
Does family matter? A study of parents' influence on the entrepreneurial intention of technical degrees students in Spain

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Structured Abstract

Purpose – The purpose of this study is to verify the parental influence on the entrepreneurial intention of technical degrees students in Spain. In an economic crisis context such as the one Spain is currently suffering, entrepreneurship is often regarded as an opportunity for productivity increase and wealth generation, especially if it is technology-based. Therefore, the research of factors that may determine young engineers' attitude towards entrepreneurship is of great interest. Special attention is paid to parents'

role as knowledge transferors, as their experience may have a positive effect on the entrepreneurial intention of their children.

Design – The proposed approach is the statistical analysis of a survey conducted on 1004 students in five different technical degrees at Universidad Politécnica de Madrid (UPM), the biggest technical university in Spain.

The survey explored the students' entrepreneurial intention and their perception of the support provided by their closer environment (family and friends) in case they decided to found a new company. Special attention is paid to the parents' current occupation as entrepreneur or civil servant, as this is believed to be relevant for the success of entrepreneurial knowledge and attitude transfer from one generation to the next.

Value – The existence of positive role models for entrepreneurship that through the transference of knowledge transmit the willingness to become self-employed have been found long before in the literature. Negative role models also exist, in the form of entrepreneurs that failed. In this research we present a new type of negative role model, which are the parents that work for the public sector. Empirical evidence is provided that, while self-employed parents grow children with higher entrepreneurial intentions, civil servants tend to have children who do not feel the entrepreneurial professional perspective so intriguing.

Practical implications –A distinction can be made between the technological start-ups with high growth capabilities, which lead to productivity increase and wealth generation and those new companies in which the main scope is self-employment. In the foundation of the former is where technical universities can play a key role on economic

development as a technology transfer vehicle to the society. However, universities can only foster entrepreneurial intentions in those students in which it is not hindered by their closer family. Therefore, it is crucial to assess to what extent parents' knowledge transfer can affect the entrepreneurial intention of technical degree students.

Keywords – knowledge transfer, entrepreneurship, family ties, technology-based companies, role models.

Paper type – Academic Research Paper

1 Introduction

Due to parents' role as knowledge transferors to their children, the existence of role models in the close family is determinant in the choice of the future professional career of young adults. This transference of knowledge and experience can take place either by *exposure*, in which the self-employed parents act as role models for their children, or by *closure*, providing financial or social capitals for the foundation of a new venture (Mungai & Velamuri, 2011).

The family, and especially father and mother, exercises great power over the desirability and feasibility for the process of the creation of a new company (Shapiro & Sokol, 1982). In this sense, determining the influence of the close family on the entrepreneurial intention and the transfer of business knowledge in students of technical degrees is the main objective of this study.

In a context of economic crisis, the founding of new technology-based companies is of the greatest importance (Hernández-Mogollón, 2014). Nevertheless, it has been stated that not all the entrepreneurial actions are of the same significance for economic growth (Shane, 2009). That is, necessity-driven entrepreneurship leads to founding of companies whose principal scope is the self-employment of the entrepreneur, and are usually regarded as low-value added companies with limited growth capabilities. On the contrary, high technology entrepreneurship (from the fields of Information Technology, aerospace engineering, bioengineered materials, nanoscience or advances in medical science, for instance) can provide the economy with high-value added firms that foster economic growth.

However, there is a knowledge entry barrier for the foundation of such technological ventures. While entrepreneurial and managerial skills may be found amongst the population, the technical knowledge and expertise needed in technology-based companies are only found in individuals with engineering and other technical education and background.

In this research we analyze the influence of parental knowledge transfer to engineering students via positive and negative role models for their entrepreneurial intention.

2 Research framework

There are empirical evidences of parental transferences and support to their descendants across many different cultures. To cite a few examples, the transference of public working positions from parents to sons in Italy has been found by Scoppa (2009), the providing of material resources and services from parents to their young adult children in Taiwan and Philippines (Agree, Biddlecom, Chang, & Perez, 2002) or the inter-generational transmission of home ownership in the Netherlands (Mulder & Smits, 2012) have also been analyzed.

But the transferences from parents to children are not limited to tangible goods or working positions, being the choice of a professional career also influenced by them (Otto, 2000). In the case of self-employed parents, their influence on their children entrepreneurial intention has also been stated.

Research findings (Bosma, Hessels, Schutjens, Praag, & Verheul, 2012; Carr & Sequeira, 2007; Laspita, Breugst, Heblich, & Patzelt, 2012; Oren, Caduri, & Tziner, 2013) show a positive correlation between parental occupation as entrepreneurs and the likelihood that their children will become entrepreneurs themselves. They claim that parents are in a unique position to influence the future behavior of their children, becoming role models for them. Other studies have focused on the role model of the entrepreneur father and the influence it has on their children to become entrepreneurs. Lindquist et al. (2013) found that both biological and adoptive entrepreneur parents increase over 60% the chance of having children who are themselves entrepreneurs. It is worth noting that the influence of the adoptive parents is twice than that of the biological parents.

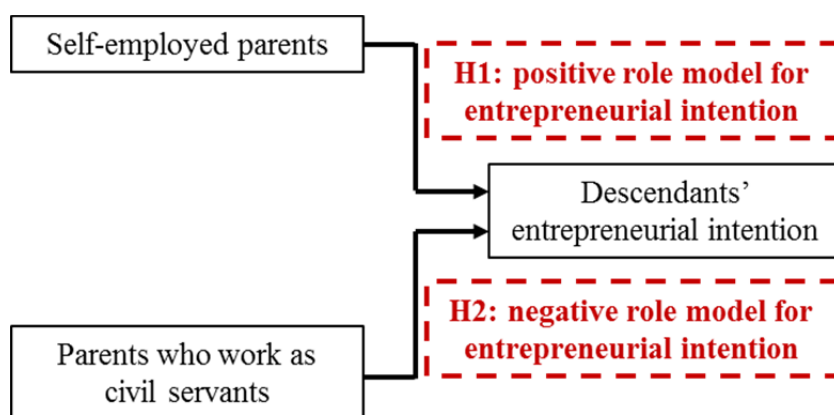
Regarding the gender of the entrepreneur, many entrepreneur women look to their parents for advice, support and encouragement for entrepreneurship, while men want independence from their parents, especially from their father (Kirkwood, 2007). According to (Chlosta, Patzelt, Klein, & Dormann, 2010) a self-employed father increases the likelihood of children becoming entrepreneurs in the future, but moderated by aspects of his personality as the openness of the individual. Contrarily, mothers have been stated to be a more decisive influence in the choice of the professional career by Otto, (2000).

Nevertheless, the existence of a negative role model for entrepreneurial intention of descendants has been found by Mungai and Velamuri (2011). Whenever the father fails in

his entrepreneurial activity, his children will be less prone to become self-employed, being this more pronounced in young adults.

As has been stated, the fact of having self-employed parents makes the likelihood of the children becoming entrepreneurs greater. Then, what could the effect of the parents employed by the public sector in the entrepreneurial intention of their sons be? It has already been mentioned that in collectivist cultures like the South of Italy parents who are civil servants help their descendants to become public workers themselves (Scoppa, 2009). This, together with the existence of negative role models for entrepreneurship provided by Mungai and Velamuri (2011), leads us to the research question of this study: Are self-employed parents a positive role model for entrepreneurial intention of engineering students while parents employed as civil servants are a negative role model? This issue has not been sought after so far, to the author's knowledge. The research question stated is depicted graphically in figure 1, with the two main hypotheses tested in this paper.

Figure 1. Model and hypotheses tested



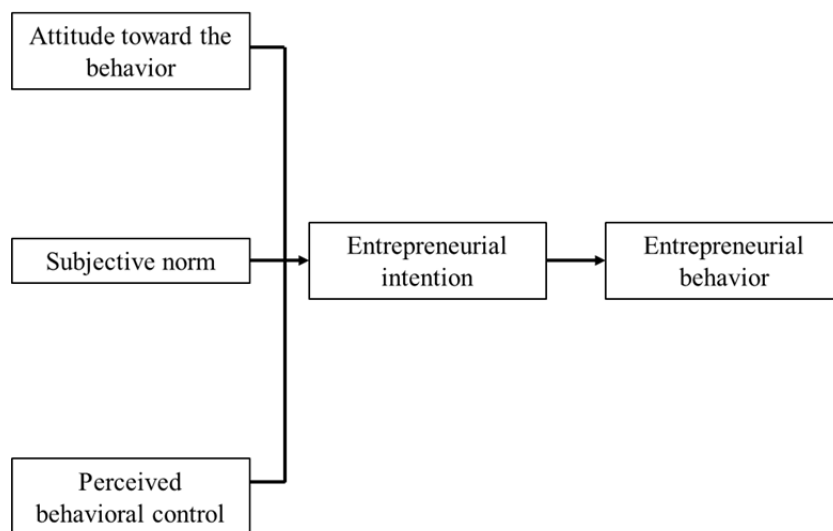
There are several models for the development of the entrepreneurial action based on the intention of the individual. Here we rely on the Theory of Planned Behavior (TPB) model from Ajzen, (1991), which is described in the following.

Ajzen proposed in his theory that the intention is determined by three socio-cognitive factors: *attitude* toward performing the behavior, *subjective norms* concerning action, and *belief in one's ability* to perform successfully the behavior, in this case, the foundation of a new company. In a meta-analytic review of 185 empirical studies that applied the TPB,

Armitage and Conner (2001) showed that it is effective in predicting both intentions and behaviors.

The TPB model is summarized in figure 2. Behavioral attitude is related to the level of attractiveness that the action has for the individual, which creates a favorable or unfavorable position to the behavior. Subjective norm represents the perception by the individual of the social pressure to pursue an action. Finally, perceived control is a factor that may facilitate or impede performance of the behavior, according to the perceived capability of the individual.

Figure 2. Theory of Planned Behavior model by Ajzen (1991).



The TPB model is used to provide the theoretical background of the hypotheses tested in this research. While H1 and H2 are based in the aforementioned research question, the sub-hypotheses H1a, H1b, H1c, H2a, H2b and H2c refer to the TPB model. The hypotheses under study are, hence,

H1. Self-employed parents act as a positive role model and knowledge transferors to their children, increasing their entrepreneurial intention.

H1a. Those students whose parents are self-employed, have a better attitude toward the founding of a new company.

H1b. Those students whose parents are self-employed perceive more support from their environment toward the founding of a new company.

H1c. Those students whose parents are self-employed show a higher perception of their capability for the founding of a new company.

H2. Parents employed in the public sector act as a negative role model and knowledge transferors to their children, decreasing their entrepreneurial intention.

H2a. Those students whose parents are civil servants have a worse attitude toward the founding of a new company.

H2b. Those students whose parents are civil servants perceive less support from their environment toward the founding of a new company.

H2c. Those students whose parents are civil show a lower perception of their capability for the founding of a new company.

3 Methodology

3.1 Procedure and variables

In order to explore how the family acts as a knowledge transfer asset for the creation of technology-based firms, a survey, addressing the different factors of entrepreneurial intention as well as information on the families, was created. This survey included items based on Ajzen's TPB (1991) and the three main factors that affect entrepreneurial intention, namely attitude towards the behavior, subjective norm and internal locus of control. These items were based on a previous study by Liñán and Chen (2009). As the main goal of the study was to explore differences according to the family influence, the survey also contained items concerning the parents' professional background, especially regarding if they were self-employed or civil servants. Other items explored if there were other people in the students' environment who carried out these kinds of jobs.

The study was conducted with engineering and architecture students of the Universidad Politécnica de Madrid (UPM), the biggest and oldest technical university in

Spain. Data were collected at the beginning of the 2012/2013 winter semester during a four weeks period in five different degrees which count among the most traditional and demanded ones at the UPM (Universidad Politécnica de Madrid, 2013), namely, Aeronautical Engineering, Architecture, Civil Engineering, Mechanical Engineering and Telecommunications Engineering.

3.2 Sample

Of the initial 1004 obtained answers, those of non-Spanish students were eliminated in order to maintain cultural homogeneity. As the items concerning the parents' profession were formulated in yes/no format and explored if the parent (not differentiating mother and father) was or was not e.g. a civil servant, those students who answered affirmatively for the civil servant and self-employed questions, were also left out. This way, the final sample considered for analysis comprised a total of 851 students. 67.3% of them are men and 32.3% women (0.4% did not give information about their gender), which is congruent with the fact that the number of men in technical degrees, and specifically at UPM, is usually higher than the number of women (Instituto Nacional de Estadística, 2012; Otero & Salamí, 2009).

As stated before, five degrees with great tradition in engineering studies and which count among the most demanded ones at the UPM (2013) were chosen for the present research. 31.7% of the sample were Aeronautical Engineering students, 18.3% were studying Architecture, 20.1% were enrolled in Civil Engineering, 24.2% in Mechanical Engineering and 5.6% were Telecommunications Engineering students. As differences may be expected according to the students' proximity to their graduation, and therefore entry into the labour market, data from students in their first and last semester of the degree were collected. This distribution was balanced with 50.9% of the respondents enrolled in their first and 49.1% in their last semester at university.

Concerning age, the sample had a mean of 20.52 years and a standard deviation of 2.90, being the youngest respondent 17 years old and the oldest 34.

4 Results

4.1 Descriptive results

If we consider the parents professional background, we find that 20.8% of the students claim that at least one of their parents has his/her own business. Parents who work as civil servants take up to 40.2% of the sample. Questions concerning other people in the closer environment of the students were considered and it was found that 29.3% did not have anyone close who was self-employed. Similarly, 25.9% expressed the absence of civil servants in their close environment.

In this study, the impact of the family background and their knowledge transfer is considered, regarding the entrepreneurial intention of technical degrees students and the three main factors affecting it. These variables were measured through different items on a scale from 1 to 7. For these, we found in this sample that entrepreneurial intention was rated 3.57, this is, a medium score. If we look at the general means of the predicting factors we find that attitude was rated 4.87 meaning that entrepreneurship is viewed, in general, as an attractive professional option. The support respondents think they would receive from their parents and siblings is also high, with a mean of 5.64 in subjective norm. Finally, we found the lowest mean for the internal control factor ($\bar{x}=3.32$), which indicates that students see themselves as not very capable of creating and managing their own firm.

4.2 Data analysis

In order to analyze if the professional background of parents and social environment is affecting the entrepreneurial intention of technical degrees students, we conducted mean comparisons with Student's t-test. We compared the students who indicated that at least one of their parents was an entrepreneur, with those who stated that none of their parents was self-employed. The same comparison was carried out for possible sons/daughters of civil servants.

Table 1. t-test for entrepreneurial intention.

Family's professional background	N	Mean (1-7)	df	t
Parents with own business	177	3.91	844	-3.54***
Parents without business	669	3.48		
Parents civil servants	342	3.35	845	3.49***
Parents no civil servants	505	3.71		

***p<.001; **p<.01; *p<.05

Table 1 shows the results for the entrepreneurial intention variable. As can be seen, students who have parents with their own business have a significantly higher entrepreneurial intention than students whose parents are not self-employed ($t=-3.54$; $p<.001$). Similarly, students with civil servants parents have a lower entrepreneurial intention than those whose parents are not employed in public services ($t=3.49$; $p<.001$). It can be therefore stated that the professional background of parents influences the entrepreneurial intention of their descendants, having children of entrepreneurs a higher intention to create their own firm and those of civil servants a lower intention.

For the rest of variables studied, the same pattern was found. As can be seen in tables 2, 3 and 4, students whose parents are entrepreneurs show a more favorable attitude towards entrepreneurship ($t=-2.38$; $p<.01$), feel more support ($t=-4.29$; $p<.001$) and see themselves more capable of doing it ($t=-3.59$; $p<.001$) than students whose parents are not self-employed. On the other hand, children of civil servants show lower means than students whose parents are not public employees in all of the three variables: attitude towards the behavior ($t=3.12$; $p<.01$), perceived support ($t=3.19$; $p<.01$) and internal control ($t=3.67$; $p<.001$).

Table 2. t-test for attitude towards the behavior .

Family's professional background	N	Mean (1-7)	df	t
Parents with own business	177	5.06	842	-2.38**
Parents without business	667	4.81		
Parents civil servants	341	4.71	843	3.12**
Parents no civil servants	504	4.97		

***p<.001; **p<.01; *p<.05

Table 3. t-test for subjective norm.

Family's professional background	N	Mean (1-7)	df	t
Parents with own business	177	6.06	841	-4.29***
Parents without business	666	5.54		
Parents civil servants	340	5.45	842	3.19**
Parents no civil servants	504	5.77		

***p<.001; **p<.01; *p<.05

Table 4. t-test for internal control.

Family's professional background	N	Mean (1-7)	df	t
Parents with own business	177	3.59	843	-3.59***
Parents without business	668	3.26		
Parents civil servants	342	3.15	844	3.67***
Parents no civil servants	504	3.44		

***p<.001; **p<.01; *p<.05

4.3 Discussion

As it can be seen in table 1, those students whose parents are self-employed rank higher in entrepreneurial intention, allowing for the acceptance of the first hypothesis of this study. This finding is not surprising, as it is in line with the results provided by (Bosma et al., 2012; Carr & Sequeira, 2007; Laspita et al., 2012; Oren Caduri, & Tziner, 2013), among others.

Contrarily, it has been found that parents who work for the public sector tend to hinder the entrepreneurial intention of their sons/daughters, as they have been found to have a lower mean in that item. That is, civil servants act as a negative role model regarding the foundation of new businesses. Therefore, the second main hypothesis can also be accepted. This is a far-reaching result, as to the authors' knowledge, it has never been assessed before.

Regarding the hypotheses linked with the Theory of Planned Behavior model, there is empirical evidence that supports H1a, H1b and H1c, stating that self-employed parents act as positive role models that increase their sons' attitude towards the creation of a new company, their perception of environmental support and their perception of their own capability, respectively.

With regard to the presence of negative role models, it has been found that sons/daughters from parents working in the public sector score lower in the three dimensions (attitude, subjective norm and perceived control) of the TPB model. Thus, hypotheses H2a, H2b and H2c are also confirmed.

5 Conclusions

The founding of innovative, technology-based companies with high growth potential would be of great importance in the context of the economic crisis that Spain is suffering. This highlights the important role of technical universities that feed the society with the professionals able to create such businesses.

In this research the results of a survey of engineering and architecture students from UPM, the largest technical university in Spain are presented. We analyzed how the parental occupation as self-employed or civil servant influences the entrepreneurial intention of students from technical degrees. We posit that parents act as knowledge transferors to their sons/daughters, thus being determinant on their later career choice.

Our findings support that parents who own a business act as a positive role model towards the entrepreneurial intention of their children, while parents who work at the public sector are a negative role model.

These results obtained for entrepreneurial intention are also confirmed for the three dimensions that form the TPB Ajzen model. That is, a positive role model makes the students have a better attitude towards entrepreneurship, feel higher support from their environment with regard to the founding of a new venture, and feel more capable to succeed in case of creating a company. Contrarily, having parents who work as civil servants hinders the three dimensions of the model.

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