“My Old and My New Family” - The Impact of Family Relationships on Students’ Entrepreneurial Intentions: An Italian Study

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Abstract. Previous research that explored entrepreneurial intentions through the Theory of Planned Behavior has found that intentions are reliable predictors of entrepreneurial behavior. Less however is still known about background factors that might drive intentions. Scholars have found that family financial support and prior family business exposure can influence intentions to start a business. By focusing on the entrepreneurial intentions of a wide sample of Italian university students, we aim to uncover if some characteristics of the family of origin (i.e. having self-employed parents and older siblings) and of their family of formation (i.e. living with a partner) are related to their entrepreneurial intentions. Our results suggest that having self-employed parents, older siblings and living with a partner increase the entrepreneurial intentions of the individuals. The effect of such family-related variables is mediated by cognitive variables (perceived behavioral control, subjective norms and attitude towards entrepreneurship).

Keywords: entrepreneurial intentions, young graduates, family, theory of planned behavior.

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1. Introduction

The Global Entrepreneurship Monitor shows that entrepreneurship rates in 2015 were highest among the 25–34 year olds (i.e., people in their early career) across 60 economies around the world (Kelley, Singer, & Herrington, 2016). This data reveals the ambition of young people, particularly of those who have accumulated some experience, networks and other resources that could be of value in starting

1. Corresponding Author: Department of Economics and Management, University of Padova, Via del Santo 33, 35123 Padova (Italy), alessandra.tognazzo@unipd.it
a business. In Italy, the country on which our analysis is focused, the Italian Center of Social Investments research (CENSIS) found that almost 32,000 firms run by people under 35 years of age were founded in the second quarter of 2015, meaning that more than 300 start-ups were set per day by a young individual. Thus, it appears that Italy is a country that favors an entrepreneurial culture among young people. This is quite surprising given that in the Italian culture family is very “protective” over their children: adults in Italy tend to live with their family of origin longer than the average in other European countries up to the point that scholars defined cohabitation with parents as “a normal good for Italian parents” (Manacorda & Moretti, 2006), which contrasts with the view that entrepreneurs seek autonomy and independence (Van Gelderen & Jansen, 2006).

Previous research that explored entrepreneurial intentions has found that intentions are reliable predictors of entrepreneurial behavior (Kautonen, Van Gelderen, & Fink, 2015). Less however is still known about background factors that might drive the determinants of intentions. Scholars have found that prior family business exposure is linked to entrepreneurial intentions (Carr & Sequeira, 2007) and family financial support can be either positive or negative in fostering intentions to start a business (Sieger & Minola, 2016).

By focusing on the entrepreneurial intentions of a wide sample of Italian university students, we aim to uncover if some characteristics of the family of origin and of their family of formation are related to their entrepreneurial intentions. First, on the basis of the theory of planned action we build our hypotheses. Then, we present the methodology used. Finally, we discuss our results and conclusions.

2. Literature Background

Entrepreneurs do not engage in entrepreneurship by accident; they do it intentionally as a result of choice (Krueger, 2007a). Accordingly, entrepreneurial intentions are seen as the strongest proximal predictor of entrepreneurial activity and serve as a central and widely studied outcome variable in contemporary entrepreneurship research (Bird, 2015; Kautonen et al., 2015; Kautonen, Van Gelderen, & Tornikoski, 2013; Krueger, 1993, 2007b; Krueger & Carsrud, 1993; Lee, Wong, Foo, & Leung, 2011; Obschonka, Silbereisen, & Schmitt-Rodermund, 2010).

Thompson (2009, p. 8) defines individual entrepreneurial intent as a “self-acknowledged conviction by a person that they intend to set up a new business venture and consciously plan to do so at some point in the future”.

Exploring intentions proves particularly valuable when exploring complex phenomena that may involve unpredictable time lags such as entrepreneurship. Krueger and Carsrud (1993) were the first to consider intentions and apply the theory of planned behavior to the field of entrepreneurship. Today we can argue
that intentions appear to be one of the best predictors of planned behavior in entrepreneurship (Kautonen, Tornikoski, & Kibler, 2011; Kautonen et al., 2015, 2013).

**The role of the family of origin in supporting entrepreneurial intentions**

Our family of origin shapes who we are, determines the thoughts that we have about ourselves and provides us with examples of how to behave as well as what to expect from us for our future (e.g., Whiston & Keller, 2004).

Scholars have identified the family of origin as the most significant influence on career development (Whiston & Keller, 2004). Families provide the environment in which work roles, values, expectations, and aspirations are transmitted to and formed by the child (Vondracek & Schulenberg, 1986). Researchers have found the family of origin to be an essential part of the context within which career decisions are made and enacted (e.g., Metheny & McWhirter, 2013). A host of family context variables have been found to be related to the vocational behavior of youth, including socioeconomic status, family structure (e.g., single parent status), parent occupational and educational attainment, support, family interaction style and parent expectations for achievement and role modeling (Whiston & Keller, 2004).

Career theory proposes the importance of role models as helping to guide individual development. In particular, it proposes two concepts: *role* means that individuals have a tendency to identify with other people occupying important social roles (Gibson, 2004; Slater, 1961); and *modeling* which indicates the psychological matching of cognitive skills and patterns of behavior between a person and an observing individual (Bandura, 1986). According to this perspective, parents are role models for children thus their occupations are certainly antecedents of their children career choices (Whiston & Keller, 2004).

Furthermore, as suggested by literature studying entrepreneurial intention in family business contexts (Laspita, Breugst, Heblich, & Patzelt, 2012), entrepreneurial parents can provide several types of financial and non-financial resources (e.g., capital or loans, collateral for bank loans, relationships with suppliers, customers, business partners, and consultants) and they can trigger their children entrepreneurial intentions through conscious or unconscious transmission of entrepreneurial values, knowledge, and skills. Therefore, we propose that:

**Hypothesis 1.** Having self-employed parents is significantly and positively related to entrepreneurial intent.

Siblings certainly play an integral part in the lives of families and have a major influence on our development because social interactions are important in the formation of interests, goals and subsequent actions (Bandura, 1986). Given that, siblings afford children with heightened exposure to social contexts related
Birth order is also considered as one determining factor of entrepreneurship. McClelland (1965) described ‘need for achievement’ as both a relatively stable personality characteristic rooted in experiences of middle childhood and as a human motive that promotes entrepreneurship. Lynch and Lynch (1980) found vocational preferences to differ between first and later-borns in a sample of 244 New York City students. A considerable body of research has profiled the "typical" entrepreneur as being first-born. This is especially true for women. For instance, Bowen and Hisrich (1986, p. 404) reported that female entrepreneurs are "relatively likely to have been first-born or only children." A sample of 45 female entrepreneurs in Britain revealed that 60 percent were first-born (Watkins, & Watkins, 1983). Studying 52 female entrepreneurs in Florida, Neider (1987) found that 77 percent of the participants were first-born.

However, conclusions from other, methodologically more sophisticated research studies on entrepreneurs and birth order are not in line with the above findings (De Wit & Van Winden, 1989; Robinson & Hunt, 1992).

There is one basic mechanism that explains the role of birth order: socialization (Claxton, 2015). Socialization is a process whereby a newcomer to a group (or family) learns the values, goals and standards of the group and information about the individual role within. Those born in later birth positions may experience progressively less interaction with and socialization from adults and relatively more socialization from brothers or sisters. For example, in one study Claxton (1994) found that last-borns reported receiving significantly less parental process and outcome feedback than did first- or middle-borns. Other evidence indicates that adult-socialized first-borns show more achievement orientation than those in other birth positions and that peer-socialized later-borns often prove more popular and more independent of authority than firstborns. Therefore, first-borns tend to carry an achievement orientation into adulthood, while later-borns tend to be less achievement-oriented and more likely to endorse less conventional ideals (Carlson & Kangun, 1988).

Even though siblings experience shared events, they have divergent interpretations of the same events, given their different ages or circumstances. First-born children tend to be associated with conformity, since they usually accept the roles that parents envision for them and embrace a more traditional outlook on life. All subsequent siblings then engage in a process of mutual differentiation or “de-identification”, whereby they adopt different roles within the family. Later-born children tend to be more creative and less likely to conform to norms, which may make them more “entrepreneurial” (Sulloway, 1996).

Addressing the call from Nordqvist and colleagues (2013) for a “closer examination” on the topic of birth order in entrepreneurship, we formulate the second hypothesis as follows:
Hypothesis 2. Having older siblings is significantly and positively related to entrepreneurial intent.

The role of the family of formation in supporting entrepreneurial intentions

Studies on young graduates present conflicting results in terms of the effect of marital and family status on individual entrepreneurial intentions. Whereas Reynolds (1997) found that those who were single (either separated or had never married) and have children were over-represented among nascent entrepreneurs, these relationships were not found in a Swedish study conducted by Delmar and Davidsson (2000). These conflicting results can be explained in terms of the social and economic resources that are needed in order to start a new venture. A spouse may, indeed, represent either a support (e.g. through the provision of economic stability, time, social relationships) or an obstacle, since the risk of failure embedded in the intention of being entrepreneur may affect (both economically and emotionally) the partnership. Similarly, dependent children may either push entrepreneurs to start their own business in order to guarantee financial security to the family or hinder the individual pulse if the parent is not only concerned about entrepreneurial risk but also about the work-family balance (DeMartino & Barbato, 2015).

Interestingly, though, previous studies on family and marital status do not explicitly consider the effect of being in a relationship or cohabitating without being married. The increase of this family “status” represents an observed social phenomenon in many Western countries where married couples are steadily decreasing in the last decades (for instance, according to Eurostat data, since 1965 the crude marriage rate in the European Union has declined by almost 50%, from 7.80 per 1000 persons in 1965 to 4.20 in 2011). We sustain that having a partner (not a wife or husband) has a positive impact on entrepreneurial intention, because since the partnerships leaves the couple more freedom in terms of reciprocal (legal) obligations, they can – at the same time – exploit all the positive aspects of having a supporting person. Therefore, we propose that:

Hypothesis 3. Living with a partner (without being married) is significantly and positively related to entrepreneurial intent.

Mediation effects of personal attitudes

In the theory of planned behavior (Ajzen, 1991), intentions are the main drivers of behavior and form over time as a result of three principal factors (i.e. cognitive antecedents of intentions) which depend on the person’s beliefs. According to Ajzen (1991), these factors are: the attitude towards the behavior, the subjective norms and the perceived behavioral control. The first one derives from perceptions of the behavior’s consequences and the value ascribed to those consequences; Ajzen (1991) proposed that a person’s intention to perform a
behavior increases as his or her attitudes toward the behavior become more favorable. The second results from a perception of what other people of importance think should be done and the reasons for submitting to their expectations. The third is determined by the individual perception of the opportunities and resources needed to achieve the behavior and by a belief that it will be possible to obtain those resources. In short, integrating the stream of literature developed by Ajzen we may define intentions as depending on perceptions.

The theory of planned behavior is based on the theory of reasoned action (Ajzen & Fishbein, 1980) and it was developed by Ajzen (1991). According to this theory the concept of intention plays a central role in predicting and explaining a planned human behavior which is entirely controlled by will and is not dependent on factors outside the control of the person concerned. The difference between the theory of reasoned action and the theory of planned behavior is the addition of the perceived behavioral control variable. Ajzen (1991) added perceived behavioral control to extend the theory to include those behaviors characterized by a low degree of volition. The perceived behavioral control variable measures a person’s perceptions of the ease or difficulty of performing a behavior. This variable reflects aspects of the person, such as her or his level of self-efficacy, and aspects of the behavior, such as the necessity of obtaining the cooperation of others to accomplish it. According to the theory of planned behavior, a person’s intention to perform a behavior increases as perceived behavioral control increases.

Ajzen (1991) argued that the demographics and personal background characteristics (such as the family of origin and the family background) only indirectly influence intentions and suggests the inclusion of demographic characteristics to assess the sufficiency of the theory of planned behavior model. He speculates that background factors only indirectly influence intentions. The cognitive antecedents of intentions can thus be considered as mediators between personal “background factors” and entrepreneurial intentions (Wu & Wu, 2008), in other words attitude, norms and control reduce the effect of background factors on entrepreneurial intentions.

In short, integrating the stream of literature developed in entrepreneurship on which we based our first three hypotheses with Ajzen theory of planned behavior - which argues that the most proximal predictors of intentions are cognitive antecedents - we can state that:

**Hypothesis 4.** Perceived behavioral control (self-efficacy and controllability), Subjective norms and Attitude towards entrepreneurship mediate the relationship between having self-employed parents and entrepreneurial intent.
**Hypothesis 5.** Perceived behavioral control (self-efficacy and controllability), Subjective norms and Attitude towards entrepreneurship mediate the relationship between having older siblings and entrepreneurial intent.

**Hypothesis 6.** Perceived behavioral control (self-efficacy and controllability), Subjective norms and Attitude towards entrepreneurship mediate the relationship between living with a partner and entrepreneurial intent.

Figure 1 presents a summary of our theoretical model.

*Figure 1 – Theoretical framework*

![Theoretical framework diagram]

### 3. Methods

#### 3.1. Data and Sample

In this study we rely upon the data collected in the course of the Global University Entrepreneurial Spirit Students’ Survey (GUESSS) carried out in 2013. This project was launched in 2003 at the Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen, and has been held every two years ever since. Building upon the Theory of Planned Behavior, the survey aims at gaining an understanding on the drivers and peculiarities of students’
entrepreneurial intentions and activities across different countries, with particular foci on students’ individual characteristics, the university environment, and the roles played by family and socio-cultural context. In 2013, the 6th version of the project, 34 countries participated, including Italy for the first time. In the past few years, several studies based on GUESSS data from 2006, 2008, and 2011 that investigate entrepreneurial intentions (e.g. Laspița et al., 2012; Lima, Lopes, Nassif, & Silva, 2015; Sieger, Fueglistaller, & Zellweger, 2014; Sieger & Minola, 2016; Sieger & Monsen, 2015; Zellweger, Sieger, & Halter, 2011) have been published. Data have been collected among students in higher education of different study fields and at different education levels (e.g., undergraduate, graduate). Students had the possibility to respond to the questionnaire both online and in the class. To motivate students to participate, those who completed the survey could participate to a lottery that offered a journey to Silicon Valley or Ischia. In addition, respondents were allowed to skip some questions in order to encourage participation of those hesitating to provide full personal information. The complete GUESSS data set for 2013 includes information from 109,026 respondents across 34 countries, of which 7,765 are from Italy.

Student samples are commonly used in the investigation of entrepreneurial intentions because scholars advocate studying individuals at the earliest possible stage of entrepreneurial activities (Kim, Aldrich, & Keister, 2006; Schlaegel & Koenig, 2014), which applies to university students who have not yet made their first actual career choice. This allows a true prospective view without retrospective bias (Carter, Gartner, Shaver, & Gatewood, 2003) and allows a nuanced light to be shed on the formation of entrepreneurial intentions. In addition, student samples represent a homogeneous population in terms of age and qualification (Liñán & Chen, 2009). For our purposes, investigating students is particularly useful because the role of the family in supporting entrepreneurial activity is generally very important (Basu & Parker, 2001; Sieger & Minola, 2016), and it is particularly important for young individuals (Aldrich & Kim, 2007).

The Italian sample of students is made by 52% of males; 25% also work regularly; the age varies between 17 and 40 (Mean=23; SD=3.35); most of the respondents are Italian (93.88%). 59% of students are undergraduate (bachelor); 39% are graduate (master) students, while only 2% are enrolled in a Ph.D., post-doc or executive education/MBA. Regarding the field of study, 37% is enrolled in engineering and architecture; 23% in business-management and economics, and the rest in other fields (linguistics and cultural studies; medicine and health sciences, etc.). In the sample, 56% of students have no older siblings, 33% of the sample have one older sibling, 8% have two older siblings and 3% three or more.
3.2. Variables

**Dependent variable**

*Entrepreneurial Intentions.* We used a set of 7-point Likert scale questions aimed to assess the strength of students’ entrepreneurial intention, since intention “is not simply a yes or no question, but a matter of extent ranging from a very low, effectively zero, to a very high degree of personal, conscious conviction and planning to start a new business” (Thompson, 2009, p. 8). The statements were: “I am ready to do anything to become an entrepreneur”; “My professional goal is becoming an entrepreneur”; “I will make every effort to start and run my own firm”; “I am determined to create a firm in the future”; “I have very seriously thought of starting a firm”; “I have got the intention to start a firm someday”. Cronbach’s alpha is 0.95, which is above the standard threshold of 0.75 for sufficient reliability (Nunnally, 1978).

**Determinants of intentions**

Each determinant of intentions was measured by items on a seven-point Likert scale.

*Perceived behavioral control* (PBC). It denotes the perceived ease or difficulty of performing the behavior. The greater the confidence about mastering an activity, the larger the probability to persevere despite external impediments. The survey collects information about the perceived ability to perform specific entrepreneurial activities and their overall confidence in succeeding in being an entrepreneur. Factor analysis of perceived behavioral control has led to distinct components of *self-efficacy* (i.e. confidence of performing specific tasks required to perform the behavior) and *controllability* (i.e. personal control over behavior, appraisal of whether the behavior is completely up to the actor) (Ajzen, 2002). In order to capture respondents’ *self-efficacy* participants ranked their own levels of entrepreneurial abilities in a scale that goes from one to seven, with one meaning that they do not feel confident in a specific skill, and seven meaning that they feel completely confident. The items are “To identify new business opportunities”; “To develop new products and services”; “To apply my own creativity”; “To manage innovation in a firm”; “To be a leader and a communicator”; “To build up a professional network”; “To commercialize a new product or service”; “To manage successfully a business”. We obtained a Cronbach’s alpha of 0.92. *Controllability* measures people’s beliefs that they have control over the behavior, that is if its performance is or is not up to them. Students were asked to assess their perceived controllability on a 7-items 7-points Likert scale. The items were: “I am usually able to defend my private interests”; “When I make plans for the future, I am almost certain to realize them”; “I am able to determine what happens in my life”; “To me it would be easy to be self–employed”; “If I wanted, I could easily take up a career as self–employed”; “As self–employed I would
have the complete control of the situation”; “If I became self-employed, the probability to be successful would be very high”. Cronbach’s alpha is 0.87.

**Subjective norms.** Subjective norms capture the opinions of social reference groups regarding whether the individual should engage in the behavior. Respondents provide information about their perceptions about the approval of entrepreneurial activity by important referents and about the cultural values of their community. In order to measure this component of social norms the questionnaire uses a three-item scale specifying thoughts of family, friends and colleague regarding founding a business (Liñán & Chen, 2009). Subjective norms were assessed through the question “If you would become entrepreneur, how do these people react?”. Three groups of people are taken into considerations, close relatives, friends and classmates (which corresponds to colleagues for students). Cronbach’s alpha is 0.78.

**Attitude towards entrepreneurship.** It refers to the individual’s evaluation of the target behavior. To measure attitudes the survey asks about the expected outcomes and risks linked to entrepreneurial activities. The GUESSS survey utilized the 5-item, 7-point Likert-type scale from Liñán and Chen (2009). The attitude towards behavior is measured by the following five statements: “To me being an entrepreneur brings more advantage than disadvantage”; “I think that a career as entrepreneur is interesting”; “If I had opportunities and resources, I would become an entrepreneur”; “Being entrepreneur would please me very much”; “Among different options I would prefer to become an entrepreneur”. Cronbach’s alpha is 0.92.

**Family background factors**

*Self-employed parents.* Students were asked “Are your parents currently self-employed?” (0=no; 1=yes).

*Older siblings.* Respondents were asked about the number of older siblings (0=0; 1=1; 2=2; 3=3; 4= 4; 5= 5 or more).

*Living with a partner.* Respondents were asked about their marital status. We used a dummy variable (1= living with partner, 0=single, married, or divorced).

**Control variables**

*Age* (number of years), *gender*, *worker status* (1=yes; 0 =no), *nationality* (7 dummies), *university* (17 dummies), *study level* (1=undergraduate; 2=graduate; 3=Ph.D.; 4=Post-doc/Faculty; 5=MBA/Executive), *study field* (11 dummies), *entrepreneurship course* (1= attended at least one; 0= never attended). We included these variables as the literature considers them important determinants of intentions (Kautonen et al., 2011; Levie et al., 2014; Liñán & Chen, 2009; Minniti & Nardone, 2007).
3.3. Analysis

Mean values, standard deviations, and Pearson's zero-order correlations for study variables are summarized in Table 1.
To test the hypothesized relationships, mediation tests following the four step approach as outlined by Baron and Kenny (1986) were first conducted using hierarchical multiple regression. In addition, the Sobel test statistic for mediation for each model was calculated to provide additional evidence regarding mediation within each model (Sobel, 1982).

The regression analyses were conducted as follows. First, the main effect family-related variables were entered in the regression (Model 1), followed by each respective mediator (Models 2–5). Additionally, a final model regressing entrepreneurial intent on family-related variables and all of the mediating effects variables was conducted (Model 6).
Table 1: Descriptive statistics and correlations

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<td>-0.05***</td>
<td>-0.1***</td>
<td>0.08***</td>
<td>-0.01</td>
<td>0.1***</td>
<td>0.04***</td>
<td>0</td>
<td>0.35***</td>
<td>0.35***</td>
<td>1</td>
</tr>
<tr>
<td>Attitude toward Entrepreneurship</td>
<td>4.60</td>
<td>1.47</td>
<td>0</td>
<td>0.21***</td>
<td>0.08***</td>
<td>-0.2***</td>
<td>-0.05***</td>
<td>-0.18***</td>
<td>0.13***</td>
<td>0.04***</td>
<td>0.1***</td>
<td>0.03***</td>
<td>0</td>
<td>0.51***</td>
<td>0.46***</td>
<td>0.42***</td>
</tr>
<tr>
<td>Entrepreneurial intentions</td>
<td>3.79</td>
<td>1.72</td>
<td>0.02</td>
<td>0.22***</td>
<td>0.12***</td>
<td>-0.21***</td>
<td>-0.05***</td>
<td>-0.17***</td>
<td>0.14***</td>
<td>-0.05***</td>
<td>0.14***</td>
<td>0.04***</td>
<td>0.02</td>
<td>0.56***</td>
<td>0.48***</td>
<td>0.38***</td>
</tr>
</tbody>
</table>

* p<0.01, ** p<0.05, *** p<0.1
3.4. Results

Results obtained from the regression analyses are presented in Table 2. Based upon the results, overall it appears that we found support for our hypotheses. Even if the effect of having older siblings deserves further attention: it appears to have a weakly significant effect on entrepreneurial intentions ($\beta = 0.03$, $p<0.1$), however when the other mediating variables are included it loses significance (which is in line with the mediation hypothesis) except for the case when PBC controllability is controlled for, which makes it even more significant (see Model 3, Table 2: $\beta = 0.04$; $p<0.01$).

In particular, for Hypothesis 1-2-3, having self-employed parents, older siblings and living with a partner are significantly and positively related to entrepreneurial intent (see Model 1, Table 2: $\beta = 0.22$; $p<0.01$; $\beta = 0.03$ $p<0.1$; $\beta = 0.15$; $p<0.01$).

### Table 2 – Regressions explaining entrepreneurial intentions: Mediation effects

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.01**</td>
<td>0.00</td>
<td>0.01***</td>
<td>0.01***</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>0.32***</td>
<td>0.24***</td>
<td>0.25***</td>
<td>0.31***</td>
<td>0.11***</td>
<td>0.10***</td>
</tr>
<tr>
<td>Nationality (7 dummies)</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>University (17 dummies)</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Study level</td>
<td>-0.15***</td>
<td>-0.13***</td>
<td>-0.13***</td>
<td>-0.12***</td>
<td>-0.05***</td>
<td>-0.05***</td>
</tr>
<tr>
<td>Study field (11 dummies)</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Entrepreneurship course</td>
<td>0.21***</td>
<td>0.08***</td>
<td>0.15***</td>
<td>0.18***</td>
<td>0.05***</td>
<td>0.03</td>
</tr>
<tr>
<td>Worker status</td>
<td>0.15***</td>
<td>0.05*</td>
<td>0.10***</td>
<td>0.16***</td>
<td>0.06***</td>
<td>0.04*</td>
</tr>
<tr>
<td>Self-employed parents</td>
<td>0.22***</td>
<td>0.15***</td>
<td>0.16***</td>
<td>0.17***</td>
<td>0.10***</td>
<td>0.08***</td>
</tr>
<tr>
<td>Older siblings</td>
<td>0.03*</td>
<td>0.01</td>
<td>0.04***</td>
<td>0.01</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Living with partner</td>
<td>0.15***</td>
<td>0.06*</td>
<td>0.09**</td>
<td>0.12***</td>
<td>0.06**</td>
<td>0.04</td>
</tr>
<tr>
<td>PBC Self-efficacy</td>
<td>0.50***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.16***</td>
</tr>
<tr>
<td>PBC Controllability</td>
<td></td>
<td>0.43***</td>
<td></td>
<td></td>
<td></td>
<td>0.06***</td>
</tr>
<tr>
<td>Subjective Norms</td>
<td></td>
<td>0.34***</td>
<td></td>
<td></td>
<td></td>
<td>0.01</td>
</tr>
<tr>
<td>Attitude toward Entrepreneurship</td>
<td></td>
<td></td>
<td>0.77***</td>
<td></td>
<td>0.66***</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.14</td>
<td>0.00</td>
<td>-0.14</td>
<td>-0.29***</td>
<td>-0.16**</td>
<td>-0.11</td>
</tr>
<tr>
<td>Observations</td>
<td>5,508</td>
<td>5,421</td>
<td>5,449</td>
<td>5,473</td>
<td>5,456</td>
<td>5,304</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.16</td>
<td>0.38</td>
<td>0.33</td>
<td>0.26</td>
<td>0.67</td>
<td>0.69</td>
</tr>
</tbody>
</table>

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

To test mediation effects, a set of regressions was conducted using self-employed parents, older siblings and living with a partner as predictors of the mediating variables. Subsequent to this, regressions were conducted on both the main effect and mediating effects on entrepreneurial intentions. For each model, family-related variables significantly predicted the mediating variables (all $p<0.1$).
except for older siblings on Attitude toward entrepreneurship which had a non-significant coefficient ($\beta=0.02$; $p>0.1$)), overall this provided us support to continue further mediation tests for each model. Subsequent to this initial examination, the coefficient of the main effects (using self-employed parents, older siblings and living with a partner) for all models was examined, after loading the mediating effect of PBC (Model 2 and 3), subjective norms (Model 4), and attitudes towards entrepreneurship (Model 5).

The main effect of having self-employed parents was significant, though smaller with the inclusion of the mediating variables. The Sobel test was strongly significant (PBC self-efficacy: Sobel test statistic=0.07, $p<0.01$; PBC controllability: Sobel test statistic=0.07, $p<0.01$; Subjective norms: Sobel test statistic=0.05, $p<0.01$; Attitude towards entrepreneurship: Sobel test statistic=0.12, $p<0.01$), suggesting that PBC, subjective norms and attitudes towards entrepreneurship, mediate the main effect of having self-employed parents on entrepreneurial intentions (as predicted by hypothesis 4).

For living with a partner, its effect is also mediated as predicted by hypothesis 6 (PBC self-efficacy: Sobel test statistic=0.08, $p<0.01$; PBC controllability: Sobel test statistic=0.05, $p<0.01$; Subjective norms: Sobel test statistic=0.03, $p<0.05$; Attitude towards entrepreneurship: Sobel test statistic=0.08, $p<0.05$).

As shown in Model 6, the effects of having self-employed parents, having older siblings and living with a partner are reduced when the cognitive antecedents of intentions theorized by the theory of planned behavior (Ajzen, 1991) are controlled for.

As we have argued above, having older siblings deserves further attention. Two effects seem to partially support our hypothesis 5 (PBC self-efficacy: Sobel test statistic=0.02, $p<0.05$; Subjective norms: Sobel test statistic=0.01; $p<0.05$). In line with our previous analyses, one effect is non-significant (Attitude toward entrepreneurship: Sobel test statistic=0.02; $p>0.1$) and one effect is in the opposite direction (PBC controllability: Sobel test statistic= -0.01; $p<0.1$). This means that having older siblings and PBC controllability when they are added together to a regression they gain explanatory power, instead of losing it as it happens in mediation effects. Statistically, this is called a suppression effect (i.e. inconsistent mediation), where the indirect effect of PBC controllability on the relationship between older siblings and entrepreneurial intentions (calculated as the differences between the coefficients of the regression without and with the mediating variable, i.e. Model 1 and 3: 0.03-0.04=-0.01) has an opposite sign as compared to the direct effect of older siblings on entrepreneurial intentions (which corresponds to the coefficient of the regression of older siblings on intentions adjusted by the mediator variable, i.e. Model 3: $\beta=0.04$; $p<0.01$) (MacKinnon, Krull, & Lockwood, 2000). Although the overall effect of older siblings on intentions was positive, this particular meditational path had the opposite effect. In other words, having older siblings appears to be negatively related to PBC controllability, which in turn led to increased entrepreneurial intentions. However if we consider the full model (Model 6), the other, larger,
significant mediation effects associated with individual cognitive characteristics reduce the effect of family-related variables overall.

It is also interesting to note that in Model 6 we see that being a male and a worker are both positively related to entrepreneurial intentions ($\beta = 0.10; p<0.01$; $\beta = 0.04; p<0.1$), and that the variable subjective norms is not significant. Regarding education, having attended an entrepreneurship course does not appear to be significantly related to entrepreneurial intentions, while a higher level of education is negatively related to them.

**Further checks**
To test the validity and distinctiveness of our measures, we first applied Harman's one-factor test (Harman, 1967). An exploratory factor analysis with all study items revealed a 5-factor solution, accounting for 69.39 percent of total variance (first factor: 43.22 percent). These results, and in particular the fact that no factor explains the majority of variance, provide initial evidence that our measures are empirically distinguishable.

Second, a confirmatory factor analysis with all our independent and moderator variables showed a satisfactory fit ($\chi^2(367)=13383.75$, RMSEA=0.071, CFI=0.918, TLI =0.91). The fit of a one-factor structure ($\chi^2(377)=60220.04$, RMSEA=0.150, CFI=0.62; TLI=0.59) was significantly worse (difference in $\chi^2=46836.29$, df=10, $p<0.001$). This further shows that our measures are empirically distinguishable and may also provide a first indication that common method bias is not a very serious concern.

Multicollinearity concerns are mitigated because the variance inflation factors (VIFs) of our independent and moderator variables did not exceed 1.80 (Hair, Black, Babin, Anderson, & Tatham, 2006).

Finally, social desirability concerns are alleviated because respondents were assured of strict confidentiality and because our variables were spread over the long GUESSS survey, which reduces the probability that respondents anticipated our research question and adapted their answers correspondingly (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

**4. Discussion**

In this research we aimed to explore which characteristics of the family of origin and of the family of formation might impact on university students’ entrepreneurial intentions.

**Theoretical contributions**
First, we have found that having self-employed parents positively fosters entrepreneurial intentions. This finding is in line with the predictions of career role modeling theory, which states that parents are people occupying important social roles in our career choices (Whiston & Keller, 2004).
Second, answering to a call for research on birth-order influences on entrepreneurship (Nordqvist et al., 2013) we have found weak support for our second hypothesis that stated that having older siblings might positively influence students’ entrepreneurial intentions. This is nevertheless interesting, because we challenge both the traditional assumption that entrepreneurs are first-borns (Robinson & Hunt, 1992) and the opposite one that entrepreneurs are creative and less achievement-oriented (Sulloway, 1996). Entrepreneurship theory has based the first-born and/or later-borns hypotheses on the idea that the socialization process directly favors either creative skills and abilities or conscientiousness and achievement; however, as Claxton et al. argue, “entrepreneurs tend to display not only achievement orientations but also high focus and creativity” (1995, p. 160). Since this body of research ignores this duality (i.e. focus versus creativity), here we advance the notion that both divergent and convergent thinking should be considered to discover the roots of entrepreneurship: they are the two sides of the same coin and possibly children should develop both abilities to become entrepreneurial. Moreover, a deeper investigation that also considers variables such as culture, gender or socio-economic conditions may further inform about this link. For instance, according to Hofstede data the Italian culture is one that fosters masculinity (i.e. the society will be driven by competition, achievement and success), which may not only favor one gender over the other (as it appears from our results about the gender variable), but also the way families influence career intentions.

Third, living with a partner also appears to be influential in the decision to become an entrepreneur, even if its effect is mediated by the cognitive antecedents of intentions. This is especially important in a cultural context as the Italian one, where children tend to live with their parents longer as compared to other European countries (Manacorda & Moretti, 2006; Modena & Rondinelli, 2011). We have to note however, that 85 percent of students in our sample is single, 12 percent lives with a partner, 2 percent is married and only 19 people are divorced. We have tried to create another dummy variable to distinguish between singles and living with a partner-married-divorced and results did not significantly change. In other words, even if our hypothesis is overall supported and there are theoretical reasons to believe that being married/divorced has a different effect on entrepreneurial intentions as compared to living with a partner, we are not able to detect this specific effect in our sample, possibly because of the scarcity of students being legally united/separated with another person.

Fourth, in line with the theory of planned behavior (Ajzen, 1991) our results support its predictions: the cognitive antecedents of intentions are mediators of the relationship between family background factors and entrepreneurial intentions. However, we have obtained two findings that contradict our fifth hypothesis about the effect of having older siblings on entrepreneurial intentions. On the one hand, attitude toward entrepreneurship does not significantly mediate (i.e. reduce) the effect of having older siblings on entrepreneurial intentions and on the other hand, PBC controllability and having older siblings have a possible
inconsistent mediation effect (i.e. suppression effect) on entrepreneurial intentions because they gain significance when included together in the regression equation. In other words, we found that even if having older siblings appears to be negatively related to the individual feelings of “being in control” over the behavior (i.e. performing entrepreneurship), this in turn leads to increased entrepreneurial intentions: so the overall effect is positive but the underlying mechanism is negative. We may think that this happens because of the socialization process within families: later-borns (i.e. the “little ones”) might experience less PBC controllability because parents and/or older siblings might be the ones “in control” of the situation (perhaps unintentionally) within the family.

It is also interesting to notice that in the last full model the effect of the variable “subjective norms” becomes insignificant when all the variables are controlled for. This means that, contrary to the prediction of the theory of planned behavior and in line with another recent study conducted on students in Belgium (Maes, Leroy, & Sels, 2014), even if the opinions of the close network have a mediation effect, they do not significantly influence students’ entrepreneurial career intentions.

Moreover, a recent meta-analysis of 30 studies with 52,367 individuals conducted in many different countries about gender effects on intentions using the theory of planned behavior model (Haus, Steinmetz, Isidor, & Kabst, 2013) found that gender had no significant relationship with intention in a direct model but had a small but significant effect on attitude, subjective norms, and perceived behavior control (with women lower than men). Here we found that gender (i.e. being a male) has a significant effect on intentions, we speculate that this might be a consequence of the high masculinity level that according to Hofstede’s data characterizes the Italian culture.

Finally, regarding education, even if previous research has shown that educators might significantly influence students’ entrepreneurial orientation (Kirby, Konopaske & Kirby, 2016), we found that having attended an entrepreneurship course does not appear to be significantly related to entrepreneurial intentions, while a higher level of education is negatively related to them. A meta-analysis of 73 studies and 37,285 individuals looked at the relationship of education and intention (Bae, Qian, Miao, & Fiet, 2014) and they found a small but significant relationship between education and intention with entrepreneurial education significantly more strongly associated than general business education and that students’ pre-education intentions toward entrepreneurship reduced the impact of education to zero. Our results seem generally in line with their findings, we might also speculate that students’ pre-education intentions might certainly influence their university (i.e. to continue to study) and career (i.e. start a business) choices.
Practical implications

In the Italian context self-employed people are particularly disadvantaged in terms of social security and taxes as compared to subordinate workers. Here we show that among the three family variables we considered (i.e. having self-employed parents, having older siblings and living with a partner), having self-employed parents is the one whose effect is still positive even taking into consideration cognitive individual factors. If policy-makers’ aim is to sustain the next-generation entrepreneurship in Italy, it is of utmost importance to sustain independent workers, for instance by increasing their social security and decreasing taxes. On the basis of our findings, we may suppose that the positive effect on current independent workers may be beneficial not only at present, but also in the future by positively impacting on the entrepreneurial intentions of current entrepreneurs’ children.

Second, policy makers, but also students and families should consider that helping young people to move out of their home and start their own family is a factor that may contribute to sustain entrepreneurship among young people. This might be especially important in family firms where transmitting entrepreneurship to the next generation is a crucial element in succession processes. However, they should also be aware that cognitive individual factors (i.e. PBC self-efficacy, PBC controllability and attitude toward entrepreneurship) appear significant predictors of entrepreneurial intentions and also reduce significantly the effect of living with a partner. In other words, family background factors do have an effect on intentions, but are not enough, because the individual cognition might function as a filter for external stimuli.

Also, even if subjective norms reduces the effect of family-related variables on intentions, so it does have an indirect effect, it does not appear to be significantly related to entrepreneurial intentions in the overall model. This means that possibly Italian students might not be independent from their family of origin in a material sense, because they tend to live longer with their family of origin – not surprisingly in our sample only 12% lives with a partner and 3% is married or divorced -, nevertheless they might be independent in their “thinking” about future career intentions.

Last but not least, we found that being a male is positively related to entrepreneurial intentions: this finding can be either related with the “masculine” culture that characterizes Italy and/or with the lack of family support for self-employed women (e.g. according to Eurostat data, public expenditure on pre-primary education as percentage of GDP in Italy was 0.44 in 2012, ranking below the Euro area average which was 0.57; furthermore whereas female employees can benefit from a mandatory maternity leave, self-employed do not have such support).

Finally, regarding education, from our results it appears that a higher level of education is negatively related to entrepreneurial intentions. These findings are coherent with numerous stories of successful entrepreneurs who did not graduate
before starting their business both at international (e.g. Steve Jobs (Apple), Richard Branson (Virgin), Michael Dell (Dell Computers)) and Italian (e.g. Oscar Farinetti (Eataly), Luciano Benetton (Benetton), Leonardo Del Vecchio (Luxottica)) level. However, university educators and students who aim to become entrepreneurs should be aware that education can provide methods and knowledge that can become an invaluable mean to start a business (Iglesias et al., 2016; Li et al., 2016). One way to do this is to circulate more stories about educated entrepreneurs.

5. Limitations and Future Directions

This study has a number of limitations. First, we investigate intentions and not actual behavior. Even if research shows that a strong link between intentions and behavior certainly exists (Kautonen et al., 2015), not all intentions will lead to behavior; we thus cannot be fully sure whether all students who exhibit entrepreneurial intentions will actually create a firm in the future. Nevertheless, future research using longitudinal data that allow the extension of our model to actual behavior would be welcome. Such data would also address the limitation that we cannot derive valid conclusions with regard to causality because of the cross-sectional nature of our survey data. Our theorizing, however, leads us to believe that causality exists as we expect it.

Furthermore, as our theory indicates we might assume that reverse causality is not a fundamental problem in our data, however this possibility cannot be completely eliminated.

Also, although using a student sample can be justified, we cannot rule out certain limitations regarding the full generalizability of our findings. Future research could use a general adult population sample to replicate our findings.

Turning to general potential future research avenues, we encourage scholars to investigate further the formation of entrepreneurial intentions. Investigating what happened when students were in their childhood, considering that entrepreneurs require a different set of thinking abilities that may be developed from a very young age.

Finally, as the study is conducted only in Italy which has its own specific economic, cultural, institutional, and family factors (e.g., family ties), it is worth performing the same analysis for other countries as well and compare results across countries.

To conclude, our study offers novel insights on entrepreneurial intentions that advance existing knowledge in numerous ways, and we hope that it will spark promising and fruitful future research efforts.
References:


