



# From opportunity recognition to the start-up phase: the moderating role of family and friends-based entrepreneurial social networks

Pablo Ruiz-Palomino<sup>1</sup> · Ricardo Martínez-Cañas<sup>1</sup>

Accepted: 18 December 2020 / Published online: 4 January 2021

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC part of Springer Nature 2021

## Abstract

This study analyzes whether entrepreneurial intention mediates between opportunity recognition and the start-up phase of a business. It also sheds light on how the access to entrepreneurial social networks moderates this mediated relationship, as well as exploring which type of entrepreneurial social network (family- or friends-based) helps most in advancing the business project through the start-up process. The study uses original data on 616 university students enrolled in a variety of campuses and degrees in the central-southern area of Spain. The data reveal that entrepreneurial intention partially mediates the opportunity recognition–start-up phase relationship. Importantly, it reveals that a positive effect of this state of awareness on the start-up phase via entrepreneurial intention is stronger when someone in the social network owns a venture, especially if this person belongs to the potential entrepreneur’s family-based social network. The findings suggest that opportunity recognition is enough to advance through the start-up process, while also revealing that courses or curricular activities oriented towards fostering entrepreneurship should facilitate students’ access to entrepreneurial social networks. This paper is one of the few that helps better understand the path an individual should follow in order to advance through the start-up process once a market opportunity has been recognized. As a novel contribution to the literature, this paper elucidates how entrepreneurial social networks can help bridge the entrepreneurial intention-behavior gap and shows that access to family-based entrepreneurial social networks has a greater impact in this regard than friends-based entrepreneurial social networks.

**Keywords** Opportunity recognition · Entrepreneurial intention · Social network · Family-based social network · Friends-based social network · Business start-up phase

---

✉ Ricardo Martínez-Cañas  
Ricardo.Martinez@uclm.es

Pablo Ruiz-Palomino  
Pablo.Ruiz@uclm.es

<sup>1</sup> Department of Business Management, University of Castilla-La Mancha, Av/ Los Alfares, 42, 16071 Cuenca, Spain

## Introduction

In entrepreneurship research, it is widely accepted that an entrepreneurial process starts with someone's desires (or needs) to become an entrepreneur, and their generating (putting into practice) an idea for starting-up a business (Dawson and Henley 2015). In essence, a person discovers or creates an opportunity (George et al. 2016) and then shapes the idea into a new venture (Galanakis and Giourka 2017). Hence, perception, intention and behavior/action are core phases of an entrepreneurial planned process (Gieure et al. 2020).

The concept of opportunity recognition is broadly considered to be the ability to identify a good idea and transform it into a business concept that adds value and generates revenues for customers and/or society (Lumpkin and Lichtenstein 2005). Accordingly, it has long been regarded an essential element in starting entrepreneurial processes (Fuentes-Fuentes et al. 2010).

Recently, considerable interest has focused on studying the factors, elements, processes, and dynamics that foster opportunity recognition (George et al. 2016). However, research on this topic is of little value if the construct is considered as an isolated phenomenon; instead, it must be contextualized in the entrepreneurship process as a *leitmotif* for encouraging start-up creation (George et al. 2016). In fact, opportunity recognition is the starting point of a sequential process leading to the creation of a venture, through: 1) enhancing entrepreneurial intention (Krueger 1993); 2) activating the investment of time and resources to create a venture (Carter et al. 1996); and 3) encouraging entrepreneurial action (Kessler and Frank 2009).

However, while opportunity recognition should be followed by the establishment of entrepreneurial intention (Krueger 1993), prior to starting a new venture, individuals move through different stages involving investment of time and resources across multiple, often tedious, and uncompensated, start-up activities for a new venture project (Khan et al. 2014). During this time, many early-stage entrepreneurs become frustrated and disengage from the start-up efforts required to create a new venture (Reynolds and Curtin 2008). There is, then, a gap in the literature in terms of both theoretical and empirical studies that test the relationship between intentions and behavior (Fayolle and Liñán 2014; Liñán and Fayolle 2015).

This paper addresses this gap, contributing to the literature by studying the unclarified role of social networks. In this sense, parents, relatives, and/or friends with entrepreneurial experience can provide much-needed advice, assistance, and support. Starting a business requires a social structure (Edelman et al. 2016) as it makes it easier for entrepreneurs to access key resources and support (Hansen 1995). In the case of university students, as with many other young and unexperienced entrepreneurs, this aspect is critical because such support enables them to perceive they are being cared for, esteemed, and valued by others, and that they are, therefore, part of a mutually supportive social network (Taylor 2001). However, there is still misunderstanding of which type of social network (whether family- or friends-based) is more important in shaping the relationship between opportunity recognition, entrepreneurial intention, and the start-up phase process (Edelman et al. 2016; Shen et al. 2017). This research aims to fill this gap and investigates the impact of family- and friends-based entrepreneurial social networks on the number of gestation activities in which nascent entrepreneurs engage (i.e., start-up project) prior to creating their venture.

The principal objective in this research is twofold: First, we examine the positive influence of opportunity recognition on the start-up phase. We begin by examining the direct effect, and then investigate the indirect effect through entrepreneurial intention. Second, we explore how entrepreneurial social networks are important in enhancing the relationship between opportunity recognition and the start-up phase via entrepreneurial intention. Specifically, we investigate whether this relationship is stronger for those who have someone in their family (versus in their friendship network) running a venture. With this investigation, we therefore contribute to elucidate the mechanisms (i.e., entrepreneurial intention) explaining the relationship between opportunity recognition and the start-up phase. We also answer previous calls to explain the intention–behavior link (Zapkau et al. 2017; Gieure et al. 2020), analyzing the role of family support in the business-creation process (Edelman et al. 2016), and whether, within the start-up process, this role is more important than that of friends in helping individuals who are willing to start a new venture (i.e., entrepreneurial intention).

This paper is organized as follows: the first section presents theoretical background and hypotheses. The second section develops methods, empirical analysis and results through a Partial Least Squared (PLS-SEM) and mediation/moderation techniques in an original survey data on university students enrolled in a variety of campuses and degrees in the central-southern area of Spain. The final section discusses the overall findings focusing on implications for entrepreneurship research and education policies, limitations and suggestions for future lines of research.

## Theoretical background and hypotheses development

### Introduction: The entrepreneurial process

Entrepreneurship is a dynamic process (i.e., Zapkau et al. 2017) that involves three related but distinct stages and events that follow one another. The first is the development of entrepreneurial intention for becoming self-employed (Krueger 1993), followed by time and resource investments in the gestation period of a start-up project (Carter et al. 1996). The third and final stage is entrepreneurial behavior and outcome success (e.g., earning sales revenues for the first time; Kessler and Frank 2009). Therefore, while understanding the whole picture is essential, outcomes from the last stage can help entrepreneurs expedite the creation of a new venture. However, the first stage requires non-negligible attention because it represents the entrepreneurial process just before the act of creating a new venture (Fayolle and Liñán 2014). Thus, a clear understanding of this phase, together with the related variables affecting the process, is critical for effective entrepreneurial behavior research as well as for designing effective policies to cultivate entrepreneurial spirit (Gieure et al. 2020).

As previously mentioned, formation of entrepreneurial intentions and creation of new ventures is not an isolated process and is mainly influenced by social traits and personal traits (Galanakis and Giourka 2017). The former are determined by socio-economic variables, the institutional context, and social perceptions, while the latter are related to an entrepreneur's personality, behavioral attitudes, knowledge and networks or social ties. Understanding the effect of both types of traits is essential in order to unveil the true nature of the relationship between intentions and behavior/action (Gieure et al. 2020). Furthermore, research in entrepreneurial intention underlines the

importance of other variables such as opportunity recognition, innovativeness, locus of control, risk-taking propensity and tolerance for ambiguity (Gurel et al. 2010; Liñán and Chen 2009; Segal et al. 2005). Therefore, psychological and socio-cultural traits may have an important role in the entrepreneurial process (Gurel et al. 2010; Liñán and Chen 2009; Shinnar et al. 2012).

To capture the antecedents and processes of entrepreneurial intention, research has typically drawn on two prominent theoretical frameworks (Krueger et al. 2000; Solesvik et al. 2013): the Theory of Planned Behavior (TPB) proposed by Ajzen (1991) and the Entrepreneurial Event Model (EEM) designed by Shapero and Sokol (1982). However, and despite their relevance to validated methods and empirical support, in the current entrepreneurship theory (Elfving et al. 2017), these models do not take account of many complementary variables to accurately explain the entrepreneurial intention-behavior link (Gieure et al. 2020). In this research scenario, we focus on the role of networks (family and friends) in the process as regards helping and guiding young people toward choosing to be autonomous/entrepreneurial (Edelman et al. 2016). Social networks are an important intangible resource for the development of their business activities (Kreiser et al. 2013). That is, the perception of support influences, in university students, the choice of career in general (Henderson and Robertson 2000) and especially the business path (Zellweger et al. 2011). However, some researchers have found no statistically significant relationship between entrepreneurial parenting role models and a child's decision to choose an entrepreneurial career (Kim et al. 2006).

Therefore, in this research we contribute to the literature by paying special attention to how the access to entrepreneurial social networks boosts or moderates the recognition-intention-action relationship as well as exploring which type of entrepreneurial social network (family or friends-based) helps most in advancing through the start-up process. We also contribute to the literature with a new study on how opportunity recognition is the origin of both entrepreneurial intention and entrepreneurial action towards the start-up phase of a project.

### **Opportunity recognition and the start-up phase: Entrepreneurial intention as mediator**

Opportunity recognition has been studied from the perspective of both opportunity discovery and opportunity creation (Alvarez and Barney 2007). Given that the concept can be understood as opportunity creation, it is not surprising that it has become positively related to the entrepreneurial process and, specifically, to the start-up phase of the business project (George et al. 2016). Indeed, when individuals recognize an opportunity, they are more likely to have positive experiences regarding the future success of the business idea (Carmelo-Ordaz et al. 2016), so opportunity recognition should encourage these individuals to be more involved and devote more time and resources to the activities needed to create the venture (start-up phase) (cf., Casson and Wadeson 2007).

Existing research on antecedents of opportunity recognition has highlighted that systematic research (Patel and Fiet 2009) and alertness (Shane et al. 2010) are influencing factors and can be either intentional (creation of opportunities) or unintentional (discovery of opportunities) (George et al. 2016). Furthermore, the prior literature has also emphasized several other key influencing factors for discovering or creating

entrepreneurial opportunities, including prior knowledge (Ramos-Rodríguez et al. 2010), personality characteristics (Baron 2006), education (Wong et al. 2008), networks and social capital (Bhagavatula et al. 2010), and environmental conditions (Casson and Wadeson 2007).

Some studies highlight the connection between the antecedents of opportunity recognition and the core process, with venture formation as a very likely exploitation outcome (Ardichvili et al. 2003). Other studies suggest that some outcomes of opportunity recognition can be the new venture gestation stage in which the potential entrepreneurs are involved (George et al. 2016). Thus:

**H1:** *There is a positive relationship between opportunity recognition and the start-up phase*

According to the Theory of Planned Behavior (TPB), the formation of an intention implies readiness to perform a given behavior (Ajzen 2011) and is the driving force in carrying out the start-up activities needed to create a venture (Shirokova et al. 2016). The start-up process involves different phases and activities, ranging from thinking about the business project (e.g., contact with advisory sources), to preparing the project (e.g., planning, organization, resource allocation), and making the final decision to launch the business. This process therefore requires a commitment of time, effort and resources that is not possible without a previous strong entrepreneurial intention (Zapkau et al. 2017). Thus, entrepreneurial intention could mediate the relationship between opportunity recognition and the start-up process. Accordingly,

**H2:** *Entrepreneurial intention mediates the relationship between opportunity recognition and the start-up phase*

## The augmenting effect of entrepreneurial social networks

Individuals who intend to pursue an entrepreneurial career might never follow through (Rotefoss and Kolvereid 2005) and not all intentions are followed by actions. According to Ronstadt's (1988) *corridor principle*, the start-up process involves elements that favor (or limit) this process from going further (Frank et al. 2007). One of these vital enablers is having access to an entrepreneurial social network (Davidsson and Honig 2003; Shirokova et al. 2016). This is because such access facilitates interaction with people who have entrepreneurial experience, which could be helpful in forming a positive image of entrepreneurship (Hmieleski and Corbett 2006), helping individuals to be inspired to attempt start-up creation (Hamidi et al. 2008), leading them to commit time and resources to create a venture.

For nascent entrepreneurs, access to social contacts who are currently running a business might be perceived as a critical source of support (Hanlon and Saunders 2007) that can serve as a bridge between entrepreneurial intention and venture creation (Renzulli et al. 2000; Frank et al. 2007). Zanakis et al. (2012), for example, found that support from relatives and other social contacts helps convert entrepreneurial intentions into engagement in start-up activities. Nieto and González-Álvarez (2016) also found that the higher the social capital both at the regional and individual level, the greater is the likelihood of individuals exploiting entrepreneurial opportunities. Access to

entrepreneurial social networks and therefore to important resources and skills to launch a new venture (Chang et al. 2009) may then be a catalyst for advancing through the start-up process. Thus,

**H3:** *Entrepreneurial social networks moderate the relationship of entrepreneurial intention with the start-up phase in such a way that this relationship is stronger (or weaker) for individuals with (or without) an entrepreneurial social network*

### The moderated mediation effect of entrepreneurial social networks

The importance of entrepreneurial social networks in opportunity recognition, entrepreneurial intention, and the start-up phase has already been noted in entrepreneurship research (Ng and Rieple 2014). A number of studies have found that social networking has an important positive role in helping individuals to recognize market opportunities (Aldrich and Cliff 2003; Arenius and Clercq 2005) and to establish entrepreneurial intention (Hoang and Antoncic 2003; Witt 2004). Therefore, networks are crucial because they offer a private solution to market failures when there is a lack of formal institutions to channel information about questions such as individuals, jobs, or market opportunities (Nordman 2016). Studies in various developing countries have found that, under these conditions, social and family ties can provide poor and rural entrepreneurs with a source of informal risk-sharing (Zhang and Zhao 2015; Grimm et al. 2013). For developed countries, earlier mainstream economic literature has emphasized the role of social and family networks in conveying information about resources, emotional support, and market opportunities, among other benefits.

Importantly, access to such networks can also be a key determinant of entrepreneurial performance (Hoang and Antoncic 2003), including advancement in the start-up process. Indeed, nascent entrepreneurs who interact with their social networks acquire additional insights and resources that allow more rapid advancement in the process to create a new venture (Fernández-Pérez et al. 2015), and specifically to move forward in the different stages of the start-up process (Rotefoss and Kolvereid 2005). Thus, access to entrepreneurial social networks may act as an enhancer of the positive relationship between opportunity recognition and the start-up phase via entrepreneurial intention. Accordingly,

**H4:** *The mediated relationship between opportunity recognition and the start-up phase via entrepreneurial intention is stronger for individuals with an entrepreneurial social network than for those without such a social network*

### Moderated mediation: Family versus friends-based entrepreneurial social networks?

One of the most popular approaches used to study social networks is to make a distinction between an individual's family and or friends/colleagues (Kotha and George 2012), although both types of personal ties are viewed as resources that offer, albeit in different ways, important emotional and practical support and information (cf., Edelman et al. 2016). Friends-based entrepreneurial social networks may help

individuals build up social capital—defined as networks and network relationships—and specifically both bonding and bridging social capital, which can positively affect the ability to make the start-up process move forward (Davidsson and Honig 2003). Family-based entrepreneurial social networks may also favor the feasibility of entrepreneurial actions (Shapiro and Sokol 1982), which is critical for advancing through the start-up process (Frank et al. 2007). Furthermore, family-based entrepreneurial social networks are conceived as making individuals become more likely to become entrepreneurs (Solesvik et al. 2013) because they greatly help them move forward in the different stages of the start-up process. These contacts provide multiple resources (e.g., raw materials, equipment, space, money) (Birley 1985) and may help in gaining access to the current social networking (suppliers, partners, customers, etc.) of the family, all of which should help complete start-up activities more easily (Edelman et al. 2016). Overall, although family may have a stronger positive impact, the indirect effect of opportunity recognition on the start-up phase via entrepreneurial intention can be fostered by each of these types of social networks. Thus,

**H4a:** *Family-based entrepreneurial social networks positively moderate the mediating effect of entrepreneurial intention in the relationship between opportunity recognition and the start-up phase.*

**H4b:** *Friends-based entrepreneurial social networks positively moderate the mediating effect of entrepreneurial intention in the relationship between opportunity recognition and the start-up phase.*

## Method

### Sample and procedure

We used a survey to gather data from university students, who are at a stage of life in which people show the greatest interest in starting a new venture (Shirokova et al. 2016) and are proximal to the job market (Hattab 2014). Thus, understanding how to improve university students' involvement in start-up activities can help provide employment options that improve the economic conditions of any country.

The questionnaire was tested for clarity, readability, and suitability with a group of academic experts and with 34 Spanish students. The questionnaire was then circulated among a random sample of 630 undergraduate students enrolled in a variety of campuses and degrees in the central-southern area of Spain.

As a brief description of the sample obtained, 95% of the students were between 18 and 30 years old, and 40.7% were male (59.30% female) students. The participants were studying different degrees, including Business Administration (39.6%), Social Education (17.2%), Building Engineering (9.60%), Telecommunication Engineering (9.60%), Economic Sciences (7.60%) and Labor Relations (6.30%). All of them were taking part in an introductory seminar on entrepreneurship. This sample size was large enough to obtain a sampling error far below the permissible threshold of  $\pm 5.0$ , considering a population of 25,876 students in this central-southern Spanish region (Aaker and Day 1990). The sampling error for 630 students is 3.86% (confidence level



of 95%,  $p = q = 0.5$ ), which assures that the sample size is representative of the entire student population in this region.

In total, 616 usable responses were obtained. Because the information solicited in the survey could not trigger social desirability bias (SDB), and the survey assured anonymity and confidentiality by asking for only vague demographic information, SDB is unlikely to have affected our data. The respondents' profiles can be seen in Table 1.

## Measures

The questionnaire uses multiple response formats (i.e., Likert-type, yes/no, percentages). It also uses a single-item approach, which has been considered especially suitable when the variables are narrow in scope, simple, easy to understand, and concrete (Petrescu 2013), as is the case here.

**Opportunity Recognition** *Opportunity recognition* was measured with a single item: “At the moment, have you identified a market gap or opportunity to initiate a new venture?” (0 = “not yet,” 1 = “yes, absolutely”).

**Entrepreneurial Intention** We measured this reflective variable with one question adapted from Guerrero et al. (2008): “How likely is it that you will start your own

**Table 1** Mean, standard deviations, and correlation matrix (N = 616)

	Mean	SD	1	2	3	4	5	6	7	8
1. Opportunity Recognition (Yes/No)	–	–	1.000							
2. EI (0–100%)	45.08	23.50	0.304	1.000						
3. Start-Up Phase (1–5 Likert Scale)	1.62	1.07	0.322	0.387	1.000					
4. Entrepreneurial Social Network (Yes/No)	–	–	0.025	0.186	0.140	1.000				
5. Business-Related Degree	–	–	–0.069	0.114	–0.088	–0.080	1.000			
6. Gender	–	–	–0.086	0.009	–0.029	0.048	–0.173	1.000		
7. Age	22.01	4.17	0.085	–0.052	0.068	0.062	0.100	–0.074	1.000	
8. HR Management Experience	–	–	0.194	0.199	0.228	0.018	0.000	–0.131	0.228	1.000

**Notes:** All the correlations between 0.08 and 0.10 are significant at  $p < 0.05$  (two-tailed). All remaining correlations equal to or above 0.11 are significant at  $p < 0.01$  (two-tailed)

Except for **Age**, the control variables were coded as dummy variables, so percentages were obtained instead, as follows:

**Gender:** 0 = male (41%), 1 = female (59%). **Business-Related Degree:** 0 = non-business-related degree (46%), 1 = business-related degree (54%). **HR (Human Resources) Management Experience:** 0 = no experience (90%), 1 = experience (10%). **Entrepreneurial Social Network:** 0 = with no entrepreneurial social network (25%), 1 = with entrepreneurial social network (75%).

SD = Standard Deviation; HR = Human Resources; EI = Entrepreneurial Intention.



venture at some point in the near future?”. Respondents assessed this item as a percentage (0% to 100%).

**Entrepreneurial Social Network** We created this variable by asking respondents if they had (or not) entrepreneurs in their social networks. In the affirmative case, respondents were asked to indicate whether these entrepreneurs were family or friends. Using these responses, a dummy variable was then formed to measure whether the respondents had (or not) access to an entrepreneurial social network (0 = no, 1 = yes). In addition, after we had deleted a number of cases where the respondents had both family-based and friends-based entrepreneurial social networks ( $n = 589$ ), two dummy variables for family-based (0 = no, 1 = yes) and friends-based (0 = no, 1 = yes) were also created.

**Start-Up Phase** We measured progress in the start-up phase with one item that captured the extent to which the idea of starting a venture had been thought about, prepared for—the extent to which start-up activities had been carried out—and firmly decided upon. Specifically, respondents answered the following question: “At what phase is your venture creation idea?” (1 = “It’s not been thought about,” 5 = “It’s been decided, prepared for, and will be started shortly”).

**Control Variables** Age, gender, human resources (HR) management experience, and business-related degrees were included as control variables for their potential relation to the entrepreneurial process (i.e., Delmar and Davidsson 2000; Pfeifer et al. 2016; Pruett et al. 2009; Santos et al. 2016). Except for age, control variables were coded as dummy variables: gender (0 = male, 1 = female), HR management experience (0 = no experience, 1 = yes), business-related degree (0 = no; 1 = yes).

Podsakoff et al.’s (2003) procedural remedies were used in the questionnaire design to mitigate the potential occurrence of common method variance (CMV). First, the study variables were intermingled with other variables that played a distracting role. Second, frankness was stressed to be important and anonymity was guaranteed. Finally, as confirmed by the pretest, survey items were simple, specific, and concise.

## Data analysis

To test our hypotheses, we used partial least squares (PLS) (Chin et al. 2003) via Smart PLS 3.2.8 (Ringle et al. 2015). PLS is suitable for our study because the relationships under examination are complex in the number of variables and relationships hypothesized (direct, mediated, and moderated relationships) (cf., Chin and Newsted 1999). In addition, PLS is a distribution-free approach and allows for non-interval-scaled data (Hair et al. 2017), so it is suitable for testing our research model, which includes different measurement scales (nominal, ordinal, and interval-scaled variables). Finally, PLS is suitable for testing mediation (Hair et al. 2017), which our research model includes.

As recommended, we used bootstrapping (5000 resamples) to generate standard errors and  $t$ -statistics to evaluate the statistical significance of path coefficients and test the hypotheses (Hair et al. 2017). As required for mediation analyses, we also used the bootstrapping technique (5000 resamples) via PROCESS v3.4 (Hayes 2017).

PROCESS v3.4 was also used to test our moderated mediation model, as recommended in the literature (Hayes 2017).

The power analysis developed with G\*Power 3.1 (Faul et al. 2007) for the most complex regression of this study (four predictors) confirmed that consistent regression parameters could be provided. Indeed, our post hoc calculations with G\*Power 3.1 resulted in a power greater than the 99.9%. Thus, the sample of this study is sufficient to test the predicted relationships as it allows medium effect sizes *to be detected* (Cohen 1988) without incurring Type II errors and *ensures* that the  $R^2$  and significant path coefficients obtained from our regression analyses differ from zero.

## Results

### CMV

Lindell and Whitney's (2001) test confirmed that CMV was not a serious problem. A variable theoretically unrelated to any of the study variables (i.e., "How important is university education for entrepreneurs?"), which was measured using a four-point Likert-type scale (1 = "not important at all," 4 = "very important"), revealed no significant correlations with any of the main study variables. Furthermore, after the second-smallest correlation between this marker variable and the main study variables ( $r_m = 0.02$ ) was partialled out from the uncorrected correlations to check for the magnitude of CMV (Lindell and Whitney 2001), the results showed that all correlations that were previously significant remained significant, thus confirming that CMV is unlikely to have affected our findings.

### Hypothesis testing

Table 1 shows the correlations between the study variables. Table 2 and Fig. 1 reveal the effects of the control variables and our hypothesis-testing results. In explaining the variance of the two main dependent variables of this study—entrepreneurial intention and start-up phase—the control variables yield small proportions of such a variance. Specifically, having HR management experience positively influenced entrepreneurial intention ( $\beta = 0.18, p < 0.001$ ) and the start-up phase ( $\beta = 0.13, p < 0.05$ ), in line with previous research (cf., Delmar and Davidsson 2000). Our results also show that students' entrepreneurial intention was affected negatively by age ( $\beta = -0.09, p < 0.05$ ) and positively by business-related studies ( $\beta = 0.13, p < 0.01$ ). These findings are in line with previous research that indicates older people are less tolerant of the uncertain payback periods involved in the entrepreneurial process (Hatak et al. 2015) and with the literature that shows higher entrepreneurial intention among business-related degree students (Pfeifer et al. 2016).

In terms of our hypotheses-testing results, Table 2 and Fig. 1 show support for our hypotheses. First, the results reveal that, as predicted, there is a positive, direct effect of opportunity recognition on the start-up phase, in support of H1 (H1;  $\beta = 0.20, p < 0.001$ ). In addition, our results provide support for an indirect effect of opportunity recognition on the start-up phase. These results reveal a positive effect of opportunity recognition on entrepreneurial intention ( $\beta = 0.28, p < 0.001$ ) and a positive effect of

**Table 2** Structural model results: Direct effects and variance explained ( $N=616$ )

Hypotheses	Direct Effects ( $\beta$ ) ( $t$ -values)	Variance Explained
<b>Entrepreneurial Intention (EI)</b> ( $R^2=0.14$ )		
H <sub>2</sub> : Opportunity Recognition $\longrightarrow$ EI	0.28*** (6.44)	<b>0.09</b>
<i>Control Variables (Student <math>t_{(4,999)}</math> two-tailed test)</i>		
Business-Related Degree $\longrightarrow$ EI	0.13** (2.90)	0.01
Gender $\longrightarrow$ EI	0.04 (1.16)	0.00
Age $\longrightarrow$ EI	-0.09* (2.14)	0.01
HR Management Experience $\longrightarrow$ EI	0.18*** (4.49)	0.03
<b>Start-Up Phase</b> ( $R^2=0.23$ )		
H <sub>1</sub> : Opportunity Recognition $\longrightarrow$ Start-Up Phase	0.20*** (4.65)	<b>0.06</b>
EI $\longrightarrow$ Start-Up Phase	0.28*** (8.18)	<b>0.11</b>
Entrepreneurial Social Network $\longrightarrow$ Start-Up Phase	0.10** (2.70)	<b>0.01</b>
H <sub>3</sub> : Entrepreneurial Social Network x EI (Interaction)	0.10*** (3.10)	<b>0.02</b>
<i>Control Variables (Student <math>t_{(4,999)}</math> two-tailed test)</i>		
Business-Related Degree $\longrightarrow$ EI	0.01 <sup>ns</sup> (0.24)	0.00
Gender $\longrightarrow$ EI	0.00 <sup>ns</sup> (0.08)	0.00
Age $\longrightarrow$ EI	0.04 <sup>ns</sup> (1.10)	0.00
HR Management Experience $\longrightarrow$ EI	0.13* (2.44)	0.03

**Notes:** For testing model variables' effects (one-tailed test): \*\*\*  $p < 0.001$ ;  $t_{(4,999)} = 3.092$ , \*\*  $p < 0.01$ ;  $t_{(4,999)} = 2.327$ , \*  $p < 0.05$ ;  $t_{(4,999)} = 1.645$ , ns: not significant

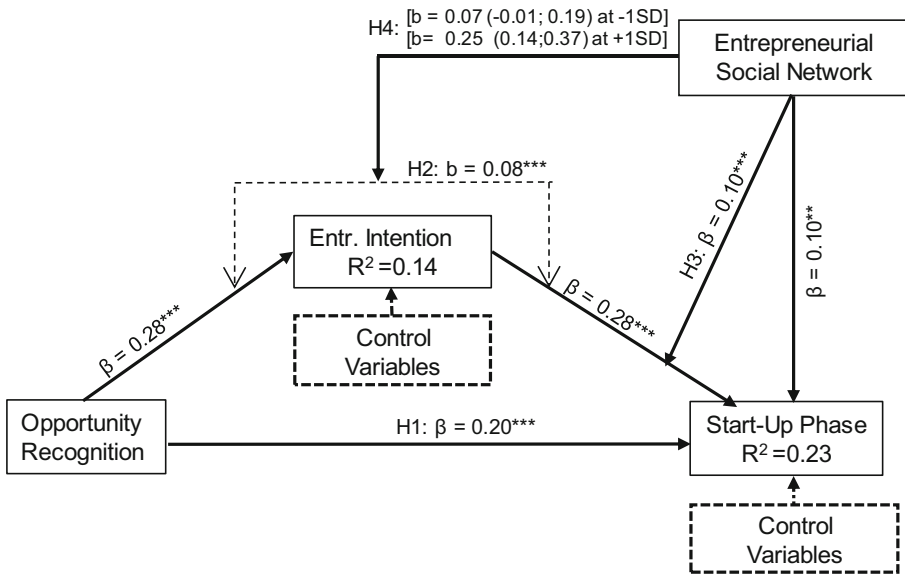
For testing control variables' effects (two-tailed test): \*\*\*  $p < 0.001$ ;  $t_{(4,999)} = 3.392$ , \*\*  $p < 0.01$ ;  $t_{(4,999)} = 2.577$ , \*  $p < 0.05$ ;  $t_{(4,999)} = 1.960$ , ns: not significant.

EI = Entrepreneurial Intention.

entrepreneurial intention on the start-up phase ( $\beta = 0.28, p < 0.001$ ), and Hayes et al.'s (2011) approach, using PROCESS v2.10, confirms that the indirect effect of opportunity recognition on the start-up phase via entrepreneurial intention is significant ( $b = 0.08, p < 0.001$ , Table 3). This provides support for H2 and confirms that entrepreneurial intention acts as a mediator in the relationship between opportunity recognition and the start-up phase. This mediation effect is from small to moderate in size ( $f^2 = 0.09$ , Cohen 1988) and allows for further explanation of the start-up phase ( $\Delta R^2 = 0.07$ ) (see Table 4).

The findings also provide support for H3, the augmenting role of the entrepreneurial social network in the relationship between entrepreneurial intention and the start-up phase. The results reveal that after mean-centering the independent variable and the moderator (Aiken and West 1991), the resulting interaction term is positive and significant ( $\beta = 0.10, p < 0.001$ ; Fig. 1, Table 2). The graph resulting from plotting high versus low entrepreneurial social network regression lines (+1SD and -1SD, Aiken and West 1991) shows that the positive relationship between entrepreneurial intention and start-up phase is stronger in high (the slope is more pronounced) than in low entrepreneurial social network conditions (Fig. 2). Thus, H3 can be confirmed. This augmenting effect of entrepreneurial social network is small but significant ( $f^2 = 0.03$ , Cohen 1988, Table 4) and explains the start-up phase further ( $\Delta R^2 = 0.02$ , Table 4).

Finally, for H4, we tested a second-stage moderated mediation model (Hayes 2015), which suggests that the indirect effect of opportunity recognition on the start-up phase



**Fig. 1** Results for the moderated mediation model: The role of the entrepreneurial social network. N = 616. **Notes:** Bootstrap sample size = 5000, \*\*\* p < 0.001; \*\* p < 0.01 \* p < 0.05. Control variables: Business-Related Degree, Age, Gender, and HR Management Experience. b = indirect effect of opportunity recognition on start-up phase

is stronger when the individual has an entrepreneurial social network. To this end, we evaluated five conditions, as recommended (Hayes 2017, 2015). Three of these conditions are met: according to the reports previously noted, opportunity recognition and entrepreneurial intention both relate significantly to the start-up phase, and the “entrepreneurial intention x entrepreneurial social network” interaction is significant (Fig. 1; Table 2). The fourth condition was also met (Hayes 2017; Preacher et al. 2007); a bootstrapping procedure with 5000 sub-samples revealed that the indirect effect of opportunity recognition on the start-up phase (via entrepreneurial intention) differs at distinct levels of the moderator (i.e., entrepreneurial social network) (Table 5). The results reveal that the indirect effect matches our prediction of a stronger positive effect of opportunity recognition when there is an entrepreneurial social network than when

**Table 3** Opportunity recognition and start-up phase: The mediating effect of entrepreneurial intention (N = 616).

Total Effect	Direct Effect	Indirect Effect (via Entrepreneurial Intention)			
		Path Coefficient ( <i>t-value</i> )	Path Coefficient ( <i>t-value</i> )	Indirect Effect Estimate <sup>a</sup>	Bias-Corrected Bootstrap 95% Confidence Interval
				Lower	Upper
0.28***(6.76)	H1: 0.20***(4.69)	0.08 <sup>a</sup> (4.84)		0.05	0.11

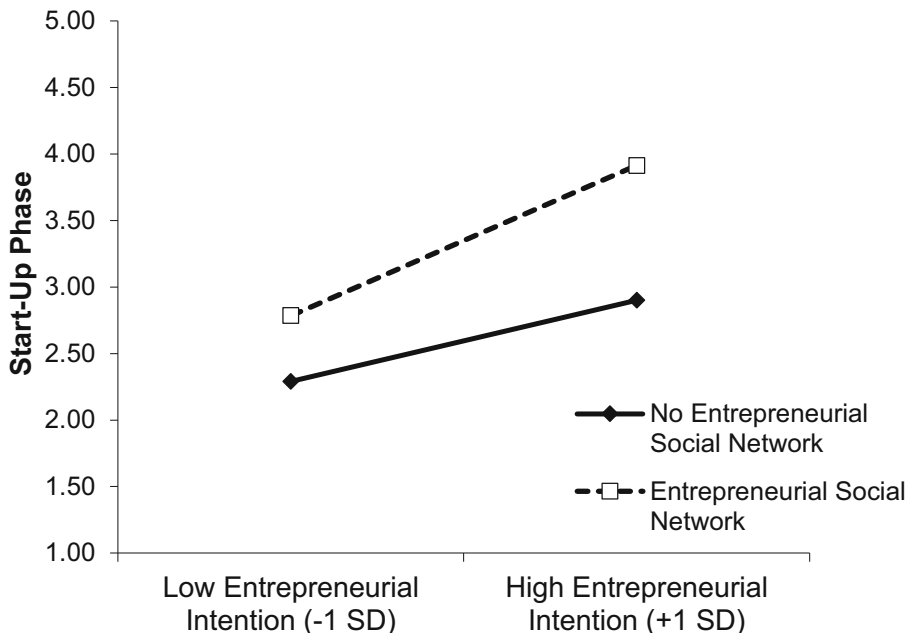
**Notes:** \*\*\*p < 0.001 (one-tailed test); t (4,999) = 3.092. <sup>a</sup> Based on a bootstrap test with 5000 re-samples, this indirect effect is significant at p < 0.001 because zero is not included in the bias-corrected 95% confidence interval

**Table 4** Comparison of models: change in variance explained and mediation and moderation effects sizes. *N* = 616

Models	Variance Explained of Start-Up Phase		Mediation/Moderation Effect Sizes
	Variance Explained	$\Delta$ ( $f^2$ )	
Unmediated Model	0.14	–	
Mediated Model	0.21	0.07	0.09 (small–moderate)
Moderated Mediation Model (Entrep. Social Network/No Entrep. Social Network)	0.23	0.02	0.03 (small)

**Notes:**  $f^2 = (R^2 \text{ included} - R^2 \text{ excluded}) / (1 - R^2 \text{ included})$ ; effect sizes of  $f^2 \geq 0.02$ ,  $\geq 0.15$ , and  $\geq 0.35$  are small, moderate, and large, respectively (Cohen 1988)

there is not; at +1 standard deviation (entrepreneurial social network), the positive effect is stronger ( $B = 0.25$ ,  $SE = 0.05$ , 95%  $CI = 0.14, 0.37$ ) than at  $-1$  standard deviation (no entrepreneurial social network) ( $B = 0.07$ ,  $SE = 0.05$ , 95%  $CI = -0.01, 0.19$ , ns, Table 5). Furthermore, according to these findings, when there is no entrepreneurial social network, this indirect effect ceases to be significant. Finally, according to the fifth condition, the 95% confidence interval based on 5000 bootstrap samples for the index of moderated mediation does not include zero (index = 0.17,  $SE = 0.06$ ,  $CI = 0.05, 0.32$ , Table 5). This result provides definitive evidence of the existence of a moderated mediation (Hayes 2015), in full support of H4, thus indicating that the

**Fig. 2** Interacting effects of entrepreneurial social network with entrepreneurial intention on the start-up phase

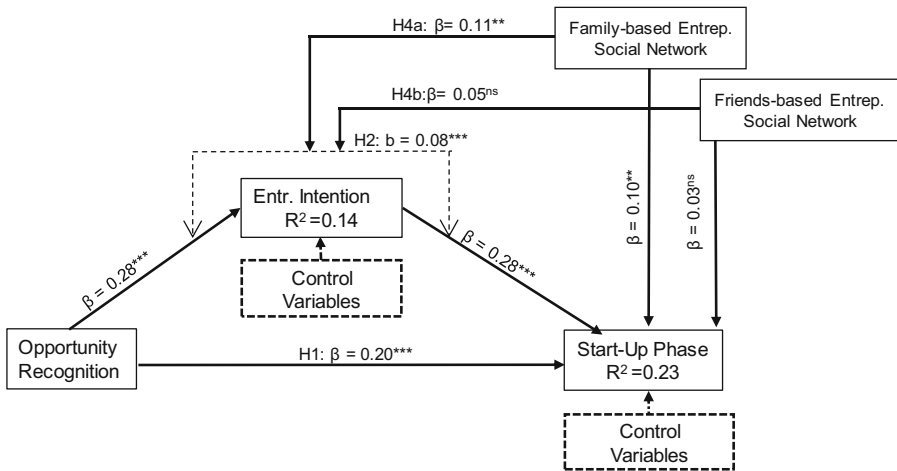
indirect effect between opportunity recognition and the start-up phase significantly varies based on whether the individual has (or not) an entrepreneurial social network. In particular, the positive indirect effect of opportunity recognition on the start-up phase via entrepreneurial intention is augmented when the individual has an entrepreneurial social network. However, this indirect effect does not exist when the individual lacks such a social network (Table 5): in this scenario, the positive effect of opportunity recognition on the start-up phase follows a direct path, exclusively.

Finally, in order to qualify the moderating effect of an entrepreneurial social network and analyze the distinct role of family and friends in predicting the start-up phase, we created two new entrepreneurial social network variables: family-based and friends-based. In creating these variables, 27 cases were dropped because they involved individuals whose entrepreneurial social network was formed by both family and friends. Thus, the final sample for this analysis resulted in 589 cases. As Fig. 3 reveals, in predicting the start-up phase, the interaction term between a family-based entrepreneurial social network and entrepreneurial intention was significant ( $\beta = 0.11$ ,  $p < 0.01$ ), but the “entrepreneurial intention  $\times$  friends-based entrepreneurial social network” interaction term was not ( $\beta = 0.05$ ,  $p > 0.05$ ). For further clarification of these interaction terms, we plotted them following previous recommendations (Aiken and West 1991) (Fig. 4a and b). While Fig. 4a shows a more pronounced slope in family-based social network conditions, Fig. 4b shows no slope differences between friends-based and non-friends based social network conditions. Thus, in moderating the mediation effect of entrepreneurial intention in the opportunity recognition to start-up phase relationship, a family-based entrepreneurial social network has an impact (in support of H4a), but a friends-based entrepreneurial social network does not (in rejection of H4b). It is true that the moderated mediation analysis conducted in PROCESS v2.10 reveals that in high conditions of either type of social network, the indirect effect is positive and significant (Table 6). Even in situations of a low family-based entrepreneurial social network, a friends-based entrepreneurial social network makes the indirect effect become positive and significant ( $B = 0.19$ ,  $SE = 0.07$ , 95%  $CI = 0.05, 0.36$ , Table 6). However, the positive indirect effect is always the strongest

**Table 5** Results for the moderated mediation analysis: The moderation of entrepreneurial social network ( $N = 616$ )

Conditional indirect effect of opportunity recognition on the start-up phase at values of the moderator				
Moderator: Entrep. Social Network	Bootstrapping Effect	SE	LL	UL
-1SD (-0.75)	0.07	0.05	-0.01	0.19
+1SD (0.24)	0.25	0.05	0.14	0.37
	Index of Moderated Mediation	SE	95% BCA CI (LL, UL)	
	0.17	0.06	0.05	0.32

**Notes:** Bootstrap sample size: 5000. BCA CI = Bias-corrected and accelerated confidence interval; LL = lower limit; UL = upper limit. The indirect effect is significant at  $p < 0.05$  when the corresponding BCA 95% confidence interval does not contain zero (Hayes 2017; Preacher et al. 2007)



**Fig. 3** Results for the moderated mediation model: family versus friends-based entrepreneurial social networks.  $N = 589$ . **Notes:** Bootstrap sample size = 5000. ns = not significant; \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ . Control variables include: Business-Related Degree, Age, Gender, and HR Management Experience. \* $N$  is the result of subtracting from the study sample ( $N = 616$ ) 27 cases in which both family and friends were present in the entrepreneurial network.  $b$  = indirect effect of opportunity recognition on start-up phase

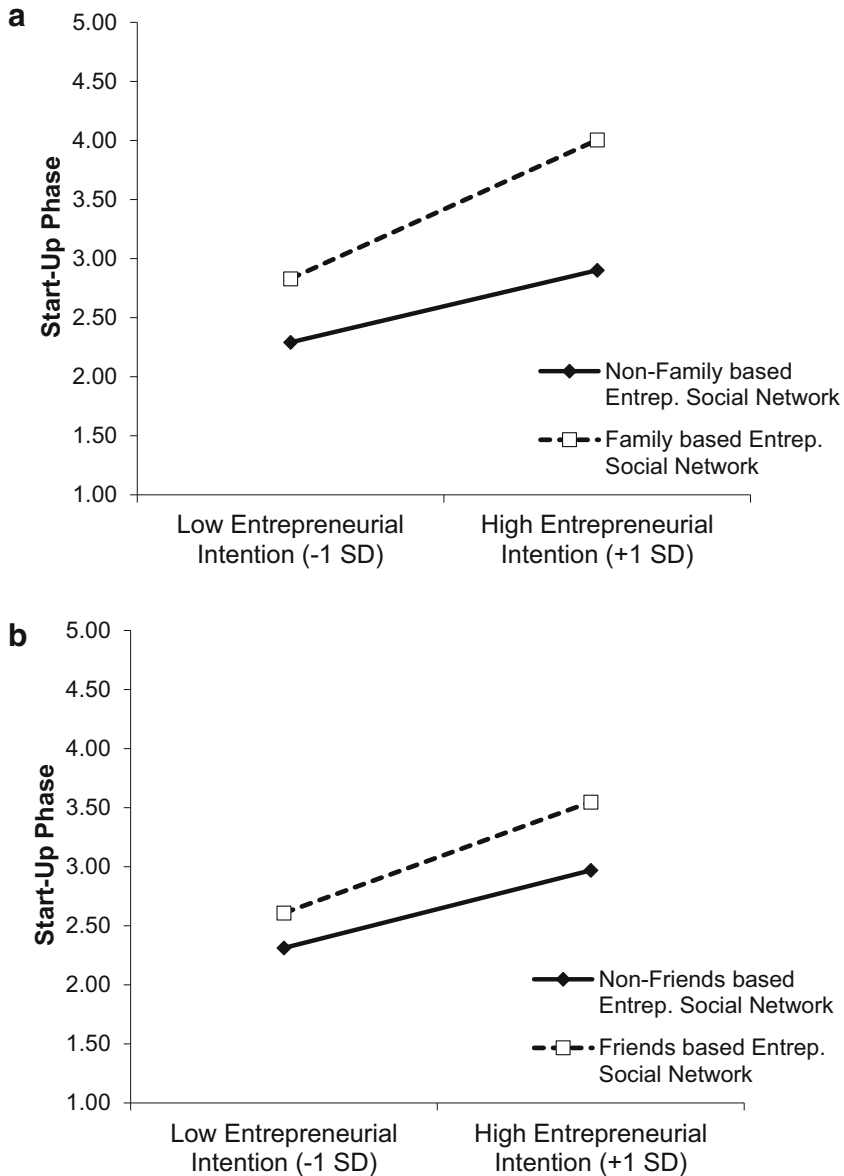
in high family-based entrepreneurial social network conditions. Furthermore, the moderated mediation index is significant for a family-based entrepreneurial social network ( $B = 0.17$ ,  $SE = 0.06$ , 95%  $CI = 0.04, 0.31$ , Table 6) but is not significant for a friends-based entrepreneurial social network ( $B = 0.12$ ,  $SE = 0.08$ , 95%  $CI = -0.04, 0.29$ , Table 6), which confirms that the mediation effect between opportunity recognition and the start-up phase is only augmented by family-based entrepreneurial social networks. Thus, the results regarding the moderated mediation index lead us to accept H4a but not H4b.

The model explains 23% of the start-up phase, thus involving a small-to-moderate explanatory power (Hair et al. 2017, Table 2). It also explains 14% of entrepreneurial intention, which is higher than 0.10, as recommended (Falk and Miller 1992) (Table 2). Finally, the Stone-Geisser blindfolding technique reveals  $Q^2$  values greater than zero, thus indicating that the model is relevant to predict both entrepreneurial intention ( $Q^2 = 0.13$ ) and the start-up phase ( $Q^2 = 0.21$ ) (Hair et al. 2017).

## Discussion

The main objective of this research was to study the positive direct and indirect effect (through entrepreneurial intention) of opportunity recognition on the start-up phase. The study also aimed to analyze whether the access to entrepreneurial social networks boosts this specific relationship, and specifically, the differentiated moderating role of family versus friends-based social networks. Therefore, this study empirically shows how, in the entrepreneurial process (from opportunity recognition to action via intention), it is important to take into account social networks, mainly family ones.





**Fig. 4** a. Interacting effects of family-based entrepreneurial social networks with entrepreneurial intention on the start-up phase b. Interacting effects of friends-based entrepreneurial social networks with entrepreneurial intention on the start-up phase

Coinciding with the previous literature (Ardichvili et al. 2003; Lumpkin and Lichtenstein 2005; Plummer et al. 2007, George, 2016), our study confirmed the importance of opportunity recognition as a significant predictor of university students' advancement in the start-up process (Hypothesis 1). Furthermore, the results evidenced that entrepreneurial intention acts as a partial mediator between opportunity recognition and the start-up phase (Hypothesis 2). The results also revealed that having

**Table 6** Results for the moderated mediation analysis: Family versus Friends based entrepreneurial social networks ( $N = 589$ )\*

Conditional indirect effect of opportunity recognition on the start-up phase at values of the moderators		95% BCA CI (LL, UL)			
Moderator: Family-based entrep. Social network	Moderator: Friends-based entrep. Social network	Bootstrapping effect	SE	LL	UL
-1SD (-0.62)	-1SD (-0.12)	0.07	0.04	-0.02	0.18
-1SD (-0.62)	+1SD (0.88)	0.19	0.07	0.05	0.36
+1SD (0.37)	-1SD (-0.12)	0.25	0.06	0.13	0.37
+1SD (0.37)	+1SD (0.88)	0.36	0.11	0.16	0.62
		<b>Indices of Partial Moderated Mediation</b>	SE	95% BCA CI (LL, UL)	
				LL	UL
Family-based entrepreneurial social network		0.17	0.06	0.04	0.31
Friends-based entrepreneurial social network		0.12	0.08	-0.04	0.29

**Notes:** Bootstrap sample size: 5000. BCA CI = Bias-corrected and accelerated confidence interval; LL = lower limit; UL = upper limit. The indirect effect is significant at  $p < 0.05$  when the corresponding BCA 95% confidence interval does not contain zero (Hayes 2017; Preacher et al. 2007)

\* N is the result of subtracting from the study sample ( $N = 616$ ) 27 cases in which both family and friends were present in the entrepreneurial network of the respondent

entrepreneurial social networks boosts the relationship between entrepreneurial intention and the start-up phase (Hypothesis 3), thus confirming that such networks help develop the entrepreneurial activities needed to start up a venture (Davidsson and Honig 2003; Edelman et al. 2016).

Our results show that the mediated relationship between opportunity recognition and the start-up phase via entrepreneurial intention is stronger when undergraduate students have an entrepreneurial social network. More specifically, our results reveal that this moderated effect occurs mainly when the entrepreneurial social network is family-based, rather than friends-based. Our results are in line with previous articles analyzing family as a role model on entrepreneurial intentions. Bosma et al. (2012) found that 54% of a sample of 292 entrepreneurs had a family role model (20% in the pre-start-up phase, 10% in the post-start-up phase and 24% in both phases). In other cultural contexts, such as Germany, a study by Chlosta et al. (2012) showed that parental role models increased the likelihood of individuals becoming self-employed. In Spain, Urbano et al. (2011) found that individuals with the same ethnicity acted as a model, encouraging other individuals in the community to create new businesses. Pablo-Lerchundi et al. (2015), with a sample of 851 Spanish engineering and architecture students, showed that parents' professions influences the entrepreneurial intentions of students.

Moreover, studies in developing countries have explained how perceived family support can influence this process. For instance, in research conducted by Denanyoh et al. (2015) in Ghana, it emerged that university support, structural support and emotional support of the family are important factors that influence the

entrepreneurial intention of students. Similarly, a study conducted by Bignotti and le Roux (2016) with 827 students in South Africa found that entrepreneurship education and family support positively influence students' need for achievement and entrepreneurial intentions. Zhang and Zhao (2015) found that migrants in China with a larger social and family network were more likely to be self-employed.

Our findings go beyond the extant research that merely considers family as a source of entrepreneurial exposure (Shen et al. 2017) and qualifies the effect that family may have on the entrepreneurial process. Arguably, exposure to a family business may not have a clear positive effect on entrepreneurial intention (Zellweger et al. 2011), but when the entrepreneurial intention has been formed, family-based social networks favor the completion of the necessary founding activities to start a venture, in support of Hypothesis 4a. Unexpectedly, friends-based social networks do not seem to have such an augmenting effect and Hypothesis 4b could therefore not be accepted. At first glance, this result seems contradictory and could mean that in initial temporary stages of a start-up project, when inexperienced students have few professional networks, they trust more in their family environment, with which they have closer and tighter relationships. However, as Cardella et al. (2020) suggest, more research would be needed in this regard to understand the importance of family networks in different time stages of a start-up project.

### **Implications for entrepreneurship theory**

The findings make two main contributions to the literature. First, our research goes further than prior studies by analyzing the intermediate mechanisms that help explain the relationship between opportunity recognition and the start-up phase. Thus, our findings reveal that entrepreneurial intention partially mediates this relationship. It means that entrepreneurial intention is important to increase the likelihood of an individual who has discovered an opportunity initiating the required start-up activities to create a venture. However, the simple recognition of a market opportunity itself leads to developing the founding activities that are necessary prior to starting a new venture.

Second, our research offers a qualified understanding of the TPB (Ajzen 2011). Specifically, our findings reveal a positive effect of entrepreneurial intention on the scope of start-up activities, which is augmented by an entrepreneurial social network. This responds to previous calls to investigate the intention–behavior gap (Kautonen et al. 2013) and offers novel necessary insights into the elements that make undergraduate students convert their intentions into actual start-up activities (Nielsen and Gartner 2017). Our findings also reveal that the indirect effect of opportunity recognition on the start-up phase can be augmented by having entrepreneurial social networks, especially family-based rather than friends-based. This finding extends previous research (i.e., Davidsson and Honig 2003; Shirokova et al. 2016) finding that entrepreneurial social networks help advance the entrepreneurial process but fail to identify the type that matters more, whether family or friends-based networks.

### **Implications for entrepreneurship education**

The changing entrepreneurial environment means educators and academic programs are constantly adapting their processes, procedures and curriculum (Bauman and Lucy

2019). Accordingly, in order to ensure students obtain entrepreneurial skills, our research is in line with other recent studies on entrepreneurship in universities that focus on how to (Bauman and Lucy 2019): 1) improve the soft skills and motivations needed in order to change undergraduates' minds; 2) create an adaptive and supportive environment (mentors, family, seed capital, etc.) for entrepreneurship; 3) develop effective educational policies to create a more entrepreneurial university.

More specifically, our results support the importance of a supportive environment for students and why having access to "others" running a business is important to accelerate the start-up process. Therefore, in planning successful entrepreneurship courses, universities should set up an alumni registry to help students build social ties with other entrepreneurs. Centers could offer their network of "entrepreneur" alumni as a valuable and unique resource, and could provide their physical spaces to organize meetings or events to bring students into contact with this network. Furthermore, universities could foster the development of co-curricular activities, such as mentorships or entrepreneurship clubs, thus encouraging students to network with experts, which should help them move forward through the entrepreneurial initiative. However, family-based entrepreneurial social networks appear to play a notable role, and many students may not have access to these networks. As a result, training programs could also involve experiential learning, soft skills and make students start small ventures on campus or in computing simulators, so they may acquire the knowledge needed to move forward in the start-up process. Furthermore, in an attempt to emulate situations where individuals receive wide and varied support from the family, these programs should enable students to have access to a network of business angels or mentors who can provide them with all types of support, including financial support.

### Limitations and future research directions

Several limitations and further research directions are acknowledged. First, this study used non-probability convenience sampling. This approach to sample selection is prevalent in entrepreneurship studies and, despite its limitations, can yield good-quality data when significant participation and response rates are ensured (Coviello and Jones 2004). Nevertheless, this implies that replication studies using other samples from other regions or countries would be welcome. New samples with differences in wealth, development and culture could arguably yield different results. Furthermore, the data were cross-sectional, and future panel research would allow researchers to elucidate the temporal dynamics of family versus friends support and nascent entrepreneurs' development of the founding activities needed to start a new venture.

Second, this is a single-country study conducted among university students. Therefore, the conclusions obtained should be extended to other contexts with caution. This limitation needs to be emphasized, as previous studies tend to reveal differences depending on the country context (Liñán and Chen 2009). The role of context, whether national, ethnic, or spatial, has been shown to be important for the intergenerational mechanisms of self-employment transmission (Wyrwich et al. 2016). Therefore, further studies involving other respondent groups as well as other countries could show whether our findings hold for more experienced people with greater job experience as well as for people from countries with longer entrepreneurial traditions. Future research should also compare the start-up activities of current university students with

those of recent graduates and should track students through the start-up process to analyze how many of them actually end up starting a new venture.

Another limitation is not taking into account the adverse side of family networks, which has also been highlighted in other studies (Barr 2002; Hoff and Sen 2006; Grimm et al. 2013). Sharing norms with family networks may lead to business inefficiency if entrepreneurs are unable (or unwilling) to control the influence of relatives who make excessive demands (Nordman 2016). Hence, measuring and explaining the existence and effects of social networks on start-up processes is not easy because of the endogenous nature of social interactions.

Finally, we used the entrepreneurial social network as a contextual moderator in the relationship between opportunity recognition and the venture's start-up phase via entrepreneurial intention. However, there may be other possible moderators. For example, self-efficacy makes nascent entrepreneurs less likely to disengage from the new start-up process, despite perceiving highly competitive scenarios (Khan et al. 2014). As people who are high in self-efficacy have high levels of confidence in their abilities and may rely more on these internal factors than on externalities, future research could explore whether having an entrepreneurial social network still makes a difference for self-efficacious individuals. Furthermore, future research could focus on different types of families (e.g., traditional, divorcées, extended) and their effects on the relationship between opportunity recognition and the start-up phase via entrepreneurial intention (Aldrich and Cliff 2003).

**Authors' contributions** Both authors contribute equally in this paper.

**Funding** No fundings were used.

**Data availability** Datasets generated during and/or analysed during the current study are available from the corresponding author (Ricardo.Martinez@uclm.es) on request.

## Compliance with ethical standards

**Conflicts of interest/competing interests** Not applicable.

**Code availability** Not applicable.

## References

- Aaker, D., & Day, G. (1990). *Marketing research*. New York: Wiley.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park: Sage.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Ajzen, I. (2011). The theory of planned behavior: Reactions and reflections. *Psychology & Health*, 26(9), 1113–1127.
- Aldrich, H. E., & Cliff, J. E. (2003). The pervasive effects of family on entrepreneurship: Toward a family embeddedness perspective. *Journal of Business Venturing*, 18(5), 573–596.

- Alvarez, S. A., & Barney, J. B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, 1(1–2), 11–26.
- Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*, 18(1), 105–123.
- Arenius, P., & Clercq, D. D. (2005). A network-based approach on opportunity recognition. *Small Business Economics*, 24(3), 249–265.
- Baron, R. A. (2006). Opportunity recognition as pattern recognition: How entrepreneurs “connect the dots” to identify new business opportunities. *Academy of Management Perspectives*, 20(1), 104–119.
- Barr, A. (2002). The functional diversity and spillover effects of social capital. *Journal of African Economies*, 11(1), 90–113.
- Bauman, A., & Lucy, C. (2019). Enhancing entrepreneurial education: Developing competencies for success. *The International Journal of Management Education*. <https://doi.org/10.1016/j.ijme.2019.03.005> 100293.
- Bhagavatula, S., Elfring, T., van Tilburg, A., & van de Bunt, G. G. (2010). How social and human capital influence opportunity recognition and resource mobilization in India’s handloom industry. *Journal of Business Venturing*, 25(3), 245–260.
- Bignotti, A., & le Roux, I. (2016). Unravelling the conundrum of entrepreneurial intentions, entrepreneurship education, and entrepreneurial characteristics. *Acta Commercii*, 16, 1–10. <https://doi.org/10.4102/ac.v16i1.352>.
- Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, 1(1), 107–117.
- Bosma, N., Hessels, J., Schutjens, V., van Praag, M., & Verheul, I. (2012). Entrepreneurship and role models. *Journal of Economic Psychology*, 33, 410–424.
- Cardella, G. M., Hernández-Sánchez, B. R., & Sánchez-García, J. C. (2020). Entrepreneurship and family role: A systematic review of a growing research. *Frontiers in Psychology*, 10, 2939. <https://doi.org/10.3389/fpsyg.2019.02939>.
- Carmelo-Ordaz, C., Diáñez-González, J. P., & Ruiz-Navarro, J. (2016). The influence of gender on entrepreneurial intention: The mediating role of perceptual factors. *Business Research Quarterly*, 19(4), 261–277.
- Carter, N. M., Gartner, W. B., & Reynolds, P. D. (1996). Exploring start-up event sequences. *Journal of Business Venturing*, 11(3), 151–166.
- Casson, M., & Wadeson, N. (2007). The discovery of opportunities: Extending the economic theory of the entrepreneur. *Small Business Economics*, 28(4), 285–300.
- Chang, E. P. C., Memili, E., Chrisman, J. J., Kellermanns, F. W., & Chua, J. H. (2009). Family social capital, venture preparedness, and start-up decisions: A study of Hispanic entrepreneurs in New England. *Family Business Review*, 22(3), 279–292.
- Chin, W. W., & Newsted, P. R. (1999). Structural equation modeling analysis with small samples using partial least squares. In R. Hoyle (Ed.), *Statistical strategies for small samples research* (pp. 307–341). Thousand Oaks: Sage.
- Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modelling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic mail emotion/adoption study. *Information Systems Research*, 14(2), 189–217.
- Chlosta, S., Patzelt, H., Klein, S. B., & Dormann, C. (2012). Parental role models and the decision to become self-employed: The moderating effect of personality. *Small Business Economics*, 38, 121–138.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale: Lawrence Erlbaum Associates.
- Coviello, N. E., & Jones, M. V. (2004). Methodological issues in international entrepreneurship research. *Journal of Business Venturing*, 19(4), 485–508.
- Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301–331.
- Dawson, C., & Henley, A. (2015). Gender, risk, and venture creation intentions. *Journal of Small Business Management*, 53(2), 501–515.
- Delmar, F., & Davidsson, P. (2000). Where do they come from? Prevalence and characteristics of nascent entrepreneurs. *Entrepreneurship & Regional Development: An International Journal*, 12(1), 1–23.
- Denanyoh, R., Adjei, K., & Nyemekye, G. E. (2015). Factors that impact on entrepreneurial intention of tertiary students in Ghana. *International Journal of Business Social Research*, 5, 19–29.
- Edelman, L. F., Manolova, T., Shirokova, G., & Tsukanova, T. (2016). The impact of family support on young entrepreneurs’ start-up activities. *Journal of Business Venturing*, 31(4), 428–448.
- Elfving, J., Brännback, M., & Carsrud, A. (2017). In M. Brännback & A. Carsrud (Eds.), *Toward a contextual model of entrepreneurial intentions, in revisiting the entrepreneurial mind. International studies in entrepreneurship*. Cham: Springer.

- Falk, R. F., & Miller, N. B. (1992). *A Primer for Soft Modeling*. Akron: University of Akron Press.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G\*power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39(2), 175–191.
- Fayolle, A., & Liñán, F. (2014). The future of research on entrepreneurial intentions. *Journal of Business Research*, 67(5), 663–666.
- Fernández-Pérez, V., Alonso-Galicia, P. E., Rodríguez-Ariza, L., & Fuentes-Fuentes, M. M. (2015). Professional and personal social networks: A bridge to entrepreneurship for academics? *European Management Journal*, 33(1), 37–47.
- Frank, H., Lueger, M., & Korunka, C. (2007). The significance of personality in business start-up intentions, start-up realization and business success. *Entrepreneurship & Regional Development: An International Journal*, 19(3), 227–251.
- Fuentes-Fuentes, M. M., Ruiz-Arroyo, M., Bojica, A. M., & Fernández-Pérez, V. (2010). Prior knowledge and social networks in the exploitation of entrepreneurial opportunities. *International Entrepreneurship and Management Journal*, 6(4), 481–501.
- Galanakis, K., & Giourka, P. (2017). Entrepreneurial path: Decoupling the complexity of entrepreneurial process. *International Journal of Entrepreneurial Behavior & Research*, 23(2), 317–335.
- George, N. M., Parida, V., Lahti, T., & Wincent, J. (2016). A systematic literature review of entrepreneurial recognition: Insights on influencing factors. *International Entrepreneurship Management Journal*, 12(2), 309–350.
- Gieure, C., Benavides-Espinosa, M. M., & Roig-Dobón, S. (2020). The entrepreneurial process: The link between intentions and behavior. *Journal of Business Research*, 112, 541–548.
- Grimm, M., Gubert, F., Koriko, O., Lay, J., & Nordman, C. J. (2013). Kinship-ties and entrepreneurship in Western Africa. *Journal of Small Business and Entrepreneurship*, 26(2), 125–150.
- Guerrero, M., Rialp, J., & Urbano, D. (2008). The impact of desirability and feasibility on entrepreneurial intentions: A structural equation model. *International Entrepreneurship and Management Journal*, 4(1), 35–50.
- Gurel, E., Altınay, L., & Daniele, R. (2010). Tourism students' entrepreneurial intentions. *Annals of Tourism Research*, 37(3), 646–669.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Thousand Oaks: Sage.
- Hamidi, D. Y., Wennberg, K., & Berglund, H. (2008). Creativity in entrepreneurship education. *Journal of Small Business and Enterprise Development*, 15(2), 304–320.
- Hanlon, D., & Saunders, C. (2007). Marshaling resources to form small new ventures: Toward a more holistic understanding of entrepreneurial support. *Entrepreneurship Theory and Practice*, 31(4), 619–641.
- Hansen, E. L. (1995). Entrepreneurial networks and new organisation growth. *Entrepreneurship Theory & Practice*, 19(4), 7–13.
- Hatak, I., Harms, R., & Fink, M. (2015). Age, job identification, and entrepreneurial intention. *Journal of Managerial Psychology*, 30(1), 38–53.
- Hattab, H. W. (2014). Impact of entrepreneurship education on entrepreneurial intentions of university students in Egypt. *The Journal of Entrepreneurship*, 23(1), 1–18.
- Hayes, A. F. (2015). An index and test of linear moderated mediation. *Multivariate Behavioral Research*, 50(1), 1–22.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (Second ed.). New York: The Guilford Press.
- Hayes, A. F., Preacher, K. J., & Myers, T. A. (2011). Mediation and the estimation of indirect effects in political communication research. In E. P. Bucy & R. L. Holbert (Eds.), *Sourcebook for political communication research: Methods, measures, and analytical techniques* (pp. 434–465). New York: Routledge.
- Henderson, R., & Robertson, M. (2000). Who wants to be an entrepreneur? Young adult attitudes to entrepreneurship as a career. *Career Development International*, 5, 279–287. <https://doi.org/10.1108/00400919910279973>.
- Hmielecki, K. M., & Corbett, A. C. (2006). Proclivity for improvisation as a predictor of entrepreneurial intentions. *Journal of Small Business Management*, 44(1), 45–63.
- Hoang, H., & Antoncic, B. (2003). Network-based research in entrepreneurship: A critical review. *Journal of Business Venturing*, 18(2), 165–187.
- Hoff, K., & Sen, A. (2006). The kin as a poverty trap. In S. Bowles, S. N. Durlauf, & K. Hoff (Eds.), *Poverty traps* (pp. 95–115). New York: Princeton University Press.
- Kautonen, T., van Gelderen, M., & Tornikoski, E. T. (2013). Predicting entrepreneurial behaviour: A test of the theory of planned behavior. *Applied Economics*, 45(6), 697–707.



- Kessler, A., & Frank, H. (2009). Nascent entrepreneurship in a longitudinal perspective: The impact of person, environment, resources and the founding process on the decision to start business activities. *International Small Business Journal*, 27(6), 720–742.
- Khan, S. A., Tang, J., & Joshi, K. (2014). Disengagement of nascent entrepreneurs from the start-up process. *Journal of Small Business Management*, 52(1), 39–58.
- Kim, P. H., Aldrich, H. E., & Keister, L. A. (2006). Access (not) denied: The impact of financial, human, and cultural capital on entrepreneurial entry in the United States. *Small Business Economics*, 27, 5–22. <https://doi.org/10.1007/s11187-006-0007-x>.
- Kotha, R., & George, G. (2012). Friends, family, or fools: Entrepreneur experience and its implications for equity distribution and resource mobilization. *Journal of Business Venturing*, 27(5), 525–543.
- Kreiser, P. M., Marino, L. D., Kuratko, D. F., & Weaver, K. M. (2013). Disaggregating entrepreneurial orientation: The non-linear impact of innovativeness, proactiveness and risk-taking on SME performance. *Small Business Economics*, 40(2), 273–291.
- Krueger, N. F. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship: Theory and Practice*, 18(1), 5–21.
- Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing Models of Entrepreneurial Intentions. *Journal of Business Venturing*, 15(5/6), 411–432.
- Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593–617.
- Liñán, F., & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions. *International Entrepreneurship and Management Journal*, 11, 907–933. <https://doi.org/10.1007/s11365-015-0356-5>.
- Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, 86(1), 114–121.
- Lumpkin, G. T., & Lichtenstein, B. B. (2005). The role of organizational learning in the opportunity recognition process. *Entrepreneurship: Theory and Practice*, 29(4), 451–472.
- Ng, W., & Rieple, A. (2014). Special issue on the role of networks in entrepreneurial performance: New answers to old questions? *International Entrepreneurship Management Journal*, 10(3), 447–455.
- Nielsen, S. L., & Gartner, W. B. (2017). Am I a student and/or entrepreneur? Multiple identities in student entrepreneurship. *Education + Training*, 59(2), 135–154.
- Nieto, M., & González-Álvarez, N. (2016). Social capital effects on the discovery and exploitation of entrepreneurial opportunities. *International Entrepreneurship Management Journal*, 12, 507–530.
- Nordman, C. J. (2016). Do family and kinship networks support entrepreneurs? *IZA World of Labor*, 262. <https://doi.org/10.15185/izawol.262>.
- Pablo-Lerchundi, I., Morales-Alonso, G., & González-Tirados, R. M. (2015). Influences of parental occupation on occupational choices and professional values. *Journal of Business Research*, 68, 1645–1649. <https://doi.org/10.1016/j.jbusres.2015.02.011>.
- Patel, P. C., & Fiet, J. O. (2009). Systematic search and its relationship to firm founding. *Entrepreneurship Theory and Practice*, 33(2), 501–526.
- Petrescu, M. (2013). Marketing research using single-item indicators in structural equation models. *Journal of Marketing Analytics*, 1(2), 99–117.
- Pfeifer, S., Sarlija, N., & Zekic-Susac, M. (2016). Shaping the entrepreneurial mindset: Entrepreneurial intentions of business students in Croatia. *Journal of Small Business Management*, 54(1), 102–117.
- Plummer, L. A., Haynie, J. M., & Godesiabo, J. (2007). An essay on the origins of entrepreneurial opportunity. *Small Business Economics*, 28(4), 363–379.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Assessing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42(1), 185–227.
- Pruett, M., Shinnar, R., Toney, B., Llopis, F., & Fox, J. (2009). Explaining entrepreneurial intentions of university students: A cross-cultural study. *International Journal of Entrepreneurial Behaviour & Research*, 15(6), 571–594.
- Ramos-Rodríguez, A., Medina-Garrido, J., Lorenzo-Gómez, J., & Ruiz-Navarro, J. (2010). What you know or who you know? The role of intellectual and social capital in opportunity recognition. *International Small Business Journal*, 28(6), 566–582.
- Renzulli, L. A., Aldrich, H., & Moody, J. (2000). Family matters: Gender, networks, and entrepreneurial outcomes. *Social Forces*, 79(2), 523–547.

- Reynolds, P. D., & Curtin, R. T. (2008). Business creation in the United States: Entry, startup activities, and the launch of new ventures. In K. J. Tobias (Ed.), *The Small Business Economy: A Report to the President (pp. 165–240)*. Washington, DC: Small business administration (SBA) Office of Advocacy.
- Ringle, C. M., Wende, S., & Becker, J. M. (2015). *SmartPLS 3 software*. Hamburg: SmartPLS <http://www.smartpls.com>.
- Ronstadt, R. (1988). The corridor principle. *Journal of Business Venturing*, 3(1), 31–40.
- Rotefoss, B., & Kolvareid, L. (2005). Aspiring, nascent and fledging entrepreneurs: An investigation of the business startup process. *Entrepreneurship & Regional Development*, 17(2), 109–127.
- Santos, F. J., Azam-Roomi, M., & Liñán, F. (2016). About gender differences and the social environment in the development of entrepreneurial intentions. *Journal of Small Business Management*, 54(1), 49–66.
- Segal, G., Bogia, D., & Schoenfeld, J. (2005). The motivation to become an entrepreneur. *International Journal of Entrepreneurial Behaviour and Research*, 11(1), 42–57.
- Shane, S., Nicolaou, N., Cherkas, L., & Spector, T. D. (2010). Do openness to experience and recognizing opportunities have the same genetic source? *Human Resource Management*, 49(2), 291–303.
- Shapiro, A., & Sokol, L. (1982). The social dimensions of entrepreneurship. In C. Kent, D. Sexton, & K. Vesper (Eds.), *The encyclopedia of entrepreneurship* (pp. 72–90). Englewood Cliffs: Prentice Hall.
- Shen, T., Osorio, A. E., & Settles, A. (2017). Does family support matter? The influence of support factors on entrepreneurial attitudes and intentions of college students. *Academy of Entrepreneurship Journal*, 23(1), 24–43.
- Shinnar, R. S., Giacomini, O., & Janssen, F. (2012). Entrepreneurial perceptions and intentions: The role of gender and culture. *Entrepreneurship Theory and Practice*, 36(3), 465–493.
- Shirokova, G., Osiyevskyy, O., & Bogatyreva, K. (2016). Exploring the intention-behavior link in student entrepreneurship: Moderating effects of individual and environmental characteristics. *European Management Journal*, 34(4), 386–399.
- Solesvik, M., Westhead, P., Matlay, H., & Parsyak, V. N. (2013). Entrepreneurial assets and mindsets: Benefit from university entrepreneurship education investment. *Education + Training*, 55(8/9), 748–762.
- Taylor, M. (2001). Self-employment and windfall in Britain: Evidence from panel data. *Economica*, 68(272), 539–565.
- Urbano, D., Toledano, N., & Ribeiro-Soriano, D. (2011). Socio-cultural factors and transnational entrepreneurship: A multiple case study in Spain. *International Small Business Journal*, 29, 119–134.
- Witt, P. (2004). Entrepreneurs' networks and the success of start-ups. *Entrepreneurship & Regional Development: An International Journal*, 16(5), 391–412.
- Wong, P. K., Lee, L., & Foo, M. D. (2008). Occupational choice: The influence of product vs. process innovation. *Small Business Economics*, 30(3), 267–281.
- Wyrwich, M., Stuetzer, M., & Sternberg, R. (2016). Entrepreneurial role models, fear of failure, and institutional approval of entrepreneurship: A tale of two regions. *Small Business Economics*, 46(3), 467–492.
- Zanakis, S. H., Renko, M., & Bullough, A. (2012). Nascent entrepreneurs and the transition to entrepreneurship: Why do people start new businesses? *Journal of Developmental Entrepreneurship*, 17(1), 1–25.
- Zapkau, F. B., Schwens, C., & Kabst, R. (2017). The role of prior entrepreneurial exposure in the entrepreneurial process: A review and future research implications. *Journal of Small Business Management*, 55(1), 56–86.
- Zellweger, T., Sieger, P., & Halter, F. (2011). Should I stay or should I go? Career choice intentions of students with family business background. *Journal of Business Venturing*, 26(5), 521–536.
- Zhang, J., & Zhao, Z. (2015). Social-family network and self-employment: Evidence from temporary rural-urban migrants in China. *IZA Journal of Labor & Development*, 4(4), 165–193.