UNDERSTANDING INTERGENERATIONAL TRANSMISSION OF POVERTY IN SPAIN: EDUCATION AND MARITAL SORTING

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ABSTRACT

This paper contributes to the literature on the determinants of intergenerational transmission of poverty (ITP) in Spain by exploring how this phenomenon is shaped by education and marital homogamy. To that aim a set of univariate, bivariate and trivariate ordered probit models are estimated on a sample of Spanish-born partnered individuals from the module on *intergenerational transmission of disadvantages* in the Spanish Survey on Living Conditions 2011. We split the sample in two age groups (below and above 45 year-olds). Our results show that (a) the ITP is more intensive amongst under 45 year-olds despite the higher educational mobility they have experienced, probably because many of them are in the early stages of their careers; (b) in the younger group homogamy has a more relevant impact on the transmission of social disadvantage than in the elder one; (c) the dependence of the economic strains in the parental household is more "genuine" in the elder age group.

Keywords: Intergenerational transmission of poverty, European Union Statistics on Income and Living Conditions, Spain, marital homogamy, educational expansion, trivariate ordered probit models.

1. Introduction

The study of the transmission of income and social class across generations has widely shown that people tend to live in similar economic conditions than their parents. This phenomenon has been widely analysed across several disciplines: economists study correlation in income levels across generations while sociologists tend to look at similarities between parents and offspring education attainment and occupation; the latter being a proxy for social class (for a survey, see Breen & Jonsson, 2005). Moreover, similarities across parents and their offspring's socio-economic status are particularly strong at the extremes of the distribution of whatever outcome variable is analysed, with upward mobility being particularly difficult for those at the bottom.

Within the vast evidence on intergenerational transmission of income, the one on mobility from or persistence in the lowest part of the income distribution is rather scarce, Whelan et al. (2013) being one of the few examples we have come across. The present piece of work aims to provide evidence on the intergenerational transmission of poverty (hereinafter, ITP), namely, the larger risk of poverty amongst adults who were risen in poor households. We intend to contribute to this strand of literature by simultaneously addressing two well-known "channels of transmission" of income and disadvantages - education and marital sorting.

The first "transmission channel", education, is the most relevant and explored one: if economically or socially deprived parents encounter difficulties to invest on their offspring's education, the latter are more likely to experience economic disadvantage in the future. This calls for public action to support low-income households' investments on education to enhance socio-economic mobility in the next generations. But the second one, marital sorting, is totally different: if individuals from low-income families marry within the same social or economic stratum, the household they create will be likely to suffer deprivation. . The intergenerational transmission of advantage and disadvantage marital sorting contributes to may not (and should not) be prevented *ex ante* with public policies. Instead it might be but rather palliated *ex post* via progressive fiscal systems and strong redistributive measures.

In order to disentangle the relevance of both transmission channels we analyse two subsamples taken from the Survey on Living Conditions (*Encuesta de Condiciones de Vida*, ECV), *ie*, the Spanish component of the EU-SILC (European Statistics on Income and Living Conditions) and its 2011 *module on intergenerational transmission of disadvantages*. Our empirical

strategy consists on a set of univariate, bivariate and trivariate ordered probits to estimate the impact of economic strains at the parental household on the likelihood of being affected by economic strains during adult life. Our empirical strategy takes into account (a) the relationship between being risen in a low-income family and educational attainment and (b) economic strains experienced in the parental household are driven/explained by a whole set of parental and household features.

In the search for patterns in the evolution of the intergenerational transmission of income along the life-cycle we follow a similar strategy than the one in Cervini-Plá (2013), where intergenerational income elasticity is explored in Spain across two large age groups, 30-39 and 40-49 year-olds. The author presents differences across age groups as potential indicators of changes across cohorts and trends towards an increasing social mobility in Spain but she is also aware that those in the young cohort today may follow in the future similar behaviour than their elder counterparts experience today. The same cautionary note is applicable to our interpretation of differences across age-groups in this paper: we have split the sample in two age groups (30-44 and 45-59) to capture potential changes in the intergenerational transmission of poverty/deprivation along the lifecycle, potentially due to the accumulated experience in the labour market and the evolution of the institutional set-up. The dividing threshold between both age-groups is around the age at which intergenerational income elasticity reaches its average value throughout the life-cycle (Cervini-Plá, 2015). Moreover, the chosen age-groups allow to distinguish between individuals who studied under two different educational systems, which is relevant for the formulation of hypotheses.

Our results show higher educational mobility in the younger subsample which does not result (yet) in higher upward intergenerational economic mobility, though. We also find a more prominent role of marital homogamy in the transmission of disadvantages in the younger subsample as a result of a more equal contribution of both partners to the household budget, despite there are more similarities across partners' observable features different from income in the elder group. Finally, the dependence of the economic strains in the parental household is more "genuine" in the elder age group; for them, unobserved heterogeneity plays a more relevant role in the ITP process and there is a more persistent impact of severe deprivation after observed and unobserved heterogeneity is addressed.

The paper goes as follows: the next section surveys the literature on intergenerational transmission of income (and, therefore, poverty), with special attention to comparisons across

age groups and birth-cohorts, education mobility and the role of marital sorting on the transmission of intergenerational (dis-)advantage across generations. In Section 3 we briefly describe the data-set; in Section 4 the two subsamples are portrayed. The empirical strategy is explained in Section 5; the relevant results are discussed in Section 6 and Section 7 concludes.

2. The intergenerational transmission of income, poverty and disadvantages

The ITP is part of a broader phenomenon, namely, the intergenerational transmission of income. The most well-known mechanism behind these processes, stemming from an Economics of the Family approach (Becker & Tomes, 1979; 1986) consists on parental investment on their children's education, especially in the presence of borrowing constraints and budget restrictions. The environment where parents raise their children[1] may reinforce the effect of the human capital investment itself (see the overarching framework in Haveman & Wolfe, 1995). Additional transmission mechanisms are health status, individual behaviour, relational capital and social networks (Franzini & Raitano, 2009). Moreover, several inheritable features contribute to the transmission of economic and social outcomes like values and preferences (Black & Devereux, 2011), non-cognitive ("soft") skills (Bowles & Gintis, 2002), occupations (Long & Ferrie, 2013) and even employers (Corak & Piraino, 2011). Many of the abovementioned drivers of intergenerational transmission of income are unobserved by researchers but related to the standard of living and the resources they can provide their offspring with. Inasmuch they condition offspring's educational achievement, they contribute to the transmission of social class across generations. Educational mobility driven by public investments on education will weaken this "channel of transmission" of income (poverty).

Finally, the values and preferences children receive from parents may also influence future decisions - different from educational and occupational choices - that will considerably affect their standard of living: one very important example yields in the partners they choose.

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[1] Defined by neighbourhoods, which condition the quality of the schools they attend, their school peers and friends and their contact with culture and knowledge, among other things.

2.1 Education and the ITP

The study of the education attainment as a driver for the transmission of income across generations mostly consists on the estimation of offspring's personal income as a function of parental income or some indicator of socio-economic background. If the relevant coefficients lose significance in the presence of offspring's education attainment and/or occupation, this means that the family background affects the offspring's income via parental educational investments made by parents on them (Raitano, 2009). International comparisons contribute to the identification of differences across countries in the role of education on the transmission of income, which are argued to be due to institutional features summarised in welfare regimes (for an example, see Esping-Andersen & Wagner, 2012). This strand of literature, later enriched in Raitano & Vona (2015a); Raitano & Vona (2015b) and Raitano (2015), find a high level of social mobility – i.e., no significant impact of family background even before offspring's education attainment is controlled for – in Nordic countries, while in Central Continental European countries the transmission of income is fully explained by parental investments on their offspring's human capital. The lowest income/social mobility is observed in Liberal/Anglo-Saxon and Southern/Mediterranean countries, where the effect of parental background persists in the presence of the intervening mechanisms. . In the latter, family ties are very important in all spheres of life, including the labour market, and societies tend to be less meritocratic than others across Europe (Raitano, 2009); as a result, a higher share of jobs are filled through social referrals (Cervini-Plá, 2015). Additional cultural and societal factors, such as later emancipation and stronger intergenerational correlation across occupations may explain the more pronounced persistence of income across generations in Mediterranean countries (Cervini-Plá, 2013).

Comparative analyses usually classify the Spanish society as rather immobile, in line with other Southern/Mediterranean countries. Still, Cervini-Plá (2015) finds similar levels of intergenerational mobility in Spain and France, which are greater than in Italy and the US. Moreover, although Spain shares many societal features with other Mediterranean countries, it has also experienced relevant changes in the last decades which may have influenced the transmission of income across generations: during the 70s a new education system (under the 1970 *Ley General de Educación*) was implemented, which was characterised by a later tracking[2]

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[2] Under the 1970 Education Law primary (compulsory) education was extended two years, up to the age of 14, when students split into academic secondary education (*Bachillerato Unificado Polivalente*), which led to Higher Education or occupationally oriented initial vocational training (*Formación Profesional*).

than the previous one. This should lead to a lower social stratification of the education system as early tracking in the education system tends to favour children from well-off families and contributes to a lower levels of social mobility and to marital sorting in adult life (Ermish et al., 2006; Pekkala & Lucas, 2007). Moreover, during the 80s and 90s a considerable financial effort was made to expand secondary education and to develop the Higher Education System in Spain that boosted educational mobility (for a description of the educational expansion, see Béduwé & Planas, 2015).

Educational mobility lead by educational expansion tends to improve with time in all countries. As a result, individuals from recent birth cohorts are expected to be more socially mobile than their predecessors. Research on the evolution of transmission of income across birth cohorts has been particularly well developed in Scandinavian countries, where long-term, fiscal registers are available, providing information for two – or more - subsequent generations of the same family along a long period of time (see Sirniö et al. (2016), for an example of this type of analyses). The evidence for these countries has challenged the hypothesis of less intensive transmission of income in more recent cohorts, because:

a. When there is more access to free education, the transmission of advantages (or disadvantages) will not respond so much to economic resources. Instead, other mechanisms different from education that channel economic inequality - inheritance of soft skills and certain abilities and social networks, among many others - may still operate and explain the relatively stable levels of intergenerational transmission of inequalities (Wiborg & Hansen (2009); Nybom & Stuhler (2013)). Additionally, there may always be particularly deprived families (the so-called *under-class*) where children cope with extreme difficulties to experience upper mobility.

b. In a context of educational expansion, educational attainment may become more relevant to reduce the risk of downward mobility than to increase the chances of upward mobility (Pekkala & Lucas, 2007). But, at the same time, credentials inflation may reduce the ability of higher education to ensure good educational outcomes while poor education outcomes become more scarring, so that poorly educated individuals register in fact a higher relative risk of poverty than those in previous cohorts. The educational expansion and the upgrading of the occupational structure increase the standards to get a decent position in the labour market, squeezing the

employment opportunities for school drop-outs, who will face more severe difficulties relative to their counterparts in previous cohorts.

c. If societies become more unequal because of fiscal reforms or labour market liberalization/flexibilization processes, more recent cohorts may be as a consequence more exposed to intergenerational persistence of income than before (Sirnïo et al., 2016). This would be consistent with the so-called Great Gatsby curve (concept labelled by Alan Krueger and further developed by Miles Corak), which shows the more unequal societies are, the more intensive the intergenerational transmission of income is.

2.2 Marital sorting and the ITP

Marital sorting may contribute to the intergenerational transmission of income and disadvantage. Evidence on marital sorting may be easily obtained by comparing the coefficient (or AME, in the context of non-linear models) for the interviewee's parental income with the one for her/her in-law's income; the more similar they are as predictors of the interviewee's labour earnings, the more relevant is as a mechanism for transmission of social disadvantage. This strategy was proposed in Chadwick & Solon (2002) studying the US and Ermish et al. (2006) for the UK and Germany. Lately, Cervini-Plá & Ramos (2013) deploy it to study the Spanish case. All these pieces of work expect later tracking in the education system to be related with a lower level of social stratification in educational outcomes, which should result in a milder role of marital sorting as individuals may well marry their equals in education attainment, but not necessarily in social class. Still, they find that marital sorting is equally relevant across different age groups.

2.3 Spain

Evidence for the intergenerational transmission of income in Spain can be found in comparative pieces of work (Raitano et al. (2013); Jerrim (2015); Palomino et al. (2016)) and in a limited number of works analysing only Spanish data-sets (Cervini-Plá (2013; 2015); Cervini-Plá & Ramos, 2013). Recently, some evidence on the transmission of poverty has been developed: Cueto et al. (2015), and, more recently, Flores Martos (2016)).

The pioneering pieces of research analysing Spain focused on class mobility (Carabaña, 1999; Pascual, 1999; Marqués Perales & Herrera-Usagre, 2010); others study educational mobility/persistence (Gil Izquierdo et al., 2010, Moreno Mínguez, 2011). Persistence in income level is studied in Sánchez-Hugalde (2004), where elasticities of co-residing parents and children are studied in the early years of the 1980s and the 1990s. Studies by Cervini-Plá (2013; 2015) and Cervini-Plá & Ramos (2013) capture mobility in the mid 2000s *via* a two – sample two-stage least square estimator by combining information from the 2005 Survey on Living Conditions and 1980/81 Family Expenditure Survey. In Cervini-Plá (2013) the author finds that the main causes/component for income elasticity in Spain is the correlation across occupations in parents and children and that income mobility is lower in the extremes of the distribution. In a related paper (Cervini-Plá and Ramos, 2013) marital sorting is also found to be also a relevant vehicle for the transmission of income. Recently, occupational mobility has been addressed in Caparrós (2016).

The persistence in the lowest part of the income distribution, the ITP, has been analysed in Cueto et al. (2015) and Flores Martos (2016). The former adopts an evaluation approach to capture the differential poverty risk amongst those adults who experienced poverty in their parental home. The use of *propensity score matching* allows the authors to find a significant different risk of poverty which goes beyond the one explained by observable features in the parental household. Finally, Flores Martos (2016) constitutes a deep analysis of the causes and long-term consequences of child poverty and the social context in which poverty is transmitted across generations in Spain.

3. The EU-SILC 2011 module on *intergenerational transmission of disadvantages*

The data-set deployed in this piece of research is the Survey on Living Conditions (ECV, *Encuesta de Condiciones de Vida*), the Spanish component of the *European Statistics on Income and Living Conditions* (EU-SILC). It is a household survey designed for the study of economic well-being of families, launched annually in the European Union and the European Economic Area. The questionnaire has a large core set of questions and a final year-specific *ad hoc* module. In the EU-SILC *ad hoc* module in 2011 (and its predecessor in 2005), on *intergenerational transmission of disadvantages*, interviewees aged 25 to 59 years were asked about their parents' socio-economic characteristics (education, nationality, labour market status, occupation) as well as the living conditions in the households when they were around

14 years old. The 2011 module has been already analysed in Jerrim (2015) and Raitano (2015), among others.

The EU-SILC *ad hoc* modules on *intergenerational transmission of disadvantages* design as several good features, described in Jenkins & Siedler (2007): it captures information on well-being in the two generations involved, on potential drivers of the transmission of income process and on features of the family of origin different from parental income which may also contribute to our understanding of the "channels of transmission" of income and disadvantage. This does not come without limitations, though: being a retrospective approach to the study of intergenerational mobility they also face a severe recall bias, which could be deeper the elder the interviewee is (for an evaluation of biases in retrospective information addressing intergenerational transmission of income, see Song & Mare (2015)). In addition, there is a potential problem of representativeness in the information from parents (Jenkins & Siedler, 2007), which Eurostat deals with by designing a special weighting factor, here deployed. Moreover, the module is not provided with information on income in the parental household, hindering the estimation of income elasticities across generations. Instead, it includes questions on the economic strains in the parental household, which act as proxies for permanent income. We take one of them[3], "financial situation of the household", with values ranking from 1 ("very bad") to 6 ("very good") and recode them into "bad" (very bad or bad), "moderately bad", "moderately good" and "good" (good and very good).

Our main dependent variable captures economic strains at the moment of the interview[4], measured as intensity in material deprivation. We avoid the use of the monetary poverty as a measure of economic disadvantages in the offspring generation in order to analyse a parallel/equivalent measure of economic well-being in their parents' generation[5]. We compute this variable by adding up the items deployed by Eurostat to compute material deprivation in the Europe 2020 indicators[6] and classify respondents households' material

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[3] An alternative variable, deployed in Raitano (2015) is "difficulties to make ends meet experienced in the parental household when the interviewee was around 14 years old". In our opinion, this measure can be very affected by a subjectivity bias, as it is quite difficult for a 14 years-old child to know to which extent their parents can make ends meet.

[4] Alternatively, we might have studied current difficulties to make ends meet but, alike the case of the difficulties to makes end meet in the parental household, we think this measure is very much affected by subjectivity bias.

[5] Being an absolute indicator, it will not be affected by the distribution of the outcome variable, unlike a monetary poverty indicator would do.

[6] Namely, in the household questionnaire the following problems / lacking items are identified/detected: The household cannot afford to take at least one week of holidays away from home per year; The household cannot afford a meal with meat, chicken or fish at least every other day; The household cannot afford to keep the dwelling at an adequate temperature; The household cannot handle unforeseen expenses; The household has

quality of life as not deprived at all (zero lacking items/problems reported), somehow deprived (one item/type o strain reported), deprived (two) and severely deprived (three or more). Both variables referring to economic strains in the parental and at the present household are described in Table 1.

-------------------------------- Table 1 about here --------------------------------

The experience of economic difficulties in the parental household varies widely across age-groups: one third of respondents in the 30-44 age group report a good financial situation in the parental household when they were around 14 years old, compared to 23% of their elder counterparts; at the opposite extreme, the share of those in bad economic situations is 9.3% in the younger group compared to 15.7% amongst the elder interviewees. The distribution of material deprivation in the moment of the interview is much more similar across age groups, though: about 60% of interviewees report no material deprivation, and around 7% report severe deprivation (*i.e.*, three or more problems / lacking items reported). This means that, contrary to what could be our initial intuition, there is a higher level of social/economic mobility in the elder age group than in the younger one. This is confirmed by the Cramer's V expressing correlation between material deprivation in the parental household and at the moment of the interview.

The current risk of material deprivation is considerably higher amongst interviewees who reported a bad financial situation of the parental household and the difference between age groups is mostly noticed at the end of the distributions: in the 30-44 age group, having experienced moderately bad or bad economic financial situation in the parental household increases the risk of severe material deprivation much more than in the 45-59 age group. This also points at lower economic mobility amongst the young subsample, as economic strains at the parental household do "scar" significantly more their material quality of life. They may have had less time to "get over" poverty at the parental household as many of them are observed at the beginning of their employment careers. In addition, the three potential explanations raised in Section 1 may operate (a) non-economic parental features are driving transmission of inequality – this would be the case if the interviewees education attainment is less dependent from parental income; (b) there is a more severe penalization of low education attainment in the younger subsample; (c) the younger group faces an increasingly competitive

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had late payments when paying expenses related to the main dwelling (mortgage or rent, gas bills, community costs, etc.) in the last 12 months; The household cannot afford a car, a washing machine, a colour TV, or a telephone (either fixed landline or mobile).

and flexible labour market, defined but a larger degree of inequality and (d) those in the younger age group may choose partners who are more their alike as regards their family origin. We will explore these alternative explanations through the multivariate analysis developed in Sections 5 and 6.

4. Description of the sample

The sample under study is made up by 30 to 59-aged adults, both males and females, living independently from their parents[7] and not living in collective households, who in the EU-SILC 2011 module provide information on the financial situation of their household when they were around 14 years old, out of which we construct the main explanatory variable of our multivariate analysis.

The size of the 2011 *ad hoc* module whole original sample (25-59 year-old Spanish residents not living in collective households) is 16,858. We only keep observations from individuals who are born in Spain (14,947) because we want to describe the evolution of social mobility in the Spanish society; otherwise results might be blurred by unobserved institutional features in other countries. We drop observations from 25-29 year-old respondents because two thirds of them (65.2%) are live at parental home at the moment of the interview. This leaves us with 12,260 observations. We keep observations with valid answers to the question on economic strains at the parental household (5,481 30-44 year-olds and 6,752 45-59 year-olds). Finally, we only keep observations of adults living in couple in order to simultaneously address the role of human capital investments and homogamy/marital sorting (4,462 and 5,520, respectively). After dropping observations with missing information on relevant individual or household-level explanatory variables in the multivariate models, the remaining sample has 9,904 observations (4,429 in the 30-44 year-olds subsample and 5,475 in the 45-59 year-olds subsample).

Table 2 displays the distribution of interviewee's educational attainment according to their parents' highest level of education. Similarly, although the table is not displayed for space reasons, the cross-tabulation of the distribution of the interviewee's occupation and his/her parents' is also summarised with the obtained Cramer's V.

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[7] Unless they are responsible for the accommodation, in which case we understand that their parents have moved in with their children; otherwise we would assume that the adult children have not left the parental home.

-------------------------------- Table 2 about here --------------------------------

The intergenerational correlation across education and occupation is slightly more pronounced in the elder group, although differences across age groups are probably not very significant (Table 2). Interestingly, the degree of educational mobility reported in Table 2 is higher than the one on economic strains in both age groups (Table 1). Therefore, together with educational (lack of) mobility, other mechanisms explain the persistence of disadvantage so that many adults in the younger sample have a higher educational attainment than their parents but do not achieve as a result a better economic situation. This trend is consistent with the evidence found, also from transition matrices, in Cervini-Plá (2013).

-------------------------------- Table 3 about here --------------------------------

In order to capture marital homogamy we have observed the correlation between several indicators across partners (Table 3): the economic situation at the parental households when they were around 14 years old, interviewee's education attainment, labour force status, occupation – if employed – and personal income and wages. A higher level of correlation across partners is found in the elder subsample for all variables indicating socio-economic background and outcomes, but a more balanced contribution of both partners to the family budget is found in the younger one.

5. Multivariate strategy: multivariate ordered recursive probit models

The basic specification for this model may be described as follows: we set three equations[8], each one addressed at one (ordered) dependent variable, which may refer to the situation at the moment of the interview (t=1) or may retrospectively refer to the situation at the parental home, when the interviewee was around 14 years-old (t=0). There are two age-groups, from 30 to 44 (i=1) and from 45 to 59 (i=2):

$$p^{*}_{i,1} = x'_{1i}\beta_{1i} + p_{i,0}\delta_{1i} + e_{i,0}\gamma_{1i} + p^{p}_{i,0}\alpha_{1i} + e^{p}_{i,0}\vartheta_{1i} + u_{i,1} \quad (1)$$

$$e^{*}_{i,0} = w'_{0i}\beta_{2i} + p_{i,0}\delta_{2i} + \mu_{i,0} \quad (2)$$

$$p^{*}_{i,0} = z'_{0i}\beta_{3i} + \varepsilon_{i,0} \quad (3)$$

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[8] The specification of our recursive trivariate probit model has been inspired by the model in Ayllón (2015), where the author describes the interconnectedness between poverty status, emancipation from parental home and employment in young people from different European Union countries.

where $p^{*}_{i,1}$, $e^{*}_{i,1}$ and $p^{*}_{i,0}$ are the latent probability functions. $p_{1,i}$ refers to the economic constrains lived in adult life (t = 1), ranging from 0 (non-materially deprived) to 3 (severe material deprivation, *i.e.*, 3 or more missing items). It is explained by a set of explanatory variables including the economic strains in the parental family ($p_{i,0}$) and the level of education attainment ($e_{i,0}$). Ordered probit models are used to estimate the odds of falling into each value from a set of explanatory variables (see Greene and Henser (2010) for an extensive development of these types of models). In a first step we estimate (1) taking family background and education attainment as exogenous regressors, in a single ordered probit model. In a second step we take into account that education attainment depends on family background. This is expressed in (2): education attainment - ranging from 0 (primary or less) to 3 (tertiary) - depends on a set of variables dated in the interviewee's adolescence, including the economic strains experienced in the parental household and parental education attainment. So, in a second step, we estimate (1) and (2) at a time in a bivariate ordered probit model.

Finally, we also want to take into account that economic strains in the parental household may be as well predicted by several features that also explain the interviewee's economic outcomes when reaching adult age and that it is possible to model them as a way to control, in a certain sense, for initial conditions. Since some of the mechanisms explaining the transmission of disadvantage are unobserved, we may expect the unobservable factors behind the economic strains in the parental and the interviewees' household to be correlated. We take this into account by performing a trivariate ordered probit model where equations (1), (2) and (3) are simultaneously estimated.

In addition, $(x_{1,i}, w_{0,i}$ and $z_{0,i})$ are independent variable vectors assumed to be exogenous, with the error terms $(u_{i,1}, \mu_{i,0}$ and $\varepsilon_{i,0})$ following a standard normal distribution with 0 mean and unit variance. The dependency across the unobservables in the three equations is taken into account by modelling the joint distribution for the errors $(u_{i,1}, \mu_{i,0}$ and $\varepsilon_{i,0})$, which will be characterised by following the piecewise correlation terms:

$$\rho_{p1e0} = cov\left(u_{i,1}, \mu_{i,0}\right) \quad (4)$$

$$\rho_{p1p0} = cov\left(u_{i,1}, \varepsilon_{i,0}\right) \quad (5)$$

$$\rho_{e0p0} = cov\left(\mu_{i,0}, \varepsilon_{i,0}\right) \quad (6)$$

In the bivariate ordered probit model only (4) is obtained, while the whole set of correlations ((4), (5) and (6)) are obtained from the trivariate specification. If significant, the unobserved variables explaining the two dependent variables of interest are correlated, with unobserved features affecting both outcomes. The estimations are performed with the user-written Stata command "cmp" (Roodman, 2011).

One of the most relevant explanatory variables in the current material deprivation model (1) is the interviewee's education attainment ($e_{0,i}$), for which we expect to find very significant (set of) coefficients[9] ($\gamma_{1i} \neq 0$). Amongst the set of explanatory variables in the current material deprivation model (1) and in the education attainment model (2) we are particularly interested in the coefficients for the categorical variable reflecting economic strains in the parental home (δ_{1i} and δ_{2i}). We want to test whether they are significant (in which case, ITP processes hold beyond the observed channels of transmission) and whether their values differ across age groups (this would be different levels of intensity in the ITP process across age groups).

We may at this point formulate our hypotheses on the differences in the ITP across age-groups in Spain. Individuals in our young subsample have entered the labour market in a more meritocratic society than their elder counterparts. They have studied in a less stratified system, with a later tracking and they have benefitted from more equality of opportunities due to the educational expansion. As a result, material deprivation towards in the younger subsample should be more dependent on their own interviewee's education attainment ($|\gamma_{11}| > |\gamma_{12}|$); which, in addition, should be less dependent on their parental socio-economic background than in the elder subsample ($|\delta_{21}| < |\delta_{22}|$). As a result, the elasticity of material deprivation towards the interviewee's parental background (the intensity of ITP) should be smaller in the younger group than in their elder counterparts ($|\delta_{11}| < |\delta_{12}|$). Still, we are aware that this may fail to happen if other mechanisms (the relevance of non-economic parental resources, the relative disadvantage for the low educated and the increase in economic inequality related to the flexibilization of the labour market and unemployment) operate on them. Moreover, from our descriptive analysis also points in that direction.

In our understanding of the role of marital sorting on the current level of material deprivation we are very interested on the coefficients capturing the influence of economic

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[9] Actually, because the coefficients are not directly interpretable in ordered probit models, we will display the relevant AME (average marginal effects) instead.

problems in the partner's parental household of $(p_{i,0}^p)$, which also ranges from 0 to 3, in the same way as the variable $p_{i,0}$. The relevance of marital sorting may be easily detected in linear models by comparing the impact of the interviewee's family background with his/her partner's: the more relevant marital sorting is as a mechanism to explain the transmission of poverty or inequality, the more similar both coefficients will be (i.e., $\alpha_{i,0} = \delta_{1,i}$ for each $i = 1,2$). In a similar fashion, we also make explicit the coefficient for the partner's education attainment (ϑ_{1i}) as a double check of the relevance of marital sorting on the current economic situation. The more similar coefficients regarding the interviewee's education attainment and his/her partner are (i.e., $\gamma_{1i} = \vartheta_{1i}$ for each $i = 1,2$), the more relevant we may expect marital sorting to be in defining the current economic situation of the household. Finally, the influence of one's parental background and his/her in law's is tested through the following ratio, inspired in Ermish et al. (2006):

$$\sigma_i = {\alpha_{1i}}/{\delta_{1i} + \alpha_{1i}} \quad , \quad for\ each\ i\ (1,2) \qquad (7)$$

The more similar $\delta_{1i} + \alpha_{1i}$ are, the more σ_i will be close to 0.5, meaning that the influence of the parental background of both partners on the current material standard of living in the household is quite similar, i.e., partners are more socially alike than it seems from their observable features.

As regards marital sorting behaviour, we hypothesise that, since the education system in rule for our young subsample was less stratified than the previous one, marital sorting will be a more relevant driver of transmission of poverty in the elder age group. In addition, marital sorting should be a weaker channel of transmission of inequality in the younger group due to their higher educational mobility, which makes it easier for them to choose partners with similar education attainments but, at the same time, different socio-economic family background $(\alpha_1 < \alpha_2)$. In the results section we will display average marginal effects (AME) instead of coefficients, which we expect to interpret in a similar fashion AME as coefficients in linear analysis framework.

Additional control variables in (1), in the x_{1i} vector, are interviewee's gender, age, labour market status, potential labour market experience and limitations in daily life due to health problems, presence of children in the household, and his/her partners' labour market status. In (2) and (3), the specifications are quite similar: both $w_{0,i}$ and $z_{0,i}$ include the interviewee's parents education attainment, country of birth and labour market status,

together with number of children present in the household when the interviewee was 14 years old; in order to satisfy exclusion restrictions, $w_{0,i}$ also includes gender and age at the moment of the interview, which are expected to be related with education attainment but not with poverty at the parental home. Similarly, in equation (3), the vector $z_{0,i}$ also includes whether the interviewee was risen in a single parent family and whether parents were younger or older than the average amongst children within the same birth cohort. These variables are much less correlated with the interviewee's education attainment than with the economic strains in his/her parental household[10].

In Table A.1. the cohort-specific average values are displayed for all the explanatory variables in the three equations. Interviewees from the 45-59 age group are more likely to have low educated parents, to have grown up in larger households, with more children/siblings, and with a breadwinner father. The two subsamples also differ as regards the interviewee's level of education, the labour force participation rate and the employment rate, all of which are higher in the 30-44 age group, while their households are smaller in size, mostly due to a lower number of children.

6. Results of the multivariate analysis

The results of the multivariate models are displayed in Table 4 and Table A.2. Table 4 shows the average marginal effects (AMEs) of the variables[11] that will allow us to test our hypotheses, whereas Table A.2. displays the set of coefficients for the rest of explanatory variables for the trivariate probit model only, to save space. In ordered probit models AME are computed for each value of the dependent variable. For the sake of simplicity, we only report the ones for the most extreme cases (maximum deprivation and lowest interviewee's education), but we are aware that, had we chosen other values to compute AME from, some nuances might have arisen. There are three specifications (one univariate, one bivariate and one trivariate ordered probit) for each age-specific subsample in Table 4.

--------------------------------- Table 4 about here ---------------------------------

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[10] The pertinence of the instruments has been tested in univariate ordered probits (not shown for space reasons).
[11] In an ordered probit model, marginal effects are obtained separately for each outcome and defined as the contribution of the explanatory variables to the probability of each value in the ordered dependent variable. The average marginal effect, AME, is the effect of that variable on the mentioned probability, averaged across individuals.

Overall, the risk of material deprivation at the moment of the interview is similar for males and females - this makes perfect sense given that we only study partnered individuals - and decreases slowly with age in the elder subsample only.

Our first hypothesis is that (a) the elasticity of material deprivation towards the interviewee's level of education will be larger in the younger age group and (b) the level of education will be less dependent on the parental background in the younger subsample. This holds true: in Specification 1 the AME of the low education attainment are slightly larger in the younger cohort – *i.e.*, a stronger stigma of low education in the younger group - and in Specification 2 (bivariate ordered model) and 3 (trivariate ordered model) the AME corresponding to the probability of completing primary education (at most) show that having experienced a bad financial situation in the parental household or low educated parents has a much more severe impact in the elder subsample. Therefore, with the educational expansion in Spain the access to education has become less dependent of the economic background and economic well-being is more dependent on one's human capital.

Given the previous two conditions, one should expect a lower intensity of ITP in the younger subsample. But this is not the case, consistently with the trend observed in the descriptive analysis (Table 1). In the younger subsample, material well-being is more affected by economic strains in the parental household than in the elder one, as AME for material deprivation in the parental household show in Specifications 1 and 2.

When we predict interviewees' educational attainment from different variables measuring parental background (Specifications 2 and 3) the AME of education attainment on material deprivation at the moment of the interview change: education attainment loses its significance in explaining current material deprivation in the young subsample in Specification 2 (bivariate ordered probit) and at both age groups in Specification 3 (trivariate ordered probit). At the same time the role of parental background remains relevant in Specification 2 and loses most of its apparent relevance when it is "endogeneised" in Specification 3. We should not infer from these results that education attainment or parental background are not relevant for explaining current material deprivation. Instead, in the young subsample most of the effect of educational attainment on material deprivation is explained by the set of variables predicting educational attainment that also describe the parental background in detail.

In the case of interviewees from the elder subsample, the AME for educational attainment remain significant in Specification 2. Education attainment may be more correlated

with income and well-being than in the younger group as the interviewees have spent more time in the labour market and their standard of living benefits more from the accumulation of income and assets along their careers that shelters them from material deprivation, the latter being very much dependent on educational attainment. Labour market experience contributes to differences in material quality of life across educational groups to widen along time. This reasoning would also be consequent with the fact that in younger generations labour market flexibility and unemployment reduces the ability for mid-level and higher education to ensure / guarantee a high standard of living. Also, credential inflation in the context of educational expansion may operate.

Similarly, in Specification 3 the features that explain the material deprivation at the parental household are summarised by the parental deprivation indicator, so the AME for parental deprivation are no longer significant in explaining current material deprivation save for the most extreme values in the elder sub-group. Again this does not mean that having experienced a bad financial situation in the parental household has no relevance any more, but that it reflects the impact of many circumstances that made their parental household a poor one: the low education attainment of the parents, joblessness in both parents, particularly when the interviewee lived with no more adults apart from their mother - or living in a large household, usually because of the presence of many children (see coefficients in Table A.2.).

The remaining / residual effect of having been raised in a very deprived household in the elder subsample (Specifications 2 and 3) captures the transmission of parental background which is not explained by / goes beyond the different observable "channels" of transmission of disadvantage (education attainment being the most prominent one). We think this result means that the ITP process is more "genuine" in the elder subsample than in the previous one.

Our second hypothesis is that the role of marital sorting on his/her experience of economic strains should be less relevant in the younger age-group than in elder one because of the latter's higher educational mobility due to educational expansion and the lower stratification of the education system, featured by a later tracking of students than the previous one. Results for Specifications 1 and 2 do not confirm our hypothesis, as the size of the marginal effects for the in-law's socio-economic background is not significantly larger in the elder group ($\alpha_1 \cong \alpha_2$) and they are more similar to the one for the interviewees' background in the 30-44 age group than in the 45-59 age group ($\sigma_1 \cong 0,5$; $\sigma_2 \neq 0,5$). This is due to the fact that, although similarities across partners' observable characteristics are not as

pronounced in the young group as they were in the elder one, each partner's contribution to the household budget is more balanced in the younger subsample.

In Table A.2. the full set of coefficients for the rest of the explanatory variables in the trivariate probit model is displayed. The interviewee's labour force status is, as expected, very much related to the risk of poverty, with unemployed individuals being more vulnerable than the rest[12]. The size and composition of the household is also necessarily connected with the poverty risk as poverty is measured at the household level: non-employed partners and the presence and number of children in the household are linked to a higher risk of economic strains at the moment of the interview. Moreover, the risk of current material deprivation is higher for those who are limited in any way in their daily activities because of health problems. The low education achievement and poverty within the parental home are also dependant from the presence of more children and having both parents out of work in the household. Similarly, being raised only by one's mother is also positively related to a risk of poverty at the parental home.

The set of pairwise correlations between the error terms of the bivariate and trivariate ordered probits (at the bottom of Table 4) display significant values for the correlation between the educational attainment achieved and economic strains in the parental home in both age groups. This proves that there are unobserved factors that contribute to both economic wellbeing at the parental household and to the acquisition of human capital during youth. Examples of these unobservable variables could be the inheritance of intelligence, values, social networks and the acquisition of "soft skills" at home (Bowles and Gintis, 2002).

Correlation of errors across the current economic situation and economic strains in the parental home is only significant in the elder subsample, where the unobservable factors that made the parental household more deprived may be influencing as well the risk of economic deprivation at the moment of the interview. This is as well consistent with the remaining impact of the category "very bad financial situation in the parental household" on current material deprivation in the elder subsample in Specification 3. In this subsample the impact of economic strains at the parental household seems to be more "genuine" than in the young sample, where the impact of the parental background on current standard of living, although initially more relevant, was fully captured by the observable variables, both retrospectively and at the moment of the interview, and there is no remaining, persistent

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[12] Adult students appear as a very vulnerable but odd/minoritarian group.

impact of parental economic strains after all sorts of heterogeneity have been taken into account.

7. Conclusions

The present piece of work constitutes an exploration of the drivers of the intergenerational transmission of economic disadvantage in Spain. We study how education and marital homogamy shape the ITP process across the life-cycle. To that aim we exploit the EU-2011 *module on intergenerational transmission of disadvantage* through a multivariate strategy that allows for capturing the impact of having experienced a bad financial situation in the parental household on poor educational outcomes and the potential role of unobservable factors in the explanation of both parental and interviewee's economic disadvantages.

Contrary to the usual expectations about the evolution of the intensity in ITP in the context of educational expansion, we find evidence of a more intensive ITP in individuals under 45 years of age. Two "channels of transmission" are operating here:

(a) Despite the milder influence of parental background in explaining educational attainment in the younger age group due to the educational expansion, investments on education explain the transmission of (dis)advantages at the first half of the employment career, with educationally disadvantaged adults being particularly vulnerable/stigmatised in the 30-44 year-olds' subsample.

(b) . There are lower levels of marital homogamy in the 30-44 age group but all partners' features are contributing more to explain the economic situation of the household because partners in younger couples tend to contribute more equality to the family budget. We may interpret this result asserting that marital sorting is more relevant in our younger age group, but the nature of our dependent variable (measured at household level instead of the usual, personal/individual level) should be taken into account when comparing our results with previous ones.

Correlation of errors across the equations in the multivariate models point at a more influential role of unobservable factors explaining deprivation in the parental household and at the moment of the interview in the elder subsample, while observable channels of transmission seem to explain the – higher – influence of parental background on the living standards of individuals in the younger subsample. This significant correlation across unobservables,

together with the persistence of the significance in AME for those raised in "severely deprived" households may be a signal for a more "genuine" influence of parental background - despite observationally milder - in the elder subsample.

By comparing two age-groups we are not intending to compare birth cohorts. Moreover, we cannot assure that those in the young age group will not follow a similar pattern to the one in their elder counterparts when they reach their age. But we think our study may contribute to our understanding about how the ITP process varies along the life-cycle and, to a given extent, along the past few decades, in Spain.

Our results are not fully comparable with previous evidence on intergenerational transmission of income in Spain, since we address economic outcomes measured at the household level for both parents and offspring generations. Still, we confirm a positive correlation between income in the parental household and offspring material conditions. We also find that inequality is very much channelled by education attainment, particularly in younger generations, where it covers most of the transmission of social (dis)advantage. Inasmuch public policies may contribute to weaken the link between parental background and educational attainment, further action on equality of opportunities would be very much welcome. Although is very much worth keeping, we need to acknowledge that there is a limit for the effectiveness of these policies in reducing inequality in the future; the limit is defined by marital sorting. The exploration of the apparent increasing importance of marital homogamy as a mechanism for transmission of socio-economic conditions deserves further attention. Which part of the correlation between partner's parental family and current material quality of life is due to the partnering/matching process and which responds instead to the increasing prevalence of double income households and increasing similarities in labour market outcomes across genders? Regardless the answer to this question, this result suggests the need to reinforce redistributive policies inasmuch economic achievements (and failures) of both partners contribute to a more pronounced unequal distribution of income and wellbeing not across individuals, but across households.

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Table 1. Economic strains in parental household and material deprivation at the moment of the interview, by age-group.

Age 30-44 Parents	Interviewees	No material deprivation	One item of deprivation lacking	Two items of deprivation lacking	Three or more items lacking	Total (*col.*)
Good financial situation		69.75	15.11	10.24	4.90	*33.65*
Moderately good financial situation		64.19	15.52	14.34	5.95	*41.83*
Moderately bad financial situation		44.82	22.28	22.07	10.82	*15.22*
Bad financial situation		33.07	20.35	29.95	16.63	*9.30*
Total		60.22	16.86	15.59	7.33	*100*

Cramer's V = 0.1571

Age 45-59 Parents	Interviewees	No material deprivation	One item of deprivation lacking	Two items of deprivation lacking	Three or more items lacking	Total (*col.*)
Good financial situation		69.67	12.12	11.53	6.68	*22.94*
Moderately good financial situation		64.16	15.53	15.19	5.12	*39.71*
Moderately bad financial situation		52.81	18.34	22.91	5.94	*21.67*
Bad financial situation		36.31	23.62	28.64	11.43	*15.68*
Total		58.60	16.63	18.13	6.65	*100*

Cramer's V =0.1373

Source: EU-SILC module 2011 on Intergenerational transmission of disadvantages (Eurostat).

Table 2. Educational attainment (and intergenerational correlations in education and occupation) by age-group.

Age 30-44 Interviewees / Parents	Primary education (or less)	Lower secondary education	Upper secondary education	Tertiary education	Total	Total
Illiterate	36.75	37.64	13.08	12.53	100	3.11
Low education level	9.93	33.73	21.52	34.82	100	77.22
Intermediate education level	0.78	8.71	25.89	64.63	100	8.66
High education level	1.09	3.41	17.81	77.68	100	9.71
Education attainment - missing	13.13	28.84	14.45	43.58	100	1.30
Total	9.16	28.68	21.18	40.98	100	100

Cramer's V education = 0.2117
Cramer's V occupation = 0.1625

Age 45-59 Interviewees / Parents	Primary education (or less)	Lower secondary education	Upper secondary education	Tertiary education	Total	Total
Illiterate	64.71	27.73	6.09	1.47	100	5.85
Low education level	29.16	27.28	22.29	21.27	100	82.30
Intermediate education level	3.70	14.27	32.02	50.00	100	4.39
High education level	1.93	4.53	16.77	76.76	100	5.81
Education attainment - missing	39.73	19.79	15.51	24.97	100	1.65
Total	28.71	25.29	21.34	24.66	100	100

Cramer's V education = 0.2288
Cramer's V occupation = 0.1743

Source: EU-SILC module 2011 on Intergenerational transmission of disadvantages (Eurostat).

Table 3. Marital sorting (correlations across partners in education, labour force status, occupation and income) by age-group.

	Age 30-44	Age 45-59
Correlations across partners in social origin	0.2743	0.3279
Correlations across partners in education	0.3571	0.4132
Correlations across partners in labour force status	0.0970	0.1034
Correlations across partners in occupation	0.2043	0.2345
Correlations across income from dependent employment	0.1607	0.2011
Correlations across partners in personal income	0.1585	0.1341
Correlations across income from dependent employment	0.1607	0.2011
Average weight of personal income of women in the personal income of the partner (in %)	33.23	28.37

Source: EU-SILC module 2011 on Intergenerational transmission of disadvantages (Eurostat).

Table 4. Bivariate recursive ordered probit models and trivariate recursive ordered probit models: economic strains at the household, education attainment and economic strains at parental home.

		Material deprivation at the moment of the interview					
		Univariate		Bivariate		Trivariate	
		Age 30-44	Age 45-59	Age 30-44	Age 45-59	Age 30-44	Age 45-59
Gender *Ref.* Male	Female	0.00575	-0.00468	0.00519	-0.00539	0.00525	-0.00397
		(0.00709)	(0.00636)	(0.00715)	(0.00659)	(0.00782)	(0.00687)
Age	Age	-0.000892	-0.00270***	-0.000824	-0.00294***	-0.000836	-0.00265***
		(0.000753)	(0.000594)	(0.000764)	(0.000721)	(0.000781)	(0.000762)
Educational attainment *Ref.* Tertiary education	Primary education (or less)	0.0598***	0.0474***	0.0482	0.0621***	0.0496	0.0220
		(0.00986)	(0.00824)	(0.0333)	(0.0238)	(0.0617)	(0.0378)
	Lower secondary education	0.0442***	0.0430***	0.0371*	0.0520***	0.0379	0.0280
		(0.00741)	(0.00729)	(0.0208)	(0.0155)	(0.0387)	(0.0228)
	Upper secondary education	0.0205***	0.0248***	0.0163	0.0302***	0.0168	0.0158
		(0.00717)	(0.00731)	(0.0132)	(0.0107)	(0.0229)	(0.0148)
Interviewee's parental household financial situation *Ref.* Good	Moderately good financial situation	0.0102*	0.00239	0.0108*	0.00127	0.0113	0.0348*
		(0.00605)	(0.00609)	(0.00628)	(0.00634)	(0.0254)	(0.0204)
	Moderately bad financial situation	0.0304***	-0.000419	0.0319***	-0.00359	0.0327	0.0564
		(0.00736)	(0.00682)	(0.00867)	(0.00830)	(0.0456)	(0.0362)
	Bad financial situation	0.0531***	0.0236***	0.0551***	0.0198**	0.0561	0.106**
		(0.00934)	(0.00724)	(0.0113)	(0.00904)	(0.0621)	(0.0513)
Partner's parental household financial situation *Ref.:* Good	Moderately good financial situation	0.00312	-0.000702	0.00313	-0.000871	0.00313	-0.00151
		(0.00613)	(0.00638)	(0.00608)	(0.00649)	(0.00609)	(0.00672)
	Moderately bad financial situation	0.0242***	0.0103	0.0241***	0.0102	0.0241***	0.0105
		(0.00761)	(0.00705)	(0.00754)	(0.00718)	(0.00756)	(0.00743)
	Bad financial situation	0.0403***	0.0282***	0.0401***	0.0286***	0.0402***	0.0295***
		(0.00909)	(0.00774)	(0.00903)	(0.00789)	(0.00905)	(0.00824)
	Financial situation – missing	0.0459**	-0.00691	0.0457**	-0.00687	0.0457**	-0.00732
		(0.0193)	(0.00932)	(0.0192)	(0.00950)	(0.0192)	(0.00982)
Partner's educational attainment *Ref.* Tertiary education	Primary education (or less)	0.0602***	0.0634***	0.0598***	0.0640***	0.0599***	0.0656***
		(0.00999)	(0.00812)	(0.00996)	(0.00832)	(0.0100)	(0.00876)
	Lower secondary education	0.0449***	0.0474***	0.0448***	0.0478***	0.0448***	0.0488***
		(0.00746)	(0.00711)	(0.00741)	(0.00727)	(0.00744)	(0.00758)
	Upper secondary education	0.0229***	0.0264***	0.0228***	0.0265***	0.0228***	0.0272***
		(0.00721)	(0.00713)	(0.00712)	(0.00726)	(0.00720)	(0.00758)
	Education attainment - missing	0.0921***	0.108***	0.0914***	0.109***	0.0914***	0.110***
		(0.0307)	(0.0186)	(0.0304)	(0.0189)	(0.0305)	(0.0195)

		Educational attainment			
		Bivariate		Trivariate	
		Age 30-44	Age 45-59	Age 30-44	Age 45-59
Gender *Ref.* Male	Female	-0.0310***	0.0490***	-0.0332***	0.0414***
		(0.00602)	(0.0106)	(0.00634)	(0.00913)
Age	Age	0.00238***	0.0120***	0.00240***	0.00971***
		(0.000734)	(0.00130)	(0.000799)	(0.00129)
Interviewee's parental financial situation *Ref.* Good	Moderately good financial situation	0.0174**	0.0517***	0.0930***	0.183***
		(0.00690)	(0.0139)	(0.0246)	(0.0269)
	Moderately bad financial situation	0.0612***	0.169***	0.190***	0.383***
		(0.0103)	(0.0167)	(0.0413)	(0.0393)
	Bad financial situation	0.0843***	0.232***	0.263***	0.546***
		(0.0114)	(0.0175)	(0.0561)	(0.0572)
Parents' highest educational attainment *Ref.* High education level	Illiterate	0.288***	0.683***	0.257***	0.442***
		(0.0278)	(0.0362)	(0.0332)	(0.0643)
	Low education level	0.170***	0.411***	0.146***	0.274***
		(0.0136)	(0.0286)	(0.0156)	(0.0426)
	Intermediate education level	0.0497***	0.162***	0.0362**	0.115***
		(0.0150)	(0.0367)	(0.0169)	(0.0351)
	Education attainment - missing	0.173***	0.465***	0.171***	0.349***
		(0.0342)	(0.0523)	(0.0393)	(0.0532)

Table 4. Bivariate recursive ordered probit models and trivariate recursive ordered probit models: economic strains at the household, education attainment and economic strains at parental home (*cont*).

| | | | | | | **Family *Background*** | |
| | | | | | | Trivariate | |
						Age 30-44	Age 45-59
Parents' highest educational attainment *Ref.*: High education level	Illiterate					0.143*** (0.0241)	0.293*** (0.0259)
	Low education level					0.114*** (0.0129)	0.186*** (0.0189)
	Intermediate education level					0.0594*** (0.0151)	0.0653** (0.0278)
	Education attainment - missing					0.0492* (0.0272)	0.110*** (0.0356)
Atanhrho (proxies for rhos computed by Stata)	ρ_{p1e0}			-0.0389 (0.107)	0.0539 (0.0785)	-0.0335 (0.235)	-0.175 (0.156)
	ρ_{p1p0}					-0.00435 (0.175)	-0.254** (0.128)
	ρ_{e0p0}					0.377*** (0.105)	0.476*** (0.115)
Number of observations		4,429	5,475	4,429	5,475	4,429	5,475
Chi2		901.2 (0.000)	1138 (0.000)	687.9 (0.000)	905.8 (0.000)	538.0 (0.000)	911.4 (0.000)
Log Likelihood		-5,88E+09	-5,77E+09	-1,34E+10	-1,38E+10	-2,09E+10	-2,18E+10

Source: EU-SILC module 2011 on Intergenerational transmission of disadvantages (Eurostat).

Appendix

Table A.1. Explanatory variables in multivariate models. Cohort/age-group-specific averages.

		Age 30-44	Age 45-59
Dependent variables			
Material deprivation at the interview	No material deprivation at all	60.22	58.60
	Only one item of deprivation lacking	16.86	16.63
	Two items of deprivation lacking	15.59	18.13
	Three or more items of deprivation lacking	7.33	6.65
Educational attainment	Primary education (or less)	9.16	28.71
	Lower secondary education	28.68	25.29
	Upper secondary education	21.18	21.34
	Tertiary education	40.98	24.66
Parental household financial situation	Good financial situation	33.65	22.94
	Moderately good financial situation	41.83	39.71
	Moderately bad financial situation	15.22	21.67
	Bad financial situation	9.30	15.68
Explanatory variables: personal features			
Gender	Male	48.00	50.41
	Female	52.00	49.59
Age	Age	37.51	51.66
Labour force status	Employed - full-time	66.80	58.33
	Employed - part-time	8.36	5.61
	Unemployed	12.90	11.66
	Other LM statuses	1.89	0.95
	Inactive	10.06	23.46
Experience	Work experience (in years)	14.88	24.27
Health – related limitations	Limited in activities because of health problems	7.02	15.59
	Strongly limited in activities because of health problems	1.16	2.80
	No limited in any activity because of health problems	91.82	81.61
Explanatory variables: household features			
Number of children in the household	No children	24.16	21.01
	One child	31.90	32.90
	Two children	37.84	37.70
	Three or more children	6.10	8.39
Explanatory variables: partners' features			
Parental household financial situation	Good financial situation	32.79	21.93
	Moderately good financial situation	41.01	34.98
	Moderately bad financial situation	15.06	18.75
	Bad financial situation	9.69	13.10
	Parental financial situation – missing	1.44	11.24
Educational attainment	Primary education (or less)	9.39	27.04
	Lower secondary education	27.77	23.60
	Upper secondary education	21.48	21.66
	Tertiary education	40.53	25.72
	Education attainment – missing	0.83	1.97
Labour force status	Employed - full-time	67.54	55.00
	Employed - part-time	7.90	6.20
	Unemployed	13.29	12.34
	Inactive	8.84	24.89
	Other LM statuses	2.42	1.57
Experience	Work experience (in years)	15.73	24.90

Table A.1. Explanatory variables in multivariate models. Cohort/age-group-specific averages (*cont.*).

		Age 30-44	Age 45-59
	Explanatory variables: parental household's features when the interviewee was around 14 years-old		
Number of children in the household	One child in the household	28.49	27.28
	Two children in the household	38.17	33.25
	Three or more children in the household	33.01	38.93
	Children in the household - missing	0.33	0.55
Parents' highest educational attainment	Illiterate	3.11	5.85
	Low education level	77.22	82.30
	Intermediate education level	8.66	4.39
	High education level	9.71	5.81
	Education attainment - missing	1.30	1.65
Parents' birth country	Parents born in Spain	97.61	97.30
	Parents born abroad	2.39	2.70
Parent's labour force status	Father employed & mother not employed	68.32	75.09
	Father not employed & mother employed	1.12	0.47
	Both employed	23.24	16.59
	None employed	1.75	2.23
	Parents employed - missing	5.56	5.63
Parents' age relative to the average in the cohort	In the average	31.81	34.75
	Below average	38.33	34.63
	Above average	24.51	22.80
	Parental age - missing	5.35	7.82
Parents' composition	Father and mother in the household	91.65	92.05
	Single father	1.20	0.96
	Single mother	5.07	3.95
	Other adults apart from parents in the household	2.08	3.03
Overall size of the household	From 1 to 4 people in the household	39.20	35.43
	From 5 to 6 people in the household	43.60	40.63
	7 or more people in the household	16.77	23.17
	Number of people in the household - missing	0.43	0.77
Number of observations		***4,429***	***5,475***

Source: EU-SILC module 2011 on Intergenerational transmission of disadvantages (Eurostat).

Table A.2. Trivariate probit model: coefficients list

| | | Material deprivation | |
		Age 30-44	Age 45-59
Labour force status *Ref.* Employed - full-time	Employed - part-time	0.186** (0.0823)	0.276*** (0.0915)
	Unemployed	0.648*** (0.0704)	0.786*** (0.0721)
	Other LM statuses	0.433** (0.178)	0.649*** (0.190)
	Inactive	0.307*** (0.0863)	0.219*** (0.0650)
Experience	Work experience (in years)	-0.000559 (0.00442)	-0.00131 (0.00222)
Health – related limitations *Ref.* No limited in activities	Limited in activities because of health problems	0.273*** (0.0813)	0.239*** (0.0531)
	Strongly limited in activities because of health problems	0.347* (0.193)	0.564*** (0.116)
Number of children in the household *Ref.* No children	One child	0.237*** (0.0708)	-0.0107 (0.0580)
	Two children	0.174*** (0.0669)	0.0948 (0.0600)
	Three or more children	0.285*** (0.0961) (0.285)	0.223*** (0.0819) (0.183)
Partner's labour force status *Ref.* Employed - full-time	Employed - part-time	0.196** (0.0880)	0.285*** (0.0840)
	Unemployed	0.692*** (0.0679)	0.813*** (0.0730)
	Inactive	0.489*** (0.167)	0.541*** (0.183)
	Other LM statuses	0.380*** (0.0825)	0.274*** (0.0592)
Partner's experience	Work experience (in years)	-0.0116*** (0.00388)	0.000291 (0.00227)

| | | Family *Background* | | Educational attainment | |
		Age 30-44	Age 45-59	Age 30-44	Age 45-59
Number of children in the household *Ref.* One child in the household	Two children in the household	0.0663 (0.0523)	0.141*** (0.0469)	-0.0155 (0.0524)	0.0124 (0.0483)
	Three or more children in the household	0.192*** (0.0611)	0.328*** (0.0550)	-0.0858 (0.0611)	-0.0336 (0.0642)
	Children in the household - missing	0.685 (0.862)	-0.0247 (0.366)	0.0332 (0.304)	-0.0759 (0.245)
Parents' birth country *Ref.* Sp.	Parents born abroad	0.0603 (0.111)	-0.00571 (0.122)	-0.0843 (0.130)	0.110 (0.115)
Parent's labour force status *Ref.* Father employed & mother not employed	Father not employed & mother employed	0.527*** (0.192)	1.235*** (0.249)	-0.0232 (0.158)	0.294 (0.200)
	Both employed	-0.0857* (0.0475)	-0.0322 (0.0478)	-0.0639 (0.0492)	-0.0226 (0.0469)
	Both not employed	0.774*** (0.157)	0.441*** (0.120)	-0.102 (0.161)	0.0193 (0.122)
	Parents employed - missing	0.188 (0.164)	0.257* (0.152)	0.214* (0.113)	0.253** (0.109)
Parents' age relative to the average in the cohort *Ref.* Parental age: in the average	Parental age: below average	0.0911* (0.0469)	0.0604 (0.0405)		
	Parental age: above average	0.0850* (0.0516)	-0.00157 (0.0445)		
	Parental age - missing	0.289*** (0.0860)	0.370*** (0.0687)		
Parents' composition *Ref.* Father and mother in the household	Single Father	0.377* (0.212)	-0.0881 (0.183)		
	Single Mother	0.800*** (0.169)	0.634*** (0.159)		
	Other people in the household	0.256 (0.172)	-0.264** (0.111)		

Table A.2. Trivariate probit model: coefficients list (*cont.*).

		Family *Background*	
		Age 30-44	Age 45-59
Overall size of the household *Ref.* From 1 to 4 people in the household	From 5 to 6 people in the household	0.170*** (0.0484)	0.0233 (0.0469)
	7 or more people in the household	0.559*** (0.0705)	0.339*** (0.0557)
	People in the household - missing	0.103 (0.838)	0.171 (0.324)

Cut points – eq(1) matdepr			Cut points – eq(2) education			Cut points – eq (3) family			*Atanhrhos*	
	30-44	45-59		30-44	45-59		30-44	45-59	30-44	45-59
Cut-1	0.926*** (0.250)	0.339 (0.384)	Cut-1	-3.234*** (0.220)	-4.412*** (0.273)	Cut-1	0.575*** (0.0914)	0.347*** (0.0937)	ρ_{p1e0}	
									-0.0335 (0.235)	-0.175 (0.156)
Cut-2	1.537*** (0.250)	0.919** (0.371)	Cut-2	-2.153*** (0.213)	-3.695*** (0.257)	Cut-2	1.782*** (0.0948)	1.491*** (0.0966)	ρ_{p1p0}	
Cut-3	2.426*** (0.251)	1.914*** (0.351)	Cut-3	-1.575*** (0.211)	-3.065*** (0.247)	Cut-3	2.480*** (0.0985)	2.237*** (0.0992)	-0.00435 (0.175)	-0.254** (0.128)

Trivariate – Probit: Goodness of fit indicators and simple size									ρ_{e0p0}	
	30-44	45-59		30-44	45-59		30-44	45-59	0.377*** (0.105)	0.476*** (0.115)
Chi2	538.0 (0.000)	911.4 (0.000)	-2 L.L.	-2,1E+10	-2,2E+10	N. Obs	4,429	5,475		

Source: EU-SILC module 2011 on Intergenerational transmission of disadvantages (Eurostat).

*The coefficients of the following variables are not displayed in Table A.2.: Gender, age, educational attainment, interviewee's parental household financial situation, partner's educational attainment, partner's parental household financial situation, parents' highest educational attainment. Table 4 shows the average marginal effects of these variables.