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# The impact of education on intergenerational occupational mobility in Spain

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ABSTRACT

Intergenerational occupational mobility is a topic that has attracted considerable interest in the sociological and economic literature for developed countries. In particular, one of the central issues in political debate is the role of education on the intergenerational social mobility. The modern capitalist economies are characterised by continual technological changes which lead to the need of a highly skilled workforce. In this potentially meritocratic society, the equality of opportunities, the efficient allocation of talent and the education can be instruments that encourage the social mobility and decrease the effect of the parents' economic status on the career of their children. This paper takes into account these facts and sheds empirical evidence for Spain about the relationships between social origin, educational attainment and occupational destination. The methodology applied consists of the specification and estimation of discrete choice models, and the empirical analysis is based on data provided by the Living Condition Survey (LCS) conducted for the Spanish National Statistics Institute (INE).

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## 1. Introduction

The economic literature about intergenerational social mobility has focused mainly on the interrelationships between the economic status of parents and children. One of its main findings is that the degree of social mobility depends on various factors that are related to the economic success of individuals such as, for example, their decisions about the acquisition of human capital. Furthermore, the role of education has been enhanced in most developed countries during the last years because of the process of industrialization and the continual technological changes, which have lead to the need of a highly skilled workforce. These facts may encourage the appearance of a potentially more meritocratic society with more equality of opportunities and where the accumulation of knowledge is an instrument to achieve a more efficient allocation of talent. As a consequence, people from families with different socioeconomic levels could have similar chances of success in terms of expected income and upward career (Behrman & Taubman, 1990). Other factors related to the intergenerational social mobility are innate abilities arising from the association between the genetic endowments of parents and children, environmental factors such as the type of institutions, or the knowledge acquired by the individuals through their lifelong learning or their labour experience. On the other hand, the comparative advantages associated with heritable aspects, the transmission of occupation-specific skills or the type of educational investment can induce children to work in the same fathers' occupations, slowing down the intergenerational changes.

Social mobility has been analysed theoretically by the sociological and economic literature in the tradition of the Family Economy (Becker & Tomes, 1986). In this setting, the parents' utility depends on the children's utility, and this intergenerational link involves that parents choose how to distribute their income between consuming or investing in education for their offspring,

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which will have long run consequences on children's future income. Therefore, public policies play a relevant role for promoting social mobility through the improvement of the access to the human capital and raising the capacity to finance the education costs (Dutta, Sefton, & Weale, 1999).

Studies about intergenerational mobility can help to identify and to remove the obstacles to mobility, the rationality for breaking down such barriers is to get a better allocation of human skills and talents that increases the productivity and favours the competitiveness and the economic growth. Traditionally, economic literature have adopted diverse definitions of social mobility. On one hand, it is defined as movements up or down within the income distribution of children in comparison with their parents. The empirical research following this methodology obtains an intergenerational elasticity coefficient, which measures the correlation between parental income and offspring's income (see for example, Atkinson, 1981 or Zimmerman, 1992), and estimates transition probability matrixes to measure income mobility through different segments of the earnings distribution (Checchi, 1997). On the other hand, social mobility is analysed comparing the type of occupation reached by the children with respect to that of their parents. This last procedure has some advantages over the income analysis. Firstly, occupational mobility is more stable and causes persistent changes in earnings that are not necessarily related to the short-run variations in wages. For instance, Keane and Wolpin (1997) formulate a model to explain how the individual expected value of the lifetime earnings is maximised through the choice of an optimal sequence of occupations. Secondly, occupational category is a proxy of the socio-economic status since it compiles variables such as wages, educational attainment and talent. Moreover, occupational data across generations are probably more reliably reported by individuals than income data. For all these reasons, the analysis of occupational mobility adds economic interest compared to the study of earnings mobility. From an empirical point of view, some interesting works about this topic are, for example, Ermisch and Francesconi (2002); Hellerstein and Morrill (2011), and Long and Ferrie (2013). Ermisch and Francesconi (2002) using data from the British labour market analyse the occupational mobility between parents and children through the movements along the index of occupational prestige proposed by Goldthorpe and Hope (1974). These authors find that the intergenerational elasticity decreases as the parental social status increases. Hellerstein and Morrill (2011) examine changing intergenerational transmission from father to daughter in the US, by focusing on the occupational status. They obtain that the probability that daughters and fathers had the same occupation was increasing along the 20th century. Finally, Long and Ferrie (2013) identify the historic differences in intergenerational occupational mobility between Britain and the US from the beginning of the 1850s, finding that the US had more intergenerational occupational mobility in the three decades after 1850 than either Britain or the actual US.

For Spain, the lack of suitable data has limited the study of intergenerational social mobility. However, it is possible to highlight several interesting studies. A first group has analysed the intergenerational social mobility in different ways. Carabaña (1999), using data from the Socio-Demographic Survey, concludes that the degree of intergenerational occupational mobility in Spain is higher than in Germany and United Kingdom, lesser than the EEUU and similar to France. Sánchez-Hugalde (2004) analyses the mobility social from the standpoint of the education and the income through the information collected from the Family Expenditure Survey. Her main results are that educational intergenerational mobility in Spain is similar than other European countries and that income mobility between parents and children has increased during the 80s. More recently, Cervini-Plá (2014) estimates the income mobility in Spain, using the Living Condition Survey. She finds that intergenerational income mobility in Spain is similar to France, lower than the Nordic countries, and higher than the EEUU. Moreover, compared to other Southern European countries, the Spanish society is more mobile than the Italian one.

This paper intends to shed new empirical evidence of the intergenerational social mobility in Spain, analysing the movements along the occupational scale of children with respect to their parents, and taking into account other relevant factors such as the educational background of the individuals. The methodology applied consists in the specification and estimation of multinomial logit models and the data used come from the Living Condition Survey provided by the Spanish Statistical Institute (INE). In particular, the annual module dedicated to the study of the transmission of intergenerational poverty corresponding to the year 2011 is used. This survey is useful for the purpose of this study, because it offers information on the occupation of parents and children in the adulthood. In this way, the problems of sample selection are solved since the comparison between fathers and offspring is made mainly for children not living with their parents. On the other hand, the type of occupation is answered for all individuals, solving the drawbacks that arise when intergenerational social mobility is only analysed through the wage of workers. To the best of my knowledge, the methodology of this research applied to data from the Living Condition Survey is unprecedented in the literature discussing Spain.

The remainder of the paper is organised as follows. Section 2 presents the theoretical background and the hypothesis. Section 3 describes the data and examines the intergenerational occupational mobility from a statistical point of view. Section 4 shows the econometric model proposed, whereas Section 5 discusses the research findings. The main conclusions are summarised in Section 6 and, finally, an appendix with some statistic information about the variables used in the estimates is included.

## 2. Theoretical background and hypothesis

This study is an empirical research that analyses the influence on a set of covariates on intergenerational occupational mobility through the specification and estimation of an econometric model. Therefore, the first hypothesis of this investigation is that social mobility in Spain is not a homogenous phenomenon among individuals and depends mainly on their personal and labour characteristics. The explanatory variables included are: the highest degree of education completed by the individual (that is, his/her educational attainment), gender, geographic origin (individuals are classified depending on their country of birth: Spain,

European Union country or another foreign country), potential labour experience computed as the number of years from the individual started working regularly, labour market status (unemployed, self-employed or different categories of wage earners depending on their type of working day and contract), and the region of residence. The inclusion of these regressors in the model is justified by the predictions postulated by the sociological and economic literature, the rest of the hypothesis of this study is based on such theoretical background and is developed below.

In relation to education, the assumption proposed is that this variable influences positively on upward intergenerational occupational mobility. This supposition is based on the Human Capital Theory (Becker, 1964) and the Theory of Career Mobility (Sicherman & Galor, 1990). These theories posit, on the one hand, that the acquisition of human capital favours individuals to start their working careers in higher-level occupations, since the occupational hierarchy depends positively on the level of qualification. On the other hand, education is positively related to the possibility of getting best labour market opportunities and, therefore, with the probability of upward occupational mobility. Anyway, the success of human capital depends on the evolution of the matching between the formal knowledge acquired in the educational system and the professional profiles required by the productive system. Therefore, the third hypothesis proposed is that the evolution of the educational system may alter the influence of education on intergenerational occupational mobility, and this is the main reason why the sample of individuals is splitted into two broad birth cohorts. Finally, other interesting aspect related to the educational background is the investment in firm-specific human capital, which is considered as relevant to explain the increase of workers' productivity and their promotions (e.g. Prendergast, 1993). In this study, training investment is approached by the potential labour market experience, and the hypothesis proposed is that this variable has a positive effect on upward intergenerational occupational mobility.

Concerning the rest of characteristics, the assumptions are referred to the appearance of dissimilarities or inequalities among subgroups of population according to the access to higher-level occupations due to the existing peculiarities in the Spanish labour market such as the different rates of participating between men and women, the segregation occupational and the presence of segments in the labour force. To put this argument into context, it is necessary to provide an overview of the Spanish labour market at the end of the first decade of the 21st century. The economic crisis that began in 2007 generated an intense process of job destruction. Thus, the unemployment rate increased from 8.3% in 2007 to 20% in 2010. In this economic setting, the female participation rate in the labour market did not exceed the 55% and was 15 percentage points lesser that the one corresponding to men. However, in some cases, the distribution of women to medium or higher-level occupations showed higher percentages than in men. For example, the 20% (13%) of employed women (men) were in the occupational category “scientific and technicians”. Other characteristics of the Spanish labour market are the precariousness of the employment relationships (with a temporary employment rate around 25%) and the high presence of foreign workers. In particular, the composition of the employed population according to geographic origin was substantially altered during the first decade of the 21st century since the immigrant population increased from 923,879 in 2000 to 5,747,764 in 2010. These aspects of the Spanish labour market fit properly within the framework in which the Structural or Dual Labour Market Theory is developed (Doeringer & Piore, 1971; Thurow, 1975). According to this theory, the labour market is separated in two segments: primary and secondary. Workers belonging to the first segment have stable jobs, high probability of upward occupational mobility and high wages. On the contrary, in the second segment, the employment relationships are unstable, low-paid and with little prospect of promotion. In sum, the theoretical background mentioned and the own characteristics of the Spanish labour market will support the explanations of the results obtained after estimating the econometric models proposed.

## 3. Data

The data are drawn from the Living Condition Survey (LCS), which is part of the European SILC data (Statistics on Income and Living Conditions) covering EU 27. This survey is provided by the National Statistics Institute (INE) and replaces the EU Households Panel Data for Spain. The LCS collects information both cross-sectional and longitudinal dimension, this study uses the cross-sectional component. In particular, we use the annual modules dedicated to the study of the transmission of intergenerational poverty to the year 2011. This module is intended for people aged 25–59 years and contains information about the parents' occupations when the children were 14 years old.

In relation to the occupational status, the LCS (INE, 2011) reports occupational codes that correspond to those available in the National Classification of Occupation (CNO-94). The CNO-94 establishes an occupational hierarchy based on the performance area and qualification required to carry out the job, which allows us to define occupational mobility as upward or downward movements along this scale. As a consequence, a contingency table with fathers and sons allocated respectively by columns and rows according to their occupation is a starting point to measure the overall intergenerational occupational mobility. Nevertheless, LCS (INE, 2011) reports occupations in two and one digits codes for children and parents, respectively, so it is necessary to aggregate the categories of occupations in few groups to get transition matrixes (e.g. Erikson & Goldthorpe, 1992, Long & Ferrie, 2005). In particular, we use the first digit of the occupational codes. For example, except employees of the armed forces, the first code would correspond to the managers and the last one at the unskilled workers. In this way, the three possible situations in which individuals can be found with respect to their parents are the following: to register a downward occupational mobility, to remain in the same occupation or to experience an upward occupational mobility. If these three situations were tabulated in a transition matrix, the off-diagonal matrix elements would correspond to sons who end up in occupations different from those of their fathers, and it would provide the total intergenerational occupational mobility, that is, the gross mobility rate.

**Table 1**
Intergenerational occupational transitions: Birth cohort 1969–1986 (%).

| Transition between fathers (columns) and children (rows) | Management of companies | Scientific and techn. | Support techn. and prof. | Adm. type employees | Catering, personal services | Skilled workers agricult. | Craftsmen and skilled manuf. | Install. and mach. operators | Unskilled workers | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Management of companies | 20.00 | 9.02 | 10.59 | 5.49 | 12.55 | 7.45 | 14.90 | 9.02 | 10.98 | 100 |
| Scientific and technicians | 11.02 | 20.00 | 12.51 | 12.51 | 11.98 | 5.03 | 15.29 | 5.99 | 5.67 | 100 |
| Support techn. and prof. | 8.48 | 10.96 | 13.30 | 8.19 | 14.77 | 7.31 | 18.71 | 9.50 | 8.77 | 100 |
| Adm. type employees | 8.81 | 8.41 | 11.75 | 11.88 | 12.28 | 8.14 | 17.62 | 11.35 | 9.75 | 100 |
| Catering, personal services | 7.89 | 4.58 | 8.08 | 6.13 | 20.16 | 8.86 | 19.38 | 11.98 | 12.95 | 100 |
| Skilled workers in agricul. | 1.68 | 2.52 | 6.72 | 0.84 | 4.20 | 48.74 | 14.29 | 6.72 | 14.29 | 100 |
| Crafstmen and skilled manuf. | 4.44 | 2.29 | 7.59 | 4.87 | 13.04 | 10.60 | 31.38 | 10.32 | 15.47 | 100 |
| Install. and mach. operators | 4.36 | 2.85 | 8.73 | 4.17 | 9.87 | 13.28 | 20.68 | 22.77 | 13.28 | 100 |
| Unskilled workers | 2.94 | 1.79 | 7.16 | 3.58 | 12.53 | 15.35 | 19.31 | 9.59 | 27.75 | 100 |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).

This previous analysis is carried out for all active people in the Spanish labour market distinguishing them according to its age. In particular, the pattern of mobility has been analysed for the birth cohorts 1969–1986 and 1952–1968 (Tables 1 and 2). Since the LCS (INE, 2011) informs about the fathers' occupation for the children aged from 25 and 59 years old (both inclusive), the two cohorts represent individuals above or below the age threshold of 42 years, that is the mean age of the children included in the sample. The broad age range mitigates the problems associated with the different patterns of intragenerational occupational mobility between both birth cohorts, since it is supposed that a large majority of the individuals observed have reached the occupational maturity. Furthermore, this splitting of the sample allows us to take into account how the changes in the Spanish educational system across the time affect the intergenerational occupational mobility. For example, the legislative framework to the second birth cohort (1969–1986) is The General Education Law, which supposes the introduction of the compulsory education for all Spanish population aged between 6 and 14 years old. Finally, in those households where both parents reported on their occupations, the best placed in the ranking of occupations is chosen as point of comparison with respect to their children.

For all individuals, the highest intergenerational occupational mobility appears for the administrative type employees, since only the 12% of these workers had parents who performed the same occupation. On the contrary, skilled workers in agriculture is the occupational group with lowest intergenerational occupational mobility, 71% of individuals aged more than 42 years had parents in this occupation (the percentage decreases up to 63% for people born between 1969 and 1986). Another relevant result is that upward intergenerational occupational mobility has decreased for all occupational categories (with the exception of skilled workers in agriculture) to the birth cohort 1969–1986 in comparison to the birth cohort 1952–1968. This happens, particularly, for workers in catering and personal services with an upward occupational mobility of 53%, that is, 12 percentage points lower than that of older individuals. As a whole, the upward mobility rate for the birth cohort 1952–1968 is of 45%, which is 5 points higher than the one corresponding to the other cohort. Finally, the highest downward transition between two occupations occurs for children "installers and machine operators" whose fathers are "craftsmen and workers skilled in the manufacturing", around 21% for the birth cohort 1969–1986.

An additional interesting issue is to analyse how intergenerational occupational mobility's patterns are modified when children are classified according to their labour market status, this question is examined in Table 3. Firstly, it is observed that occupational transitions by labour market status are qualitatively similar for both cohorts. However, there are some significant differences according to the age of the individuals. For instance, the percentage of downward occupational mobility has increased in 4% points for the unemployed belonging to the birth cohort 1969–1983, whereas the rate of upward mobility has decreased in 5 points percentages for wage earners. Finally, it is worth highlighting that the highest percentages of upward occupational mobility are observed for self-employed, whereas unemployed are the collective with the highest percentage of downward occupational mobility.

To complete the overview of the descriptive analysis, the distribution of the intergenerational occupational transition is tabulated against the educational background of the children (Table 4). The results obtained indicate the existence of positive

**Table 2**
Intergenerational occupational transitions: Birth cohort 1952–1968 (%).

| Transition between fathers (columns) and children (rows) | Management of companies | Scientific and techn. | Support techn. and prof. | Adm. type employees | Catering, personal services | Skilled workers agricult. | Crafstmen and skilled manufact. | Install. and mach. operators | Unskilled workers | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Management of companies | 15.47 | 5.72 | 5.72 | 5.93 | 14.62 | 17.8 | 14.62 | 8.69 | 11.44 | 100 |
| Scientific and technicians | 11.44 | 16.39 | 12.99 | 9.9 | 11.75 | 10.82 | 11.24 | 9.28 | 6.19 | 100 |
| Support techn. and prof. | 7.19 | 6.54 | 14.87 | 8.17 | 10.46 | 11.6 | 16.83 | 12.91 | 11.44 | 100 |
| Adm. type employees | 7.69 | 5.38 | 10.51 | 11.79 | 10.38 | 14.49 | 17.56 | 10.26 | 11.92 | 100 |
| Catering, personal services | 5 | 2.94 | 6.08 | 3.63 | 16.78 | 20.8 | 18.94 | 10.4 | 15.41 | 100 |
| Skilled workers in agricul. | 2.46 | 0.41 | 2.05 | 0.41 | 2.05 | 70.9 | 6.15 | 3.69 | 11.89 | 100 |
| Crafstmen and skilled manuf. | 2.99 | 1.37 | 4.86 | 2.86 | 6.6 | 21.67 | 27.4 | 10.83 | 21.42 | 100 |
| Install. and mach. operators | 3.14 | 1.66 | 4.62 | 3.7 | 8.32 | 21.81 | 17.74 | 19.04 | 19.96 | 100 |
| Unskilled workers | 2.61 | 1.93 | 4.2 | 3.29 | 7.71 | 22.68 | 18.93 | 8.84 | 29.82 | 100 |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).

**Table 3**
Intergenerational occupational transitions: Labour market status (%).

| Birth cohort 1969–1986 | Downward occupational mobility | Not occupational mobility | Upward occupational mobility | Total |
|---|---|---|---|---|
| Wage earner | 32.71 | 20.54 | 46.75 | 100 |
| Self-employed | 22.77 | 29.11 | 51.88 | 100 |
| Unemployed | 42.67 | 20.78 | 36.55 | 100 |
| Total | 33.71 | 21.45 | 44.84 | 100 |
| **Birth cohort 1952–1968** | **Downward occupational mobility** | **Not occupational mobility** | **Upward occupational mobility** | **Total** |
| Wage earner | 29.95 | 18.59 | 51.46 | 100 |
| Self-employed | 17.05 | 30.72 | 52.23 | 100 |
| Unemployed | 38.52 | 22.86 | 38.62 | 100 |
| Total | 29.26 | 21.27 | 49.47 | 100 |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).

association between the human capital acquired by the individuals and the values of the frequencies observed when they move up through the occupational ranking. Furthermore, this relationship is intensified when people are getting older.

As indicated in Section 2, apart from the status labour market and the educational level, the econometric model specified to explain social mobility includes other explanatory variables. A first group of regressors captures personal characteristics such as gender, geographic origin and potential labour experience, whereas a second group of variables is composed by qualitative regressors that explain the socio-economic environment, in particular, these dummies variables denote the current region of residence. The statistic descriptive of the variables are registered in the Tables A1 and A2 of the appendix for the two cohorts considered.

## 4. Econometric specification

This section is dedicated to the derivation of the econometric specification that allows us to approach the determining factors of the intergenerational occupational mobility in Spain. For this purpose, it is necessary to define previously a variable that shows the downward and upward occupational changes, or the lack of occupational change. The construction of this variable is based on the fact that the occupations in the LCS are coded according to the National Classification of Occupations (CNO-94), which establishes a ranking of occupations based on the performance area and qualification required to carry out the occupation. Performance area means the area of work activity defined by the type and nature of the tasks performed, whereas the level of qualification is the amount and quality of education, training and experience required in the workplace. The first code would correspond to the managers and the last one at the unskilled workers. In this way, occupational mobility is defined as shifts between occupations at the 1-digit level, since the LCS does not allow further disaggregation for the fathers' occupation. Therefore, the three possible situations, in which an individual can be found with respect to their parents are: the individual registers a downward intergenerational occupational mobility, remains in the same occupation or experiences an upward intergenerational occupational mobility.

The econometric model specified to analyse the occupational changes between children and father is a multinomial logit model where the dependent variable captures the three possible alternatives: Downward occupational mobility ($Y = 0$), not occupational change ($Y = 1$) and upward occupational mobility ($Y = 2$). The probability for the alternative $j$ according to the multinomial logit model is:

$$\Pr(Y_i = j|X_i) = \frac{\exp\left(\beta_j' X_i\right)}{\sum_{j=0}^{2} \exp\left(\beta_j' X_i\right)}, \quad (j = 0, 1, 2). \tag{1}$$

**Table 4**
Intergenerational occupational transitions: Educational level (%).

| Birth cohort 1969–1986 | Downward occupational mobility | Not occupational mobility | Upward occupational mobility | Total |
|---|---|---|---|---|
| Primary | 46.17 | 26.48 | 27.35 | 100 |
| Lower secondary | 39.05 | 25.39 | 35.57 | 100 |
| Upper secondary | 39.17 | 19.47 | 41.36 | 100 |
| Upper technical training | 31.58 | 19.74 | 48.68 | 100 |
| Higher education | 25.04 | 19.03 | 55.93 | 100 |
| **Birth cohort 1952–1968** | **Downward occupational mobility** | **Not occupational mobility** | **Upward occupational mobility** | **Total** |
| Primary | 36.07 | 27.35 | 36.58 | 100 |
| Lower secondary | 34.54 | 22.41 | 43.05 | 100 |
| Upper secondary | 31.11 | 19.06 | 49.83 | 100 |
| Upper technical training | 20.00 | 17.78 | 62.22 | 100 |
| Higher education | 19.58 | 17.66 | 62.76 | 100 |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).

$\beta_j$ is the vector of parameters for each alternative $j$ and $X_i$ is the vector of explanatory variables observed for each person. To identify the multinomial logit model is necessary to impose the restriction that the vector of coefficients corresponding to an alternative is the null vector. In this case, it is considered that this happens for $j = 0$, so the probability of the occurrence of each alternatives is:

$$\Pr(Y_i = j|X_i) = \frac{\exp\left(\beta_j{}'X_i\right)}{1+\sum_{j=1}^{2}\exp\left(\beta_j{}'X_i\right)}, \quad (j = 1,2). \tag{2}$$

The parameters of the model are estimated by maximum likelihood, and the log-likelihood of the model is given by:

$$\log L = \sum_{i=1}^{N}\sum_{j=1}^{2} d_{ij}\beta_j{}'X_i - \sum_{i=1}^{N}\sum_{j=1}^{2} d_{ij}\log\left[1+\sum_{i=1}^{2}\exp\left(\beta_j{}'X_i\right)\right] \tag{3}$$

$$\text{where } d_{ij} = \begin{cases} 1 \text{ if the individual } i \text{ is observed in the } j \text{ option} \\ 0 \text{ otherwise} \end{cases}$$

The coefficients from multinomial logit are difficult to interpret. For this reason, most empirical studies compute marginal effects as an alternative way of evaluating the effect of the covariates on the probability of observing an outcome. Marginal effects for dummy variables are calculated as the change of probability when the categorical variable varies from 0 to 1, whereas all other variables are hold at their mean values. For continuous regressors, the marginal effects are obtained using the following expression (Wooldridge, 2010):

$$\frac{\partial \Pr(Y_i = j|X_i)}{\partial x_k} = \Pr(Y_i = j|k)\left\{\beta_{jk} - \left[\sum_{j=1}^{2}\beta_{hk} - \exp\left(\beta_h{}'X_i\right)\right] / \left[1+\sum_{j=1}^{2}\exp\left(\beta_h{}'X_i\right)\right]\right\}. \tag{4}$$

The estimates of the marginal effects for all regressors included in the multinomial logit model and for the birth cohorts considered along the study (1969–1986 and 1952–1968) appear in the next section. It is worth noting that the these estimates are not affected by the sample selection bias caused by limiting the analysis to children and fathers who resided in the same household when the survey is conducted (Andersen, 2001).

## 5. Results and discussion

The estimates of the marginal effects obtained for the both birth cohorts considered 1952–1968 and 1969–1986 are discussed in this section. First of all, the empirical strategy of splitting the original sample between two groups have been positively verified by means of the Wald test (Greene, 2012). Secondly, the main findings obtained through the analysis of the estimations (Tables 5 and 6) confirm the first hypothesis proposed since social mobility depends on personal and labour characteristics.

Concerning human capital variables, the results corroborate the hypothesis that education is a channel of mobility across generations. In particular, educational attainment has a positive and significant influence on upward occupational mobility, which reaches its highest value for higher education where the probability of moving up to the occupational ladder is around 26 percentage points higher than the one corresponding to an individual with primary studies. This result is in line with the predictions of the Human Capital Theory (Becker, 1964) and the Theory of Career Mobility (Sicherman & Galor, 1990) mentioned in Section 2, and highlights the fact that the educational background is an essential factor to increase the upward intergenerational occupational mobility, since the occupational categories are sorted according to the educational background required for the performance of the tasks included in them. Furthermore, it is verified the assumption that the positive effect of human capital on economic and social mobility has varied along the birth cohorts. In particular, this influence has declined for the youngest generations, and it can be easily checked in Fig. 1. The main difference corresponds to the higher technical education where the probability of ascending in the occupational ladder has decreased in 8 percentage points for the birth cohort 1969–1986 versus the birth cohort 1952–1968.

From a different standpoint, it is possible to observe the evolution of human capital's effects on social mobility by computing the predicted probabilities by educational level according to the birth cohort. The results of this analysis are depicted in Table 7 and show how the predicted probabilities of upward occupational mobility have decreased for all educational level between the two birth cohorts analysed, whereas the opposite occurs for the downward occupational mobility. Thus, for example, the predicted probability of getting worst occupations in relation to their parents is of 40% to individuals born between 1969 and 1986 and with primary education (4 points higher than the observed to the other cohort). On the contrary, individuals with higher education have decreased their options of being employed in better jobs, since their predicted probability has passed from 69% to 60% between the two cohorts analysed.

From the standpoint of the specific human capital, it is observed that potential labour experience has a slightly positive influence on upward intergenerational occupational mobility. If the number of years that the individual remains in the labour market

**Table 5**
Estimates of the marginal effects corresponding to the multinomial logit model: Birth cohort 1969–1986[a].

| Variables | Downward occupational mobility | Not occupational mobility | Upward occupational mobility |
|---|---|---|---|
| Gender | | | |
| Male | 0.089*** | 0.040*** | −0.130*** |
| Geographic origin | | | |
| UE | 0.124*** | 0.012 | −0.136*** |
| Not UE | 0.205*** | −0.024 | −0.181*** |
| Educational level | | | |
| Lower secondary education | −0.032 | −0.027 | 0.059*** |
| Upper secondary education | −0.054** | −0.079*** | 0.134*** |
| Higher technical education | −0.098* | −0.078*** | 0.177*** |
| Higher education | −0.169*** | −0.089*** | 0.258*** |
| Potential labour experience (in years) | −0.002** | −0.001 | 0.002** |
| Labour market status | | | |
| Wage earners: full time and open-ended contract | −0.061** | 0.020 | 0.068* |
| Wage earners: full time and fixed-term contract | −0.076** | 0.007 | 0.040** |
| Wage earners: part time | 0.025 | −0.044** | 0.018 |
| Self-employed | −0.162*** | 0.075** | 0.087*** |
| Current of Spanish regions of residence | | | |
| Aragón | 0.058* | −0.020 | −0.038 |
| Asturias | −0.043 | 0.002 | 0.041 |
| Basque Country | 0.031 | 0.060** | −0.091** |
| Cantabria | 0.053 | 0.009 | −0.063* |
| Castilla-La Mancha | −0.013 | −0.001 | 0.015 |
| Castilla-León | 0.025 | 0.005 | −0.030 |
| Extremadura | −0.029 | 0.030 | −0.001 |
| Galicia | 0.055* | −0.001 | −0.054* |
| La Rioja | 0.051 | 0.053* | −0.104** |
| Madrid | 0.003 | 0.019 | −0.023 |
| Murcia | −0.067** | 0.050** | 0.017 |
| Navarra | 0.045 | 0.016** | −0.062* |
| Valencia | 0.024 | −0.034* | 0.009 |
| Observations 5744 | | | |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).
[a] The reference is an unemployed Spanish woman with primary studies who lives in the South region.
*** Significant at 1%.
** Significant at 5%.
* Significant at 10%.

is considered as proxy of training (Altonji & Williams, 1992), this result is coherent with those obtained for the variables of educational attainment, since it demonstrates that human capital background affects positively the children's transition to better occupations.

Other results confirm the hypothesis about the existence of dissimilarities among subgroups of population to access to higher-level occupations associated with the peculiarities of the Spanish labour market. Firstly, gender is a significant variable to explain intergenerational occupational mobility, in particular, the results show that daughters have more probability of moving up the social ladder than their male counterparts. This distance between men and women has increased over time, since the likelihood of upward occupational mobility for men has dropped 5 points with respect to women between the two births cohorts considered. This conclusion is open to various interpretations and evidence the progress of women in terms of employment status in the Spanish society. On the one hand, it is possible that the main barriers to economic success for women arise before they enter to the labour market. On the other hand, the decision of working, searching job or starting a business can be consequence of a utility maximisation process associated with the professional success. Then, women would assume the cost of the participation in the labour market if they are expecting an important economic and social improvement (Mortensen & Pissarides, 1999). In addition, most of the labour incorporation of the women has fallen on the services sector that is characterised by occupations located in the middle of the occupational ladder.

Secondly, the geographic origin is a relevant variable to explain social mobility in Spain, since Spanish children have the lowest probability of downward intergenerational occupational mobility. For example, the probability of occupying worst jobs than their parents for non-EU immigrants born between 1969 and 1986 is 20 points higher than the one corresponding to the Spaniards. This result is independent of the subsample used in the estimates and can indicate the imperfect transmission of knowledge between the origin country and Spain that generates a decline in their occupational status (e.g. Chiswick, Lee, & Miller, 2002 or Akresch, 2008).

Regarding the dummy variables associated with current labour market status, it is verified that most of them are relevant and have the expected sign. In particular, being unemployed or having a part-time job are labour situations that affect negatively the progress of the individuals in relation to their parents. On the contrary, being self-employed or having a full time contract influence positively on individuals' career. Nevertheless, within full time wage earners, the effect on intergenerational occupational

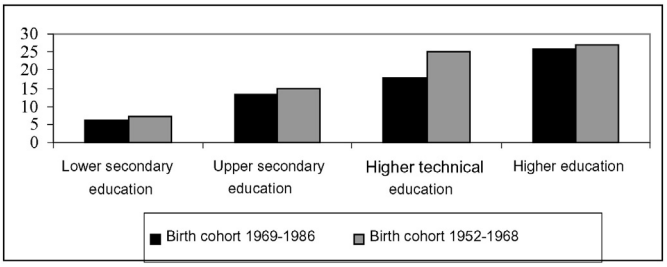
**Table 6**
Estimates of the marginal effects corresponding to the multinomial logit model: Birth cohort 1952–1968[a].

| Variables | Downward occupational mobility | Not occupational mobility | Upward occupational mobility |
|---|---|---|---|
| Gender | | | |
| Male | 0.002 | 0.060*** | −0.062*** |
| Geographic origin | | | |
| UE | 0.148*** | −0.015 | −0.133*** |
| Not UE | 0.208*** | −0.037* | −0.170*** |
| Educational level | | | |
| Lower secondary education | −0.026* | −0.049*** | 0.073*** |
| Upper secondary education | −0.071** | −0.078*** | 0.149*** |
| Higher technical education | −0.157*** | −0.093*** | 0.250*** |
| Higher education | −0.186*** | −0.083*** | 0.269*** |
| Potential labour experience (in years) | −0.002** | −0.001 | 0.003** |
| Labour market status | | | |
| Wage earners: full time and open-ended contract | −0.054** | −0.039** | 0.093* |
| Wage earners: full time and fixed-term contract | −0.026** | 0.027 | 0.001** |
| Wage earners: part time | 0.061** | 0.017** | −0.079 |
| Self-employed | −0.173*** | 0.068** | 0.104*** |
| Current of Spanish regions of residence | | | |
| Aragón | 0.087*** | −0.041* | −0.046 |
| Asturias | 0.047 | −0.032 | −0.015 |
| Basque Country | 0.027 | −0.047** | 0.019** |
| Cantabria | 0.044 | 0.042 | −0.086** |
| Castilla-La Mancha | −0.060** | −0.019 | 0.080** |
| Castilla-León | 0.037 | −0.038** | −0.001 |
| Extremadura | −0.079** | 0.018 | 0.061* |
| Galicia | 0.074*** | −0.006 | −0.067** |
| La Rioja | −0.003 | −0.036 | 0.039** |
| Madrid | 0.018 | 0.014 | −0.033 |
| Murcia | −0.037 | −0.010 | 0.047 |
| Navarra | 0.022 | −0.068** | 0.045 |
| Valencia | 0.012 | −0.009 | −0.003 |
| Observations 6289 | | | |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).
[a] The reference is an unemployed Spanish woman with primary studies who lives in the South region.
*** Significant at 1%.
** Significant at 5%.
* Significant at 10%.

mobility depends on the stability of the labour relationship, since the probability of upward intergenerational occupational mobility for permanent workers is higher than for temporary workers. As mentioned in Section 2, the explanation of this result can be found in the postulated of theory of segmented labour market (Doeringer & Piore, 1971), which proposes the existence of a secondary labour market where the labour relationships are unstable and the opportunities of finding good jobs are scarce.

Finally, the conclusions about the dummy variables related to the current region on residence shows that social mobility is not homogenous along the Spanish territory. For example, Aragon and Galicia are the Spanish regions where the individuals have more probability of moving down to the occupational ladder.




**Note**: (*) The reference category is an individual with primary studies.
**Source:** Own elaboration based on the Living Condition Survey (INE, 2011).

**Fig. 1.** Educational variables' marginal effect on the probability of upward intergenerational occupational mobility*.

**Table 7**
Predicted probabilities by educational level (%).

| Educational level | Downward occupational mobility | | Not occupational mobility | | Upward occupational mobility | |
|---|---|---|---|---|---|---|
| | Birth cohort | | Birth cohort | | Birth cohort | |
| | 1952–1968 | 1969–1986 | 1952–1968 | 1969–1986 | 1952–1968 | 1969–1986 |
| Primary education | 37.03 | 41.90 | 26.80 | 28.00 | 36.18 | 30.10 |
| Lower secondary education | 26.35 | 30.87 | 17.67 | 19.84 | 55.98 | 49.28 |
| Upper secondary education | 22.83 | 28.93 | 15.44 | 15.86 | 61.73 | 55.21 |
| Higher technical education | 12.82 | 23.55 | 12.07 | 14.09 | 75.11 | 62.35 |
| Higher education | 16.26 | 23.37 | 15.32 | 16.40 | 68.42 | 60.23 |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).

## 6. Conclusions

This paper has obtained empirical evidence about the process of social mobility. In particular, the research topic has been the analysis of the intergenerational occupational mobility. Data used has been drawn from the module from Living Condition Survey (INE, 2011) dedicated to the study of the transmission of intergenerational poverty, and the patterns of mobility have been analysed for the birth cohorts 1969–1986 versus 1952–1968.

The descriptive analysis of the data shows that the upward intergenerational occupational mobility has decreased for the cohort 1969–1986 in comparison with the individuals born before 1968. By labour market status and educational level, this fact has happened especially for wage earners and individual with higher technical education. Distinguishing by type of occupation, the main conclusions are, firstly, that the highest intergenerational occupational mobility occurs for children who are administrative employees, whereas skilled workers in agriculture is the occupational group with the lowest percentage of intergenerational occupational mobility.

From an econometric point of view, the movements up and down the occupational ladder have been specified through a multinomial logit model, in particular, the covariates' effects have been obtained by computing the marginal effects. With respect to one of the main objective, that is the effect of human capital on social mobility, the findings verify the important role of education as a mechanism to reach a society with more equality of opportunities. In particular, the effect is more intense for individuals with higher education, since their probability of upward intergenerational occupational mobility is around 26 points percentages higher than the one corresponding to an individual with primary studies. Moreover, these individuals have an absolute predicted probability of moving up the occupational ladder of 60%.

The positive effects of education on social mobility are not homogeneous according to the age of the individuals, and they are more intense for people born between 1952 and 1968. On balance, the conclusions about the human capital variables represent a starting point to implement and improve the educational policies that allow children to access human capital, regardless of the economic endowment and financial capacity of their parents. In this sense, any change of the Spanish educational system that suppose an increase of the costs will have adverse consequences for the achievement of a more meritocratic society.

Regarding the rest of explanatory variables, it is possible to highlight other relevant findings. Firstly, the probability of moving up the social ladder is higher for women than for men, and the same happens for the Spanish children in relation to those born in a foreign country. Secondly, potential labour experience influences positively on the upward intergenerational occupational mobility, which may reveal the underlying effect of training, that is an unobservable variable through the information provided by the LCS. Finally, being unemployed or having a part-time job are the worst labour situations to achieve a social advancement.

## Appendix A

**Table A1**
Regressors' statistics descriptive: Birth cohort 1969–1986.

| Variables | Downward occupational mobility | | Not occupational mobility | | Upward occupational mobility | |
|---|---|---|---|---|---|---|
| | Mean | St. dev. | Mean | St. dev. | Mean | St. dev. |
| Age | 34.58 | 4.85 | 34.69 | 4.72 | 34.91 | 4.69 |
| Gender | | | | | | |
| Male | 0.58 | 0.50 | 0.59 | 0.50 | 0.44 | 0.50 |
| Female | 0.42 | 0.50 | 0.41 | 0.50 | 0.56 | 0.50 |
| Geographic origin | | | | | | |
| Spain | 0.81 | 0.45 | 0.89 | 0.40 | 0.93 | 0.45 |
| UE | 0.05 | 0.20 | 0.03 | 0.18 | 0.02 | 0.15 |
| Not UE | 0.14 | 0.34 | 0.08 | 0.26 | 0.05 | 0.21 |

(continued on next page)

**Table A1** *(continued)*

| Variables | Downward occupational mobility | | Not occupational mobility | | Upward occupational mobility | |
|---|---|---|---|---|---|---|
| | Mean | St. dev. | Mean | St. dev. | Mean | St. dev. |
| Educational level | | | | | | |
| Primary education | 0.14 | 0.34 | 0.13 | 0.32 | 0.07 | 0.18 |
| Lower secondary education | 0.29 | 0.45 | 0.30 | 0.46 | 0.20 | 0.40 |
| Upper secondary education | 0.26 | 0.44 | 0.20 | 0.40 | 0.21 | 0.40 |
| Higher technical education | 0.01 | 0.11 | 0.01 | 0.10 | 0.01 | 0.11 |
| Higher education | 0.30 | 0.46 | 0.36 | 0.48 | 0.51 | 0.49 |
| Potential labour experience (in years) | 13.25 | 3.96 | 15.34 | 6.14 | 14.74 | 6.09 |
| Labour market status | | | | | | |
| Wage earners: full time and open-ended contract | 0.42 | 0.50 | 0.45 | 0.50 | 0.49 | 0.50 |
| Wage earners: full time and fixed-term contract | 0.14 | 0.34 | 0.15 | 0.35 | 0.14 | 0.34 |
| Wage earners: part time | 0.11 | 0.31 | 0.06 | 0.25 | 0.09 | 0.28 |
| Self-employed | 0.06 | 0.25 | 0.13 | 0.34 | 0.10 | 0.31 |
| Unemployed | 0.26 | 0.44 | 0.21 | 0.39 | 0.18 | 0.35 |
| Current of Spanish regions of residence | | | | | | |
| Aragón | 0.05 | 0.23 | 0.04 | 0.19 | 0.04 | 0.21 |
| Asturias | 0.02 | 0.16 | 0.03 | 0.18 | 0.04 | 0.20 |
| Basque Country | 0.05 | 0.23 | 0.06 | 0.23 | 0.04 | 0.21 |
| Cantabria | 0.03 | 0.18 | 0.03 | 0.17 | 0.03 | 0.16 |
| Castilla-La Mancha | 0.05 | 0.23 | 0.05 | 0.23 | 0.06 | 0.23 |
| Castilla-León | 0.05 | 0.23 | 0.05 | 0.23 | 0.05 | 0.22 |
| Extremadura | 0.04 | 0.18 | 0.04 | 0.20 | 0.04 | 0.18 |
| Galicia | 0.06 | 0.23 | 0.05 | 0.23 | 0.05 | 0.22 |
| La Rioja | 0.03 | 0.17 | 0.04 | 0.20 | 0.03 | 0.16 |
| Madrid | 0.10 | 0.30 | 0.10 | 0.30 | 0.10 | 0.31 |
| Murcia | 0.03 | 0.18 | 0.05 | 0.23 | 0.04 | 0.20 |
| Navarra | 0.03 | 0.18 | 0.03 | 0.18 | 0.03 | 0.17 |
| Rioja | 0.04 | 0.18 | 0.04 | 0.20 | 0.03 | 0.16 |
| South | 0.33 | 0.35 | 0.38 | 0.40 | 0.33 | 0.35 |
| Valencia | 0.09 | 0.29 | 0.07 | 0.25 | 0.09 | 0.29 |
| Observations | 1947 | | 1239 | | 2590 | |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).

**Table A2**
Regressors' statistics descriptive: Birth cohort 1952–1968.

| Variables | Downward occupational mobility | | Not occupational mobility | | Upward occupational mobility | |
|---|---|---|---|---|---|---|
| | Mean | St. dev. | Mean | St. dev. | Mean | St. dev. |
| Age | 50.20 | 4.93 | 50.50 | 4.87 | 50.61 | 4.89 |
| Gender | | | | | | |
| Male | 0.54 | 0.50 | 0.63 | 0.48 | 0.53 | 0.50 |
| Female | 0.46 | 0.50 | 0.37 | 0.48 | 0.47 | 0.50 |
| Geographic origin | | | | | | |
| Spain | 0.88 | 0.46 | 0.96 | 0.45 | 0.94 | 0.46 |
| UE | 0.03 | 0.18 | 0.02 | 0.14 | 0.01 | 0.13 |
| Not UE | 0.09 | 0.29 | 0.04 | 0.20 | 0.03 | 0.18 |
| Educational level | | | | | | |
| Primary education | | | | | | |
| Lower secondary education | 0.29 | 0.45 | 0.26 | 0.44 | 0.15 | 0.30 |
| Upper secondary education | 0.24 | 0.42 | 0.20 | 0.40 | 0.21 | 0.41 |
| Higher technical education | 0.01 | 0.06 | 0.01 | 0.07 | 0.23 | 0.42 |
| Higher education | 0.20 | 0.40 | 0.26 | 0.43 | 0.01 | 0.09 |
| Potential labour experience (in years) | 31.44 | 7.79 | 31.95 | 7.42 | 0.40 | 0.48 |
| Labour market status | | | | | | |
| Wage earners: full time and open-ended contract | 0.51 | 0.50 | 0.45 | 0.49 | 0.60 | 0.48 |
| Wage earners: full time and fixed-term contract | 0.06 | 0.26 | 0.06 | 0.26 | 0.05 | 0.21 |
| Wage earners: part time | 0.09 | 0.29 | 0.05 | 0.23 | 0.04 | 0.20 |
| Self-employed | 0.09 | 0.29 | 0.23 | 0.42 | 0.17 | 0.37 |
| Unemployed | 0.27 | 0.42 | 0.20 | 0.40 | 0.14 | 0.29 |
| Current of Spanish regions of residence | | | | | | |
| Aragón | 0.06 | 0.24 | 0.04 | 0.20 | 0.05 | 0.21 |
| Asturias | 0.04 | 0.19 | 0.03 | 0.18 | 0.04 | 0.19 |
| Basque Country | 0.05 | 0.22 | 0.04 | 0.20 | 0.07 | 0.25 |
| Cantabria | 0.03 | 0.17 | 0.03 | 0.19 | 0.03 | 0.16 |

**Table A2** *(continued)*

| Variables | Downward occupational mobility | | Not occupational mobility | | Upward occupational mobility | |
|---|---|---|---|---|---|---|
| | Mean | St. dev. | Mean | St. dev. | Mean | St. dev. |
| Current of Spanish regions of residence | | | | | | |
| Castilla-La Mancha | 0.04 | 0.20 | 0.06 | 0.23 | 0.06 | 0.23 |
| Castilla-León | 0.07 | 0.25 | 0.06 | 0.23 | 0.06 | 0.25 |
| Extremadura | 0.03 | 0.17 | 0.05 | 0.22 | 0.05 | 0.20 |
| Galicia | 0.07 | 0.25 | 0.06 | 0.24 | 0.05 | 0.22 |
| La Rioja | 0.04 | 0.18 | 0.03 | 0.17 | 0.04 | 0.19 |
| Madrid | 0.10 | 0.30 | 0.10 | 0.30 | 0.10 | 0.30 |
| Murcia | 0.03 | 0.17 | 0.03 | 0.18 | 0.03 | 0.18 |
| Navarra | 0.03 | 0.18 | 0.02 | 0.15 | 0.04 | 0.19 |
| South | 0.33 | 0.35 | 0.38 | 0.32 | 0.30 | 0.31 |
| Valencia | 0.08 | 0.27 | 0.07 | 0.26 | 0.08 | 0.27 |
| Observations | 1850 | | 1345 | | 3128 | |

Source: Own elaboration based on the Living Condition Survey (INE, 2011).

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