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Actions speak louder than words: a social cognitive model of the entrepreneurship intention-action gap

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Abstract
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1. Introduction

Action is the central feature of entrepreneurship (McMullen & Shepherd 2006). The formation of an entrepreneurial intention, i.e., the cognitive commitment to starting a business, is a necessary condition for engaging in entrepreneurial action and has been examined at length by the Theory of Planned Behavior (Ajzen, 1991; 2014) and the Entrepreneurial Event Model (Shapero and Sokol’s (1982). Thus, much research has focused on entrepreneurial intentions. However, while being necessary, intention is not sufficient condition. Many individuals form entrepreneurial intentions but only a small minority turn their intentions into actions (van Gelderen, Kautonen & Fink, 2015).

Intentions are strong predictors of behaviors associated with a single action (e.g., voting, exercise or dieting); that are under strict volitional control (e.g., eating healthy); that
are simple as opposed to complex (e.g., choosing a healthy menu option); where ultimate outcomes occur soon after the act (e.g., voting in an election); and where there is little uncertainty regarding the link between actions and outcomes (e.g., a blood donation) (see e.g., Ajzen 1985; Gollwitzer 2001; Sheeran 2002 for further discussion). As a context for intentional action, entrepreneurship fulfills neither of these criteria. Focusing on entrepreneurial intentions alone might represent an important limitation in fully explaining entrepreneurship (Adam & Fayolle 2015; Kautonen et al. 2015; Van Gelderen et al. 2015). In this paper, we contribute to fill this gap by addressing an apparently simple question: under which conditions do entrepreneurial intentions convert into entrepreneurial action, and under which conditions don’t?

We build on social cognitive career theory [SCCT] (Lent & Brown, 2013; Lent, Brown & Hackett 1994; 2000), to disentangle the influence of contextual support and barriers in converting career goals into action. We specifically focus on the role of social influences from family members, friends, and “mentors” in facilitating action towards career goals (Blustein, Phillips, Jobin-Davis, Finkelberg, & Roarke, 1997; Richie et al., 1997), and develop a model to propose that individuals exposed to entrepreneurial peers engage in a twofold process. First, they experience vicarious learning by observing, retaining information and assimilating new knowledge (Kolb & Kolb 2005, Bandura 1986). Second, they gain support and legitimization instrumental in overcoming doubt and uncertainty and converting intentions into action by identifying themselves with close-knit entrepreneurial role models. We test this model using a unique dataset with 64,710 observations based on a multiyear longitudinal survey of the population of Italian university students.

In developing and testing a model specifying contextual influences facilitating the conversion of entrepreneurial intentions into action, we make several contributions to the literature on entrepreneurial intentions. First, although the vast majority of prior studies
assumed that intentions automatically convert into action (e.g. Bird, 1988; Krueger, Reilly & Carsrud, 2000), we provide an empirical test of such assumptions and their contingencies, advancing this literature further and responding to several direct calls to explore the link between intention and action (e.g. Schlaegel & Koenig, 2014). In addition to that, within the specific realm of entrepreneurship studies, we build on what currently, to the best of our knowledge, is the only test of the intention-action gap (van Gelderen et al. 2015). They focused on factors that widened this gap even further, while we examine those, which help to close the gap between. We believe that this is an important extension to entrepreneurship studies to properly anticipate or build the conditions leading to incorporate intentions into actions.

Second, we know that entrepreneurs are socially embedded (Aldrich & Ruef, 2006; Dahl & Sorenson, 2009) and the context in which entrepreneurial action takes place largely influences the nature and outcome of entrepreneurial action (Aldrich & Zimmer, 1986). By building on social cognitive career theory [SCCT], we model how context and social embeddedness moderate the relationship between intentions and action and influence the choice to become an entrepreneur. This is also a first step in linking the notion of entrepreneurship as an occupational choice (Burton, Sorensen & Dobrev, 2016), and the career development literature.

Third, we test the model on final year university students who are on the brink of entering the labor market for the first time. Thus, they are at a stage where they are ‘forced’ to make a career choice, unable to procrastinate entrepreneurial action and remain with current employment, as many people otherwise do (van Gelderen et al., 2015). Procrastination is a common reason for entrepreneurial intentions not converting into action (McMullen & Shepherd, 2006). These individuals are in the most formative stage of their
careers and understanding why they choose entrepreneurship as a career path is of particular interest.

The paper is organized as follows. In section 2 we review the literature on TPB in entrepreneurship, focusing on the limitations of the predictive power of the intention-action relationship. In section 3 we build on Social Cognitive Career Theory to specify the contextual influences facilitating the conversion of entrepreneurial intentions into action. In section 4 we develop a model applied to university students entrepreneurship and formulate the corresponding hypotheses. In section 5 we illustrate our research design describing the sample, the variables and the empirical model chosen to test our hypotheses. In section 6 we present and discusses the results, and we conclude in section 7 summarizing our contributions, the limitation of our study and opportunities for additional research in the field.

2. Entrepreneurship as an intentional and planned behavior

Theories related to intentional behavior have long been used to explain and predict different type of behaviors, including entrepreneurship, as highlighted for example by some foundational studies on new venture creation (e.g., Bird, 1988; Krueger, 1993, Kolvereid, 1996). Two main intentional theories have emerged in this context: Ajzen’s (1991, 2014) Theory of Planned Behavior (TPB) and Shapero and Sokol’s (1982) Entrepreneurial Event Model (EEM). They are similar in terms of predictive power (Schlaegel & Koenig, 2014) and converge on the basic premise that intention to act is the best predictor of engaging in entrepreneurial behavior (Lee, Wong, Foo, & Leung, 2011).

As the recent meta-analysis by Schlaegel & Koenig (2014) shows, TPB seems to dominate recent entrepreneurial intentions research as a general psychological theory, applicable to and validated across a range of different behaviors. It posits that intentions capture the degree of motivation toward exerting effort on a particular act. In particular, there
are three key attributes that predict behavioral intentions, which is then assumed to be a strong predictor of ensuing behavior. First, the “Attitude toward the act” captures how an individual values the performance associated with the behavior. This attitude is determined by behavioral beliefs, which include the anticipated outcomes of the behavior and the subjective evaluations of those outcomes. Second, “Subjective norms” take into account the perceived social pressure to engage in a given behavior and are influenced by normative beliefs including expectations of others and the motivation to comply with these expectations. Third, “Perceived behavioral control” refers to perceptions of the ability to perform a given behavior and largely overlaps with Bandura’s (1982) construct of perceived self-efficacy. It is determined by control beliefs, which are beliefs about the presence of factors that may facilitate or impede performance and the perceived power of these factors. The relative contribution of these three attributes to intention varies across behaviors and situations and the specific intention under investigation (Ajzen, 1991; 2014).

Intentions capture the motivational factors predicting behaviors and fully mediate the effects of attitude and perceived social norms, while perceived behavioral control may also moderate the intention – behavior relationship (Ajzen, 1991). The predictive power of intentions has been examined across a range of behavior. For example, Ajzen (1987) shows that intentions explain on average 30% of behavior; while a meta-analysis of Armitage and Connor (2002) found that TPB explained 22% of behavior.

Summarizing the results of 10 meta-analyses that collectively investigate a wide variety of human behaviors, Sheeran (2002) reported that intentions explained 28% of the variance in behavior, leaving 72% of behavioral variance unexplained. These large unexpected variance and the inconsistency of effect sizes across contexts, points to the existence and relevance of additional explanatory factors (Sheeran, 2002). First, intentions better predict behaviors related to a single action (e.g., voting, exercise or dieting) rather than
those that represent the outcome of a series of actions performed over time. Second, intentions better predict behaviors that are under strict volitional control (e.g., eating healthy) rather than influenced by external conditions or the actions of others. Third, intentions better predict behaviors that are simple (e.g., choosing a healthy menu option) as opposed to complex. Forth, intentions better predict behaviors where the ultimate outcomes occur soon after the act (e.g., voting in an election), and where there is little uncertainty on the link between actions and outcomes (e.g., making a blood donation). Finally, inter-individual differences in traits affect the strength of the relationship. The ability to exercise control over their actions or to exercise will power to attain what they desire varies across individuals (Ajzen, 1985; Gollwitzer, 2001), and so does the tendency to pay attention to external cues. Individuals with greater self-control and are less sensitive to external cues and are more likely to retain their intentions and courses of action is the face of obstacles (Snyder, 1974), thus leading to stronger relationships between intentions and action.

Although TPB has been frequently applied in the entrepreneurship context, few studies have examined the actual link between entrepreneurial intentions and actions. Previous studies have been mainly concerned with the formation of entrepreneurial intentions often treating entrepreneurial intentions as a direct proxy for behavior (Schlaegel & Koenig, 2014). Given the many variables that moderate the strength between intentions and action, we believe that this is an unfortunate over-simplification. There is reason to believe that the direct relationship between entrepreneurial intentions and action is relatively weak because entrepreneurship represents a complex behavior (van Hooft, 2005), where outcomes and how to obtain them are uncertain. Outcomes also materialize long after behavior is initiated – the startup process takes on average around three years (Reynolds & Miller, 1992). In particular, there is reason to believe that there is an intention-action gap (Gollwitzer, 2001), i.e., many form entrepreneurial intentions but do not act on these intentions. Indeed, non-action by
abstainers who have the intention is more common than action among those lacking an intention (Sheeran, 2002). Van Gelderen et al. (2015) found that of among those that had an entrepreneurial intention, as many as 69% actually took no action at all during the subsequent 12 months. The intention-action gap may be particularly substantial when the action to be pursued is novel, or can be postponed (Orbeil, Hodgkins & Sheeran, 1997), as it is often the case in the entrepreneurial context.

In order to develop a richer model of the relationship between entrepreneurial intentions and action that takes into account the intention-action gap, our study draws on insights from Social Cognitive Career Theory ([SCCT] Lent & Brown, 2013; Lent, Brown & Hackett, 1994; 2000). As opposed to TPB, which is a general psychological theory applicable to a range of human behavior, SCCT deals specifically with how contextual support and barriers influence the extent to which career goals convert into action. Specifically, building on SCCT theory, we suggest that contextual influences might exert an important role in the translation of intentions into entrepreneurial action, by providing supportive conditions and resources. We then apply it to the realm of student entrepreneurship.

3. Social Cognitive Career Theory (SCCT) and Entrepreneurial Action

SCCT aims to explain the process by which individuals form interest, make choices and achieve different goals in educational and occupational pursuits (Lent, Brown & Hackett, 1994). This theory is grounded in Bandura’s (1986) socio-cognitive theory and broadly explores how individuals form career and academic interests, develop career intentions and act on these intentions. It focuses on how individual’s cognition and environmental characteristics interact to shape the course of career development. In particular, the characteristics of the opportunity structure (contextual influences) moderate how goals
convert into actions by reinforcing the relationship under favorable environmental conditions and weakening it under less favorable ones (Lent, Brown & Hackett, 2000). SCCT recognizes the mutual interaction and influence between individuals, their behaviors and their environment.

Objective environmental factors (e.g. the financial support available to pursue a certain option) affect individual career choice development. Their influence depends on how individuals assess and respond to them as any opportunity, resource or barrier presented is affected by individual interpretation (Astin, 1984; Vondracek et al., 1986; Lent, Brown & Hackett, 2000). Moreover, it is important to consider temporal extension of environmental influences on the career development process, from the formation of career interests to the translation of these interests into action, distinguishing between distal and proximal factors. One the one hand, distal factors (e.g. parental role models) influence the learning experience of the individual, which in turn affects how individuals develop career self-efficacy and outcome expectations. On the other hand, proximal factors (e.g., a particular role model during university studies) are important during the active phase of educational and career development, because they affect the translation of individual’s career interests into action (Lent, Brown & Hackett, 2000).

Contextual factors therefore affect the translation of interests into choice goals and goals into actions (Lent, Brown & Hackett, 2000). We are more likely to translate our interests into goals and act upon them, if we perceive the environment to support such actions. For example, research shows how the perceived support from fathers influence the educational plans and career expectations of high school girls (McWhirtiher, Hackett, et al., 1998). Faculty support and encouragement among engineer students relates to performance (Hackett, Bets et al., 1992) and persistence (Schaefers et al., 1992). Conversely, we are less likely to engage in career paths if we perceive our effort to be impeded by contextual factors.
For example, workplace discrimination has been used to explain problems related to women career progress (Swanson et al., 1996; Richie et al., 1997) or to racial-ethnic minority group member’s career development (Swanson et al., 1996).

Coherently with SCCT several environmental variables can influence the relationship between entrepreneurial intentions and new venture creation. The exposure to influential individuals can facilitate the access to information, resources, and knowledge relevant to entrepreneurial pursuits and can also boost entrepreneurial motivation and attitudes (Tinsley & Faunce, 1980; Fisher & Stafford, 1999; Aldrich & Ruef, 2006; Audia & Rider, 2006; Dahl & Sorenson, 2009; Sørensen, 2007). The exposure to individuals who represent relevant examples of entrepreneurial engagement provides the access to valuable information and provides a means to build relevant knowledge (Baron & Henry, 2010), and can facilitate the access to social resources key for the new venture (Hensen, 1995; Brush, Green & Hart, 2001). Entrepreneurs face challenges related to acquiring the human, financial and physical resources needed to build a new venture, and personal relationships can assist in resource acquisition (Schell & Davig, 1981; Sorenson & Audia, 2000). Finally, social relationships can facilitate the pursuit of entrepreneurial activities by providing emotional support (Aldrich et al., 1998).

4. A socio-cognitive model of Students Entrepreneurship

Over the last 30 years, scholars have extensively studied universities, acknowledging their relevance in creating the right context for entrepreneurship (Grimaldi et al., 2011) with a particular focus on entrepreneurial activities by academics (e.g., Fini et al., 2011). Only recently, however, scholars have started to investigate entrepreneurship by university graduates (Roberts & Eesley, 2011; Astebro et al., 2012). They document how a growing number of students are looking at entrepreneurship as a realistic career option, with numerous
examples of students who founded their new business ventures during university studies or soon after graduation (Lindholm Dahlstrand and Berggren, 2010). These companies are a direct opportunity to transfer knowledge to society, create highly skilled jobs and foster local ecosystems. Among the various forms of entrepreneurship, we therefore believe that it is relevant to understand which are those contextual attributes that can encourage individuals who have formed intentions to start a new business to translate these intentions into action. Specifically, in our model we focus on the influence of family, mentors, and peers.

4.1. Family

In their early years of life, children spend most of the time with their parents. As a consequence, parental background has an important impact on future educational and job choices (Halaby, 2003; Falck et al., 2012). Parents influence the child’s self-image (Bandura, 1997) and self-employed parents affect the future individuals decision to become entrepreneurs (Aldrich et al. 1998a; Halaby 2003; Falck et al., 2012). Socialization during childhood and adolescence lead individuals to develop attitudes and values necessary for entering entrepreneurship and to see self-employment as an alternative to other kind of more conventional jobs (Aldrich et al., 1998). Parents foster children entrepreneurship through socialization, work experience and the development of social capital (Aldrich, Renzulli, & Langton, 1998).

Entrepreneurial action is surrounded by uncertainty. Under uncertainty, people typically experience anxiety and fear, which tend to block the engagement in action and lead
to procrastination and inaction (e.g., Paulus 2007). Self-efficacy, i.e., the belief that I have the capacity to conduct the actions needed to achieve desired outcomes, has a strong influence of overcoming such anxiety and fear (e.g., Bandura, 1997; Lent et al., 1994). The access to role models early in life can help children develop their self-efficacy through modeling (Bandura, 1986).

The observation of parents that are self-employed is also associated with vicarious learning. Children of self-employed parents develop a keen understanding of the skills, values, attitudes and emotions that are related to the new venture creation process (Aldrich & Zimmer, 1986; Giannetti & Simonov, 2009; Aldrich & Langton, 1998). Further, they are more likely to become entrepreneurs because they acquire stronger entrepreneurial preferences (Aldrich & Zimmer, 1986). Self-employed parents, moreover, provide social capital and personal networks that are necessary resources in the start-up phases (Granovetter, 1993). Finally, parents may provide emotional support in critical phases of the new venture creation process (Aldrich et al., 1998).

Considering the many positive elements associated with the access to self-employed parents we formulate the following hypothesis:

**Hypothesis 1:** The effect of entrepreneurial intention on taking action will be stronger when individuals have self-employed parents.

4.2. Mentors

Individuals engage in different behaviors because they are affected by others’ opinions and behaviors by the examples that they provide (Ajzen, 1991, Akerolf & Kranton, 2000). This is also true for the individuals’ occupational choice and in particular for the choice to engage in entrepreneurial activities (Bosma, 2012).
In an organization, a mentor is defined as a senior member who provides support, advice and feedback to a less experienced member of the organization, for his or her career and personal development (Hunt & Michael, 1983; Kram, 1985; Noe, Greenberger & Wang, 2002). Mentoring is therefore a working relationship that contributes to personal growth (Lanaku & Scandura, 2009). Mentors share valuable knowledge and experience, and individuals exposed to mentoring engage in vicarious learning: they observe actions, retain information, assimilate them and create new knowledge (Kram, 1966; Bandura, 1977; Lanaku & Scandura, 2002; Kolb & Kolb, 2005; Holcomb et al., 2009). Moreover, mentors act as role models. The notion of role model draws on two constructs; one is related to the concept of role and the identification with other people; the second is the concept of modeling, as the matching of skills and behaviors between a person and observing individuals (Gibson, 2004). As such, individuals are attracted by those who perceived to be similar and from whom they are able to learn (Bosma et al., 2012). Role models exercise power on individuals because they provide evidence that certain goals are achievable, enhancing individual’s self-efficacy to engage in a certain occupation (Akerlof & Kranton, 2000). In addition to that, they legitimize and encourage the engagement in certain behaviors (Bosma et al. 2012).

As individuals who are exposed to mentors find legitimization and support to translate their entrepreneurial intentions into actions we formulate the following hypothesis:

**Hypothesis 2:** The effect of entrepreneurial intention on taking action will be stronger when individuals are exposed to entrepreneurial mentors.

4.3. Peers

The role of peers in transmitting entrepreneurial attitudes and values has gained
increased scholarly attention. Research shows that peers play an important role in shaping individuals' attitudes to entrepreneurship in different ways. Belonging to a social group that positively values entrepreneurial activity affects entrepreneurial entry, even if the pecuniary benefits are lower than alternative job opportunities (Giannetti & Simonov, 2009). Social interactions in the workplace support the development of individual's attitudes and values toward entrepreneurship (Bercovitz & Feldman, 2008; Lazear, 2004; Nanda & Sørensen, 2010, Sørensen, 2007). Individuals in workplace engage in social interactions that facilitate an exchange of information and the acquisition of new knowledge, are influenced by their socially proximity referents, and use them as a guide for the proper course of actions (Kacperczyk, 2013). Individuals are therefore more likely to engage in entrepreneurial behaviors if their work peers have already been involved in similar ones (Bercovitz & Feldman, 2008; Kacperczyk, 2013). Moreover, these influences become more important if individuals have not been exposed to entrepreneurship in other aspects of life (Nanda & Sørensen 2010) and have been documented as early as in adolescence (Bandura, 1977) when having entrepreneurial peers at school affect individuals' entrepreneurial intentions (Falck et al., 2012).

The same mechanism unfolds with coworkers and university peers. Having coworkers who had prior entrepreneurial experiences increases the likelihood of becoming entrepreneurs (Nanda & Sørensen, 2010; Kacperczyk, 2013). Being connected with individuals who have already managed the entrepreneurial process reduces individuals' uncertainty towards entrepreneurial action. This argument is also supported by the theory of social proximity that argues how individuals tend to imitate the behavior of social proximity actors to act appropriately (Coleman, Katz, & Menzel, 1957; Rogers, 1983). More specifically, proximal actors become a guide and a reference for individuals who are struggling with the uncertainties that normally characterize any entrepreneurial process.
As peers act as social referent actors by providing support to individuals who face difficulties and doubt in the process of venture creation, we formulate the following hypothesis:

**Hypothesis 3**: The effect of entrepreneurial intention on taking action will be stronger when individuals have entrepreneurial peers.

5. **Research design**

5.1. **Sample and Data Source**

This paper examines how contextual influences affect the intention-action relation, particularly how mentor, peers and family affect the translation of entrepreneurial intentions into future behaviours. In order to test our hypotheses, we need data on individuals who are in a particular career stage and in a context in which the role of mentors, peers and family is relevant. Moreover, we need to control for different relevant contextual characteristics and we need to observe our individuals in different instances in time. We therefore built a unique sample based on different data sources.

Data on individuals were collected through a new module, i.e. “Student Entrepreneurship Survey”, included in the yearly annual survey of Italian university graduates administered by AlmaLaurea, an Italian inter-university consortium that supplies data to governing bodies, assessment units, and committees dealing with teaching activities and career guidance. It administered its first survey in 1998 and now covers almost 80% of Italian graduates with a total of 2.2 million surveys gathered up to June 2015. The survey is administered on a yearly basis, and it gathers demographic and primary data information with a response rate of about 90%. Respondents are further polled 1, 3, and 5 years after graduation to monitor the employment situation.
The “Student Entrepreneurship Survey” module was first developed in 2014 and collects data on students’ entrepreneurship-related preferences, attitudes and behaviors at the time of graduation. It then follows the students one year after graduation to observe their entrepreneurial activities. The “Student Entrepreneurship Survey” data were collected in two waves 12 months apart in 2014 and 2015 and they cover nearly 80% of Italian university graduates, representing a quite accurate picture of the national system. We complemented this specific information with that usually collected by AlmaLaurea on students demographics, family background, future career preferences, and universities’ attributes and experiences.

Data on mentors were derived from the TASTE (TAking Stock: External engagement by academics) database, which includes time-variant information on the population of 55,000 academics, employed by the 2,400 departments of the 95 Italian universities, between 2000 and 2014. In particular, the database stores information concerning those who started an academic spinout during their career.

Our dataset has some important characteristics related to studying how contextual influences affect the intention-action gap. First, it includes detailed individual-level demographic and contextual characteristics that make it possible to compute a rich set of fine-grained measures. Second, it focuses on university students who are on the brink of entering the labor market for the first time and are equally exposed to the procrastination bias (van Gelderen et al., 2015), as they are at a stage where they are ‘forced’ to make a career choice. Third, these students are followed after their graduation, which allows to temporarily separate intentions and actions.

Between September and December 2014, we reached 64,710 students (out of almost 230,000 graduated students in 2014) who graduated from 64 Italian universities (out of 76 Italian universities). We collected 61,115 valid questionnaires, with a response rate of 94%.
One year after all respondents were surveyed again following the usual procedure established by AlmaLaurea that follows students 1, 3 and 5 years after graduation with a response rate between 26% and 35%. In our case, between September and December 2015 we reached again 23,456 individuals and we were able to collect valid data on 22,559 of them, almost 37% of the 2014 sample.

5.2. Empirical model

5.2.1. Dependent Variable: Entrepreneurial Action

Entrepreneurial Action. The aim of our analysis is to understand to what extent individuals who form entrepreneurial intentions, then convert these intentions into actions, by starting a new venture. As that, to capture the individual action we asked individuals to answer to the following question “Did you create a new business?”. The dependent variable is operationalized as a dichotomous variable that is set to 1 if the individual has started a new venture and 0 otherwise.

5.2.2. Independent Variable: Entrepreneurial Intentions

Individuals’ entrepreneurial intentions are the principal predictor of our model. We operationalize this variable with a 7-point Likert scale adopted from Liñán and Chen (2009). We asked individuals to assess the six following items: “I am ready to do anything to be an entrepreneur”, “My professional goal is to become 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 the strong intention to start a firm someday”. We constructed the intention variable as the mean of the six items.

5.2.3. Moderators

The model developed in sections 3 and 4 introduces three key moderators to
understand the gap between intentions and actions, the role of family background, the role of mentors and the role of peers.

**Family background.** The questionnaire asked whether at least one of the student's parents was an entrepreneur or self-employed. The variable *family background* is a dichotomous variable equal to 1 if the answer was yes and 0 otherwise.

**Mentors:** To operationalize the moderating role of mentors, we focus on academic entrepreneurs. Universities departments are those places where research is produced, social networks are created and exploitation of business opportunities emerge at first (Bercovitz & Feldman 2008). We suggest that these universities units are not only the core of research production, but also a place of socialization between academic entrepreneurs and students. By attending their University departments during their classes, laboratories and different activities, students have a chance to get in touch with academic entrepreneurs, experiencing vicarious learning and gaining exposure to entrepreneurial role models. Using the TASTE database we created a dichotomous variable equal to 1 if the student shares the same department with at least one academic entrepreneur and 0 otherwise.

**Peers:** In order to operationalize the moderating role of peers, we focus on students’ networks. We suggest that students who share the same course class with classmates who already started a new venture are positively affected in their decision to enter entrepreneurship. We therefore created a dichotomous variable equal to 1 if the respondent shares the same class with at least one student entrepreneur, and 0 otherwise.

5.2.4. **Controls**

Previous entrepreneurship research showed that women are less likely to enter entrepreneurship (e.g. Xavier et al. 2012) and more in general they present lower level of
entrepreneurial intentions (Schlaegel & Koenig 2014). Our gender dummy is set to 1 for women respondents and 0 otherwise.

Evidences suggest that age is one of the most important determinants of entrepreneurship and that entrepreneurial action is contingent on the individuals’ age (Lévesque & Minniti, 2006). Moreover, age is significantly correlated with the level of entrepreneurial intention (Schlaegel & Koenig 2014). We therefore include in our analysis the variable age. Previous work experience may affect individual entry in entrepreneurship (Kolvereid & Moen, 1997). Our third control variable is a dummy set to 1 if respondents indicated having prior work experience.

Another set of control variables is related to individual’s preferences for job attributes. Specifically, we control for individual’s preferences for autonomy (McClelland 1961, Evans and Leighton 1989, Roach and Sauermann 2015), income (Evans and Leighton 1989, Roach and Sauermann 2015) and other variables that are related to general job expectations: the importance of career development, the importance of job’s stability of job’s prestige.

A further set of controls is related to the students’ academic experience and career. Final academic grading expressed as the final grade at graduation is used to understand to what extent individuals’ academic performance may impact the decision to enter entrepreneurship. Student’s educational background has been reported to influence individuals’ entrepreneurial intentions and their entrepreneurial actions (Kolvereid & Moen, 1997), and we therefore include three dummy variables that accounts for Social Science disciplines, STEMM disciplines and all the other disciplines. Due to the heterogeneity of our sample, we take in account the types of degree in which students were enrolled; we account for bachelor, master and single cycle degree. Finally, we control for students’ social class to account for the different social classes to which individuals belong. We follow the classification of AlmaLaurea that distinguishes four social classes based on the parents’ socioeconomic
position following Cobalti and Schizzerotto (1994). The four classes are the upper class, the middle class, the clerical middle class and the lower middle class.
6. Analysis and Results

6.1 Descriptive statistics

The student’s mean age at graduation is 25 years old and about 60% of respondents are female. Almost all respondents are Italians (about 97%) with a small percentage coming from Europe (about 2%) and the remaining part from all over the world. About 45% of respondents attended a university in the north of Italy, 25% in the center, 21% in the south, and 9% in the two islands, Sicily and Sardinia. In terms of degree level, 62% of respondents have completed a Bachelor’s degree, 28% a Master’s degree, the others have concluded a full cycle (i.e., one long cycle degree course that lasts five or six years) and a very small percentage of those students have accomplished a degree before the so-called Bologna Process\(^1\) introduced in Europe the 3 years Bachelor followed by a 2 years Master. About 52% have completed a degree in STEMM disciplines (Science, Technology, Engineering, Math and Medicine), 40% a Social Science degree (Economics-Statistic, Education, Law, Linguistics, Political-Social and Psychology) and the remainder studied humanities or physical education.

In Table 1 we show the descriptive statistics and correlations of the variables included in the model. The mean for the entrepreneurial action is 0.018 with a standard deviation of 0.132, suggesting that the entrepreneurial event is quite rare among students. The intention to start a business is positively and significantly correlated to action (0.08). The correlation between gender and action is not significant; however, age is positively and significantly correlated with action (0.02) as well as the variable work experience (0.03).

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\(^1\) The Bologna Process is aimed at harmonizing various systems of European higher education, to facilitate the mobility of students and graduates and to increase the EU international competitiveness. It was introduced in 1999 (www.unibo.it/en/international/agreements-and-networks/bologna-process/bologna-process).
6.2 Logistic regression

We first use a logit model to test for the likelihood of a student setting up a new venture one year after graduation. As we have seen from our descriptive statistics, we need to account for a larger number of nonevents for the dependent variable (indicating all those students who have not started a business one year after their graduation). Moreover, given the non-linearity of the model, the sign of the interaction is not sufficient to draw conclusions about the effect of the interaction on the dependent variable. We therefore estimate the coefficients using the rare event logistic adjustment suggested by King and Zing (2001), and we rely on the partial derivative methodology introduced by Ai & Norton (2003) to analyze the magnitude and the statistical significance of the interaction terms.

Table 2 presents our results. In Model 1 and Model 2 we first test the base models, which include the control variables and the university dummy. In Model 3 we introduce, the intention to start a business variable, and in model 4 we introduce the three moderators, family background, mentors and entrepreneurial peers. In Models 5, 6 and 7 we then introduce the interaction effects between entrepreneurial intentions and each moderator, while in Model 8 we estimate the full model.

The results support Hypothesis 1 that coming from a family with entrepreneurial background increases the likelihood of setting up a new venture. The interaction effect between intentions and family background is positive and significant (0.156, p<0.05) in Model 5 and in Model 8 (0.157, p<0.05). Turning on Hypothesis 2, the interaction effect between individuals and mentors both in Model 6 and in Model 8 is positive, but not statistically significant. These results suggest that the relationship affect the likelihood of translating intentions into action positively. Finally, we found support for Hypothesis 3. The interaction term between intentions and university peers is positive and statistically significant both in Model 7 (0.138, p<0.05) and in Model 8 (0.137, p<0.05). We plot the
conditional marginal effect of entrepreneurial intentions interacted with entrepreneurial parents (Figure 2) and the conditional marginal effect of entrepreneurial intentions interacted with entrepreneurial peers (Figure 3). The marginal effects presented were estimated by keeping the other covariates at their means. Figure 2 shows that the effect of intentions on action is higher when individuals have entrepreneurial parents. Figure 3 shows that the effect of intentions on action is higher when individuals have entrepreneurial peers.

However, the interpretation of the interaction terms in non-linear models may be very different from the interpretation of linear ones, as the sign of the interaction term might vary depending on the covariates (Ai & Norton, 2003). To assess the robustness of the results, we follow the methodology proposed by Ai and Norton (2003) and we calculate the magnitude and standard errors of the estimates for the interaction term in a logit regression specification, and we show the results along the entire range of values. The results confirm the support for Hypotheses 1 and 3 coming from the previous estimates. For the relationship between individual’s entrepreneurial intentions and self-employed parents, we found that in in more than 70% of the cases the interaction effect is positive and significant (Z-score > 1.96); for the relationship between entrepreneurial intentions and peers, we found that in almost 80% of the cases the interaction effect is positive and significant (Z-score >1.96). The relationship between individuals and mentors continues to be positive but not statistically significant.

As for the control variables, consistently across all model specifications, work experience positively affects the likelihood of taking entrepreneurial actions. This is in line with prior work that shows how work experience influences individual entry in entrepreneurship (Kolvereid & Moen, 1997). In relation to the individuals’ preferences for job attributes, our results show that the job prestige positively affect the entrepreneurial action, meaning that those individuals who start a new business believe in the prestige of this
career. Job stability, as expected is negatively correlated to entrepreneurial action, meaning that those who perceive entrepreneurship as a risky activity do not act.

As we highlighted before, the response rate in the second round of questionnaires is equal to almost 37%, a rate similar or better to the response rate to questionnaires in entrepreneurship studies (e.g. Kautonen et al., 2015; van Gelderen et al., 2015) and it is in line with the response rate obtained from AlmaLaurea. Nevertheless, we check for possible non-response bias effects using a two-step procedure (Heckman, 1976) to compare the 2014 sample with the 2015 one. In the first step, we predict the likelihood that an individual would respond to the questionnaire. As a selection variable, we used the level of individual’s computer skills. We then re-specified the second stage model for entrepreneurial action, including the inverse mills ratio calculated from the first stage model and bootstrapping the standard errors 500 times. The results reported in Table 3 confirm our previous estimates and show that our results are robust.

7. Discussion and conclusions

Research in entrepreneurship has paid little attention to the relationship between intentions and entrepreneurial actions (Schlaegel & Koeing, 2014), and yet an intention-action gap exists (e.g. Van Gelderen et al., 2015). In this paper, we focus on this gap between intentions and actions in setting up a new venture. We do so by examining the extent to which students who form intentions to start a new business, according to the prediction of the Theory of Planned Behavior, then enact these intentions. In particular, extending the Social Cognitive Career Theory in the entrepreneurship context, we focus on the role of some contextual factors that act as moderators in the process of translation of intentions into action. We conducted our empirical analysis on over sixty thousand Italian university graduates observed in two subsequent years. The results indicate that family and peers are key factors
7.1. Family, Peers and Mentors

The perception of career-related barriers constrains the translation of career goal into actions. Brown and Lent (1996) affirmed that “Even persons with well-developed and differentiated interests in a particular career path will be unlikely to pursue that path if they perceive (accurately or inaccurately) substantial barriers to entering or advancing in that career” (pp. 355–356). In general, individuals are more likely to define goals and then engage in career behaviors if they are encouraged by environmental (e.g., social, financial) supports and they are free from barriers that may constrain their individual agency. Supports and barriers may directly affect the definition of goals and actions (Lent & Brown, 2013) or moderate the relation between the formation of goals and the subsequent actions (Lent et al., 2000). Moreover, research showed that supports and barriers can indirectly relate to goal and actions, by affecting self-efficacy and outcome expectations, which in turn are related to goals formation and actions (Sheu et al., 2010).

Our results show that even if individuals have strong intention to start a business, they may still hold on those intentions and fail to act as they lack any facilitating support or because they perceive high barriers impeding the launch of a new venture. On the contrary, environmentally supportive conditions or resources help individuals in translating these intentions into actions. In particular, family and peers represent a relevant support that lead individuals who have intention to start a new business, to act on these intentions. These results are consistent with a large body of research showing that being connected to influential individuals lead the access to information, resources, and knowledge that can be
extremely relevant to entrepreneurial pursuits (Tinsley & Faunce, 1980; Fisher & Stafford, 1999; Aldrich & Ruef, 2006; Audia & Rider, 2006; Dahl & Sorenson, 2009; Sørensen, 2007).

These specific contextual factors assume a relevant role because of their proximity to the process of translation of intentions into action. SCCT (Lent, Brown & Hackett, 1994) distinguishes two categories of environmental influences according to their relative proximity to the career choice-making process. The first category is characterized by distal environmental factors that can affect attitude and preferences; examples include the type of career role model to which one is exposed during the childhood and adolescence and how they affect the formation of distinct career interests. Having an entrepreneur for a parent might positively affect the formation of entrepreneurial intentions, while the exposure to other role models might discourage the formation of these intentions. The second category is characterized by proximal factors that can assume a significant role during active phase of career decision-making. Again, parents who are involved in entrepreneurship, entrepreneurial peers and mentors, are proximal influences that become particularly important in the process of translation of entrepreneurial intentions into actions. They are able to provide the financial, emotional and social support that can boost the creation of a new business.

7.2. The relevance of the context

The distinctiveness and the peculiarities of the context in which the study has been conducted offer distinctive opportunities. We explore the entrepreneurial intentions of final year university students who are on the brink of entering the labor market for the first time. A growing number of young men and women consider entrepreneurship as a realistic career option, with numerous examples of students who founded their new business ventures during university studies or soon after graduation (Lindholm, Dahlstrand & Berggren, 2010). These individuals are in the most formative stage of their careers and understanding why they
choose entrepreneurship as a career path is of particular interest. However, few studies in entrepreneurship have focused their attention to understand how and why some students choose to become entrepreneurs rather than seeking a more traditional employment. By exploring students’ entrepreneurial intentions and their subsequent action, we are able to understand how the process of new venture creation occurs and which are those contextual influences that can help explain why some individuals are able to translate their entrepreneurial intentions into actions while others do not. Our results show the importance of creating favorable conditions within universities to support entrepreneurial intention through social interactions and to consider the relevance of family background in the admission process as a possible criterion to anticipate student’s entrepreneurial contribution.

In order to create a new business an individual needs to translate entrepreneurial intentions into action. However, the creation of a new venture is a process that occurs under conditions of uncertainty (Knight, 1921) and the uncertainty of entrepreneurial opportunities causes doubt that can block or delay action (McMullen & Shepherd, 2006). Uncertainty in the context of action acts as a sense of doubt; it leads to hesitancy and above all it promotes indecision and procrastination that block the translation of intentions into action (McMullen & Shepherd, 2006). We analyze the intentions-action relationship among students right before graduation, a stage where they are ‘forced’ to make a career choice. They are unable to procrastinate entrepreneurial action and remain with current employment, as many people otherwise do (van Gelderen et al., 2015). As procrastination is a common reason for entrepreneurial intentions not converting into action it is therefore important to select observations where the procrastination bias is uniform across the sample. The choice of studying students who are the same stage of graduation is coherent with this design characteristic and that our results are therefore robust with respect to an unknown distribution of the procrastination opportunities of the individuals involved.
7.3. Implications for theory and future research directions

Our results hold several implications for theory. First, they confirm that it makes sense to take into account the temporal phase between the formation of entrepreneurial intentions and the subsequent action. Research in entrepreneurship has widely neglected this phase. And yet the action taken by individuals does not occur in vacuum. Understanding how contextual influences affect the ultimate choice to take action is key in entrepreneurship. In particular, these results have important implications for the use of the theory of planned behavior (TPB) (Ajzen, 1991, 2011/2014). Ajzen's theory has been extensively applied in entrepreneurship to predict how individuals form entrepreneurial intentions and has been used to infer behaviors from intentions. However, as others documented (e.g. Van Gelderen et al. 2015) and our results confirm, there are many individuals who form intentions but do not translate these intentions into actions. We model how some contextual influences, as family, mentors and peers affect the enactment of entrepreneurial behaviors. Other factors could be added to this list. For example, the effect of the larger societal context (e.g. macroeconomic conditions) in which the individual is embedded (Lent & Brown, 1994) could lead to interesting considerations.

In this study, we focus on those factors that act as support for the translation of intentions into action. However, the SSCT (Lent et al., 2000) also focuses on those barriers that can constrain individual’s career choice. It can be argued that even if individuals have high intentions to start a new venture and have access to rich social influences, they may still perceive insurmountable barriers and could therefore decide to postpone their choice to act or not act at all (Brown & Lent, 1999). The perception of critical barriers and the degree to which individuals have confidence in the ability to overcome these barriers may affect the intention-action relationship. Cope efficacy is defined as the ability to manage and overcome complex situations (Bandura, 1997) and individuals who possess high cope efficacy might...
differently perceive barriers and obstacles that seem to prevent the accomplishment of certain tasks. Individuals who have high levels of cope efficacy are therefore more likely to engage in efforts to overcome difficulties that are associated to a particular goal or objective. In the translation of intention into action individuals may encounter different barriers that can prevent the engagement in an entrepreneurial activity, as that it would be interesting to understand how different levels of cope efficacy might affect this relation.

Finally, we conceptually model and empirically test that it is important to focus on two complementary levels of theoretical analysis in order to understand how individuals form entrepreneurial intentions and then translate these intentions into actions. According to SCCT (Lent et al., 1994), the first level of analysis focuses on those cognitive-person variables that lead individuals to exercise personal agency in the career development process. The second level emphasizes those and their choice behaviors. In particular, the theory shows that the interplay between individuals’ cognitive characteristics, which are self-efficacy, outcome expectations and goal setting, do not function alone in shaping interests and vocational outcomes. Starting a new venture is one of the occupational choices that individuals can make during their lifetime (Burton et. al, 2016). Individual cognitive factors together with contextual factors influence the development of career interests, plans and actions. In particular, contextual factors affect the translation of interests into actions (Lent et al., 2000). Knowing and controlling these factors is important to properly support entrepreneurship or selecting among unripe projects those developed by individuals with higher propensity to enact them.

7.4. Limitations

Our data is collected in two time intervals with a one-year time distance between them. It would be useful to collect data on several waves in order to fully understand how
long is the time span between intentions and actions and to what extent it is important to distinguish between reasoned procrastination dedicated to proper planning from inaction. Moreover, it can be interesting to understand which type of occupation are chosen by the entrepreneurs to be who fail to start their own venture and if these experiences are further leveraged in later stages of life.

Many of our variables are operationalized as dichotomous dummies. However, the corresponding effects can be modeled as a continuum. The entrepreneurial background of the family might be differently relevant depending upon the specific type of experience, the extent to which individuals come from first generation entrepreneurs or belong to an entrepreneurial dynasty. The role of mentorship could be clearly better disentangled by defining the type and nature of the relationship existing between the student and the academic entrepreneurs and the same holds for the relationship with other students entrepreneurs. Future research could focus on a more detailed modeling of these different effects, disentangling their different components and their marginal contribution.

In spite of all these limitations, we show that the definitive choice to start a business does not occur in a vacuum. Individuals’ intentions to start a new business are affected by environmental characteristics, as proximal social influences. Entrepreneurial intentions are not always translated into entrepreneurial actions and we have to account for this pattern when we study the intentions-action relationship: individuals need to perceive external support that can help them in the execution of their intentions and the creation of a new business. We therefore recommend future studies use measures of external support as an additional construct that influences whether intentions are translated into actions or not.
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Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
### Table 3
#### Robustness Check (Inverse mills ratio)

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Figure 1
Theoretical Model

![Diagram of theoretical model with categories: FAMILY, MENTORS, PEERS, and contextual influences proximal to choice behavior leading to intentions and actions.](image)

Figure 2
Entrepreneurial Parents and Action

![Graph showing the relationship between intention and action for self-employed and non-self-employed individuals.](image)

Figure 3
Entrepreneurial Peers and Action

![Graph showing the relationship between intention and action for individuals with and without peers.](image)
Bibliography


