

Intergenerational transmission of entrepreneurial activity in Spanish families*

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Abstract

This paper empirically analyzes the existence of intergenerational transmission of entrepreneurial activity, from parents to children within Spanish families. We used data from the Survey of Household Finances (Bank of Spain) for the years 2002, 2005, 2008, 2011, and 2014, which allowed us to identify entrepreneurs as self-employed workers. The entrepreneurial activity of individuals was studied as a function of individual and parental demographics and labor characteristics. We found a significant correlation between the entrepreneurial activity of parents and children, which appeared to have remained unchanged during the last decade and the years of the economic crisis. Furthermore, the intergenerational transmission of occupation from parents to children was stronger for entrepreneurs than for employees.

Keywords: Intergenerational transmission; Entrepreneurship; Survey of Household Finances; Spain

JEL Codes: D11, D12, I21, I32, J24.

Acknowledgements: This article has benefited from funding from “Cátedra Emprender” (University of Zaragoza-Fundación Emprender en Aragón), and from the Government of Aragón (“Programa Operativo FSE Aragón 2014-2020”). We are grateful from comments from Prof. José Alberto Molina.

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Introduction

The study of intergenerational transmission is a topic of importance in the economic literature, since it allows analysis of which socio-economic characteristics are transmitted from generation to generation and to what extent. Within this framework, we studied the transmission of entrepreneurial activity, or self-employment, from parents to children in Spanish families using data from the Survey of Household Finances of the Bank of Spain, for the years 2002, 2005, 2008, 2011 and 2014. Entrepreneurship has traditionally been associated with economic growth and development (Acs 1992; Minniti 2008; Shane 2009), and there has been a recent boom, both national and international, in studying entrepreneurship and self-employment as potential socio-labor instruments to combat the effects of the recent crisis, such as unemployment, economic recession, low levels of family welfare and other challenges (Fuentelsaz et al. 2015; Minniti and Naudé 2010). Some examples are the Entrepreneurship 2020 Action Plan of the European Commission and the Programa Emprendedores in the particular case of Spain, although some authors have disputed the efficacy of these measures (Naudé 2016). This work contributes to the literature by studying the determinants of the entrepreneurial and self-employment activity of Spanish families, a phenomenon characterized by its complexity, both academic and social (Coduras et al. 2016), emphasizing the extent to which the work activity of the parents determines that of the children.

The scientific literature has identified, in general, important conditions and characteristics that are transmitted from parents to children, especially those related to specific work behaviors (Becker and Tomes 1979; Blumberg and Pfann 2016; Campaña et al. 2017; Colombier and Masclet 2008; Gimenez-Nadal and Molina 2013; Gimenez-Nadal et al. 2012, 2017, 2018; Laband and Lentz 1983; Lindquist et al. 2015; Viinikainen et al. 2017). Entrepreneurial activity can be influenced by a wide range of determinants, such as the environment, vocation, necessity, innovation, recognition of business opportunities, specific peer effects (transmission among social networks of friends or relatives), human capital, or combinations of all of these. In particular, a first-generation entrepreneur, whose parents have not been entrepreneurs, may consider the importance of their education or their innovative capacity as being most important when looking to establish a business. However, a second-generation entrepreneur whose parents were themselves entrepreneurs can acquire motivation from the parents. That is to say, second-generation entrepreneurs can inherit a particular combination of knowledge and social and economic perceptions or attitudes that is not available to the first-generation entrepreneur (Gaully 2017). Such factors include experience, business skills that cannot be acquired through training in colleges and universities, certain economic-financial family

conditions, the direct family environment, and family values and ideals. Additionally, second-generation entrepreneurs have the opportunity to continue the work of their parents, such as inherit a family business, and then they do not need to establish a start-up operation. It is, therefore, of special interest to study not only the weight of human, financial, and social capital in relation to entrepreneurial activity, but also the family context and, in particular, the intergenerational transmission of such qualities.

Our empirical analysis, using logistic regression models, has shown that entrepreneurial activity is transmitted from parents to children in a significant way. For instance, the probability of an individual being an entrepreneur, conditioned on the parent being an entrepreneur, was estimated to be around 18 percentage points higher in comparison to first-generation entrepreneurs. This suggests that the inheritance of a family business or family entrepreneurial skills and values is an important channel in the transmission of entrepreneurship. Furthermore, intergenerational transmission of entrepreneurial activity appeared not to depend on gender or education, even though men are more likely to become entrepreneurs in Spain. Our estimates also suggested that these transmissions do not depend significantly on the period studied, indicating that the recent economic crisis may have no significant association with these transmissions. In addition, our results have shown the importance of family financial expenditures, which act as a cushion, in line with the existing literature (Molina et al. 2016).

The main contribution of the present work is the analysis of the intergenerational transmission of entrepreneurial and self-employment activity in Spain. Although there is some consensus in the literature about such transmission, its channels and origins are not clear. Possible factors in the process are genetics and pre-birth effects, post-birth effects, culture, or the inheritance of a family business, among others (Lindquist et al. 2015). Furthermore, these transmissions have been studied in other countries, such as Sweden, the United Kingdom, the United States, and certain Asian countries, but this is the first analysis to cover Spain. Studying entrepreneurial behaviors in specific countries is important, as prior studies have determined the importance of a specific cultural environment (Acs 1992; Minniti 2005; Cooper and Yin 2005) and, in general terms, the importance of particular cases due to the complexity of entrepreneurship itself (Coduras et al. 2016; Velilla et al. 2018). Our results have shown a positive and significant correlation between the entrepreneurial activity of the parents and that of the children. We studied how intergenerational transmission evolved in the recent decade, using heterogeneous analysis and, in particular, in the aftermath of the recent economic crisis. Finally, we compared this transmission with the transmission

of non-entrepreneurial activity, that is to say, of work as a salaried employee, and found that the former is significantly stronger than the latter, which is found to be non-statistically significant.

The rest of the paper is organized as follows. First, we provide a review of the literature on entrepreneurship as an inheritance or vocation. Second, we introduce the Survey of Household Finances of the Bank of Spain. Section 3 shows our econometric strategy, and Section 4 contains the results of our empirical analysis. Finally, we set out the main conclusions of our study.

Review of the literature

There has recently been increased interest in entrepreneurship, both social and academic (e.g., Fuentelsaz et al. 2015). However, due to the complexity of entrepreneurial activity (Coduras et al. 2016), various authors have pointed to a wide range of determinants of entrepreneurship at the national and at the individual level. These determinants include institutions, government programs, fiscal benefits, cultural values, age, gender, formal education, managerial skills, peer effects, risk aversion, innovation, and opportunity- and necessity-driven entrepreneurship, among others. For instance, one question that has emerged in the literature studying (individual) determinants of entrepreneurship is: are individuals born entrepreneurs, or do they become entrepreneurs? (Matthews et al. 2011); this is akin to the long-running debate on nature versus nurture.

According to the existing literature, there is no single answer to the question and one could conclude that some individuals are born entrepreneurs, while some become entrepreneurs. On the one hand, some studies have found several important determinants of entrepreneurship that are acquired by individuals. We could say, then, that individuals acquire entrepreneurial capital, which not only affects the initial entrepreneurial decision (i.e., the choice of entrepreneurship as a career), but also gives rise to additional entrepreneurial characteristics. This entrepreneurial capital mainly follows three channels: human capital, financial capital, and social capital, whose effects on entrepreneurship have been extensively studied (Bosma et al. 2004; Brixiová et al. 2015; Calvo and Wellisz 1989; Colombier and Masclet 2008; Cooper et

al. 1994; Doepke and Zilibotti 2017; Fritsch et al. 2015; Heckman et al. 2006; Lazear 2005; Levie and Autio 2013; Velilla and Ortega 2017).¹

The study of the relationship between human capital and entrepreneurship has demonstrated that higher levels of both formal education and managerial skills are positively correlated with entrepreneurial intentions and entrepreneurial success (e.g., Brixiova et al. 2015; Kotsova 1997; Kyrö 2015; Levie and Autio 2013; Mengistae 2006; Minniti 2009). Nevertheless, as education and human capital is also associated with higher wages and better opportunities, some authors have maintained that the relationship between education and entrepreneurship may not be so simple (Galindo et al. 2010; Le 1999; Marvel et al. 2016). The role of financial capital in entrepreneurial decisions has also been studied, and research has concluded that household finances are important, as risk-taking is an inherited characteristic of entrepreneurship and self-employment, and a good household financial situation may encourage individuals to become entrepreneurs (Molina et al. 2016; Ruiz-Arroyo et al. 2014; Sobel 2008). From the point of view of intergenerational transmission, both human capital and financial capital have recently caught the attention of authors. Both forms of capital can be seen as a way to escape poverty, and results point to significant correlations between both the education and the income of parents and that of their children (e.g., Arrondel and Grange 2014; Bird et al. 2010; Black and Devereux 2011; Blanden 2013; Bonahora 2005; Campos-Vazquez 2018; Castañeda and Aldaz-Carrol 1999; Duarte et al. 2018; Gimenez-Nadal and Molina 2013; Grossbard 2014; Guryan et al. 2008; Horioka 2014; Ludwig and Mayer 2006; Molina 2014). For the role of social capital, Granovetter (1973) distinguished between strong ties with parents and other relatives, and weak ties with friends and other sources of peer effects. Prior evidence has pointed to the greater relative importance of strong ties (Brüderl et al. 1998; Jong and Marsili 2015), suggesting that parents-to-children transmissions are an important channel of entrepreneurial characteristics. However, other authors have found that individuals tend to be more connected to their peers than to their parents, and so the supposed weak ties may also play a significant role (McPherson et al. 2001; Nicolaou and Shane 2010; Nicolaou et al. 2008; Zhang et al. 2009).

Several authors have studied whether individuals are, or are not, born entrepreneurs. Dunn and Holtz-Eakin (2000) determined the importance of transmission through human capital and gender in the United

¹ Blumberg and Pfann (2016) provide a theoretical framework to study the role of human, financial, and social capital in the dynamics of entrepreneurial transmission.

States. Schmitt (2004) studied the case of East German families and found a significant association between entrepreneurial personality, authoritative parental behaviors, and the early start-up of the children. Wang and Wong (2004) showed how the entrepreneurial experience of family members had a strong effect on the entrepreneurial decisions of Asian University students. Sørensen (2007) studied parental role models in Denmark and found that parents play an important role, but not in terms of financial capital, social capital, or managerial skills. Colombier and Masclet (2008) studied first- and second-generation entrepreneurs in France, shedding light on the importance of intergenerational transmission in general terms, but especially within the same occupations, such as a family business. Arum and Mueller (2009), in cross-national research, concluded that participation in a family business during youth tripled the probability of establishing a start-up in the future. Further, this correlation was reinforced when the parents were the managers of the family business. Andersson and Hammarsted (2011) found that intergenerational transmissions are conditioned by gender in Sweden as the influence of the father is stronger than that of the mother among sons, but not in the case of daughters.

Even though entrepreneurial transmissions are widely accepted in the literature, there is no consensus on their origins (Colombier and Masclet 2008; Lindquist et al. 2015). Intergenerational transmissions could be linked to a wide range of family contexts, such as fiscal and legal knowledge, experience, cultural values, financial support, such concrete behaviors as risk taking or innovation, or socio-demographics like age or gender (Aldrich and Kim 2007; Kirkwood 2009). Other than these mechanisms, prior research has found that the inheritance of a family business is a strong channel of intergenerational transmission of entrepreneurial and self-employment activity, especially for men (Krueger et al. 2000; Sørensen 2007; Wang 2010). There may also be mechanisms from grandparents to grandchildren, and Laspita et al. (2012) found that such transmissions, although less important, are significant and go in the opposite direction to transmissions from parents to children, while Andersson and Hammersted (2010), who studied three generations in Sweden, found no such substitutability. Finally, Fairlie and Robb (2007) found that entrepreneurs whose parents were also entrepreneurs had a higher probability of success, but only for a family business, while other authors have found no such connection (Roberts 1991; Sørensen 2007).

Some authors have also studied the role of genetic transmission of entrepreneurship in analyzing pre-birth and post-birth effects. Nicolaou et al. (2008) and Nicolaou and Shane (2010) studied the importance of genetic factors as determinants of entrepreneurship against the minor role of transmissions through the family environment, in the cases of the United Kingdom and the United States, respectively. Lindquist et

al. (2015), using Swedish data, found that pre-birth factors are significant, but the role of post-birth factors is twice as important. This reveals that, first, the same recipe cannot be applied to different scenarios, especially in the case of a complex phenomenon such as entrepreneurship where culture and social norms play a meaningful role. Second, these results highlight the lack of consensus on the ways in which entrepreneurial activity is transmitted from parents to children, even when the existence of that transmission is clear.

To sum up, the existing literature agrees that there are significant intergenerational transmissions of entrepreneurial activity, and the probability of an individual becoming an entrepreneur increases between 30% and 200% in the presence of these transmissions (Lindquist et al. 2015). However, the causes and sources of these transmissions are not clear. Some authors have found direct or genetic transmissions, while others have pointed to the important role of post-birth effects, such as values or skills, among other factors. The inheritance of a family business also appears to be a strong source of transmission. Furthermore, results differ qualitatively and quantitatively from one country to another, highlighting the complexity of the entrepreneurial phenomenon. Within this framework, the present work studied the intergenerational transmission of entrepreneurial activity in Spanish families. We found that, in Spain, this channel of entrepreneurial intention appears to be stronger than that arising from education or financial capital. Further, our estimates suggested, using heterogeneous analysis, that these transmissions have remained quantitatively stable during the last decade, even in the aftermath of the economic crisis, and transmissions appeared to be qualitatively similar for males and females and also in terms of a range of formal education levels.

Data

This study used the Survey of Household Finances (SHF) of the Bank of Spain for the years 2002, 2005, 2008, 2011 and 2014.² The SHF is a survey included in the Spanish National Statistical Plan that, since 2002, is carried out triennially for all individuals of the selected families, to collect information on all economic strata of Spanish society with the objective of compiling data on the economic-financial conditions of Spanish families. This complements the aggregate data collected in the Financial Accounts

² An alternative would have been to use the Spanish Economically Active Population Survey (http://www.ine.es/prensa/epa_prensa.htm). However, the SHF contains a more detailed description of occupation for respondents and their parents.

of the Spanish Economy and allows for the preparation of studies from a family perspective.³ It must be noted that the SHF includes an oversampling of wealthy households (Bover et al. 2018), and so the use of the specific weights provided by the sample is recommended.

Given that we were interested in the work of adult children, we restricted the sample to the children of interviewed households who are of working age (16-65 years old, inclusive). Students, who are 27.23% of the sample, are removed as they are not yet in the labor market. We used additional information about the reference individual (self-reported) of the corresponding family. According to the SHF methodology, the reference individual of a family is the individual, or one of the individuals, responsible for the accommodation, and who chiefly deals with the financial issues (Bank of Spain 2014). The intergenerational analysis was developed by considering two generations for each family, due to restrictions in the data, since the inclusion of a third generation (either grandchildren or grandparents) would entail the loss of many observations, making an econometric study impossible. These restrictions produced a sample of 6,383 observations corresponding to working-age, non-student adult children from 5,749 families. There are 1,623 observations in 2002, 1,588 in 2005, 1,324 in 2008, 1,127 in 2011, and 721 in 2014.⁴

It should be noted that the definition of an entrepreneur is not standard in the literature. Some authors characterize entrepreneurship as a process of innovation, or a process of business creation, while others define entrepreneurs as business owners and self-employed workers (Artz 2016; Cagetti and De Nardi 2006). For the present study, the SHF allowed us to define entrepreneurs as those individuals who, at the time of the SHF interview, were self-employed workers or business owners. This applies to the reference individuals and the adult children of the families of the sample. We note that this definition may not be ideal in contexts in which the focus is the process of business creation, and the definition of the Global Entrepreneurship Monitor, based on individuals who established a business in the last 42 months, should be more accurate. However, in the study of intergenerational transmission, the objective is to measure whether the entrepreneurial activity of individuals is influenced by the fact that their parents were

³ Specifically, for the empirical analysis presented in this paper, the data used should be interpreted as a cross-section. Although the SHF allows us to build a data panel, that process is associated with the loss of many of the observations, as some households of wave T are selected from wave T – 1, but no prior considerations are made about wave T with respect to wave T – 2. Consequently, despite that for every two consecutive waves there is a subsample of households that appear in both, there is no established subsample of households regularly interviewed in each wave, which would make the sample of a data panel covering the whole period too small to develop a representative analysis. For instance, the number of households presented in the SHF from 2002 to 2014, once restrictions to the sample were applied, was zero.

⁴ The initial number of observations prior to sample restrictions was 22,798 children (from 14,103 families), where 4,496 were from 2002, 4,804 from 2005, 4,496 from 2008, 4,576 from 2011, and 4,426 from 2014.

entrepreneurs or business owners. In this context, the identification of entrepreneurs as self-employed seems appropriate.

The SHF allowed us to define the following variables, both for the reference individual and for the adult children: gender (1 if male, 0 if female), age, measured in years, education (we divided the sample into three groups, based on the International Standard Classification of Education (ISCED) of the United Nations Educational, Scientific and Cultural Organization (UNESCO), according to the maximum level of formal education achieved: compulsory education, secondary non-compulsory education, and university education, so that we can distinguish the role of compulsory studies), the type of occupation, differentiating between salaried workers, entrepreneurs or self-employed workers, and unemployed, retired, and disabled workers, and the family financial expenditures, defined at the family level, and measured in Euros.⁵ In addition, the SHF groups the occupations of individuals in the following categories: management of companies, professional and scientific technicians, professional support technicians, administration, hospitality, agriculture, manufacturing, installation and machinery, unskilled workers, and the Armed Forces.

Descriptive analysis of the sample

Table 1 presents a descriptive analysis of the sample, distinguishing between the reference individual of the household (Panel A) and the adult children (Panel B). The descriptives have been computed using sample weights to deal with the over-representation of wealthy households in the sample. We can see that the average age of the parents was 59.89 years, while the average age of the adult children was 25.16. It is important to note that the maximum age of the children of the sample is 63 years old. In addition, 56% of the reference individuals of the families analyzed were male. That is, in 44% of the families studied, the reference individual in the household was the mother. In the case of the children, there was also a greater concentration of males, as 62% of non-student adult children were male. Regarding education, for the

⁵ The SHF includes the following levels of education: illiterate (1), primary education (2), training and job placement that do not require a degree from the first stage of secondary (3), first stage of secondary education (4), training and job placement that require a secondary degree of the first stage (5), second stage of secondary education (6), training and job placement that require a second-stage secondary degree (7), higher vocational education, plastic arts, design and sports (8), other courses of 2 or more years that require the baccalaureate degree (9), first and second cycle university education (10), official professional specialization studies (11), and university education of the third cycle (12). This classification had been recoded as follows: compulsory education (1, 2, 3, 4, 5), secondary non-compulsory education (6, 7, 8, 9), and university education (10, 11, 12). In addition, the financial capital of families was defined as the total annual expenditure of each family.

reference individuals 72% of the sample had completed primary or secondary compulsory studies, but had not reached secondary non-compulsory education. Only 11% of parents had reached University. Among adult children, this trend changes, as 40% of them had not reached non-compulsory education, and 23% had attended University. The remaining 37% of the non-student children in the sample had reached secondary non-compulsory education, but not University.

(Table 1 about here)

In terms of labor force status, 30% of the reference individuals were employed, 9% were entrepreneurs or self-employed, 8% were unemployed, 29% were retired, and 4% were disabled workers. The remaining 20% of the reference individuals of the analyzed households were home-workers or had other kinds of labor status. Figure 1 (Panel A) shows that, according to the sample, the rate of employment among reference individuals of households was 26.9% in 2002 and 26.4% in 2005. It fell to 22.4% in 2008, showed some signs of the crisis, and fell further to 12.8% in 2014. The rate of retired workers showed an opposite trend, from 31.8% in 2002 to 51.5% in 2014, but the rate of unemployment remained stable at around 7%. These trends provide suggestive evidence that retirement was an alternative for those reference individuals of households who lost their jobs, perhaps because of the crisis. The rate of entrepreneurs among reference individuals was relatively stable, between 12% and 15%. In the case of adult children, Figure 1 (Panel B) shows that the decrease in the rate of employment was similar: from 61.6% in 2002 and 68.1% in 2005 to around 47.3% in 2014. However, in this case, unemployment was the category that showed the opposite trend to employment, from 21.5% in 2002 to 32.3% in 2014, and retirement was negligible for the younger workers, below 1% for all years. Finally, in the case of the rates of entrepreneurship among adult children of the analyzed households, we again saw a stable pattern, which increased slightly from 10.3% in 2002 to 12.2% in 2014.

(Figure 1 about here)

Table 2 shows the percentage of individuals classified in each occupation, differentiating between reference individuals and their adult children. Given the restrictions of the sample, and despite the use of sample weights, we could not consider these as being representative of the whole Spanish population, as in other sources, such as the Spanish Labor Force Survey. The greater percentage of workers who were entrepreneurs or self-employed, among reference individuals, is concentrated in business administration (42.5%). Occupations with the lowest percentages of self-employed were unskilled workers and

administration, with 2.1% and 3.1% of entrepreneurs dedicating themselves to these activities, respectively. Regarding the adult children-entrepreneurs, most of them were in business management, while the professions with the fewest were installation and machinery, and unskilled workers. To determine whether adult children tend to work in the same occupations as their parents, we compared the occupations of reference individuals and adult children within each family, with a focus on families where the adult children and their parent were entrepreneurs or self-employed. In general terms, 24.9% of the adult children worked in the same occupation as their parent. However, when we looked at the families where the analyzed adult child and the reference individual were entrepreneurs or self-employed, this percentage increased to 58.2%. Furthermore, among those families, 54.9% of them worked in the sector of management and administration of business, 11.8% in the sector of hospitality, and 11.8% in the sector of manufacturing.⁶ The occupations with the least representation were installation and machinery (1.9%), and unskilled workers (1.0%). It is interesting to note that the management and administration of business was the sector where most adult children and reference individual entrepreneurs were found, and it was also the sector with the highest concentration of parents and adult children entrepreneurs within the same family. This may suggest that individuals whose parents manage or administer a business either tend to work with them or tend to establish new enterprises.

(Table 2 about here)

Empirical strategy

We estimated by Maximum Likelihood the probability that the adult children of the families in the sample were entrepreneurs, based on a range of explanatory variables including gender, age, and education level (taking compulsory education as reference category) of the reference individual and the adult children, along with the family financial expenditures. The explanatory variable of interest was the occupation of the parent; that is, if the parent was an entrepreneur (1) or not (0). Thus, we proposed the following logistic regression (logit) model:

$$\text{logit}(Y) = \beta_0 + \beta_P \mathbf{X}_P + \beta_H \mathbf{X}_H + \beta_E X_E + \beta_{FC} X_{FC} + \varepsilon, \quad (1)$$

⁶ We must acknowledge that we could not study whether child entrepreneurs who worked in the same occupation as their parents and, in particular, those working in the administration of business, inherited the business. As a consequence, we could not directly conclude that the inheritance of a (family) business was a source of intergenerational transmission of entrepreneurship.

where Y was the dependent variable, taking the value 1 if the adult child was an entrepreneur, or self-employed, and 0 otherwise. \mathbf{X}_P and \mathbf{X}_H were the vectors of explanatory variables referring to the socio-demographic conditions of the reference individual of the household, and the adult child, respectively. X_E was the explanatory variable of interest, X_{FC} was the family financial expenditures, and ε was the error term, representing unobserved factors.

The estimated parameters should be interpreted as the change in the logit function associated with an increase of one unit of the corresponding explanatory variable, *ceteris paribus*. Since the logit function is an increasing and monotonic transformation of the probability, positive (negative) parameters are associated with positive (negative) variations of said probability, although the magnitude of the parameters cannot be directly interpreted as the magnitude of said change. In any case, if we found β_E to be positive and significantly different from zero, the results would indicate that the entrepreneurial activity of the parents had a significant correlation with the entrepreneurial activity of the children. In other words, the sign and significance of the parameter β_E determines the existence of intergenerational transmissions of entrepreneurial activity in Spanish families. Additionally, we computed the marginal effects associated with β_E , that is, the change in the probability of the dependent variable when the explanatory variable of interest, X_E , changes from 0 to 1, to ascertain the magnitude of the estimated conditional correlation.

Results

Table 3 shows the estimates of the proposed logit models. Table A1 in the Appendix shows analogous estimates not including sample weights. Column (1) shows the estimation of the baseline model proposed in Equation (1), and Column (2) includes the year fixed effects. We can observe that the estimated coefficient β_E was positive and significant, and qualitatively invariant to the presence of year fixed effects. For instance, Table 4 shows estimated marginal effects and their associated significance. We found a marginal effect of 0.181, or 0.182 if year fixed effects are considered, indicating that the probability of an individual being an entrepreneur, conditioned on their parent being an entrepreneur, was 18 percentage points higher than that of an individual whose parent was not an entrepreneur.⁷ Thus, our estimates provided

⁷ Our estimates of marginal effects were in line with prior estimates of different transmissions in Spain and other countries, such as religiosity, fertility, divorce, income, education, or socio-economic status (Brañas-Garza and Neuman 2007; Dronkers and Harkonen 2008; Duarte et al. 2018; Montañés et al. 2012; Pascual 2009; Reher et al. 2008; Solon 2002).

evidence in favor of the existence of a significant channel of entrepreneurial activity arising from intergenerational transmission from parents to their children.

(Table 3 about here)

In Column (3) of Table 3, we used heterogeneous analysis to investigate whether the estimated coefficient of interest depends on the studied period, as it could be that entrepreneurial transmissions changed as the crisis advanced, given its impact on the Spanish labor markets. In doing so, we interacted the explanatory variable of interest with year dummies. Thus, significant coefficients associated with these interactions would represent different correlations, beyond those of the estimated coefficients associated with the non-interacted explanatory variables, and then they could indicate whether the crisis has or has not affected the intergenerational transmission of entrepreneurship. On the other hand, non-significant coefficients would suggest that the estimated transmission remained unchanged during the analyzed years. Our results show that any interaction is not significant at standard levels. Thus, the estimates pointed to an intergenerational transmission of entrepreneurial activity that was not dependent on the analyzed year. Specifically, these results indicated that the recent economic crisis had no significant association with the transmission of entrepreneurial capacity in Spanish households. It is important to note that this evidence should be interpreted only as suggestive evidence and further research is needed to directly deal with the role of the crisis in the complex entrepreneurial phenomenon. It is also important to note that, when interactions were taken into account in the model, the marginal effect of the parent being an entrepreneur increased to 0.229 (see Table 4), indicating a slightly stronger correlation than the one estimated in Columns (1) and (2), where interactions were not considered.⁸

As for the estimates of the remaining parameters, the socio-demographic characteristics of the parents did not show a significant correlation with the entrepreneurial activity of their adult children, except for age, which showed a positive and significant correlation. For the socio-demographics of the adult children, men exhibited a significantly higher probability to be entrepreneurs or self-employed workers than did women. This echoed prior studies (e.g., Minniti 2010; Minniti and Nardone 2007), perhaps indicating that the conditions of the Spanish labor market were more favorable for young men than for young women.

⁸ Intergenerational transmission could depend on specific regional or geographic characteristics, and a similar heterogeneous analysis to that of year fixed effects, interacted with the explanatory variable, should be developed. Unfortunately, because of anonymity issues, the SHF does not provide data on the region of residence or the place of birth of interviewees. Future research should focus on whether the structural characteristics of regions drive entrepreneurial transmission.

However, given that the sample was skewed towards young individuals, this relationship cannot be extrapolated to a general context.

It is important to note that education levels appeared not to play a significant role in the entrepreneur decision among Spanish workers, suggesting that the entrepreneurial activity of the adult children of the analyzed households was not correlated with their level of education. Thus, in the period and context analyzed, and according to our sample, we found no evidence in favor of training and educational qualities being necessarily important. Finally, the estimates showed that family financial expenditure was positive and significantly correlated with the entrepreneurial activity of the adult children. Thus, the family financial situation could have acted as an incentive, or as a cushion, providing capital and economic security to the adult children against the possible risk of failure.

We could conclude not only that the entrepreneurial activity of the parents in Spanish families significantly affected the decision to encourage or guide their children to become entrepreneurs, but also that the evidence suggests that this influence has remained steady during recent years, even through the economic crisis. One possible explanation for this pattern could be that intergenerational transmissions are channels of entrepreneurship different to those that may be affected by the crisis, such as necessity-driven entrepreneurship. That is to say, the increase in unemployment among the young that resulted from the onset of the economic crisis in Spain may have encouraged young individuals, who could not find an employer, to become entrepreneurs. For example, it is possible that, at the crossroads of looking for a job or taking a risk to exploit an idea or a business opportunity, some individuals would prefer the first option. Nonetheless, due to the increased difficulty of finding a job in Spain during the crisis, more individuals may have decided to strike out on their own. However, our empirical results indicate that this is not a case of intergenerational transmission of entrepreneurial activity. Thus, according to this evidence, intergenerational transmission could be seen as a different channel of entrepreneurship, independent of some well-known channels, such as necessity- or opportunity-driven entrepreneurship, whose relationship with the economic crisis and unemployment have been previously studied (Congregado, Golpe and Carmona 2010; Cueto, Mayor and Suarez 2015; Fuentelsaz et al. 2015; Gimenez-Nadal and Molina 2014; Spencer and Gomez 2004; Thurik et al. 2008; Verheul et al. 2002).

Heterogeneous analysis: the role of gender and education

In this subsection, we studied whether entrepreneurial transmission depended on gender or on education. In doing so, we proposed a heterogeneous analysis based on the interactions between the explanatory variable of interest and the gender and education level of the interviewed individuals. We interacted the entrepreneurial indicator of the reference individual, X_E , with the gender and the education level of the adult children. That way, analogously to the interactions between X_E and the year fixed effects, we studied, for example, whether being a man whose parent was an entrepreneur induced a different correlation beyond that of being a man and having a parent who was an entrepreneur.

Estimates are shown in Table 5. Interactions between X_E and gender were included in Column (1), and interactions between X_E and education in Column (2). Column (3) includes both interactions. The coefficients associated with these interactions were non-significant at standard levels, in all the studied cases. That is to say, we found no additional transmissions - at least, none that can be attributed to gender or education, beyond those estimated in Table 3. Consequently, even when men were found to be more likely to become entrepreneurs than were women, estimates show that intergenerational transmission of entrepreneurial activity did not differ from male to female workers. The same applied to the case of formal education levels, as the results pointed to entrepreneurial transmission being independent of education levels.

Transmission of salaried employment

We compared the estimated intergenerational transmission of entrepreneurship with that of regular employment. To that end, we estimated Equation (1), replacing the dependent variable and the explanatory variable of interest, that identified children and senior entrepreneurs, respectively, for the corresponding variables that identified employees. Estimates of the coefficients of interest are shown in Table 6. See Table A2 in the Appendix for estimates of the rest of the parameters.

Results indicated that, in all cases, there was a non-significant correlation between the employee status of parents and that of their children. Hence, we found a non-significant intergenerational transmission of formal employment in the case of Spanish households, indicating that the fact of having an employee parent had no association with the employment status of the adult children. As in the case of entrepreneurial transmission, the transmission of regular employment was qualitatively invariant to the presence of year fixed effects, and did not depend on the analyzed period, as shown in Columns (2) and (3).

Conclusions

This work empirically analyzed the possible existence of intergenerational transmission of entrepreneurial and self-employment activity in Spanish families. Using the Survey of Household Finances of the Bank of Spain, for the years 2002, 2005, 2008, 2011, and 2014, we found that the entrepreneurial activity of workers was significantly influenced by that of their parents, while the same was not the case with the work activity of employee workers. We found that the employment of the parents was transferred to children more strongly in the entrepreneurial sector than in the non-entrepreneurial sector. In addition, these intergenerational transmissions did not appear to depend on education levels or gender and appeared to have remained qualitatively unchanged during the last decade. As a consequence, our empirical results suggested that, in the case of Spanish families, even when men are more likely to become entrepreneurs than women, the intergenerational transmission of entrepreneurship did not show significant differences across education levels and gender.

The work had certain limitations. First, the restrictions imposed on the sample could lead to selection biases. Second, as discussed throughout the text, the definition of an entrepreneur is not standard in the literature and could refer more accurately to self-employed workers.⁹ However, the characterization used in this study appears adequate in relation to the objective of the work, so that the potential biases were not expected to be significant in relation to the phenomenon being studied. Third, the SHF did not provide information about the type of employment of individuals in the past, and some portion of the unemployed, retired, or disabled workers could have been entrepreneurs or self-employed in earlier times. Consequently, the estimation of the intergenerational transmission elasticity could be biased downward. Finally, our analysis did not allow us to consider our results as causal, as issues such as reverse causality or unobserved heterogeneity were not analyzed, which prevented us from addressing endogeneity. Despite that, the cross-sectional information provided by the SHF allowed us to study intergenerational transmission of entrepreneurial activity in terms of conditional correlations.

The ultimate goal of the work was to record the significance of intergenerational transmission in the current socioeconomic environment, which allowed us to analyze the evolution of the labor market, and

⁹ It must be noted that not all individuals who report being self-paid are necessarily entrepreneurs, are running a firm or enterprise, or are self-employed workers. Furthermore, Spain is a country where the so-called false self-employed workers (e.g., workers registered as self-employed, or freelancer, while working subordinately for another company) are supposed to have a strong presence. Both facts could, consequently, bias our estimates.

therefore anticipate what we may expect in the future. In particular, we studied how the economic characteristics of the parents are correlated with those of the children, with a focus on entrepreneurship and self-employment. The present project could help to identify those individuals and families who are more likely to be or become entrepreneurs and self-employed in Spain, or those sectors where there is a higher concentration of entrepreneurial and self-employed families, thus helping to guide future policies related to employment, economic growth, innovation, and family welfare. Such policies, which have been very important in Spain in recent years, such as the law 14/2013 (27 September) and the law 6/2017 (24 October), could be more efficient and effective if the entrepreneurial phenomenon were better understood. For instance, as we do not find significant changes across time, neither in the rates of entrepreneurship, nor in the intergenerational transmission of entrepreneurship, the effectiveness of such policies in promoting entrepreneurship may not be as potent as desired. As a consequence, it is not clear whether these measures are reaching the objective of decreasing unemployment and promoting innovation and welfare.

Our results complement recent research that has reported significant intergenerational transmission of entrepreneurship in other countries, such as Denmark, Finland, Germany, Sweden, the United Kingdom, and the United States (e.g., Eesley and Wang 2017; Hammarsted 2011; Hamilton 2011; Lindquist et al. 2015; Niittykangas and Tervo 2005; Jaskiewicz et al. 2015; Sørensen 2007; Wyrwich 2015). Furthermore, in the context of Criaco et al. (2017), our results indicate that the potential inhibition of the offspring's entrepreneurial intentions due to the parents' entrepreneurial performance would have a lesser effect than the enhancement of the offspring's entrepreneurial impulses. Finally, we report that, in the case of Spain, intergenerational transfers do not depend significantly on gender, nor on the human capital of parents. This sheds light on the importance of transmissions of social and financial capital, in contrast with human capital (Dunn and Holtz-Eakin 2000). Future research is required to understand how concrete entrepreneurial intentions, attitudes, and skills, beyond formal education, are transmitted from parents to children. This is a challenging topic that requires further research (Hamilton 2011; Sørensen 2007; Wyrwich 2015). Identity and parental roles may explain differential patterns of transmission (Lindquist et al. 2015), and thus could constitute a theoretical framework within which to study the various origins, channels, and determinants of the intergenerational transmission of entrepreneurship.

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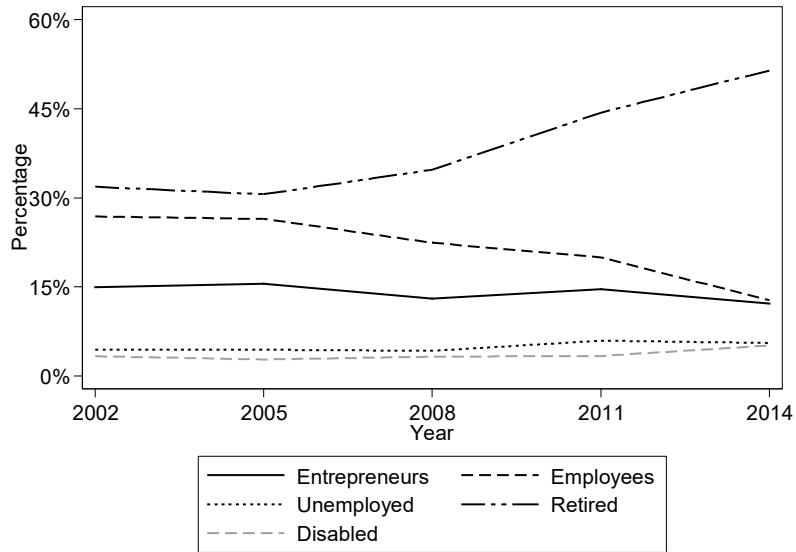
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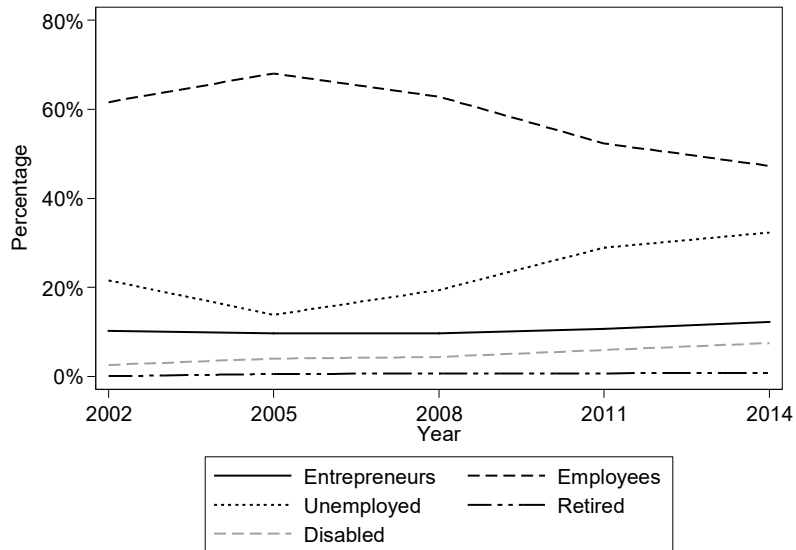
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Figure 1. Evolution of entrepreneurship and employment

A. Reference individuals of households



B. Adult children of households



Note: Percentages are computed using sample weights. The sample (SHF 2002-2004-2008-2011-2014) is restricted to children of working age in the interviewed households, excluding students. Information for the parent is taken from the reference individual of each household (self-reported).

Table 1. Summary statistics

Variables	Total	
	Mean	S.D.
<i>A) Reference person</i>		
Age	59.89	9.48
Gender (1 = male)	0.56	0.50
Compulsory education	0.72	0.45
Secondary non-compulsory ed.	0.16	0.37
University education	0.11	0.32
Entrepreneur	0.09	0.28
Employee	0.30	0.46
Unemployed	0.08	0.24
Retired	0.29	0.44
Disabled	0.04	0.19
<i>B) Adult Children</i>		
Age	25.16	6.99
Gender (1 = male)	0.62	0.49
Compulsory education	0.40	0.49
Secondary non-compulsory ed.	0.37	0.48
University education	0.23	0.42
Entrepreneur	0.07	0.25
Employee	0.61	0.49
Unemployed	0.26	0.44
Retired	0.00	0.06
Disabled	0.04	0.19
Family financial expenditure	1174.58	771.75
N. Observations	6,383	

Note: Means and standard deviations are computed using sample weights. The sample (SHF 2002-2004-2008-2011-2014) is restricted to children of working age in the interviewed households, excluding students. Information for the parent is taken from the reference individual of each household (self-reported). Age is measured in years. Family financial expenditure is measured in Euros.

Table 2. Percentage of entrepreneurs, by occupation of the reference individual

Occupation	Reference individual	Adult Children
Business management	42.5%	20.9%
Technicians and scientists	18.1%	11.4%
Support professionals	6.0%	5.4%
Administration	3.1%	7.3%
Hospitality	18.8%	10.4%
Farming	19.1%	16.8%
Manufacturing	10.5%	7.0%
Installation and machinery	5.0%	4.7%
Unskilled workers	2.1%	3.4%

Note: The sample (SHF 2002-2004-2008-2011-2014) is restricted to children of working age in the interviewed households, excluding students. Information for the parent is taken from the reference individual of each household (self-reported).

Table 3. Estimates of entrepreneurial transmission

Variables	(1) Baseline	(2) Fixed Effects	(3) Interactions
<i>Reference person</i>			
Gender (1 = male)	-0.126 (0.150)	-0.138 (0.151)	-0.135 (0.150)
Age	0.036* (0.014)	0.040* (0.017)	0.040* (0.017)
Secondary non-compulsory ed.	0.154 (0.199)	0.168 (0.202)	0.165 (0.203)
University education	0.168 (0.246)	0.192 (0.246)	0.187 (0.247)
Entrepreneur	1.370*** (0.201)	1.374*** (0.203)	1.708*** (0.325)
Entrepreneur*			
Year: 2005	-	-	-0.291 (0.467)
Year: 2008	-	-	-0.787 (0.556)
Year: 2011	-	-	-0.429 (0.555)
Year: 2014	-	-	-0.386 (0.549)
<i>Adult children</i>			
Gender (1 = male)	0.684*** (0.174)	0.686*** (0.173)	0.685*** (0.173)
Age	0.019 (0.013)	0.015 (0.015)	0.015 (0.015)
Secondary non-compulsory ed.	-0.113 (0.176)	-0.126 (0.178)	-0.128 (0.177)
University education	-0.149 (0.214)	-0.157 (0.216)	-0.159 (0.217)
Family financial expenditure	0.000* (0.000)	0.000* (0.000)	0.000** (0.000)
Year: 2005	-	0.055 (0.201)	0.114 (0.229)
Year: 2008	-	0.038 (0.265)	0.172 (0.287)
Year: 2011	-	-0.144 (0.249)	-0.061 (0.269)
Year: 2014	-	-0.095 (0.270)	-0.020 (0.296)
Constant	-6.178*** (0.782)	-6.266*** (0.813)	-6.351*** (0.805)
Observations	6,383	6,383	6,383
McFadden R ²	0.060	0.060	0.061

Note: Robust standard errors in parentheses. Estimations include sample weights. The sample (SHF 2002-2004-2008-2011-2014) is restricted to children of working age in the interviewed households, excluding students. Information for the parent is taken from the reference individual of each household (self-reported). The dependent variable is the dummy that takes value 1 if the adult child is an entrepreneur, 0 otherwise. Reference category for education: compulsory education. Reference category for year: 2002. Age is measured in years. Family financial expenditure is measured in Euros. *Significant at 95%. ** Significant at 99%. *** Significant at 99.9%.

Table 4. Estimated marginal effects

Variables	(1) Baseline	(2) Fixed Effects	(3) Interactions
Entrepreneur parent	0.181*** (0.024)	0.182*** (0.024)	0.229*** (0.049)
Entrepreneur parent*			
Year: 2005	-	-	-0.015 (0.023)
Year: 2008	-	-	-0.034 (0.018)
Year: 2011	-	-	-0.021 (0.023)
Year: 2014	-	-	-0.019 (0.024)

Note: Robust standard errors in parentheses. Marginal effects correspond to parameters associated with the main explanatory variables estimated in Table 3. Marginal effects are computed as average predicted probabilities of the dependent variable, conditioned on all the sample being treated as if they would have an entrepreneur parent (Williams 2012).

*** Significant at 99.9%.

Table 5. Heterogeneous analysis

Variables	(1) Gender	(2) Education	(3) Gender and ed.
<i>Reference person</i>			
Gender (1 = male)	-0.133 (0.162)	-0.150 (0.152)	-0.142 (0.162)
Age	0.040* (0.017)	0.040* (0.017)	0.040* (0.017)
Secondary non-compulsory ed.	0.165 (0.203)	0.009 (0.247)	0.008 (0.247)
University education	0.186 (0.247)	0.266 (0.266)	0.263 (0.265)
Entrepreneur	1.724*** (0.479)	1.638*** (0.339)	1.698*** (0.493)
Entrepreneur*			
Year: 2005	-0.291 (0.467)	-0.260 (0.465)	-0.262 (0.466)
Year: 2008	-0.788 (0.557)	-0.786 (0.549)	-0.791 (0.550)
Year: 2011	-0.433 (0.532)	-0.309 (0.565)	-0.324 (0.541)
Year: 2014	-0.387 (0.549)	-0.386 (0.547)	-0.391 (0.546)
<i>Adult children</i>			
Gender (1 = male)	0.685*** (0.173)	0.690*** (0.173)	0.690*** (0.173)
Age	0.015 (0.015)	0.014 (0.015)	0.014 (0.015)
Secondary non-compulsory ed.	-0.128 (0.177)	-0.120 (0.178)	-0.120 (0.178)
University education	-0.159 (0.218)	-0.141 (0.217)	-0.142 (0.218)
Entrepreneur parent*			
Gender	-0.018 (0.431)	-	-0.072 (0.422)
Secondary non-comp. ed.	-	0.595 (0.441)	0.602 (0.436)
University education	-	-0.564 (0.510)	-0.563 (0.508)
Family financial expenditures	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)
Year: 2005	0.114 (0.229)	0.099 (0.230)	0.100 (0.230)
Year: 2008	0.172 (0.286)	0.165 (0.287)	0.167 (0.287)
Year: 2011	-0.061 (0.269)	-0.078 (0.271)	-0.077 (0.271)
Year: 2014	-0.019 (0.296)	-0.031 (0.296)	-0.030 (0.296)
Constant	-6.352*** (0.810)	-6.363*** (0.815)	-6.370*** (0.820)
Observations	6,383	6,383	6,383
McFadden R ²	0.061	0.061	0.061

Note: Robust standard errors in parentheses. Estimations include sample weights. The sample (SHF 2002-2004-2008-2011-2014) is restricted to children of working age in the interviewed households, excluding students. Information for the parent is taken from the reference individual of each household (self-reported). The dependent variable is the dummy that takes value 1 if the adult child is an entrepreneur, 0 otherwise. Reference category for education: compulsory education. Reference category for year: 2002. Age is measured in years. Family financial expenditure is measured in Euros.

*Significant at 95%. ** Significant at 99%. *** Significant at 99.9%.

Table 6. Estimates of regular employment transmission

Variables	(1) Baseline	(2) Fixed Effects	(3) Interactions
<i>Reference person</i>			
Employee	0.070 (0.110)	0.074 (0.109)	0.021 (0.151)
Employee*			
Year: 2005	-	-	0.369 (0.244)
Year: 2008	-	-	-0.111 (0.263)
Year: 2011	-	-	-0.257 (0.322)
Year: 2014	-	-	0.422 (0.358)
Year fixed effects	No	Yes	Yes
Observations	6,383	6,383	6,383

Note: Robust standard errors in parentheses. Estimations include sample weights. The sample (SHF 2002-2004-2008-2011-2014) is restricted to children of working age in the interviewed households, excluding students. Information for the parent is taken from the reference individual of each household (self-reported). The dependent variable is the dummy that takes value 1 if the adult child is an employee, 0 otherwise. Additional estimates are shown in Table A2 in the Appendix.

Appendix: Additional results

Table A1. Unweighted estimates of entrepreneurial transmission

Variables	(1) Baseline	(2) Fixed Effects	(3) Interactions
<i>Reference person</i>			
Gender (1 = male)	0.036 (0.097)	0.020 (0.100)	0.025 (0.100)
Age	0.032*** (0.006)	0.033*** (0.007)	0.033*** (0.007)
Secondary non-compulsory ed.	0.056 (0.118)	0.059 (0.119)	0.055 (0.119)
University education	0.079 (0.121)	0.084 (0.122)	0.087 (0.123)
Entrepreneur	1.085*** (0.108)	1.090*** (0.109)	1.184*** (0.194)
Entrepreneur*			
Year: 2005	-	-	-0.244 (0.280)
Year: 2008	-	-	-0.342 (0.304)
Year: 2011	-	-	-0.105 (0.301)
Year: 2014	-	-	0.407 (0.338)
<i>Adult children</i>			
Gender (1 = male)	0.695*** (0.095)	0.696*** (0.095)	0.700*** (0.095)
Age	0.021** (0.007)	0.020* (0.008)	0.020* (0.008)
Secondary non-compulsory ed.	0.160 (0.112)	0.162 (0.113)	0.164 (0.113)
University education	0.172 (0.121)	0.172 (0.122)	0.172 (0.122)
Family financial expenditures	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Year: 2005	-	-0.086 (0.124)	-0.024 (0.142)
Year: 2008	-	-0.127 (0.138)	-0.052 (0.154)
Year: 2011	-	-0.121 (0.144)	-0.097 (0.161)
Year: 2014	-	0.027 (0.164)	-0.060 (0.185)
Constant	-5.791*** (0.319)	-5.757*** (0.328)	-5.806*** (0.330)
Observations	6,383	6,383	6,383

Note: Robust standard errors in parentheses. The sample (SHF 2002-2004-2008-2011-2014) is restricted to children of working age in the interviewed households, excluding students. Information for the parent is taken from the reference individual of each household (self-reported). The dependent variable is the dummy that takes value 1 if the adult child is an entrepreneur, 0 otherwise. Reference category for education: compulsory education. Reference category for year: 2002. Age is measured in years. Family financial expenditure is measured in Euros.

*Significant at 95%. ** Significant at 99%. *** Significant at 99.9%.

Table A2. Estimates of regular employment transmission (additional estimates)

Variables	(1) Baseline	(2) Fixed Effects	(3) Interactions
<i>Reference person</i>			
Gender (1 = male)	0.097 (0.086)	0.008 (0.089)	0.011 (0.089)
Age	-0.020** (0.007)	0.001 (0.008)	0.001 (0.008)
Secondary non-compulsory ed.	-0.272* (0.121)	-0.198 (0.120)	-0.197 (0.119)
University education	-0.325* (0.161)	-0.258 (0.165)	-0.261 (0.164)
Employee	0.070 (0.110)	0.074 (0.109)	0.021 (0.151)
Employee*			
Year: 2005	-	-	0.369 (0.244)
Year: 2008	-	-	-0.111 (0.263)
Year: 2011	-	-	-0.257 (0.322)
Year: 2014	-	-	0.422 (0.358)
<i>Adult children</i>			
Gender (1 = male)	0.119 (0.089)	0.134 (0.089)	0.133 (0.089)
Age	0.004 (0.008)	-0.023** (0.009)	-0.023** (0.009)
Secondary non-compulsory ed.	0.727*** (0.094)	0.653*** (0.095)	0.660*** (0.095)
University education	0.868*** (0.122)	0.811*** (0.121)	0.823*** (0.122)
Family financial expenditures	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)
Year: 2005	-	0.270** (0.111)	0.156 (0.129)
Year: 2008	-	-0.076 (0.131)	-0.052 (0.150)
Year: 2011	-	-0.618*** (0.150)	-0.552** (0.162)
Year: 2014	-	-0.745*** (0.178)	-0.836*** (0.202)
Constant	0.748* (0.347)	0.361 (0.358)	0.356 (0.353)
Observations	6,383	6,383	6,383
McFadden R ²	0.029	0.048	0.049

Note: Robust standard errors in parentheses. Estimations include sample weights. The sample (SHF 2002-2004-2008-2011-2014) is restricted to children of working age in the interviewed households, excluding students. Information for the parent is taken from the reference individual of each household (self-reported). The dependent variable is the dummy that takes value 1 if the adult child is an employee, 0 otherwise. Reference category for education: compulsory education. Reference category for year: 2002. Age is measured in years. Family financial expenditure is measured in Euros.

*Significant at 95%. ** Significant at 99%. *** Significant at 99.9%.