

From Over-education to Job Match: Does Job Security Matter?

Luis Ortiz
Department of Political Science & Sociology
Universitat Pompeu Fabra
luis.ortiz@upf.edu

INTRODUCTION

Recent educational expansion in OECD countries has made increasingly salient the research of over-education and educational mismatch (McGuinness, 2006). The literature on over-education, though, has not paid much attention to the association between over-education and job security. Recent cross-national research has found that, controlling for usual correctors of over-education, as job change or tenure, such an association does exist, being more salient in countries where soaring increases of temporary employment in the past has turned job security into a valuable asset (Ortiz, 2009). The current work further explores this issue by adding a longitudinal dimension to it. Using the same database, I now explore whether a possible trade off between job security and human capital persists throughout the period of over-education, thus affecting occupational mobility and job match as well.

Although already dead as a longitudinal survey, the European Community Household Panel still allows for a cross-national comparison in this respect; among other reasons, because it permits the inclusion of countries where the abovementioned trade off has been previously found and do not have their own panel survey. This is particularly the case of Spain.

Next, I will discuss the theories dealing with over-education both from an economic and a more institutionalist perspective. As a result, I will present my research question, the data and longitudinal methods to answer it. Finally, I will analyze the results and discuss them in the light of the theories initially reviewed.

THEORETICAL FRAMEWORK

Over-education first received attention with Richard Freeman's study of the US graduate labour market in 1976 (Freeman 1976). Most research on over-education since then has dealt with the wage penalty associated to over-education, or with its incidence; not explicitly with its duration, even less with the eventual role of institutions in favouring or preventing its persistence.

The theories dealing with over-education may be ordered according to the importance they have attached to this phenomenon; that is, to the shorter or longer they have expected this phenomenon to be. Human Capital Theory (HCT) naturally considers over-education as a negligible phenomenon, or, in a more updated fashion, as a compensation for the skills or on-the-job training job candidates lack when entering into the labour market (McGuinness, 2006). So, the lower wages of over-educated workers would be an expression of their lack of a given type of human capital, not attained during their formal education. Career Mobility Theory attaches more importance to over-education, but only to explore the mechanisms that correct it; namely, internal mobility (promotion) or external mobility (upward occupational mobility) (Sicherman and Galor, 1990; Sicherman, 1991).

All these theories relate the importance of over-education to the individual; not so much to the job. Assignment Theory already regards over-education as a function of both the individual *and* the job. Thus, for assessing the relative importance of this phenomenon, it is necessary to look also at the sector or the firm. The choice of job or sector by the candidate is thought to have an importance for her risk of finding herself over-educated (Sattinger, 1993).

According to Job Competition Theory (Thurow, 1975), over-education depends already more on the job than on the worker's profile. Quite remarkably, the theories that have attached more importance to over-education underemphasize the *substantive* importance of human capital. For Job Competition Theory, precisely, human capital investment is important just as a signal, not for its content. Human capital ranks candidates according to their *prospective* job productivity, in a context of very limited information on candidates' productivity by their eventual employers. According to this, "the larger the numbers of educated persons in the economy, the more imperative for individuals to invest in education" (McGuinness, 2006, 392), which turns out to be a convincing explanation of the existence of surplus of human capital investment.

All these theories do not attach great importance to an eventual role of institutions in the incidence and duration of over-education. Two institutional clusters related to the transition from education to work may be important in this respect: the system of education, on the one hand; and the labour market, on the other hand. The former has received more attention than the latter (Lassibille et al. 2001). Based on the work of Marsden (1990), it has been convincingly argued that over-education should be a more salient phenomenon in so-called 'internal labour market' (ILM), where education is designed in a more generalist way, than in 'occupational labour market' (OLM). In the former contexts, mainly general education is offered; even vocational training has a strong general character and not so higher a status; education is weakly related to the workplace; and vocational training is primarily obtained on the job. 'Occupational labour markets' (OLM), on the contrary, enjoy a better match *ab initio* between education and work. They are usually associated with highly *stratified* systems of education, with a strong apprenticeship system, which in turn keeps low the overall level of tertiary graduates. For all these reasons, a higher incidence and duration of over-education might be expected in ILM than in OLM countries, although internal labour markets should also be expected to eventually correct over-education through tenure and promotion.

Although systems of education have more often got the blame for the incidence of over-education, it has already been argued that the institutional cluster at the other end of the transition from school to work (i.e. labour market institutions and labour market structure) may also have an effect on the incidence and duration of over-education. The research here is scarcer, although some notable research has been also carried out (Dekker et al. 2002, Scherer, 2004). Dekker et al. discuss the possible correction of over-education considering the existence of three segments in the labour market: firm-internal labour markets, professional markets and secondary markets. The authors contend with a conventional wisdom according to which mobility would correct over-education more easily in firm-internal labour markets than in secondary ones. Due to a supposed “changing character” of this latter segment of the labour market, it is found that “supplementary labour market is less of a dead end” than what segmentation theory predicts. On his side, Scherer’s work addresses the issue of the consequences of “underqualified jobs” and “temporary contracts” on future occupational attainment, looking at Italy, West Germany and Great Britain, but he does not look at both issues *together*, but separately.

Previous work does consider a possible association between job security and over-education (Ortiz, 2009). Relative to France and Italy, Ortiz found that temporary employment in Spain was associated to a *lower* likelihood of being over-educated than permanent employment: over-education was more likely to be found among permanent employees than amongst fixed-term ones. A possible explanation of this unexpected result is a trade-off between job security and human capital: in a country where almost one third of the occupied population has worked under temporary contracts not so long ago, job security turns into such a valuable asset that some workers trade off human capital investment by job security¹. On the employers’ side, such a scenario may be also a guarantee of future increases in productivity of work. If this is the case, both the employers and employees might converge in a situation where over-education turns out to be the result.

Such an argument, though, was made purely on the basis of a cross-national research. As stated by Frenette, referring to Canadian graduates, “overqualification may not be a serious problem if graduates only remain overqualified for short periods of time” (2004, 44). A longitudinal analysis may address this issue. The current research exploits the possibility of the ECHP to carry out such a longitudinal analysis. Such an analysis should have the advantage, first, of establishing a more thorough causal relationship between job security and over-education; second, it should reveal the importance of the trade off mentioned above, insofar as it remains through the period of over-education or not. Controlling for some of the explanatory factors mentioned by previous theories (like internal and external mobility) the current research is aimed at further exploring this relationship between job security and over-education; it is not aimed at testing or assessing the explanatory validity of all these theories.

How could such a hypothetical trade off between job security and human capital affect the instant likelihood of adjustment of those over-educated workers who hold a fixed-

¹ Taking a sample of graduates from universities in Asturias, a Spanish region, García-Espejo and Ibañez (2006) also found that those with temporary contracts were *less likely* than permanent workers to be “over-skilled”. They explained such a fact on the basis the changing nature of temporary contracts in Spain; that is, on the basis of the “increase in the average duration of temporary contracts” (153). There would be a blurred limit between temporariness and permanency in Spain.

term contract?, how could such an effect be in countries with similar systems of education, but different rates of temporary employment? If this trade-off remains during the period of over-education, it should not only explain the relative likelihood of being over-educated of temporary and permanent workers in Spain, but their relative instant likelihood of leaving over-education and finding a job match. In countries where temporary employment is high, over-educated workers with permanent contracts would be then less likely to job adjustment than temporary ones.

Alternatively, the labour market segmentation may overrule any possible trade-off between human capital and job security. Once integrated in the secondary segment of the labour market, workers would find a lower *instant* likelihood of adjustment or job match. The likelihood of adjustment will be then associated to the segment of the labour market, and not so much to a possible trade-off between job security and human capital. Over-educated workers with permanent contracts would be more likely to adjustment (job match) than temporary workers *in segmented labour markets where temporary employment is high*.

DATA AND METHODS

Data and methods

Among the different sources that include individual data on educational attainment, occupation and type of contract for different countries of the European Union, the European Labour Force Survey offers the undoubted advantage of a large sample. Moreover, educational attainment is recorded in more detail than in the case of the European Community Household Panel. Yet, the ECHP offers some advantages over the EULFS which are key for the current research: first, being panel data, it allows for a longitudinal study; second, although education is recorded in a rough, three-category variable, it offers a wide range of variables that permits controlling for a number of factors also affecting a possible adjustment of work and educational attainment.

As most information provided by the ECHP, the information necessary to build the objective indicator used here, as well as many of the covariates to include in the model, was recorded yearly. In sum, although the event occurs in continuous time, the *observed* survival times are grouped into intervals. For this reason, I have used a complementary log-log model, customary in these cases. I have controlled for the possible existence of more than one spell of over-education in each member of the sample². In accordance with the theoretical debate previously unfolded, I have formulated four different models: the first one assesses the effect of the type of contract adding only controls for demographic variables (i.e. sex, age, cohabitation or marriage and having children); the second model adds usual correctors of over-education (i.e. internal mobility, of which tenure has been taken as a proxy, and external mobility); the third model adds demand-side factors, like firm size, sector or unemployment rate at entry into the labour market; the final model introduces interactions between country and type of contract, in order to thoroughly compare the relative effect of each type of contract for each country.

² Adding the option ‘robust cluster (*personal identifier*)’ to the complementary log-log command (‘cloglog’) in STATA.

The risk of adjustment, or job match, naturally competes with the risk of abandoning employment³. Yet, competing risks modelling with discrete time is difficult⁴. For this reason, I will first provide the results of analysing the transition of over-education to job match⁵; then, instead of a competing-events survival analysis, I will provide the results of a multinomial logistic model, applied to over-educated individuals in the Spanish, Italian and French samples. The dependent variable in this case has three categories: over-education (staying over-educated), exit to job match and exit to non-employment. The former category has been taken as the reference category in the dependent variable, and the multinomial logistic regression has been made accounting for the lack of independence of observations belonging to the same individual. The obvious disadvantage of this approach is that it is no longer an event history analysis; that is, it does not account for the effect of time when assessing the concurring risks of exiting over-education to job match or non-employment; in return, there is the advantage of assessing the likelihood of job match controlling for the other natural, competing outcome.

An additional problem of sample selection bias arises from the fact that over-educated workers do not constitute a non-random sample. Having found in previous research that permanent contracts in Spain are more likely associated to over-education than fixed-term ones, we may assume that the sample of over-educated workers amongst whom I am to research the instant likelihood is not random; not at least in that respect. Heckman's selection correction models have been consequently used, so to assess the importance of this problem and correct the subsequent bias.

In order to be consistent with previous research on the association between job security and over-education, I have chosen the same countries. The selection of countries is not based now on the idea of keeping the system of education constant, as it was the initial idea, but on the finding that the likelihood of being over-educated holding temporary contracts was *different* across them⁶. Having this in mind, it may sound fair to see to what extent such a difference persists *in time*.

Indicators of over-education

There is an ongoing debate about the most suitable indicator to capture over-education (Groot and van de Brink 2000). The first choice is between subjective or objective

³ "Not only do many of the over skilled-job leavers find alternative employment that is little or no better than their previous job in terms of skill utilization, a sizeable proportion will not re-enter the workforce, at least not so quickly" (McGuinness & Wooden, 2007)

⁴ According to Stephen Jenkins, "if one needs to use discrete time model because one has interval-censored data (continuous survival times are available only in grouped form), then modelling is rather complex, and one needs special programs to estimate the models (...). If the interval hazard is relatively small, then the 'multinomial logit' model of competing risks provides a close approximation to a proportional hazard model to interval-censored data for which one assumed that continuous time hazard rate was constant within each interval" (Stephen Jenkins, Lesson 8, 'Competing Risks Model').

⁵ A discrete-time event history analysis of the transition from over-education to non-employment has also been carried out. This transition has intrinsic limitations, if type of contract is the main independent variable of interest: in statistical terms, it predicts *perfectly* the exit out of employment, since the individual no longer has a contract when she gets out of employment. For this reason, the type of contract variable was lagged forward. Results for this analysis are available under request.

⁶ The systematic research on patterns of labour market entry in Europe only classifies France in the group of ILM (internal labour markets), taking Italy and Spain to a different group ('Southern Europe'). These latter countries seem to have even higher difficulties for a job match attainment (Gangl, 2001)

indicators. The former rely on the worker direct assessment of job match made by the worker herself, or in her assessment of the education required to perform her job optimally. Subjective indicators have the advantage of being able to grasp the nuances of jobs that objective indicators only capture with great difficulty. We should bear in mind that skills required for a given occupation may change through time, across countries, and within a broad occupational category. But subjective indicators are plagued with different biases; amongst them, the worker's ignorance of the real requirements of her job, the possibility that she comes to terms with her own job mismatch, so denying it, or the possibility that her answer is actually capturing other unpleasant features of the job, rather than mismatch itself.

Objective indicators rely on a relationship between occupation and educational requirements previously established as optimal. The most accurate way of establishing such a relationship is made by job analysts, who specify the required level and type of education for each one of the occupations in the ISCO classification. The final outcome is a dictionary of occupational titles, an endeavour often carried out in the past in United States or Britain, but quite rare in other European countries. Other more crude objective indicators rely on statistical conventions, like the mean or mode years of education within a given occupation: over-educated workers are those who are one standard deviation above the mean or mode years of education in their respective occupation (Verdugo & Verdugo, 1989; Groot and Maasen van de Brink, 1995). Such an assessment of over-education, though, is not entirely reliable. Apart from the conventional character of the threshold to define a worker as over-educated, the years of education, as a basis for the construction of the indicator, are often over-estimated, possibly due to the fact that people confuses the *age* with the *time* of education, when answering the corresponding question in the survey.

As in previous research, I have used an objective indicator made out of the worker's educational attainment and her occupation, establishing thresholds for a given occupation beyond which workers are clearly overeducated.

Thresholds for classifying individuals as over-educated or under-educated according to the highest level of general education completed <i>Common criteria for all countries</i>		
	UNDER-EDUCATED	OVER-EDUCATED
1 "Legislators, senior officials, managers"	ISCED 0-2 (Less than second stage of secondary education)	
2 "Professionals"	ISCED 0-2 (Less than second stage of secondary education)	
3 "Technicians and associate professionals"	ISCED 0-2 (Less than second stage of secondary education)	
4 "Clerks"	ISCED 0-2 (Less than second stage of secondary education)	ISCED 5-7 (Recognised third level)
5 "Service workers and shop and market sales workers"	ISCED 0-2 (Less than second stage of secondary education)	ISCED 5-7 (Recognised third level)
6 "Skilled agricultural and fishery workers" (a)	---	----

7 "Craft and related trade workers"		ISCED 5-7 (Recognised third level)
8 "Plant and machine operators and assemblers"		ISCED 5-7 (Recognised third level)
9 "Elementary occupations"		ISCED 5-7 (Recognised third level) or ISCED 3 (Second stage of secondary)
Notes: a) "Skilled agricultural and fishery workers" have been excluded from the analysis, due to low frequency in all countries		

Such an indicator turns out to coincide fairly with another one in which a conventional limit (20%) was used as a threshold for establishing over-education in each one-digit occupational group: over-educated workers would be those in the upper educational categories where *less than 20%* of the workers in a given occupation are classified (Ortiz & Kucel, 2008). The indicator also coincides with other established by documents of the OECD (Quintini & Sebastien, 2006). The indicator is deliberately conservative, in the sense of making sure nobody classified as over-educated *is not*. In other words, it is likely to underestimate, over-education for each one of the occupations considered.

RESULTS

If we look at the life tables (Table 1) and their graphical representation, we see first that a high percentage of the cases of over-education are right-censored; that is, before educational adjustment (job match) eventually occurs, the spell of over-education finishes. The country where the initial pool of over-education is largest, Spain, is the country where the number of events decreases more steadily. This pattern is not so clear in either France or Italy, but we should bear in mind that the initial number of over-educated workers in either one of these latter countries is substantially lower. Quite surprisingly, when the hazard rates are compared across countries, it is France where the survival rate in the state of over-education seems to be higher. The descriptive statistics provided by the life tables should already launch a sign of caution on the interpretation of coefficients for France and Italy, given that the number of cases of transition from over-education to job match is very low.

Turning now to the analysis of the main models in which I have organised the multivariate analysis, table 3 shows the coefficients corresponding to holding a fixed-term contract, relative to holding a permanent one. Model 1 includes controls for a number of demographic variables: sex, age, cohabitation and having children. As it might be expected according to some of the theories explained above, the coefficient in the pooled model (pooling all the countries) reveals a positive effect of temporary employment on the likelihood of a job match. Fixed-term contracts *generally* act as stepping stones towards a consolidated position in the labour market, understanding by consolidation finding a job *adequate* to the investment in human capital previously made by the individual. This confirms Dekker et al.'s view on the "important role" of "supplementary labour market in the transition process between initial education and the labour market" (2002, 106). If we look at the results for the analysis segmented by country, though, we find that such a role of fixed term contracts is confirmed only for the cases of France and Italy, where coefficients are positive and statistically significant, but not for the case of Spain.

When controlling for the mechanisms of adjustment treated by Occupational Mobility Theory (tenure, as a proxy of promotion, and job change), the coefficient of fixed-term contract is not significant anymore for the analysis with the pooled sample; it is not significant for the analysis corresponding to either the French or the Italian sample either; and turns out to be *negative* for the Spanish case. Temporary contracts in Spain seem to *diminish* the instant likelihood of moving to a job match, relative to permanent contracts. In other words, once over-educated, permanent contracts *in Spain* are a better guarantee of job match than temporary ones.

Such an effect does not change when demand-side factors (i.e. unemployment rate, sector and firm size) are included in the model (Model 3). Moreover, in Model 4, when interactions of country and type of contract are added to the previous model, we find, first, that the effect of temporary contracts loses significance, and only the interactions of temporary contract and the dummy corresponding to Spain, on the one hand, and self-employment and this latter country dummy, on the other hand, remain significant. The former interaction, the one of utmost interest here, is statistically significant and *of a negative sign*: relative to permanent contracts, fixed-term contracts *in Spain* reduce the likelihood that over-educated workers leave their situation for a good match, *vis-à-vis* what happens in the other two countries.

Segmented analysis by gender (Table 4) adds new information. Whereas in the case of Italy and France it is difficult to know if the positive effect of temporary contracts on the likelihood of job match affects more to women or men (we must remind that sample size is not fully reliable for these countries), in the case of Spain it seems that the negative effect of temporary contracts of the likelihood of leaving over-education for job match is more clear for women. Yet, once including interactions of country dummies and type of contract, we see that *for both men and women*, the likelihood of leaving over-education and attaining a job match significantly decrease for those having a fixed-term contract *in Spain*, *relative to what happens in either France or Italy*. Thus, we may conclude first that, by comparison to France or Italy, where temporary employment is less salient, temporary employment *in Spain* has a *generally* depriving effect over the opportunities of job match, relative to permanent employment; second, when looking just at the Spanish sample, we have reasons to suspect that such a negative effect may be more acute amongst women.

As we said above, all these results are subject to the suspicion that the adjustment between human capital and occupation naturally competes with leaving employment. The non-fulfilment of expectations linked to the investment in human capital may lead the worker either to persevere till an adequate job is found, or to leave employment for unemployment or inactivity. Thus, job match naturally competes with non-employment.

In the multinomial logistic regressions (Table 5 & 6), both exits are considered together. Staying over-educated constitutes the reference category. The first conclusion that could be drawn both from the general sample (Table 5) and the analysis segmented (Table 6) by gender is that, accounting for the likelihood of leaving employment, the effect of temporary employment keeps its significance and its sign for the Spanish case. Again, over-educated workers holding a temporary employment in Spain are significantly less likely to be found in the category of those who attain a job match than over-educated workers with a permanent contract, relative in turn to the relative likelihood of both

types of workers of finding themselves over-educated (reference category). Moreover, the interaction between the dummy variable corresponding to Spain and temporary employment (fixed-term contract) show that such a decrease in the likelihood of getting a job match associated to temporary employment, relative to staying over-educated, is significantly more pronounced for Spain than for either France or Italy (reference category as independent variable).

When looking at the results of the multinomial logistic regression segmented by gender (Table 6), we find again that the negative effect of temporary employment on the likelihood of exiting over-education in Spain could be partly explained by a lower likelihood of doing so among temporary over-educated female workers, relative to permanent ones: coefficients for both male and female over-educated workers are negative for the Spanish case, when looking at Job Match in Models 2 and 3; yet, coefficients for female workers are significant and those for male workers are not. When adding interactions of country and type of contract, though, we find that both male and female temporary over-educated workers are worse off than permanent ones, in terms of their chances to exit over-education to job match, *relative to what happens in either Italy or Spain*. In other words, there might be both a country and a gender effect.

All these findings (mainly for the Spanish case) are subjected to doubt when we turn to the results of the Heckman selection models. They are only relevant for the Spanish case, the only one where the Rho is statistically significant, revealing that the error terms of the outcome equation and the selection equation are significantly correlated. There might be a problem of sample selection that might bias the coefficients of the main equation in the Spanish case⁷. It is here, looking at this model (Table 3 and 4), where we realise that, controlling for a possible sample selection bias, the negative sign of the coefficient corresponding to fixed-term contracts inverse its sign. The relative negative effect of temporary contract among temporary contracts in Spain we have seen so far might would disappear, or even become slightly positive. Yet, such a result is not totally stable. First, it is the introduction of tenure in the main equation what turns Rho significant; second, even such significance disappears when other models are attempted, like making age appears only in the selection equation, so to comply with the rule of having at least one variable in this latter equation which does not appear in the main equation.

DISCUSSION

This research has a number of limitations; some of them related to the indicator of over-education itself. First, it has been built from a not very detailed register of educational attainment; second, the indicator has been deliberately built so that it is conservative in its assessment of over-education, with the ultimate intention of avoiding the misclassification of any individual as over-educated. In turn, this posed problems of sample size for the analysis. For this reason results for France or Italy should be treated with caution.

⁷ We cannot discard that the statistical non-significance of Rho for the Italian and French cases is not due to smaller sample sizes. Had the sample sizes been larger, I wonder if such a statistic would not have turned out to be significant as well, also revealing for these cases a problem of sample selection bias.

Besides, there are problems relative to the methods. First, survival analysis on the likelihood of transition from over-education to job match has not been carried out accounting for the fact that such a transition naturally competes with the transition from that former original state to non-employment, due to the fact that the data used necessarily compels to a discrete-time survival analysis, where concurrent events are not so easily accounted for.

Finally, and possibly more important than all that, there might be problems of selection I have not been able to solve yet. I should assume over-educated workers are not a random sample; on the contrary, there is a sample selection whose bias to correct, so to eliminate possible biases in the coefficients corresponding to the independent variables considered.

Having all this in mind, the findings tell us things about the different theories initially reviewed in the paper. First, the effect of time is dubious. Initially, time seems to have an almost monotonic, favourable effect on the likelihood of leaving over-education (Table 1). Yet, only in the case of France the youngest age has a higher likelihood of leaving over-education, relative to the reference category (the oldest age); apart from that, we do not see that age systematically enhance the likelihood of leaving such a state for a job match; on the contrary, in the case of Spain, the opposite happens, possibly revealing a cohort effect, associated to an steep increase in educational attainment in recent age cohorts and to the fact that such age cohorts are possibly larger than the corresponding ones in either France or Italy⁸. Both the baby boom and educational expansion happened earlier in these latter countries. Finally, tenure works in the opposite way as expected: the longer the tenure, the less likely the possibility of leaving over-education. This evidence runs again the common intuition that over-education is a transient phenomenon⁹.

As regards the other corrector of over-education according to Job Mobility Theory, we have not found a clear confirmation that external mobility (job change) is a mechanism through which over-education is worked out, except for the Italian case as regards the coefficient corresponding to ‘no job change’, and Spain as regards the coefficient corresponding to a change ‘for a better job’.

Finally, only in the French case (Model 3, Table 2) we have seen that training provided by the employer (another proxy of internal mobility) increases the odds of exiting over-education; it does not so in either the Spanish or the Italian case, and in the former case one the negative effect is even (quite strikingly) statistically significant. Other interesting results tell us that gender reduces the likelihood of leaving over-education for a good job¹⁰.

Finally, as regard the main issue at stake in this research, we have *not* found a clear confirmation that a possible trade off between human capital and job security *persists*

⁸ Lassibile et al. also found, for the Spanish case, that “young workers are more likely to be underutilized compared to their adult co-workers” (2001, 139).

⁹ Such a result is in tune with Büchel’s and Mertens’ findings for Germany: “an upward move from overeducation to a correctly allocated status becomes more unlikely the longer the time spent in over-educated work” (2004: 805). Even more important, it is in tune with Hartog’s meta-analysis for five countries (Netherlands, Spain, Portugal, UK and US) (Hartog, 2000)

¹⁰ Results not provided for reasons of space. They are available under request.

throughout the over-education spell, so that permanent employment significantly reduces the likelihood of getting out of over-education. It is definitely not the case in Spain; quite unexpectedly it is the case precisely in the countries where it was not expected to be. In both France and Italy we have seen over-educated temporary employees more likely to get a job match than permanent ones¹¹. But possibly this should not be read so much as a confirmation that the trade-off mentioned above *works* for these countries as a sign that temporary employment works here as a proper stepping stone towards a more satisfactory job, even if, as we have also seen in the multinomial logistic model, it might also be a previous step to non-employment.

In Spain in particular, unlike what it was initially expected, permanent employees are *more* (not less) likely to leave over-education for a satisfactory job than temporary ones. A supposed trade-off that might have explained that over-educated workers in Spain are more likely to be permanent than temporary, thus, does *not* explain the transition from over-education to job match; on the contrary, it seems as if permanent employment is a better springboard to a job match in Spain than temporary employment.

Moreover, it seemed that permanent employment is a better springboard to a job match than temporary employment, *relative to what happens in France or Italy*. Yet, when only exploring the Spanish sample some results may be treated as a possible sign that such a condition of temporary employment as a trap works more *for Spanish over-educated female workers than for male ones*. In other words, there might be a gender dimension in such an effect of the type of contract on the likelihood of obtaining a job match. *As far as no other rational explanation is available, we may talk about a discrimination effect suffered by human, which affects specifically their human capital investment and can devalue it even further in conditions of over-education.*

It is remarkable that such difference in gender remains when on-the-job training is included in the model (see Table 2). It might be assumed that women, less likely to enjoy on-the-training (either because they are discriminated in being provided with it by the employer or because they do not apply for it) are less likely to be promoted and, therefore, to obtain a job match through internal mobility. On-the-job training certainly has a significant and positive effect on the likelihood of leaving over-education for a job match, but

¹¹ I disregard here the results for the Heckman selection model, given the non-significance of *Rho*.

REFERENCES

- Büchel, Felix, Mertens, Antje (2004) 'Overeducation, undereducation, and the theory of career mobility', *Applied Economics*, 36, 803-816.
- Dekker, Ron; de Grip, Andries; Heijke, Hans (2002) 'The effects of training and overeducation on career mobility in a segmented labour market', *International Journal of Manpower*, Vol.23, No.2, pp.106-125.
- Freeman, R. (1976) *The Overeducated American*. New York: Academic Pres.
- Frenette, Marc (2004) 'The overqualified Canadian graduate: the role of the academic program in the incidence, persistence, and economic returns to overqualification', *Economics of Education Review*, 23, 29-45.
- Gangl, Markus 'European Patterns of Labour Market Entry', *European Societies*, 3(4), 471-494.
- Garcia-Espejo, Isabel & Marta Ibáñez (2006) 'Educational-Skill Matches and Labour Achievements among Graduates in Spain', *European Sociological Review*, 22(2), 141-156.
- Groot, W. & van de Brink, M.. (2000) 'Overeducation in the labour market: a meta-analysis', *Economics of Education Review*, Vol.19, 149-158.
- Groot, W. & van de Brink, M..(1997) 'Allocation and the Returns to Overeducation in the United Kingdom', *Education Economics*, Vol.5, 169-183.
- Hartog, Joop (2000) 'Over-education and earnings: where are we, where should we go?', *Economics of Education Review*, 19, 131-147.
- Lassibille, Gérard; Navarro Gómez, Lucia; Aguilar Ramos, Isabel; Carolina de la O Sánchez (2001) 'Youth transition from school to work in Spain', *Economics of Education Review*, 20, 139-149.
- Marsden, David (1990) 'Institutions and labour mobility. Occupational and internal labour markets in Britain, France, Italy and West-Germany', in Brunetta, R. and Dell'Aringa C. (eds.) *Labour Relations and Economic Performance*. Macmillan, Houndsmill, pp. 414-438.
- Ortiz, Luis 'Not the Right Job, but a Secure One. Overeducation and Temporary Employment in France, Italy and Spain', *Work, Employment & Society* (forthcoming)
- McGuinness, Seamus (2006) 'Overeducation in the labour market', *Journal of Economic Surveys*, 20(3), 387-418.
- McGuinness, Seamus & Wooden, Mark (2007) 'Overskilling, Job Insecurity and Career Mobility', IZA Working Papers, No. 2938 (July 2007)

Sattinger, M. (1993) 'Assignment Models of the Distribution of Earnings', *Journal of Economic Literature*, Vol.31: 831-880

Sicherman, N. (1991) "'Overeducation" in the Labor Market', *Journal of Labour Economics*, 9: 101-123.

Sicherman, N. & Galor, O. (1990) 'A Theory of Career Mobility', *Journal of Political Economy*, 98(1), 160-192.

Scherer, Stefani (2004) 'Stepping-stones or traps? The consequences of labour market entry positions on future careers in West Germany, Great Britain and Italy', *Work, Employment and Society*, Vol.18(2): 369-394.

Ortiz, Luis & Kucel, Alek (2008) 'Do Fields of Study Matter for Over-education? The Cases of Spain and Germany', *International Journal of Comparative Sociology*, 49(4-5), 305-327.

Quintini, G. and Sébastien, M. (2006) 'Starting Well or Losing their Way? The Position of Youth in the Labour Market in OECD Countries', OECD Social, Employment and Migration Working Papers. Paris: OECD.

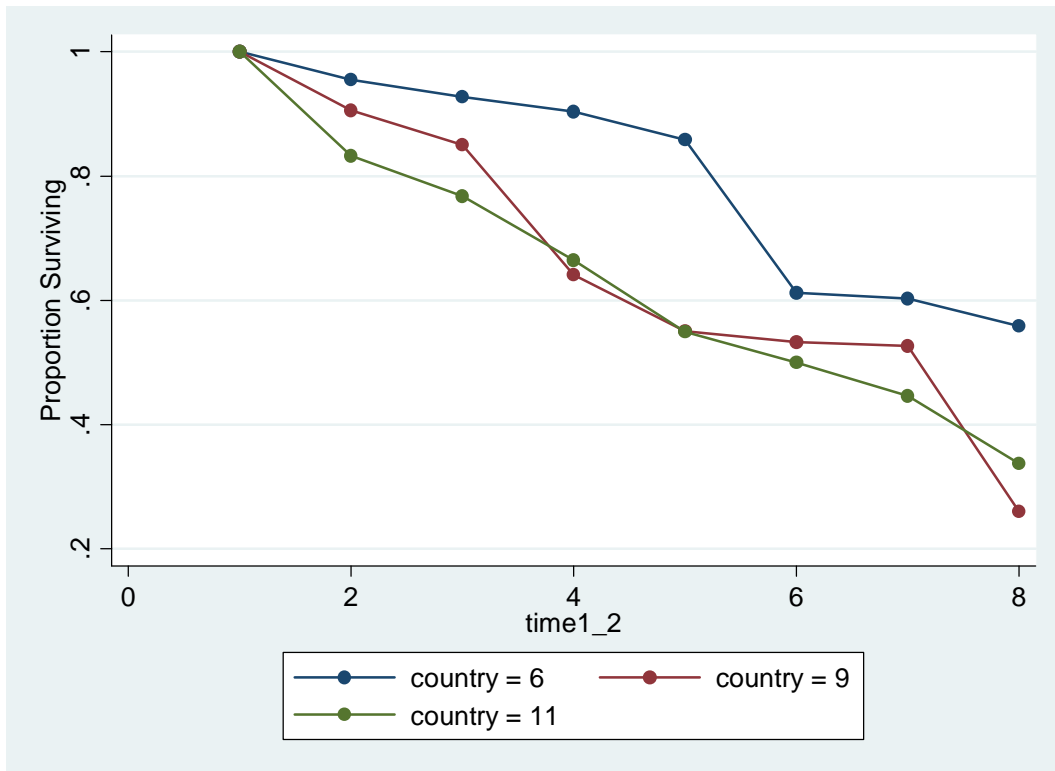
Thurow, L. (1975) *Generating Inequality: Mechanisms of Distribution in the U.S. Economy*. New York: Basic Books.

Verdugo, R. & Verdugo, N. (1989) 'The Impact of Surplus Schooling on Earnings: Some Additional Findings', *Journal of Resources*, Vol.24, 629-643.

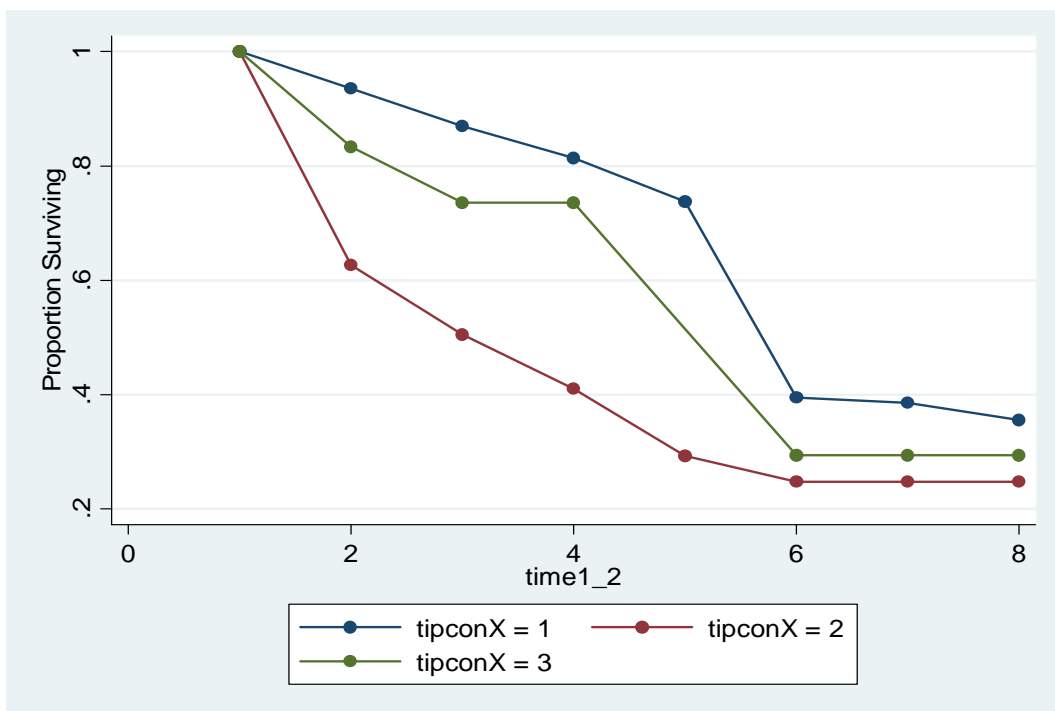
Table 1
Life Table
Transition from Over-education to Job Match

Interval	Total	Events	Lost	Survival	S.E
FRANCE					
0 1	3470	0	1109	1.0000	0.0000
1 2	2361	90	682	0.9554	0.0046
2 3	1589	39	498	0.9276	0.0063
3 4	1052	23	347	0.9034	0.0079
4 5	682	28	253	0.8578	0.0112
5 6	401	97	124	0.6124	0.0225
6 7	180	2	100	0.6029	0.0232
7 8	78	3	75	0.5583	0.0328
ITALY					
0 1	2852	0	1001	1.0000	0.0000
1 2	1851	150	538	0.9052	0.0074
2 3	1163	59	403	0.8496	0.0098
3 4	701	147	204	0.6411	0.0167
4 5	350	41	118	0.5508	0.0194
5 6	191	5	72	0.5330	0.0203
6 7	114	1	60	0.5267	0.0211
7 8	53	18	35	0.2596	0.0454
SPAIN					
0 1	6041	0	2555	1.0000	0.0000
1 2	3486	492	1085	0.8329	0.0069
2 3	1909	122	684	0.7680	0.0085
3 4	1103	122	398	0.6644	0.0114
4 5	583	84	194	0.5495	0.0148
5 6	305	22	121	0.5001	0.0168
6 7	162	13	84	0.4459	0.0206
7 8	65	9	56	0.3374	0.0351

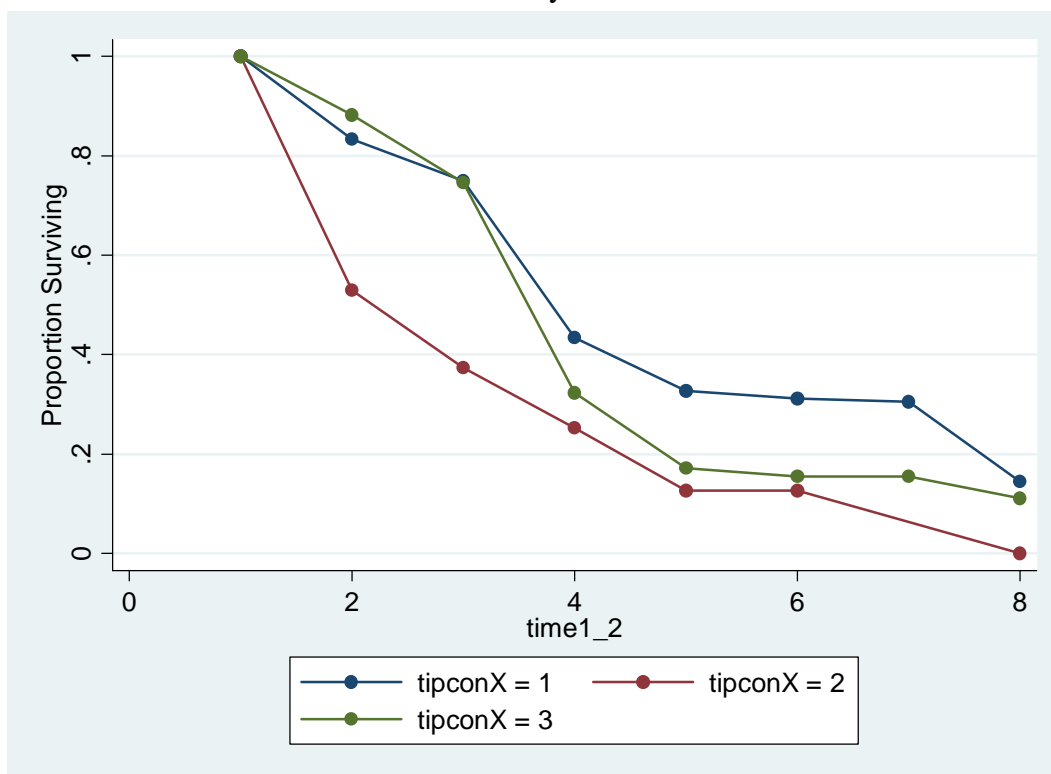
Life Table (general)



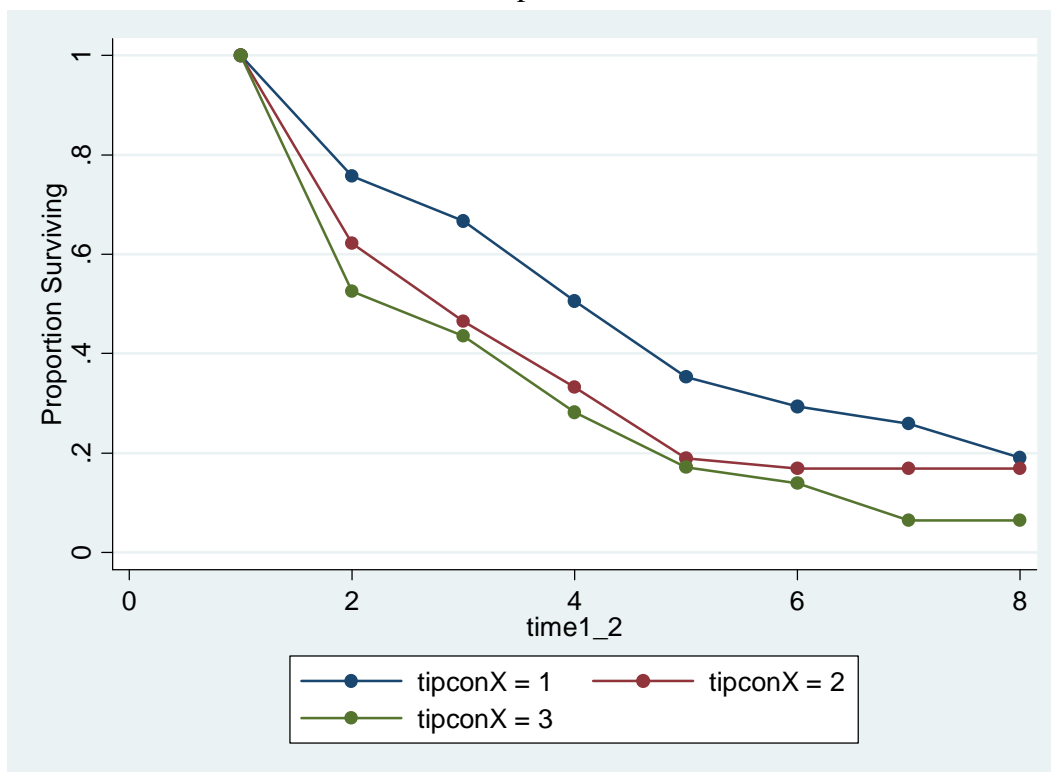
France



Italy



Spain



Distribution of over-educated workers by type of contract
(percentages in brackets)

	FRANCE			ITALY			SPAIN		
	Perm	Temp	Self	Perm	Temp	Self	Perm	Temp	Self
Wave 2	352 (84.6)	56 (13.4)	8 (1.9)	211 (66.5)	43 (13.5)	63 (19.8)	314 (56.8)	199 (35.9)	41 (7.4)
Wave 3	357 (84.8)	57 (13.5)	7 (1.6)	215 (69.1)	39 (12.5)	57 (18.3)	313 (55.3)	216 (38.1)	37 (6.5)
Wave 4	342 (85.7)	51 (12.7)	6 (1.5)	183 (73.2)	36 (14.4)	31 (12.4)	304 (57.6)	180 (34.1)	43 (8.1)
Wave 5	326 (83.3)	60 (15.3)	5 (1.2)	201 (74.7)	35 (13)	33 (12.2)	310 (53)	250 (42.8)	24 (4.1)
Wave 6	258 (81.9)	54 (17.1)	3 (0.9)	195 (73.8)	40 (15.1)	29 (10.9)	398 (61.2)	219 (33.6)	33 (5.0)
Wave 7	276 (77.5)	76 (21.3)	4 (1.1)	200 (73.5)	38 (13.9)	34 (12.5)	400 (58)	255 (37.01)	34 (4.9)
Wave 8	304 (78.7)	77 (19.9)	5 (1.3)	174 (68.5)	44 (17.3)	36 (14.1)	412 (58.1)	251 (35.4)	45 (6.3)

Table 2
Transition from over-education to job match
 Coefficients for complementary log-log models (significant coefficients in bold)

	France				Italy				Spain			
	Model 1	Model 2	Model 3 (1)	Model 4 (Heckman)	Model 1	Model 2	Model 3 (1)	Model 4 (Heckman)	Model 1	Model 2	Model 3 (1)	Model 4 (Heckman)
	Time	0.34	0.37	0.40	--	0.27	0.35	0.35	--	0.18	0.18	0.15
Sex	-0.37	-0.36	-0.46	-0.34	-0.32	-0.55	-0.56	-0.24	-0.007	0.03	-0.05	-0.12
Age (16-25) (Ref.: Age 45+)	0.89	0.65	0.74	-0.20	0.38	-0.07	0.05	-0.17	-0.26	-0.37	-0.56	-0.30
Age (26-35)	-0.06	-0.05	-0.05	-0.34	0.08	-0.23	-0.12	-0.30	-0.28	-0.38	-0.57	-0.45
Age (36-45)	0.03	-0.15	-0.17	-0.12	-0.48	-0.58	-0.50	-0.42	-0.16	-0.23	-0.33	-0.29
Fixed-term (Ref. permanent contract)	0.57	0.21	0.22	0.07	0.36	0.02	0.01	-0.06	-0.08	-0.24	-0.21	0.06
Self-employed	0.51	1.00	0.79	0.52	0.41	0.30	0.27	0.29	0.70	0.61	1.25	0.54
Tenure 1-5 (Ref tenure: 0-1)		-0.91	-0.85	-0.19		-1.00	-1.01	-0.36		-0.23	-0.19	0.01
Tenure 5+		-0.78	-0.71	0.14		-1.04	-1.02	-0.17		-0.20	-0.13	0.09
No job change (Ref. Other reasons for job change)		-0.20	-0.16	0.16		-0.59	-0.58	0.40		-0.09	-0.05	0.001
Job change ("better job")		0.26	0.27	-0.03		-0.05	0.01	0.23		0.22	0.19	-0.009
General education (Ref. No training)			-0.50	-0.33			-0.54	-0.34			-0.06	-0.10
Vocational training, employer			0.45	0.09			0.23	0.14			0.10	-0.14
Vocational training, no employer			0.32	0.07			-0.27	-0.15			0.09	-0.27
Sel. Eq: Sex				0.27				0.007				0.11
Fixed-term (Ref. permanent contract)				-0.006				0.04				-0.10
Self-employed				-0.51				-0.21				-0.42
Rho				-0.85				-0.50				-0.99
No. observations	3347	3277	3266	42577	2852	2757	2748	54949	6032	5741	5384	43807
Wald Chi Square	227.25	247.2	283.32	236.15	231.30	249.35	305.91	245.27	401.51	389.72	419.65	789.04

(1) Sector and firm size, also included in the model. Coefficients not provided for reasons of space

Table 3
Discrete-Time Survival Analysis
Transition from *over-education to job match*
(Coefficients corresponding to holding a fixed-term contract; reference category: permanent contract)

	MODEL 1	MODEL 2	MODEL 3	MODEL 3 (Heck.)	MODEL 4
POOLED	0.16** (0.07)	-0.04 (0.57)	-0.22*** (0.07)		0.24 (0.15)
FRANCE	0.57** (0.19)	0.21 (0.19)	0.22 (0.19)		--
ITALY	0.36** (0.14)	0.02 (0.15)	0.01 (0.16)		--
SPAIN	-0.08 (0.08)	-0.24** (0.10)	-0.21** (0.10)	0.06** (0.03)	--
FR * FIXED-TERM	--	--	--		-0.01 (0.21)
FR * SELF-EMPLOYT	--	--	--		-0.11 (0.74)
SP * FIXED-TERM	--	--	--		-0.61*** (0.16)
SP * SELF-EMPLOYT	--	--	--		0.33* (0.20)

Model 1: Control for sex, age, cohabitation and having children

Model 2: Model 1 + mechanisms of adjustment (tenure, job change)

Model 3: Model 2 + demand-side factors (unemployment rate at entry, firm size, sector, training)

Model 3 (Heckman): Coefficients are not provided when *Rho* is not significant

Model 4: Model 3 + interactions (country * type of contract)

Table 3 (bis)
Heckman selection models for the Spanish case; coefficients for main variables
(Robust standard errors in brackets)

	Without any additional variable in the selection equation	Tenure in the selection equation	Age in the selection equation
Sex	-0.12***	-0.01	0.02
Age (16-25) (<i>Ref.: Age 45+</i>)	-0.30***	-0.37**	
Age (26-35)	-0.45***	-0.30	
Age (36-45)	-0.29***	-0.13	
Fixed-term (<i>Ref. permanent contract</i>)	0.06**	-0.16**	-0.18***
Self-employed	0.54***	0.69**	0.44**
Tenure 1-5 (<i>Ref tenure: 0-1</i>)	0.01		-0.03
Tenure 5+	0.09		0.01
No job change (<i>Ref. Other reasons for job change</i>)	0.001	0.16**	0.16***
Job change ("better job")	-0.09	0.01	0.04
General education (<i>Ref. No training</i>)	-0.10**	-0.04	-0.01
Vocational training, employer	-0.14***	0.09	0.12**
Vocational training, no employer	-0.27***	0.12	0.17**
Sex	0.11***	0.11***	0.11***
Age (16-25) (<i>Ref.: Age 45+</i>)	0.22***	0.24***	0.24***
Age (26-35)	0.39***	0.40***	0.40***
Age (36-45)	0.27***	0.27***	0.27***
Fixed-term (<i>Ref. permanent contract</i>)	-0.10***	-0.10***	-0.10***
Self-employed	-0.42***	-0.41***	-0.41***
Tenure 1-5 (<i>Ref tenure: 0-1</i>)	-0.01	-0.01	-0.01
Tenure 5+	-0.09**	-0.09**	-0.09**
No job change (<i>Ref. Other reasons for job change</i>)	0.03	0.03	0.03
Job change ("better job")	0.01	0.01	0.01
General education (<i>Ref. No training</i>)	0.10**	0.10**	0.10**
Vocational training, employer	0.16***	0.16***	0.16***
Vocational training, no employer	0.25***	0.25***	0.25***
No. Observations	43807	43807	43807
Wald Chi(2)	789.06	449.76	525.70
Rho	-0.99**	0.26	0.64

(1) Coefficients for controls on cohabitation, having children, working in the public sector, unemployment rate at entry into the labour market, firm size and sector have not been provided. They are available under request.

Table 4
Discrete-Time Survival Analysis
 Transition from **over-education to job match** (analysis segmented by **gender**)
 (Coefficients corresponding to holding a fixed-term contract; reference category: permanent contract)

	MODEL 1		MODEL 2		MODEL 3		MODEL 4	
	Male	Fem	Male	Fem	Male	Fem	Male	Fem
POOLED	0.17* (0.09)	0.16 (0.10)	-0.09 (0.10)	-0.008 (0.11)	-0.12 (0.10)	-0.14 (0.12)	0.35* (0.18)	0.09 (0.25)
FRANCE	0.42 (0.27)	0.72** (0.26)	0.09 (0.27)	0.38 (0.29)	0.07 (0.27)	0.44 (0.30)	--	--
ITALY	0.45** (0.19)	0.21 (0.24)	0.07 (0.18)	-0.07 (0.25)	0.13 (0.19)	-0.07 (0.26)	--	--
SPAIN	-0.02 (0.11)	-0.13 (0.13)	-0.17 (0.13)	-0.28* (0.15)	-0.10 (0.14)	-0.27* (0.16)	--	--
FR * FIXED-TERM	--	--	--	--	--	--	-0.14 (0.28)	0.20 (0.34)
FR * SELF-EMPLOYT	--	--	--	--	--	--	-0.49 (1.00)	0.19 (1.11)
SP * FIXED-TERM	--	--	--	--	--	--	-0.67** (0.21)	-0.53* (0.28)
SP * SELF-EMPLOYT	--	--	--	--	--	--	0.31 (0.24)	0.48 (0.34)

Model 1: Control for sex, age, cohabitation and having children

Model 2: Model 1 + mechanisms of adjustment (tenure, job change)

Model 3: Model 2 + demand-side factors (unemployment rate at entry, firm size, sector, training)

Model 4: Model 3 + interactions (country * type of contract)

Table 5
Multinomial logistic regression

(Coefficients corresponding to holding a fixed-term contract for the categories of the following categories of the dependent variable: job match and exit out of employment; reference category in dependent variable: being over-educated)

	MODEL 1		MODEL 2		MODEL 3		MODEL 4	
	Job Match	OE	Job Match	OE	Job Match	OE	Job Match	OE
POOLED	-0.01 (0.06)	0.32** (0.15)	-0.12 (0.15)	-0.32** (0.15)	-0.23** (0.08)	-0.12 (0.15)	0.14 (0.11)	-3.31** (0.80)
FRANCE	0.29* (0.17)	0.97** (0.26)	0.14 (0.18)	0.89** (0.32)	0.25 (0.19)	0.56* (0.30)	--	--
ITALY	0.16 (0.14)	0.11 (0.54)	-0.08 (0.15)	-0.73 (0.48)	-0.10 (0.17)	0.06 (0.39)	--	--
SPAIN	0.16 (0.14)	0.11 (0.54)	-0.22** (0.10)	-0.74** (0.19)	-0.27** (0.11)	-0.52** (0.20)	--	--
FR * FIXED-TERM	--	--	--	--	--	--	-0.02 (0.21)	4.15**
FR * SELF-EMPLOYT	--	--	--	--	--	--	-0.42 (0.77)	-2.14* (1.15)
SP * FIXED-TERM	--	--	--	--	--	--	-0.60** (0.16)	3.67** (0.85)
SP * SELF-EMPLOYT	--	--	--	--	--	--	0.34* (0.19)	0.05 (1.44)

Model 1: Control for sex, age, cohabitation and having children

Model 2: Model 1 + mechanisms of adjustment (tenure, job change)

Model 3: Model 2 + demand-side factors (unemployment rate at entry, firm size, sector, training)

Model 4: Model 3 + interactions (country * type of contract)

Table 6
Multinomial logistic regression
 (analysis segmented by gender)

(Coefficients corresponding to holding a fixed-term contract for the categories of the following categories of the dependent variable: job match and exit out of employment; reference category in dependent variable: being over-educated)

	MODEL 1		MODEL 2		MODEL 3		MODEL 4							
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE						
	Match	OE	Match	OE	Match	OE	Match	OE						
POOLED	0.02	-0.38**	-0.12	-1.17**	-0.11	-1.29**	-0.20*	-0.18	-0.25**	-0.08	0.25	-2.54**	0.01	-3.08**
FRANCE	0.26	0.83	0.06	0.91	0.23	0.94**	0.11	0.59	0.45	0.53	--	--	--	--
ITALY	0.29	-0.48	0.03	-1.43	-0.23	-0.50	0.09	0.05	-0.28	0.10	--	--	--	--
SPAIN	-0.13	0.17	-0.18	-0.61**	-0.27*	-0.86**	-0.16	-0.48*	-0.38**	-0.58**	--	--	--	--
FR * FIXED-TERM	--	--	--	--	--	--	--	--	--	--	-0.10	3.85**	0.11	3.56**
FR * SELF-EMPLOYT	--	--	--	--	--	--	--	--	--	--	-0.73	-29**	-0.31	-34.1**
SP * FIXED-TERM	--	--	--	--	--	--	--	--	--	--	-0.65**	2.60**	-0.54**	3.49**
SP * SELF-EMPLOYT	--	--	--	--	--	--	--	--	--	--	0.31	0.98	0.44	-34.2**

Model 1: Control for sex, age, cohabitation and having children

Model 2: Model 1 + mechanisms of adjustment (tenure, job change)

Model 3: Model 2 + demand-side factors (unemployment rate at entry, firm size, sector, training)

Model 4: Model 3 + interactions (country * type of contract)