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A comparative analysis among post-graduate  
management students in India, Singapore and Malaysia**

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### **Entrepreneurial-Intention Constraint Model: A Comparative analysis among post-graduate management students in India, Singapore and Malaysia**

#### **Abstract**

Although literature on entrepreneurship has increasingly focused on intention-based models, not much emphasis has been laid on understanding the combined effect of contextual and situational factors along with support of university environment on the formation of entrepreneurial intention among students. In an effort to make up for this shortfall, the present study seeks to understand the influence of three of the most important factors, viz. (a) endogenous barriers, (b) exogenous environment, and (c) university environment and support on the entrepreneurial intention among management students. The study sample consisted of 1,097 students, wherein 526 students were from India, 252 from Singapore, and 319 were from Malaysia. Data is analysed with help of Structural Equation Modelling. The results indicates that along with positive attitude and perceived behavioral control, endogenous barriers and university environment and support also have an indirect but significant impact on shaping of entrepreneurial intention among students. With this, it was found that exogenous environment was found to have a negative relationship with both attitude towards behavior and perceived behavioral control for all three countries. Findings of the study can be used by educational institutes, public policy makers and entrepreneurship trainers to remove cognitive barriers and other impediments to new venture creation.

**Keywords:** Entrepreneurial Intention and constraint, new venture formation, university support, exogenous factors, endogenous barriers.

## **Introduction**

Within the realm of entrepreneurship research, studies on entrepreneurship can be broadly classified into three categories, i.e. what happens when the entrepreneurs act, why they act, and how they act (Stevenson and Jarillo, 1990). Krueger and Carsrud (1993) argue that out of these three categories, why they act, i.e. entrepreneurial intentions, is one of the most important streams of research as it enables researchers to understand the process of entrepreneurship. In the past, many authors have provided empirical evidence about various factors affecting entrepreneurial intention based upon comparable studies. These studies have provided new insights to entrepreneurship educators (Gelderen *et al.*, 2006; Liñán and Fayolle, 2015; Tsai *et al.* 2016). Within this subfield of enquiry, a number of scholars have broadly explored students' career intentions of becoming entrepreneurs (Bhandari, 2006).

However, an in-depth literature review suggests that though literature on entrepreneurship has increasingly focused on intention-based models, not much emphasis has been laid on understanding the influence of contextual and situational factors on the formation of entrepreneurial intention. Tolentino *et al.* (2014) argued that it is very necessary to understand the role played by situational and contextual factors in influencing entrepreneurial intention. Verheul *et al.* (2009) and Verheul *et al.* (2012) suggested that considering this lacuna in literature, it is imperative to understand the formation of entrepreneurial intention from the perspective of an integrated framework. In an effort to fill this void in entrepreneurship literature, the present study seeks to understand the influence of three of the most important situational and

contextual factors, viz. (a) endogenous barriers, (b) exogenous environment and (c) university environment and support on the entrepreneurial intention among management students.

In the past, researchers have explored a plethora of models to explain the relationship between an individual's personal characteristics and subsequent entrepreneurial intentions (for e.g. Shapero, 1982; Boyd and Vozikis, 1994; Krueger et al., 2000; Busenitz and Lau, 1996; Kolvereid, 1996; Tkacheve and Kolvereid, 1999; Mitchell et al., 2000; Drnovsek and Glas, 2003). Looking at wide scale use and applicability in different environmental context and based upon detailed literature review-based recommendation of Verheul et al. (2009), the present study has used Theory of Planned Behaviour (TPB) proposed by Ajzen (1987) as the basic framework. In the past, various researchers have shown the usefulness of TPB in predicting entrepreneurial intention (Krueger et al., 2000; Engle et al. 2010; Moriano et al., 2013; Yang, 2013, Trivedi, 2016). To further enhance the predictability and generalizability of the model in the context of entrepreneurial intention, three contextual variables, i.e. endogenous barriers, exogenous environment and university support are added as antecedents to develop and test a new conceptual model, *Entrepreneurial Intention-Constraint Model (EICM)*.

To test the validity of the proposed model, samples were taken from the final year post-graduate management students from three South and Southeast Asian countries namely India, Malaysia and Singapore. The reason for selecting these three countries in South and Southeast Asia has been the diversity found in them on a large number of parameters such as the land area, population, culture, economic pattern and most important of all in the level of entrepreneurial activity and entrepreneurial-activity-preparedness. Singer et al. (2015) noted in their report titled "Global Entrepreneurship Monitor" that against global average of 12.34% respondents willing to start business in next three years from a sample of 70 countries, 7.7%, 11.6% and 9.4% of

respondents from India, Malaysia and Singapore respectively expressed intent to start a business within the next three years. Acs and Szerb (2009) noted in their report titled “The Global Entrepreneurship Index” (which is based upon the calculation of three sub-indexes, namely entrepreneurial activity, aspiration and attitude) that in a total of 64 countries, India, Singapore, and Malaysia, stand in 48th, 20th and 32nd positions with Global Entrepreneurship Index (GEINDEX) scores of 0.26, 0.51 and 0.37 respectively.

The remainder of the paper is structured as follows. In the second part, literature on factors influencing entrepreneurial intention in line with TPB along with three newly added contextual variables is outlined. The next section provides research methodology and data analysis. Finally, findings of the study and their practical implications have been provided along with direction for future research.

## **Review of Literature: Theoretical Framework and Key Constructs**

### *Entrepreneurial Intention among Students*

It has been observed in various parts of the world that entrepreneurship is emerging as one of the preferred career options for many students across different disciplines (Kolvereid, 1996). In this context, entrepreneurial intention has been conceptualized as one of the most important determinants of the subsequent action of starting a business. Bird (1998) has defined intention as “a state of mind directing a person's attention (and therefore experience and action) toward a specific object (goal) or a path in order to achieve something (means)” (p. 442). Past studies have provided much needed empirical evidences about entrepreneurial intention among students from multiple perspective (for e.g. Phan et al. 2002; Zhang et al. 2014; Trivedi, 2016). Literature on entrepreneurial intention (Shapero, 1982; Bird, 1988; Scherer et al., 1989; Krueger, 1993;

Bird and Jelinek, 1988; Busenitz and Lau, 1996; Crant, 1996; Drnovsek and Glas, 2003; Erikson, 2002; Kassean *et al.* 2015; Kolvereid, 1996; Krueger, 1993; Reitan, 1996; Shapero, 1982; Scherer *et al.*, 1989) has identified several viable frameworks worthy of further investigation.

In the present study, the Theory of Planned Behaviour (TPB) has been used as a basic framework to understand students' entrepreneurial intention. It was found that the TPB model has been adapted to study the intention to start a venture in a large number of research settings (Krueger, 1993; Fayolle and Gailly, 2004; Trivedi, 2016), and it was demonstrated that Ajzen's TPB was an appropriate research framework for assessing intentions in the choice of employment (Kolvereid, 1996). It has been observed that the use of TPB-based model results into explaining 30% to 45% of the variance in entrepreneurial intention (Kolvereid, 1996; Autio *et al.*, 2001). The main postulate of this theory is that intention is influenced by three factors, i.e. *attitude toward behaviour, perceived social norms and perceived behavioural control*. The foregoing elucidation of the Ajzen model lays the foundation for the hypotheses which will test the validity of the model in the present study.

Ajzen (1991) conceptualized *attitude* as the extent to which an individual has a positive or negative evaluation of the behaviour in question. Therefore, if a person has developed positive attitude towards a specific action under consideration, it can be expected that the subsequent intention to perform the action would be high. Earlier researchers have emphasized the relevance of attitude towards entrepreneurship as an important determinant as the same is linked to perceptions of what individuals find personally desirable (Olson and Bosserman, 1984). Robinson *et al.* (1991) also found that entrepreneurs can be differentiated from non-entrepreneurs by their attitude towards entrepreneurship. Considering this, Phan *et al.* (2002) suggested that students should be exposed to entrepreneurship at a very early age as this may

result in their developing a positive attitude towards starting a business. In the literature in recent past, ATB has emerged as significant and one of the most influential constructs in explaining the intention of potential entrepreneurs to start a venture (Watchravesringkan, 2013). Thus, Hypothesis 1 states:

*H<sub>1</sub>: Entrepreneurial attitude is positively related to entrepreneurial intention.*

Along with attitude towards behaviour, Ajzen (1991) showed that the opinion of important reference groups such as parents, spouse, friends, and relatives may also influence the behaviour of a person to perform or not perform certain actions. In the past, it was found that a social norm has a very weak influence on entrepreneurial intention (Kolvereid and Isaksen, 2006). However, there is no consistent result that shows that social norms is not an important variable and few of the past researchers have demonstrated that though it is not the most important predictor, still it significantly influences entrepreneurial intention (Luthje and Franke, 2003; Kautonen et al., 2013; Schlaegel et al. 2014). Thus, Ajzen's (1991) proposition results in the following testable hypothesis:

*H<sub>2</sub>: Social norms are positively related to entrepreneurial intentions.*

The third and the most important factor identified by Ajzen (1991) is perceived behavioural control. Perceived behavioural control reflects perceived feasibility of performing behaviour which, in turn, is closely related to the perception of self-efficacy (Krueger *et al.*, 2000). Thus, to successfully launch and manage a business, a person has to have capability and confidence in his/her own ability and access to external resources (Bandura, 1982; Bayon *et al.*, 2015, Tsai et al. 2016). Perceived behavioral control encompasses two components: a) the availability of



various resource need to perform the behavior that acts as facilitating conditions and b) self-efficacy depicting the self-confidence of a person for performing a behavior in focus (Bandura, 1977). Thus, perceived behavioral control represents the confidence in one's own ability to start and manage a business successfully (Krueger et al. 2000). Past studies have found that perceived behavioral control is one of the most important determinant of entrepreneurial intention (for eg. Souitaris et al. 2007; Trivedi, 2016). Thus, it is also hypothesized that:

*H<sub>3</sub>: Entrepreneurial perceived behavioural control is positively correlated to entrepreneurial intention.*

Moreover, Scherer *et al.* (1989), Matthews and Moser (1995) and Trivedi (2016) have found that social norms influence attitude and perceived behavioural control and thus indirectly influence intention. These findings lead to two additional testable hypotheses:

*H<sub>4</sub>: Social norms are positively related to entrepreneurial attitude.*

*H<sub>5</sub>: Social norms are positively related to perceived behavioural control.*

Choo and Wong (2006) believe that very few empirical studies have analyzed cognitive barriers faced by potential entrepreneurs in starting their venture. Li (2007) asked researchers to link entrepreneurial intention with the barriers faced by potential entrepreneurs. These studies may lead to understanding students' needs during their university years. In a large number of studies, these barriers have been categorized in various ways. Some researchers have provided a twofold, broad classification: environmental and cognitive (Campbell, 1992). Environmental barriers, also known as exogenous barriers, are external and beyond the owner's control, while cognitive (endogenous) barriers are internal and possibly within the owner's control. According to

Campbell (1992) tangible or exogenous barriers are related to political, economic, social, financial, and infrastructural factors, whereas cognitive barriers are more endogenous in nature and representing personal shortcomings or weaknesses, either real or perceived.

Endogenous barriers are considered one of the primary causes of business failure (Theng and Boon, 1996). They include (a) personal characteristics and shortcomings and (b) individual's weakness in financial and operational management. A study of cognitive barriers by Pihkala and Vesalainen (2000) found that financial risk, social risk, lack of skills, and lack of commitment required to be an entrepreneur were major obstacles in the path. Robertson *et al.* (2003) also found the fear of debt and failure, along with the difficulties in obtaining finance, to be significant obstacles in starting the business. On similar lines, Smith (1999) found that fear of business failure is one of the major hurdles to start a business and Iakovleva *et al.* (2014) found cognitive barriers represented by lack of competence and lack of skills impeding business start-up. Indeed, risk perception is one of the major endogenous barriers for would-be entrepreneurs (Trivedi *et al.* 2011). This results into two additional testable hypotheses:

*H<sub>6</sub>: Endogenous (cognitive) barriers are negatively related to entrepreneurial attitude.*

*H<sub>7</sub>: Endogenous (cognitive) barriers are negatively related to perceived behavioural control.*

To understand why certain aspiring entrepreneurs are able to start ventures while others fail, it is imperative to appreciate the process of venture creation and the role played in it by various exogenous factors (Reynolds and Miller, 1992). The same factors also explain success of some start-ups when a sizable number of them fail in the first few years (Trivedi *et al.* 2009). The factors may range from failure to understand the market needs to lack of sufficient financial resources at various stages of business (Learned, 1992; Trivedi *et al.* 2010). They may include

regulatory, cultural, and financial environment prevalent at the time of venture formation. In the last few decades, researchers have elaborated upon the influence of these factors on the attitude towards entrepreneurship which ultimately leads to the formation of entrepreneurial intention (Seacrest, 1975; Kirchoff, 1991). Lüthje and Franke (2003) have empirically tested the impact of various support factors on entrepreneurial intention. Nabi and Liñán (2013) found that economic context has significant relationship with entrepreneurial intentions. Lin and Si (2014) found perceived institutional support positively influences entrepreneurial intention.

Penrose (1959) has provided theoretical foundation for this with the help of resource-based view of the firm. It is argued that various tangible resources and their linkage with the external environment result in the creation of a new venture (Pfeffer and Salancik, 1978; Boyd, 1990). The resource-based approach assumes that an entrepreneur needs to be in constant touch with the external environment to draw resources necessary for starting and successfully running the venture. Bruno and Tyebjee (1982) also argued, based upon resource-based view of the firm, that resources are critical determinants for starting a venture successfully. However, the impact of external resource availability on attitude towards entrepreneurship and perceived behavioral control is yet to be studied. Therefore, for the purpose of this study, external environment is broken down into following parts: market factors, financial factors, governmental factors, and institutional support mechanism. Thus, two additional hypotheses are proposed:

*H<sub>8</sub>: External environment is positively related to entrepreneurial attitude.*

*H<sub>9</sub>: External environment is positively related to perceived behavioural control.*

“Insert Figure 1 here”

Along with this, it has been found that the university can play an important role in stimulating entrepreneurship. Consequently, the impact of education and university environment on the creation of future entrepreneurs and the link between university assistance and support and the creation of new ventures have been the subject of much discussion in the academic community (Trivedi, 2014). Therefore, we have taken university environment and support as one of the potential environmental factors affecting students' entrepreneurial intention (Please refer Figure 1). Although the issue has not been extensively researched, there are some studies on student entrepreneurship and university environment and support at a broad level. Hatten and Ruhland (1995) have examined the relationship between the type and nature of entrepreneurship courses offered and students' attitude towards entrepreneurship and have found that they were related positively. Lüthje and Franke (2003), in one of the studies of technology students, have identified a set of contextual factors within the perceived university environment and support that influences the occurrence of entrepreneurial behavior. Trivedi (2016) found that university environment and support positively influences perceived behavioral control in three country sample. Zhang et al. (2014) found positive association between entrepreneurship education and entrepreneurial intention among Chinese students. Zollo (2017) found university significantly influencing entrepreneurial intent among students. Indeed, Urbano and Guerrero (2013) suggested expanding the scope of university from traditional knowledge-generating to more of an enabler of entrepreneurial eco-system providing the concept of entrepreneurial university. Based on these arguments we propose two more hypotheses:

*H<sub>10</sub>: University environment and support are positively related to entrepreneurial attitude.*

*H<sub>11</sub>: University environment and support are positively related to perceived behavioural control.*

In sum, based upon the three variables i.e. attitude towards behavior, perceived social norm and perceived behavioral control identified by Ajzen (1987) and three new variables specifically added for developing EICM in this paper, i.e. endogenous barriers, exogenous environment and university environment and support, the researcher has made an attempt to develop a new, empirically testable model to test entrepreneurial intention.

### **Research Methodology**

The data reported in this paper were collected as part of a large study designed to test the relationship between various factors influencing entrepreneurial intention among post-graduate students of management in India, Malaysia and Singapore. A structured non-disguised questionnaire was designed to gather data and the respondents were assured that their responses would be kept confidential. Prior to administering the survey, a pilot study was conducted, for which a preliminary version of the structured questionnaire was personally administered to a random sample of 25 students in India and 15 students in Malaysia (via the Internet). The final questionnaire was administered either in a face-to-face interview or via the Internet. Convenience sampling method was employed, and 1,097 students were surveyed in all. Of these, 526 students were from India, 319 were from Malaysia and 252 from Singapore. Reisenwitz and Iyer (2007) have argued that convenience sampling is appropriate for such a study since it is intended to test the relationships among variables, and not to provide point estimates (Calder et al., 1981). To determine sample size using Structural Equation Modeling, Hair et al. (1999) recommend a minimum five observations per independent variable -- and the desired number is fifteen to twenty observations -- so that the sample would be representative of the studied population. Thus according to this rule, an acceptable sample size for this study is one hundred

respondents. Since a higher level of power for the study may be gained by increasing the number of respondents, it was decided to have a larger sample size than the minimum level for each country.

In the final sample, 63% male respondents (n=690), and almost 50% of all respondents were in the age group 21 to 23 (n=544). It was observed that out of total respondents, 53% had previous job experience (n=579); the students from Malaysia had the highest percentage of work experience (88%, n=279). It was also observed that only 28% of respondents had previous business or entrepreneurial experience (n=305), while the rest did not have such experience (72%, n=786). According to the data on the stream of graduation, the highest number of respondents were from the commerce stream (33.5%, n=365), followed by management (30.5%, n=333), whereas for their post-graduation, the highest number had opted for financial management as a specialization stream (41.4%, n=451), followed by marketing management (25%, n=272). Less than 2% of respondents had opted for entrepreneurship and family business management as a stream of specialization in post-graduation (n=18), with the highest per cent of students -- 4.5% -- from Malaysia (n=14). It was found that only 202 (18.5%) students had attended an Entrepreneurship Development Programme (EDP) in the past, while almost 890 students did not attend any such programmes (81.5%). Please refer Appendix 1 for detailed demographic information.

### **Measurement, Reliability and Validity of the Constructs**

The survey questionnaire was divided into the following sections: (a) demographic characteristics, (b) independent variables of TPB, i.e., entrepreneurial attitude, perceived social norms, and perceived behavioural control, and the dependent variable, i.e. the entrepreneurial

intention; and (c) endogenous barriers, exogenous environment, and university environment and support. To measure the first three independent variables of TPB, namely entrepreneurial attitude, perceived social norms and perceived behavioural control, the measure proposed by Liñán and Chen (2006) in their Entrepreneurial Intention Questionnaire (EIQ) was used. One of their studies measuring entrepreneurial intention using EIQ among Spanish and Taiwanese students found composite reliability of 0.928, 0.892 and 0.919 for attitude towards entrepreneurship, perceived social norms, and perceived behavioural control respectively. The data had been collected on a five-point Likert scale. An extensive review of literature for university environment and support revealed that only one scale was available to measure the variable developed by Kraaijenbrink et al. (2010). The scale had 13 questions and was used to measure perceived university support among 2,415 respondents from five European universities. They found the composite reliability of 0.897, 0.862 and 0.852 for general educational support, targeted cognitive support, and targeted non-cognitive support respectively. This independent variable was tested by them using a five-point Likert scale from “Strongly Agree” to “Strongly Disagree”, and the same has been used for this study. From the 13 questions used in this scale, one question was deleted after pilot testing and six new questions were added after extensive deliberations with subject experts. Thus, the revised scale has 18 questions measured on a five-point Likert scale.

To measure exogenous environmental factors, the researcher adopted seven statements related to market, financing and government policy with suitable modifications from Franke and Lüthje (2004). Considering wider span of this study, and after an extensive review of the literature, the researcher added six other statements for measurement. This resulted into a composite scale of 13 questions to measure the exogenous environment. This independent variable was tested on

five-point Likert scale from “Strongly Agree” to “Strongly Disagree”. On the other hand, To measure endogenous barriers, the researcher developed a scale of eight statements on a five-point Likert scale from “Strongly Agree” to “Strongly Disagree”.

In order to assess the reliability of the measures in this study, item-to-total correlations and Cronbach’s Alpha were employed. As suggested by Nunnally (1978), the criteria for retaining a scale item should include an item-to-total correlation of at least 0.35 and Cronbach’s Alpha of at least 0.70. However, Cronbach’s Alpha has been allowed to go down to 0.6 in the case of an exploratory research (Hair *et al.*, 1999). The SPSS produced separate internal consistency tests (i.e. reliability Cronbach’s Alpha test) for students from India, Malaysia and Singapore as well as for the whole data set. It was noted that the samples from the three countries were homogenous and suitable for assessing the reliability of the construct. Table 1 reports the measurement and results of Cronbach’s Alpha for all the variables used in this study. It shows that all the alpha values were found to meet the threshold limit above .70 (Nunnally, 1978; Hair et al., 1999). To establish content validity, the researcher had requested six senior academicians and researchers in the entrepreneurship area to review the scale that was adopted through relevant literature review. They found the items both relevant and adequate for the respective constructs.

“Insert Table 1 here”

## **Analyses and Results**

### *Test of Hypotheses: Structural Equation Modeling*

Considering that the chief objective of the study is to derive and test a mathematical model to relate the criterion variable (the students’ entrepreneurial intention) to the predictors (*attitude towards behaviour, perceived social norms, perceived behavioural control, exogenous environment, endogenous barriers, and university environment and support*), the hypothesized



model was tested using the Structural Equation Modeling (SEM) technique. The formulation of the model was developed using the AMOS 16.0 software package. This analytical technique allows evaluation of overall fit of the proposed model and estimation of all corresponding path coefficients simultaneously (Hair *et al.*, 1995). By applying the SEM technique, the researcher sought to develop and validate the EICM which seeks to explain the extent of the impact of antecedent factors and constraints on entrepreneurial intention of students. In the proposed model, the influence of attitude towards behaviour, perceived social norms, and perceived behavioural control on the development of entrepreneurial intentions is consistent with Ajzen's (1985) theory of planned behavior. While considering student entrepreneurship, three new variables, i.e. endogenous barriers exogenous environment, and university environment and support were added to the proposed model. Confirmatory Factor Analysis (CFA) was first performed to validate all the constructs under investigation. Multiple indicators were used to assess the goodness of fit such as  $\chi^2/df < 3$ , CFI (comparative fit index)  $\geq 0.9$ , TLI (Tucker-Lewis index)  $\geq 0.9$ , PNFI (parsimonious normed fit index)  $\geq 0.5$ , and RMSEA (root mean square error of approximation)  $\leq 0.08$  (Byrne, 2001). The model was proposed and analyzed using maximum likelihood fitting functions in AMOS 16.0 as it was found to be well suited for theory testing and development (Anderson and Gerbing, 1988) and it affords a stable means of assessing parameter complications (Suki, in press). The overall fit of the CFA model was excellent: ( $\chi^2=1830.07$  with 552 degrees of freedom, CMIN/DF = 3.315, CFI = 0.929, GFI = 0.909, AGFI = 0.890,  $p < 0.001$ , and RMSEA = 0.046).

Further, composite reliability and convergent validity of the proposed model were tested based upon the results arrived from CFA. It was found that the composite reliability values were above the recommended level of 0.70 and standardized loadings higher than 0.60. These results are

evidence of the scale's convergent validity. In addition, the average variance extracted for each dimension was higher than the minimum acceptable level of 0.50 (Hair *et al.*, 1999). In addition, discriminant validity has been examined. For each factor, all the pertaining items have high loadings (higher than 0.5) while all the other items have much lower loadings, so the existence of discriminant validity can be ascertained. Furthermore, kurtosis values of scales were well below the threshold of  $\pm 10$  and skewness of all items were well below the threshold of  $\pm 2$ . This indicates that bell-shaped normal distribution approximated the data (Suki, 2015). Together, the results of the above tests for reliability, convergent validity, and discriminant validity provide evidence of the internal and external validity of the scales used in this study.

Since no particular problem was observed in the measurement model, structural equation modeling was employed to measure the relationship between the six independent variables and entrepreneurial intention for the total sample of 1097 respondents using the AMOS through Maximum Likelihood (ML) estimation. The major findings are summarized in Figure 2. The overall fit of the model is acceptable since all the measurements of fit reach an acceptable limit ( $\chi^2=2213.555$ ,  $df=558$ ,  $p = 0.001$ ; GFI = 0.907; AGFI = 0.889; CFI = 0.908; RMSEA = 0.052).

“Insert Figure 2 here”

As shown in Table 2, entrepreneurial intention was found to be positively influenced by attitude towards behavior ( $\beta = 0.512$ ,  $p < 0.001$ ) and perceived behavioral control ( $\beta = 0.525$ ,  $p < 0.001$ ). However, no relationship was observed between entrepreneurial intention and perceived behavioral norms ( $p > 0.05$ ). On other hand, perceived social norm seems to positively influence both attitude towards behavior ( $\beta = 0.594$ ,  $p < 0.001$ ) and perceived behavioral control ( $\beta = 0.464$ ,  $p < 0.001$ ). Endogenous barriers negatively affects attitude towards behavior ( $\beta = -0.248$ ,

$p < 0.001$ ) and perceived behavioral control ( $\beta = -0.220, p < 0.001$ ). On other hand, no relation was observed between exogenous environment and attitude towards behavior ( $p > 0.05$ ) or perceived behavioral control ( $p > 0.05$ ). Lastly, it was found that there is positive relationship between university environment and attitude towards behavior ( $\beta = 0.089, p < 0.05$ ), however, the same was not significant with perceived behavioral control ( $p > 0.05$ ). The hypothesized model was found to have an explanatory power of 68.20% of the entrepreneurial intentions.

“Insert Table 2 here”

In the next stage, as the structural model was found to achieve the required fit as mentioned above, the functional relationship between the six independent variables and entrepreneurial intention was estimated for the students of India, Singapore, and Malaysia separately. For this, the structural equation model was analyzed for all three groups, and it was found that the six independent variables explained a significant amount of variance in entrepreneurial intention for all the three subgroups ( $R^2 = .77$  for India,  $R^2 = .71$  for Singapore and  $R^2 = .64$  for Malaysia) and the model enjoyed a reasonable fit as depicted in Table 3.

“Insert Table 3 here”

When standardized estimates were observed for the students of three countries separately as shown in Table 4, it was found that attitude towards behavior and perceived behavioral control emerged as the most important factors determining entrepreneurial intention for all of them. Perceived social norm was found to have statistically significant relationship with entrepreneurial intention only among the students in Singapore.

“Insert Table 4 here”

It can be also observed from Table 4 that the factor perceived social norms has a significant positive relationship with both attitude towards behavior and perceived behavioral control among the students of all three countries. Endogenous barriers, as hypothesized, were found to have a significantly negative relationship with both, attitude towards behavior and perceived behavioral control, in all three countries. Similarly, exogenous environment was found to have a negative relationship with both attitude towards behavior and perceived behavioral control for all three countries. But whereas it was significant for the students of Singapore and Malaysia, it was not significant in case of India. Finally, it was found that university environment and support has a significant positive relationship with attitude towards behavior only in Singapore, while it did not have any significant impact on the perceived behavioral control of any respondent.

### **Discussion and conclusion**

In this article, primarily an attempt is made to understand the influence of various situational and contextual factors on shaping entrepreneurial intention of post-graduate management students of India, Malaysia and Singapore. For this, the Theory of Planned Behaviour (Ajzen, 1985) was extended to explore the relationship between a set of contextual and situational factors, such as university environment and support, endogenous barriers and exogenous environment. It was expected that results of the study in a cross-country setting would substantiate the importance of these situational and contextual factors in shaping entrepreneurial intention in the student community. The result shows that overall explanatory power of the EICM was 68.20% for entrepreneurial intentions ( $p < 0.00001$ ). If we compare the proposed the EICM with the three variables of TPB model adopted in prior studies, we can conclude that the EICM model has higher explanatory power as compare to the basic TPB model. The TPB model explained 35% of

the variance in entrepreneurial intention in a research study by Krueger *et al.* (2000) and 45% in a study by Tkacheve and Kolvereid (1999) as against 68% explained by the EICM. The additional predictability of the model can be attributed to the addition of three more variables, i.e. university environment and support, endogenous barriers and exogenous environment which are especially relevant in measuring and predicting the entrepreneurial intention in the student community. The results imply that the proposed EICM can be applied to study entrepreneurial intention of the students and to understand how to influence and motivate them to be entrepreneurs.

In predicting entrepreneurial intention, perceived behavioural control emerges as the most important antecedent. Perceived behavioural control has a strong and highly significant effect on entrepreneurial intention ( $H_2, \beta = 0.525^*$ ). In the past studies also, perceived behavioural control was considered an important determinant of individual's intentions to become an entrepreneur (Boyd and Vozikis, 1994; Chen *et al.*, 1998). Thus, the findings of this research confirm those of other studies: entrepreneurship education is relevant as students develop perceived behavioral control improving students' intention to new venture creation (Krueger and Dickson, 1994; Souitaris *et al.* 2007).

Another variable that has emerged as an important predictor of entrepreneurial intention is the attitude towards entrepreneurship. Considering that the attitude has been found to have a strong and highly significant effect on entrepreneurial intention ( $H_1, \beta = 0.512^*$ ), the present model affirms earlier research finding, namely that the intention to become a business founder is moderated by the attitude to entrepreneurship (Phan *et al.* 2002). Thus, if public policy-makers and university administration want to raise the number of graduates who decide to start their own business, a set of strategy that leads to the improvement of the students' attitude towards

entrepreneurship can act as an effective lever. Finally, the third variable proposed by Ajzen (1985), i.e. perceived social norms, did not have any significant effect on the entrepreneurial intention of the students ( $H_3$ ,  $\beta = -0.036$ ). An in-depth literature review suggests that this has already been identified as the weakest link in intention models by earlier researchers (Krueger et al. 2000; Schlaegel et al. 2014).

To further understand the relationship of perceived social norms with the other two factors-- attitude towards entrepreneurship and perceived behavioural control -- proposed by Ajzen (1987), we look at the results which suggest that there is a significant positive relationship between perceived social norms and both, attitude towards entrepreneurship ( $H_4$ ,  $\beta = 0.594^*$ ) and perceived behavioural control ( $H_5$ ,  $\beta = 0.464^*$ ). Thus, as already shown by other researchers, there was a significant relationship between perceived social norms and attitude towards entrepreneurship on one hand and perceived behavioural control on the other (Matthews and Moser, 1995; Trivedi, 2016). These results are in line with the findings of Liñán and Santos (2009), who have suggested that social norms would exert their main influence through their effects on personal attraction (not mentioned before) and self-efficacy.

Overall, these three results suggests that: (a) the more strongly a potential entrepreneur believes that he/she can start a new business, the more likely he/she will engage in entrepreneurial activity; (b) the stronger and the more positive the attitude regarding entrepreneurial activity, the more likely that individual will attempt to start a new business; and (c) though the influence of “important others” is not statistically significant, still, the reference group does influence the potential entrepreneur’s attitude towards entrepreneurship and his/her belief about his/her capability to establish and manage a viable business.

With these three direct variables, the newly developed ECIM has three additional variables, i.e. university environment and support, endogenous barriers and exogenous environment. The analysis reveals that the endogenous (cognitive) barriers have a significant negative relationship with both, attitude towards behaviour ( $H_6, \beta = -0.248^*$ ) and perceived behavioural control ( $H_7, \beta = -0.220^*$ ). Thus, it can be safely concluded that the students who have endogenous barriers towards entrepreneurship, e.g., fear of failure, lack of appetite for taking risks, or inability to cope with the stress generated by entrepreneurship would have a negative attitude towards entrepreneurship or they would find themselves incapable of starting and managing a viable firm. For example, Wong and Lee (2005) and Smith (1999) found that the fear of failure has an adverse impact on entrepreneurial propensity. This may have been because those students who have a great fear of failure may perceive entrepreneurship as highly risky and as a result, they would always prefer employment to self-employment. Giacomini et al. (2011) also found risk aversion as one of the important cognitive barrier in the process of entrepreneurship.

In one of the studies conducted by Segal *et al.*, (2005), it was found that the higher entrepreneurial tolerance for risk was associated with the higher likelihood of becoming an entrepreneur. Keeping this in view, the author agrees with Wong and Lee's contention (2005) that it is necessary for various stakeholders involved in the process of venture creation, whether directly or indirectly, to allocate resources and give due psychological support to potential entrepreneurs to reduce their fear of failure. The lack of motivation to become an entrepreneur is a deterrent to entrepreneurial intention. Herron and Sapienza (1992) go to the extent of saying, "Because motivation plays an important part in the creation of new organizations, theories of organizational creation that fail to address this notion are incomplete" (p. 49). In contrast to endogenous barriers, the exogenous environment was not found to have a significant relationship

with the attitude either towards entrepreneurship ( $H_{a8}$ ,  $\beta = -0.058$ ) or perceived behavioural control ( $H_{a9}$ ,  $\beta = 0.045$ ).

Finally, the impact of university environment and support on attitude towards behaviour and perceived behavioural control of the respondents was examined. It was found that university environment and support had statistically significant relationship only with perceived behavioural control ( $H_{a11}$ ,  $\beta = 0.089^{**}$ ). As we have already identified, perceived behavioural control encompasses two components: (a) the facilitating conditions reflected by the availability of resources needed to perform the behaviour and (b) self-efficacy represented by an individual's self-confidence in his/ her ability to perform the behaviour (Bandura, 1982). Thus, a positive university environment and support would help the students gain various tangible (finance, know-how, etc.) and intangible (motivation, self-confidence, awareness about relevant regulations) resources and skill set to better perform the job as an entrepreneur (Trivedi, 2016). Some past studies have indicated that entrepreneurial intentions of the student are influenced by the support received from the university environment (Autio et al., 1997, Trivedi, 2016) and university environment affect the translation of entrepreneurial intention into entrepreneurial actions (Shirokova et al. 2016).

It implies that not only a specific university system and government but the education system as a whole has increased responsibility for fostering a positive atmosphere for entrepreneurship (Trivedi, 2013), since it influences the perceived behaviour of the students and ultimately the entrepreneurial intention. Therefore, a system has to be designed within each university set-up that can (a) develop a well-crafted curriculum for entrepreneurship development, (b) evolve the role of university as a bridge between a potential entrepreneur and various external resources such as venture capitalists and governmental agencies and (c) measure the perceptions of the



students regarding the importance, availability and expectancies of various resources, and (d) understand difficulties perceived by students in starting their own venture in time.

In developing and testing Entrepreneurial Intention-Constraint Model (EICM), one of the main objectives was to understand the effect of different cultures and values on entrepreneurial intention. This would serve as a confirmation of the applicability of this cognitive model for the entrepreneurial decision-making. Since the sample in this research is from three countries with very different socio-cultural milieu, the robustness of this model in different settings is tested. This has resulted into development of a more adequate, reliable, and valid model to analyze and predict the entrepreneurial intention.

### **Major Implications and Recommendations**

Since attitude towards behaviour has emerged as one of the important determinants of the model, it means that entrepreneurial attitudes may be influenced by educators, policy makers, and successful business founders. The latter can be powerful role models and may support budding entrepreneurs. This observation has several implications: First, in education, more attention should be paid to the effects of different contents on cognition. The contents of the entrepreneurship courses should be designed in such a manner that it will affect both affective (e.g., I like it, it makes me feel good, it is pleasant) and evaluative considerations (e.g., it is more profitable, has more advantages) of the students who want to be an entrepreneurs. Wider use of case studies of successful entrepreneurs, business plan competitions, frequent use of video cases, exercises in small scale business founding with funding from university or governmental agencies would provide a big boost to developing a positive attitude in students. In addition, inviting successful entrepreneurs to narrate stories of their success, assigning them as mentors for entrepreneurially oriented students and arranging for internships with emerging companies

would expose the students to the world of entrepreneurship and raise the possibility that they may adopt entrepreneurship as a lucrative career. Additionally, policy makers can also play a vital role by making policies to give funding to the students for establishing micro-business during the very college life and thus plant the seeds of entrepreneurship at the earliest.

Further, societies in which the image of entrepreneurship as a career choice is not low, efforts will have to be made to improve it and make it socially respectable career avenue. For this, family and friends of potential entrepreneurs will have to be educated about the value of entrepreneurship, only then will they begin to perceive it as a desirable career avenue. Every opportunity should be taken to recognize the role of entrepreneurs in economic development, and information about it should be disseminated among people at large. Universities and educational institutions can organize regular meetings with the parents and friends of would-be entrepreneurs so that they may understand the importance of entrepreneurship and difficulties that lie in the path.

Finally, as perceived behavioural control (self-efficacy) is the most important determinant of entrepreneurial intention, it is highly recommended that public policy makers should allocate resources in a manner that enhances the entrepreneurial self-efficacy of students (Wong and Lee, 2005). As exogenous environment also influences both, attitude towards behavior and perceived behavioral control significantly, there is a need to take a wider, country-level overview of the systems and policies that stimulate young entrepreneurship. The government is required to (a) formulate a new set of policies promoting establishment of new businesses, (b) integrate the elements of entrepreneurship in the educational system with systematic interventions, (c) provide supportive infrastructure and business support system, (d) use the media of mass communication to help people understand the role of entrepreneur in the socio-economic development of a

nation, and (e) enact laws which will mitigate the harsh consequences of failed business ventures which in turn will promote the culture of risk-taking. Since endogenous barriers work as a major deterrent towards entrepreneurial intention, both university system and family members of the aspiring entrepreneurs could orchestrate a systematic intervention to reduce the anxiety and fear and thus raise chances of venture creation. Lastly, since university environment and support has positive influence on perceived behavioural control, university department and concerned faculty should evaluate the effectiveness of their pedagogy, targeted cognitive and non-cognitive support, and general educational support to the students and thus build a positive eco-system for venture creation.

In future, researchers can greatly benefit by delineating the effect of endogenous (cognitive) barriers by using implicit measurement techniques like neuroscience in entrepreneurship research (Nicolaou and Shane, 2013) to further validate the results of the study. Researchers can also explore multi-faceted nature of exogenous environment by measuring the effect of specific sub-dimensions like financial support, regulatory environment and other institutional support mechanism on entrepreneurial intention at regional or country level to have better clarity and provide much required input to public policy-makers.

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