

Fixed-term contracts, labour market uncertainty and training opportunities. A comparative analysis.

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Abstract

European flexibilization reforms led to different occupational prospects for temporary workers according to the wider labour market regulative system while a penalty in terms of Life-Long Learning (LLL) for contingent workers has been found in most of OECD countries. The purpose of our work is to assess the trade-off between temporary employment and training opportunities in a comparative analysis of three groups of countries characterized by different level of labour market segmentation and training coverage rates. The role of economic conjuncture in shaping LLL chances has also been addressed. Our research questions have been investigated on two pooled rounds of the European Social Survey (2006 and 2008). While regression analyses confirm the negative effect of fixed-term contracts (FTCs) on training opportunities and likelihood of future unemployment as a crucial intervening variable, structural equations models underline the higher risks of human capital depreciation for FTCs in insider-outsider settings. Counterfactual analyses show a reduction in training provisions during the 2008 crisis only for temporary workers in strongly segmented labour markets. Our results provide evidence of the importance of different labour market regulations and the intrinsically dynamic nature of training allocation process in terms of macro-economic conjuncture and individuals' work histories.

Key words: Training / Fixed-term contracts / Welfare regimes / Labour market segmentation / Economic crisis

Introduction

It is a commonly recognized finding that fixed-term contracts (FTCs) tend to receive less training with respect to their permanent counterpart and it is well known how strategies of labour market flexibilization reform have had rather different consequences in terms of socio-economic inequalities across European countries. Apart from well documented risks of entrapment in precarious careers and wage differentials between "typical" and "atypical" employment, we argue that also temporary workers' underinvestment in human capital is strongly differentiated across countries according to levels of labour market segmentation. Therefore, to test this hypothesis, we use a threefold typology of European labour markets that also overlaps training coverage rates of the workforce.

Moreover, our analysis intend to cope with two issues that, as far as we know, have been less considered in the literature, both regarding the intrinsically dynamic nature of the training allocation process. Firstly, although still within a cross-sectional design, we take into account individuals' past work history and occupational prospects. By doing this we try to disentangle the explanatory mechanism of training differentials between FTCs and permanent workers and to grasp the risks of human capital depreciation deriving from "job-carousels", especially in those labour markets

characterized by strong insider-outsider settings. Secondly, we argue that the relation between FTCs and training could be affected by the general economic conjuncture according to labour market regulations: the more FTCs constitute a secondary and unprotected segment of the labour market, the more we suggest they will be burdened with the large part of the training provision retrenchment during economic downturns.

In the theoretical framework we describe the foundations of our threefold typology of the European labour market considered in the analyses and we briefly review previous empirical findings about training determinants and the impact of FTCs on Life-Long Learning (LLL). Then, data and methods are presented. Finally, findings are discussed in view of the pre-existing literature and conclusions are drawn out.

1. Theoretical framework

1.1 *Welfare regimes, labour market regulative systems and flexibilization reforms*

The crisis of the fordist model during the 1980s led to a structural incapability of jobs creation in Europe and an incredible increase in unemployment rates, especially among young first job seekers, while the U.S. showed successful labour market outcomes¹. The latter were imputed to the flexibility of the North American labour market, while European ones were accused to be too “rigid”, i.e. protecting excessively permanent jobs (Grubb and Wells, 1993; Nickell, 1997; Saint-Paul, 1996; Siebert, 1997). In the same period, however, the North-American (and British) economy showed a sharp increase in economic inequalities comparing with Europe (Gallie and Paugam, 2000; Smeeding, 2002). The comparison supported neo-liberist labour economics, that claimed the existence of an *employment/equality trade-off* (Esping-Andersen, 1999; Esping-Andersen and Regini, 2000). This trade-off implied that more jobs could be created only by means of a reduction in social security measures and an increase in (numerical) flexibility and, since the early 1980s, such a belief fostered a supply-side perspective of reforming European labour markets (Blanchard, 2005).

A critical review of the trade-off hypothesis comes from the welfare regimes theory (WRT). By establishing a connection between a given welfare and social policy model and a given employment model (Esping-Andersen, 1990, 1991 and 1999), WRT suggested that the process of tertiarization is relevant to explain European high unemployment and low employment rates, rather than employment protection legislation (EPL). As a matter of fact, according to the solutions given to the cost disease (Baumol, 1967), countries promoted or prevented the creation of new jobs in the service sector; therefore, the most important “rigidity” of European countries would affect product market. Moreover, empirical analyses showed that EPL only determines which social groups are more exposed to unemployment risks (e.g. young first job seeker) rather than employment stocks (Samek-Lodovici, 2000).

Nevertheless, labour market regulative systems constitute a complex institutional domain, therefore European countries, especially the ones belonging to the “Mediterranean” version of the conservative welfare regime, chose to operate “at the

¹ Unemployment rates in Italy reached 12%, in Spain 21% and, on average, Europe showed an increase from 3.7% in the 1975 to 10.5% in the 1985. In the same period, the North American rates fell from 8.5% to 7.5%. But data are particularly interesting comparing youth (in the age class 15-24) unemployment rates, that in the decade reached 34% in Italy and 43% in Spain (the highest rates among all OECD countries), while in the U.S. fell down to 14%. For this data see: <http://stats.oecd.org/Index.aspx>.

margins”. Precisely, these countries adopted a “partial and targeted” deregulation process (Esping-Andersen and Regini, 2000) – or “partial reform strategy” (OECD, 2006) – entailing the preservation of the social protection system for the insiders and burdening younger cohorts with all the demands for flexibility (*ibidem*). The process generated a strong labour market segmentation and in the literature are by now well-known the consequences of “atypical” employment on economic security and prospects (for Italy see Barbieri and Scherer, 2009; Gagliarducci, 2005; Rosolia and Torrini, 2006; for Germany see Giesecke and Gross, 2003; Gebel, 2009; Giesecke, 2009; for Spain see Polavieja, 2003; Sala and Silva, 2009).

The liberal and socialdemocratic welfare regimes adopted rather different strategies, on the one hand, implementing a “non-targeted” flexibility², on the other hand developing a so called “flexicurity” system (Madsen, 2006). Scandinavian countries have much higher levels of *decommodification*, comparing with liberal countries, in terms of unemployment benefits and minimum wages (Esping-Andersen, 1990 and 1999). At the same time, these countries, and especially Denmark that represents the ideal-type for the flexicurity model, were able in the last 20 years to reach the fundamental aims of a flexible labour market, in terms of low job-tenure and high labour market mobility, job creation and competitiveness (*ibidem*; Madsen, 2006). The basic idea of the flexicurity model is that public policies should focus not on the protection of the job but of income (unemployment benefits) and “employability”, through training provision (OECD, 2002) and active labour market policies (ALMP). So, the flexicurity model proposes “global” flexibility (and not “partial and targeted”), but short and protected, avoiding the precarious careers and spread of inequalities typical of the countries belonging to the conservative model.

This discussion implies that European countries can be ordered according to labour market segmentation caused by flexibilization reforms as well as their capability of jointly reach flexibility and security (Muffels and Luijkx, 2008). Labour market segmentation is especially found in Southern European countries, followed by Continental European countries and Northern countries. Continental European countries perform better than Southern ones concerning the flexibility/security trade-off as in those countries much higher level of “employability” are reached by means of stronger unemployment benefits and higher percentage of GDP invested in ALMP (OECD, 2009). Moreover, several empirical analyses showed how the entrapment-effect of temporary work is particularly strong in Southern European countries (see above). On the other hand, UK can be included in the last group made by Scandinavian countries as here segmentation is avoided by means of high labour market fluidity (Muffels and Luijkx, 2008), even if it does not reach the same results in terms of ALMP and benefits.

As briefly summarized, there is clear evidence of the effects of these different labour market structures on employment prospects of FTCs; in our work we want to see whether different patterns of “precarious careers” in different European labour markets produce heterogeneous effects with a strongly correlated issue, i.e. LLL chances. It is interesting to notice indeed that the above specified threefold labour market typology largely parallels training coverage. According to OECD (2008), Northern countries have overall participation rates in training programmes between 30-40%, followed by Central European countries with a participation rate between 10 and 20%, and by Mediterranean countries in which participation rates do not exceed 5%.

² While Central and Southern European countries focused labour market reforms on its age-targeted characteristic, liberal countries focused more on the skill divide in the workforce.

1.2 Determinants of training provision and FTCs

It is commonly recognized in the socio-economic literature that human capital accumulation (both as formal education and training activities) has important consequences at the macro level, being a key element for maintaining economic growth, increasing productivity and promoting fuller employment and employability of individuals. This last aspect is probably the most relevant for our research purpose, since we want to study the implications on the human capital accumulation opportunities of atypical employment in different European labour markets. It is a matter of fact that despite the recommendation of the European Job Strategy, the implementation of LLL programs remained a relative marginal phenomenon in Europe, while emerged a strong inequality across countries in the levels of training activities of the workforce (Bassanini, 2004; OECD, 2004).

Regardless of regional disparities in coverage rates of LLL programmes, we can underline some stylized facts concerning the highly selective process of allocating individuals in training activities. Not surprisingly, employed receive more training than unemployed, while there is a huge variation in training probabilities among different categories of workers. Firstly, those with higher levels of formal education enjoy greater training opportunities (O'Connell, 2009). Therefore, stratification mechanisms shaping educational attainment are still at work if we shift to LLL chances. Other individual factors highly relevant in this respect are age and type of occupation. Young people and those in high-skilled occupations are much more likely to participate in training programmes (*ibidem*).

While the relation between gender and training opportunities is not clear as other traditional labour market cleavages (Arulampalam et al., 2004; Drewes, 2008; Jenkins et al., 2002; Pischke, 2001), other structural variables strongly affect the probability to get access to LLL. A stable result regards the positive relation between firm size and training provision, given the lower marginal costs paid by the employer. Another usual finding is the positive association between union coverage (and membership) and the decision to invest in on-the-job training made by employers. Different possible mechanisms could explain such correlation. On the one hand, employers are more willing to invest in training provisions the more the compression of the wage distribution between trained and untrained employees (Acemoglu and Pischke, 1999). On the other hand, unions can push employers to include training programmes both as a part of contractual agreements and as a consequence of lower turnover rates³.

In this study, we do not distinguish between specific and general training, which depends on the (in)transferability of the skills acquired for a subsequent job, and we assume that the decision to invest in training is inscribable in a utility maximizing framework both for the employers and the employees, in terms of expected returns (productivity on one side, wage and career prospects on the other). Anyway the distinction between alternative forms of training is rarely well operationalisable and our data do not exempt; moreover, the empirical evidence indicates that specific training is far less common than the general one and that in most of cases the activities of training of both types are paid by employers (Bishop, 1996; Booth and Bryan, 2002;

³ It is anyway worthy to recall that empirical evidence on the relation between trade unions and training is somehow mixed, with positive effects in Lynch (1992), Booth et al. (2003), Dustman and Schönberg (2004) and null or negative effects in Mincer (1983), Barron et al., (1987) and Bassanini et al. (2005).

Evertsson's, 2004; Loewenstein and Spletzer, 1999; O'Connell, 2004; Pischke, 2000), while if not provided by the firm, the human capital investment paid directly by employees does not compensate the lacking of financed LLL opportunities (Sauer mann, 2006).

In a cost-benefit framework if the payback period is short, firms will have poor incentive to invest in the workforce training. Consequently, there is empirical evidence of underinvestment in training activities for part-time and even more temporary and contingent workers (O'Connell, 2009; Lucidi, 2010), with likely negative implications in terms of productivity and career prospects for that part of the workforce less attached to the labour market. There is indeed enough empirical evidence of a negative relation between FTCs and training in different labour markets (for Spain, see Albert et al., 2005; Dolado et al., 2002; Sala and Silva, 2009; for Belgium, see Forrier and Sels 2003; for Germany see Sauer mann, 2006; for UK, see Arulampam and Booth, 1998; for Denmark see Aralumpam et al., 2004)⁴.

Even starting from this important empirical corpus, we suggest that it could be misleading to consider FTCs effects on LLL from a static point of view, just addressing the issue by the inclusion of a FTC dummy variable in a general training regression model. Therefore, our contribution, even if still within the frame of cross-sectional analyses, aims to provide evidence of the intrinsically dynamic nature of training chances allocation process, augmenting usual empirical models with individuals' past work history and occupational prospects.

Moreover, given that the participation in training is associated at the individual level with a substantial decrease of economic (by wage premium) and occupational risks (increasing job stability and employability of the worker), a stratified access to LLL chances has strong relevant implications in terms of inequalities, even more considering that the selection of individuals for training activities seems to go in line with some of the traditional structural factors of inequality. Therefore, we argue that these distributional aspects could have a relevant role in exacerbating the segmentation in dual labour markets in those countries that have undertaken a "partial and target deregulation" process. In those countries, given the strong internal segmentation and consequent "vicious circles" of repeated spells of unemployment and FTCs, temporary work could both increase individual risks of human capital depreciation and reinforce the negative consequences of "atypical careers".

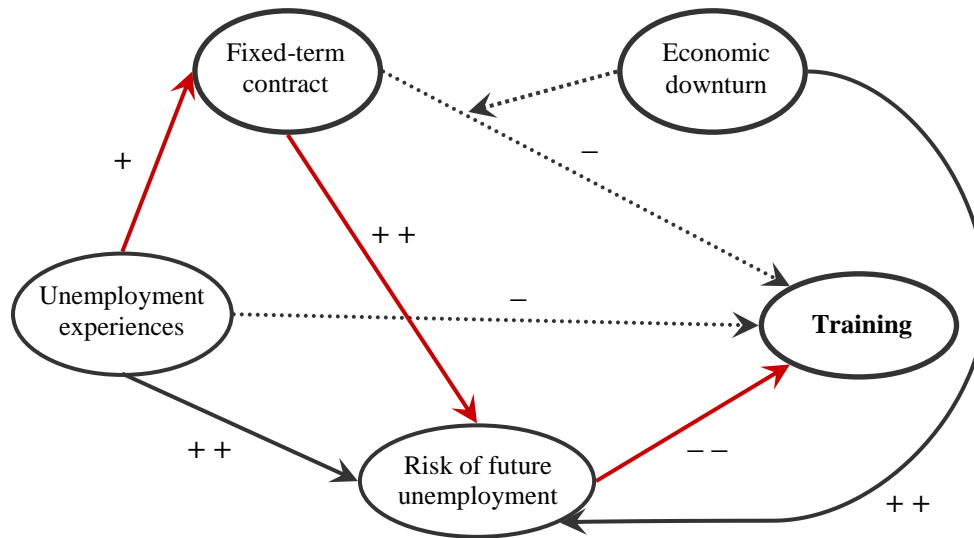
A not widely discussed issue, although theoretically relevant to understand the relation between temporary work arrangements and LLL chances, is the impact of flexible contracts in different economic conjunctures. We argue that the more FTCs are used just as a "buffer" in order to cope with short term demand-side needs (and the less as a screening process for future permanent workers), the more FTCs during economic downturns could have negative effects on training chances.

2. Hypotheses

In Fig. 1. we graphically summarize our main research hypotheses.

⁴ Alternative results, with positive correlation between training and low attachment labour market jobs, (either FT or part-time contracts) have been obtained considering jointly formal education and on-the-job training (Bassanini, 2005).

Fig. 1 Precarious labour market career and economic conjuncture as determinants of training



We want to assess the effect of FTCs on workers' training opportunity in a comparative perspective. Our main hypothesis is that holding a FTC has a negative impact on such investments. While this has already been done in the literature, we argue that this effect is determined by employers' less will to give training opportunities to temporary employees as the former will probably lose the advantages of their increased productivity at the end of the contract. Therefore, a crucial intervening variable should be employees' likelihood of being unemployment in the short run, that is fostered by temporary employment. Moreover, we want to stress how considering a single spell of temporary employment could bring to an underestimation of the effect of atypical employment, as often the latter implies several temporary employment episodes or long searches for a job, as we described in the previous paragraph. That is why experienced precariousness, i.e. previous episodes of unemployment, could both reinforce individuals' probability of holding a FTC and increase the risk of additional unemployment spells, as well as undermine workers' training opportunities⁵.

As suggested at the end of the previous paragraph, we argue that economic downturns influence the relation between FTC and training, i.e. FTC could have also direct effects on training during economic crises. In short, our hypothesis is that when firms' resources available for training investments tend to reduce, employers' training provisions will mainly focus on the core-workforce. In this respect, Brunello claimed that large part of the negative impact of economic downturns on training provisions is due to two opposing trends (2009): on the one hand, firms are often reluctant to lose incumbent workers' specific human capital "because of a temporary downturn and tend to engage in some form of labour hoarding, which includes the provision of training. Because of this, the training of incumbents could increase in a downturn" (*ibidem*: 11). On the other hand, for labour market entrants in temporary jobs, occupational prospects and training chances tend to worsen (*ibidem*). For this reason we do not include any direct effect of economic crisis on the likelihood to receive training in our theoretical model. Anyway, while it is obvious that economic crises directly affect labour market uncertainty, as the latter is

⁵ That is because during unemployment individuals may experience human capital losses.

expected to be negatively associated with training opportunities, economic crises could make individuals less likely to receive training as a result of an indirect effect.

We think there might be strong cross-country heterogeneity in these relations. Following the discussion presented in the previous paragraph, it is likely that countries with a flexicurity setting could make less severe the effects of FTCs on labour market uncertainty, comparing with those ones with highly segmented labour markets. The latter should have a stronger relation between previous unemployment and FTC as well as between the former and uncertainty. Previous unemployment experiences and uncertainty could have stronger negative effects on training in countries with segmented labour markets, given the lower presence of ALMP and R&D investments.

Finally, we argue that the insider-outsider setting of Continental and especially Southern European countries could make temporary workers most likely candidates for a reduction in training opportunities during economic downturns⁶.

3. Data and methods

As outlined in the previous section, our specific research questions concern the effects of FTC on training provision (with uncertainty as crucial mechanism) and the role played by different labour market regulations in shaping LLL opportunities, especially in response to a negative economic conjuncture. We address these questions pooling two distinct waves of the European Social Survey (namely 2006 and 2008)⁷.

We selected eleven countries that we consider to be representative of distinct institutional labour market regulations and that we labeled consequently: Denmark, Sweden, Finland, Norway and the UK, i.e. the “Flexicurity” group; Belgium, the Netherlands, Germany and France, i.e. the “Conservative” group; Spain and Greece, i.e. the “Mediterranean” group⁸.

The analysis covers 12238 employees (jointly male and female), aged between 20 and 50 and working between 15 and 48 hours a week. The control variables in our models are: *gender*; *age* (recoded into six dummy variables); *years of formal education*; *previous unemployment spells* lasting more than three or twelve months; *total contracted working hours* (recoded into four dummy variables); *trade union membership*; *firm size* (recoded into five categories); *Public Administration* (based on NACE classification); a *social class* variable based on the Eurosec schema (six dummy variables: managerial position, professionals-higher supervisors, intermediate occupations, lower supervisors, lower sales, lower technicals, routine workers); *qualified sector*⁹; *subjective likelihood*

⁶ It should be said that our analysis is limited to the average effects of precarious labour market careers on training opportunities across different labour market regulative systems. Therefore, we will not focus on the distribution of such social risks within countries or groups of countries. Where flexibilization reforms were implemented according to an insider-outsider logic, it is very likely that some specific social groups, i.e. young, women, less educated and individuals with lower socioeconomic background, could be burdened by a load of social risks (repeated unemployment episodes, less earnings and loss of human capital, postponement of transition to parenthood). This issue will be mentioned but remains out of the topic of this work.

⁷ ESS round 3 and ESS round 4 have been analysed. Both are cross-sectional data and in all our analyses we make use of both design and population weight, as recommended in data documentation when countries are jointly considered (see <http://ess.nsd.uib.no/ess/doc/weighting.pdf>).

⁸ Greece is present only in round 4. We miss information about Italy, that could have been included in the Mediterranean cluster, but that has not been added in the ESS integrated sample, given problems with sampling procedures. In the paper the labels “Northern/Flexicurity”, “Central/Conservative” and “Southern/Mediterranean” are used as synonyms.

⁹ This dummy variable has been computed selecting those employees working in activities of membership organizations, recreation and cultural activities, air transports, research and development, financial

of subsequent unemployment (recoded into four categories: not likely at all, not likely, likely and very likely)¹⁰.

A special remark should be done with regard to the round dummy variable. We included in our models the control variable “2008” as a proxy of economic negative conjuncture; most of the interviews for the ESS4 survey were indeed realized in the second part of the 2008, when the global economic crisis already raged in all the countries included in our analysis. Graph 1 shows the GDP trend in 2006 and in 2008, being the red line the starting point of second round’s interviews¹¹. The graph shows the temporal overlap between round ESS4 and the spread of the economic crisis in all the countries included in the analysis: the GDP trend, with no national exception, is stable in 2006 while is sharply decreasing starting by the first quarter of 2008.

In order to cope with our research hypotheses, we made use of three kind of techniques. First of all, we assessed the existence of the negative effect of FTCs on training and the main expected correlations by means of logit models and a non-linear decomposition technique (Fairlie, 2005)¹².

Then, structural equations modeling (SEM) has been used for a better test of the theoretical model of Fig. 1, requiring the decomposition of total effects in their direct and indirect components. Multisample path-analysis has been implemented, by means of maximum likelihood estimation of structural coefficients based on a variance-covariance matrix for each group of countries¹³. Equality constraints have been introduced to test for the statistical significance of across-groups differences.

In the third empirical section of our work we focus on the effect of FTCs during economic downturns. While SEM techniques are powerful means when the focus of the analysis concerns the structure of relations between variables, to check the impact of economic crisis, shifting to a causal approach (Rubin, 1974), we ran a fully non-parametrical counterfactual analysis which enabled us to detect the different impact of the economic crisis within the permanent and FTC groups across countries. The matching procedure was performed on the same covariates of previous logit models and the estimation procedure that we used is known as “genetic matching” (Sekhon, forthcoming)¹⁴. Not needing parametric formulation or distributional assumptions is no guarantee against the risk of distortion in the estimate of the causal effect. In this

or other business activities, international organizations, health – if not routine or low skilled workers – and education, for individuals belonging to the service class.

¹⁰ This is an anticipatory item dealing with the perceived risk of unemployment 12 months after the interview.

¹¹ Data are taken from the following webpage: <http://stats.oecd.org/Index.aspx>.

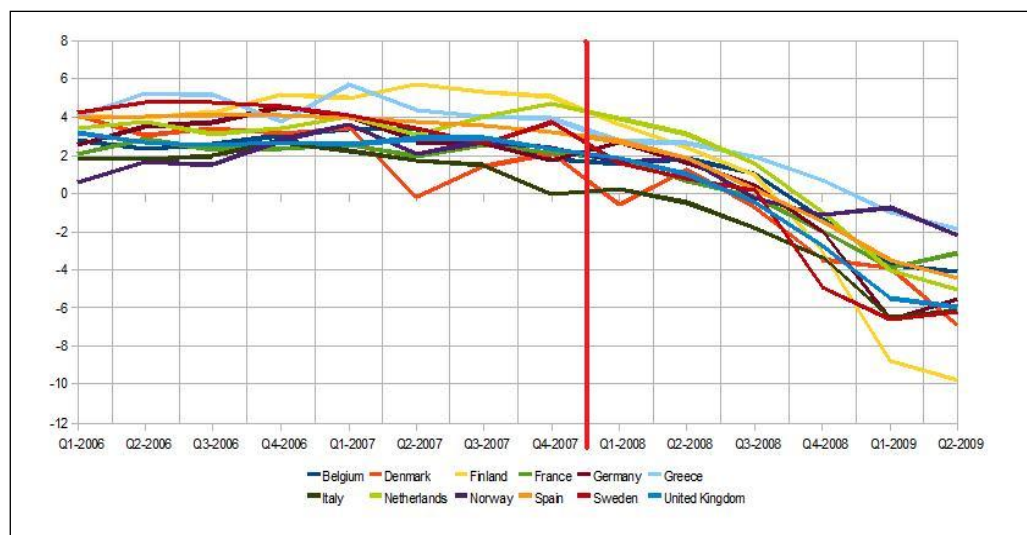
¹² This technique allows to estimate the amount of training penalization due to observable factors in the groups of FTCs and permanent workers (individuals’ endowments, job characteristics and country of residence) and the contribution of each variable to the total observed differential.

¹³ We did not use tetrachoric/polychoric/poliserial correlations, asymptotic covariance matrices and weighted least squares estimation even if most of our variables are dichotomous and ordinal (ISEI instead of the Eurosec class schema and age instead of age class have been used). As Hu et al. (1992) showed, if usual assumptions of common ordinary least squares hold – i.e. the model is well specified and no correlation between exogenous variables and error terms on dependent variables exists – maximum likelihood works nicely even in presence of significant non-normality, if the sample is reasonably large. In our cases these conditions are satisfied and, moreover, results parallel closely previous regression models’ findings.

¹⁴ The estimation is based on an iterative algorithm designed to detect the best covariates balance between the control and treated groups, the one that minimizes and renders non-statistically significant the distances in means and distributions of control and treated covariates.

respect, we used the Rosenbaum sensitivity test as a measure of the robustness of our estimation in presence of unobserved heterogeneity¹⁵.

Graph. 1 2006-2008 GDP trend in 12 European countries



4. Empirical results

4.1 Regression analyses

Given the dichotomous nature of our main dependent variable, have being involved (or not) in a training activity in previous year, in Tab. 1 we start estimating three logit models reporting odds-ratios coefficients.

In model 1 we present a common equation in which training is function of gender, age, education, previous unemployment experiences, firm and job characteristics, wave and country groups' dummies. The patterns of results are in line with the findings outlined in the theoretical section: training is negatively correlated with age, positively correlated with years of formal education, firm size, working time, trade union membership, qualified occupations and higher class positions. Gender differences in training opportunities appear minor but nonetheless significant. Previous spells of unemployment do not affect training while, as theoretically expected, the "Flexicurity" cluster of countries, characterized by higher ALMPs and R&D investments, increases for the whole workforce the probability to be involved in LLL.

As theorized and coherently with previous research on the topic, those who hold temporary contracts suffer a statistically significant reduction in LLL chances. Results from a Fairlie decomposition analysis, not shown here for the sake of brevity, indicate that the distribution of independent variables (with a specification identical to that of model 1) explains five out of eight percentage points of the observed training differential between atypical and standard workers; among all variables, the "Mediterranean" cluster and lowest class position (routine manual workers) contribute massively to factual training differential between workers with different contractual arrangements.

¹⁵ The "rbounds" package by Keele (2010) has been used. For further details see <http://www.polisci.ohio-state.edu/faculty/lkeele/rbounds%20vignette.pdf>

In model 2 we include the perceived probability to become unemployed 12 months after the interview. The result is no appreciable changes in the coefficients structure, except for the FTC dummy, which in model 2 loses all its strongly statistical significance, and its effect goes virtually to zero. It is possible to argue that, controlling for all relevant variables, short-term career prospects constitute the explanatory mechanism of the negative FTC effect. Therefore, temporary employment itself has no effect in determining training, neither as a consequence of legal or *de facto* discrimination, at least if we consider jointly the two waves in the dataset. In this respect, model 3 includes, *caeteris paribus*, the interaction effect between holding a FTC and adverse economic conjuncture; again, the whole picture of the other coefficients remains unchanged but it emerges how during an economic downturn, despite the stable rate of training provision for the whole sample, FTCs come to be penalized in accessing LLL regardless of their future unemployment likelihood. This result seems to suggest that in a context of scarcity of resources, firms opt for investing in training activities in favour of core-insider workforce, thus confirming our hypothesis.

If just interested in estimating the effect of FTC on human capital depreciation, we could safely interrupt the analysis at this point, with our results partly confirming and overlapping previous research findings on the issue. Nevertheless we argued that the overall picture could be incomplete without considering, on the one hand, the interconnection between atypical work arrangements, previous unemployment spells and occupational risks and, on the other hand, the effects of different institutional and labour market settings in shaping individual LLL opportunities.

The empirical findings so far presented have highlighted the relevance of three factors intervening in the relation between FTCs and training deficiency: the uncertainty of secure job prospects, the previous spells of unemployment, and the macro economic conjuncture. In Tab. 2 we propose three logistic (M.4, M.5 and M.8) and two ordered logistic (M.6 and M.7) regression models accounting for the role of labour market regulative systems in shaping the effects of the first two variables.

In model 4, preserving the same coefficients structure of Tab. 1, we check whether the effects of uncertainty differ across groups. Results show that in Northern countries labour market uncertainty significantly reduces the likelihood of receiving training only if level of job-insecurity is very high, while in “Conservative” and “Mediterranean” labour markets uncertainty seems to affect more the training under-investment. Analogously, in model 5, previous unemployment spells affect even positively LLL chances in “Flexicurity” countries, possibly capturing the effect of ALMPs, while having been unemployed both in the “Conservative” and “Mediterranean” labour markets leads to human capital depreciation risks.

Shifting to uncertainty determinants (M.6), it is worth to underline that if FTCs are correlated with less secure job prospects in any labour market, that is particularly the case in “Mediterranean” countries¹⁶; moreover, in “Flexicurity” (but also Mediterranean) labour markets, the scarring effects of past unemployment on subsequent risk of job loss are weaker than in “Conservative” countries (M.7).

¹⁶ It is plausible that this finding reflects the higher rates of “buffer” usage of FTCs and/or the lacking of socio-economic welfare endowments characterizing Southern countries.

Tab. 1 Logit models of training determinants

	M.1		M2		M3	
	training		training		training	
	O.R.		O.R.		O.R.	
FTC	0,86	***	0,98		1,10	
Not likely unemp + 12 m.			0,83	***	0,82	***
Likely unemp + 12 m.			0,71	***	0,70	***
Very likely unemp. +12m.			0,45	***	0,44	***
Woman	0,92	**	0,91	**	0,91	**
Age 26-30	0,76	***	0,77	***	0,77	***
Age 31-35	0,67	***	0,67	***	0,67	***
Age 36-40	0,61	***	0,61	***	0,61	***
Age 41-45	0,61	***	0,61	***	0,61	***
Age 46-50	0,61	***	0,60	***	0,60	***
Conservative	0,63	***	0,64	***	0,64	***
Mediterranean	0,42	***	0,41	***	0,41	***
Years of education	1,12	***	1,12	***	1,12	***
Previous unemp > 3 m.	1,00		1,05		1,05	
Previous unemp > 12 m.	0,97		1,02		1,02	
Professionals, higher supervisors	0,92		0,90	*	0,90	*
Intermediate occupations	0,70	***	0,71	***	0,71	***
Lower supervisors and technicians	0,74	***	0,73	***	0,73	***
Lower sales and service	0,46	***	0,47	***	0,47	***
Lower technical	0,25	***	0,25	***	0,25	***
Routine	0,29	***	0,29	***	0,28	***
Working hours 25-29	1,29	**	1,31	**	1,31	**
Working hours 30-39	1,37	***	1,38	***	1,38	***
Working hours >= 40	1,47	***	1,48	***	1,48	***
10-24 Employee	1,04		1,04		1,04	
25-99 Employee	1,19	***	1,19	***	1,19	***
100-499 Employee	1,43	***	1,41	***	1,41	***
>= 500 Employee	1,75	***	1,73	***	1,73	***
Member of trade union	1,49	***	1,46	***	1,46	***
Qualified sector	1,18	***	1,17	***	1,17	***
Public sector	1,76	***	1,68	***	1,68	***
2008	0,95		0,97		1,00	
2008*FTC					0,79	**
Log likelihood =	-8595		-8427		-8424	
Number of obs=	12319		12198		12198	
Prob > chi2=	0,00		0,00		0,00	
Pseudo R2=	0,15		0,16		0,16	

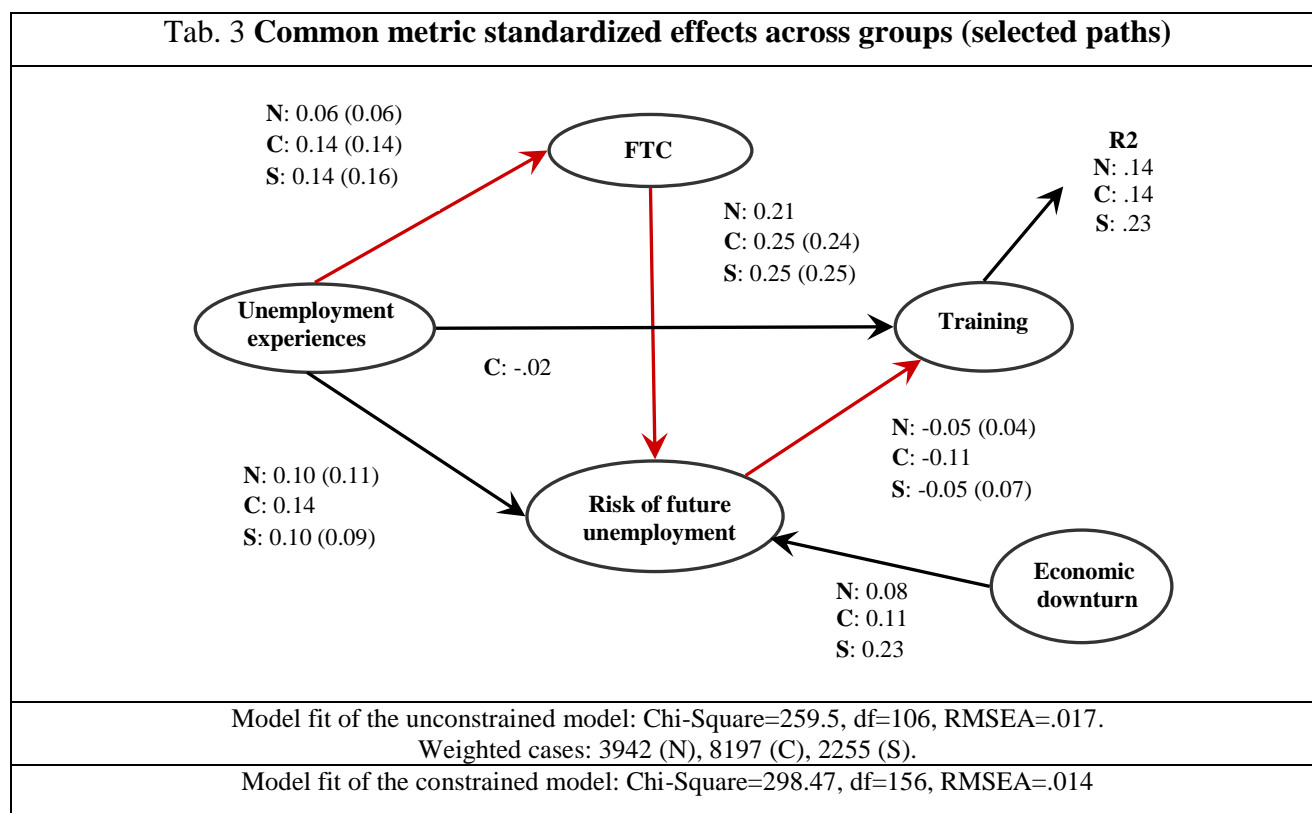
Model 8 has conversely FTC as dependent variable. We only stress how particularly in insider-outsider labour markets emerges a clear relation between previous unemployment and FTC; dummy variables for European regions follow expected coefficients, with an over-representation of “Mediterranean” countries within the FTC group, while the regressor “2008” might suggest that unemployment risks during the crisis damaged more temporary than permanent workers.

Tab. 2 Logit models of training, uncertainty and FTC determinants

	M.4		M.5		M.6		M.7		M.8
	training		training		uncertainty		uncertainty		ftc
	O.R.		O.R.		O.R.		O.R.		O.R.
Conservative	0,78 ***		0,69 ***		1,12 **		1,07		0,88
Mediterranean	0,50 ***		0,43 ***		0,86 **		0,93		1,96 ***
Not likely unemp + 12 m.	1,07		0,83 ***						
Likely unemp + 12 m.	0,84		0,71 ***						
Very likely unemp. +12m.	0,58 **		0,44 ***						
Conservative*Not likely unemp + 12 m.	0,70 ***								
Conservative*Likely unemp + 12 m.	0,80								
Conservative*Very likely unemp. +12m.	0,63 **								
Mediterranean*Not likely unemp + 12 m.	0,67 ***								
Mediterranean*Likely unemp + 12 m.	0,76								
Mediterranean* Very likely unemp. +12m.	0,92								
FTC	0,99		0,98		3,15 ***		3,84 ***		
Woman	0,91 **		0,91 *		1,07 **		1,07 *		1,10 *
Age 26-30	0,77 ***		0,77 ***		1,23 ***		1,24 ***		0,34 ***
Age 31-35	0,68 ***		0,67 ***		1,19 **		1,20 **		0,20 ***
Age 36-40	0,61 ***		0,61 ***		1,20 ***		1,21 ***		0,15 ***
Age 41-45	0,61 ***		0,61 ***		1,19 **		1,20 ***		0,12 ***
Age 46-50	0,60 ***		0,60 ***		1,18 **		1,18 **		0,11 ***
Years of education	1,12 ***		1,12 ***		1,01		1,01		1,04 ***
Previous unemp > 3 m.	1,05		1,27 **		1,65 ***		1,44 ***		1,48 ***
Previous unemp > 12 m.	1,03		1,12		1,81 ***		1,57 ***		1,92 ***
Conservative*Previous unemp > 3 m.			0,77 **				1,24 **		1,46 **
Conservative*Previous unemp > 12 m.			0,83				1,27		1,66 **
Mediterranean*Previous unemp > 3 m.			0,77 *				1,07		1,57 **
Mediterranean*Previous unemp > 12 m.			1,17				0,92		1,46
Professionals, higher supervisors	0,90 *		0,90		0,94		0,94		0,84 *
Intermediate occupations	0,71 ***		0,71 ***		1,48 ***		1,47 ***		0,82 *
Lower supervisors and technicians	0,73 ***		0,74 ***		1,08		1,07		0,84
Lower sales and service	0,47 ***		0,47 ***		1,69 ***		1,68 ***		1,18
Lower technical	0,25 ***		0,26 ***		1,74 ***		1,73 ***		1,14
Routine	0,28 ***		0,29 ***		1,73 ***		1,72 ***		2,23 ***
Working hours 25-29	1,31 **		1,31 **		0,96		0,96		0,57 ***
Working hours 30-39	1,39 ***		1,38 ***		1,09		1,09		0,50 ***
Working hours >= 40	1,48 ***		1,48 ***		1,03		1,03		0,57 ***
10-24 Employee	1,04		1,04		0,99		0,99		1,13
25-99 Employee	1,19 ***		1,19 ***		0,94		0,94		0,96
100-499 Employee	1,41 ***		1,41 ***		0,85 ***		0,86 ***		0,98
>= 500 Employee	1,73 ***		1,73 ***		0,85 **		0,86 **		0,89
Member of trade union	1,47 ***		1,46 ***		0,74 ***		0,74 ***		0,68 ***
Qualified sector	1,17 ***		1,17 ***		0,99		0,99		1,21 ***
Public sector	1,67 ***		1,68 ***		0,49 ***		0,49 ***		1,51 ***
2008	0,97		0,97		1,69 ***		1,69 ***		0,90 **
FTC*2008									
Conservative*FTC					1,21				
Mediterranean*FTC					1,45 **				
Log likelihood =	-8417		-8421		-14785		-14784		-5089
Number of obs=	12198		12198		12210		12210		12332
Prob > chi2=	0,00		0,00		0,00		0,00		0,00
Pseudo R2=	0,16		0,16		0,07		0,07		0,15

4.2 The Lisrel model

In Tab. 3 we present the results of the estimated SEM concerning our core hypotheses.



The model converged with a Chi-Square of 259.5 and 106 degrees of freedom. These values indicate an excellent model fit, as it is confirmed by the value of RMSEA, and it becomes even better after setting the appropriate equality constraints¹⁷ (RMSEA from .017 to .014).

On each structural path in Tab. 2 three coefficients are presented, one for each group (N=Northern countries, C=Central countries, S=Southern countries), while coefficients in brackets refer to the unconstrained model. Globally speaking, the SEM makes a clear opposition between the flexicurity group and the other two groups, especially if we look at the paths linking previous unemployment, FTC and risk of future unemployment¹⁸ and, as expected, the stronger difference concerns the correlation between previous unemployment and FTC¹⁹.

¹⁷ In the appendix the reader can find the (common metric) standardized effects of the full model we ran.

¹⁸ As the unconstrained coefficients show, it is only for the limited sample size of the Southern European group comparing with the Central European one that we can not grasp the stronger “entrapment” effect of FTC in more segmented labour market. Regardless of the method used, results for the Southern European group suffer from the limited sample size possibly underestimating the differences comparing with Northern countries.

¹⁹ It is not surprising that Central and Southern European countries are pretty much similar to Northern ones concerning the correlation between FTC and risk of future unemployment: with the latter we mainly measure contract’s duration, i.e. the basic fact that FTCs unavoidably finish with an unemployment episode. Nevertheless, the significant difference between Central and Southern European countries on the one hand and Northern countries on the other shows the poorer occupational prospects of the secondary segment of the labour market.

Unemployment experience has stronger positive effects on risk of future unemployment in Central European countries, where the latter has also higher negative effects on training. Moreover, in Central European countries we could even detect a direct negative effect of previous unemployment experience on training. On the contrary, the crisis have had much higher impact in terms of labour market uncertainty in Southern European countries.

The size of the total effects of all the variables included in Tab. 3 on training is not dramatic. For instance, holding a FTC entails a 5% reduction in the probability of having received training in Central European countries, while the percentage drops to about 2% in Mediterranean and Nordic countries. But, as we stated, FTC should be considered within individuals' careers. In this respect, Previous unemployment experiences contribute to an additional 5% reduction in training chances in Central European countries and a 2% reduction in Mediterranean and Nordic countries, while Risks of future unemployment have a negative effect of 6% and 3% respectively²⁰. If we consider the iterativity of unemployment and FTC experiences, it seems reasonable to hypothesize a process of cumulative risks of human capital depreciation, especially in those countries where the shift from a single spell of temporary work to a precarious career is more likely.

Additional results of the Lisrel model show how the cohort divide between permanent and temporary workers strongly increases moving from Northern to Southern Europe, thus showing different levels of targeting of flexible work arrangements. Moreover, in Mediterranean countries FTCs are much more over-represented among low ISEI scores (see tables in the appendix).

Finally, it worths to underline how larger is the R-squared among Mediterranean countries: the lower the overall participation rate in training programme, the more its stratification in line with the traditional structural factors of inequality, especially ISEI and years of education²¹.

4.3 *The effect of the economic crisis: results from counterfactual analysis*

We already saw in model 3 how FTCs have negative direct effects on training chances during economic downturns. We are now interested to assess whether this penalty is equally distributed across country groups. In Tab. 4 marginal effects from a logit model with the same variables of model 3²², augmented with the interaction between groups dummies and the "FTC*round" term show that no additional penalty for FTC during economic crisis is detected both in Northern and Central European countries. On the contrary, FTCs in Southern Europe suffer an additional statistically significant penalty comparing with permanent workers.

As Tab. 7.a seems to confirm our hypothesis of a negative direct effect of FTCs during economic downturns in more segmented labour markets, in order to give a more confident causal interpretation to the effect of the crisis, we adopted a counterfactual approach, avoiding all problems of model specification by means of a fully non

²⁰ Apart from what already mentioned in note 17, there are no differences between Nordic and Southern countries in the total effects of our crucial variables on training opportunities also because of the different size of indirect effects (see Appendix for more details).

²¹ In Southern European countries only 36% of employed received training in the last 12 months, comparing with 51% in Central European countries and 65% in Northern European ones.

²² The model, not shown for the sake of brevity, also include interactions between country groups dummies and all other control variables.

parametric statistical matching. In Tab. 7.b, average treatment effects on the treated from genetic matching are shown. In this respect, it should be underlined that we slightly changed our analytical perspective, considering the 2008 dummy as a treatment carrying out the analysis separately for FTCs and permanent workers.

Tab. 7.a Causal effect on training of holding a FTC during economic crisis across countries (logit model)

	<i>Marginal effects (X at mean)</i>	<i>Average marginal effects</i>
FTC*2008 (Flexicurity)	0.04	0.03
Conservative*FTC*2008	-0.10	-0.08
Mediterranean*FTC*2008	-0.16**	-0.13*

Tab. 7.b ATT on training of economic crisis within FTC and permanent workers across countries (genetic matching)

	<i>FTC</i>		<i>Permanent</i>	
Flexicurity	0.00	N (treated) = 673 (316)	-0.02	N (treated) = 5044 (2592)
Conservative	-0.02	N (treated) = 597 (293)	0.00	N (treated) = 4313 (2152)
Mediterranean	-0.15**	N (treated) = 384 (241)	-0.07	N (treated) = 1190 (812)

Results from matching estimation beyond confirming the findings of previous marginal effects, also suggest that Southern FTCs constitute the only group facing a strong decrease (about 15%) in training chances due the negative economic conjuncture²³. Rosenbaum sensitivity test confirmed that the ATT detected is robust over a 1.5 gamma value²⁴.

Although Lisrel models showed a similar pattern of effects for Conservative and Mediterranean countries, we argue that what differentiates Spain from countries like Germany and France is the stronger level of labour market dualism characterizing the Spanish labour market. As Polavieja showed (2006: 74), the particularly high level of temporary workers in Spain is mainly explained by “the unique combination of economic uncertainty and institutional rigidities found in Spain at the time of the introduction of temporary contracts”. This situation created incentives for employment-rent optimisation strategies of core-employees, thus bringing to a high-segmentation equilibrium (Polavieja, 2003). This has already been confirmed concerning the use of temporary workers as a shield protecting permanent workers from the risk of unemployment. Concerning the ongoing crisis, Bentolila et al. (2010) found that, although labour market institutions in the two economies are rather similar, large part of the increase in the unemployment rate would have been avoided had Spain adopted French employment protection institutions before the economic downturn. Following suggestions by Brunello (2005), we claim that a similar mechanism is at work concerning the distribution of training programmes’ retrenchment during the economic crisis. Conservative and Mediterranean countries shared a partial and targeted deregulation strategy and that is the reason why Lisrel models underline a similar targeting on youth and long-term unemployed of FTCs in both kind of labour markets. Nevertheless, our results confirm that only where FTCs

²³ It should be said that while the obtained balance of observed characteristics is very good within the groups of permanent workers, it gets slightly worse among FTCs groups given the limited sample size. Nevertheless, balance remains adequate, especially for those variables strongly correlated with training chances. In this respect, all the estimates of standard errors have been implemented using 500 bootstraps.

²⁴ The sensitivity test assumes increasing variation in gamma (Log Odds of differential assignment to the treatment, the log odds being 1 in the case of no unobserved heterogeneity) and shows a confidence interval for the p-value of the ATT for each level of misspecification.

holders face higher risks of entrapment in the secondary labour market they constitute a well defined social group of marginal workers within workplaces, whose costs can be shrunk by employers to rapidly adjust firms' investments according to the economic conjuncture. As Lisrel models showed how such a social group is clearly stratified in terms of class position and age, we claim that labour market segmentation could imply the rise of strong social inequalities for younger cohorts not only in terms of occupational prospects but also through human capital depreciation.

Conclusion

In this paper we wanted to contribute to the literature about socio-economic consequences of different types of labour market flexibilization reforms and training determinants. While confirming the negative association between temporary employment and training chances, our findings suggest that the explanatory mechanisms of such a correlation is the intrinsic precariousness of FTCs.

The overall effect of the single spell of temporary employment is anyway limited although significant. Nevertheless, given the relation between previous spells of unemployment, FTCs and future occupational uncertainty, we also argued that the conclusion of a negligible impact of temporary employment on human capital depreciation risks can be misleading.

Therefore, the time dimension should not be neglected, both at the micro-level of individual mid-term careers and at the macro-level of the economic cycle. As structural equations modeling and statistical matching procedures showed, on the one hand, individuals entrapped in precarious "job/unemployment-carousels" are the ones who suffer the most from lower training chances and, on the other hand, the negative impact of FTCs on training chances largely differ according to the economic conjuncture. Both these mechanism are at work mainly in highly segmented labour markets, indicating the relevance of institutional setting in shaping new social inequalities due to increasing labour market uncertainty and partial and targeted deregulation strategies.

We also claim that further research using longitudinal data is needed in order to grasp the cumulative effects on LLL due to a discontinuous attachment to the labour market that in our analyses we could only partially enlight.

Appendix

Tab. 4 Common metric standardized effects and means (Nordic countries)

	Uncert	FTC	Unempl	Union	PA	Sector	Work. Hours	Isei	Size	Eduyrs	Round	Woman	Age	Mean
Training	-0.05	-	-	0.08	0.15	0.05	0.03	0.12	-	0.16	-	-	-0.05	0.65
Uncert	-	0.21	0.10	-0.05	-0.06	-	-	-0.05	-	-	0.08	-	-	0.65
FTC	-	-	0.06	-	0.04	-	-	-0.05	-0.05	0.07	-	-	-0.16	0.11
Unempl	-	-	-	-	-	-	-	-	-	-0.08	-	-0.07	0.07	0.32
Union	-	-0.05	-	-	0.26	-	0.11	-0.06	0.10	0.09	-	-	0.15	0.43
PA	-	-	-	-	-	-	-	-	-	0.20	-	0.36	0.14	0.35
Sector	-	-	-0.03	-	0.22	-	-	-	-	0.30	-	0.15	-	0.32
Work. Hours	-	-	-	-	-0.10	-	-	0.08	-	-	-	-0.32	-0.05	2.06
Isei	-	-	-0.09	-	-0.14	0.21	-	-	0.10	0.41	-	-0.04	0.07	47.06
Size	-	-	-0.04	-	0.04	-	-	-	-	0.11	-	-0.09	0.06	2.16
Eduyrs	-	-	-	-	-	-	-	-	-	-	-	0.03	-	14.69
Mean	-	-	-	-	-	-	-	-	-	-	0.52	0.51	36.86	

Tab. 5 Common metric standardized effects and means (Central European countries)

	Uncert	FTC	Unempl	Union	PA	Sector	Work. Hours	Isei	Size	Eduyrs	Round	Woman	Age	Mean
Training	-0.11	-	-0.02	0.05	0.10	0.05	0.07	0.12	0.10	0.16	-	-	-0.05	0.51
Uncert	-	0.25	0.14	-0.05	-0.18	-	-	-0.11	-0.03	-	0.11	-	-	0.78
FTC	-	-	0.14	-	0.04	0.04	-	-0.05	-	0.03	-	-	-0.25	0.12
Unempl	-0.02	-	-	-	-	-	-	-	-	-0.08	-	0.06	0.07	0.46
Union	-	-0.05	-0.04	-	0.06	-	-	-0.06	0.10	-	-	-0.09	0.08	0.18
PA	-	-	-0.02	-	-	-	-	-	-	0.20	-	0.27	0.06	0.29
Sector	-	-	-0.03	-	0.3	-	-	-	-	0.23	-	0.15	-	0.30
Work. Hours	-	-0.07	-0.04	-	-0.10	-0.09	-	-	0.06	0.03	-	-0.29	-0.05	2.01
Isei	-	-	-0.13	-	-0.06	0.15	-	-	0.10	0.48	-	-	0.07	46.36
Size	-	-	-0.08	-	0.08	-0.05	-	-	-	0.19	-	-0.09	0.06	2.07
Eduyrs	-	-	-	-	-	-	-	-	-	-	-	-	-0.07	14.28
Mean	-	-	-	-	-	-	-	-	-	-	0.50	0.47	37.71	

Tab. 6 Common metric standardized effects and means (Mediterranean countries)

	Uncert	FTC	Unempl	Union	PA	Sector	Work. Hours	Isei	Size	Eduyrs	Round	Woman	Age	Mean
Training	-0.05	-	-	0.05	0.10	-	-	-0.17	0.10	0.21	-	-	-0.05	0.36
Uncert	-	0.25	0.10	-0.09	-0.18	-	-	-0.11	-	-	0.23	0.06	-	0.89
FTC	-	-	0.14	-	0.04	-	-	-0.26	-	-	-	0.13	-0.32	0.27
Unempl	-	-	-	-	-	-	-	-	-	-0.08	-	0.12	0.11	0.55
Union	-	-0.05	-	-	0.15	0.07	-	-0.06	0.16	-	-	-	0.08	0.15
PA	-	-	-0.02	-	-	-	-	-	-	0.20	-	0.13	0.14	0.23
Sector	-	-	-0.03	-	-	-	-	-	-	0.23	-	0.15	-	0.22
Work. Hours	-	-0.07	-0.04	-	-0.20	-	-	-	0.06	-0.04	-	-0.11	-	2.64
Isei	-	-	-0.09	-	0.05	0.21	-	-	0.10	0.41	-	-	0.07	42.08
Size	-	-	-	-	0.14	-	-	-	-	0.11	-	-0.04	0.11	1.30
Eduyrs	-	-	-	-	-	-	-	-	-	-	-	0.12	-0.07	14.0
Mean	-	-	-	-	-	-	-	-	-	-	0.55	0.46	35.28	

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