

ORIGINAL ARTICLE


**Citation:** Le, T. L., Pham, H. T., & Nguyen, N. D. (2023). How empathy and social entrepreneurial self-efficacy interact to affect social entrepreneurial intention: A polynomial regression with response surface analysis. *Oeconomia Copernicana*, 14(4), 1341–1366. doi: 10.24136/oc.2023.039

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Article history: Received: 18.08.2023; Accepted: 3.12.2023; Published online: 30.12.2023


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## How empathy and social entrepreneurial self-efficacy interact to affect social entrepreneurial intention: A polynomial regression with response surface analysis

**JEL Classification:** L26

**Keywords:** *social entrepreneurial intention; empathy; social entrepreneurial self-efficacy; polynomial regression; response surface analysis*

**Abstract**

**Research background:** Previous studies have argued that empathy (EMP) is an important factor that enhances individuals' intention to engage in social business. However, the effect of

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this factor on social entrepreneurial intention (SEI) is unclear (Ukil *et al.*, 2023). Also, although numerous studies have explored the individual impacts of EMP and social entrepreneurial self-efficacy (SES) on SEI, there is a notable scarcity of research that delves into the combined influence of these two predictor variables on the intention to engage in social business.

**Purpose of the article:** This study proposes that EMP does not only individually affect, but also interacts with other factors to influence the intention to start a social business. Therefore, this study aims to investigate how EMP and SES interact to promote SEI.

**Methods:** Based on a survey dataset of 409 respondents in Vietnam, this study employed polynomial regression with response surface analysis to examine the complementary, balance, and imbalance effects of EMP and SES on SEI.

**Findings & value added:** This study's results suggest complementary effects between EMP and SES on SEI. Specifically, this study finds that when EMP and SES are balanced at higher levels, SEI is higher, and when their imbalance increases in either direction, SEI is lower. In addition, this study finds that the degree of SEI is higher when individuals have high SES with low EMP compared to the other way round. The findings of this study enhance our understanding of the complexity of motivation and how it affects SEIs, revealing the complex interaction between EMP and SES in shaping these intentions within a multidimensional motivational framework.

## Introduction

In recent times, social entrepreneurship (SE) has attracted the attention of both academicians and practitioners, primarily due to its significant impact on economic and social advancement (Muldoon *et al.*, 2022; Sahasranamam & Nandakumar, 2020). SE serves as an avenue for tackling societal challenges and fulfilling communal requirements by providing potentially effective, innovative, and sustainable solutions (Ip *et al.*, 2022). As a result, some scholars have dedicated their efforts to refining our comprehension of the motivating forces that encourage individuals to establish social ventures (Canestrino *et al.*, 2020; Ukil *et al.*, 2023). Significantly, researchers have embraced diverse methodologies to explore the antecedents of SEI.

A stream of prior studies has employed the theory of planned behaviour (TPB) of Ajzen (1991) to explain SE (Mykolenko *et al.*, 2021; Zaremo-hzzabieh *et al.*, 2019). Although the TPB model has been widely applied to elucidate various human behaviours, Hockerts (2017) argued that its capacity to fully capture the complexities of social entrepreneurial conduct remains subject to scrutiny. Indeed, Mair and Noboa (2006) stated that the main difference between SE and for-profit entrepreneurship is that the former aims to address social issues entwined with emotions, ethics, and empathy (EMP). It is, therefore, essential to recognise the important role of emotions and EMP when aiming to understand the dynamics of SE. In

acknowledging this distinction, Mair and Noboa (2006) suggested that social entrepreneurial intention (SEI) is affected by emotional/cognitive attitudes (such as EMP) and 'enabling' factors (such as self-efficacy).

While prior research has underscored the significance of EMP in influencing individuals' intentions to engage in SE, there remains a notable gap in our understanding of its impact on SEI (Packard & Burnham, 2021; Shepherd *et al.*, 2023; Ukil *et al.*, 2023). Existing studies have revealed that although many individuals form a high level of EMP, only a small proportion turn this into the intention to start a social business (Lacap *et al.*, 2018; Sousa-Filho *et al.*, 2020). This gap in comprehension could be due to the predominant focus of previous studies on the isolated, direct effects of EMP on SEI (Ukil *et al.*, 2023). Mair and Noboa (2006) have argued that EMP, while crucial, is not a sufficient condition on its own to influence the SE process. This implies that EMP not only individually affects SEI, but also interacts with other factors to influence the intention to start a social business. Thus, this study addresses this critical gap by investigating the intricate interplay between EMP and social entrepreneurial self-efficacy (SES) and their combined influence on SEI.

In addition, although numerous studies have explored the individual impacts of EMP and SES on SEI, there is a notable scarcity of research that delves into the combined influence of these two predictor variables on the intention to engage in social business. Most studies typically use the moderation technique to test whether one variable moderates the relationship between a predictor and an outcome variable (Qiu *et al.*, 2020; Tsai *et al.*, 2022), but this study employs an advanced analysis technique, polynomial regression with response surface analysis, to explore the complementary, balance, and imbalance effects of EMP and SES on SEI. By adopting this innovative methodology, our research not only fills a critical gap in the literature, but also contributes a nuanced understanding of the intricate motivational dynamics that underlie SEIs. This multidimensional motivational framework sheds light on the complex interplay between EMP and SES, offering novel insights into the factors shaping SEIs.

Vietnam is categorised as a developing country with a low-middle income status, despite experiencing notable and positive economic transformations in recent decades (Thi Tuyet Mai, 2019). As the nation pursues further economic advancement, it has also been confronted with a range of socio-environmental challenges. These challenges include issues like poverty, unequal access to healthcare and education, and the pressing need for

ecological sustainability. In particular, there exists a substantial disparity in employment opportunities and income levels between urban and rural regions within Vietnam. The poverty rate in rural areas is five times greater than that in urban locations, and this discrepancy has remained relatively stable over the last five years (Do, 2022). Recognising these concerns, the Vietnamese government has acknowledged that SE has the potential to tackle these pressing problems. Although entrepreneurship has flourished in Vietnam since the economic reform (Do, 2022), it was not until 2014 that the concept of social enterprises became known to Vietnamese people. This was when the social enterprise was formally acknowledged as a legitimate business entity under the Vietnam Enterprise Law. Nonetheless, over 50% of social enterprises in Vietnam continue to opt for traditional legal designations like limited liability companies or joint stock companies. This decision stems from their perception that obtaining status as a social organisation lacks advantages and is burdened by intricate paperwork requirements. Although the Vietnamese government has issued many supportive policies to promote SE, so far the number of social enterprises is still very small. Thus, studying SEI in Vietnam is meaningful. Additionally, the comprehensive review conducted by Ferreira *et al.* (2021) on sustainable business models highlights a discernible trend: while the volume of publications on this topic has risen, a substantial portion of these studies originates from developed countries. Hence, this study has the potential to contribute fresh insights to the existing body of SE literature.

In sum, this study examines the individual and joint effects of EMP and SES on SEI with a sample of 409 university students in Vietnam. Particularly, this study aims to address the following research questions:

RQ1. *How do EMP and SES individually affect SEI?*

RQ2. *Does the interaction between EMP and SES affect SEI?*

RQ3. *How does the balance between EMP and SES trigger SEI?*

RQ4. *How does the imbalance between EMP and SES lessen SEI?*

RQ5. *How does the direction of imbalance between EMP and SES affect SEI?*

To evaluate the proposed model and answer research questions, the subsequent sections of this study are organised as follows. Initially, following the introduction, the hypotheses are developed. Subsequently, the third section covers the depiction of scales, the development of the questionnaire, details about the sample, and the methods employed for data analysis. Following this, the fourth section presents the outcomes of hypothesis testing. Lastly, the concluding section presents the discussion and conclusions, identifies the study limitations, and suggests potential avenues for further research.

## **Literature review**

### *Social entrepreneurship and social entrepreneurial intention*

Defining the concept of SE poses a challenge due to the absence of uniformity in available definitions and the various developmental perspectives employed to interpret it (Aloulou & Algarni, 2022). Moreover, the definition of SE is difficult to detail because of the complexity of the two constituent concepts, entrepreneurship and social outreach (Rey-Martí *et al.*, 2016). Zahra *et al.* (2009) described SE as activities and processes undertaken to identify, explore, and capitalise on opportunities that enhance societal well-being through the creation of new enterprises or innovations within existing ones, while Canestrino *et al.* (2020) defined SE as an activity of individuals or organisations who identify gaps within the social system as opportunities to serve disadvantaged groups by doing social business. Although there are various definitions of SE, it can be seen that their common point is the goal of creating social value instead of personal economic benefits. The main driving force behind social enterprise creation is the desire to solve social problems (Lacap *et al.*, 2018). Therefore, the definition of SE presented in this study involves leveraging business opportunities to address social issues via commercial activities (Aloulou & Algarni, 2022).

Intentional behaviours play a crucial role in understanding the motivations of individuals who embark on entrepreneurial pursuits (Krueger & Carsrud, 1993). Bird (1988) defines entrepreneurial intention as a mindset that propels individuals to formulate and enact novel business ideas. In a parallel vein, Krueger and Carsrud (1993) characterise entrepreneurial intention as an individual's dedication to establishing a new business. In

the context of SE, SEI pertains to an individual's conviction and aspiration to start a new venture that targets social problems and strives to create a positive social impact (Bacq & Alt, 2018).

*The direct effect of empathy and social entrepreneurial self-efficacy on social entrepreneurial intention*

EMP is an individual's inclination to understand others' emotions and respond to them with compassion (Decety & Jackson, 2004). According to Mair and Noboa (2006), EMP plays a crucial role in shaping individuals' intention to establish social enterprises as it is closely linked to prosocial behaviour and a genuine concern for the welfare of others. Prior studies have demonstrated that individuals with higher levels of EMP tend to possess a strong inclination to show prosocial and helping behaviour (Bacq & Alt, 2018; Duong, 2023a; Sousa-Filho *et al.*, 2020; Usman *et al.*, 2021).

Indeed, EMP drives individuals to identify social issues and understand the needs and desires of disadvantaged people (Packard & Burnham, 2021). With an acute awareness of the challenges faced by disadvantaged populations, individuals with a strong sense of EMP are uniquely positioned to create innovative and sustainable solutions to address the root causes of these social issues. SE is driven by a desire to improve the well-being of society rather than individual gain (Mair & Noboa, 2006). Therefore, as a result of this natural connection between the empathetic desire to understand the experiences of others and the ultimate goal of SE, individuals with a strong sense of EMP are likely to have a strong intention to become social entrepreneurs (Ashraf, 2020; Younis *et al.*, 2020). As such, the following hypothesis is formulated:

H1: *SEI is higher when individuals' EMP is higher.*

Besides EMP, Mair and Noboa (2006) suggested that SES is also a crucial predictor of SEI. SES refers to an individual's perception or belief in their capacity to make meaningful contributions to the needs and well-being of marginalised individuals or communities within society (Hockerts, 2017; Mair & Noboa, 2006). This concept is rooted in the theory of self-efficacy of Bandura (1997), which proposed that self-efficacy is an integral component of behavioural intention. Previous studies widely acknowledged self-efficacy as a critical factor influencing the intention to start a business

(Chiengkul *et al.*, 2023; Loan *et al.*, 2021; Maheshwari & Kha, 2022). When individuals possess high levels of confidence in their entrepreneurial skills and capabilities, they are more inclined to establish their own ventures.

Similarly, in the context of SE, SES plays a vital role in enabling individuals to assess the feasibility of creating a social business, thereby influencing their intention to become social entrepreneurs (Hassan, 2020; Mair & Noboa, 2006; Zhang *et al.*, 2021). Numerous individuals perceive social issues as overwhelmingly vast and seemingly insurmountable, thus underscoring the significance of self-efficacy in motivating them to initiate a social enterprise (Mair & Noboa, 2006). A robust sense of SES provides individuals with the confidence and belief in their capacity to overcome challenges, marshal resources effectively, and enact positive social change through SE pursuits. Consequently, individuals with elevated SES are more likely to engage in SE.

H2: *SEI is higher when individuals' SES is higher.*

#### *Complementarity between empathy and social entrepreneurial self-efficacy*

Besides the individual effects, this study argues that EMP and SES can be complementary and positively impact SEI. Complementarity is a phenomenon where the combined impact of two interdependent factors surpasses the sum of their individual effects (Ennen & Richter, 2010). In other words, EMP and SES could work together to enhance each other's effects on SEI.

Indeed, this study suggests that EMP and SES can interact to achieve complementarity in two ways: (1) EMP enhances the effect of SES on SEI and (2) SES enhances the effect of EMP on SEI. First, EMP may facilitate the impact of SES on SEI because it enables individuals to identify and connect with the needs and experiences of the target beneficiaries or communities (Ko & Kim, 2020). EMP functions as a cognitive and emotional process that enables individuals to immerse themselves in the perspectives of others.

In the context of SE, when combined with the concept of SES, which embodies an individual's belief in their capacity to effect meaningful change through entrepreneurial actions, EMP takes on a transformative role. It enhances SES by infusing it with a higher level of sensitivity and understanding towards the beneficiaries' circumstances. Summing up, through EMP's lens, social entrepreneurs with high SES gain a nuanced

understanding of beneficiaries' needs, fostering innovative, committed, and impactful entrepreneurial intentions.

Second, EMP alone may lead to an understanding of others' experiences and needs, but SES helps to convert this understanding into action. With a strong belief in their abilities, individuals with high self-efficacy are more likely to translate their EMP into tangible steps and entrepreneurial initiatives aimed at addressing social issues. Their belief in their capabilities empowers them to take action and transform their empathetic understanding into concrete solutions (Ukil *et al.*, 2023).

H3: *The complementarity of EMP and SES has a positive effect on SEI.*

#### *Balance between empathy and social entrepreneurial self-efficacy*

Differing from complementarity, the concept of balance refers to an equilibrium point where both EMP and SES are at equal levels. A high (low) level of balance signifies that both EMP and SES are both at high (low) levels. Given the positive relationships between EMP and SES with SEI, when there is a balance between EMP and SES, this study proposes a linear relationship. This means when both EMP and SES increase concurrently and maintain a balance, the SEIs of individuals will consistently rise in proportion.

As mentioned above, EMP and SES are two crucial antecedents of SEI (Hockerts, 2017; Mair & Noboa, 2006). When EMP and SES are balanced at a high level, individuals possess the EMP necessary to identify needs and the high confidence to effectively address them (Duong, 2023a). This balance nurtures a strong intention to engage in SE, as individuals believe in their capacity to make a meaningful difference in society. Contrastingly, when individuals possess EMP and SES in a low level of balance (low EMP and low SES), they may be less likely to become social entrepreneurs. Indeed, the lack of EMP can lead to a diminished understanding of complex social problems (Packard & Burnham, 2021). Along with that, low SES decreases individuals' belief in their capacity to take prosocial actions (Zhang *et al.*, 2021). As a result, their ability to create meaningful social impact through SE may be hindered (Hockerts, 2017).

H4: *When EMP and SES are in balance, the higher EMP and SES, the higher SEI*



*Imbalance between empathy and social entrepreneurial self-efficacy*

Considering that not all individuals possess an optimal balance between EMP and SES, it is essential to explore this imbalance in individuals' intentions to become social entrepreneurs. This imbalance may be caused by EMP being higher than SES, or by EMP being low, and SES being high. This study argues that in both situations, individuals' intentions to form a social business will be lower than when EMP and SES are in balance. As mentioned above, a balanced combination of both EMP and SES is likely to lead to the strongest SEI. When EMP and SES are imbalanced, individuals may face challenges that dampen their intentions to pursue social entrepreneurial endeavours. In addition, this study proposes that individuals with high EMP and low SES may have higher SEI than individuals with low EMP and high SES.

In the first kind of imbalance mentioned above, because of their high EMP, individuals can have a deep understanding of society's needs and challenges (Bacq & Alt, 2018). They genuinely care about having a positive impact and connecting with the communities they aim to serve (Shepherd *et al.*, 2023). However, they do not believe in their ability to make a social impact as they possess low SES (Bui *et al.*, 2023). They perceive practical barriers or limitations in their ability to address society's challenges, and these might mitigate the transformative effect of EMP alone on their intention to engage in SE. As a result, they may feel uncertain about their capacity to effectively address social issues. Therefore, despite strong empathetic understanding, they may be less inclined to take action to pursue social entrepreneurial initiatives due to their perceived limitations.

Contrastingly, in the second situation, individuals with high SES may have a strong belief in their capabilities to make a social impact (Hockerts, 2017; Zhang *et al.*, 2021). They are confident in their skills to implement solutions and may be driven by a passion for making a difference. Therefore, even with limited empathic understanding (low EMP), high SES may lead to a higher intention to engage in SE.

From the above arguments, the following hypotheses are formulated:

H5. *When the imbalance between EMP and SES integration increases, SEI decreases.*

H6. *SEI is lower as the imbalance between EMP and SES integration increases in the EMP direction compared to the SES direction.*

The research model is presented in Figure 1.

Summing up, although the effects of EMP and SES have been investigated in many previous studies, these studies only investigated the separate effects of EMP and SES on SEI by employing hierarchical multiple regression analysis. There is a noticeable lack of studies that thoroughly examine how these two predictive factors jointly influence the intention to participate in SE. Therefore, this study utilised advanced methodologies, namely polynomial regression and response surface analysis, to reveal the complex interaction between EMP and SES in shaping SEI. Details of the analysis method used in this study are presented in the following section.

## **Methods**

### *Sample and data collection*

To investigate and confirm the theoretical model proposed, we conducted our research using a group of university students in Vietnam. The choice of university students was deliberate because they are at a crucial point in their lives where starting a social venture may be an attractive career option (Usman *et al.*, 2021). Furthermore, since undergraduate students do not possess much hands-on experience in entrepreneurship, they were an appropriate sample for predicting their SEIs (Hoang *et al.*, 2022). Additionally, considering that 58.1% of social entrepreneurs in Vietnam are under the age of 45 and the population predominantly consists of individuals under 35 years old, university students emerge as the most fitting and relevant respondents for this study.

The data collection process employed a three-phase stratified random sampling approach. Initially, the survey targeted three primary regions within Vietnam: the northern, central, and southern areas. Subsequently, the selection process involved identifying the three universities that taught economics and had the largest number of students within each region. Finally, four classes were randomly chosen from each university to participate in the survey. Before distributing the questionnaires to the students,

we asked for permission and assistance from the relevant lecturers. The participating students were provided with clear information regarding the voluntary nature of their involvement in the survey. They were assured that their responses would be utilised solely for academic purposes and that the information would remain strictly confidential. The data collection took place from February to March 2023. The number of returned questionnaires was 438. However, 29 of the returned questionnaires were incomplete, thus the final sample comprised 409 responses. The demographic characteristics of the participants are displayed in Table 1.

### *Measures and questionnaire development*

This study examined the relationships between EMP, SES, and SEI. The items used to measure these variables were adopted from previous studies that have established their validity and reliability. All items were rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

The SEI variable was assessed using a four-item scale. The first three items were adapted from the research of Mair and Noboa (2006) and the last item was modified from Liñán and Chen (2009). The respondents rated the likelihood of them starting a social business in the future by indicating their level of agreement with statements such as “I expect that at some point in the future, I will be involved in launching an organisation that aims to solve social problems”.

EMP was evaluated using a three-item scale adopted from Hockerts (2017). The participants were asked to rate their ability to comprehend and relate to the feelings and emotions of others. For example, they were asked to indicate their level of agreement with statements such as “When thinking about socially disadvantaged people, I try to put myself in their shoes”.

SES was assessed using a three-item scale adopted from Hockerts (2017). The participants were asked to rate their level of confidence in their ability to perform social entrepreneurial tasks, through statements such as “I could figure out a way to help solve the environmental issues”.

A questionnaire that included all the scale items was developed to assess the three variables and some demographic questions relating to gender, age, university major, and entrepreneurial education. The definition of SE was provided at the start of the questionnaire to ensure that the respondents had a common understanding of the concept. In addition, to

ensure that the translated versions accurately conveyed the intended meaning of the original items and that they were suitable for use in the target cultures, bilingual individuals first translated the original English items into Vietnamese, and these translations were then back-translated into English by another person. Finally, an English-fluent scholar reviewed the translated versions and the original English version in depth to identify any necessary adjustments.

### *Analytical techniques*

This study uses a combination of statistical techniques to examine the hypotheses, including multiple linear regression and polynomial regression with response surface analysis (PRA). Hierarchical multiple regression analysis was first used to investigate the direct relationships between EMP, SES, and SEI. Next, PRA was used to evaluate the combined impact of the two predictors (EMP and SES) on the outcome variable (SEI). Specifically, this analytical method enabled us to examine how a balance or an imbalance in the predictor variables affected the outcome variable (Edwards, 1994). Furthermore, this method allowed us to investigate whether an imbalance between these predictor variables in opposite directions had different effects or not (Edwards, 1994; Shanock *et al.*, 2010). Therefore, the application of this approach allowed for an in-depth examination of the impact of the two predictors on the outcome variables.

The polynomial regression equation in this study is expressed as follows:

$$SEI = \xi_0 + \xi_1EMP + \xi_2SES + \xi_3EMP^2 + \xi_4EMP \times SES + \xi_5SES^2 + \epsilon \quad (1)$$

where  $\xi_1$  is the unstandardised beta coefficient for the centred EMP,  $\xi_2$  is the unstandardised beta coefficient for the centred SES,  $\xi_3$  is the unstandardised beta coefficient for the centred EMP squared,  $\xi_4$  is the unstandardised beta coefficient for the centred EMP \* SES (complementary effect of EMP and SES on SEI), and  $\xi_5$  is the unstandardised beta coefficient for the centred SES squared.

To test the hypotheses, three models were used. The baseline model (Model 1) included only control variables (gender, age, field, entrepreneurial education) in the regression equation. Model 2 was an extension of Model 1, incorporating EMP and SES to examine the direct effects of these

two predictors on SEI. Model 3 introduced three higher-order terms to Model 2 to assess how the integration, balance or imbalance between EMP and SES affected SEI. If there is a statistically significant rise in the  $R^2$  value in Model 3, this would suggest the presence of a quadratic relationship between the two predictors (EMP and SES) and SEI. In this case, the regression coefficients of all the terms were assessed based on four surface test values:  $\omega_1$ ,  $\omega_2$ ,  $\omega_3$ , and  $\omega_4$  (Edwards, 1994) as follows:

$$\begin{aligned}\omega_1 &= \xi_1 + \xi_2 \\ \omega_2 &= \xi_1 - \xi_2 \\ \omega_3 &= \xi_3 + \xi_4 + \xi_5 \\ \omega_4 &= \xi_3 - \xi_4 + \xi_5\end{aligned}\tag{2}$$

where  $\omega_1$  and  $\omega_2$  represent the slopes and curvatures corresponding to the line  $EMP = SES$ , whereas  $\omega_3$  and  $\omega_4$  represent the slopes and curvatures associated with the line  $EMP = -SES$ .

## Results

### *Reliability and validity*

Table 2 presents the variables' median, quartered deviation, and normality. The skewness value of all the variables was below 3, thus, the normality of all the constructs was confirmed (Qiu *et al.*, 2020). In addition, Table 2 also shows the correlation matrix between the three variables. SEI was positively and significantly related to EMP ( $r = 0.339$ ,  $p < 0.01$ ) and SES ( $r = 0.527$ ,  $p < 0.01$ ). Likewise, EMP was positively and significantly associated with SES ( $r = 0.552$ ,  $p < 0.01$ ).

Table 3 displays the reliability and validity of the research constructs. The results of Cronbach's alpha test showed that all the variables had Cronbach's alpha values higher than 0.7, and composite reliability was also above 0.7; thus the reliability of all the variables was confirmed (Nunnally, 1978). In addition, convergent validity was verified by examining the average variance extracted (AVE) values. The results revealed that all the AVE values exceeded the recommended threshold of 0.5. In Table 3, the latent

factor loadings of the measurement items are also presented, and all the items surpassed the recommended threshold of 0.70. Therefore, the convergent validity of all the constructs is confirmed. Furthermore, discriminant validity was assessed by comparing the squared AVE of a construct with the correlation shared between any other constructs (Hair et al., 2010). Table 3 demonstrates that the measurement model exhibited satisfactory levels of discriminant validity, as indicated by the squared AVE values being greater than the correlations shared between constructs. In summary, all the measures exhibited reliable and valid results, meeting the required standards for both reliability and validity.

#### *Polynomial regression and response surface analysis results*

A polynomial regression analysis was conducted to test the hypotheses. Table 4 displays the parameter estimates obtained from the analysis, along with four surface test values derived from the estimated regression coefficients. The results showed that  $R^2$  was significantly increased from Model 1 to Model 2 ( $\Delta R^2 = 0.280$ ,  $\Delta F = 80.595$ ,  $p < 0.001$ ), and from Model 2 to Model 3 ( $\Delta R^2 = 0.021$ ,  $\Delta F = 4.240$ ,  $p < 0.001$ ). This result indicated the need for further polynomial regression analysis.

Four surface test values and their corresponding significance levels were calculated based on the regression coefficients and covariances of the predictor terms. The response surface depicting the relationships between SEI, EMP, and SES is presented in Figure 3.

H1 and H2 propose that EMP and SES positively affect SEI. However, the results showed that while SES had a positive and significant impact on SEI ( $\beta = 0.575$ ,  $p < 0.001$ ), the influence of EMP on SEI was insignificant ( $p = 0.056 > 0.05$ ). Thus, H1 was not supported, and H2 was supported by the data.

Hypothesis 3 proposes that the complementarity of EMP and SES has a positive effect on SEI. The results of the statistical analysis indicate that the interaction of EMP and SES positively affects the intention to engage in SE ( $\beta = 0.119$ ,  $p < 0.01$ ). Thus, H3 was supported. This interaction effect is presented in Figure 2.

Hypothesis 4 proposes that when EMP and SES are at similar levels, SEI will be greater when both EMP and SES are high compared to when both factors are low. By utilising response surface analysis, this study was able to estimate how the alignment between EMP and SES relates to SEI. The

results revealed that  $\omega_1$  was significant and positive ( $\beta = 0.61$ ;  $p < 0.001$ ), while  $\omega_2$  was non-significant and negative ( $\beta = -0.02$ ;  $p = 0.624 > 0.05$ ). These findings suggest that when individuals' EMP and SES are in balance, their intention to engage in SE increases as their EMP and SES both increase. This relationship is depicted in Figure 3, where the higher levels of SEI are observed in the back corner of the figure along the EMP = SES line, where EMP and SES are both high. In contrast, the lower levels of intention to engage in SE are found at the front corner where both EMP and SES are low. Therefore, H4 was supported by the data.

Hypothesis 5 predicts that individuals' SEI will decrease when the imbalance between EMP and SES increases in any direction. As shown in Table 4,  $\omega_4$  was significant and negative ( $\beta = -0.26$ ,  $p = 0.001 < 0.01$ ), indicating a decline in individuals' intention to form a social business with an increasing discrepancy between EMP and SES. Figure 3 also visually represents this trend, showing a decline in SEI as the discrepancy between EMP and SES grows on both the left and right sides. In addition,  $\omega_3$  was also significant and negative ( $\beta = -0.56$ ,  $p < 0.001$ ). This result suggests that individuals have higher SEI when there is an imbalance between high SES and low EMP compared to the case of low SES and high EMP. Figure 3 represents this finding, illustrating that SEI remains relatively high when a high level of SES is combined with a low level of EMP (located in the left corner of the graph). Conversely, SEI is significantly lower when a low level of SES is combined with a high level of EMP (located in the right corner of the graph). Therefore, H5 and H6 were supported.

## Discussion

First, this study found that individuals' intentions to engage in social ventures are positively influenced by their SES, but they are not affected by their EMP. This finding is in line with previous studies (Duong, 2023a; Ko & Kang, 2022; Sousa-Filho *et al.*, 2020). This means that a person's level of EMP towards socially disadvantaged individuals does not appear to have a significant impact on their willingness to participate in activities that promote positive social change. However, if they are given a sense of confidence in their abilities, they are more likely to become involved in SE. This result can be explained by considering that, in the context of developing nations, individuals with limited income, particularly students, may

not exhibit high EMP towards disadvantaged individuals due to a perceived lack of distinction between themselves and those in need (Sousa-Filho *et al.*, 2020). Instead, within the constraints of limited income, an individual's propensity for SE appears to be more influenced by their belief in their capacity to address social issues.

Second, this study revealed a noteworthy aspect regarding the interaction between EMP and SES. The study identified a positive and synergistic effect of their interaction on SEI, pointing to a level of complementarity that goes beyond individual effects. This implies that when EMP and SES are at equal levels, they not only operate independently to exert positive influences but also engage in a mutually reinforcing dynamic. The interplay between EMP and SES goes beyond a mere additive impact, creating a symbiotic relationship where each element amplifies the effects of the other. This finding underscores the significance of considering the joint effects of these two factors for understanding and promoting SEI.

Thirdly, the findings of this study illustrated that when there is a balance between EMP and SES, SEI will be higher if both EMP and SES are high, and lower if both factors are low. Additionally, the SEI of individuals will decrease if the imbalance between EMP and SES increases in any direction. This intricate relationship underscores the nuanced nature of the interplay between emotional intelligence and self-belief, emphasising that an elevated equilibrium between EMP and SES is a critical determinant in promoting and sustaining robust SEI.

Finally, this study also found that the nature of this imbalance plays a significant role in influencing an individual's intention to engage in social entrepreneurial activities. More specifically, the findings indicate that an imbalance where SES surpasses EMP has a more pronounced effect on shaping SEI than the reverse scenario where SES falls below EMP levels. This finding suggests that, while EMP remains a critical trait for fostering compassion and understanding, it may not be the primary catalyst for propelling individuals into action within the social entrepreneurial domain. Individuals' intention to engage in social ventures may be strongly motivated by factors beyond emotional EMP, and their decision to pursue SE could be rooted in a broader spectrum of motivations, such as a belief in their capacity to effect change. This nuanced understanding of the interplay between SES, EMP, and SEI enhances our understanding of the motivations driving individuals towards SE.



## **Conclusions**

Based on the SEI model of Mair and Noboa (2006), this study explores the individual and joint effects of EMP and SES on individuals' intention to form a social business. Using a sample of 409 university students in Vietnam, this study provides significant theoretical contributions and practical implications.

### *Theoretical contributions*

The current study contributes to the SE literature as follows. To the best of our knowledge, this study is one of the first to explore the individual and joint impacts of EMP and SES on individuals' intentions to establish social businesses. By utilising advanced methodologies, namely polynomial regression and response surface analysis, this study enhances our understanding of the complex elements of motivation that underlie SEIs. This study develops beyond linear relationships, which have mostly been demonstrated in prior studies, revealing the complex interaction between EMP and SES and how this shapes SEIs within a multidimensional motivational framework. Furthermore, the investigation of joint effects provides novel insights into the nuanced synergy between EMP and SES sheds light on the optimal balance that fosters individuals' intentions to engage in social business. These findings extend existing theoretical models, offering a more refined understanding of how motivational factors interact to promote SEIs.

### *Practical implications*

This study also has several practical implications. First, the finding that SEI is strongly affected by SES but insignificantly affected by EMP suggests several practical implications for various stakeholders. For educators, it would be beneficial to develop custom-designed modules and curriculums with a focus on honing practical skills, problem-solving abilities and confidence in a SE context (Duong, 2023a). They can tailor their curriculum to incorporate hands-on experiences, simulations, and case studies that bolster students' self-efficacy by arming them with the tools required to navigate the intricacies of SE. Organisations supporting social entrepreneurs can tailor mentorship programmes to foster self-belief through hands-on

guidance and real-world challenges (Cui & Bell, 2022). Policymakers can advocate for the integration of self-efficacy-building components within SE development policies, encouraging collaborative partnerships that bring together potential social entrepreneurs with complementary strengths.

Second and foremost, the findings concerning the complementarity between EMP and SES, and their effect when balanced and imbalanced, suggest that a highly balanced EMP and SES have the strongest effect on individuals' intention to engage in social ventures. An increasing imbalance between EMP and SES will lead to a lower intention to take part in SE. Therefore, an implication for educators and relevant stakeholders is that they should focus on developing and enhancing individuals' EMP and social entrepreneurial confidence in a balanced manner. For example, educators can integrate empathy-building exercises with practical skill development in the curriculum, fostering experiential learning, and facilitating mentorship programmes that can enhance the balance.

Third, given the challenge of achieving an optimal equilibrium between EMP and SES, this study proposes that, to bolster individuals' SEI, educators and relevant stakeholders should prioritise the development of SES over that of EMP. By embracing this priority, educators and stakeholders can empower aspiring social entrepreneurs with the capabilities necessary to transform intentions into tangible contributions, thereby enhancing the overall landscape of SE and its potential to drive positive change.

#### *Limitations and future directions*

Like any other study, this research also has some limitations. First, the study has found that EMP has no impact on SEI, which contrasts with some prior studies (Duong, 2023b; Usman *et al.*, 2021). This may be due to the sample of this study, which consisted of only university students. Therefore, further research could encompass broader subject groups. Second, despite building on the SEI model of Mair and Noboa (2006), this study only focuses on two factors, EMP and SES. Future research should expand to investigate the effects of the remaining two factors, moral obligation and social support. Finally, this study exclusively concentrates on intention to engage in SE, yet numerous prior studies have indicated a gap between entrepreneurial intention and behaviour (Meoli *et al.*, 2020; Shirokova *et al.*, 2016). Thus, future research should expand the scope of the research model to elucidate social entrepreneurial behaviour, for example, how EMP and

SES interact to affect social entrepreneurial behaviour by enhancing SEI. This would foster a deeper comprehension of the social entrepreneurial landscape.

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### **Acknowledgments**

This study is funded by the National Economics University, Hanoi, Vietnam (number: 20/HD-CBQT1.2022.20)".



**Ministry of Education and Science  
Republic of Poland**

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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/0697/2021/1 concluded on 29 September 2022 and being in force until 28 September 2024.

## Annex

**Table 1.** The demographic characteristics of the sample

Variables		F	%
Gender	Male	175	42.8
	Female	234	57.2
Age	From 18 to 19 years old	87	21.3
	From 20 to 21 years old	176	43.0
	From 22 to 23 years old	83	20.3
	Over 23 years old	63	15.4
Educational fields	Economics and business management	232	56.7
	Engineering and others	177	43.3
Have you ever participated in entrepreneurship courses?	Yes	239	58.4
	No	170	41.6

Note: N=409.

**Table 2.** Descriptive and correlation statistics

Variables	Median	Quartered deviation			Skewness	SEI	EMP	SES
		25%	50%	75%				
SEI	4.000	3.250	4.000	5.000	-0.028	-		
EMP	5.667	5.000	5.667	6.333	-1.042	0.339**	-	
SES	5.333	4.333	5.333	6.000	-0.603	0.527**	0.552**	-

Note: \*\*:  $p < 0.01$ .

**Table 3.** The result of reliability and validity of constructs

Items	$\alpha$	Factor Loadings	CR	AVE	MSV
<i>SEI - SEI</i>					
SEI1	0.844	0.594	0.850	0.591	0.307
SEI2		0.845			
SEI3		0.850			
SEI4		0.759			
<i>Empathy - EMP</i>					
EMP1	0.882	0.830	0.883	0.716	0.392
EMP2		0.880			
EMP3		0.828			
<i>SES - SES</i>					
SES1	0.820	0.881	0.830	0.621	0.392
SES2		0.739			
SES3		0.736			

Note: N=409;  $\alpha$ : Cronbach's Alpha; AVE: Average variance extracted; CR: composite reliability; MSV: maximum shared squared variance.



**Table 4.** The results of hypothesis testing (Standardized)

Variables	$\beta$	SE	$\beta$	SE	$\beta$	SE	t	p-value
<i>Polynomial terms</i>								
Constant	3.949***	0.533	4.122***	0.452	4.251***	0.453	9.375	0.000
Gender	-0.343*	0.134	-0.304**	0.114	-0.319**	0.114	-2.797	0.005
Age	0.095	0.096	0.009	0.081	0.013	0.081	0.158	0.875
Fields	0.256	0.189	0.152	0.160	0.150	0.159	0.941	0.347
Education	0.123	0.135	0.203	0.115	0.195	0.114	1.711	0.088
$\xi_1$ : EMP			0.086	0.056	0.024	0.068	0.348	0.728
$\xi_2$ : SES			0.575***	0.060	0.581***	0.065	8.979	0.000
$\xi_3$ : EMP <sup>2</sup>					-0.065*	0.029	-2.217	0.027
$\xi_4$ : EMP x SES					0.119**	0.040	2.954	0.003
$\xi_5$ : SES <sup>2</sup>					-0.074	0.035	-2.112	0.035
R <sup>2</sup>	0.022		0.302		0.323			
R <sup>2</sup> change	0.022		0.280		0.022			
F	2.253		28.959***		21.186***			
F Change			80.595***		4.240*			
<i>Surface tests</i>								
Congruence line (EMP = SES)								
$\omega_1$ : Slope ( $\xi_1 + \xi_2$ )					0.61***	0.05	11.335	0.000
$\omega_2$ : Curvature ( $\xi_3 + \xi_4 + \xi_5$ )					-0.02	0.04	-0.490	0.624
Incongruence line (EMP = -SES)								
$\omega_3$ : Slope ( $\xi_1 - \xi_2$ )					-0.56***	0.12	-4.571	0.000
$\omega_4$ : Curvature ( $\xi_3 - \xi_4 + \xi_5$ )					-0.26**	0.08	-3.428	0.001

Note: N=409, \*\*\*: p < 0.001; \*\*: p < 0.01; \*: p < 0.05.

**Figure 1.** Conceptual model

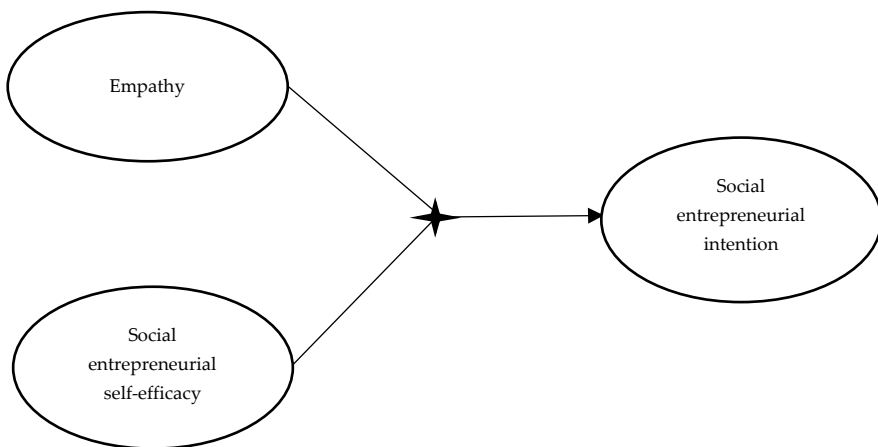


Figure 2. The interaction effect of EMP and SES on SEI

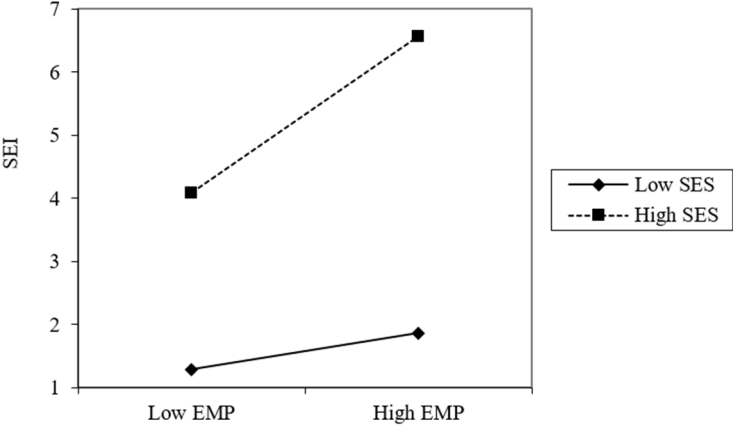


Figure 3. Response surface for social entrepreneurial intention

