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**Working Paper**

## Labour outcomes and family background: Evidence from the EU during the recession

ISER Working Paper Series, No. 2017-15

**Provided in Cooperation with:**

Institute for Social and Economic Research (ISER), University of Essex

*Suggested Citation:* Avram, Silvia; Cantó-Sánchez, Olga (2017) : Labour outcomes and family background: Evidence from the EU during the recession, ISER Working Paper Series, No. 2017-15, University of Essex, Institute for Social and Economic Research (ISER), Colchester

This Version is available at:

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# Labour Outcomes and Family Background: Evidence from the EU during the Recession

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No. 2017-15

December 2017



INSTITUTE FOR SOCIAL  
& ECONOMIC RESEARCH

## **Non-Technical Summary**

A large body of literature in economics documents the persistence of intergenerational economic and social advantage and aims to understand the mechanisms behind it. In this paper, we examine the links between family background and three important individual labour market outcomes, namely employment probabilities, hourly wages and the stability and security of employment contracts. We carry out our analyses using data from three countries-Spain, Italy and Poland and two time points, 2005 and 2011. All three countries suffered large changes in their economy during this period. Spain and Italy went through a strong recession. Spain, in particular, saw dramatic increases in unemployment. In contrast, Poland experienced a period of strong economic growth and falling unemployment. The different economic conditions present in these countries in 2005 and 2011 allow us to test whether the family background affects individual outcomes more or less during recessions compared to periods of economic prosperity.

We carry out our analyses using data from the European Union-Survey on Income and Living Conditions and its modules on the intergenerational transmission of poverty. To measure family background, we construct a comprehensive, multidimensional measure that includes information on parental occupation, worklessness, education, household structure, number of siblings and the household's financial situation during the individual's adolescence.

We find that family background affects the likelihood of employment both for men and women in all countries but that most of this effect goes via education. Family background also has a strong impact on hourly wages, especially among individuals from very disadvantaged or very privileged backgrounds. Unlike in the case of employment, education cannot explain the relationship between family background and wages, especially for individuals coming from relatively disadvantaged families. In Spain, men and women are more likely to find themselves in temporary (rather than permanent) jobs when they come from less privileged families. This is true even after controlling for education. We do not find a link between family background and the type of employment (temporary or permanent) in Italy or Poland. Finally, we do not find any evidence that the effects of family background vary with the economic cycle, in any of the three countries. We confirm that this is true irrespective of the worker's age. Thus, in our data, family background appears to operate in similar ways during periods of recession as in periods of boom.

# Labour Outcomes and Family Background: Evidence from the EU during the recession

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## Abstract

Using EU-SILC data for 2005 and 2011, we compare the role of family background on labour outcomes in three EU countries that experienced large swings in unemployment during this period. We use a multidimensional family background indicator that avoids undesirable cohort effects. Our results suggest that family background affects employment prospects and job quality (hourly wages and contract insecurity), and that human capital formation explains a significant part (but not all) of the family background effects. There is significant cross-national variation in the extent to which human capital can explain the effects of family background. Finally, we do not find any evidence that the effect of family background is substantially moderated by the economic cycle in any of our countries.

**Keywords:** family background, labour outcomes, returns to education, European Union, recession.

**JEL codes:** I24, I26, J31, J62.

**Acknowledgements:** Olga Cantó acknowledges financial support from *Comunidad de Madrid* (Proyecto S2015/HUM-3416). Silvia Avram acknowledges financial Support from the Economic and Social Research Council (ESRC) via the Research Centre for Micro-Social Change (MISOC), grant no ES/H00811X/1. Previous versions of the paper were presented at: the XXIV Meeting of the Economics of Education Association in Madrid (June 2015), the ASSET meeting in Granada in November 2015, the *Simposio de Análisis Económico* (SAE) held in Girona in December 2015, the Annual Conference of the International Network for Economic Research INFER in Reus in June 2016 and the 7<sup>th</sup> ECINEQ meeting in New York (July 2017). The authors wish to thank participants at these events for helpful comments and suggestions.

## 1. Introduction

A large body of literature in economics documents the persistence of intergenerational economic and social advantage and aims to understand the mechanisms behind it (Bowles and Gintis, 2002; Blanden et al., 2007; Björklund and Jäntti, 2009; Black and Devereux, 2010; Smeeding *et al.* 2011; Ermisch *et al.* 2012; Blanden, 2013). A consistent result of this literature is that family background (FB) is positively related to a large number of outcomes, including labour market outcomes such as employment probabilities, wages and occupation (Blanden et al., 2011; Ermisch et al., 2012). Similarly, intergenerational correlations of earnings tend to be positive (Blanden, 2009, 2013).

Most of the current knowledge on the role of FB on individual life chances is still largely based on evidence from a handful of countries (mainly the US, the UK, Canada, Germany and Scandinavian countries). Some comparative evidence in Causa and Johanson (2010) shows that, at least in the first decade of this century, individuals living in Southern and Eastern European countries were more intergenerationally immobile than those living in Central European countries or Scandinavia. However, much less is known about how FB operates in these other countries making it unclear whether any specific conclusions drawn so far can be straightforwardly carried over to national contexts with very different social norms and institutions (Jenkins and Siedler, 2007).

In this paper, we aim to provide new comparative evidence on the role of a comprehensive FB measure on employment prospects and on two job quality dimensions (wages and contract insecurity) in three EU countries (Poland, Italy and Spain) at two different points of the economic cycle. We extend the literature on the impact of FB on labour market outcomes in three ways. First, we construct a new, more comprehensive measure of family background. Much of the existing evidence has focussed on the transmission of either worklessness or occupational status from parents to children (O'Neill and Sweetman, 1998; Macmillan, 2010, 2013; Black and Devereux,

2011, Zwysen, 2015; Berloff, 2016), ignoring other measures of disadvantage. We believe that parents' potential to pass socio-economic advantage to their children is related to the family's status in a wider sense. Our FB index aims to proxy this wider concept of socioeconomic status by including information on several indicators of family resources.

Second, we include in our analysis a number of European countries that have usually been omitted from in-depth studies of intergenerational transmission of advantage. We analyse three EU countries that had diverging labour market trends in recent years: two experienced large or medium unemployment increases (Spain and Italy), while the other one (Poland) enjoyed a large reduction in unemployment. All three of our countries have strong familialism traditions with the family expected to provide extended and sustained welfare services (Ferrera, 1996). Correspondingly, estimates of intergenerational income elasticity are relatively high in all three countries (Jerrim, 2016; Cervini-Pla, 2015).

Third, we investigate the potential role of the economic cycle in moderating the effect of FB on labour market outcomes. There are several reasons we might expect the effect of FB to vary with the economic cycle. First, if some (observed or unobserved) individual characteristics that are valuable in the labour market are transmitted (either genetically or through specific investments) from parents to children, the same characteristics may make an individual more resilient when a recession hits. In this case, we would expect children from well-off families to be less affected by a recessionary spell compared to children from less well-off families. We would also expect this difference to be relatively independent of the career stage the recession hits at. Second, we might expect that better off families will be using some of their resources (family networks, monetary resources etc.) to shield their offspring from the negative impact of a recession. Since young workers are less well established in the labour market, we might expect FB to matter more for this group. We expect that, given the large employment losses experienced by Spain during the recession (and the relatively minor wage losses), it is the individual probability of employment that is most likely to be affected by any differential effect of the recessionary shock by FB. In turn, we expect

that the period of strong economic growth experienced by Poland would allow the gap in employment levels, contract stability and wages to narrow between individuals with different FB.

Our results show that the probability of being employed increases as family background improves. Gross log hourly wages also increase with the individual's family background. The increase is somewhat larger for Spain than for the other countries. Finally, it also appears that individuals from more advantageous backgrounds are better able to avoid more unstable fixed-term contracts.

The paper is organized as follows. In the second section, we review the literature on intergenerational transmission of advantage focusing on the most recent evidence. In the third section, we discuss the labour market context in the three countries during the period under study. The fourth section describes our data and explains the methodology used to construct our cohort-relative index of family socioeconomic position. In the fifth section, we discuss our empirical strategy and in the two subsequent sections, we present our main results and check their robustness. The last section concludes.

## **2. Intergenerational transmission of advantage: family background and labour outcomes**

A large empirical literature has found a positive relationship between offspring economic outcomes and FB in a variety of contexts, (Duncan and Brookes-Gunn, 1997; Bowles et al., 2005; Duncan et al. 2009; Ermisch et. al, 2012). Intergenerational persistence has been documented both with respect to wages/income (Pascual, 2009; Whelan et al., 2013; Bellani and Bia, 2016, 2017; Gregg et al., 2017) and with respect to employment (Berloff; 2016; Zwysen, 2015). Several mechanisms could account for this observed relationship. First, family background may be an important determinant of human capital whether through genetic transmission of ability or parental

investments fostering the development of cognitive and non-cognitive skills (Becker and Tomes, 1986; Osborne, 2008). However, traditional measures of human capital such as education or occupation cannot fully account for the observed correlation (Bowles and Gintis, 2002; Franzini and Raitano, 2009; Mazzona, 2014; Raitano and Vona, 2014, 2015a, 2015b). Second, well-connected parents may use their networks to secure better labour market opportunities for their children. Family networks may be especially salient when human capital is low. A parachute effect ensuring a wage premium for low ability individuals from high SES families has been documented in Spain and Italy (Checchi et al., 1999, Pezzilari, 2010, Raitano and Vona, 2015a, Raitano and Vona, 2015b). Third, human capital and family resources may be complementary in determining labour market outcomes (Harmon et al., 2001, 2003; Aakvik et al., 2010; Cornelissen et al., 2008). This view is supported by evidence of a glass-ceiling effect for highly educated individuals from low SES families (Raitano and Vona, 2015b).

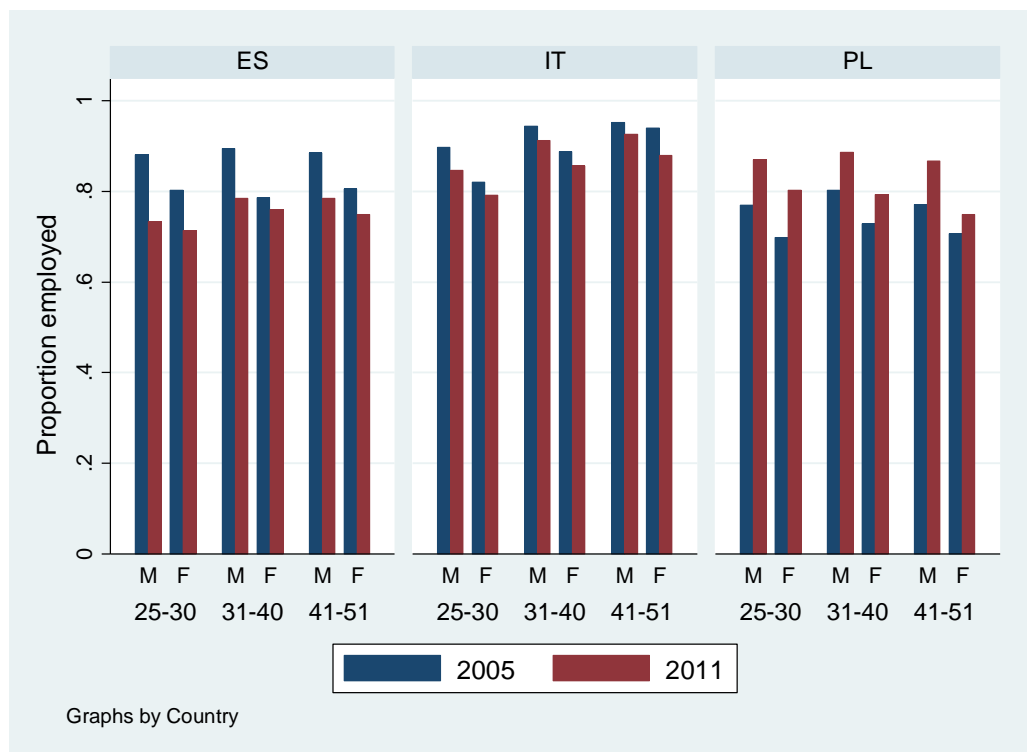
While the positive relationship between family background and labour outcomes has been documented in several countries with different institutions and family related norms and traditions, the strength of the relationship clearly varies cross-nationally, especially in the tails of the distribution (Jäntti et al., 2006). Several authors have examined the potential role of education in accounting for the observed cross-country heterogeneity in FB effects (Mazzona, 2014; Jerrim, 2016). Jerrim (2016) suggests that access to education is key and the level of income inequality in the parents' generation influences it. There is also evidence that educational institutions, especially early ability tracking, play a significant role. (Dustman, 2004; Hanushek and Woessmann, 2005, Piopiunik, 2014, Lavijsen and Nicaise, 2015). The channels through which FB affects wages may also differ across countries. For example, Raitano and Vona (2015a) conclude that in the UK family advantage is passed on through enhanced human capital accumulation in contrast with Southern European countries where family background acts as insurance for well-off children that end up in lower occupations.



### 3. The labour market context

The evolution of employment and wages in our three countries has been quite different during the period of analysis (Eurostat, 2016). Unemployment almost tripled in Spain (from 9.5% in 2005 to 25% in 2011) while in Italy, it slowly increased from 7.7% in 2005 to 8.4% in 2011. Poland was suffering from high unemployment in 2005 (17.9%). This decreased to 9.7% in 2011. Our sample shows similar employment patterns during the period (Figure 1)

**Figure 1. Proportion of Employed individuals by age and year.**

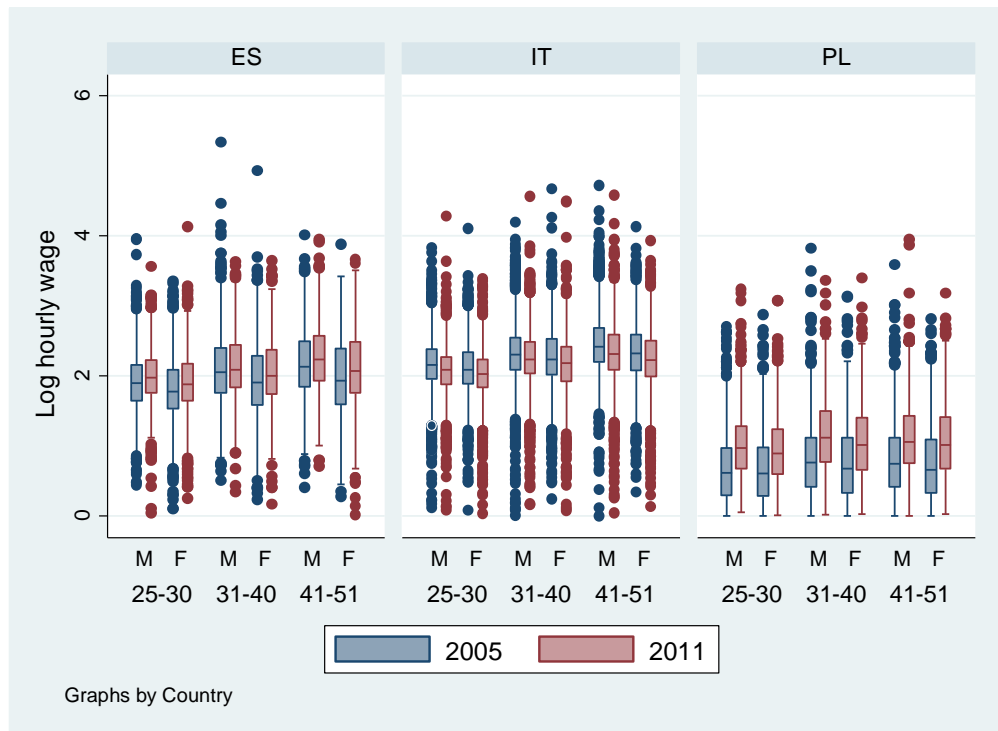


Source: Authors' calculations based on EU-SILC

Nominal gross hourly wages have increased in all three countries between 2005 and 2011. Eurostat estimations from the Structure of Earnings Survey (2006, 2010) are that median gross hourly wages grew 16% in Spain, 8% in Italy and 27% in Poland between 2006 and 2010. Our

sample shows similar patterns for log hourly wages in this period (Figure 2). In terms of the wage distribution, Poland has the most compressed wages.

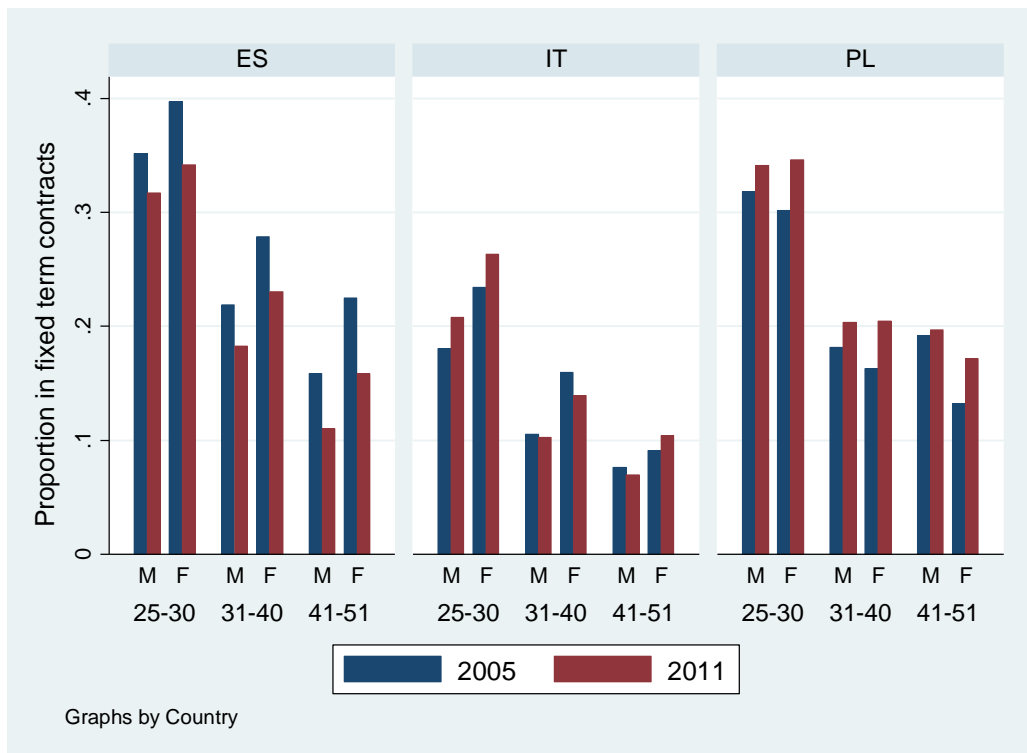
**Figure 2. Distribution of wages by country.**



Source: Authors' calculations based on EU-SILC

Trends in the prevalence of fixed-term contracts vary across countries. Use of temporary contracts is most widespread in Spain (around 34% in 2005 and 25% in 2011). In Italy and Poland, the number of fixed-term contracts ranges from 10% to 25%. Their use decreased in Spain for both females and males in this period, following large employment destruction in sectors such as construction or services. It increased, particularly for young employees, in Italy and in Poland, mirroring general employment growth. All these patterns are accurately captured by our sample (Figure 3).

**Figure 3. Proportion of individuals in a fixed-term contract by age and year.**



Source: Authors' calculations based on EU-SILC

#### 4. Data

We use the European Union – Survey of Income and Living Conditions (EU-SILC), an annual survey that provides information on individual and household income together with demographic, labour-market and socioeconomic characteristics (Eurostat, 2014). Two additional cross-sectional modules (2005 and 2011) collected information on the intergenerational transmission of poverty and disadvantage. They provide data on parental circumstances when the individual was aged 14<sup>1</sup>. We have selected a sample of individuals in each country aged between 25 and 54 years that responded to an additional set of questions on some key family characteristics.<sup>2</sup>

<sup>1</sup> The EU-SILC survey also provides a longitudinal sample. However, using the longitudinal sample is not possible because the additional modules that yield our FB index dimensions are in the cross-sectional dataset only.

<sup>2</sup> Approximately 3% of our sample of interest lack the necessary information to construct the family background index.

## 4.1. Outcomes

We consider the probability of employment and two job quality indicators, i.e. the gross hourly wage and the nature of the employment contract: temporary vs. non-fixed term. The information on hourly wages is derived from the gross monthly earnings in the current period.<sup>3</sup> Given that for some employees this information is missing, we also use the employee (gross) annual cash or near cash income information adjusted by the number of months in effective work during the past year to impute most of the missing information of currently employed individuals<sup>4</sup>. We include the self-employed in our analysis of the probability of employment because their share in EU-SILC in Spain (14%), Italy (23%) and Poland (17%) is relatively large. Unfortunately, the EU-SILC dataset does not allow us to consider them fully when analysing hourly wages due to missing information on hours.<sup>5</sup> The wage distribution tails are trimmed for robustness: 1 percent of the observations at each tail of the national wage distribution in each period are dropped (Cowell and Victoria-Fesser, 2006).

## 4.2. An index of family socioeconomic position

The definition of the socioeconomic status of an individual as determined by her family has been discussed at length in the sociological literature. In general, FB is measured using the occupational status (or level of education) of the parents as determined by a hierarchy of either prestige or earnings. Only in a few cases is this information supplemented by other variables such as

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<sup>3</sup> Variable PY200G contains wages from the main job including overtime work, tips and commission, any 13<sup>th</sup> or 14<sup>th</sup> month payments, holiday pay, profit shares, and bonuses and is reported before tax and social insurance contributions. In the case of Spain and Italy gross yearly wages in 2005 are missing entirely. Based on EUSILC 2006 we have derived average tax rates (ATRs) for each 5% of the net wage distribution (based on annual gross and net income variables) and applied these ATRs on the net series in 2005 to derive gross annual employment incomes.

<sup>4</sup> When months of employment or hours of work are missing, they are imputed using group averages. Groups are constructed using three age cohorts and ten income intervals.

<sup>5</sup> The proportion of self-employed that are included in our log wages sample drops to 2% in Spain, 3-5% in Italy and 0.5% in Poland. In effect, while the information about self-employment status can be considered reliable, wages for self-employed are usually not; they are also subject to considerable within year variation so even if information on hours would be available, the hourly wage information for the self-employed would be very noisy.

income, housing tenure (as a proxy of family wealth) and/or, in some contexts, ethnicity, disability or a self-reported measure of financial difficulties (Bowles and Gintis, 2002). The reliance on parental occupation, earnings and/or education is usually motivated by their potential to proxy either social status (occupation and earnings) or cognitive and non-cognitive skills (education) and is the most frequent approach in the study of the role family background (Björklund and Jäntti, 2012). Yet, relying solely on parental occupation may be too restrictive for several reasons (Björklund and Jäntti, 2012; Erola et al., 2016). As Björklund and Jäntti (2012) emphasize, the impact of family background on children is too multifaceted to be picked up by a single variable. First, there may be aspects of family background that are not well captured by occupation. For example, some authors emphasize the importance of income, wealth and financial difficulties in proxy-ing the family's long-term material resources (Goodman et al., 2011; Jerrim, 2016). Second, family background is a latent and multidimensional concept and as such, better captured using a battery of measures rather than just one (Ashenfelter and Rouse, 2000; Goodman et al., 2011). This is particularly relevant in a comparative setting, as which aspects of family advantage/disadvantage are most important can vary across countries. For example, Marks (2011) shows that the strength of the correlation between education and occupation varies cross-nationally. Finally, the effect of the various dimensions of family background may be cumulative such that disadvantage across several areas outweighs their additive combination. In this case, a multidimensional index is better placed to capture meaningful differences between socio-economic groups (Ashenfelter and Rouse, 2000; Goodman et. al, 2011; Björklund and Jäntti, 2012).

Following this argument, in each country we construct a composite index of family background that seeks to capture the long-term material and non-material resources of the household the individual lived in during childhood. In addition to parental occupation, we also consider parental education, the number of siblings, household structure (lone parent versus couple) and the

household's financial situation when the individual was an adolescent<sup>6</sup>. The module information in 2005 and 2011 differs in the detail of the parental occupation classification scheme. We have nevertheless been able to construct comparable rankings of occupations for both moments in time by using the International Socio-Economic Index of occupational status (ISEI) (Ganzeboom et al., 1992; Ganzeboom, and Treiman, 1996)<sup>7</sup>. When both parents are unemployed, the occupation variable takes the value zero. The education variable is recorded according to the International Standard Classification of Education 1997 (ISCED-97) in both years. Due to the comparability restrictions between 2005 and 2011, we have only been able to use three levels of parental education: low, medium or high.<sup>8</sup> Finally, the wording of the question on the financial situation of the family when the individual was a teenager changed slightly from 2005 to 2011. Yet, the response graduation is comparable and the distributions in the two years are similarly shaped.

We use a "household dominance" approach (Erikson, 1984; Richards et al., 2016), so that in two-parent households we consider only the highest occupation and education of either parent.<sup>9</sup>

We have constructed our individual multidimensional country-specific FB index using Multiple Correspondence Analysis (MCA).<sup>10</sup> We define  $FB_i$  to be the composite index that summarizes the living conditions of individual  $i$  when she was 14 years of age. The distribution of the FB indices varies somewhat across countries. It is more compressed in the Mediterranean

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<sup>6</sup> We undertake some sensitivity analysis regarding the definition of the FB index by constructing other occupation (education) variables taking into account both the mother's and the father's occupation (education) information.

<sup>7</sup> The information on occupation in the 2005 survey comes from a two-digit ISCO-88 classification while that in the 2011 survey only provides one-digit information.

<sup>8</sup> The detail in the level of parents' education is more limited in 2011 than in 2005 (four levels instead of six). In regressions, a "Low level" of education corresponds to levels 0, 1, and 2 of ISCED-97 and includes illiterate persons, "Medium level" and "High level" of education corresponds respectively to levels 3 and 4, and 5 and 6 of ISCED-97.

<sup>9</sup> This has the advantage that we treat the FB of mothers and fathers equally and derive a single measure. The drawback is not differentiating between cases where both parents have a high education (occupation) from cases where only one parent does. We have undertaken some robustness checks using different weights for each partner's occupation and education and our main results continue to hold.

<sup>10</sup> Multiple Correspondence Analysis (MCA) generalizes Principal Components Analysis (PCA) when the variables included are categorical overcoming any concerns about the estimation adequacy of this methodology when variables are discrete (Kolenikov and Angeles, 2009; LeRoux and Rouanet, 2010).

countries compared to Poland. We then standardize our index by country and year to have a mean of zero and variance of one.

Secular educational expansion and changes in the occupational structure translate into rising parental educational and occupational levels over time. This causes younger individuals to have, on average, higher FB levels than older ones (see Figure A1 in the Appendix). Moreover, the average FB level is higher in 2011 compared to 2005. To account for these secular trends, we compute an individual's FB measure relative to the average of her cohort<sup>11</sup>. Our cohort-relative Multidimensional index ( $FBrel_i$ ) measures the difference between the individual's socioeconomic status and the mean of her (5 year) cohort<sup>12</sup> and is plotted in Figure A2 in the Appendix. As expected, this cohort-relative index eliminates most cohort effects. By taking this approach, we are assuming that what actually matters in determining labour market outcomes is not the absolute level of the FB index but an individual's relative position within the FB distribution of her cohort. Finally, we categorize our cohort-relative index into five quintiles<sup>13</sup>.

Our synthetic index approach turns out to be advantageous. In the first place, in all the countries the selected variables contribute to the continuous  $FB_i$  index consistently and with the expected sign.<sup>14</sup> However, interestingly, there is significant variation in the value of the  $FB_i$  index for a fixed parental occupation (and education) and this is different depending on the country (see Figure 4). Indeed, given an occupation level we find significant differences in the value of  $FB_i$ , larger in Spain and Italy than in Poland. Further, even if in all three countries our continuous  $FB_i$  index is correlated with the occupational score (72 to 80% depending on the country) when

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<sup>11</sup> Otherwise, if, for instance, the probability of employment was falling between 2005 and 2011 and the value of FB was growing due to a cohort effect, the impact of a growing FB on employment could be negative just due to this cohort effect.

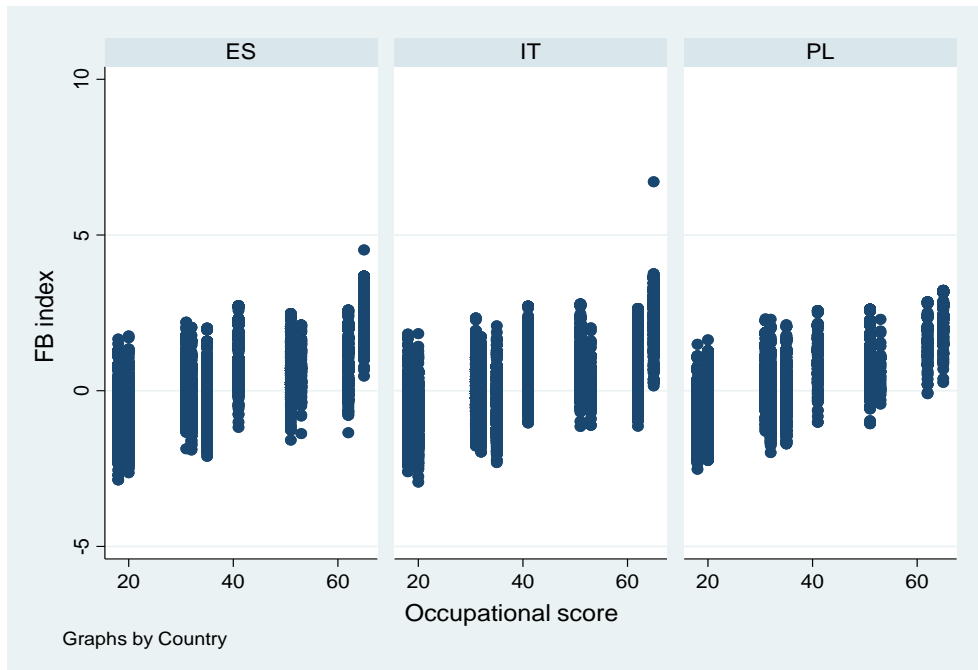
<sup>12</sup> Choosing longer time windows increases the size of each cohort and thus, creates smoother estimates of cohort averages; on the other hand, longer time windows increase the sensitivity of the resulting relative FB indicator to cohort boundaries due to the distance between the mean family background of adjoining cohort increasing.

<sup>13</sup> We thus avoid a full parameterization of the FB index and our variables of interest.

<sup>14</sup> A higher occupation and education of parents increases individual's FB, a larger number of siblings and lone-parenthood when adolescent reduces individual's FB while the worse the household's financial situation was the lower FB is.

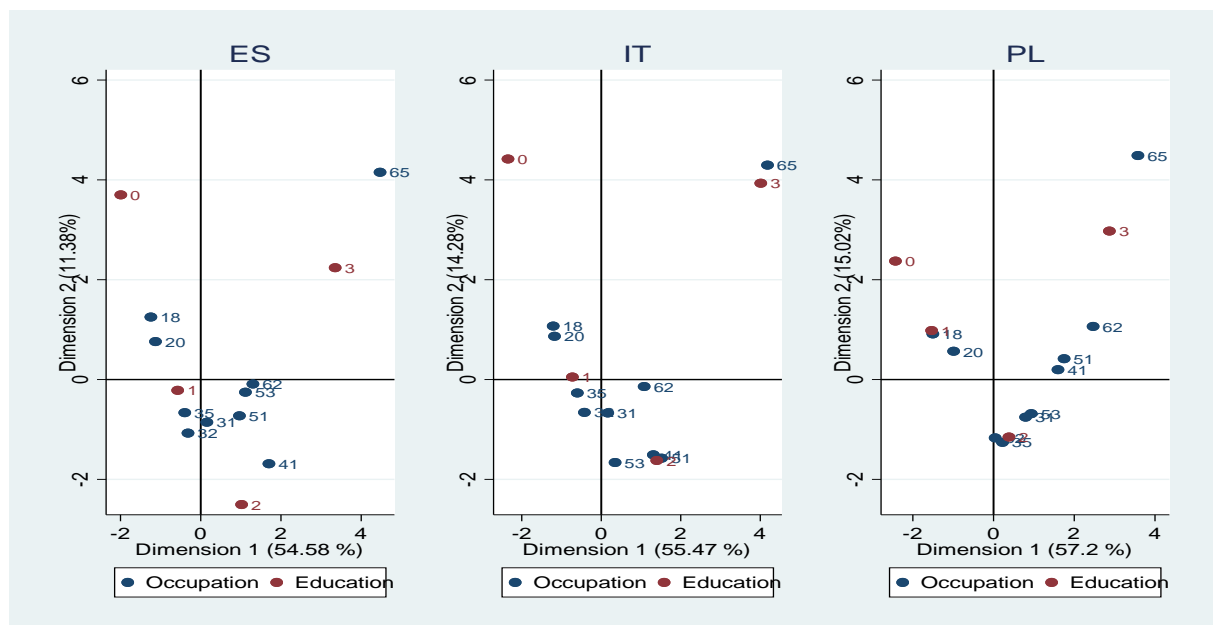
mapping parental occupation and education onto the index we find significant differences by country (see Figure 5).

**Fig 4: Variability of individual FB index by occupational score**



Source: Authors' calculations based on EU-SILC

**Fig 5: Mapping parental occupation and education onto the individual FB index**



Source: Authors' calculations based on EU-SILC



## 5. Empirical strategy

We quantify the direct and indirect effects (via education) of family socioeconomic background on the probability of being employed, the level of the log gross hourly wage and the probability of holding a fixed term contract. A large body of literature documents the positive relationship between family background and human capital measures, such as education (Checchi, 2006; Erola et al., 2016). Enhancing the human capital of their offspring is one important channel through which parents can transmit socio-economic advantage to their children. Because human capital is endogenous to FB, one should in principle not control for it. However, observable human capital cannot fully account for the correlation between FB and labour outcomes. To better understand the role of human capital, we estimate two sets of equations for each outcome, one excluding measures of human capital (Model A) and one including them (Model B). Model A captures the full effect of FB on the outcome of interest, including that going through observable human capital. Model B captures the effect of FB over and above that going through (observable) human capital. We use the two most widespread measures of human capital in the labour literature, i.e. education and work experience.

We test if the effect of FB varies with the economic cycle, by estimating year specific FB effects. Our specification relies on comparing mean differences in outcomes of interest between individuals with different ranks in the FB distribution (but otherwise similar characteristics) in 2005 and 2011. As such, we cannot distinguish between period and cohort effects. By attributing any significant differences to the economic cycle, we are implicitly assuming cohort effects are absent. We believe this assumption is justified on five grounds. First, our two data points are only six years apart. Assuming that intergenerational transmission processes are relatively stable over short periods of time, the existence of a cohort effect seems unlikely. Second, our FB measure is cohort relative meaning that any year differences in the effect of FB cannot be explained by rising FB levels over time. Third, we examine the existence cohort differences in the effect of FB *within* year as part of

our sensitivity checks (see section 7). We find no such differences. Fourth, we include countries with large differences in unemployment between our two data points but with opposite trends. Unemployment increased significantly in Italy and Spain whereas it dropped in Poland. If family resources are more important when economic activity is slack, we should find stronger FB effects in the older cohort in Poland as opposed to the younger one in Spain and Italy. Fifth, we checked that other country level mechanisms such as the changes in employment legislation and tax-benefit policies are not important during this the period. The employment reform in Spain was undertaken in 2012 and the fiscal reform was implemented just after 2010, while only small changes to income tax brackets and lump-sum child benefits took place in Italy and Poland between 2005-2011.<sup>15</sup>

Finally, we examine whether returns to education differ by family background. The models we estimate are of the form:

$$y_{i,t} = f(\alpha_t + \beta_t FB_{i,t} + \theta X_{i,t}) \quad (\text{Model A})$$

$$y_{i,t} = f(\alpha_t + \beta_{t,e} FB_{i,t} + \gamma_t Education_{i,t} + \delta Work\ exp_{i,t} + \theta X_{i,t}) \quad (\text{Model B})$$

where  $y_{i,t}$  is the outcome of interest of individual  $i$  in year  $t$ ,  $\alpha_t$  are year fixed effects,  $X_{i,t}$  is a vector of individual characteristics and the  $\beta_{t,e}$ -s are the coefficients of interest: the effect of FB on  $y$  in year  $t$  for an individual with education level  $e$ .

We estimate the probability of being employed fitting a logit model of binary response for males and females separately. Employment status is defined as having a positive wage. We then estimate a log earnings equation using a Heckman selection model where log wages are estimated separately for males and females and where we include several standard controls. Finally, to estimate the probability of holding a fixed term contract, we fit a logit model for binary response using

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<sup>15</sup> In Spain, Income Tax (IT) marginal rates reform and the suppression or lump-sum child benefit at birth took place in 2011. In Italy, Income Tax (IT) brackets were expanded from 4 to 5 and a lump-sum child benefit at birth was suppressed in 2007. In Poland, IT brackets were reduced from 3 to 2 in 2009 (See various EUROMOD Country reports, <https://www.euromod.ac.uk/using-euromod/country-reports>).

maximum likelihood. Unfortunately, we have not been able to fit Heckman probit models in all countries. As a result, we do not model selection into employment jointly with the probability of holding a fixed term contract. For the countries where we are able to fit Heckman probit models, modelling selection does not influence the substantive results.

In each case, our controls include a quadratic in age, health status, immigrant status, year and region fixed effects. The employment equations additionally control for marital status, the number of children under 18 and the number of children under 3. In the Heckman wage regressions, the selection equation additionally includes the number of children under 3 and under 18 respectively, education, the regional unemployment rate, work experience (quadratic form) and income from other sources<sup>16</sup> (in log form).

## **6. The determinants of employment and job quality: direct and indirect effects of family background on labour outcomes**

### **6.1. Employment**

As noted earlier, to measure the effect of FB on employment probabilities before and after the recession we have estimated two different specifications (Model A and Model B) for the probability of having a positive wage<sup>17</sup>. For ease of interpretation, we only report the effect of being in the bottom or top quintile relative to the middle (i.e. third) quintile in the main text. Full estimation results can be found in the Appendix (Tables A3 to A8). We report average marginal effects (AMEs) for 2005 and 2011 in Table 1.

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<sup>16</sup> In practice this is the sum of rents, private pensions, investment income and income of other household members.

<sup>17</sup> We have checked that our main results hold if we define employment using the information on labour status from the data. This additional material on robustness checks is included in an online Appendix (Supplemental Material).

**Table 1: Marginal effects of family background on employment**

Males					Females				
Model A		Model B			Model A		Model B		
ES	Q1	Q5	Q1	Q5	ES	Q1	Q5	Q1	Q5
<b>2005</b>	-0.015	0.004	-0.003	-0.010	<b>2005</b>	-0.039*	0.058***	0.002	0.022
<b>s.e.</b>	(0.012)	(0.012)	(0.011)	(0.012)	<b>s.e.</b>	(0.018)	(0.016)	(0.017)	(0.017)
<b>2011</b>	-0.080***	0.023	-0.031*	-0.010	<b>2011</b>	-0.064***	0.056***	-0.023	0.003
<b>s.e.</b>	(0.016)	(0.015)	(0.015)	(0.016)	<b>s.e.</b>	(0.018)	(0.017)	(0.017)	(0.017)

IT	Q1	Q5	Q1	Q5	IT	Q1	Q5	Q1	Q5
<b>2005</b>	-0.040***	-0.001	-0.020**	-0.005	<b>2005</b>	-0.061***	0.025*	-0.013	0.008
<b>s.e.</b>	(0.007)	(0.007)	(0.006)	(0.007)	<b>s.e.</b>	(0.012)	(0.010)	(0.010)	(0.010)
<b>2011</b>	-0.036***	0.021*	-0.012	0.004	<b>2011</b>	-0.032*	0.052***	0.008	0.009
<b>s.e.</b>	(0.010)	(0.010)	(0.009)	(0.010)	<b>s.e.</b>	(0.014)	(0.013)	(0.012)	(0.013)

PL	Q1	Q5	Q1	Q5	PL	Q1	Q5	Q1	Q5
<b>2005</b>	-0.018	0.064***	0.006	0.020	<b>2005</b>	-0.084***	0.126***	-0.026	0.046**
<b>s.e.</b>	(0.015)	(0.014)	(0.013)	(0.014)	<b>s.e.</b>	(0.017)	(0.015)	(0.015)	(0.016)
<b>2011</b>	-0.040**	0.022	-0.023	0.004	<b>2011</b>	-0.108***	0.089***	-0.059***	0.041*
<b>s.e.</b>	(0.014)	(0.013)	(0.013)	(0.014)	<b>s.e.</b>	(0.019)	(0.017)	(0.017)	(0.017)

Note: \* p<0.05; \*\*p<0.01; \*\*\*p<0.001

Source: Authors' calculations based on EU-SILC

Evidence that FB plays a role in determining the probability of employment exists in all three of our countries, both for males and for females (Model A). Males and females coming from the first quintile of FB are less likely to be employed both in 2005 and in 2011. Similarly, individuals from the highest FB quintile are more likely to be employed in Spain (females), Italy (females) and Poland (both males and females). However, the impact of FB appears to be working mostly through education. Once education is controlled for, a statistically significant impact of FB remains only for Spanish males during the recession, Italian men before the recession and Polish women (both in 2005 and in 2011). Moreover, once education is controlled for, there is no evidence that the effect of FB varies across the business cycle.

## 6.2. Wages

We next examine the effect of family background on wages. The left half of Table 2 shows the estimated effects for men. As hypothesized, men coming from more disadvantaged families earn less compared to men coming from families in the middle quintile of FB. This is true even when they are similarly educated (Model B). Controlling for education and other relevant characteristics, men in the top quintile of the family index earn on average between 15 and 30% more compared to men in the bottom quintile, depending on country and year.

**Table 2: Marginal effects of family background on log hourly wages**

	Model A		Model B			Model A		Model B	
Males					Females				
ES	Q1	Q5	Q1	Q5	ES	Q1	Q5	Q1	Q5
<b>2005</b>	-0.119***	0.245***	-0.072**	0.074	<b>2005</b>	-0.133***	0.224***	-0.026	0.090*
<b>s.e.</b>	(0.023)	(0.023)	(0.026)	(0.039)	<b>s.e.</b>	(0.028)	(0.026)	(0.031)	(0.045)
<b>2011</b>	0.069*	-0.012	0.054	0.013	<b>2011</b>	0.057	-0.023	0.027	-0.019
<b>s.e.</b>	(0.032)	(0.032)	(0.031)	(0.031)	<b>s.e.</b>	(0.036)	(0.034)	(0.036)	(0.033)
<b>IT</b>	<b>Q1</b>	<b>Q5</b>	<b>Q1</b>	<b>Q5</b>	<b>IT</b>	<b>Q1</b>	<b>Q5</b>	<b>Q1</b>	<b>Q5</b>
<b>2005</b>	-0.119***	0.178***	-0.074**	0.072*	<b>2005</b>	-0.076***	0.162***	-0.064*	0.078*
<b>s.e.</b>	(0.020)	(0.019)	(0.022)	(0.032)	<b>s.e.</b>	(0.021)	(0.019)	(0.026)	(0.038)
<b>2011</b>	0.072**	0.026	0.055*	0.040	<b>2011</b>	0.026	0.021	0.030	0.042
<b>s.e.</b>	(0.026)	(0.026)	(0.026)	(0.026)	<b>s.e.</b>	(0.028)	(0.026)	(0.029)	(0.027)
<b>PL</b>	<b>Q1</b>	<b>Q5</b>	<b>Q1</b>	<b>Q5</b>	<b>PL</b>	<b>Q1</b>	<b>Q5</b>	<b>Q1</b>	<b>Q5</b>
<b>2005</b>	-0.163***	0.186***	-0.156*	-0.009	<b>2005</b>	-0.060*	0.245***	-0.069	0.167
<b>s.e.</b>	(0.030)	(0.027)	(0.069)	(0.135)	<b>s.e.</b>	(0.030)	(0.026)	(0.068)	(0.097)
<b>2011</b>	0.118**	0.066	0.121**	0.079*	<b>2011</b>	-0.003	-0.069	0.010	-0.010
<b>s.e.</b>	(0.041)	(0.039)	(0.040)	(0.038)	<b>s.e.</b>	(0.039)	(0.036)	(0.036)	(0.033)

Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Source: Authors' calculations based on EU-SILC

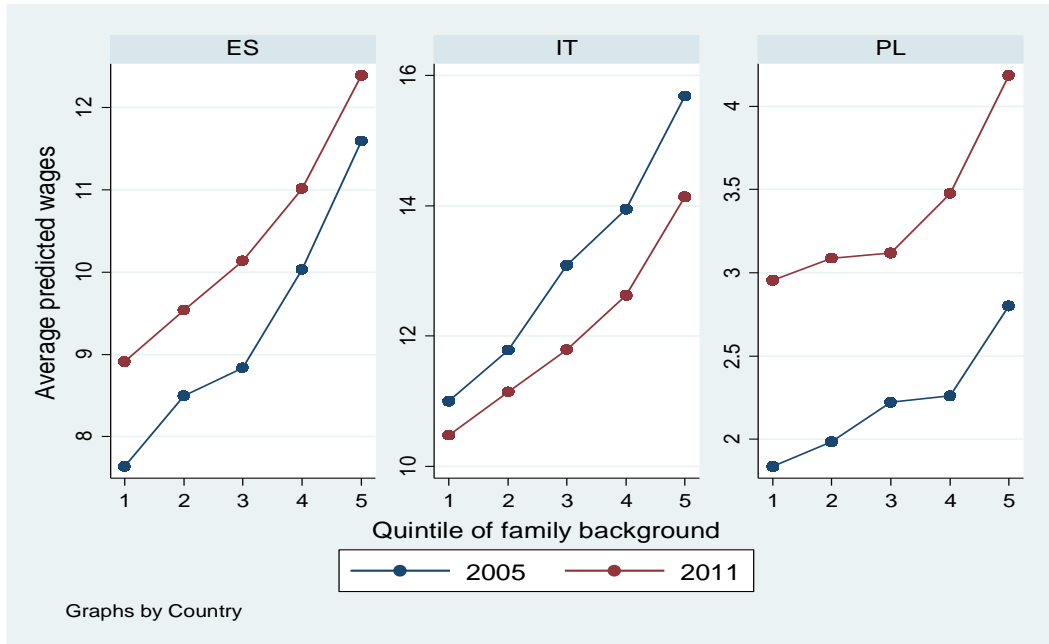
We find similar patterns in the case of women. Daughters born to families in the top quintile of the family index in Spain and Italy earn higher wages compared to daughters born to the third quintile, even when education levels are similar. In contrast, in Poland family background does not appear to have an effect on hourly wages over and above that going through education. The

differences between the earnings of women in the top quintile of the family index and those of women in the bottom quintile are similar to those observed in the case of men, ranging between 15-25%, depending on country and year.

In most countries, the effect of family background is slightly non-linear with particularly strong effects at the very top and the very bottom (see complete regressions in Appendix Tables A3 to A6). This result is in line with previous research findings that have emphasized the much lower probability to be upwardly /downwardly mobile for individuals coming from the most disadvantaged/advantaged families (Jäntti et al., 2006). A comparison of results from Model A to Model B in Table 2, shows that education and work experience account for a substantial part of FB's effect on wages, but that this varies cross-nationally. The level of education accounts for most of the association between FB and wages among children of families in the highest quintile in all three countries. This is the case both for men and for women. For individuals with scores in the lowest quintile of the FB index, education generally explains less of the association between FB and wages. This is particularly true for men in Poland and women in Italy.

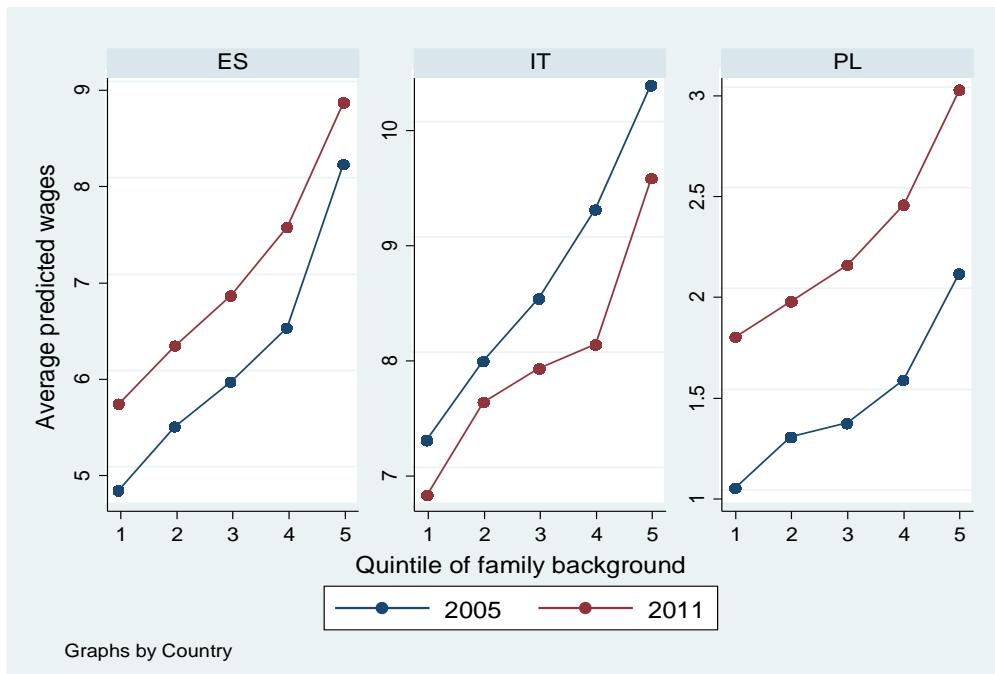
We next examine potential correlations between the size of the effect of FB on individual log hourly wages and the economic cycle. Average predicted log hourly wages for men by quintile of family background are shown in Figure 6, separately for 2005 and 2011. Spain and Italy experienced a significant recessionary spell in 2011 whereas Poland had high unemployment in 2005. Estimation results in Table 2 suggest that family background has similar effects on the earnings of men, irrespective of the economic cycle. Fig 6 gives a graphical representation of this result.

**Fig 6: Average predicted hourly wages for men by family background and year of survey**



Source: Authors' calculations based on EU-SILC

**Fig 7: Average predicted hourly wages for women by family background and survey year**



Source: Authors' calculations based on EU-SILC

Fig 7 plots the same information for women. The relationship between family background and log hourly wages does not seem to differ between the two survey years (the lines are roughly parallel). We thus conclude that family background appears to operate in a similar way on hourly wages, irrespective of the economic cycle.

We next consider the impact of family background on log wages by level of education. Results from our models that allow for differential FB effects by education level are shown in Table 3, for both men and women. Generally, the coefficients suggest that family background has similar effects on wages, irrespective of the level of education achieved. This contrasts with the results obtained by Cornelissen et al. (2008) for Germany where returns to schooling depended on the employee's parental background. We find a statistically significant interaction between family background and education only in Spain. Higher educated Spanish men coming from high FB households earn on average higher wages compared to individuals coming from less advantaged households. A very disadvantaged background reduces the wage prospects of highly educated Spanish women compared to their higher FB peers. This result is consistent with a cumulative view of human capital formation where investments made by the family reinforce and magnify the effects of formal education.

**Table 3: Marginal effects of family background on log hourly wages, by education**

Model B			Model B		
Males			Females		
ES	Q1	Q5	ES	Q1	Q5
<b>Medium</b>	0.026	0.019	<b>Medium</b>	-0.038	0.048
<b>s.e.</b>	(0.039)	(0.046)	<b>s.e.</b>	(0.044)	(0.053)
<b>High</b>	0.008	0.092*	<b>High</b>	-0.091*	-0.014
<b>s.e.</b>	(0.042)	(0.043)	<b>s.e.</b>	(0.043)	(0.047)

IT	Q1	Q5	IT	Q1	Q5
<b>Medium</b>	0.008	-0.033	<b>Medium</b>	0.062*	-0.005
<b>s.e.</b>	(0.027)	(0.034)	<b>s.e.</b>	(0.031)	(0.042)
<b>High</b>	0.035	0.051	<b>High</b>	-0.001	-0.083
<b>s.e.</b>	(0.058)	(0.044)	<b>s.e.</b>	(0.051)	(0.047)



PL	Q1	Q5	PL	Q1	Q5
<b>Medium</b>	0.023	0.057	<b>Medium</b>	-0.026	-0.028
<b>s.e.</b>	(0.070)	(0.136)	<b>s.e.</b>	(0.070)	(0.099)
<b>High</b>	0.054	0.050	<b>High</b>	0.024	-0.055
<b>s.e.</b>	(0.092)	(0.140)	<b>s.e.</b>	(0.080)	(0.101)

Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Source: Author's calculations based on EU-SILC.

Note however that family background also influences education. Thus, it is possible that highly educated individuals from disadvantaged families have other unobserved features (such as ability, motivation etc.) that make them both more likely to obtain more education and to earn comparatively higher wages. In fact, the more family background is positively correlated with education, the more we can expect high-educated individuals with a low SES background to be selected on unobservable characteristics. This would make the uncovering of potential interaction effects between FB and education more difficult.

### 6.3. Type of contract

In the following sub-section, we examine the ways in which the probability of having a temporary contract varies with family background. Alongside wages, the type of contract provides another measure of job quality. Temporary jobs are by definition more insecure, usually worse paid and with fewer associated benefits.

**Table 4: Marginal effects of family background on the probability of having a temporary contract**

Males					Females				
Model A			Model B		Model A			Model B	
ES	Q1	Q5	Q1	Q5	ES	Q1	Q5	Q1	Q5
<b>2005</b>	0.139***	-0.024	0.102***	-0.007	<b>2005</b>	0.068**	-0.066**	0.051*	-0.049*
<b>s.e.</b>	(0.018)	(0.017)	(0.018)	(0.018)	<b>s.e.</b>	(0.025)	(0.021)	(0.024)	(0.022)
<b>2011</b>	0.087***	-0.034*	0.059**	-0.026	<b>2011</b>	0.044	-0.026	0.033	-0.011
<b>s.e.</b>	(0.020)	(0.017)	(0.019)	(0.018)	<b>s.e.</b>	(0.023)	(0.020)	(0.022)	(0.020)

IT	Q1	Q5	Q1	Q5	IT	Q1	Q5	Q1	Q5
<b>2005</b>	0.025*	0.004	0.018	-0.004	<b>2005</b>	0.045**	-0.006	0.028	-0.017
<b>s.e.</b>	(0.011)	(0.011)	(0.011)	(0.012)	<b>s.e.</b>	(0.017)	(0.014)	(0.017)	(0.014)
<b>2011</b>	0.024	0.002	0.022	-0.009	<b>2011</b>	0.049**	-0.011	0.034	-0.010
<b>s.e.</b>	(0.014)	(0.014)	(0.014)	(0.014)	<b>s.e.</b>	(0.018)	(0.016)	(0.018)	(0.016)

PL	Q1	Q5	Q1	Q5	PL	Q1	Q5	Q1	Q5
<b>2005</b>	0.065***	-0.025	0.027	-0.013	<b>2005</b>	0.007	-0.087***	-0.026	-0.053**
<b>s.e.</b>	(0.020)	(0.018)	(0.019)	(0.018)	<b>s.e.</b>	(0.021)	(0.017)	(0.019)	(0.017)
<b>2011</b>	0.037	-0.067**	0.011	-0.041	<b>2011</b>	0.063**	-0.022	0.021	0.021
<b>s.e.</b>	(0.023)	(0.021)	(0.022)	(0.021)	<b>s.e.</b>	(0.023)	(0.020)	(0.021)	(0.020)

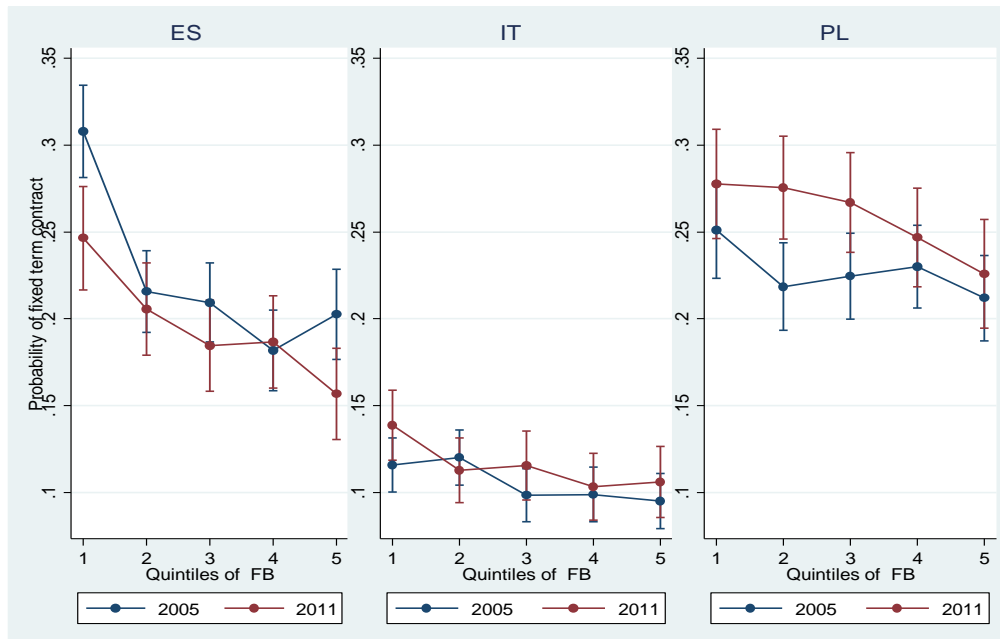
Note: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Source: Authors' calculations based on EU-SILC

We estimate simple logit models of the probability of being on a temporary contract using a specification similar to our previous wage equations. Average marginal effects (AMEs) estimation results for this outcome are shown in Table 4 (see complete regression information in Tables A7 to A8 in the Appendix).

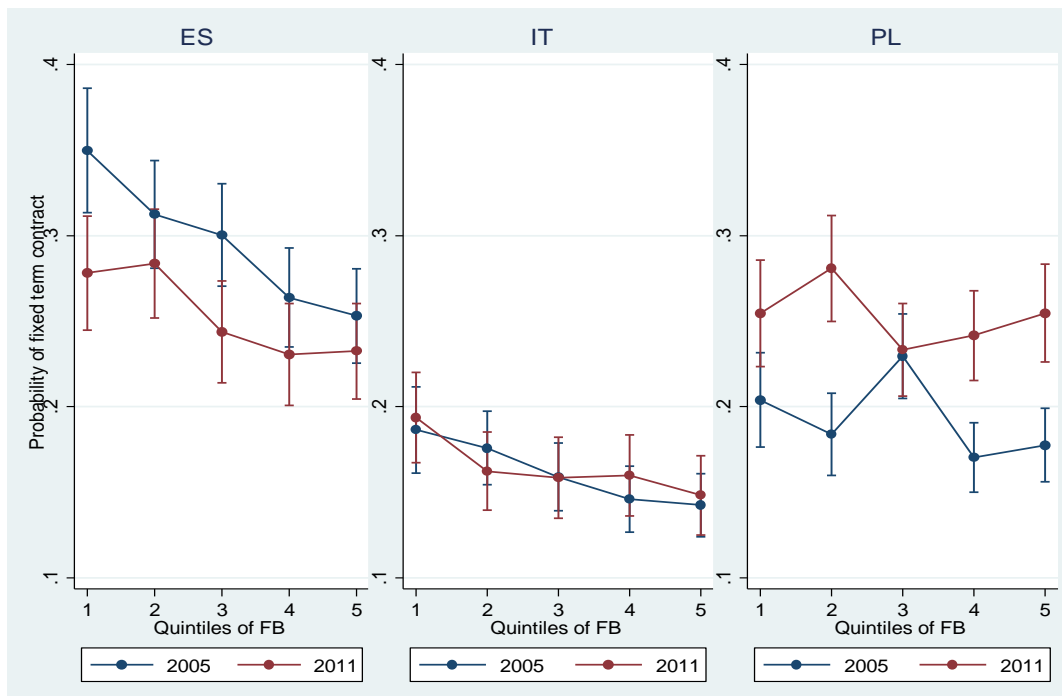
Men in the bottom quintile of the FB distribution are more likely to find themselves in a temporary rather than permanent contract only in Spain (the reference category is again the third quintile). Figure 8 shows a relatively large average marginal effect relative to being in the third quintile of the FB distribution (about 10 percentage points). In contrast, in the other two countries, FB appears to have little impact on the likelihood of having a temporary contract subject to the controls included in our equations.

**Fig 8: Predicted probability of holding a fixed-term contract by family background and survey year (males)**



Source: Authors' calculations based on EU-SILC

**Fig 9: Predicted probability of holding a fixed-term contract by family background and survey year (females)**



Source: Authors' calculations based on EU-SILC

We find similar patterns in the case of women (Figure 9). In particular, women from a disadvantaged background in Spain are more likely to have a temporary job compared to their counterparts in the third quintile of the family background distribution. The size of the effect is similar to that found in the case of men- around 10 percentage points. We also find that women in the top quintile of the FB distribution are less likely to be on temporary contracts in Poland.

As in the case of wages, we investigate whether the relationship between family background and the probability of being on a temporary contract varies with the economic cycle by allowing the relationship to be different in our two survey years. Generally, we do not find any evidence supporting an interaction effect between family background and the economic cycle but for Spanish men. In this case, coming from a disadvantaged family background increases the probability of being in a fixed term contract less in 2011 than in 2005. This result may be due to the large employment destruction between 2008 and 2011 that hit temporary contracts first.

To sum up, we find that family background affects the quality of job over and beyond its effect on education. This can be seen both when analyzing wages and to a lesser extent when looking at the type of contract. We do not find any strong evidence that this effect is moderated by the economic cycle.

## **7. Robustness checks**

To ensure our estimates are not sensitive to some of our methodological choices, we perform a series of robustness checks. First, because our measure of family background is constructed as deviations from the cohort mean, it is possible that it is sensitive to outliers on any of the components that go into the construction of the index. To check if this is the case, we re-estimate our models using the deviation from the cohort median rather than the cohort mean as a relative measure of family background. Our substantive results remain unchanged<sup>18</sup>.

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This additional material on robustness checks is included in an online Appendix (Supplemental Material).

Second, we examine age related patterns in more depth. It is possible that family background is especially salient for younger age groups who are less well established in the labour market. Although we include a quadratic age profile, our main specification constrains the effect of family background to be the same at all ages. To test the validity of this constraint, we have relaxed the assumption and estimated separate employment, wage and type of contract equations separately for three<sup>19</sup> age groups: 25-34, 35-44 and 45-54 (see online Appendix, Tables S5-6, S13-14 and S21-22 where we report regressions for the youngest cohort). Our sample sizes are considerably diminished and so most of our results lack statistical power. However, even from a substantive point of view, family background coefficients are very similar across age groups. Thus, in this dataset, we do not find any evidence supportive of the hypothesis that family background matters more at younger ages.

Third, our preferred measure of employment is based on having a positive wage. This allows us to maximize the size of our samples and ensures consistency between our employment and wage equations. However, since we impute wages for a number of individuals who are missing the current monthly gross wage (PY200g) and the variables we use for the imputation refer in part to last year's earnings, inconsistencies may arise due to the time reference mismatch. To check that our employment results are not determined by the particular way in which we define employment, we estimate two separate sets of equations based on the labour market status variable (PL030). We first estimate a model in which we distinguish activity from inactivity and a second model in which we distinguish between employment and unemployment, conditional on active participation in the labour market. Results are available in Tables S7-8 in the Supplemental Material (see online Appendix). While some differences with our main results do emerge, they are usually small and do not affect our conclusions.

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<sup>19</sup> Unfortunately, our sample size does not allow us to consider smaller age ranges.

Fourth, to check that our results are not sensitive to individuals whose wages have been imputed, we re-estimate all our wage equations after dropping all individuals whose wages are not derived from the current gross monthly wage. We find that results remain substantively unchanged (see Table S15-16 in the Supplemental material).

Finally, we test whether our type of contract results change when we include the occupation of the individual in our models. In some countries (for ex. Spain), the use of temporary contracts is heavily associated with certain industries and sectors (García-Serrano and Malo, 2013). It is possible that results relating to type of contract are determined in large part by the occupation of the individual. To check this possibility, we re-estimate all type of contract equations controlling for occupation. Results do not change (see Table S23-24 in the Supplemental Material). Note however that, in this case, occupation is in principle endogenous to family background, so we opt not to include it among controls in our preferred specifications.

## **8. Discussion and Conclusions**

We aim to provide new comparative evidence on the role of family background in shaping employment prospects and job quality in three EU countries as labour markets change due to the economic cycle.

We construct a comprehensive, multidimensional measure of family background that includes information on parental occupation, worklessness, education, household structure, number of siblings and the household's financial situation during the individual's childhood. We opt for a cohort-relative indicator to avoid our results being contaminated by the secular increase in education and occupational index over time. This methodological choice amounts to assuming that competition in the labour market takes place largely within cohort.

We find that family background affects employment prospects in some countries and the quality of jobs over and beyond its effect on education in all countries. This can be seen both when

analyzing wages and when looking at the type of contract. Our results are consistent with recent evidence on the transmission of opportunities by Berlofffa (2016), Zwysen (2015) and Raitano and Vona (2014). The latter conclude that there is a statistically significant direct effect of FB on earnings in a variety of EU countries. We confirm this result and find that it holds using EU-SILC 2011 data. In contrast with the results in Cornelissen et al. (2008) for Germany, we find only limited evidence that returns to schooling depend on the employee's parental background. We could find this type of effects of FB on wages only in Spain.

Finally, we do not find any evidence that any of the effects of FB are substantially moderated by the economic cycle. Thus, three years after the outset of the recession, we cannot conclude that individuals with a better FB show more resilience than the rest in any of the countries analyzed. Potentially the timing is too early to observe any effects. Also, since young workers are less established in the labour market we could expect that FB would matter more for this group, but we do not find this either. In fact, we do not find any significant differences in the impact of FB on employment prospects or job quality between young, middle-aged or older workers.

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