165.

❖ ·Lazear, Edward P. 1979. "Why Is There Mandatory Retirement?" Journal of Political Economy 87 (December), pp. 1261-84.

❖ Le Grand, C. and Tåhlin, M. (2002): Job Mobility and Earnings Growth, European Sociological Review, vol 18 (4), pp 381-400.

❖ ·Light, A and McGarry, K (1998) Job change patterns and the wages of young men. The Review of Economics and Statistics, vol. 80, no. 2, pp. 276-286.

❖ ·Lillard, L.A. (1999) Job turnover heterogeneity and person-job-specific time-series wages. Annales d'Economie et de Statistique, num 55-56, pp 183-210.

❖ ·Mincer, J (1986) Wage changes in job changes, Research in Labor Economics, vol 8, part 1 , pp 171-197.

❖ ·Mortensen, D. (1988): Wage separations and Job Tenure: On-the-job specific training or Matching, Journal of Labor Economics, 6(64), pp 445-470.

❖ ·Munashinghe, L. (2000) Wage growth and the Theory of Turnover, Journal of Labor Economics, vol 18 (2), 204-220.

❖ ·Munasinghe, L. and Sigman. K. (2004) A hobo syndrome? Mobility, wages, and job turnover. Labour Economics, 11, 191-218

❖ ·Naticchioni, P. and Panigo, D. (2004) Employment Protecton, Job-Tenure and Short Term Mobility Wage Gains. An application to the Italian Case. CEPREMAP working paper (Couverture Orange) number 0402, CEPREMAP, Paris

❖ OECD (1997): Earnings mobility: taking a longer-run view. In his Employment Outlook, July 1997. Paris, OECD, 27-61.

❖ ·Perticara, M.C. (2002) Wage Mobility through Job Mobility, Georgetown University / Universidad Alberto Hurtado. Working paper 1'141, ILADES.

❖ ·Topel, R. (1991) Specific Capital, Mobility and Wages: Wage Rise with Job Seniority. Journal of Political Economy, vol 99 (1), pp 145-176.

❖ ·Topel, R. (1991), "Specific capital, mobility, and wages: wage rise with job seniority", Journal of Political Economy, 99 (1), 145-176.

❖ ·Topel, R. and Ward, M. (1992), "Job mobility and the careers of young men", The Quarterly Journal of Economics, 107 (2), 439-479.

❖ ·Topel, R.H. y Ward, M.P. (1992) : Job Mobility and the Careers of Young Men; The Quarterly Journal of Economics, vol CVII issue 2, p 439-480.

❖ ·Widerstedt, B (1998) Job mobility, wage growth and match quality in Sweden. In Widerstedt, B (1998) Moving or staying? Job mobility as a sorting process. Umeå Economic Studies num 464.

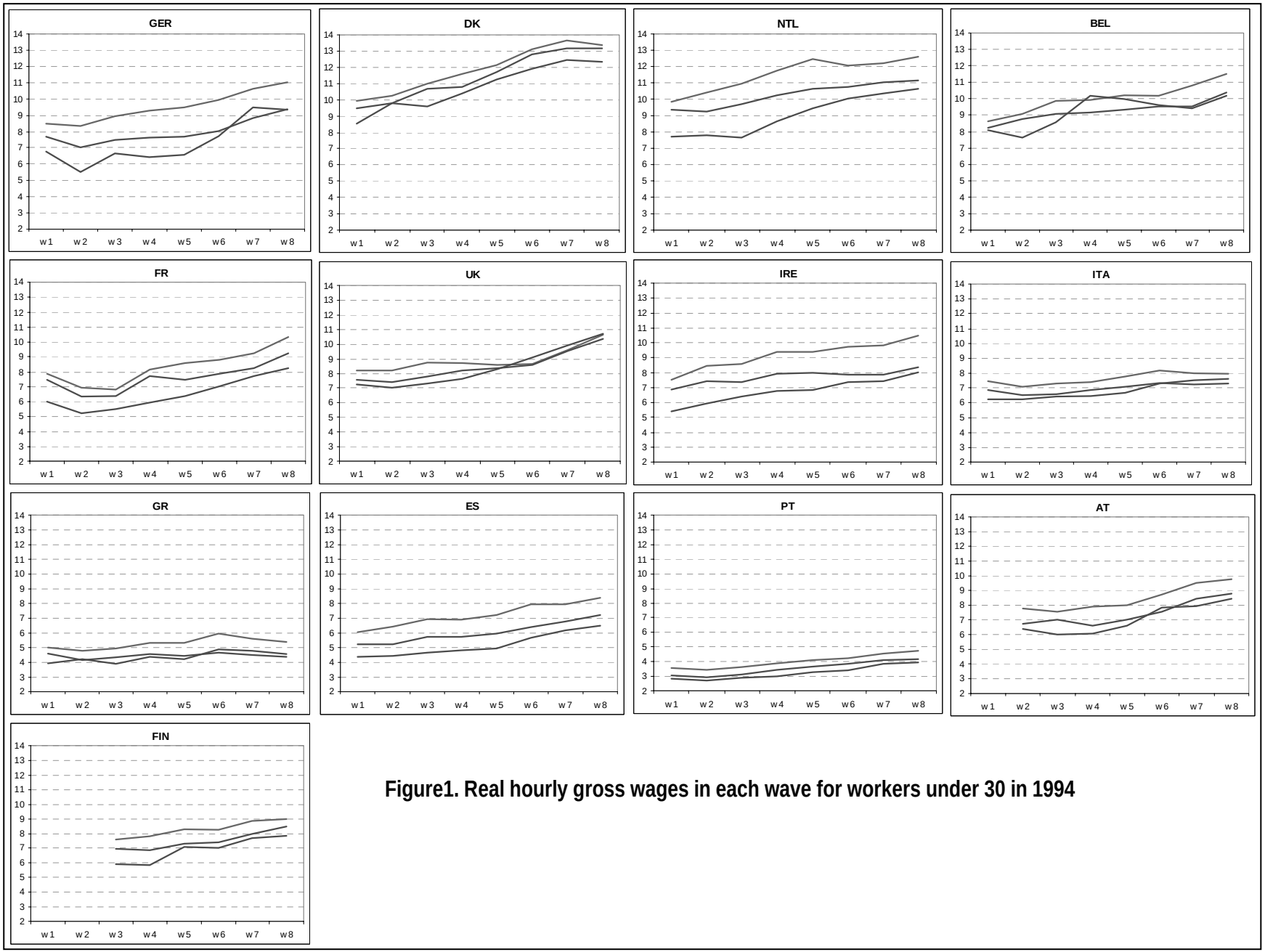

Figure1. Real hourly gross wages in each wave for workers under 30 in 1994

Figure 2. Number of accumulated observed movements and year-in-year net hourly wage increase

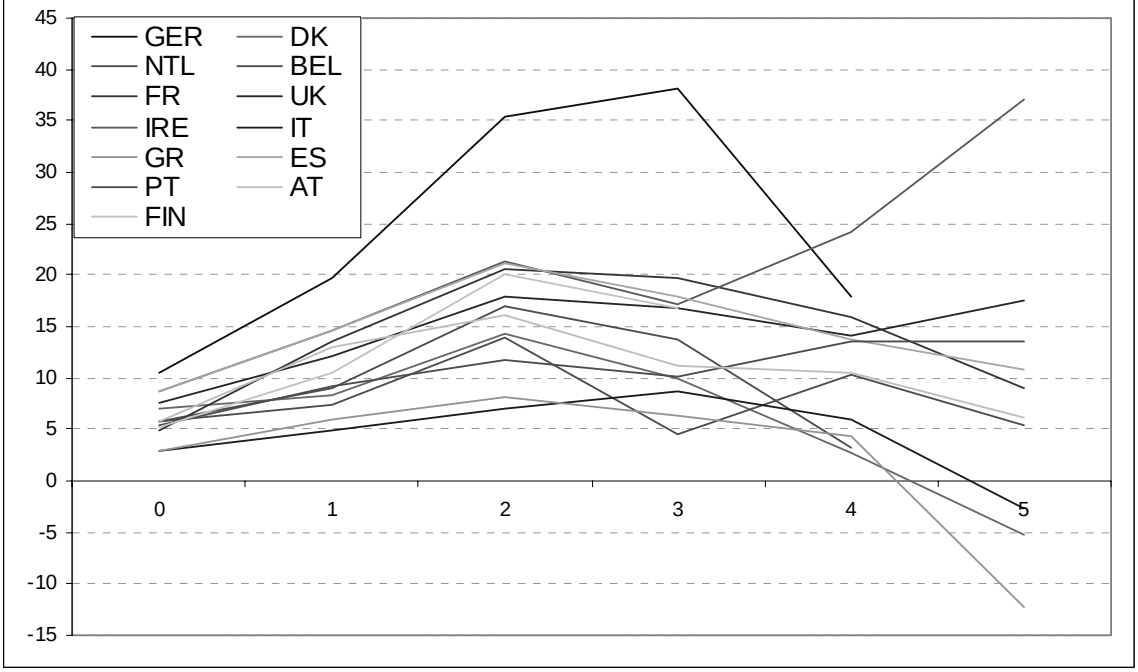

Figure 3. Accumulated gross hourly wage growth with number of movements during the observation period

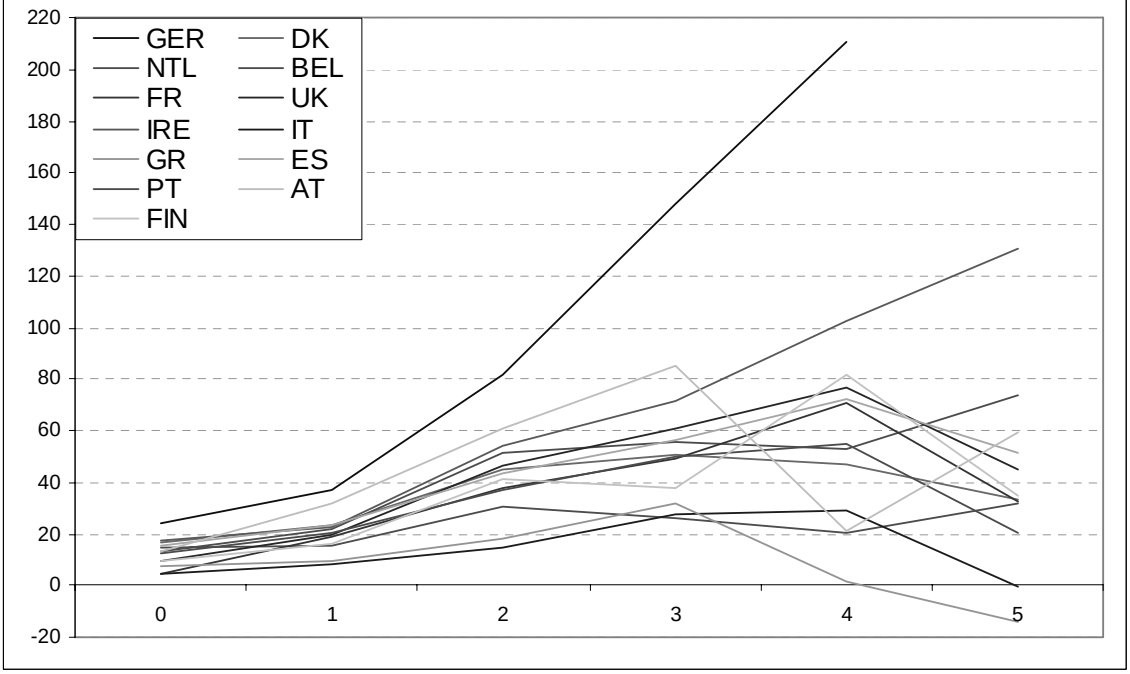

Table 1. Average values of the variables used in the multivariate analysis

	GER	*DK*	*NET*	*BEL*	*FR*	*UK*	*IRE*	*ITA*	*GRE*	*ES*	*POR*	*AT*	*FIN*
hourly wage (logs)	2.24	2.43	2.34	2.25	2.01	2.10	1.99	1.95	1.47	1.76	1.23	2.08	2.04
recent voluntary move	0.02	0.09	0.05	0.05	0.05	0.12	0.11	0.04	0.06	0.08	0.05	0.06	0.11
recent involuntary movement	0.04	0.07	0.03	0.05	0.05	0.07	0.05	0.06	0.07	0.15	0.04	0.02	0.11
number of voluntary movements	0.06	0.35	0.16	0.15	0.21	0.40	0.36	0.15	0.22	0.24	0.18	0.26	0.30
number of voluntary moves (sq)	0.07	0.51	0.19	0.20	0.27	0.67	0.54	0.20	0.28	0.33	0.24	0.33	0.39
number of involuntary moves	0.15	0.33	0.13	0.19	0.32	0.19	0.20	0.21	0.25	0.52	0.18	0.10	0.34
number of involunt moves (sq)	0.20	0.49	0.18	0.25	0.51	0.31	0.27	0.35	0.37	0.94	0.26	0.12	0.46
ISCED 5-7	0.16	0.29	0.07	0.51	0.37	0.52	0.25	0.07	0.26	0.31	0.08	0.08	0.35
ISCED 3	0.67	0.55	0.22	0.37	0.31	0.20	0.52	0.54	0.50	0.27	0.21	0.79	0.55
male	0.55	0.53	0.47	0.46	0.55	0.51	0.53	0.58	0.57	0.60	0.56	0.56	0.52
tenure	54.58	40.52	52.83	56.31	63.37	31.46	45.14	59.58	42.78	40.38	59.43	70.15	45.84
tenure (sq)	4787.2	3423.7	4851.8	5280.0	6261.5	2117.2	4173.9	6455.7	3523.2	3597.5	6659.4	8443.8	4605.0
experience	6.58	6.99	6.10	3.31	10.56	7.79	3.74	4.43	4.03	5.52	3.93	5.55	5.76
experience (sq)	77.15	72.17	89.23	34.72	264.86	128.80	34.05	57.73	45.22	57.95	41.72	66.01	60.58
ISEI	41.99	42.99	45.99	45.59	42.23	45.62	41.28	38.86	41.41	38.61	37.17	40.78	45.79
previuos training	0.75	0.68	1.00	0.75	0.57	0.74	0.60	0.33	0.36	0.51	0.28	0.75	0.71
permanent contract	0.90	0.86	0.85	0.81	0.88	0.93	0.81	0.83	0.70	0.51	0.74	0.92	0.77
public sector	0.25	0.32	0.25	0.30	0.49	0.21	0.18	0.20	0.22	0.17	0.16	0.22	0.29
private, mid-size firm	0.39	0.25	0.29	0.41	0.59	0.24	0.29	0.28	0.26	0.31	0.32	0.27	0.25
private, large firm	0.21	0.28	0.43	0.49	0.59	0.34	0.29	0.23	0.16	0.26	0.25	0.26	0.26
previous unemployment spell	0.22	0.31	0.18	0.35	0.33	0.06	0.26	0.55	0.39	0.52	0.28	0.23	0.30
regional pc income	18661.7	21744.0	22553.8	21325.9	19409.6	19049.3	18243.6	17759.4	12698.0	16110.3	13513.8	21459.0	21038.1
average real increase in wage costs	1.29	1.88	1.92	0.27	0.62	3.47	2.50	0.05		0.20		0.86	1.83
average increase in industry productivity	1.06	1.35	0.62	0.74	1.01	1.06		0.85	2.87	0.22	2.15	1.41	1.67

Table 2: coefficients for recent voluntary and involuntary moves, Ordinary Least Squares, fixed effects and fixed effects with instrumental variables.

		Voluntary movement		*Involuntary movement*			
		Coeff.	t	coeff.	t	R2 (w)	N. cases
	OLS	-0.026	(-1.044)	-0.032	(-1.885)	0.32	8511
GERMANY	ff.ee.	-0.025	(-1.144)	-0.016	(-1.191)	0.16	8511
	ff.ee. IV	-1.947	(-1.606)	2.713	(2.055)		8511
	OLS	0.045	(2.911)	0.022	(1.259)	0.39	2871
DENMARK	ff.ee.	0.034	(2.624)	0.012	(0.815)	0.33	2871
	ff.ee. IV	-0.015	(-0.110)	-0.325	(-2.502)		2871
	OLS	0.122	(6.581)	0.008	(0.344)	0.22	5870
NETHERL.	ff.ee.	0.036	(2.836)	-0.034	(-1.890)	0.17	5870
	ff.ee. IV	0.758	(2.109)	0.288	(0.214)		6370
	OLS	0.005	(0.190)	0.026	(1.092)	0.34	2235
BELGIUM	ff.ee.	0.016	(0.753)	0.002	(0.080)	0.18	2235
	ff.ee. IV	0.034	(0.307)	0.114	(0.660)		2235
	OLS	-0.036	(-0.999)	0.024	(0.685)	0.51	2288
FRANCE	ff.ee.	-0.011	(-0.398)	-0.005	(-0.154)	0.32	2288
	ff.ee. IV	0.148	(0.980)	-0.145	(-0.588)	0.25	2288
	OLS	0.046	(3.670)	-0.020	(-1.361)	0.39	7767
UK	ff.ee.	0.028	(2.903)	-0.005	(-0.421)	0.28	7767
	ff.ee. IV	0.307	(0.793)	-0.509	(-2.592)		7767
	OLS	0.066	(3.631)	0.033	(1.297)	0.43	4467
IRELAND	ff.ee.	0.045	(2.847)	-0.009	(-0.386)	0.18	4467
	ff.ee. IV	0.135	(1.022)	-0.254	(-0.615)		4467
	OLS	0.045	(3.189)	0.033	(2.446)	0.3	7018
ITALY	ff.ee.	0.012	(0.963)	-0.001	(-0.042)	0.09	7018
	ff.ee. IV	0.244	(1.630)	-0.453	(-2.404)		7018
	OLS	0.059	(3.080)	0.026	(1.437)	0.39	4338
GREECE	ff.ee.	0.038	(2.297)	0.013	(0.783)	0.11	4338
	ff.ee. IV	0.777	(3.233)	0.628	(1.697)		4338
	OLS	0.068	(4.879)	0.031	(2.714)	0.46	7587
SPAIN	ff.ee.	0.035	(2.616)	-0.007	(-0.621)	0.21	7587
	ff.ee. IV	0.244	(1.630)	-0.453	(-2.404)		7018
	OLS	0.059	(4.320)	0.009	(0.621)	0.55	9736
PORT	ff.ee.	0.030	(3.147)	-0.012	(-1.137)	0.29	9736
	ff.ee. IV	0.386	(2.970)	-0.377	(-2.866)		9736
	OLS	0.012	(0.625)	-0.081	(-2.711)	0.30	4316
AUSTRIA	ff.ee.	0.034	(2.371)	-0.040	(-1.734)	0.24	4316
	ff.ee. IV	0.086	(0.447)	-0.422	(-1.166)	0.15	4313
	OLS	0.024	(1.243)	-0.003	(-0.156)	0.34	2231
FINLAND	ff.ee.	0.003	(0.179)	0.002	(0.119)	0.17	2231
	ff.ee. IV	0.144	(1.093)	-0.109	(-0.913)	0.11	2231

Source: ECHP, 1995-2001. Control variables: level of education, gender, tenure, previous experience in the LM, occupational status, received specific training before job, size of employer and public/private employer, type of contract, previous unemployment spell, average regional income, evolution of average wages in the nation, evolution of labour market productivity.

Table 3: Cumulated voluntary and involuntary moves, Ordinary Least Squares, fixed effects and fixed effects with instrumental variables.

		n. of voluntary moves		*n. volunt moves (sq)*		*n. of involuntary moves*		*n. involunt moves (sq)*			
		coeff	t	coeff	t	coeff	t	coeff	t	R2(wn)	N
	OLS	0.025	(0.800)	-0.010	(-0.471)	0.022	(1.100)	-0.006	(-0.514)	0.32	8511
GER	ff.ee.	-0.082	(-1.232)	0.084	(2.444)	0.011	(0.379)	-0.010	(-0.633)	0.16	8511
	ff.ee.IV	2.818	(0.232)			0.884	(3.198)				8511
	OLS	0.070	(4.901)	-0.015	(-2.507)	0.011	(0.701)	0.001	(0.158)	0.39	2871
DK	ff.ee.	0.024	(1.187)	0.007	(1.199)	0.048	(1.848)	-0.019	(-2.313)	0.33	2871
	ff.ee.IV	0.181	(1.336)			-0.065	(-0.658)				2871
	OLS	0.121	(4.971)	-0.020	(-1.268)	0.046	(2.251)	-0.013	(-1.360)	0.26	6370
NETL.	ff.ee.	0.042	(1.762)	-0.009	(-0.665)	0.054	(1.778)	-0.020	(-1.881)	0.19	6144
	ff.ee.IV	0.394	(2.094)			-0.092	(-0.268)				5870
	OLS	0.036	(1.229)	0.004	(0.261)	0.065	(2.254)	-0.034	(-2.052)	0.33	2235
BEL	ff.ee.	0.105	(2.538)	-0.041	(-1.886)	0.037	(0.786)	-0.026	(-1.274)	0.17	2235
	ff.ee.IV	0.510	(2.274)			0.218	(1.572)			0.27	2272
	OLS	0.042	(0.910)	-0.007	(-0.207)	0.089	(2.258)	-0.025	(-1.237)	0.51	2288
FR	ff.ee.	0.262	(3.732)	-0.082	(-1.703)	0.003	(0.030)	-0.037	(-0.967)	0.49	2288
	ff.ee.IV	0.552	(1.778)			-0.041	(-0.146)			0.29	2288
	OLS	0.001	(0.107)	0.007	(1.722)	-0.067	(-4.222)	0.015	(2.347)	0.39	7767
UK	ff.ee.	0.092	(5.175)	-0.010	(-1.952)	0.004	(0.152)	0.007	(0.774)	0.28	7767
	ff.ee.IV	-0.485	(-0.817)			1.937	(2.186)				7767
	OLS	0.063	(3.727)	-0.004	(-0.552)	-0.018	(-0.722)	0.024	(1.831)	0.43	4467
IRE	ff.ee.	0.106	(4.085)	-0.010	(-1.403)	0.010	(0.232)	0.015	(0.795)	0.18	4467
	ff.ee.IV	-0.446	(-1.480)			0.634	(2.228)			0.13	4467
	OLS	0.047	(3.352)	-0.008	(-1.128)	0.055	(5.260)	-0.009	(-2.623)	0.3	7018
ITA	ff.ee.	0.067	(3.096)	0.008	(0.931)	0.091	(5.189)	-0.011	(-2.779)	0.08	7018
	ff.ee.IV	0.384	(3.324)			-0.017	(-0.367)				7018
	OLS	0.033	(1.534)	-0.016	(-1.379)	0.015	(0.782)	0.000	(0.042)	0.39	4338
GR	ff.ee.	0.177	(5.464)	-0.060	(-4.447)	-0.060	(-1.877)	0.009	(0.808)	0.24	4338
	ff.ee.IV	-0.137	(-0.793)			-0.206	(-2.336)				4338
	OLS	0.053	(3.678)	-0.005	(-0.715)	0.031	(3.080)	-0.003	(-1.054)	0.46	7587
ES	ff.ee.	0.126	(5.700)	-0.015	(-1.986)	0.069	(4.026)	-0.009	(-2.332)	0.20	7587
	ff.ee.IV	0.391	(3.499)			-0.019	(-0.410)				7018
	OLS	0.026	(1.771)	0.009	(1.184)	-0.012	(-0.933)	0.010	(1.729)	0.55	9736
POR	ff.ee.	0.070	(4.247)	-0.013	(-1.893)	-0.040	(-2.384)	0.017	(3.007)	0.29	9736
	ff.ee.IV	0.863	(3.043)			-0.219	(-1.781)				9736
	OLS	-0.012	(-0.572)	0.023	(2.069)	0.041	(1.398)	-0.009	(-0.549)	0.29	4316
AUS	ff.ee.	0.149	(5.436)	-0.017	(-1.489)	0.047	(1.112)	0.018	(0.826)	0.22	4316
	ff.ee.IV	0.387	(2.668)			0.020	(0.104)			0.14	4316
	OLS	0.049	(2.081)	0.000	(0.029)	-0.003	(-0.128)	0.006	(0.585)	0.33	2231
FIN	ff.ee.	0.059	(1.391)	-0.001	(-0.086)	0.068	(1.330)	-0.027	(-1.696)	0.17	2231
	ff.ee.IV	0.277	(1.383)			0.100	(0.727)			0.08	2231

Source: ECHP, 1995-2001.

Control variables: level of education, gender, tenure, previous experience in the LM, occupational status, received specific training before job, size of employer and public/private employer, type of contract, previous unemployment spell, average regional income, evolution of average wages in the nation, evolution of labour market productivity.

Table A. The strictness of employment protection legislation (OECD indicators), Collective Bargaining and Trade Union Density Indicators.								
	Fixed-term contracts	TWAs	Overall protection against dismissals	Overall EPL Version 1	Central.	Coord.	TUD	CBC
	98	*98*	*98*	*98*	*1995-00*	*1995-00*	*2000*	*2000*
Germany	1.8	2.8	2.7	2.5	3	4	25	68
Denmark	2.3	0.5	1.5	1.4	2	4	74	80
Netherlands	0.8	1.6	3.1	2.1	3	4	23	80
Belgium	1.5	3.8	1.7	2.2	3	4.5	56	90
France	4	3.3	2.3	3	2	2	10	90
U.K.	0	0.5	0.9	0.6	1	1	31	30
Ireland	0	0.5	1.6	0.9	4	4	38	
Italy	4	3.3	1.8	2.7	2	4	35	80
Greece	4	5.5	2.3	3.5			27	
Spain	2.5	4	2.6	2.9	3	3	15	80
Portugal	2.3	3.8	4.3	3.7	4	4	24	80
Austria	1.8	1.3	2.9	2.2	3	4	37	95
Finland	3.3	0.5	2.3	2.1	5	5	56	90
Source: OECD Labour Market Statistics – INDICATORS								

Centralisation:
1 = Company and plant level predominant.
2 = Combination of industry and company/plant level, with an important share of employees covered by company bargains
3 = Industry-level predominant.
4 = Predominantly industrial bargaining, but also recurrent central-level agreements.
5 = Central-level agreements of overriding importance.
Co-ordination:
1 = Fragmented company/plant bargaining, little or no co-ordination by upper-level associations.
2 = Fragmented industry and company-level bargaining, with little or no pattern-setting.
3 = Industry-level bargaining with irregular pattern-setting and moderate co-ordination among major bargaining actors.
4 = a) informal co-ordination of industry and firm-level bargaining by (multiple) peak associations; b) co-ordinated bargaining by peak confederations, including government-sponsored negotiations (tripartite agreements, social pacts), or government imposition of wage schedules; c) regular pattern-setting coupled with high union concentration and/or bargaining co-ordination by large firms; d) government wage arbitration.
5 = a) informal co-ordination of industry-level bargaining by an encompassing union confederation; b) co-ordinated bargaining by peak confederations or government imposition of a wage schedule/freeze, with a peace obligation.
Source: Secretariat assessments based on national and comparative industrial relations research literature, including the recent classifications and scores of wage-setting arrangements by authors cited in the text.
TUD: trade Union Density
CBC: lower bounds in collective bargaining coverage (except in Germany)
Source: OECD (2004)