



ORIGINAL ARTICLE


Citation: Duong, C. D. (2023). A moderated mediation model of perceived barriers, entrepreneurial self-efficacy, intentions, and behaviors: A social cognitive career theory perspective. *Oeconomia Copernicana*, 14(1), 355–388. doi: 10.24136/oc.2023.010

Contact: doanhdc@neu.edu.vn

Article history: Received: 5.01.2023; Accepted: 6.03.2023; Published online: 25.03.2023

Cong Doanh Duong

National Economics University, Vietnam

 orcid.org/0000-0003-4431-9761

A moderated mediation model of perceived barriers, entrepreneurial self-efficacy, intentions, and behaviors: A social cognitive career theory perspective

JEL Classification: L26; L29; M10

Keywords: *Social Cognitive Career Theory; perceived barriers; entrepreneurial self-efficacy; entrepreneurial intention; entrepreneurial behavior*

Abstract

Research background: Although perceived barriers are considered one of the central constructs in entrepreneurship research, most previous studies only examine the direct effect of perceived barriers on attitudes and/or intentions to become entrepreneurs. Little attention is paid to how perceived barriers can weaken individuals' translation from entrepreneurial intentions to actual behaviors.

Purpose of the article: This research aims to adopt the Social Cognitive Career Theory and a moderated mediation model to bridge the entrepreneurial intention-action link, investigate the moderation effects of perceived barriers on this link and the mediation path from entrepreneurial self-efficacy to entrepreneurial behavior via entrepreneurial intention.

Methods: A valid sample of 1,698 Vietnamese respondents with real working and business experiences through the stratified random sampling with three stages and PROCESS macro

Copyright © Instytut Badań Gospodarczych / Institute of Economic Research (Poland)

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

approach have been used to examine the moderated mediation effect of perceived barriers on the entrepreneurial self-efficacy-intention-behavior linkages.

Findings & value added: The findings of this study shed new light on entrepreneurial literature by applying the Social Cognitive Career Theory to illustrate the moderated mediation effects of perceived barriers and entrepreneurial intention in the relationship between entrepreneurial self-efficacy and entrepreneurial behavior. Particularly, the translation from entrepreneurial intentions into start-up actions was found to become weaker when perceived barriers was high. Moreover, perceived barriers were also found to negatively moderate the indirect effects of entrepreneurial self-efficacy on start-up behaviors through entrepreneurial intentions. The findings of our study also provide several essential recommendations for policymakers and practitioners to encourage individuals' business venture creations and enhance entrepreneurial ecosystem.

Introduction

Entrepreneurship is a career choice that has gained popularity in recent years (Meoli *et al.*, 2020; Nguyen & Pham, 2021). Many academicians argue that entrepreneurship is a process that is formed by various entrepreneurial activities (Cui & Bell, 2022; Shirokova *et al.*, 2016), while entrepreneurial behavior (EB) is identified as being at the heart of this process (Gieure *et al.*, 2020). While most previous researchers have only investigated the nature and predictors of entrepreneurial intention (EI) (Maheshwari & Kha, 2022), not all EIs translate into actual EB (Calza *et al.*, 2020). This leads to an intention-behavior gap in the entrepreneurial literature (Gieure *et al.*, 2020; Shirokova *et al.*, 2016). In other words, although several prior studies have provided empirical evidence related to the intention-behavior relationship in the field of entrepreneurship (Kong *et al.*, 2020; Neneh, 2019; Newman *et al.*, 2019), the extant literature still lacks in-depth investigation of the underlying mechanisms that impact the transformation from EI to EB (Gieure *et al.*, 2020), especially the temporal perspective (Cui & Bell, 2022; Duong, 2022; Shirokova *et al.*, 2016). Therefore, Fayolle and Liñán (2014) argue that there is an urgent need to explain the EI-EB relationship empirically and theoretically.

Social Cognitive Career Theory (SCCT) (Lent & Brown, 2013) has been recently applied as a framework to understand the entrepreneurship phenomenon (Adebusuyi *et al.*, 2022; Meoli *et al.*, 2020; Pérez-López *et al.*, 2019) as it conceptualizes how contextual supports and barriers integrate with internal motivations to lead to a specific action (Lent & Brown, 2020). It therefore provides a comprehensive theoretical framework that helps to demonstrate under what conditions individuals transform their EI into EB

(Adebusuyi *et al.*, 2022). Entrepreneurial career choice is a complex and involved undertaking (St-Jean & Labelle, 2018), and the decision theories highlight that those complex decisions are often made in a two-stage process: establishment of a consideration (decisional goals/intentions) and setting, and making a choice between different alternatives (decisional actions/behaviors) (Pérez-López *et al.*, 2019). As such, the SCCT can be used to investigate how EB (or/and entrepreneurial career actions) are developed via entrepreneurial self-efficacy (ESE) and EI under the impacts of contextual supports and barriers (Dölarıslan *et al.*, 2020).

Perceived barriers (PB) have been researched as a crucial factor in entrepreneurship (Csillag *et al.*, 2019; Doern, 2011). Nevertheless, most extent research only considers PB as direct predictors of entrepreneurial attitudes and EI (Dölarıslan *et al.*, 2020; Kebaili *et al.*, 2015). Little is known about how PB can impair the translation of EI into EB (Fayolle & Liñán, 2014). Moreover, even though there is some evidence that ESE has positive effects on EI and EB, and that EI can mediate the relationship between ESE and EB (Ciuchta & Finch, 2019; Newman *et al.*, 2019), no prior studies have tested how the indirect impact of ESE on EB through EI is negatively moderated by PB, to the best of our understanding. The current research, therefore, aims to adopt the SCCT (Lent & Brown, 2013) and PROCESS macro approach Hayes (2018) to develop a conceptual framework for addressing the abovementioned research gaps by testing how PB negatively moderates the direct relationship between EI and EB, as well as how the mediation effect of EI on the link between ESE and EB can be negatively moderated by PB. Particularly, the following research questions will be answered in our research:

RQ1. *How do ESE and EI directly contribute to form EB?*

RQ2. *How does EI significantly mediate the relationship between ESE and EB?*

RQ3. *How does PB negatively moderate the direct and indirect paths between ESE, EI, and EB?*

RQ3. *Can the SCCT be appropriately applied to explain individuals' EB in the context of emerging economies, such as Vietnam?*

To facilitate an in-depth examination of the conceptual framework and research questions, the present paper is structured as follows. After introducing the research gaps, objectives, and questions, the second section elucidates the theoretical underpinnings and hypotheses based on the (SCCT). The third section presents the methodological details pertaining to the participants, data collection, scale and questionnaire development, and analytical strategy employed in the study. Subsequently, the fourth section expounds on the results pertaining to the reliability and validity of the scales and hypothesis testing. The fifth section then delves into a thorough discussion of the key findings, while the final section provides a comprehensive overview of the conclusions, including theoretical and practical contributions, limitations, and future avenues for research.

Literature review

Recently, the SCCT has been increasingly employed in entrepreneurship research to explain why and under what conditions individuals choose entrepreneurship as a career alternative (Meoli *et al.*, 2020; Pérez-López *et al.*, 2019). Nevertheless, most of the extent research only investigates the antecedents of EI (Gorgievski *et al.*, 2018; Tran *et al.*, 2022), ignoring the important links between EI and EB (Cui & Bell, 2022). The SCCT (Lent & Brown, 2013) built on Social Cognitive Theory (SCT) (Bandura, 2011) to illustrate how contextual supports and barriers could enforce or hinder self-efficacy for career exploration, decisional goals (intentions) and decisional actions (behaviors) to engage in certain careers, and/or influence the transition from intention to actions (Lent & Brown, 2013; Lent & Brown, 2020). The SCCT is considered to be one of the most influential and validated models that explore how a person forms his/her career interests and makes a career choice. This theory conceptualizes how contextual supports and barriers combine with internal motives to drive a specific decision (Lent & Brown, 2013; Lent & Brown, 2020). As such, it offers a comprehensive theoretical framework that assesses under what conditions an entrepreneur could decide to engage in entrepreneurial activities (Meoli *et al.*, 2020), and how the contextual barriers could hinder the transition from behavioral intention into actual behavior (Lent & Brown, 2013; Lent & Brown, 2020). In other words, according to the career approach, the SCCT provides an effective framework for examining how individuals' ESE

might directly increase EI and EB, as well as how the translation from EI into entrepreneurial career actions could be impeded by contextual barriers.

The impact of contextual barriers often depends on how individuals perceive them and react to them, as any challenge is influenced by personal interpretation (Chinta & Collier, 2022; Dölarslan *et al.*, 2020). Indeed, individuals are less likely to transform behavioral intentions into actual actions to follow a certain career path if they perceive that their efforts in these directions will be hindered by contextual barriers (Calza *et al.*, 2020). The SCCT emphasizes that social and contextual supports and barriers influence how the process unfolds and how a person's interests are transformed into actual choice. The SCCT thus differs from intention theories, particularly those implemented in entrepreneurship, such as the Theory of Planned Behavior (Ajzen, 1991) and The Entrepreneurial Event Model (Shapero & Sokol, 1982). Intentions are placed purely at center stage in these theories (Duong, 2022). Although EI could be placed at the starting point in the entrepreneurial journey, scholars argue that intentions alone are not sufficient to lead to entrepreneurial actions (Calza *et al.*, 2020; Meoli *et al.*, 2020). The SCCTs provide a framework that indicates the direct path from self-efficacy to career goals (intentions) and subsequent actions (behaviors) (Lent & Brown, 2013). Nevertheless, it simultaneously highlights how personal, cultural, and contextual influences, including both support and barriers, affect self-efficacy, career goals, and career actions.

The creation of an entrepreneurial venture is not only a career choice, but it has also been identified as a process of entrepreneurial cognition that includes a wide range of different activities such as recognizing, evaluating, and taking advantage of entrepreneurial opportunities (Duong, 2022; Nguyen *et al.*, 2019). This process is conducted by persons who are prepared to take on risk and uncertainty in order to create additional value for themselves and society by pursuing an entrepreneurial career (Doanh *et al.*, 2021; Uysal *et al.*, 2022), or by engaging in other innovative and creative activities (Nguyen *et al.*, 2019). Concerning the psychological aspects of entrepreneurship, personal behaviors are increasingly of interest to scholars who endeavor to assess the different roles that environmental influences, including contextual barriers, play in individuals' cognitive processes (Dölarslan *et al.*, 2020). In entrepreneurship, PB are likely to be detrimental to the transformation of individuals' EI into entrepreneurship as a career (Doern, 2011; Singh Sandhu *et al.*, 2011). In other words, according

to the SCCT, PB could negatively moderate the relationship between self-efficacy, career goals/intentions and career choices/behaviors (Meoli *et al.*, 2020). Consequently, an approach utilizing the SCCT is one way to explore the underlying mechanisms of how PB could act as a negative moderator of the translation from EI into EB, as well as how they could negatively influence EI's mediation effect on the link between ESE and EB.

Entrepreneurial self-efficacy, entrepreneurial intention and behaviors

In the stream of entrepreneurship research, the SCCT takes into account the central antecedents in the extended frameworks of start-up actions, including self-efficacy, entrepreneurial interests (attitudes) and goals (intentions) (Lanero *et al.*, 2016; Nwosu *et al.*, 2022). It integrates these constructs with a broad range of personal and environmental elements that affect the processes conducted by persons who consider entrepreneurship as a career choice (Duong, 2022). Indeed, the SCCT framework highlights the paths through which individuals experience personal agencies in their career development, as well as how environmental influences and motivational antecedents can reinforce or weaken these agencies (Nwosu *et al.*, 2022; Uysal *et al.*, 2022). In entrepreneurship literature, generally, scholars believe that the variables of the SCCT are strictly involved in the antecedents of EB (entrepreneurial actions), including ESE (Newman *et al.*, 2019) and EI (Lanero *et al.*, 2016).

Self-efficacy is considered to be a psychological concept that reflects individuals' reasoning over activating incentives, cognitive capitals, and procedures needed to manage life events. It is also related to individuals' beliefs regarding their own personal capacity to accomplish the expected goals (Bandura, 2011). People adopt interests that influence their expected outcomes, and they choose tasks based on their skills and capacity to deal with challenges and difficulties. Thus, individuals prefer to carry out actions when they perceive that these can help them to overcome obstacles. In line with the SCT, ESE is determined as the degree to which individuals believe that they have enough ability and capacity to establish and run their own business ventures (Lanero *et al.*, 2016; Nwosu *et al.*, 2022). Consequently, the more individuals perceive themselves as being capable of becoming successful entrepreneurs, the more likely they are to embark on entrepreneurial activities (Uysal *et al.*, 2022), and the subsequent entrepreneurial actions (Hsu *et al.*, 2019). Although several researchers have indi-

cated that ESE could be a significant predictor of EI (Maheshwari & Kha, 2022; Nwosu *et al.*, 2022; Uysal *et al.*, 2022) and EB (Ciuchta & Finch, 2019; Newman *et al.*, 2019), most of these studies were conducted in advanced economies, such as the United States, where the entrepreneurial ecosystem is able to support entrepreneurial activities (i.e., Ciuchta & Finch, 2019; Hsu *et al.*, 2019). Few studies have been performed on this topic in emerging economies in Asia, like Vietnam. Hence, the following hypotheses are formulated to test how individuals' ESE positively affects their EI and EB in the context of Vietnam, an emerging economy in Asia.

H1. *ESE has a positive impact on EI.*

H2. *ESE has the positive impact on EB.*

EI is determined as the commitment to establishing an enterprise, and thus it is often used as a proximal antecedent of EB (Cui & Bell, 2022). That explains why earlier studies focused on exploring the intention to run a business and its predictors (Cui & Bell, 2022; Shirokova *et al.*, 2016). Nonetheless, EIs do not necessarily translate into EB (Alferaih, 2022). Duong (2022) argued that behavioral intention is considered a robust predictor of only certain actions that are not complex behaviors, such as participation in physical exercise, voting, or money donation. However, entrepreneurship decisions involve complexity and therefore focusing on behavioral intention only, in lieu of actual behavior, in the entrepreneurship research leads to some shortcomings (Shirokova *et al.*, 2016). In other words, if individuals do not carry out EB, despite indicate high intentions to become entrepreneurs, potential fruitful entrepreneurship are not established (Gieure *et al.*, 2020). Consequently, it is necessary to advance our understanding about the link between EI and EB (Calza *et al.*, 2020; Meoli *et al.*, 2020) in the context of Vietnam, an emerging economy in Asia, whose entrepreneurial ecosystem is still considered poorly supportive of entrepreneurial activities (Doanh *et al.*, 2021). It is hypothesized that there is a significant linkage between individuals' start-up intentions and their behaviors.

H3. *EI has a positive impact on EB.*

Mediation role of entrepreneurial intention

EB is often considered a fundamental outcome of the entrepreneurship process, whereas ESE and EI belong to the initial stages of this process; both have been found to be important predictors of entrepreneurial action (Alferaih, 2022; Cui & Bell, 2022; Hsu *et al.*, 2019). As mentioned above, ESE not only directly influences EI, but it might also have an indirect influence on EB through EI (Nwosu *et al.*, 2022). In other words, ESE first has a direct impact on EI, which in turn might affect EB (Uysal *et al.*, 2022). In this study, we propose that EI mediates the relationship between ESE and EB because of the following reasons. First, scholars suggest that the relations between independent and dependent variables can be better explained via mediation variables (Hair *et al.*, 2020), while prior studies have illustrated that ESE alone does not effectively predict EB (Adebusuyi *et al.*, 2022; Hsu *et al.*, 2019). Therefore, besides the direct effect, EI can play a mediating role in the linkage between ESE and EB. Second, in the line with the SCCT framework, decisional goals (intentions) could mediate the relationship between self-efficacy and decisional actions (behaviors). Lanero *et al.* (2016) also adopted the SCCT to illustrate that ESE indirectly affected entrepreneurial career choice through entrepreneurial career interest. Third, prior studies have revealed that EI mediates the effects of various antecedents on EB, such as risk aversion (Baluku *et al.*, 2020), innovativeness, attitude, subjective norms, entrepreneurial education, perceived feasibility, perceived desirability, and propensity to act (Alferaih, 2022), educational activities (Cui & Bell, 2022), entrepreneurial alertness, and trait competitiveness (Neneh, 2019). Therefore, it is hypothesized that in the context of Vietnam, EI can mediate the effect of ESE on EB.

H4. *The linkage between ESE and EB can be significantly mediated by EI.*

Moderating role of perceived barriers

According to Krueger *et al.* (2000), PB related to entrepreneurship are commonly considered as contextual circumstances and conditions that can restrain entrepreneurial activities and the antecedents of EB. A variety of entrepreneurial barriers have been determined in previous studies (Doern, 2011; Dölarıslan *et al.*, 2020). For instance, Kebaili *et al.* (2017) categorized entrepreneurial barriers into psychological and institutional variables, in-

cluding attitude toward change, risk avoidance, fear of failure, stress avoidance, financial barriers, market barriers, and knowledge barriers, while Schlaegel *et al.* (2015) determined five types of entrepreneurial barriers: fear of failure; lack of environmental support; lack of family and network support; lack of skills, training and knowledge; and perceived risk. Recently, Dölarslan *et al.* (2020) included three dimensions in the construct of entrepreneurial barriers: lack of support, fear of failure, and lack of competencies. Perceived entrepreneurial barriers are a detrimental factor of entrepreneurial activities (Csillag *et al.*, 2019; Doern, 2011). Indeed, potential entrepreneurs are not inspired by perceived obstacles, such as unsupportive policies and institutions, a lack of legal assistance and counseling, high levels of corruption and bureaucracy, and a lack of support from surrounding people (Shinnar *et al.*, 2009).

EI does not necessarily translate into EB, and this reflects the existence of barriers that cannot be surmounted (Chinta & Collier, 2022). Previous studies indicate that barriers could explain a significant variance in a wide range of behaviors (e.g., Osunmuyiwa & Ahlborg, 2022), including entrepreneurial career choices (Chinta & Collier, 2022). Several prior studies have demonstrated that PB had a negative effect on females' entrepreneurial attitude and intentions to engage in entrepreneurial activities (Chinta & Collier, 2022), and on the attitude and intentions of students regarding entrepreneurship (Kebaili *et al.*, 2017; Singh Sandhu *et al.*, 2011). Doern (2011) also argued that PB negatively influenced the growth intentions and behaviors of small business owner-managers. Barriers are defined by Dölarslan *et al.* (2020) as contextual influences that take on many different forms, depending on the industry sector, region, and socio-economic factors (Csillag *et al.*, 2019). The EI-EB relationship is assumed to be differently weakened by a low or high degree of PB (Schlaegel *et al.*, 2015). In other words, the likelihood that individuals will transform their EI into EB could decrease when they perceive high entrepreneurial barriers (Doern, 2011).

In this study, therefore, it is hypothesized that PB not only acts as a negative moderator in the link between EI and EB, but that these barriers also negatively moderate the mediation role of EI in the relationship between ESE and EB. This is expected for the following reasons. First, the intention-behavior link is weaker in the entrepreneurship context than in many other contexts (Shirokova *et al.*, 2016) and EI alone is not very effective in predicting EB (Calza *et al.*, 2020). Recent studies have also reported that almost 70% of prospective entrepreneurs carried out few or no activities related to

new-venture emergence as time passed, despite having EIs (Adeel *et al.*, 2023). These findings raise the questions of: Why do most potential entrepreneurs not follow their initial EI and behave entrepreneurially? and What influences this EI-EB gap? (Fayolle & Liñán, 2014). Many scholars argue that a weak or inconsistent relationship between two constructs may be due to the existence of a moderator, which can change the levels of influence of these two constructs (Pham *et al.*, 2021). Logically, this weak EI-EB coefficient suggests the presence of a moderation variable, such as PB. Second, in line with the SCCT framework, the transformation from decisional goals (intention) into decisional actions (behavior) can be strengthened or weakened by the contextual support and barriers (Lent & Brown, 2013). Individuals behave in entrepreneurial ways to reach their goals and/or actualize their EI when they perceive a low level of entrepreneurial barriers (Giacomin *et al.*, 2010; Schlaegel *et al.*, 2015). Finally, if PB negatively moderate the effect of EI on EB, it is also plausible that PB conditionally affect the mediation path from ESE to EB via EI, thereby demonstrating PB's moderated mediation effect.

H5. *PB negatively moderate the relationship between EI and EB. As such, individuals with high PB, the translation from EI into EB could become weaker.*

H6. *PB negatively moderate the indirect impact of ESE on EB through EI. As such, the indirect effect of ESE on EB via EI could become weaker when PB are high.*

The conceptual framework is demonstrated in Figure 1.

In the light of the hypotheses developed based on the SCCT to test the moderated mediation effects of PB and EI on the link between ESE and EB, it is important to consider the methodological approach taken in this study. In the present study, we employ a rigorous and systematic approach to data collection, scale and questionnaire development, as well as analytical strategy to ensure the validity and reliability of our findings. Specifically, we draw on established methods from the literature, such as PROCESS macro with bootstrapping techniques (Hayes, 2018), to test our hypotheses and examine the underlying mechanisms at play. By employing such methodological rigor, we are able to shed light on the complex interplay between key constructs and contribute to the advancement of the literature on entrepreneurship.

Research methods

Participants

Undergraduate students are often used as the target sample in entrepreneurial research because they are considered to be a population that is highly inclined to engage in entrepreneurial activities (Gorgievski *et al.*, 2018; Tran *et al.*, 2022). However, recently some scholars have argued that although undergraduate students have positive attitudes toward entrepreneurship and a high intent to become entrepreneurs, they lack consistency and can choose other career alternatives after their graduation, in lieu of engaging in entrepreneurial activities, even if this was their initial plan and intention (Shirokova *et al.*, 2016). That could be because undergraduate students often lack real business and working experience. Thus, despite displaying a high level of interest in novel venture creations and strongly intending to become entrepreneurs, they often change their mind when they face difficulties in the actual entrepreneurial environment (Van Gelderen *et al.*, 2015). In the current research, we therefore adopted a sample recruited from master's students who had already at least one year of working and business experience, to test the moderated mediation effects of PB and EI on the link between ESE and EB.

To recruit the participants for this study, a stratified random sampling method was employed in three stages. Initially, Vietnam was divided into three main regions — Northern, Central, and Southern — based on their historical and geographical significance. Next, three of the most sizable universities within each region were chosen, according to the total number of master's students enrolled. Finally, the lecturers at these universities were contacted to request their kind assistance with distributing the questionnaire survey to their master's students. All of the participants were provided with the necessary information to give their informed consent. They were also informed that their participation was voluntary, and that they had the option to withdraw at any time of the research. Additionally, the respondents were informed that the data collection process was solely for academic purposes. The data were collected between 20 September and 15 November 2022, with a target of 250 responses per university and a total expected sample size of 2,250. In total, 1,698 valid responses were returned, giving a response rate of 75.47%. The demographic information of the participants is illustrated in Table 1.

To estimate the minimum size of the sample, the mathematical formula suggested by Bujang *et al.* (2018) and Duong and Antriyandarti (2022) was utilized:

$$N_{\min} = 100 + Z^* \omega \quad (1)$$

With Z representing for even per variable (the recommended Z is 50) and ω representing the number of independent variables in the hypothesized model ($\omega = 3$). The minimum sample size was 250. Therefore, our sample size of 1,698 valid responses was appropriate for further analyses.

Scales and questionnaire development

In order to achieve the objective of the study and test the developed hypotheses, this study utilized scales that had been previously validated in earlier studies. Specifically, the scale used to measure EB was adopted from the study of Gieure *et al.* (2020), while the scale for EI was derived from the study of Liñán and Chen (2009). The scale for ESE was adopted from Liñán (2008) and Tsai *et al.* (2016) studies, and the scale for PB was developed by Shinnar *et al.* (2009). All of the items were scored using a seven-point Likert format, with responses ranging from 1 “strongly disagree” to 7 “strongly agree”.

The questionnaire survey also included a section on the social demographic characteristics of the respondents, asking them to indicate their gender, educational fields, business experience, prior entrepreneurial education, and family business background. To address common method variance (CMV) during the process of modifying the original scales, developing the questionnaire, and recruiting participants, two stages were employed. Firstly, a back-translation technique was utilized, in which 38 items from four constructs were translated into Vietnamese by language specialists, who then generated a Vietnamese version of the questionnaire through discussion. Another specialist then translated the questionnaire from Vietnamese back into English, to ensure the absence of bias in the language translations. Secondly, in order to reduce the potential impact of CMV, the four distinct constructs were arranged in a specific sequence.

Statistical analysis

The data analyses for this research were conducted utilizing SPSS 28.0 and AMOS 25.0. Firstly, the normal distribution of the data was tested before testing the hypotheses. The skewness and kurtosis of the constructs PB, ESE, EI, and start-up behaviors, were computed. Secondly, in order to confirm the reliability and validity of the scales used in this study, we estimated Cronbach's alpha for each variable and conducted confirmatory factor analysis (CFA). Additionally, we conducted Heterotrait-Monotrait (HTMT) analysis to confirm the discriminant validity of the variables. Furthermore, we applied Harman's single-factor modeling to test for the presence of CMV (Podsakoff *et al.*, 2003). Nielsen and Raswant (2018) stated that control variables should be included in regression analyses since their exclusion can distort the results and produce misleading findings. Thus, after standardizing the variables, the third step was to perform hierarchical regression analysis to test the direct coefficients, controlled by the socio-demographic variables (age, gender, educational fields, business experience etc.). Finally, in social sciences, the PROCESS macro is commonly used to test mediating, moderating, and conditional effects (Hayes *et al.*, 2021), as Structural Equation modeling (SEM) has some limitations in terms of testing moderated mediation coefficients (Duong, 2022; Sarstedt *et al.*, 2020). In our study, PROCESS macro with Model 4 was thus utilized to examine the mediation effect of PB, whereas moderated mediation analysis was conducted utilizing Model 14 (PROCESS macro) to examine the moderated mediation effect of PB (Hayes, 2018). Based on a random sample numbering 5000, bootstrapping with 95% confidence intervals was used to estimate the statistical significance of association in Model 4 and Model 14 (Hayes, 2018).

Results

Reliability and validity of scales

Table 2 reports the normality, reliability, and validity of the constructs. First, the skewness and kurtosis of the items belonging to the four constructs of PB, ESE, EI, and EB, fell within a satisfactory range as all the skewness values < 3 and the kurtosis value < 8. The normality of the con-

structs was thus demonstrated (Hu & Bentler, 1999; Podsakoff *et al.*, 2003). Second, Cronbach's alpha for EB, EI, ESE, and PB was 0.923, 0.946, 0.924, and 0.969, respectively. The internal consistent reliability of all the constructs was therefore affirmed (Hu & Bentler, 1999).

Only items that met the predetermined criteria were then adjusted to CFA analysis. The measurement model revealed good degree of fit indices (see Figure 2): $\chi^2(631) = 2996.752$; $\chi^2/df = 4.749$; $p < 0.001$; GFI = 0.904 > 0.9; AGFI = 0.887 > 0.8; CFI = 0.960 > 0.9; TLI = 0.956 > 0.9; NFI = 0.950 > 0.9 and RMSEA = 0.047 < 0.05 (Hair *et al.*, 2020). The factor loadings of the items AVE and CR were equal to or above the benchmark of 0.5: 0.5 and 0.7, respectively (Hu & Bentler, 1999), but all the HTMT values were lower than 0.9 (Podsakoff *et al.*, 2003) (see Table 2 and Table 3). This verified the reliability and discriminant validity of the constructs. In addition, in order to control for CMV, a procedural and statistical methodology was employed in our research. First, in the question survey, the items of all the constructs were shuffled. Our research also tried to take out any signs that could influence the responses. Also, our study surveyed diverse universities/institutes in different regions of Vietnam. A Harman's single-factor analysis with unrotated solution reported an explained variance of 36.983% < 50% (Podsakoff *et al.*, 2003) and a constrained CFA with a single factor also showed a poor index of fitness: $\chi^2(665) = 32383.773$; Chi-Square/df = 48.697; GFI = 0.267; AGFI = 0.184; CFI = 0.467; TLI = 0.437; NFI = 0.462; RMSEA = 0.168, affirming the absence of CMV in our study (Kock, 2021).

Hypothesis testing

The hierarchical regression analysis of the direct coefficients is illustrated in Table 4. In this analysis, several demographic variables, including gender, age, educational field, business experience, entrepreneurial education, family business background, were controlled as covariates. Models A and C demonstrate how EI and EB were solely controlled by the demographic variables, respectively. In Model B, ESE was included as a predictor of EI, whilst in Model D, ESE and EI were included as predictors of EB.

The results from Model B revealed that ESE was positively and strongly correlated with EI ($\gamma = 0.686$; $t = 37.190$; $p\text{-value} < 0.001$), controlling for gender ($\gamma = -0.112$; $t = -2.095$; $p\text{-value} < 0.05$), age ($\gamma = 0.077$; $t = -1.979$; $p\text{-value} < 0.05$), educational field ($\gamma = -0.181$; $t = -3.370$; $p\text{-value} < 0.001$), business experience ($\gamma = -0.310$; $t = -5.534$; $p\text{-value} < 0.001$), and entrepreneurial

education ($\gamma = 0.142$; $t = -2.603$; p -value < 0.01), but it was not correlated with the family's business background ($p > 0.05$). Additionally, Model D revealed that EB was significantly and positively correlated with both ESE ($\gamma = 0.331$; $t = 14.664$; p -value < 0.001) and EI ($\gamma = 0.268$; $t = 12.142$; p -value < 0.001), controlling for age ($\gamma = 0.126$; $t = 3.604$; p -value < 0.001) and business experience ($\gamma = -0.640$; $t = -12.500$; p -value < 0.001), but not controlling for gender, educational field, entrepreneurial education, or the family's business background ($p > 0.05$). H1, H2, and H3 were therefore supported by the data.

As illustrated in Table 5, the results of the mediation analyses using Hayes's PROCESS macro (Model 4) illustrated that ESE positively affected EI ($\beta_{\text{ESE-EI}} = 0.7258$, $p < 0.001$; 95% CI [0.6911, 0.7605]), which in turn was positively linked with EB ($\beta_{\text{ESE-EI}} = 0.4452$, $p < 0.001$; 95% CI [0.3336, 0.5569]). The bootstrapping results also showed that the indirect effect of ESE on EB via EI ($ab = 0.3607$, 95% CI [0.1816, 0.2642]), and the mediation effect of EI accounted for 45.34% of the incremental variance in start-up behavior of the total effect: $R^2 = 0.4534$. Furthermore, the direct effect of ESE on start-up behavior was statistically significant ($\beta_{\text{ESE-EB}} = 0.3624$, $p < 0.001$; 95% CI [0.3164, 0.5569]). Hence, the link between ESE and start-up behavior was significantly mediated by EI, which supported H4.

Table 5 also reported the results of the moderated mediation analysis using Model 14 of Hayes' PROCESS macro. The result revealed that the interaction between PB and EI was significantly and negatively correlated with EB ($\beta_{\text{PB*EI-EB}} = -0.0280$, $p < 0.01$; 95% CI [-0.0492, -0.0067]). It accounted for 0.21% of the incremental variance in EB of main impacts: $\Delta R^2 = 0.0021$. Figure 3 demonstrated the interaction plot of PB on the EI-EB link. The result of the simple slope tests revealed that the EI-EB relationship was significant when PB was low ($\beta_{\text{simple slope}} = 0.3455$, $p < 0.001$; 95% CI [0.2934, 0.3976]), but this correlation was much lower when PB was high ($\beta_{\text{simple slope}} = 0.2759$, $p < 0.001$; 95% CI [0.2237, 0.3280]). H5 was therefore supported.

Having confirmed that the moderation link was supported, the moderated mediation effect was then further analyzed to examine whether or not PB negatively moderated EI's mediation impact on the relationship between ESE and EB. The output of this analysis illustrated the detailed outcomes of the interaction effect by illustrating one standard deviation (SD) above and below the mean (M). This result allowed us to confirm the value of PB for which the conditional indirect influence was significant at $\alpha = 0.05$. The result showed that the moderated mediation influence was nega-

tive and had non-zero probability ($\beta_{\text{moderated mediation}} = -0.0203$, $p < 0.001$; 95% CI [-0.0369, -0.0027]). Importantly, this moderated mediation effect was statistically significant when the degree of PB was low (-1SD), equal to the mean (M), and high (+1SD). Additionally, as demonstrated in Table 5, the pairwise contrasts between the conditional indirect effects (Effect 1 minus Effect 2) illustrated that the effects at high PB were higher than with the mean PB (Contrast = -0.2043; 95% CI [-0.0460, -0.0034]); that the effects were the same with low PB (Contrast = -0.0505; 95% CI [-0.0919, -0.0068]); and that the effects at mean PB were higher than at low PB (Contrast = -0.0253; 95% CI [-0.0460, -0.0034]). The results revealed that the conditional indirect effects of ESE on EB through EI at various degrees of PB were significantly different from each other. In other words, the bootstrapped 95% CI was not 0 for any of the three pairwise contrasts between the conditional indirect effects. This further supported the mediation impact of EI on the link between ESE and EB, which was moderated by PB. Hence, H6 was therefore supported.

Discussion

The results showed that both ESE and EI significantly and directly contributed to the development of EB. Several prior studies reported that EI could be positively associated with EB (Cui & Bell, 2022; Gieure *et al.*, 2020; Meoli *et al.*, 2020; Shirokova *et al.*, 2016; Van Gelderen *et al.*, 2015). This finding reflects the fact that EI acts as an effective predictor of entrepreneurial actions (Calza *et al.*, 2020; Duong, 2022). The direct relationship between ESE and EB is rarely tested in the entrepreneurship research, even though the SCCT framework represents the nexus between these two constructs. Our findings revealed a strong correlation between ESE and EB, which demonstrates that when individuals believe highly in their abilities and capacities to establish and manage their own business ventures, they are more likely to engage in actual entrepreneurial activities (Adebusuyi *et al.*, 2022; Uysal *et al.*, 2022). Additionally, ESE was found to have a strong and positive impact on EI, which was in line with a body of prior studies (i.e., Maheshwari & Kha, 2022; Newman *et al.*, 2019). The significant direct relationship between three main constructs in the SCCT framework, ESE, EI, and EB, can be considered a signal of the mediation role of EI. Indeed, our study also reported that EI had a significant mediation effect on the link

between ESE and EB. This means that ESE initially influences EI, which in turn positively impacts EB. In other words, since ESE was found to be directly and positively linked to EB, EI partially mediates the ESE-EB link.

Our results revealed that PB negatively moderated the effect of EI on EB. In line with the SCCT, prior studies have highlighted the need to explain the moderation influences of contextual support and barriers on the translation of EI into EB (Meoli *et al.*, 2020), in order to advance our knowledge of the underlying mechanism of this relationship (Fayolle & Liñán, 2014; Shirokova *et al.*, 2016). On the other hand, PB, which is established as an important concept in the entrepreneurship literature (Csillag *et al.*, 2019; Doern, 2011; DöLarslan *et al.*, 2020), can help to explain why many individuals have high ESE and EI, but they do not actualize entrepreneurially (Giacomin *et al.*, 2010). Unfortunately, the moderation effects of PB on the entrepreneurial process have received scant attention (Osunmuyiwa & Ahlborg, 2022). This research, therefore, makes an important contribution to the entrepreneurship literature by demonstrating that the EI-EB link becomes weaker if the perceived barriers are high. In other words, although many individuals have initial intentions to engage in entrepreneurship activities, they decide against it if they perceive high levels of entrepreneurial barriers. Consequently, it is more likely that potential entrepreneurs will convert their EI into EB when they perceive the barriers to be low.

A moderated mediation analysis showed that the positive mediation effect of EI on the link between ESE and EB was weakened when PB were high. This means that the indirect impact of ESE on EB via EI was moderated by PB. This finding illustrates that the EI of potential entrepreneurs who perceive high levels of entrepreneurial barriers plays a more important role than the EI of those who perceive low levels of these barriers (Osunmuyiwa & Ahlborg, 2022; Singh Sandhu *et al.*, 2011). We assume that individuals with high PB do not strongly depend on EI and ESE when they make the decision to engage in entrepreneurial activities. This is in line with earlier studies which showed that the entrepreneurial process is characterized by high risks and uncertainty. Thus, some people can make decisions about their careers based on perceptions related to contextual influences, rather than their initial intentions (Shirokova *et al.*, 2016). In other words, high levels of ESE and EI are not important for individuals who perceive a high level of barriers but still take the decision to become self-employed. In con-

trast, for those who perceive a low level of barriers, their EI is profoundly important for their decision to become an entrepreneur.

Conclusions

Theoretical contributions

The findings in our research hence make several crucial contributions to the extant entrepreneurial literature. Firstly, built on the SCCT, our study makes a crucial contribution by tightening the intention-behavior link in the entrepreneurship literature, as well as illustrating how ESE can contribute to the development of EB. This finding also provides strong justification for employing the SCCT framework in the entrepreneurship context, as it elucidates that the self-efficacy-intention-action paths can be strengthened or weakened by contextual support and barriers (Calza *et al.*, 2020; Meoli *et al.*, 2020). This research also demonstrates that the gap between intentions and actions always exists, (Gieure *et al.*, 2020), although the findings provide empirical evidence to affirm the significant EI-EB link. Secondly and most importantly, most previous studies paid scant attention to the moderation role of PB in the entrepreneurial process, especially in the EI-EB linkage. Our study therefore advances our understanding by firstly assessing the moderating effects of PB on the direct relationship between EI and EB, and by assessing its moderation impact on the mediated path between ESE and EB via EI.

Practical contributions

Several practical and managerial implications can be drawn from the findings of our research. First, they provide new insights for policymakers on how to promote entrepreneurial activities. Instead of relying on different solutions such as role models (Brunel *et al.*, 2017), or reducing fear of failure (Duong, 2022; Kong *et al.*, 2020), we recommend policies and solutions to reduce entrepreneurial barriers, such as setting up and fostering institutional environments and entrepreneurial ecosystems, in order to facilitate entrepreneurial activities. These policies and solutions can help to reduce individuals' PB. Second, ESE plays an important role in how barriers are perceived, thus policymakers should have appropriate strategies to

inspire individuals' ESE, such as investing in entrepreneurial education. This study acknowledges the significance of pedagogical methods such as experiential learning and exposure to real-life business situations (Duong, 2022; Ghosh, 2022), as well as activities beyond the classroom (Nguyen *et al.*, 2021). These methods can provide students with the essential knowledge and skills required for real-life business ventures, while helping them to adhere to and act according to their EI (Duong, 2023; Nguyen, 2023; Vasilev, 2022).

Limitations and recommendations for further research

Although the considerable theoretical and practical contributions of our research to the field of entrepreneurship, there are some limitations to our study that should be acknowledged, and these limitations can suggest avenues for further research. Firstly, our study is focused on explaining EB at a single point in time, and although this approach has numerous advantages (Shirokova *et al.*, 2016), researcher should conduct a longitudinal study to examine how EB changes over time. Secondly, PB has been identified as a multidimensional construct (Dölarslan *et al.*, 2020; Kebaili *et al.*, 2017; Schlaegel *et al.*, 2015), but in the context of Vietnam, all the items of this construct were loaded on the common factor. This construct should be separated into different dimensions in future studies to illustrate the different perspectives of PB to the entrepreneurial process.

References

- Adebusuyi, A. S., Adebusuyi, O. F., & Kolade, O. (2022). Development and validation of sources of entrepreneurial self-efficacy and outcome expectations: A social cognitive career theory perspective. *International Journal of Management Education*, 20(2), 1–11. doi: 10.1016/j.ijme.2021.100572.
- Adeel, S., Daniel, A. D., & Botelho, A. (2023). The effect of entrepreneurship education on the determinants of entrepreneurial behaviour among higher education students: A multi-group analysis. *Journal of Innovation & Knowledge*, 8(1), 1–12. doi: 10.1016/j.jik.2023.100324.
- Ajzen, I. (1991). The theory of planned behavior. *Journal of Behavior and Human Decision Process*, 50, 197–211. doi: 10.1016/0749-5978(91)90020-T.

- Alferaih, A. (2022). Starting a new business? Assessing university students' intentions towards digital entrepreneurship in Saudi Arabia. *International Journal of Information Management Data Insights*, 2(2), 1–12. doi: 10.1016/j.jjimei.2022.100087.
- Baluku, M. M., Nansubuga, F., Otto, K., & Horn, L. (2020). Risk aversion, entrepreneurial attitudes, intention and entry among young people in Uganda and Germany: A gendered analysis. *Journal of Entrepreneurship and Innovation in Emerging Economies*, 7(1), 31–59. doi: 10.1177/2393957520960567.
- Bandura, A. (2011). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, 38(1), 9–44. doi: 10.1177/0149206311410606.
- Brunel, O., Laviolette, E. M., & Radu-Lefebvre, M. (2017). Role models and entrepreneurial intention: The moderating effects of experience, locus of control and self-esteem. *Journal of Enterprising Culture*, 25(02), 149–177. doi: 10.1142/s0218495817500066.
- Bujang, M. A., Sa'at, N., Sidik, T., & Joo, L. C. (2018). Sample size guidelines for logistic regression from observational studies with large population: Emphasis on the accuracy between statistics and parameters based on real life clinical data. *Malaysia Journal Medical Sciences*, 25(4), 122–130. doi: 10.21315/mjms2018.25.4.12.
- Calza, F., Cannavale, C., & Zohoorian Nadali, I. (2020). How do cultural values influence entrepreneurial behavior of nations? A behavioral reasoning approach. *International Business Review*, 29(5), 1–13. doi: 10.1016/j.ibusrev.2020.101725.
- Chinta, R., & Collier, D. (2022). Interplay of antecedents in nascent entrepreneurship: Conceptual model and research propositions. *Journal of the International Council for Small Business*, 3(4), 292–302. doi: 10.1080/26437015.2022.2089074.
- Ciuchta, M. P., & Finch, D. (2019). The mediating role of self-efficacy on entrepreneurial intentions: Exploring boundary conditions. *Journal of Business Venturing Insights*, 11, 1–10. doi: 10.1016/j.jbvi.2019.e00128.
- Csillag, S., Gyori, Z., & Svastics, C. (2019). Long and winding road? Barriers and supporting factors as perceived by entrepreneurs with disabilities. *Journal of Enterprising Communities: People and Places in the Global Economy*, 13(1/2), 42–63. doi: 10.1108/jec-11-2018-0097.
- Cui, J., & Bell, R. (2022). Behavioural entrepreneurial mindset: How entrepreneurial education activity impacts entrepreneurial intention and behaviour. *International Journal of Management Education*, 20(2), 1–16. doi: 10.1016/j.ijme.2022.100639.
- Doanh, D. C., Bernat, T., Hieu, N. T., Bich Ngoc, N., & Thi Phuong Linh, N. (2021). Academic entrepreneurship: An empirical research of invention commercialisation. *Central European Business Review*, 10(4), 33–62. doi: 10.18267/j.cebr.265.
- Doern, R. (2011). Understanding how perceived barriers influence growth intentions and behaviours. *International Journal of Entrepreneurial Behavior & Research*, 17(5), 488–514. doi: 10.1108/13552551111158826.

- Dölarslan, E. Ş., Koçak, A., & Walsh, P. (2020). Perceived barriers to entrepreneurial intention: The mediating role of self-efficacy. *Journal of Developmental Entrepreneurship*, 25(03), 1–23. doi: 10.1142/s1084946720500168.
- Duong, A. H., & Antriyandarti, E. (2022). The willingness to get vaccinated against SARS-CoV-2 virus among Southeast Asian countries: Does the vaccine brand matter? *Applied Research Quality of Life*, 1–29. doi: 10.1007/s11482-022-10104-5.
- Duong, C. D. (2022). Entrepreneurial fear of failure and the attitude-intention-behavior gap in entrepreneurship: A moderated mediation model. *International Journal of Management Education*, 20(3), 1–15. doi: 10.1016/j.ijme.2022.100707.
- Duong, C. D. (2023). Applying the stimulus-organism-response theory to investigate determinants of students' social entrepreneurship: Moderation role of perceived university support. *Social Enterprise Journal*. Advance online publication. doi: 10.1108/SEJ-10-2022-0091.
- Fayolle, A., & Liñán, F. (2014). The future of research on entrepreneurial intentions. *Journal of Business Research*, 67(5), 663–666. doi: 10.1016/j.jbusres.2013.11.024.
- Ghosh, S. (2022). COVID-19, clean energy stock market, interest rate, oil prices, volatility index, geopolitical risk nexus: Evidence from quantile regression. *Journal of Economics and Development*, 24(4), 329–344. doi: 10.1108/jed-04-2022-0073.
- Giacomin, O., Janssen, F., Pruett, M., Shinnar, R. S., Llopis, F., & Toney, B. (2010). Entrepreneurial intentions, motivations and barriers: Differences among American, Asian and European students. *International Entrepreneurship and Management Journal*, 7(2), 219–238. doi: 10.1007/s11365-010-0155-y.
- Giure, C., Benavides-Espinosa, M. D. M., & Roig-Dobón, S. (2020). The entrepreneurial process: The link between intentions and behavior. *Journal of Business Research*, 112, 541–548. doi: 10.1016/j.jbusres.2019.11.088.
- Gorgievski, M. J., Stephan, U., Laguna, M., & Moriano, J. A. (2018). Predicting entrepreneurial career intentions: Values and the theory of planned behavior. *Journal of Career Assessment* 26(3), 457–475. doi: 10.1177/1069072717714541.
- Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101–110. doi: 10.1016/j.jbusres.2019.11.069.
- Hayes, A. F. (2018). *An introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- Hayes, A. F., Montoya, A. K., & Rockwood, N. J. (2021). The analysis of mechanisms and their contingencies: PROCESS versus Structural Equation Modeling. *Australasian Marketing Journal*, 25(1), 76–81. doi: 10.1016/j.ausmj.2017.02.001.
- Hsu, D. K., Burmeister-Lamp, K., Simmons, S. A., Foo, M.-D., Hong, M. C., & Pipes, J. D. (2019). “I know I can, but I don't fit”: Perceived fit, self-efficacy, and entrepreneurial intention. *Journal of Business Venturing*, 34(2), 311–326. doi: 10.1016/j.jbusvent.2018.08.004.

- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. doi: 10.1080/10705519909540118.
- Kebaili, B., Al-Subyae, S. S., & Al-Qahtani, F. (2017). Barriers of entrepreneurial intention among Qatari male students. *Journal of Small Business and Enterprise Development*, 24(4), 833–849. doi: 10.1108/jsbed-11-2016-0186.
- Kebaili, B., Al-Subyae, S. S., Al-Qahtani, F., & Belkhamza, Z. (2015). An exploratory study of entrepreneurship barriers: The case of Qatar. *World Journal of Entrepreneurship, Management and Sustainable Development*, 11(3), 210–219. doi: 10.1108/wjemdsd-03-2015-0014.
- Kock, F., Berbekova, A., & Assaf, G. (2021). Understanding and managing the threat of common method bias: Detection, prevention and control. *Tourism Management*, 86, 104303. doi: 10.1016/j.tourman.2021.104330.
- Kong, F., Zhao, L., & Tsai, C. H. (2020). The relationship between entrepreneurial intention and action: The effects of fear of failure and role model. *Frontier in Psychology*, 11, 229. doi: 10.3389/fpsyg.2020.00229.
- Krueger, N. F., Jr., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5–6), 411–432. doi: 10.1016/S0883-9026(98)00033-0.
- Lanero, A., Vázquez, J.-L., & Aza, C. L. (2016). Social cognitive determinants of entrepreneurial career choice in university students. *International Small Business Journal: Researching Entrepreneurship*, 34(8), 1053–1075. doi: 10.1177/0266242615612882.
- Lent, R. W., & Brown, L. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, 60(4), 557–568. doi: 10.1037/a0033446.
- Lent, R. W., & Brown, S. D. (2020). Career decision making, fast and slow: Toward an integrative model of intervention for sustainable career choice. *Journal of Vocational Behavior*, 120, 1–13. doi: 10.1016/j.jvb.2020.103448.
- Liñán, F. (2008). Skill and value perceptions: How do they affect entrepreneurial intentions? *International Entrepreneurship and Management Journal*, 4, 257–272. doi: 10.1007/s11365-008-0093-0.
- 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. doi: 10.1111/j.1540-6520.2009.00318.x.
- Maheshwari, G., & Kha, K. L. (2022). Investigating the relationship between educational support and entrepreneurial intention in Vietnam: The mediating role of entrepreneurial self-efficacy in the theory of planned behavior. *International Journal of Management Education*, 20(2), 1–14. doi: 10.1016/j.ijme.2021.100553.

- Meoli, A., Fini, R., Sobrero, M., & Wiklund, J. (2020). How entrepreneurial intentions influence entrepreneurial career choices: The moderating influence of social context. *Journal of Business Venturing*, 35(3), 1–20. doi: 10.1016/j.jbusvent.2019.105982.
- Neneh, B. N. (2019). From entrepreneurial intentions to behavior: The role of anticipated regret and proactive personality. *Journal of Vocational Behavior*, 112, 311–324. doi: 10.1016/j.jvb.2019.04.005.
- Newman, A., Obschonka, M., Schwarz, S., Cohen, M., & Nielsen, I. (2019). Entrepreneurial self-efficacy: A systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research. *Journal of Vocational Behavior*, 110, 403–419. doi: 10.1016/j.jvb.2018.05.012.
- Nguyen, A. T., Do, T. H. H., Vu, T. B. T., Dang, K. A., & Nguyen, H. L. (2019). Factors affecting entrepreneurial intentions among youths in Vietnam. *Children and Youth Services Review*, 99, 186–193. doi: 10.1016/j.childyouth.2019.01.039.
- Nguyen, D. T., & Pham, T. H. (2021). Factors affecting entrepreneurial intention of Vietnamese students: The comparative analysis on gender and field of study. *Journal of Economics and Development*, 292, 89–100.
- Nguyen, N. M. (2023). The effect of FDI on domestic entrepreneurship: The case of greenfield investment and cross-border M&A activities. *Journal of Economics and Development*, 25(1), 62–78. doi: 10.1108/jed-11-2022-0228.
- Nguyen, T. T., Nguyen, L. T. P., Phan, H. T. T., & Vu, A. T. (2021). Impact of entrepreneurship extracurricular activities and inspiration on entrepreneurial intention: Mediator and moderator effect. *Sage Open*, 11(3), 1–13. doi: 10.1177/21582440211032174.
- Nielsen, B. B., & Raswant, A. (2018). The selection, use, and reporting of control variables in international business research: A review and recommendations. *Journal of World Business*, 53(6), 958–968. doi: 10.1016/j.jwb.2018.05.003.
- Nwosu, H. E., Obidike, P. C., Ugwu, J. N., Udeze, C. C., & Okolie, U. C. (2022). Applying social cognitive theory to placement learning in business firms and students' entrepreneurial intentions. *International Journal of Management Education*, 20(1), 1–13. doi: 10.1016/j.ijme.2022.100602.
- Osunmuyiwa, O. O., & Ahlborg, H. (2022). Stimulating competition, diversification, or re-enforcing entrepreneurial barriers? Exploring small-scale electricity systems and gender-inclusive entrepreneurship. *Energy Research & Social Science*, 89, 1–13. doi: 10.1016/j.erss.2022.102566.
- Pérez-López, M. C., González-López, M. J., & Rodríguez-Ariza, L. (2019). Applying the social cognitive model of career self-management to the entrepreneurial career decision: The role of exploratory and coping adaptive behaviours. *Journal of Vocational Behavior*, 112, 255–269. doi: 10.1016/j.jvb.2019.03.005.

- Pham, D., Jones, P., Dobson, S., Liñán, F., & Viala, C. (2021). Entrepreneurial implementation intention as a tool to moderate the stability of entrepreneurial goal intention: A sensemaking approach. *Journal of Business Research*, 123, 97–105. doi: 10.1016/j.jbusres.2020.09.051.
- 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. doi: 10.1037/0021-9010.88.5.879.
- Sarstedt, M., Hair, J. F., Nitzl, C., Ringle, C. M., & Howard, M. C. (2020). Beyond a tandem analysis of SEM and PROCESS: Use of PLS-SEM for mediation analyses! *International Journal of Market Research*, 62(3), 288–299. doi: 10.1177/1470785320915686.
- Schlaegel, C., Engle, R. L., Dimitriadi, N., & Taureck, P. C. (2015). ‘Why not now?’ triggers and barriers of new venture creation: A meta-analysis and multinational comparison of entrepreneurs’ perspectives. *International Journal of Entrepreneurial Venturing*, 7, 227–250. doi: 10.1504/IJEV.2015.071482.
- Shapiro, A., & Sokol, L. (1982). The social dimensions of entrepreneurship. In C. Kent, D. Sexton & K. V. Vesper (Eds.). *The encyclopedia of entrepreneurship* (pp. 72–90). Prentice Hall, Englewood Cliffs.
- Shinnar, R., Pruett, M., & Toney, B. (2009). Entrepreneurship education: Attitudes across campus. *Journal of Education for Business*, 84(3), 151–159. doi: 10.3200/joeb.84.3.151-159.
- 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. doi: 10.1016/j.emj.2015.12.007.
- Singh Sandhu, M., Fahmi Sidique, S., & Riaz, S. (2011). Entrepreneurship barriers and entrepreneurial inclination among Malaysian postgraduate students. *International Journal of Entrepreneurial Behavior & Research*, 17(4), 428–449. doi: 10.1108/13552551111139656.
- St-Jean, E., & Labelle, F. (2018). Wanting to change the world, is it too much of a good thing? How sustainable orientation shapes entrepreneurial behaviour. *International Journal of Entrepreneurial Behavior & Research*, 24(6), 1075–1086. doi: 10.1108/ijeb-03-2018-0130.
- Tran, T. V. H., Duong, C. D., Nguyen, T. H., Tran, T. S. L., & Vu, T. N. (2022). UPPS impulsivity, entrepreneurial self-efficacy and entrepreneurial intentions among university students: ADHD symptoms as a moderator. *Journal of Applied Research in Higher Education*, 15(2), 473–495. doi: 10.1108/jarhe-12-2021-0464.
- Tsai, K.-H., Chang, H.-C., & Peng, C.-Y. (2016). Extending the link between entrepreneurial self-efficacy and intention: A moderated mediation model. *International Entrepreneurship and Management Journal*, 12, 445–463. doi: 10.1007/s11365-014-0351-2.

- Uysal, Ş. K., Karadağ, H., Tuncer, B., & Şahin, F. (2022). Locus of control, need for achievement, and entrepreneurial intention: A moderated mediation model. *International Journal of Management Education*, 20(2), 1–15. doi: 10.1016/j.ijme.2021.100560.
- Van Gelderen, M., Kautonen, T., & Fink, M. (2015). From entrepreneurial intentions to actions: Self-control and action-related doubt, fear, and aversion. *Journal of Business Venturing*, 30(5), 655–673. doi: 10.1016/j.jbusvent.2015.01.003.
- Vasilev, A. (2022). A business-cycle model with monopolistically competitive firms and Calvo wages: Lessons for Bulgaria. *Journal of Economics and Development*, 24(1), 80–95. doi: 10.1108/jed-09-2020-0131.



Ministry of Education and Science
Republic of Poland

The journal is co-financed in the years 2022–2024 by the Ministry of Education and Science of the Republic of Poland in the framework of the ministerial programme “Development of Scientific Journals” (RCN) on the basis of contract no. RCN/SN/0129/2021/1 concluded on 29 September 2022 and being in force until 28 September 2024.

Annex

Table 1. Social–demographic profile of participants

Variables		Frequency	%
Gender	Male	895	52.7
	Female	803	47.3
Age	From 18 to 22 years old	327	19.3
	From 23 to 26 years old	872	51.4
	Over 26 years old	498	29.3
Educational fields	Economics and business management	975	57.4
	Engineering and others	723	42.6
Business experiences	Yes	775	45.6
	No	923	54.4
Have you ever participated in entrepreneurship courses?	Yes	904	53.2
	No	794	46.8
Family business background	Yes	845	49.8
	No	853	50.2

Note: N=1698.

Table 2. Descriptive characteristics, Cronbach's Alpha, and factor loadings of items

Code	Variables	α	Mean	SD	Skewness	Kurtosis	Factor loadings
EB	Entrepreneurial behavior (Gieure et al., 2020)	0.923	4.2031	1.37391	-0.171	-0.823	
EB1	I have experience in starting new project and/or business	0.916	3.7892	1.76032	0.115	-1.100	0.765
EB2	I already developed a business plan	0.906	4.1896	1.66083	-0.189	-0.915	0.840
EB3	I already started a new business	0.905	4.1690	1.61397	-0.157	-0.890	0.860
EB4	I already carried out market research	0.909	4.2279	1.56885	-0.190	-0.746	0.825
EB5	I have invested in an informal manner in some business	0.913	4.0059	1.76857	-0.070	-1.111	0.785
EB6	I already saved money to invest in a business	0.916	4.5530	1.63270	-0.436	-0.714	0.724
EB7	I already belonged to a social network that can promote my business	0.915	4.487	1.6114	-0.391	-0.696	0.741
EI	Entrepreneurial intention (Liñán & Chen, 2009)	0.946	4.4298	1.52536	-0.398	-0.767	
EI1	I am ready to do anything to be an entrepreneur	0.944	4.4311	1.62741	-0.267	-0.760	0.820
EI2	My professional goal is to become an entrepreneur	0.939	4.3787	1.72498	-0.274	-0.933	0.855
EI3	I will make every effort to start and run my own firm	0.940	4.6249	1.71135	-0.446	-0.722	0.873
EI4	I am determined to create a firm in the future	0.938	4.5907	1.73401	-0.432	-0.794	0.894
EI5	I have a very seriously through of starting a firm	0.940	4.2208	1.71103	-0.168	-0.915	0.857
EI6	I have the firm intention to start a firm some day	0.938	4.3327	1.73545	-0.264	-0.936	0.874
ESE	Entrepreneurial self-efficacy (Liñán, 2008; Tsai et al., 2014)	0.924	4.2040	1.48319	-0.243	-0.886	
ESE1	I show great aptitude for creativity and innovation	0.908	3.9841	1.73572	-0.061	-1.014	0.800
ESE2	I show great aptitude for leadership and problem-solving	0.900	4.2238	1.68199	-0.228	-0.898	0.827
ESE3	I can develop and maintain favorable relationships with potential investors	0.904	4.2850	1.70756	-0.287	-0.890	0.844

Table 2. Continued

Code	Variables	α	Mean	SD	Skewness	Kurtosis	Factor loadings
ESE4	I can see new market opportunities for new products and services	0.908	4.0878	1.72812	-0.137	-0.995	0.860
ESE5	I can develop a working environment that encourages people to try out something new	0.915	4.4393	1.61136	-0.393	-0.655	
PB	Perceived barriers (Shinnar et al., 2009)	0.969	4.8079	1.24397	-0.871	0.587	0.688
PB1	Excessively risky	0.969	5.0424	1.54198	-0.757	-0.002	0.689
PB2	Lack of initial capital	0.969	5.0925	1.50827	-0.875	0.271	0.683
PB3	Current economic situation	0.969	5.0742	1.49811	-0.841	0.263	0.820
PB4	Lack of high level of entrepreneurial competence	0.967	4.9223	1.51980	-0.654	-0.162	0.817
PB5	Lack of knowledge	0.967	4.9034	1.53570	-0.675	-0.145	0.819
PB6	Lack of experience in management and accounting	0.967	4.8799	1.55767	-0.712	-0.126	0.808
PB7	Lack of knowledge of the business world and the market	0.968	4.8457	1.54210	-0.658	-0.180	0.780
PB8	Lack of ideas regarding what business to start	0.968	4.7403	1.59671	-0.581	-0.455	0.785
PB9	Irregular income	0.968	4.7373	1.56773	-0.602	-0.300	0.794
PB10	Fiscal charges (taxes, legal fees, etc.)	0.968	4.7980	1.57987	-0.607	-0.308	0.822
PB11	Lack of available assistance in assessing business viability	0.968	4.8958	1.51413	-0.685	-0.103	0.829
PB12	Lack of formal help to start a business	0.967	4.8663	1.49890	-0.693	-0.046	0.824
PB13	Lack of organizations to assist entrepreneurs	0.968	4.2031	1.37391	-0.171	-0.823	0.783
PB14	Lack of support from people around me (family, friend, etc.)	0.968	3.7892	1.76032	0.115	-1.100	0.757
PB15	Fear of failure	0.968	4.1896	1.66083	-0.189	-0.915	0.823
PB16	Lack of legal assistance or counseling	0.968	4.1690	1.61397	-0.157	-0.890	

Table 2. Continued

Code	Variables	α	Mean	SD	Skewness	Kurtosis	Factor loadings
PBI7	Having to work too many hours	0.968	4.2279	1.56885	-0.190	-0.746	0.729
PBI8	Doubts about personal abilities	0.968	4.0059	1.76857	-0.070	-1.111	0.755
PBI9	Problems with employees and contacted personnel	0.968	4.5530	1.63270	-0.436	-0.714	0.779
PB20	Startup paperwork and bureaucracy	0.968	4.487	1.6114	-0.391	-0.696	0.765

Note: N=1698, α : Cronbach's alpha.

Table 3. The composite reliability, discriminant validity index, correlation matrix, and Heterotrait-Monotrait (HTMT) analyses

Constructs	CR	AVE	Correlation matrix				Heterotrait-Monotrait (HTMT) analysis					
			EI	PB	ESE	EB	EI	PB	ESE	EB		
EI	0.919	0.693	0.862									
PB	0.960	0.669	0.209 ^{***}	0.779		0.219						
ESE	0.921	0.627	0.706 ^{***}	0.186 ^{**}	0.831		0.754	0.197				
EB	0.948	0.751	0.614 ^{***}	0.109 ^{**}	0.629 ^{***}	0.793	0.657	0.117	0.681			

Note: N=1698. ***p < 0.001. CR: Composite Reliability; AVE: Average Variance Extracted; the diagonal values (in bold) are the square root of AVE for constructs.

Table 4. Hierarchical regression analysis of the direct impacts

Variables	Entrepreneurial intention						Entrepreneurial behavior					
	Model A		Model B		Model C		Model D		Model E		Model F	
	Y	t	Y	t	Y	t	Y	t	Y	t	Y	t
Constant	7.240 ^{***}	28.251	2.773 ^{***}	12.334	6.343 ^{***}	28.721	2.256 ^{***}	10.608				
Gender	-0.195 ^{**}	-2.700	-0.112 [*]	-2.095	-0.087	-1.392	0.005	0.110				1.077
Age	-0.204 ^{***}	-3.926	-0.077 [*]	-1.979	0.011	0.235	0.126 ^{***}	3.604				1.069
Educational fields	-0.132	-1.821	-0.181 ^{***}	-3.370	0.047	0.753	0.058	1.200				1.061
Business experiences	-0.810 ^{***}	-11.052	-0.310 ^{***}	-5.534	-1.097 ^{***}	-17.373	-0.640 ^{***}	-12.500				1.188
Entrepreneurial education	-0.396 ^{***}	-5.412	-0.142 ^{**}	-2.603	-0.302 ^{***}	-4.797	-0.074	-1.500				1.121
Family business background	-0.050	-0.695	0.028	0.526	0.024	0.389	0.075	1.552				1.078
Entrepreneurial self-efficacy			0.686 ^{***}	37.190			0.331 ^{***}	14.664				2.041
Entrepreneurial intention					0.190		0.268 ^{***}	12.142				1.077
Adjusted R ²	0.115		0.513		0.190		0.508					
R ²	0.344		0.718		0.193		0.510					
F	37.838 ^{***}		256.521 ^{***}		67.349 ^{***}		219.807 ^{***}					

Note: N= 1698, VIF: Variance Inflation Factor. *p < 0.05. **p < 0.01. ***p < 0.001.

Table 5. Moderated mediation analyses

Predictor	β (Coeff)	se	t	p	LLCI	ULCI
Entrepreneurial intention (M) ($R^2 = 0.4981$; $F = 1682.9426^{***}$)						
Constant	1.3785 ^{***}	0.0789	17.4789	0.0000	1.2239	1.5332
Entrepreneurial self-efficacy (X)	0.7258 ^{***}	0.0177	41.0237	0.0000	0.6911	0.7605
Entrepreneurial behavior (Y) ($R^2 = 0.4567$; $F = 355.8526^{***}$)						
Constant	0.9844 ^{***}	0.2268	4.3399	0.0000	0.5395	1.4293
Entrepreneurial self-efficacy (X)	0.3624 ^{***}	0.0235	15.4491	0.0000	0.3164	0.5569
Entrepreneurial intention (M)	0.4452 ^{***}	0.0569	7.8223	0.0000	0.3336	0.5569
Perceived barriers (Z)	0.0686	0.0466	1.4707	0.1416	-0.0229	0.1600
Entrepreneurial intention x Perceived barriers (M x Z)	-0.0280 [*]	0.0108	-2.5824	0.0099	-0.0492	-0.0067
Conditional effects of entrepreneurial intention (focal predictor) at the values of perceived barriers (moderator): $Z = M \pm S.D.$	Direct effect	se	t	p	LLCI	ULCI
-1 S.D. (-1.24397)	0.3455 ^{***}	0.0266	12.9956	0.0000	0.2934	0.3976
M (4.8079)	0.3107 ^{***}	0.0229	13.5579	0.0000	0.2657	0.3556
+1 S.D. (1.24397)	0.2759 ^{***}	0.0266	10.3578	0.0000	0.2237	0.3280
	Boot indirect effect	BootSE			BootLLCI	BootULCI
	0.3607 [*]	0.0207			0.1816	0.2642
Indirect effect of entrepreneurial self-efficacy (X) on entrepreneurial behavior (Y) via entrepreneurial intention (M)	Boot indirect effect	BootSE			BootLLCI	BootULCI
Perceived barriers (Z)	-0.0203 [*]	0.0087			-0.0369	-0.0027
Moderated mediation effect	Effect	BootSE			BootSE	BootSE
Conditional indirect effects of entrepreneurial self-efficacy on entrepreneurial behavior at the values of perceived barriers (moderator): $Z = M \pm S.D.$						
-1 S.D. (-1.24397)	0.2508 [*]	0.0229			0.2062	0.2966
M (4.8079)	0.2255 [*]	0.0205			0.1861	0.2672
+1 S.D. (1.24397)	0.2002 [*]	0.0235			0.1545	0.2469
Pairwise contrasts between conditional indirect effects (effect 1 minus effect 2)	Effect 1	Effect 2	Contrast	BootSE	BootLLCI	BootULCI
	0.2255	0.2508	-0.0253	0.0109	-0.0460	-0.0034
	0.2002	0.2508	-0.0505	0.0218	-0.0919	-0.0068
	0.2002	0.2255	-0.2043	-0.0253	-0.0460	-0.0034

Note: N = 1698; ^{***}p < 0.001, ^{**}p < 0.01; ^{*}p < 0.05.

Figure 1. Conceptual framework

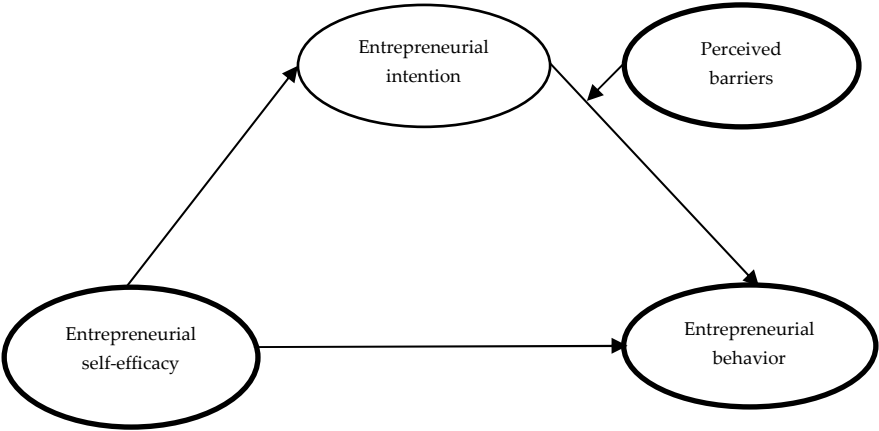


Figure 2. Measurement model

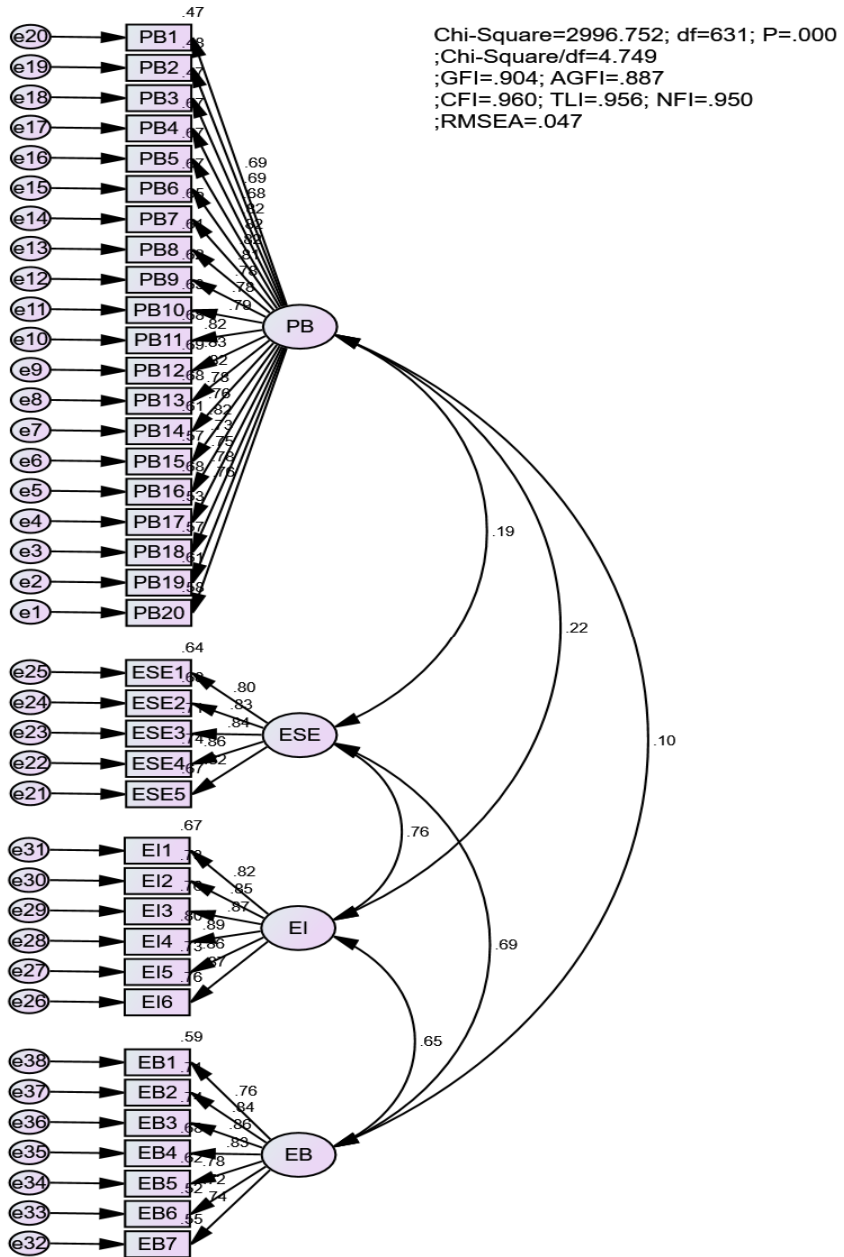


Figure 3. Cross-level moderation effect of perceived barriers on entrepreneurial intention-behavior link

