Explaining antecedents to entrepreneurial intentions: A Structural Equation Modelling approach

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Abstract

The paper endeavors at testing the entrepreneurial intentions among youth in China and India. It attempts to articulate the cultural differences in occupational choices by using theory of planned behavior as its theoretical anchor. The study aims to expand the knowledge of personal and social variables in occupational decisions in fast developing Asian economies. The study draws its sample from post-graduate business students studying in different universities in both countries. The paper uses Partial Least Square (PLS)-Structural Equation Modeling technique. Confirmatory Factor Analysis (CFA) is followed by structural model analysis for addressing the research question. Before testing the differences in the coefficients of explanatory factors in both sub-samples, factorial invariance is performed to ensure the model is not non-invariant. Among the three pillars of the theory, 'perceived behavioral control' and 'attitude towards behavior' were found explaining significantly entrepreneurial intentions in both countries. However, attitude towards start-ups of Chinese sub-sample was found significant relative to Indian sub-sample. Entrepreneurship education and business incubators were found the causes for higher propensity towards entrepreneurship in Chinese sub-sample. The study focused on the first step in the entrepreneurial process, i.e. predicting entrepreneurial intentions. Therefore, researchers are encouraged to test the intention-action link. The study pitches for the introduction of business incubators in Indian educational establishments for enhancing the self-efficacy and breeding the positive attitude of youth towards entrepreneurship.

Keywords: intentions, factorial invariance, start-ups, incubators

Introduction

Why some individuals intend to pursue entrepreneurship as an occupational choice while others do not, is a question lurking in the minds of researchers for long. Research has advanced several possible explanations underlying this behavior from the perspective of the individuals themselves as well as economic and other factors present in their environments (see for example Acs, Audretsch and Evans, 1994 & Hofstede, et. al., 2004). Literature has also identified individual domains (e.g. personality, motivation, and prior experience) and contextual variables (e.g. social context, markets, and economics) as the two dimensions responsible for the formation of entrepreneurial intentions (Bird, 1988). As for the first one, Zhao, Seibert, and Hills (2005) show that psychological characteristics (e.g. risk taking propensity and entrepreneurial self-efficacy), together with developed skills and abilities, influence entrepreneurial intentions. Other scholars, studying the role of contextual dimensions, show that environmental influences (e.g. industry opportunities and market heterogeneity; Morris & Lewis, 1995) and environmental support (e.g. infrastructural, political, and financial support; Luthje & Franke, 2003) impact entrepreneurial intentions.

Recent work has also investigated the utility derived from choosing self-employment over traditional career opportunities. It is argued that individuals will choose self-employment as a career option if the utility derived from this choice exceeds the utility derived from other employment (Eisenhauer, 1995; Douglas & Shepherd, 2002).

Katz and Gartner, (1986) observed that entrepreneurial intentions include a dimension of location: the entrepreneur's intention (internal locus) and intentions of other stakeholders, markets, and so forth (external locus). Bird, (1988) and Reilly & Carsrud, (1993) argued that entrepreneurial intention is the conscious state of mind that precedes action and directs attention towards a goal such as starting a new business. And forming an intention to develop an entrepreneurial career is viewed as a first step in the often long process of venture creation (Gartner, Shaver, Gatewood, & Katz, 1994).

Gauging entrepreneurial intentions opens new arenas to the theory-based research. This line of research takes place before the event (functioning of entrepreneur) takes place, therefore, popularly called as 'nascent entrepreneurship'. With emphasis on the complex relationships among entrepreneurial ideas and the consequent outcomes of these ideas, research on entrepreneurial intentions drives away from previously studied entrepreneurial traits (e.g.,

personality, motivation, and demographics) and contexts (e.g., displacements, prior experience, markets, and economics) thus being clearly ex-post facto in nature.

Krueger (1993) argued that entrepreneurial intentions is a commitment to starting a new business. This is accepted as a more encompassing concept than merely owning a business since intentions have been found to be immediate antecedents of actual behavior. Therefore intention models predict behavior better than either individual (e.g. personality) or situational (e.g. employment status) variables, and predictive power is critical to improving post hoc explanations of entrepreneurial behavior (Krueger, Reilly and Carsurd, 2000). Boris, Jurie and Owen, (2007) observed that entrepreneurial intentions as a term has affinity with other frequently used terms with a similar meaning; e.g. entrepreneurial awareness, entrepreneurial potential, aspiring entrepreneurs, entrepreneurial proclivity, entrepreneurial propensity, and entrepreneurial orientation.

This study makes two contributions to entrepreneurship research. First, it provides a theoretical explanation, extending the theory of planned behavior (Ajzen, 1991), for the influence of individual-level antecedents on the formation of entrepreneurial intentions. Second, it empirically assesses the predictive validity that individual and contextual variables have on entrepreneurial intentions.

Theoretical Model and research question

However, Theory of Planned Behavior (TPB) (Ajzen and Fishbein, 1980; Ajzen, 1987; 1991) has provided a theoretically valid anchor to explain the motivational antecedents for venturing into entrepreneurship. The theory suggests three conceptually independent antecedents of intention. According to the TPB, entrepreneurial intention indicates the effort that the person will make to carry out that entrepreneurial behavior. Research suggests that it captures three motivational factors or antecedents influencing the entrepreneurial behavior (Ajzen, 1991; Liñán, 2004):

   a) Attitude toward start-up (Personal Attitude, PA): It refers to the degree to which the individual holds a positive or negative personal valuation about being an entrepreneur (Ajzen, 2001; Autio, Klofsten, Parker and Hay 2001 & Kolvereid, 1996). It includes not only affective (I like it, it is attractive), but also evaluative considerations (it has advantages).

   b) Subjective Norm (SN): This measures the perceived social pressure to carry out—or not to carry out—entrepreneurial behaviors. In particular, it would refer to the perception

that "reference people" would approve of the decision to become an entrepreneur, or not (Ajzen, 2001).

c) Perceived Behavioral Control (PBC): It is defined as the perception of the ease or difficulty of becoming an entrepreneur. It is, therefore, a concept quite similar to the concepts of self- efficacy (SE) as defined by Bandura (1997), and to perceived feasibility of Shapero & Sokol (1982).

All the three concepts refer to the sense of capacity regarding the fulfillment of firm-creation behaviors. The theoretical contention in this regard suggests that more favorable the attitude and subjective norm with respect to the behavior coupled with high perceived behavioral control, the stronger would be the intention to perform the behavior (Fig 1).
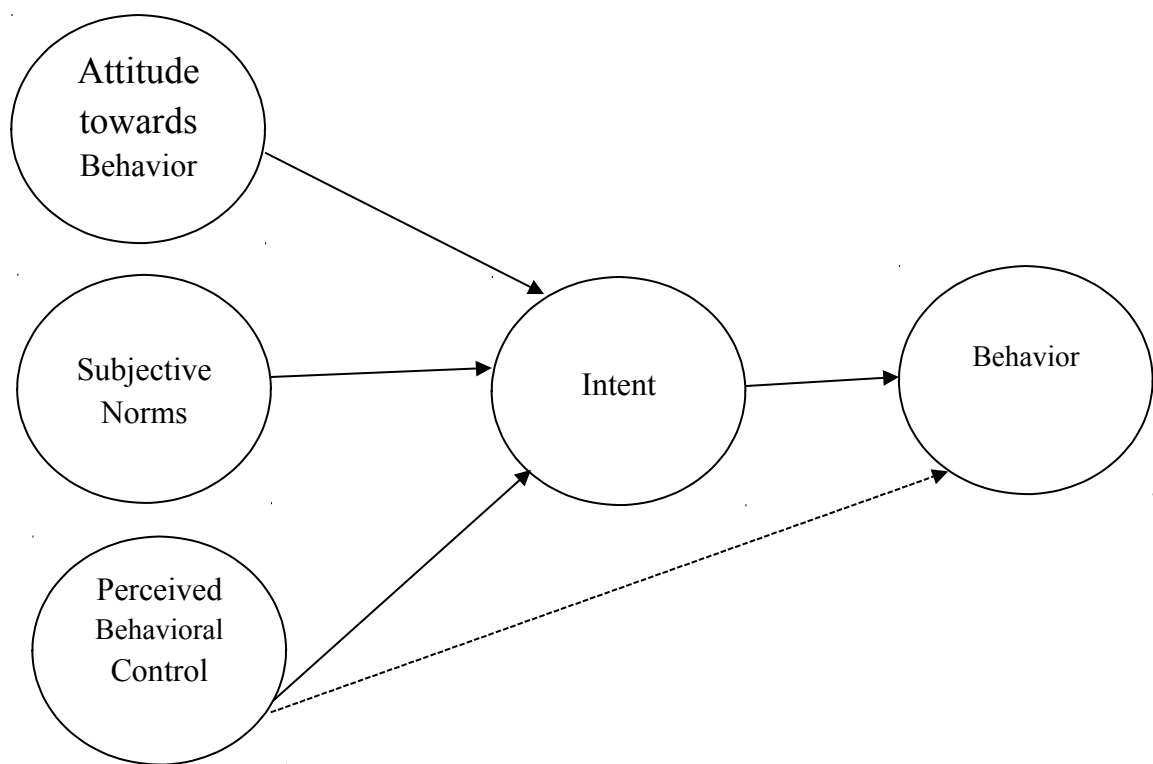

Figure 1: Azjen's Theory of Planned Behavior (TPB), (1991) p, 182

Moriano, Gorgievski, Laguna, Stephan and Zarafshani, (2011), acknowledges that TPB promises of taking both personal and social factors into cognizance in explaining intentional behaviors. Similarly, Beck and Ajzen, (1991); Harland, Saats and Wilke, (1991) who have not only reposed their faith in the theory but have also applied it in a wide variety of fields with impressive success rates. Krueger, et. al., (2000) & van Gelderen, et. al., (2008) while espousing the Ajzen's work, maintain that TPB is an important socio-cognitive theory that gives a more detailed explanation on entrepreneurial intentions in comparison to alternative models. TPB model of EI also finds support among scholars for its power to integrate two lines of research on

entrepreneurial intentions: research on the relationships between attitudes and entrepreneurial intention (Douglas & Shepherd, 2002) and research on the connections between self-efficacy and entrepreneurial intention (Jung, Ehrlich, De Noble, & Baik, 2001).

Moreover, the model has been put to rigorous test and used successfully to describe entrepreneurial intentions of students by a galaxy of scholars around the globe including in United States (Autio, et.al., 2001 & Krueger, et. al., 2000), The Netherlands (van Gelderen, et. al., 2008), Norway (Kolvereid,1996), Russia (Tkachev & Kolvereid, 1999), Finland, Sweden (Autio et al., 2001), Germany (Jacob & Richter, 2005), Spain and Taiwan (Liñán & Chen, 2009), South Africa (Gird & Bagraim, 2008) and Germany, India, Iran & Poland (Moriano, et. al., 2011). This study distinguishes itself from the above works by choosing two fast developing nations of Asia which have different cultural setups and value systems. We believe China and India offer a suitable space for further validation of the planned behavioral model besides explaining the motivational antecedents to entrepreneurship. Therefore we ask:

Which of the three motivational antecedents predict entrepreneurial intentions among youth in India and China and how far the differences (if any) are significant?

Method

Sample

Research supports the view that students are adequately suitable as a unit of analysis for cultural and intentional studies given their scope for being potential entrepreneurs and repository of national cultural values (see e.g. Brown, 2002; Lent, Brown & Hackett, 2000; Flores, Robitschek, Celebi, Andersen, & Hoang, 2010; Leong, 2010; Tkachev and Kolvereid 1999; Luthje and Franke, 2003). In line with this view, business students of postgraduate level were chosen from both the countries for as a comparative sample for the purpose of this study. By targeting business students, it was presumed that they are more likely than students from other disciplines to embark on an entrepreneurial career. Scherer, Brodzinsky and Weibe, (1991) suggested that student populations add control and homogeneity to such studies because individuals studying business already have interest in pursuing business related careers.

Sampling

Probability sampling otherwise a useful approach for data collection is usually considered undesirable for cross cultural-cum-entrepreneurial intention studies given the technical fallacies associated with it (see for e.g., Kolvereid, 1996; Tkachev and Kolvereid, 1999; Krueger, Reilly, and Carsrud, 2000; Fayolle and Gailly, 2005; Veciana, Aponte, and Urbano, 2005). Convenience sampling was preferred for the study and for its wider use in the similar researches (see for example, Linan and Guerrero, 2011; Douglas and Fitzsimmions, 2005; Nazir, 2000).

Research Instrument

Entrepreneurial Intention Questionnaire (EIQ)

Despite inconclusive result findings, research vehemently supports the applicability of TPB for measuring entrepreneurial intentions. A good part of these differences may have been due to measurement issues (Chandler & Lyon, 2001). In fact, measuring cognitive variables implies considerable difficulty (Baron, 1998). Thus, empirical tests have differed widely. Krueger, et. al., (2000) used single-item variables to measure each construct. Kolvereid, (1996) used a belief-based measure of attitudes. More recently, Kolvereid and Isaksen, (2006) have used an aggregate measure for attitudes but a single-item for intention. Similarly, some of these studies used an unconditional measure of intention (Autio, et. al., 2001; Kickul & Zaper, 2000 and Zhao, Hills and Siebert, 2005), while others forced participants to state their preferences and estimated likelihoods of pursuing a self-employment career "as opposed to organizational employment" (Erikson, 1999; Fayolle, Gailly and Lassas., 2006). Addressing the various contradictions regarding measurement issues in the literature, Linan and Chen, (2009) produced a standard measurement instrument for entrepreneurial intention and its antecedents. In this sense, the scale thus developed is based on an integration of psychology and entrepreneurship literature, as well as previous empirical research in this field. The EIQ tries to overcome the main shortcomings of previous research instruments (Linan and Chen, 2009).The developer of the EI scale has used seven point intentions Likert-Scale which has been retained in this research too. The EIQ has been used with prior permission from the authors.

Questionnaire Translation

Translation procedures play a central and important role in multilingual survey projects. Although good translation products do not assure the success of a survey, badly translated questionnaires can ensure that an otherwise sound project fails because the poor quality of translation prevents researchers from collecting comparable data.

Language harmonization, semantic symmetry and vocabulary-fit-testing techniques provided under Comparative Survey Design and Implementation (CSDI) George and White, 2008) guidelines have been duly followed to preserve item meaning by the translator and his team. It was also imperative to authenticate the translation to check for any discrepancy that might have crept in during the translation process. This canon was also duly followed and authentication of the translated questionnaire was done by two Chinese professors.

Data collection in China

Data collection in China was done using the translated version of the English questionnaire. The researchers received an invitation from the Tianjin University of Finance and Economics

(TUFE), Tianjin China for a field trip with regard to data collection. Apart from TUFE, the second author visited four major cosmopolitan Universities: Nankai University, Tianjin University, Tianjin University of Science and Technology and Tianjin University of Commerce.

As a matter of practicality translated instrument (paper and pencil type) was distributed to students of the business faculties in a classroom setting, which allowed researcher to maintain control over the environment. Students were given verbal instructions in their own language by the interpreter. This resulted in high response rate.

Data Collection in India

Data collection in India was done using English version of the research instrument. From Kashmir University in the north to the Annamalai University in the south, an attempt was made to bring the feel of all geographical regions of the country into the sample. Other Important universities visited in India included, cosmopolitan Delhi University (DU), Kurukshetra University, Teerthaker Mahaveer University (TMU), Utraksha Business School (UBS), IIM Kashipore, University of Manipur, Indian Institute of Foreign Trade (IIFT), Aligarh Muslim University (AMU) etc.

A total of 420 each sets of questionnaires were distributed to selected respondents in both countries, of which 380 in China and 373 in India questionnaires were received back resulting in a response rate of 90.47% and 89% respectively.

Data screening

Data screening is one of the essential processes of ensuring that data is clean and ready to go before conducting further statistical analyses (Gaskin, 2012).

Table (1.1) Total cases used in the study

Country	Administered	Collected	Screened out	Net cases	Total
India	420	380	80	300	621**
China	420	373	52	321	

Moreover, it is done to ensure the data is useful, reliable, and valid for testing causal theory. Using O'Brien, (2007) guidelines, case screening and variable screening was conducted on the data. Both visual inspection and other technical screening methods were employed to screen out influential cases. Data cases with missing data more than 10% were eliminated, and for cases lesser than 10%, Median Replacement Method (Gaskin & Lynch, 2003) was employed. For un-engaged responses (someone who responds with the same value for every single question), which have a tendency to influence the data in a negative way, Zero/Lesser-Standard Deviation

Technique using Microsoft Excel was used to screen them out. Outliers are another issue that has the potential to influence the data. Visual inspection of Normal Q-Q Plots and Box-Plots was conducted to remove the extreme cases. The final data set used for CFA, Equality of means test and causal relationships is presented in Table (1.1).

Data Analysis Techniques

An analysis of relevant scientific studies dealing with the question of the prediction of entrepreneurial intentions has shown that many studies suffered from methodological constraints. This study hence aims to overcome these constrains by resorting to better research design in comparison to previous studies.

Structural Equation Modeling (SEM)

The structural equation technique has been increasingly used in behavioral sciences over the past decade (Shook, et. al., 2004). Structural Equation Models (SEM) (Bollen, 1989; Kaplan, 2000) include a number of statistical methodologies meant to estimate a network of causal relationships, defined according to a theoretical model, linking two or more latent complex concepts, each measured through a number of observable indicators.

Partial Least Square-Structural Equation Modeling (PLS-SEM)

PLS (Partial Least Squares) approach to Structural Equation Models, also known as PLS Path Modeling (PLS-PM) has been proposed as a component-based estimation procedure different from the classical covariance-based LISREL-type approach. PLS-SEM is considered as a *soft modelling* approach where no strong assumptions (with respect to the distributions, the sample size and the measurement scale) are required. This is a very interesting feature especially in those application fields where such assumptions are not tenable, at least in full. PLS approach, consistent with standard structural equation modelling precepts provides the researcher with greater ability to predict and understand the role and formation of individual constructs and their relationships among each other (Chin, 1998; Hulland, 1999). Moreover, PLS is often considered more appropriate than covariance-based modeling techniques like LISREL when the emphasis is prediction like the present study which aims at testing only the causal relationships rather than developing any theory since it attempts to maximize the explained variance in the dependent construct.

Software for SEM used in the study

Apart from SPSS Version 20, the study used PLS Graph 2.0 and SmartPLS 3 for building the measurement and structural models.

Measurement Model

SEM analysis presupposes the construction of two types of models: The Measurement model and Structural model. While the former defines the relations between the latent variables and the observed indicators or manifest variables, the latter, however defines the relationship *inter se* latent variables. The following section explains the measurement model with all the relevant psychometric tests.

Results and Discussion:

Confirmatory Factor Analysis (CFA)

In order to check whether the indicators of each construct measure what they are supposed to measure, tests for convergent and discriminant validity were performed on joint sample. In terms of convergent validity (Bagozzi and Phillips, 1982), both indicator reliability and construct reliability were assessed (Peter, 1981). Indicator reliability was examined by looking at the construct loadings. All loadings are significant at the 0.01 level and above the recommended 0.7 parameter value. Following Chin (1998) approach, significance tests were conducted using the bootstrap routine with 500 re-samples. Results for *convergent validity, communalities, CR* and *AVE* of all study variables are presented in Table 1.2. However, the diagrammatic representation of measurement model produced in PLS Graph is given in Appendix I.

Table (1.2) Psychometric properties of all study variables

CONSTRUCT	ITEM	LOADING	COMMUNALITY	CR*	AVE**
Attitude Towards Behavior (ATB)	ATB2	0.7938	0.6302	0.802	0.576
	ATB3	0.7156	0.5121		
	ATB4	0.7646	0.5846		
Subjective Norms (SN)	SN1	0.8086	0.6538	0.791	0.654
	SN2	0.8086	0.6538		
Perceived Behavioral Control (PBC)	PBC1	0.6714	0.4508	0.786	0.552
	PBC3	0.7673	0.5888		
	PBC4	0.7851	0.6164		
Entrepreneurial Intentions (EI)	EI1	0.7565	0.5722	0.861	0.608
	EI2	0.7639	0.5835		
	EI4	0.7896	0.6234		
	EI5	0.8074	0.6520		
	SS2	0.7601	0.5778		

* Composite reliability
** Average Variance Extracted

Construct reliability and validity was tested using two indices: *Composite reliability* (CR) and *Average Variance Extracted* (AVE). As indicated by the Table 1.3 all the estimated indices are above the threshold of 0.6 for CR and 0.5 for AVE (Bagozzi and Yi, 1988). Finally, the *discriminant validity* of the constructs was measured. The comparison of latent variable correlations and the square root of each reflective construct's AVE suggested that there is

satisfactory discriminant validity (See Table 1.3). Overall, the evaluation of the reflective measurement model reveals that all constructs are of satisfactory reliability and validity for the purposes of testing the various causal relationships.

Table (1.3) Discriminant Validity of Planned Behavior Constructs

Measurement Model	Latent variable correlation off-diagonal versus the Square Root of AVE (*Red Italicized*) **					
	CR	AVE	ATB	SN	PBC	EI
ATB	0.802	0.576	*0.758*			
SN	0.791	0.654	0.464	*0.808*		
PBC	0.786	0.552	0.630	0.501	*0.742*	
EI	0.861	0.608	0.667	0.464	0.650	*0.779*

AVE: Average Variance Extracted, CR: Composite Reliability, ATB: Attitude towards Behaviour, SN: Subjective Norms, PBC: Perceived Behavioral Control, EI: Entrepreneurial Intentions.
*** For adequate construct discriminant validity, diagonal elements should be greater than the corresponding off-diagonal elements.*

Following the above tables, all the latent variables seem to satisfy the conditions set for the AVE indexes. A score of 0.5 for the AVE indicates an acceptable level (Fornell and Larcker 1981). After developing the constructs with fair psychometric characteristics, the study is set to answer the research questions.

Difference of means test: Chinese vs. Indian Sub-samples

Table 1.4 portrays the difference among the Indian and Chinese samples. Significant differences could be seen among the respondents of the both countries on TPB constructs, i.e. ATB, PBC and EI. Further analysis reveals that mean score is higher in Chinese sub-sample as compared to Indian counterpart on ATB, PBC and EI with a medium effect size of 0.528, 0.432 and 0.769 respectively using Cohen (1988) interpretation of the results.

Table (1.4) Evidential and Inferential statistics for all study variables

Variables	COUNTRY	N	Mean	Std. Deviation	*t*-value	Df	*p*-value	Cohen's *d*(ES)
ATTITUDE TOWARDS BEHAVIOUR (ATB)	INDIA	300	4.7256	1.04340	-6.593	612.093	.000	0.528
	CHINA	321	5.3313	1.24276				
SUBJECTIVE NORMS (SN)	INDIA	300	4.5067	1.11839	-1.189	607.084	.235	0.094
	CHINA	321	4.6262	1.37913				
PERCEIVED BEHAVIOURAL CONTROL (PBC)	INDIA	300	4.3478	1.00064	-5.389	618.607	.000	0.432
	CHINA	321	4.8017	1.09819				
ENTREPRENEURIAL	INDIA	300	3.9858	.95379	-9.635	573.246	.000	0.769

	CHINA	321	4.8933	1.36892				
INTENTIONS (EI)	CHINA	321	4.1620	1.07613				

Source: Primary Data

For Cohen's d an effect size of 0.2 to 0.3 is a "small" effect, around 0.5 a "medium" effect and 0.8 to infinity, a "large" effect.

Planned Behavior Structural Model

Planned Behavioral Model consists of one latent endogenous *EI* variable, and three latent exogenous variables: *ATB, SN* and *PBC* (See Figure II & III for sample countries). All manifest variables are linked to the corresponding latent variable via a reflective measurement model. The results of the model testing for both sample countries are presented in Table (1.5). The explanatory power of all constructs (i.e., *ATB, PBC & SN*) in *EI* is examined by looking at the *squared multiple correlations* (R^2) and f^2, while as the respective contribution is examined through β coefficients.

Cross Validation or Model-Fit

For testing the fit between the data and the theory, Stone-Geisser test (popularly known as Q^2) has been conducted and presented in the Table (1.5). According to Chin (1998), Q^2 represents a measure of how well observed values are reconstructed by the model and its parameter estimates. Models with Q^2 greater than zero are considered to having good predictive relevance. The procedure to calculate the Q^2 involves omitting or "blindfolding" one case at a time and re-estimating the model parameters based on the remaining cases and predicting the omitted case values on the basis of the remaining parameters (Sellin, 1989). Q^2 test for both counties resulted in absolute positive values indicating that the models have efficient predictive validity with values 0.49 and 0.33 for China and India respectively.

Figure II: Structural Model for TPB for Chinese Sub-Sample
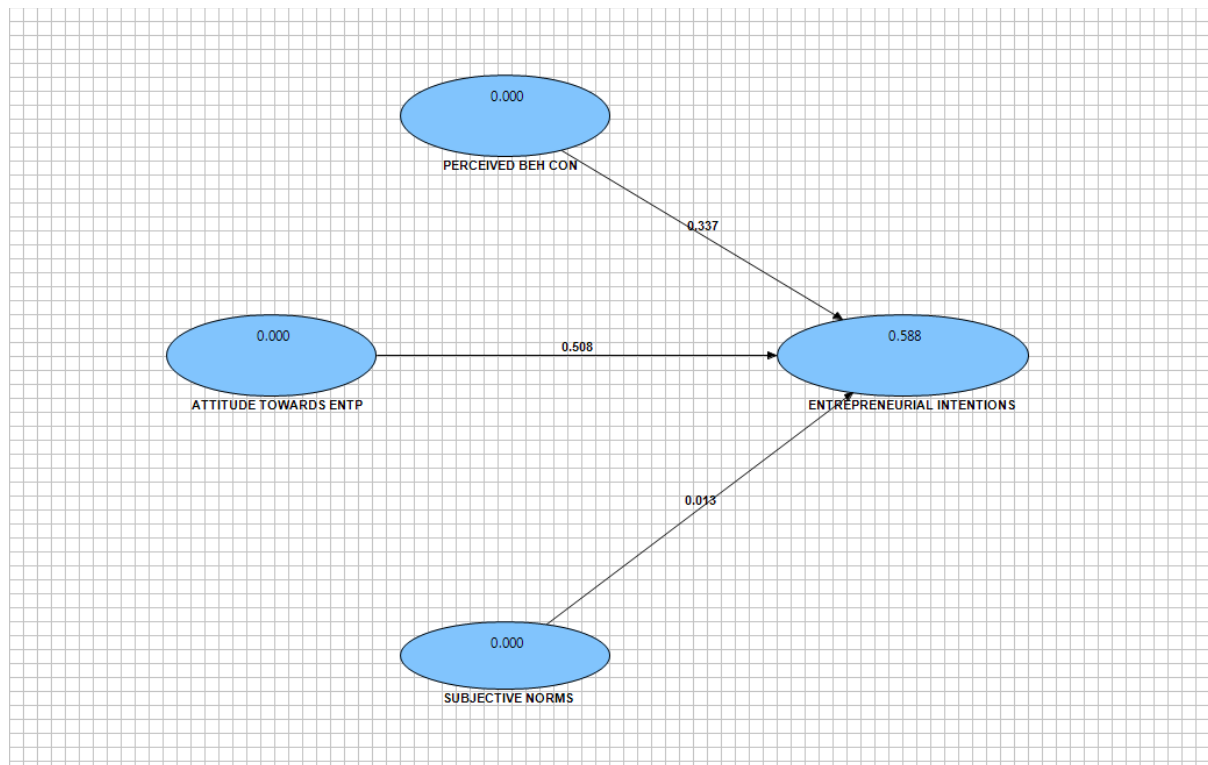
Non-Bootstrapped Model. For significance of coefficients, see output in Table 1.5

Consistent with Chin (1998), bootstrapping (500 re-samples) has been used to generate standard errors and t-statistics. Bootstrap represents a non-parametric approach for estimating the precision of the PLS estimates. This allows us to assess the statistical significance of the path coefficients. Additionally, with the purpose of exploring possible differences in the results between both countries, a multi-group analysis has been performed.

Figure III: Structural Model for TPB for Indian Sub-Sample
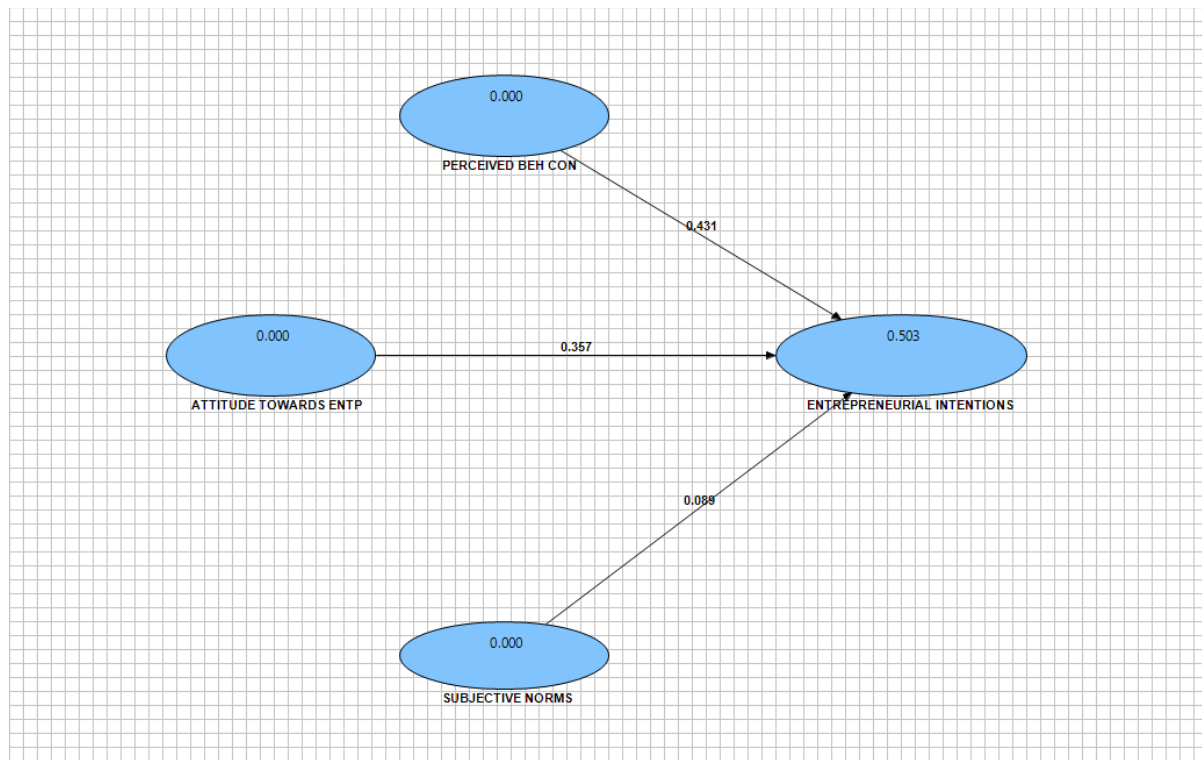
*** *Non-Bootstrapped Model. For significance of coefficients, see output in Table 1.6*

Multi Group Analysis (MGA)

In order to examine the path differences for both sub-samples under reference, Multi-Group analysis was performed. However, the procedure of comparing multiple groups as performed in this paper is subject to several assumptions about the data and the model: (1) the data should not be too non-normal, (2) each sub model considered has to achieve an acceptable goodness of fit, and (3) there should be measurement invariance (Chin, 1998).

We visually inspected normality by means of QQ-plots, which are not presented in this paper. Visual inspection of normality is the normal way of checking distributional assumptions when dealing with quasimetric scales – such as the symmetric 7-point rating scale that this study employed (Bromley, 2002). None of the 19 variables that were used in the analysis were found to deviate strongly from the distributional assumption. To check that each sub model considered achieved acceptable fit, we relied on the R^2 values realized in respect of the endogenous construct (EI) in each subgroup; since there is no other overall parametric criterion in PLS. Table 1.5 shows the R^2 values of EI in both subgroups. The final prerequisite for group comparisons to be made is measurement invariance, i.e. the loadings and weights of the eight constructs' measurement models must not differ significantly within the model. This is to ensure that the paths compared in the test are comparable in terms of the causal relationships that they represent. In this study, the measurement invariance of the constructs is compared with pair-wise t-tests. At the 5% level, no difference between any subsample was found significant.

Table (1.5) Multi-Group differences between sub-samples on Motivational Antecedents

IV	DV	China					India					Country Difference		
		Path	T	f^2	R^2	Q^2	Path	t	f^2	R^2	Q^2	Path	t	p
PBC	EI	0.3367	3.30				0.4308	3.77				0.094	0.875	**0.382**
ATB	EI	0.5076	5.07	**1.42**	**0.590**	**0.49**	0.3573	4.35	**1.01**	**.503**	**0.33**	0.150	**2.089**	**0.037**
SN	EI	0.013	0.18				0.0886	0.89				0.075	0.353	**0.732**

Source: Primary data
Effect sizes (Cohen 1988): f^2 [>0.35 strong effect; f^2 [0.15 moderate effect; f^2 [0.02 weak effect DV: Dependent variable, EI: Entrepreneurial Intentions IV: Independent Variable, PBC: Perceived Behavioural Control, ATB: Attitude towards Behaviour, SN: Subjective Norms.

The approach proposed by Chin, (2000) and implemented by Keil, Tan, Wei, Saarinen, Tuunainen and Wassenaar, (2000) and Sánchez-Franco and Roldán, (2005) uses sample sizes of India and China, regression weights and standard errors of a given path to produce *t*-statistic. The technique follows a *t*-distribution with $m + n - 2$ degrees of freedom, where m denotes the number of cases in Chinese sub-sample, n from India, and *SE* is the standard error for the path provided by PLS-Graph output in the bootstrap test. The formula thus generated is a follows:

$$t = \frac{Path_{China} - Path_{India}}{\left[\sqrt{\frac{(m-1)^2 \times S.E^2_{China}}{(m+n-2)} + \frac{(n-1)^2 \times S.E^2_{India}}{(m+n-2)}} \times \left[\sqrt{\frac{1}{m} + \frac{1}{n}}\right]\right]}$$

Multi-Group analysis revealed that the results were not conclusive with respect to *PBC* which was found otherwise significant in respective countries (See Table 1.5 in Country Difference Column). *SN* of both countries also did not differ. On the other hand, there were significant country-level differences regarding the effects of *ATB* on the *EI* yielding *t* statistics of 2.089 which was found significant in a 2 tailed test at 5% significance level.

These results suggest Ajzen's model, as operational in this study, has the statistically significant ability to explain from 59 percent in China to 50.3 percent in India (f^2 1.42 and 1.01) of the variance in entrepreneurial intention. These results support the importance of using cognitive theories such as that of Ajzen, (1987, 1991) in entrepreneurship research. This is a potentially important finding for researchers who wish to do international and cross-cultural research in entrepreneurship as it demonstrates the potential ability of such a model to globally predict entrepreneurial intentions. Ajzen, (1991) stated that the relative importance of the three antecedents of intention is expected to vary across situations and across different behaviors and within this study the model also differed between both countries. Difference was found in the magnitude of significance between two antecedents (Attitude towards Behavior; Perceived Behavioral Control). However the third important pillar of *TPB*, 'Subjective norms' did not explain the variance significantly (China: β 0.013 and India: β 0.0886: p>.05) of response variable.

Ajzen, (1991) stated as a general rule, the more favorable the attitude and subjective norm with respect to behavior and the greater the perceived behavioral control, the stronger should be an individual's intention to perform the behavior under consideration. As a caveat to this rule, he further argues that the relative importance of attitude, subjective norm, and perceived behavioral control in the prediction of intention is expected to vary across behaviors and situations. Thus, in some applications it may be found that only attitudes have a significant impact on intentions, in others that attitudes and perceived behavioral control are sufficient to account for intentions, and in still others that all three predictors make independent contributions (Ajzen, 1991). In line with this stipulation, the study also found two out of the three motivational antecedents explaining the entrepreneurial intentions in both countries. Subjective norms showed weak link with the explanation of intentions. Autio et. al. (2001) in an empirical analysis also showed a weak influence of subjective norm on entrepreneurial intention with perceived behavioral control emerging as the most important predictor of entrepreneurial intention. Similarly Krueger et. al. (2000) and Wafa and Tatiana (2012) also found weak support for subjective norms as a predisposition to entrepreneurial intentions. Engle, et. al., (2008), however, found weak link for other two pillars of the TPB but only social norms appeared as a strong predictor of entrepreneurial intentions. On the other side, Kolvereid (1996), Tkachev & Kolvereid (1999), and Souitaris, Zerbinati and Laham, (2007) found all the three pillars of TPB having significant influence on self-employment intentions. Such conflicting findings may be attributed, but not limited to the measurement diversities and the contextual factors.

Nevertheless, contradiction apart, one of the major finding of this study was that the attitude towards entrepreneurship of Chinese sub-sample was found significantly higher (t=2.089, $p<$ 0.05) than Indian sub-sample in the multi-group analysis. This difference in attitude favoring entrepreneurship as an occupational choice might be attributed to the Chinese policy of imparting relevant entrepreneurial education to its University graduates seemingly affecting their occupational preference towards entrepreneurship. Moreover, this finding goes in line with the extant literature that links entrepreneurship education with positive attitude towards the entrepreneurial intentions. For example Solomon, (2007) illustrated how teaching entrepreneurship serves to instill and enhance these attitudes. Miroslav (2009) elucidated how the entrepreneurship education together with all the theoretical and practical knowledge can make students self-confident and self-sure. Moreover, he maintains that this practical and theoretical precept helps students attain a minimum of needed business etiquette.

In China, the sampled Universities have devised choice based credit system at both undergraduate and post-graduate levels. Two compulsory credits appertaining to entrepreneurship form the important part of the curricula. The syllabi for these two credits contained both classroom learning and practical training. Interestingly, the practical training in Tianjin University of Economics and Finance (TUFE) was literally running a shop in a university campus partly financed by the university in the form of seed capital and partly by the student himself as margin money. Such business laboratories, popularly known as 'incubators' is believed to give a firsthand experience to the prospective entrepreneurs, besides, a much needed exposure.

The Global Entrepreneurship Monitor data which describes the nascent entrepreneurship rates as Total early-stage Entrepreneurial Activity (TEA) (Percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business) also corroborate with the findings of the present study. Moreover, Visual inspection of line chart indicates better TEA rates in China than India (See Figure IV).

Figure IV: Comparison between China and India on Total Early-stage Activity (TEA)

Conclusion

This study aimed to contribute to our understanding of how both countries differ in entrepreneurial intentions. It specifically tested the cross-cultural generalizability of the TPB for predicting students' entrepreneurial intentions in two different settings. At the very outset, all the constructs were psychometrically tested to check whether the indicators of each construct measured what they were supposed to measure. Tests for convergent and discriminant validity were performed on joint sample. Subsequently, statistical differences test was performed to know how each construct behaved between both sub-samples. The results of equality test revealed sizable mean score differences across three out of four study variables. Study results support the view that cross-cultural differences in the meaning of TPB components are generally minor in nature and hence TPB can be regarded as a culture-universal theory which can be meaningfully employed to predict career intentions in different countries.

Moreover, study supports the notion that the relationships among the TPB components are equally strong and comparable across cultures–the only exception being the relation of social norms with intentions. Across both cultures under reference, attitude towards entrepreneurship was the strongest predictor of entrepreneurial intentions followed by Perceived Behavioral Control. However, Chinese students exhibited statistically significant attitude towards entrepreneurship corresponding to their Indian counterparts. One of the reasons as cited elsewhere in the text also could be attributed to the entrepreneurship education being imparted to the students in China. Subjective norms appeared to be the least important predictor of students' entrepreneurial intentions across both cultures. This in effect was the only predictor whose influence didn't vary across both the cultures. The generally weak influence of social norms on entrepreneurial intentions might also be due to the fact that younger people make entrepreneurial career decisions more based on personal (attitudes, Perceived Behavioral Control) rather than on social (Subjective norm) considerations. The findings of the study may be contested for non-random sampling technique besides highlighting only the first step in the entrepreneurial process, i.e. predicting entrepreneurial intentions as most psychological studies conducted to date do (e.g. van Gelderen, et. al., 2008). The basic assumption as put forth by Ajzen (2002) behind this focus was that the disposition most closely linked to the performance of volitional action is the intention to engage in this action. Studies testing the intention–action relationship are still scarce but nevertheless supportive (Autio, et. al., 2001; Kolvereid & Isaksen, 2006).

Future research

As acknowledged here in alone, this study suffers from certain limitations. Although the results obtained are fully reliable and unbiased, they may still be sensitive to the specific regions/groups

analyzed. Future research should try to replicate these results in a wider set of regions within and across countries.
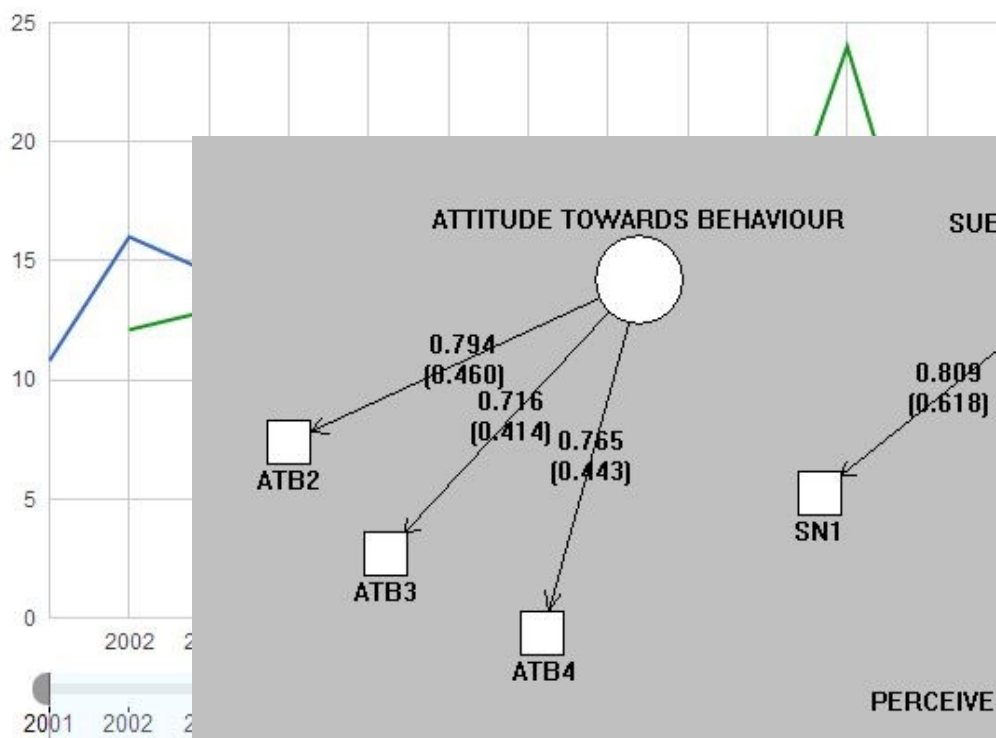
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