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The Economic Impact of Upward and Downward Occupational Mobility: a Comparison of Eight EU Member States[1]

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Abstract

Recent literature agrees that the degree of intergenerational mobility substantially differs across European countries, ranked between the "mobile" Nordic countries and the "immobile" Anglo-Saxon and Southern ones. In this paper we will compare the intergenerational transmission of advantages in 8 European countries using EU-SILC dataset. Considering parental occupations as background variable, our main aims are to assess whether residual returns to background on offspring's labour incomes persist after controlling for intermediated background-related outcomes (education and occupation) and to disentangle the role played by upward and downward occupational mobility on earnings. Our empirical analyses show that cross-country differences occur in the labour markets rather than in the educational stream. Consistently with previous findings, residual background effects on earnings are not significant in Nordic and Continental countries whereas they appear large in Anglo-Saxon and Southern ones. When the impact of backward and upward mobility is assessed, in all countries but Nordic ones penalties for upgrading emerge mostly in top occupations and are higher in less-mobile countries. These patterns are smoothened but preserved in bottom occupations and robust to different labour income measures.

*Jel Classification***:** D31, I21, J24, J31, J62.

Keywords: Residual Returns to Background, Earning Impact of Occupational Mobility, International comparison, Intergenerational Inequality.

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1. Introduction and Related Literature

It is now well-established both in sociological and economic studies that the degree of intergenerational mobility substantially differs across countries. Sociological studies analyze intergenerational mobility looking at the association among parental and offspring occupational classes while economic ones focus on income transmission between two subsequent generations, often identifying the degree of persistence by means of a synthetic indicator, the intergenerational income elasticity coefficient (IGE). Several papers published in last decades, following different approaches and using different datasets, lead to a similar ranking of European countries, which lies between the pole of the "mobile" Nordic countries and the one of "immobile" Anglo-Saxon and Southern European ones[2].

Among politicians and social scientists alike, the common belief is that the Scandinavian regimes, characterized by generous welfare states, a regulated wage setting and well-functioning public education, offers equal chances to all. On the contrary, Anglo-Saxon and Southern European regimes tend to amplify initial differences in backgrounds, but for different reasons. In the former, intergenerational persistence is thought to be associated to high skill premia and weak public education. In the latter, instead, non-transparent selection mechanisms in the labour markets (recommendations, family ties etc.) are commonly thought to play a major role. All in all, several possible mechanisms underpin an observed intergenerational transmission of economic status; some of these are more fair and socially acceptable or efficiency-enhancing than other[3]. However, in order to disentangle such differences from a rigorous point of view, it is necessary to provide soundly empirical evidence of the role of candidate factors.

In the economic literature, recent advancements make a move beyond the black box of the intergenerational earning elasticity (IGE) in search of a better understanding of the key determinants of income persistency.

A first strand of literature tries to identify the causal effect of parental income on children attainments – whatever educational, income or occupational – using either instrumental variables (or quasi-experimental approach)[4] or exploiting variations in the internal family characteristics[5]. The latter methodology attempts to get a better comprehension of the role played by genetic and environmental factors in general, whereas the

2. See, among others, Breen (2004), Solon (2002), Corak (2006), d'Addio (2007), Andrews and Leigh (2009), Jantti et al. (2006), Bjorklund and Jantti (2009).

3. In the literature, four main transmission channels have been identified (Meade 1973, d'Addio 2007, Bowles and Gintis 2002, Franzini and Raitano 2009) within each of which several mechanisms of diffusion operate: i) genetic, i.e. the genetic transmission of traits that affect individuals' socio-economic perspectives; ii) economic, i.e. the direct impact of household income and wealth on education and occupational opportunities; iii) cultural/familiar, i.e. the role of parental environment in shaping choices, preferences, tastes and behaviours of children and the so called soft skills; iv) social, i.e. the influence on abilities, choices and outcomes by social networks to which individuals belong to. The latter three affect skill formation and the allocation of talents, and hence economic efficiency.

4. To quote few examples: Shea (2000), Rege et al. (2007), Black et al. (2005), Oreopoulos et al. (2006), Carneiro et al. (2007).

5. Examples are: Behrman and Rosenzweig (2002), Bjorklund et al. (2005), Bjorklund et al. (2006), Sacerdote (2002), Bingley, Christensen and Jensen (2009). The main problem of analysis based on twins and adoptees is that they often share the same environment, which has a non-linear impact throughout processes of segregation, peer effects, etc. on performance. Another critic of the "nurture" versus "nature" debate claims, for instance, that comparisons between twins or adopted/ non-adopted rely on sub-sample of individuals in extreme psychological situations.

former's aim is to evaluate the impact of policy reforms or income shocks on social mobility. However, due to the lack of data and except in few cases (e.g. Jannti et al. 2006), such identification strategies does not seem applicable to perform widespread international comparisons.

A second strand[6] quantifies, by means of decompositions, the several potential mechanisms through which parental income might affect children achievements over the life-cycle. A main finding of these analyses is that a large fraction of the IGE is not accounted for by the observed positive relationship between parental income and children education: even when controlling for cognitive abilities, school quality and educational attainments the unexplained fraction of the IGE ranges between 2/5 and 1/2 (Mulligan 1999).

Finally, different transmission mechanisms can be at work in various points of the income distribution, and hence non-linearities in the effect of parental background might be important. With this aim in mind, several authors showed that low income mobility appeared concentrated in the bottom and the top quintiles of the distribution[7]. More recently, comparable dataset enabled to highlight different non-linear patterns across countries (Bratsberg et al. 2007). In particular, they show that the IGE is linear along the child distribution in Anglo-Saxon countries, whereas it is convex-shape in Scandinavian ones, suggesting that institutions favouring opportunity equalization (public school) work especially well for low-income child.

Using a dataset that is comparable across European countries representative of different welfare regimes, i.e. EU-SILC, the first goal of this paper is to assess whether residual returns to parental background emerge after controlling for a key set of other background-related child outcomes (education and occupation)[8]. Looking at this residual effect is of paramount importance as preliminary analysis of occupational and educational attainments in the eight countries we selected show that differences are rather limited.

In our analysis, we borrow from the sociological literature the idea of considering parental occupations as the main background variable. Differently from other non-income proxy of earning potential such as education, the parental occupational level at mature stages of the carrier encompasses several key aspects of background such as the individual position in the social scale, his/her prestige, relational capital and capacity to influence key economic decisions (Ganzeboom and Treinman 1996, Erikson and Goldthorpe 1992). Furthermore, father occupation appears to play a role more important than education in explaining intergenerational earning mobility in France (Lefranc and Trannoy 2004) and Finland (Osterbacka 2001), two of the countries considered.

Occupational quality is measured here following a pragmatic approach, consisting in grouping occupations in three macro-category – called for simplicity: manager, white-collar, blue-collar –according to the ISCO classification. This approach does not consent to look, as sociologists do, at the fine grain of

6. See Bowles and Gintis (2002), Bowles et al. (2005), Blanden et al. (2007), Lefranc and Trannoy (2005), Osterbacka (2001).

7. See among the others: Peters 1992, Dearden et al. 1997, Corak and Heisz 1999, Grawe 2004, Jantti et al. 2006. In particular, the latter paper uses comparable datasets for Nordic and Anglo-Saxon countries to assess the difference in the probability to incur in a small or long quintile-improvement (or worsening). The most striking and significant difference between the US and the other countries considered is its very low upward mobility from the lowest quintile.

8. A similar strategy has been followed by Franzini and Raitano (2009) and Causa et al. (2009). Notice that, being conscious that estimations about the intergenerational link could be biased due to the unavoidable exclusion of unobservable variables (e.g. parents' and children's abilities), in the following sections we never consider as causal effects the significant links between background and outcomes, whenever such links are observed.

occupational characteristics and its relation with the class structure, but it is enough for estimating the earning returns to upward and downward mobility, the other main scope of our paper[9]. Our key original contribution is indeed to split, for each main group of parental occupations, the residual background effect (RBE henceforth) into the impact due to upward occupational mobility (i.e. an improvement in the child occupation with respect to the parental one) and downward mobility (i.e. a worsening of it). The economic impact of upward and downward occupational mobility is assessed by including the interaction dummies between the three possible occupational parental origins and offspring destinations. This kind of decomposition provides – although in a non-causal fashion –interesting insights for a suggestive ethical judgement on the whole fairness of pathway followed to get a certain labour market outcome when "prime age". More precisely, one would expect that the higher the wage gap between two destination-origin pairs like manager-manager and manager-blue collar the more likely carrier pathways were ex-post unfair, reflecting the power of established elites in perpetuating inequality (Bourdieu 1977)[10].

The OECD work by Causa et al. (2009) also used the EU-SILC dataset and found a significant wage premium for well-off family background, proxied by father education, and that the usual country ranking is respected. Differently from their work, we focus on returns to occupational mobility and, in our benchmark estimates, we use yearly labour income – both for employees and self-employed – rather than hourly wage as children outcome. This choice is justified as long as we intend to observe the background effect on individual living standards, independently on the main reasons determining these (e.g. hourly wages or number of working hours or months)[11] and, on the other hand, by the fact that EU-SILC data do not provide a very accurate identification of hourly wages for all countries (see section 4.4). Finally, we use background information from both the father and the mother, which allows us dropping less observations, then obtaining higher precision in the estimates of the impact of occupational mobility.

The rest of the paper is organized as follows. Section 2 briefly describes the characteristics of the dataset and offers additional details on the analyzed sample. Section 3 presents results about the impact of family background on individual educational and occupational attainments, stressing the fact that substantial cross-country differences do not emerge. Section 4, organized in four sub-sections, presents the results of the analysis of the residual impact of background on labour incomes when individual characteristics are taken

9. Sociological studies usually follow Erikson and Goldthorpe (1992 e 2002) classification, based on seven occupational groups representative of different social classes, whereas other scholars (Duncan 1961, Ganzeboom and Treiman 1996), rather than basing on discrete occupational classes, suggest to compute synthetic quantitative indexes, computed assigning to each job a score linked to its "prestige". In an extension of this paper (Raitano and Vona 2010), we look at the distribution of father and son relative occupational position using the continuous index of occupational prestige proposed by Ganzeboom and Treiman (1996) in order to build a synthetic measure of upward and downward mobility.

10. Note that our analysis does not allow to identify the impact of the "nature" versus the one of the "nurture". Genetic heritage of cognitive and non-cognitive traits can hence plague our estimated background effect. However, the inextricable interaction between nature and nurture makes it very difficult to identify the pure effect of transmitted abilities through biological factors (Carneiro and Heckman 2003). Besides, it has to be stressed that studies about genetics have never proved the existence of a sure link, acting by inheritance, between parents' and children's abilities (Rose 2006). Moreover, it is likely that the influence of genetic factors do not substantially differ across countries (Causa et al. 2009): hence, since we focus on cross-country comparisons, this identification problem is even more not an issue at stake here.

11. Moreover, according to Bowles and Gintis (2002), Solon (2002) and Jenkins and Siedler (2007), labour income is a more inclusive measure of permanent child outcomes than wages.

into account and enables to make evident substantial cross-country differences. In particular, the first sub-section examines the direct impact of parental occupations on earnings; the second studies the effects of upward and downward mobility, whereas the third addresses the issue of gender differences controlling for potential selection biases; in the latter one several robustness checks are carried out. As usual, conclusive considerations are drawn in the last section.

2. Dataset

Studies about social mobility in different countries are so far scarcely comparable, because they are usually based on information collected by national and not homogeneous surveys[12]. The first wave of EU-SILC (carried out in 2005) – the new homogenized panel survey covering EU Countries – allows to partially overcome this limit as it includes a specific section about intergenerational mobility, where many aspects of family background (e.g. family composition, parents' educational attainments, occupations) are recorded in a retrospective fashion, i.e. by collecting information on family background concerning the period when the interviewed was around 14 years old.

EU-SILC dataset does not allow to compute intergenerational income elasticities, because parents' incomes are not collected[13], but it permits to study in an internationally comparison fashion the association among several individual outcomes (firstly, incomes) and background variables, that can be considered good proxies of family socio-economic characteristics and living standards.

As stated above, in this paper, we will study the association between several offspring's outcomes (i.e. educational and occupational attainments, labour incomes) and family background, proxied by parents' occupations. The core of our empirical strategy rests on the way in which we measure downward and upward occupational mobility. Concerning this choice, we face the trade-off between using an accurate measure of occupational prestige (i.e. ISEI; Ganzeboom and Treinman, 1996), or defining a finite number of occupational classes that allows to capture nonlinearities in the way parental occupations affect the process of intergenerational transmission. We opt for the latter approach and adopt a discrete categorization of occupations based on ISCO classification, then using interaction dummies between parents' and offspring's occupation to obtain a proxy of occupational mobility.

12. Sociological works collected in Breen (2004), trying to harmonize information provided by national surveys, are the most robust studies comparing the intergenerational mobility of occupations in many countries. Concerning the transmission of income inequalities (apart from the meta-analysis presented by Corak 2006), international comparisons are provided by Jantti *et al.* (2006), who, through information collected by national surveys, have estimated income mobility in six countries by the same methodology (Finland, Denmark, Sweden, Norway, US and UK).

13. As clearly stated by Jenkins and Siedler (2007), in order to estimate the link between parental incomes and offspring outcomes very long panel data are needed to average away unexpected income shocks, but only a few countries provide such data. However, they point out that the process of intergenerational transmission of advantages can be also studied using cross-sectional data containing "qualitative" retrospective information about individual family background.

In particular, for both children and parents, we rely on a three-modal distribution of occupations in order to have sufficiently large cells to estimate the interaction pairs origin-destination[14]. The first group of top occupations (henceforth "managers") include ISCO categories from 1 to 2 (corporate mangers, professionals, legislators), apart managers of small enterprises that encompass a number of very heterogeneous jobs and, in our dataset, have an average income well below the 25th percentiles of the other top occupations. The second group (henceforth "white-collars") refers to medium jobs, including managers of small enterprises and ISCO categories from 3 to 5 (associate professionals, clerks, service workers), whereas ISCO categories from 6 to 9 (assemblers, skilled agricultural, crafts, elementary occupations) constitute the group of bottom occupations (henceforth "blue-collars"). Also with the purpose of not reducing too much observations, instead of referring to fathers' occupation alone, we identified parental occupation through the highest one got by father or mother[15].

The analysis is carried out for 8 EU-15 countries – Germany, France, Spain, Italy, UK, Ireland, Denmark and Finland[16] – each pair belonging to the usual 4-groups geographical clusterization highlighted by the "welfare regimes" literature (Esping Andersen 1990, Ferrera 1996), in order to point out if differences among Continental, Southern, Anglo-Saxon and Nordic countries emerge also with regard to the intergenerational persistence of advantages.

Apart from a robustness check in section 4.4, all analyses of the present paper will be focused on the sub-sample of individuals aged 35-49, i.e. people for whom, as suggested by the literature (Solon, 2002; Corak, 2006), the process of intergenerational transmission has fully displayed its effects[17]. Moreover, the following econometric analysis has been carried on separately by country, using EU-SILC sample weights provided in the section on intergenerational mobility and correcting standard errors for heteroskedasticity.

Next section presents a preliminary analysis of the indirect channel through which family background can affect children outcomes in terms of occupations and educational attainments.

3. Effects on educational and occupational achievements

Several steps underpin the process of transmission of economic status from parents to children. A major one, widely investigated in the literature, is the influence of family background on child educational attainments. Actually, education is usually considered the better tool for improving social mobility and reducing intergenerational inequality persistence. Due to positive wage returns on years of education, it is

14. Due to the presence of a smaller fraction of parents in top occupations in Italy and Spain with respect to the remaining countries, cells concerning managers' offspring who gets jobs as blue-collars are rather empty. However, for these two countries, results presented in next sections do not change substantially if parents working as managers and white-collars are grouped together (detailed results are available upon request).

15. Consistently, when used, parental education refers to the highest educational level (coded according ISCED classification) attained by father or mother.

16. Among Nordic countries, Sweden has not been included because of the large number of missing values regarding father's and mother's occupation.

17. This literature points out that the intergenerational transmission of advantages is underestimated when only few yearly incomes are taken into account or when offspring are not considered in the appropriate "prime-age" range.

often stated that widening educational opportunities should allow individuals to release their perspectives from family conditions. However, even though in all developed countries (at least) mandatory education is freely delivered by the public sector, a positive and usually strong correlation between parents' and sons' educational attainments is observed everywhere (e.g. Hertz et al. 2007)[18].

In the econometric specification, family background is synthesized by four variables: two concerning family composition – i.e. number of siblings and a dummy that takes value 1 if the subject interviewed lived with both parents when young, one regarding "cultural capital" – i.e. the highest parental educational attainment – and the last one referring to the "socio-economic capital" – i.e. the highest parental occupation.

Our empirical analysis – based on the estimation of an ordered probit model on individual educational attainments (coded according to ISCED classification) – clearly confirms the existence of such a strong association in all observed countries (see tables 1 and 2, where predicted marginal effects to attain a tertiary degree for a "representative individual" are shown)[19]. In particular, in all countries children education significantly increases when parental characteristics, both education and occupation, improve. Only in Spain and Ireland a significant advantage for managers' descendents compared to white-collars' ones does not emerge, but this can be related to the joint effect of the small fraction of parental managers and the dramatic process of structural change here occurred[20]. Marginal effects, computed for representative individuals, show that the size of the increase in the predicted probability to attain a tertiary degree when parents' education and occupation improve is very large everywhere. Hence, apart from a slightly lower dependence of tertiary education attainments on parental characteristics in Ireland and Spain, substantial differences among (groups of) countries concerning the degree of association between parental features and offspring educational outcomes do not seem to emerge (table 2).

The estimated association between sons' educational levels and "cultural" and "occupational" family background could lead to conclude that the intergenerational incomes correlation is mainly driven by mechanisms acting during the educational period. Put differently, the transmission of intergenerational inequalities would only depend on the strong role played by "cultural" and liquidity constraints in affecting educational outcomes and this role seems to be roughly similar in all observed countries.

As a first step to assess if intergenerational persistence acts only through the educational channel, we test if also the occupational group achieved is correlated with family background (proxied by parental

18. Literature emphasize several mechanisms explaining a strong correlation between parental background and offspring education. The economic literature, following seminal contributions by Becker and Tomes (1979, 1986) emphasizes the role of liquidity constraints that, in presence of imperfect capital markets, can limit human capital investments. However, several non economic mechanisms can also increase the correlation between family background and child educational attainment: e.g. a good cultural environment that provide incentives to continue to study; a better knowledge by parents of information needed by sons to choose in presence of a substantial school heterogeneity; an environment that (also through peer effects) stimulates preferences formation, behaviour and abilities. All these factors conjure a larger risk attached to human capital investment by less advantaged individuals and a lower incentive to study due to returns depending also on family background.

19. In the bottom part of tables 1 and 3 F-tests on the equality of some estimated coefficients are presented; stars mean a statistically significant refuse of the Ho hypothesis regarding the equality of estimated coefficients.

20. In line with results of studies reviewed by d'Addio (2007) in all countries (apart from Anglo-Saxon ones) living with both parents significantly increases educational level, while the number of siblings decreases it (apart from Denmark).

occupation dummies) even when controlling for child education[21]. To this aim, we run an ordered probit model on offspring's occupation, controlling for several individual characteristics included educational attainments (tables 3 and 4, where predicted marginal effects to get a managerial occupation for representative individuals are shown). Our estimations clearly show that, kept constant education, parental occupation significantly affects sons' occupational prospects everywhere. The probability to attain a top occupation steadily increases when family background improves and the size of the advantage for well-off individuals – computed through predicted probabilities, table 4 – is very large. More important for the goals of our analysis, also the "ascription effect" (Ganzeboom and Treiman 2007) appears to be rather similar across countries, apart from Ireland and Finland where it is slightly lower.

In sum, the influence of family background on sons' educational and occupational attainments appears large and significant in all countries. However, as known, the degree of intergenerational mobility substantially differs across countries. Looking for possible explanations of these differences and for additional mechanisms of the intergenerational transmission of advantages, it seems of paramount importance to study if a residual background effect still emerges in some countries when, keeping constant individual education and occupation, determinants of labour incomes are analyzed. The next central section of this paper is devoted to study the "residual" association between parental occupations and children labour earnings.

4. Residual Background Effects (RBE) on labour incomes

4.1 OLS estimates including parental occupations dummies

This first sub-step of our analysis of RBE is devoted to study if the effect of parental background throughout the educational and the occupational channel accounts for its entire impact on incomes. The extent to which the influence of background on incomes is explained only by its indirect impact on child education and occupation is assessed using an incremental strategy. We move from a simple model where annual incomes are regressed on parental occupations and on basic individual controls (age, gender, immigrant status, marital status, living in urban area, potential experience, part-time, self-employment) and extend it including firstly child education and then occupation.

Since parental background has proved to have a large effect on both educational and occupational attainments, it is not surprising that, excluding these attainments among control variables (model A, table 5), we observe a positive effect of background on incomes across all countries. However, compared to the analysis of section 3 on occupational and educational attainments, cross-country differential patterns emerge here more starkly. In particular, in Scandinavian countries the impact of parental occupation is relatively small in size – also due the more compressed labour income distribution characterizing these countries

21. Ganzeboom and Treiman (2007) define achievement the effect of parental occupation on child education and ascription the additional effect of parental occupation on son's occupation and state that ascription is a much more negative phenomenon, because it further dampens possibility of less well-off people – which can use only the educational channel to reach good occupations – to climb the social ladder.

(Kenworthy 2008) – and weakly significant: in Finland a background premium exists only for offspring of parents belonging to top occupations, while, in Denmark, only offspring of blue-collar face a significant earning penalty. Remaining countries display background advantages that are widespread in all comparisons between pairs of origins, even if the size of income gaps widely differ among countries: expressed in percentage points, the top-bottom advantage appears larger in UK (40%), Ireland (41%), Spain (45%) and Italy (39%)[22].

As expected given the positive impact of family background on educational attainments and their significant correlation with earnings, the direct effect of parental occupation on incomes substantially declines when child education is included (model B, table 5). Interestingly, transmission of inequality occurs mainly throughout the educational channel in Denmark and Finland: the direct effect of parental background turns out insignificant – apart from a slightly significant advantage for managers' sons compared to white-collars' ones in Finland – and the distance top-bottom background declines by around 6%. Moreover, in Germany and Ireland no significant premia for white-collars' offspring compared to blue-collars' ones emerge. In all countries the size of top-bottom gap more than halved, except in UK where it declines by 1/3.

As a final step, we include among control variables also children occupations (model C, table 5). In this case, a direct residual background effect completely disappears in Nordic and central European countries, while in Ireland an estimated advantage for people coming from a better background still emerges, but it is significant only at 85% confidence level[23].

On the contrary, compared to blue-collars' descendents, a significant advantage for workers coming from a better background is confirmed in Italy, Spain and UK, where the gap favouring managers' offspring compared to white-collars' ones is also confirmed. Anyhow, including occupations, in these three countries the RBE approximately halves. The observed decrease of the estimated RBE when occupational controls are included is in line with findings of the literature (Blanden et al. 2010, Lefranc and Trannoy 2004, Osterbacka 2001) showing that child occupation accounts for a fraction of the background effect not inferior to the one explained by education.

In sum, autonomous effects of parental occupations on earnings tend to disappear when considering the main channels of inequality transmission, i.e. occupation and education, but still emerge in Southern countries, in the UK and, to a lesser extent, in Ireland. However, this residual effect might average away different mechanisms acting in different directions for each occupational group, hence masking a richer disaggregated picture in terms of upward and downward mobility. The remaining of the paper is focussed on this issue.

22. It has to be stressed that Italy and Spain are the only countries where labour incomes are considered net of taxes. Hence, the size of estimated background effects for these two countries constitutes a sort of a lower bound, as tax progressivity turn out to mitigate income differences.

23. By using the same dataset, similar findings are obtained by Raitano (2009). By means of a slightly different regrouping of occupations and clustering EU15 countries in the four usual geographical area (Nordic, Continental, Southern and Anglo-Saxon), he observes that the usual ranking of welfare regimes regarding the capacity to equalize earning opportunities seems confirmed also controlling for individual education and occupation.

4.2 OLS estimates including interactions between parents' and offspring occupations

Differently from models where parental background enters linearly in the earning equation, interaction dummies origin-destination allow to uncover nonlinearities in the returns to background, e.g. observing if an income advantage associated to a better background emerges for people working as managers or is a sort of parachute dampening the drop of individuals which, coming from a good background, end in bottom occupational groups. Actually, one should expect that positive (negative) returns are associated to upward (downward) occupational mobility in so far as those who improve (worsen) the parental position should be more (less) endowed with unobservable characteristics positively affecting incomes. Differences in the returns to upward and downward mobility should then genuinely reflect differences in the country capacity of equalizing opportunities.

In the following we carry out regressions on yearly gross labour income (net for Italy and Spain), replacing the four dummies on parental and children occupations considered in model C of table 5 (both, as said, identified grouping in three classes the ISCO two digits occupations collected in EU-SILC dataset) with 8 interaction dummies built jointly considering parents' and offspring occupational group. It has to be noticed that in all tables shown in this section the reference modality for assessing coefficients' significance is the pair "Parent white-collar/Son white-collar", while – for assessing the significance of the background (i.e. the RBE) keeping constant the offspring occupational destination – tests F on the difference between each pair of origins have been carried out[24].

As it would be expected, returns to mobility widely differ across countries (table 6) and are consistently in line with the usual ranking of welfare regimes (Esping Andersen 1990, Ferrera 1996). More precisely, long-distance downward mobility tends to be penalized both in Scandinavian and in Continental countries, even if only in Germany the income of the few well-off children that end up in bottom occupations is significantly smaller than the income of children remaining in the same group of bottom occupations as parents at the usual confidence levels. In Denmark the structure of the background-related penalties in middle and bottom occupations follows an irregular pattern in so far as a large disadvantage for social upgrading in middle job (16% of the standard deviation in log-incomes) is offset by an expected significant disadvantage for a long-distance downgrading in bottom ones (43% of a standard deviation in log-incomes)[25]. Among this enlarged group of Central and Northern European countries, significant differences emerge for top occupations where "stayers" earn significantly more than "upgraders" especially in Germany (where the estimated income premia for "stayers managers" is highly significant) and to a less extent in France, while Nordic countries display no clear patterns in top occupations.

On the contrary, Mediterranean economies are characterized by substantial background-related income gains in top occupations. In Spain, each one-step worsening of origins reduces incomes and involves a

24. These F-tests are presented in the bottom part of each table and stars mean a statistically significant refuse of the Ho hypothesis regarding the equality of estimated coefficients.
25. It is worth noticing that Denmark is also the country that displays the highest social mobility in other cross-country analyses; in particular bottom-to-top earning mobility appears significantly larger in Denmark than in other countries (Jantti et al. 2006).

significant penalty for "upgraders", while in Italy penalties associated to upward mobility are even larger and are always significant, with the gap in favour of well-off workers that lies between 1/4 and 2/5 of one standard deviation in log-income compared, respectively, to those from white-collar and blue-collar families. Together with the UK, Spain and Italy are the unique countries where RBEs tend to be systematically positive for middle and bottom occupations. The RBEs are large especially in Spain, where both a significant advantage in favour to long-distance downgrading and a significant disadvantage for bottom-middle upgrades emerge. The strength of the RBE is almost negligible in Italian middle jobs and much more limited in bottom ones. Notice that there is a significant smaller fraction of parents in top occupations in Italy and Spain with respect to the remaining countries (about 7% versus values around 15% in all other 6 countries, and over 20% in Denmark and UK), hence estimates might be imprecise due to the few observations, especially regarding the fall in bottom occupation of well-off offspring. Therefore, for these countries we merge top and medium parental background in the same group, re-building the interaction origin-destination accordingly. Results available upon request show that, while both in Spain and in Italy belonging to better-off families pay off significantly more especially in top occupations, the RBE for occupations at the bottom of the social ladder remains slightly significant (at around 85%) only for Spain.

The United Kingdom deserves a separate comment as it represents the country with the largest residual effect of background on incomes also in the linear model. In top occupations, the disadvantage of long-distance upward mobility with respect to both short-distance mobility and immobility is significant and ranges between 20% and 23% of a full standard deviation in log-incomes of the corresponding category. In middle occupations, a stark polarization by backgrounds emerges with the advantage of a better origin ensuring a significant income gain of around 0.1 standard deviation in incomes. Finally, a positive RBE can be also observed in the bottom of the job distribution, but at low significance levels. As partially shown in the analysis of linear background effects, Ireland appears an outlier with respect to the usual grouping in welfare regimes. In particular, Ireland shows a remarkable background advantage only for middle occupations, whereas for top occupations this advantage is positive but not very significant.

In sum, with a distinct exception of Nordic countries, a positive and significant RBE is observed for top occupations everywhere. Conversely, in middle and bottom occupations the patterns followed by the RBE display a larger cross-country heterogeneity. Still, the ranking of welfare regimes is preserved as, with the exception of Ireland, Nordic and central European countries substantially differ from the ones observed in Spain, Italy and the UK[26]. Another source of cross-country differences can be associated to the gender channel as long as women are more likely to freely decide the timing allocated to work and child-care in Nordic and central European regimes. Moreover, larger gender wage gaps should translate into higher returns to social immobility (Solon 2004). Next section will address these issues.

26. Note that our results for the UK are in contrast with the ones of Jantti et al. (2006), where – in terms of the probability to rise from the lowest to the highest income quintile – UK looks very similar to Scandinavian ones (whereas it seems similar to US regarding the very low probability to fall to the poorest quintile from people coming from the richest one). However, in the work of Bratsberg et al. (2007), also concerning the upward mobility UK appears more similar to the low mobility case of US. Anyhow, it has to be remarked that the most and accurate computations of the intergenerational elasticity agree on considering UK and Southern EU countries as the less mobile and very similar to US (for an updated review see Bjorklund and Jantti 2009).

4.3 Gender Differences

In this section we present estimates of the model with origin-destination dummies separated by genders (tables 7-8). Further, for assessing the role of the participation constraint, for females we also carry on two-stages Heckman procedures in order to account for the selection bias (table 9).

The first important result of this analysis is that upward and downward mobility have a differential impact across sexes and tend to be larger for men – as previous studies have shown (e.g. Jannti et al. 2006, Chadwick and Solon 2002) – especially if the selection bias is not taken into account –, but this is not warranted for all countries.

Concerning men, it appears that previous patterns tend to be exacerbated. Compared to the "gender-pooled" model of table 6, the advantage of staying in a top occupation for a German son roughly increases from 17% to 23% of a full standard deviation in log-incomes. Disadvantages of downgrading, instead, tend to slightly increase and become almost significant also in middle occupations. In France, income gains for well-off sons in middle and top occupations become slightly significant at around 85%, whereas differences at the bottom are not significant even if the estimated penalty associated to downgrading is around 10% of a full standard deviation. Nothing relevant changes both in Denmark, where only long-distance downgrading is more significantly penalized (-55% of a standard deviation), and in Finland, where the disadvantage of downgrading from middle into bottom occupations turns out significant.

Our analysis confirms findings of previous studies that display a much lager effect of background for males especially for Anglo-Saxon countries (Chadwick and Solon 2002, Jantti et al. 2006). This is evident for Irish middle occupations in which the gain of a short-distance downgrading amounts to 45% of a standard deviation in log-incomes. Further, the size of the increase in the RBE is particularly strong especially in the UK, where the estimated income gain for remaining in the same top occupation as the parents is above 1/3 of a log-income standard deviation and even larger it is the RBE in middle occupations (the income gap best-worst background is over 40 percentage points of a log-income standard deviation). Conversely, background differences tend to weaken in bottom occupations.

Mediterranean countries display a different behaviour when only men are considered. In Italy, the structure of the RBE is confirmed for top occupations, but each unitary background improvement leads now to a larger premium than in the pooled case, well-above a quarter of a standard deviation. This means that, in top occupations, the background gap between the best and the worst is above 1/2 of a standard deviation in log-incomes. At the bottom, those from middle occupations have a significant advantage with respect to those with parents at the bottom of the social ladder. Conversely, Spain is the only country in which previous patterns tend to be smoothened; here the RBE slightly declines for top occupations remaining large and significant only between the two extreme origins, whereas – in bottom occupations – it is still positive but only weakly significant (80%).

Looking at females using standard OLS (table 8), the estimated impacts of mobility on incomes appear mitigated in all countries, but in Spain, Ireland and to a less extent in Denmark. The gap top-bottom (respectively top-middle) in highly paid occupations amounts to 34% (respectively 25%) points of a standard

deviation for Spain. At the bottom, this advantage for well-off parents is even larger and reaches a remarkable 70% if expressed in log-income standard deviation. In Ireland, the RBE in favour of a good origin turns out to become large and significant in top occupations (around 25-30%). The observed positive RBE estimated in Denmark for middle occupations appears largely driven by female and accounts for 1/3 of a standard deviation. However, it is worth pointing out that in Denmark a daughter that upgrades by one or two steps reaching a top occupation earn more than 20% of a log-income standard deviation with respect to a daughter that remains in the same top occupation of her parents.

Comparing females to males, the largest mitigation effect of RBE is observed in Italy, UK and France[27]. In Italy, a two-steps improvement of background in top occupations pay less than 30% of a standard deviation in log-incomes, well below the 50% reward for males. In top UK jobs, the size of the penalty for bottom backgrounds decreases to less than 13% of a standard deviation.

Next step is to re-examine the returns of downward and upward mobility in light of the constraints affecting labour supply decisions of women, including in estimations also the large – apart from Nordic countries (Gornick 1999) – share of females not participating to labour market. In particular, for reducing the impact of the selection bias on estimated coefficients, we run a two-stage Heckman procedure, adding as explanatory variables in the selection equation the number and the age of the children plus the hours of external support for child-care (table 9). Because for females background constraints might manifest affecting labour market participation, estimates carried out through the Heckman procedure show an increase in the residual effect of background, that gets closer to the one for males in all countries but Scandinavian ones, where it remains unchanged, and Germany, where it declines especially at the bottom. One of the largest increase in the returns to a good background is observed in France for females in top occupations, where, compared to white or blue-collars descendents, the managers' daughter advantage becomes now statistically significant (while for males it is not significant) and jumps up to a significant 35% of a standard deviation in log-incomes. Also in Spain, the gap between extreme origins becomes almost 50% of one standard deviation for daughters working as managers. In bottom occupations, instead, it is almost as big as a full standard deviation in log-incomes (i.e. 96%), while the background gap top-middle is 91% (in Spain). Similar increases in top occupations are observed in Italy, where the advantage of having good parents ranges between 1/3 and 2/5 standard deviations. Finally, correcting for the selection bias leads to a substantial increase in the effect of background especially in Anglo-Saxon countries. In particular, in the UK a large and significant advantage in favour of managers' descendents emerges in bottom occupations and, in Ireland, RBE in top occupations increase by a significant 0.11 log-income standard deviation with respect to the OLS case.

4.4 Robustness checks

Our dataset does not allow to identify in a causal way the factors affecting RBE as, for instance, labour market network, discrimination or unobservable cognitive and non-cognitive skills. Even if a higher and

27. In France, however, background effects are not significant both for males and females.

significant RBE in bottom-middle occupations is observed in countries where factors such as club membership, discrimination, social segregation, background-related behavioural differences, family ties and nepotism seem to matter the most[28], we are not able to infer any causal link. What we can do is to check whether our results do not change to some alternative estimates. In particular, we perform four main robustness checks.

First, since interactions origin-destination might be estimated imprecisely due to the small size of certain cells, i.e. long-distance downgrading, we expand our sample to cohorts aged between 30 to 54 (table 10). Clearly, this extension is likely to reduce the RBE, as a consolidated empirical evidence show that intergenerational comparisons should include only prime aged around 40-45 (Solon 2002, Corak 2006). As a second exercise (table 11), we include among regressors other background variables (the highest educational level attained by parents and a dummy signalling if the origin family faced always or often situations of financial distress when the individual was young) for observing if the RBE is still linked to the interactions of parental and offspring occupations. Finally, we restrict the sample only to employees considering annual wages (table 12) and hourly wages (table 13) as dependent variables, in order to see if our results are mainly driven by incomes earned by self-employed, which are more likely to be plagued by measurement errors (Causa et al. 2009) and/or by different working times in terms of number of months and hours.

When considering larger cohorts, results are substantially left unchanged for most of the countries (table 10). Anyhow, as expected, main changes involve a reduction of the RBE. For instance, in France the disadvantage of long-distance downgrading becomes significant, whereas in Germany the advantage of the top-top pair seems to decline. The largest decrease is observed in Spain where now differences in bottom jobs are small and not significant. UK and Italy represent the only exceptions: in the former, the gains for a two-steps downgrading looks statistically significant; in the latter, background-related differences in middle jobs increases up to become significant at 95%.

The model with a full set of controls for background is impossible to carry on for all countries as information on financial problems when young are missing in Germany and France, hence only dummies on parental education have been added for these two countries. With respect to the baseline model (table 6), nothing changes substantially as regards to the interaction dummies, apart from Spain, where advantages for managers' sons are not anymore significant[29]. Moreover, in line with findings of Franzini and Raitano (2009), growing up in a family facing financial distress significantly reduces labour incomes in Italy and UK, whereas parental education captures additional background aspects in almost every country, but its sign is clearly affected by the high collinearity with other background variables.

28. On this topic, for Italy Raitano (2010) observes that for people coming from a good background to get a job by using informal network is associated to a significant increase in labour incomes, whereas the same channel for job search is associated to a significant job penalty for descendents of parents working in bottom occupations.
29. However, this high sensitivity to model specification in Spain should reflect the small size of those with well-off families in this country.

When annual earnings from employment instead of total labour income is considered as the dependent variable[30] RBE strongly declines in Germany and in Italy suggesting that in some countries – especially in Italy, which is characterized by a large share of self-employed – self-employment can play an important role in the intergenerational transmission as it is more easily inheritable and hence influenced by family networks, endowments and wealth[31].

The largest differences with respect to the baseline model are observed when we take hourly wages as dependent variable[32]. Focussing on hourly wages is fruitful, because it allows to disentangle whether the RBE engenders a "pure price" effect[33] or if it stems from other labour market aspects affecting yearly incomes, namely the probability of working full-time or part time, to be employee, self-employed or unemployed, to work through temporary or permanent arrangements, etc.. Interestingly, in top occupations the RBE homogeneously declines in all countries, apart from Ireland and Finland, while a more mixed picture emerges in middle and bottom occupational groups. To briefly summarize the differences with respect to our baseline model (see table 6), one can observe that for Germany the advantage in top occupations for managers' offspring reduces its significance while, on the contrary, the long-distance downgrading is less penalized. The advantage of well-off Spanish offspring turns insignificant in bottom jobs, which offsets the significant difference between middle and bottom backgrounds in top occupations. In Italy RBE reduces in top occupations, but increases in bottom ones; in turn, in the UK a significant advantage for downgrading managers' offspring is observed now. Finally, consistently with findings in Causa et al (2009), a significant wage premium emerges for well-off Finnish offspring.

5. Concluding Remarks

This paper shows that the main cross-country differences in the mechanisms of intergenerational transmission of economic status occur in the labour markets rather than in the educational stream. Whereas all countries considered display a large and significant background effect on educational achievements, only looking at the direct, residual, background effect on labour incomes enables to shed light on well-known cross-country differences. In particular, the evidence of a RBE on labour incomes lower (and it is often not

30. It has to be noticed that in the "annual wage model" (table 12) people receiving incomes both from employment and self-employment are excluded from the sample. The same assumption holds in the "hourly wage model" where, in line with Causa et al. (2009), also people working weekly less than 15 hours or earning less than 1 euro per hour are not included in regressions.

31. See Dunn and Holtz-Leakin (2000), Corak and Piraino (2010) and Raitano (2010) who, using a national dataset, notices that in Italy the impact on earnings of background and network effects is much larger when also incomes from self-employment are considered.

32. As stated in the introduction, in this paper (differently from Causa et al. 2009) we focus on yearly incomes rather than on hourly ones for two reasons: i) we intend to observe the RBE on individual living standards, independently on the main reason determining these (e.g. hourly wages or number of working hours or months); ii) EU-SILC data do not provide a very accurate identification of hourly wages for all countries, because for most of these only information about incomes in the previous year are recorded, while information about the features of the job activity (included the usual worked hours) refer to the current employment status.

33. In turn, a price effect could reflect differences in productivity – due to unobservable hard or soft skills – discrimination or occupational heterogeneity associated to our crude aggregation in macro-groups.

significant) in Nordic and Continental countries than in Anglo-Saxon and Southern is consistent with the empirical findings about country rankings on intergenerational income elasticities. This implies that in Nordic and Continental countries, and to a less extent in Ireland, the background effect appears entirely explained by the educational achievement and by the process of occupational sorting.

The most interesting cross-country differences emerge, however, when the impact of backward and upward occupational mobility is assessed. Even if we resort only on estimated correlations, our analysis allows to localize residual background advantages along the job distribution. In all countries but Scandinavian ones, income penalties for social upgrading tend to emerge in top occupations and are higher in welfare regimes that are known to generate a higher intergenerational income persistence (UK, Italy, Spain). These patterns are preserved in bottom occupations where, as it would be expected, social downgrading is penalized in Nordic economies and in Germany and rewarded, but at a much smaller rate with respect to top occupations, in the group of less mobile countries. Interestingly, the RBE appears positive and significant for bottom occupations only in countries where social networks, social segregation and labour market ties are perceived to play a major role, whereas differences in educational quality might contribute to explain the RBE for top occupations. On the other hand, significant RBE in top occupations can merely reflect particular labour market features, more easily attainable by well-off offspring, such as high superstars' rewards and, more in general, the absence of retributive ceilings and centralized agreements in these jobs.

With respect to a classical clusterization of welfare regimes, Ireland's behaviour appear somehow schizophrenic as it appears more similar to Scandinavian countries than to the UK when looking at educational achievements, occupational sorting and annual labour incomes, but it ranks the lowest in terms of equality of opportunities if hourly wages are considered. Also results for Spain, the other country of more recent development, appears not very robust to different econometric specifications, even if it clearly remains more similar to Italy than to other countries. The two Continental countries considered, France and Germany, are located in an intermediate position: positive background premia in top jobs tend to be counter-balanced by negative penalties of downgrading in bottom ones, especially in Germany.

In general, rewards and penalties associated to different parental occupations appear lower for females than for males, but gender difference tend to be smoothened if we correct for the selection bias. Several robustness checks confirm the validity of our results. Only for hourly wages results change substantially, suggesting that residual background effects stem also from other labour market aspects affecting prime-age yearly incomes – working full-time or part time, being employee or self-employed, working through temporary or permanent arrangements – rather than from differences in hourly wages only.

Even if limits in the available data do not consent us to clearly identify the sources of the residual background effect, we can suggest that there are at least three mechanisms that can explain it: i) a different quality, real or marked, of the attained degrees and jobs (e.g. well-off students can have access to better schools and universities and this will increase their future wages)[34]; ii) a positive influence of a good

34. A growing literature, especially in France and the UK, shows that school heterogeneity does play a major role in explaining students' future earnings prospects and that, access to top school appears to benefit especially persons from

background on some individual characteristics positively affecting future prospects (the so-called soft skills)[35]; iii) a role of social network correlated to parents' occupations: individuals coming from more disadvantaged backgrounds may belong to social networks less suitable for finding a good job through informal relationships[36]. For instance, social networks are very likely to affect labour market entry and, at any given occupational achievement when prime-age, the effective quality of seniority path. The latter effect is the one that might create the larger distortions both in the allocation of talents and in the overall fairness of the pathway followed in the transmission mechanism. Hence, it should be more carefully analysed in future works using comprehensive dataset at the country level.

better social backgrounds (Manning and Pischke 2006, Blanden and Machin 2004, Chevalier and Conlon 2003, Albouy and Wanecq 2003, Gurgand and Maurin 2007).

35. Recent studies (Bowles and Gintis 2002, Osborne Groves 2005, Goldthorpe and Jackson 2008) emphasize the impact of familiar models on the development of children non cognitive traits – the so called soft skills, i.e. elements shaping social and relational competences such as risk aversion, extroversion, the willingness to work in team, the sense of discipline or leadership, or also factors, at least partially genetically inheritable, as height, weight and beauty –, which labour market success seems to depend on. In particular, Goldthorpe and Jackson (2008) point out that in post-industrial societies employers (mostly in services sector) when recruiting employees and deciding promotions attach less importance to cognitive and technical abilities (certified by degrees, the so-called hard skills) and more to soft skills, strongly dependent on the family background.

36. Family ties represent a natural network itself that is more extended and stronger the higher the social position of the family and its capacity to "leverage social relations for economic purposes" (Granovetter 2005).

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Tab. 1: Effects of parental background on educational attainment (coefficients estimated by an ordered probit model)[1]. Individuals aged 35-49.

		Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Parental education	Upper secondary	0.293***	0.375***	0.678***	0.707***	0.287***	0.813***	0.281***	0.235***
	Tertiary	0.757***	1.013***	1.114***	1.241***	0.675***	1.499***	0.649***	0.656***
	Tertiary ≠ Upper secondary	***	***	***	***	***	***	***	***
Parental occupation	White-collar	0.203***	0.251***	0.533***	0.393***	0.235***	0.346***	0.228***	0.202***
	Manager	0.542***	0.554***	0.661***	0.573***	0.486***	0.499***	0.606***	0.425***
	Manager ≠ White-collar	***	***	no	***	***	no	***	**
Number of observations		*6,887*	*4,790*	*7,615*	*10,846*	*3,335*	*2,134*	*1,709*	*2,752*

[1] Reference modalities for parental education and occupation are, respectively, "parents with a lower secondary degree at most" and "parents working as blue-collars". Control variables are age, age squared, gender, immigrant status, number of siblings and a dummy if the individual lived with both parents when he/she was 14. Parents with at most a lower secondary education and parents working at most as blue collar are the omitted variables. * p<0.10; ** p<0.05; *** p<0.01
Source: elaborations on EU-SILC 2005 data

Tab. 2: Percentage changes in the probability to attain a tertiary degree, by gender and parental occupations[1] (compared to offspring of managers). Marginal effects estimated by an ordered probit model[2].

				Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Gender	Male	Parental occupation	White collar	-22.7%	-23.5%	-6.4%	-15.0%	-17.8%	-7.9%	-32.2%	-16.6%
			Blue collar	-36.1%	-43.2%	-34.8%	-46.9%	-34.5%	-26.4%	-52.1%	-31.7%
	Female	Parental occupation	White collar	-26.3%	-23.3%	-6.5%	-15.1%	-16.9%	-7.6%	-28.8%	-14.1%
			Blue collar	-42.2%	-42.7%	-35.4%	-47.0%	-32.8%	-25.3%	-46.5%	-27.0%

[1] Highest occupation got by father and mother. [2]Representative individual: 40 years old, native, with one sibling, living with both parents during his youth and whose parents highest degree is upper secondary.
Source: elaborations on EU-SILC 2005 data

Tab. 3: Effects of parental background on occupation (coefficients estimated by an ordered probit model)[1]. Individuals aged 35-49.

		Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Parental occupation	White-collar	0.253***	0.375***	0.373***	0.330***	0.313***	0.225***	0.320***	0.262***
	Manager	0.449***	0.714***	0.721***	0.667***	0.577***	0.467***	0.587***	0.545***
	Manager ≠ White-collar	***	***	***	***	***	**	***	***
Number of observations		*7,426*	*4,990*	*7,804*	*10,846*	*4,000*	*2,172*	*1,741*	*2,756*

[1] Reference modality for parental occupation is "parents working as blue-collars". Control variables are age, age squared, potential experience, gender, immigrant status, dummy if living in an urban area, marital status, a dummy if working part-time and a dummy if income from self-employment is larger than income from employment and two dummies for educational attainments (upper secondary or tertiary graduated). Parents working at most as blue collar is the omitted variable.
* p<0.10; ** p<0.05; *** p<0.01
Source: elaborations on EU-SILC 2005 data

Tab. 4: Percentage changes in the probability to get a managerial occupation, by gender and parental occupations[1] (compared to offspring of managers). Marginal effects estimated by an ordered probit model[2].

				Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Gender	Male	Parental occupation	White collar	-17.1%	-22.1%	-25.4%	-21.8%	-19.4%	-15.2%	-20.0%	-15.4%
			Blue collar	-39.0%	-46.4%	-52.5%	-43.3%	-42.3%	-29.3%	-44.0%	-29.6%
	Female	Parental occupation	White collar	-13.1%	-18.6%	-21.1%	-21.1%	-16.0%	-11.1%	-16.1%	-12.6%
			Blue collar	-30.2%	-39.3%	-43.7%	-41.7%	-34.9%	-21.7%	-35.5%	-24.1%

[1] Highest occupation got by father and mother. [2]Representative individual: 40 years old, 15 years of potential experience, tertiary graduated, native, married, living in an urban area.
Source: elaborations on EU-SILC 2005 data

Tab. 5 : Estimated coefficients of parental highest occupation (compared to offspring of blue-collars).
OLS on logs of yearly gross labour income (net for Italy and Spain)[1]. Individuals aged 35-49.

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Highest parental occupation								
				A) Total background effect				
Manager	0.215***	0.292***	0.448***	0.386***	0.399***	0.414***	0.148**	0.195***
White-collar	0.071***	0.135***	0.224***	0.182***	0.173***	0.122**	0.075*	0.030
Manager ≠ White-collar	***	***	***	***	***	***	no	***
Number of observations	*6,167*	*3,948*	*5,776*	*8,883*	*3,310*	*1,605*	*1,631*	*2,491*
				B) Controlling for offspring education				
Manager	0.083**	0.104***	0.189***	0.181***	0.267***	0.183**	0.064	0.058
White-collar	0.020	0.065***	0.089***	0.086***	0.122***	0.038	0.047	-0.030
Manager ≠ White-collar	*	no	**	**	***	*	no	*
Number of observations	*6,167*	*3,948*	*5,776*	*8,883*	*3,310*	*1,605*	*1,631*	*2,491*
				C) Controlling for offspring education and occupation				
Manager	0.008	-0.006	0.082**	0.099***	0.148***	0.117	-0.023	-0.004
White-collar	-0.026	0.009	0.049**	0.051***	0.063**	0.028	0.002	-0.031
Manager ≠ White-collar	no	no	no	no	***	no	no	no
Number of observations	6,094	3,918	5,760	8,779	3,278	1,603	1,615	2,438

[1] Control variables of model "A" are age, age squared, potential experience, gender, immigrant status, marital status, a dummy if living in an urban area, if working part-time and a dummy if income from self-employment is larger than income from employment. In model "B" two dummies on educational attainments are added (upper secondary or tertiary graduated). In model "C" also two dummies on occupation (manager or blue-collar) are added. In all models, parents working at most as blue collar is the omitted variable regarding family background. * p<0.10; ** p<0.05; *** p<0.01
Source: elaborations on EU-SILC 2005 data

Tab. 6: Estimated coefficients of the interaction between parental and offspring occupation (omitted variable "white-collar with parents at most white-collars"). OLS on logs of yearly gross labour income (net for Italy and Spain)[1]. Individuals aged 35-49.

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Manager/Manager	0.387***	0.416***	0.419***	0.440***	0.492***	0.476***	0.174**	0.403***
White-collar/Manager	0.229***	0.349***	0.338***	0.260***	0.421***	0.402***	0.160**	0.400***
Blue-collar/Manager	0.250***	0.364***	0.264***	0.139***	0.317***	0.345***	0.220***	0.377***
Manager/White-collar	0.006	-0.028	-0.074	0.004	0.077*	0.110	0.033	0.042
Blue-collar/White-collar	-0.012	-0.028	-0.088***	-0.030	-0.095**	-0.079	-0.095*	0.024
Manager/Blue-collar	-0.629***	-0.432***	-0.155**	-0.398***	-0.138*	-0.142	-0.611**	-0.175***
White-collar/Blue-collar	-0.394***	-0.239***	-0.326***	-0.183***	-0.249***	-0.182**	-0.334***	-0.159**
Blue-collar/Blue-collar	-0.313***	-0.242***	-0.298***	-0.263***	-0.223***	-0.087	-0.246***	-0.070
Manager/Manager ≠ White-collar/Manager	***	no	no	***	no	no	no	no
White-collar/Manager ≠ Blue-collar/Manager	no	no	no	**	**	no	no	no
Manager/Manager ≠ Blue-collar/Manager	**	no	***	***	***	no	no	no
Manager/White-collar ≠ Blue-collar/White-collar	no	no	np	no	***	*	**	no
Manager/Blue-collar ≠ White-collar/Blue-collar	**	no	**	no	no	no	no	no
White-collar/Blue-collar ≠ Blue-collar/Blue-collar	no	no	no	**	no	no	no	no
Manager/Blue-collar ≠ Blue-collar/Blue-collar	***	no	**	no	no	no	no	no
Number of observations	*6,094*	*3,918*	*5,760*	*8,779*	*3,278*	*1,603*	*1,615*	*2,438*

[1]Control variables are age, age squared, potential experience, gender, immigrant status, dummies on marital status, part-time, educational attainments (two dummies identifying individuals with, respectively, an upper secondary and a tertiary degree) and a dummy if living in an urban area and if income from self-employment is larger than income from employment. * p<0.10; ** p<0.05; *** p<0.01
Source: elaborations on EU-SILC 2005 data

Tab. 7: Males aged 35-49. Estimated coefficients of the interaction between parental and offspring occupation (omitted variable "white-collar with parents at most white-collars"). OLS on logs of yearly gross labour income (net for Italy and Spain)[1].

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Manager/Manager	0.385***	0.508***	0.366***	0.559***	0.453***	0.403**	0.291***	0.411***
White-collar/Manager	0.256***	0.417***	0.292***	0.359***	0.298***	0.348***	0.160	0.440***
Blue-collar/Manager	0.224***	0.434***	0.221***	0.173***	0.209***	0.348***	0.249***	0.393***
Manager/White-collar	-0.082	0.080	-0.030	0.070	0.049	0.337***	0.021	0.114
Blue-collar/White-collar	0.018	-0.017	-0.057	-0.004	-0.249***	0.049	0.076	0.021
Manager/Blue-collar	-0.504***	-0.285***	-0.097	-0.212	-0.232**	0.061	-0.632**	-0.084
White-collar/Blue-collar	-0.273***	-0.171***	-0.192***	-0.101**	-0.292***	0.069	-0.238**	-0.117
Blue-collar/Blue-collar	-0.213***	-0.193***	-0.185***	-0.196***	-0.284***	0.065	-0.172*	0.020
Manager/Manager ≠ White-collar/Manager	**	no	no	**	**	no	no	no
White-collar/Manager ≠ Blue-collar/Manager	no	no	no	**	no	no	no	no
Manager/Manager ≠ Blue-collar/Manager	**	no	**	***	***	no	no	no
Manager/White-collar ≠ Blue-collar/White-collar	no	no	no	no	***	**	no	no
Manager/Blue-collar ≠ White-collar/Blue-collar	***	no	no	no	no	no	no	no
White-collar/Blue-collar ≠ Blue-collar/Blue-collar	no	no	no	**	no	no	no	*
Manager/Blue-collar ≠ Blue-collar/Blue-collar	***	no	no	no	no	no	*	no
Number of observations	*2,859*	*1,943*	*3,318*	*5,038*	*1,628*	*758*	*782*	*1,248*

[1]Control variables are age, age squared, potential experience, immigrant status, dummies on marital status, part-time, educational attainments (two dummies identifying individuals with, respectively, an upper secondary and a tertiary degree) and a dummy if living in an urban area and if income from self-employment is larger than income from employment. * p<0.10; ** p<0.05; *** p<0.01

Source: elaborations on EU-SILC 2005 data

Tab. 8: Females aged 35-49. Estimated coefficients of the interaction between parental and offspring occupation (omitted variable "white-collar with parents at most white-collars"). OLS on logs of yearly gross labour income (net for Italy and Spain)[1].

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Manager/Manager	0.370***	0.349***	0.516***	0.363***	0.480***	0.632***	0.088	0.434***
White-collar/Manager	0.203**	0.317***	0.358***	0.159***	0.496***	0.465***	0.223***	0.380***
Blue-collar/Manager	0.351***	0.322***	0.314***	0.155**	0.394***	0.392***	0.246**	0.358***
Manager/White-collar	0.018	-0.082	-0.093	-0.041	0.070	-0.051	0.034	-0.009
Blue-collar/White-collar	-0.029	-0.031	-0.124**	-0.045	-0.038	-0.170**	-0.164**	0.009
Manager/Blue-collar	-1.051***	-0.645**	0.041	-0.721**	-0.086	-0.400	-0.159	-0.353
White-collar/Blue-collar	-0.778***	-0.334***	-0.562***	-0.303***	-0.433***	-0.806***	-0.518**	-0.147
Blue-collar/Blue-collar	-0.664***	-0.296***	-0.506***	-0.341***	-0.294***	-0.370***	-0.319***	-0.219*
Manager/Manager ≠ White-collar/Manager	*	no	**	**	no	no	no	no
White-collar/Manager ≠ Blue-collar/Manager	*	no	no	no	no	no	no	no
Manager/Manager ≠ Blue-collar/Manager	no	no	***	**	no	**	no	no
Manager/White-collar ≠ Blue-collar/White-collar	no	no	no	no	*	no	***	no
Manager/Blue-collar ≠ White-collar/Blue-collar	no	no	**	no	no	no	no	no
White-collar/Blue-collar ≠ Blue-collar/Blue-collar	no	no	no	no	no	**	no	no
Manager/Blue-collar ≠ Blue-collar/Blue-collar	no	no	**	no	no	no	no	no
Number of observations	*3,235*	*1,975*	*2,442*	*3,741*	*1,650*	*845*	*833*	*1,190*

[1]Control variables are age, age squared, potential experience, immigrant status, dummies on marital status, part-time, educational attainments (two dummies identifying individuals with, respectively, an upper secondary and a tertiary degree) and a dummy if living in an urban area and if income from self-employment is larger than income from employment. * p<0.10; ** p<0.05; *** p<0.01

Source: elaborations on EU-SILC 2005 data

Tab. 9: Females aged 35-49. Heckman selection model[1]. Estimated coefficients of the interaction between parental and offspring occupation (omitted variable "white-collar with parents at most white-collars").

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Manager/Manager	0.300***	0.423***	0.566***	0.439***	0.517***	0.698***	0.089	0.490***
White-collar/Manager	0.172**	0.276***	0.331***	0.164***	0.513***	0.571***	0.223***	0.389***
Blue-collar/Manager	0.274***	0.242***	0.296***	0.217***	0.383***	0.366***	0.246**	0.394***
Manager/White-collar	0.000	-0.082*	0.006	-0.009	0.061	0.064	0.034	0.010
Blue-collar/White-collar	-0.048	-0.072**	-0.102***	-0.052*	-0.050	-0.084	-0.164**	-0.014
Manager/Blue-collar	-1.042***	-0.460**	0.159	-0.474***	0.041	-0.222	-0.159	-0.335*
White-collar/Blue-collar	-0.698***	-0.302***	-0.463***	-0.223***	-0.423***	-0.591***	-0.519**	-0.140
Blue-collar/Blue-collar	-0.529***	-0.286***	-0.449***	-0.302***	-0.322***	-0.300***	-0.318***	-0.151**
Manager/Manager ≠ White-collar/Manager	no	*	**	***	no	no	no	no
White-collar/Manager ≠ Blue-collar/Manager	no	no	no	no	*	**	no	no
Manager/Manager ≠ Blue-collar/Manager	no	**	***	*	no	***	no	no
Manager/White-collar ≠ Blue-collar/White-collar	no	no	no	no	**	no	***	no
Manager/Blue-collar ≠ White-collar/Blue-collar	*	no	***	no	**	no	no	no
White-collar/Blue-collar ≠ Blue-collar/Blue-collar	no	no	no	no	no	*	no	no
Manager/Blue-collar ≠ Blue-collar/Blue-collar	**	no	***	no	*	no	no	no
Number of observations	*4,354*	*2,643*	*4,122*	*5,569*	*2,310*	*1,346*	*905*	*1,342*

[1]Control variables of the second stage (on log yearly labour incomes) are age, age squared, potential experience, immigrant status, dummies on marital status, part-time, educational attainments (two dummies identifying individuals with, respectively, an upper secondary and a tertiary degree) and a dummy if living in an urban area and income from self-employment is larger than income from employment. In the selection equation, the following variables are added: the number of sons or daughters younger than 13, three dummies identifying, respectively, if in the household there is a son/daughter younger than 4, aged between 4 and 6 or aged between 7 and 12, and a variable recording the number of hours of care per son provided by people or entities different from parents.

* p<0.10; ** p<0.05; *** p<0.01

Source: elaborations on EU-SILC 2005 data

Tab. 10: *"Large cohort model"*. Estimated coefficients of the interaction between parental and offspring occupation (omitted variable "white-collar with parents at most white-collars"). OLS on logs of yearly gross labour income (net for Italy and Spain)[1]. Individuals aged 30-54.

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Manager/Manager	0.332***	0.381***	0.424***	0.379***	0.496***	0.375***	0.187***	0.348***
White-collar/Manager	0.232***	0.367***	0.315***	0.254***	0.445***	0.397***	0.141**	0.413***
Blue-collar/Manager	0.286***	0.361***	0.257***	0.158***	0.337***	0.325***	0.202***	0.372***
Manager/White-collar	-0.027	-0.017	-0.005	0.057	0.069*	0.163*	0.038	-0.002
Blue-collar/White-collar	-0.045	-0.024	-0.116***	-0.029	-0.080**	0.021	-0.070*	0.022
Manager/Blue-collar	-0.639***	-0.428***	-0.247***	-0.236**	-0.058	-0.012	-0.441***	-0.057
White-collar/Blue-collar	-0.422***	-0.225***	-0.275***	-0.153***	-0.163***	-0.152**	-0.254***	-0.107**
Blue-collar/Blue-collar	-0.327***	-0.231***	-0.291***	-0.243***	-0.132***	-0.125*	-0.281***	-0.118***
Manager/Manager ≠ White-collar/Manager	**	no	***	**	no	no	no	no
White-collar/Manager ≠ Blue-collar/Manager	no	no	no	**	***	no	no	no
Manager/Manager ≠ Blue-collar/Manager	no	no	***	***	***	no	no	no
Manager/White-collar ≠ Blue-collar/White-collar	no	no	**	**	***	no	**	no
Manager/Blue-collar ≠ White-collar/Blue-collar	*	**	no	no	*	no	no	no
White-collar/Blue-collar ≠ Blue-collar/Blue-collar	*	no	no	***	no	no	no	no
Manager/Blue-collar ≠ Blue-collar/Blue-collar	***	**	no	no	no	no	no	no
Number of observations	*8,649*	*6,343*	*9,090*	*13,920*	*5,206*	*2,436*	*2,537*	*3,970*

[1]Control variables are age, age squared, potential experience, gender, immigrant status, dummies on marital status, part-time, educational attainments (two dummies identifying individuals with, respectively, an upper secondary and a tertiary degree) and a dummy if living in an urban area and income from self-employment is larger than income from employment. * p<0.10; ** p<0.05; *** p<0.01
Source: elaborations on EU-SILC 2005 data

Tab. 11: *"Full background model"*. Estimated coefficients of the interaction between parental and offspring occupation (omitted variable "white-collar with parents at most white-collars"). OLS on logs of yearly gross labour income (net for Italy and Spain)[1]. Individuals aged 35-49.

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Parents with at most an upper secondary degree	0.014	0.033	-0.012	0.095***	0.053*	-0.011	0.011	0.074**
Parents with a tertiary degree	-0.048	-0.017	0.102***	0.015	0.002	-0.114	-0.145**	-0.012
Financial problems when young	n.a.	n.a.	-0.031	-0.092***	-0.062**	-0.100	0.008	-0.040
Manager/Manager	0.419***	0.430***	0.340***	0.433***	0.492***	0.497***	0.241***	0.431***
White-collar/Manager	0.228***	0.360***	0.325***	0.254***	0.447***	0.394***	0.143**	0.392***
Blue-collar/Manager	0.242***	0.374***	0.272***	0.172***	0.326***	0.333***	0.198***	0.369***
Manager/White-collar	0.027	-0.027	-0.156**	-0.006	0.066	0.116	0.084	0.051
Blue-collar/White-collar	-0.013	-0.020	-0.078***	0.006	-0.075*	-0.094	-0.108**	0.032
Manager/Blue-collar	-0.616***	-0.434***	-0.203***	-0.393***	-0.147*	-0.138	-0.581**	-0.199
White-collar/Blue-collar	-0.394***	-0.234***	-0.330***	-0.165***	-0.278***	-0.195**	-0.358***	-0.155**
Blue-collar/Blue-collar	-0.299***	-0.231***	-0.294***	-0.224***	-0.244***	-0.095	-0.266***	-0.045
Manager/Manager ≠ White-collar/Manager	***	no	no	***	no	no	no	no
White-collar/Manager ≠ Blue-collar/Manager	no	no	no	no	**	no	no	no
Manager/Manager ≠ Blue-collar/Manager	***	no	no	***	**	no	no	no
Manager/White-collar ≠ Blue-collar/White-collar	no	no	no	no	***	*	***	no
Manager/Blue-collar ≠ White-collar/Blue-collar	**	no	no	*	*	no	no	no
White-collar/Blue-collar ≠ Blue-collar/Blue-collar	*	no	no	*	no	no	no	no
Manager/Blue-collar ≠ Blue-collar/Blue-collar	***	no	no	no	no	no	no	no
Number of observations	*6,094*	*3,918*	*5,760*	*8,779*	*3,278*	*1,603*	*1,615*	*2,438*

[1]Control variables are age, age squared, potential experience, gender, immigrant status, dummies on marital status, part-time, educational attainments (two dummies identifying individuals with, respectively, an upper secondary and a tertiary degree) and a dummy if living in an urban area and income from self-employment is larger than income from employment. Among regressors are also included: dummies on parental education and a dummy if the individuals when young lived in a family facing financial problems often or most of the time (this information is not available in Germany and France). * p<0.10; ** p<0.05; *** p<0.01

Source: elaborations on EU-SILC 2005 data

Tab. 12: *"Annual wage model"*. Estimated coefficients of the interaction between parental and offspring occupation (omitted variable "white-collar with parents at most white-collars"). OLS on logs of yearly gross income from employment (net for Italy and Spain)[1]. Individuals aged 35-49.

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Manager/Manager	0.385***	0.413***	0.430***	0.300***	0.499***	0.460***	0.171**	0.415***
White-collar/Manager	0.251***	0.360***	0.352***	0.198***	0.456***	0.337***	0.214***	0.415***
Blue-collar/Manager	0.332***	0.363***	0.247***	0.092	0.316***	0.352***	0.184**	0.372***
Manager/White-collar	0.048	-0.020	-0.043	-0.033	0.038	0.013	0.065	0.054
Blue-collar/White-collar	0.019	-0.033	-0.085***	-0.040**	-0.093**	-0.064	-0.091*	0.048
Manager/Blue-collar	-0.636***	-0.430***	-0.219***	-0.222	-0.136	0.147	-0.593*	-0.188
White-collar/Blue-collar	-0.374***	-0.234***	-0.353***	-0.213***	-0.233***	-0.285***	-0.345***	-0.135*
Blue-collar/Blue-collar	-0.328***	-0.248***	-0.294***	-0.281***	-0.229***	-0.104	-0.251***	-0.094
Manager/Manager ≠ White-collar/Manager	***	no	no	no	no	no	no	no
White-collar/Manager ≠ Blue-collar/Manager	no	no	**	no	***	no	no	no
Manager/Manager ≠ Blue-collar/Manager	no	no	***	***	***	no	no	no
Manager/White-collar ≠ Blue-collar/White-collar	no	no	no	no	***	no	***	no
Manager/Blue-collar ≠ White-collar/Blue-collar	**	no	*	no	no	***	no	no
White-collar/Blue-collar ≠ Blue-collar/Blue-collar	no	no	no	*	no	*	no	no
Manager/Blue-collar ≠ Blue-collar/Blue-collar	***	no	no	no	no	**	no	no
Number of observations	*5,300*	*3,868*	*4,891*	*6,117*	*2,883*	*1,292*	*1,421*	*1,771*

[1]Control variables are age, age squared, potential experience, gender, immigrant status, dummies on marital status, part-time, educational attainments (two dummies identifying individuals with, respectively, an upper secondary and a tertiary degree) and if living in an urban area. People receiving also incomes from self-employment are excluded from the sample. * p<0.10; ** p<0.05; *** p<0.01

Source: elaborations on EU-SILC 2005 data

Tab. 13: *"Hourly wage model"*. Estimated coefficients of the interaction between parental and offspring occupation (omitted variable "white-collar with parents at most white-collars"). OLS on logs of hourly gross wage (net for Italy and Spain)[1]. Individuals aged 35-49.

	Germany	France	Spain	Italy	United Kingdom	Ireland	Denmark	Finland
Manager/Manager	0.283***	0.297***	0.401***	0.256***	0.390***	0.590***	0.124***	0.371***
White-collar/Manager	0.221***	0.271***	0.392***	0.234***	0.329***	0.369***	0.162***	0.335***
Blue-collar/Manager	0.258***	0.270***	0.285***	0.163***	0.192***	0.365***	0.159***	0.288***
Manager/White-collar	-0.027	-0.008	0.042	0.042	0.058	0.151*	-0.027	0.065
Blue-collar/White-collar	0.057***	-0.030	-0.020	-0.010	-0.105***	0.044	-0.046*	0.025
Manager/Blue-collar	-0.276***	-0.067	-0.086	-0.093*	-0.121**	0.182***	-0.169***	-0.061
White-collar/Blue-collar	-0.210***	-0.155***	-0.122***	-0.150***	-0.232***	-0.007	-0.195***	-0.054
Blue-collar/Blue-collar	-0.173***	-0.165***	-0.149***	-0.191***	-0.216***	0.024	-0.196***	-0.009
Manager/Manager ≠ White-collar/Manager	*	no	no	no	no	**	no	no
White-collar/Manager ≠ Blue-collar/Manager	no	no	***	no	***	no	no	no
Manager/Manager ≠ Blue-collar/Manager	no	no	***	*	***	**	no	*
Manager/White-collar ≠ Blue-collar/White-collar	**	no	no	no	***	no	no	no
Manager/Blue-collar ≠ White-collar/Blue-collar	no	no	no	no	*	***	no	no
White-collar/Blue-collar ≠ Blue-collar/Blue-collar	no	no	no	no	no	no	no	no
Manager/Blue-collar ≠ Blue-collar/Blue-collar	*	*	no	**	*	**	no	no
Number of observations	*4,499*	*3,522*	*4,341*	*5,575*	*2,641*	*1,130*	*1,323*	*1,630*

[1]Control variables are age, age squared, potential experience, gender, immigrant status, dummies on marital status, part-time, educational attainments (two dummies identifying individuals with, respectively, an upper secondary and a tertiary degree) and if living in an urban area. People working weekly less than 15 hours, or earning less than 1 euro per hour, or receiving also incomes from self-employment are excluded from the sample.

* p<0.10; ** p<0.05; *** p<0.01

Source: elaborations on EU-SILC 2005 data