

Student entrepreneurial intentions in emerging economies: institutional influences and individual motivations

Student EI in emerging economies

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Abstract

Purpose – This study aims to incorporate macro- and micro-level institutional factors into the theory of planned behaviour (TPB) model to understand their effect on entrepreneurial intentions (EI) amongst students in nations from Latin America and Caribbean region and India.

Design/methodology/approach – Using non-probability sampling technique, data was collected from Colombia, Dominican Republic, India and Mexico, and consisted of 757 useable responses from students. Structural equation modelling was employed to conduct confirmatory factor analysis while path analysis was used to test the hypotheses.

Findings – Combined samples from all countries showed information and communications technology infrastructure, usage and adoption (ICTi) and educational support had an indirect effect on EI through personal attitude (PA) and perceived behavioural control (PBC) but not through subjective norms (SN). Additionally, it was found that while PA and PBC have a direct influence on EI; SN does not. Further, an inverse relationship was found between age and EI, while respondents' gender, academic programme and entrepreneurship education had no significant effect on EI.

Practical implications – This study suggests enhanced investments in developing and emerging economies by enabling institutional environments at the macro- and micro-level that could help promote EI.

Originality/value – The current paper contributes to the EI literature by incorporating institutional factors at macro- and micro-levels in developing and emerging economies towards a more integrative TPB.

Keywords Entrepreneurial intention, India, Institutional theory, Latin America and the Caribbean, Theory of planned behaviour

Paper type Research paper

1. Introduction

The study of precursors of entrepreneurial intentions (EI) continues to be relevant since a better understanding of these factors allow generating more suitable conditions to improve the socio-economic environment of regions through entrepreneurship, especially in developing and emerging economies. Quite an established literature exists concerning EI, especially through



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theory of planned behaviour (TPB) lens (González-López *et al.*, 2019; Kautonen *et al.*, 2015; Liñán and Chen, 2009; Otache *et al.*, 2021); however, a dearth of research remains on institutional context that could influence EI (Iakovleva *et al.*, 2011; Paul and Shrivatava, 2016). Specifically, studies on EI have examined its antecedents from a plethora of perspectives: personality traits (González-López *et al.*, 2019; Yukongdi and Lopa, 2017), individual demographics (Nowiński *et al.*, 2019), entrepreneurship education (EE) (Bae *et al.*, 2014; Otache *et al.*, 2021), parental and family influence (Bloemen-Bekx *et al.*, 2019; Pfeifer *et al.*, 2016), national and regional differences (Franco *et al.*, 2010; Iakovleva *et al.*, 2011), and cultural and social norms (Teixeira *et al.*, 2018). All these perspectives have contributed to understanding EI; however, factors that could influence TPB and EI relating to institutional variables have not received a great deal of attention (Liñán and Fayolle, 2015).

Furthermore, even though there is a pre-ponderance of studies on EI, especially in the context of numerous developed economies (see systematic reviews by Bae *et al.*, 2014; Liñán and Fayolle, 2015), studies in developing and emerging economies in the Latin America and the Caribbean region have been quite few in spite of the vast unique opportunities presented by the region for management research and theory-testing (Aguinis *et al.*, 2020). Compared with other regions, Latin America and the Caribbean region has one of the highest rates of EI and new business creations in the world (Bosma *et al.*, 2020) and provides a great avenue for further contributions to literature on EI.

This study therefore responded to calls for more research on what institutions might influence TPB and EI (Iakovleva *et al.*, 2011, p. 365). Additionally, in response to calls for further research on entrepreneurship in developing and emerging economies (Aguinis *et al.*, 2020; Paul and Shrivatava, 2016), we focused on three Latin America and the Caribbean countries (Colombia, Dominican Republic and Mexico) and India to test our assumptions.

Developing and emerging economies are characterised by a weak, poorly-enforced institutional environment (Paul and Shrivatava, 2016) and have far less developed support institutions compared with Western developed economies (Iakovleva *et al.*, 2011). Thus, institutions are markedly different between developing and emerging economies and developed countries. We therefore relied on institutional theory from a sociological perspective (DiMaggio and Powell, 1983; Meyer and Rowan, 1977) and the field of new institutional economics (North, 1990; Scott, 1987; Williamson, 2000), as well as TPB from social psychology discipline (Ajzen, 1991) to better understand institutional environment and individual motivators respectively, as it concerns EI. In addition, although the role of informal institutions such as norms of behaviour, customs and culture is quite prevalent in developing and emerging economies (Peng *et al.*, 2008), our interest is on formal institutional factors because informal institutions as antecedents of EI has received considerable attention in entrepreneurship literature (Liñán and Chen, 2009; Pruett *et al.*, 2009; Schmutzler *et al.*, 2019). Particularly, perceived macro- and micro-level institutional factors are incorporated to better understand EI, which is in line with studies that argue about the importance of studying the co-existence of micro- and macro-level determinants in social behaviours (Minichilli *et al.*, 2012). Thus, following the recommendations of Ajzen (2020) regarding the incorporation of predictors, macro- and micro-level institutional factors are conceptually proposed as predictor variables, quite distinct from existing TPB predictors based on literature.

This study therefore incorporated both macro- and micro-level institutional factors into the TPB model with a view to understanding their effects on EI. Information and communications technology infrastructure, usage and adoption (ICTi) was employed to learn more about macro-level institutional factors while educational support (EDS) was used to better understand micro-level institutional context. In such a digital age, ICTi has become even more relevant for business creation. It is a key element within the entrepreneurial ecosystem because it enables development of innovative digital solutions through technological applications and electronic channels (Colovic and Lamotte, 2015; Sussan and Acs, 2017). The relevance of ICTi is better appreciated in the context of the global pandemic

which has increased the stakes for technological competitiveness. Individuals with access to ICTi and facilities will probably develop ideas, intention and propensity for entrepreneurial digital solutions. Additionally, EDS is germane because it is composed of a set of initiatives designed to improve national economic development through constant investment in quality education (Gelaidan and Abdullateef, 2017). An integral part of EDS is the level of EE, which scholars have argued helps develop entrepreneurial competences and EI (Bae *et al.*, 2014; Padilla-Angulo, 2019; Pfeifer *et al.*, 2016). Hence, the inclusion of ICTi and EDS in this study's framework provided an opportunity to examine significant institutional factors from an approach that responds to current needs, extending what was previously known about EI's predictors especially from an institutional context in developing and emerging economies.

The rest of the study is structured as follows. Section 2 explains the theoretical background and hypothesis development, which is subsequently followed by the methodology adopted in section 3. Results and findings are presented in section 4, discussions are elaborated upon in section 5 while the study concludes with theoretical and practical implications, as well as recommendations for future research in section 6.

2. Theoretical background and hypotheses development

2.1 Theory of planned behaviour

Several theories have been incorporated into studies on EI to understand factors that could influence the intent and decision to begin an entrepreneurial career. Theories such as social learning (Bandura, 1977) and entrepreneurial event (Shapiro and Sokol, 1982) have been employed in EI literature; however due to its social cognitive explanation of individual intent, as well as its consistency in predicting behaviour, TPB by Ajzen (1991) remains more commonly adopted by scholars (see Liñán and Fayolle, 2015 for a review). TPB is a behaviour-centred theory which indicates that behaviours are preceded by intentions and the strength of these intentions formulate behavioural engagements; hence, leading to prediction of human actions (Ajzen and Kruglanski, 2019; Liñán and Chen, 2009). According to TPB, individuals form intentions and make decisions to pursue new entrepreneurial ventures based on three motivational dimensions that ultimately influence behaviour: personal attitude (PA), subjective norms (SN) and perceived behavioural control (PBC) (Ajzen, 1991).

Personal attitude refers to the personal evaluation of one's behaviour and degree of attraction towards becoming an entrepreneur and suggests that individuals with a positive attitude towards entrepreneurship are likely to form EI faster (Ajzen, 1991; Liñán and Chen, 2009). In developing and emerging economies, individuals may likely have a favourable attitude towards entrepreneurship because of the prevalence of turbulent environments, which makes salaried jobs less reliable for people (Bosma *et al.*, 2020; Iakovleva *et al.*, 2011). According to the global entrepreneurship monitor (GEM) report, a large percentage of people in developing and emerging economies are convinced they personally have the requisite skills and knowledge for business creation, which eventually makes them find entrepreneurship desirable (Bosma *et al.*, 2020). Further, studies on developing and emerging economies have found a strong positive relationship between PA and EI (Iakovleva *et al.*, 2011; Karimi *et al.*, 2016; Trivedi, 2017). We therefore posit that in the context of developing and emerging economies in Latin America and the Caribbean countries and India, PA will positively influence EI. Consequently, the following hypothesis is proposed:

H1a. PA is positively related to EI.

SN is the social acceptance of entrepreneurial choices by loved ones and assesses the degree to which there is presence or absence of social approval from family and friends to an individual's desire of becoming an entrepreneur (Ajzen, 1991; Padilla-Angulo, 2019). Studies on the relationship between SN and EI have had contrasting findings (see Liñán and Fayolle, 2015).

However, in developing and emerging economies such as Latin America and the Caribbean countries and India, there is huge emphasis on relationships with family members, friends and close networks. This is because these societies are collectivistic in nature (Hofstede *et al.*, 2010). We therefore advance that because there is a huge propensity for entrepreneurship in developing and emerging economies (Bosma *et al.*, 2020), there is likely to be social approval and support from close networks. Hence, in the context of developing and emerging economies in Latin America and the Caribbean countries and India, SN will positively predict EI. Thus, the following hypothesis is proposed:

H1b. SN is positively related to EI.

PBC refers to individuals' perception of the ease or difficulty of becoming an entrepreneur. It also captures an individual's perceived ability in controlling the behaviour associated with entrepreneurship (Ajzen, 1991). It is generally believed there is a direct, positive relationship between PBC and EI, especially in environments where individuals have a strong sense of belief in their own capacity to start a new business (González-López *et al.*, 2019; Liñán and Chen, 2009; Trivedi, 2017). We opine that due to the unreliability of salaried jobs and presence of turbulent environments in developing and emerging economies, there is a high rate of new business creations in these regions (Bosma *et al.*, 2020; Iakovleva *et al.*, 2011), which indicates that despite adverse conditions, individuals are likely to perceive themselves as having the requisite ability to control the creation process of a new firm. It is therefore argued that in the context of developing and emerging economies in Latin America and the Caribbean countries and India, PBC will positively influence EI. Thus:

H1c. PBC is positively related to EI.

2.2 Institutional theory

Institutional theory highlights the importance of institutions in incentivising or restricting the development of entrepreneurial initiatives (Lewellyn and Muller-Kahle, 2016). In developed economies, institutions are treated as background or invisible conditions (Meyer *et al.*, 2009; Peng *et al.*, 2008); however, in developing and emerging economies, they are very crucial in providing the rules of the game that could affect, influence or shape entrepreneurial behaviour and level of entrepreneurial activities in a country (Estrin *et al.*, 2013; North, 1990). Institutions are therefore important in predicting entrepreneurial activities in developing and emerging economies (Estrin *et al.*, 2013). According to North (1990), a country's institutional environment could either be classified as formal or informal institutions. Formal institutions refer to laws, regulations, political and economic rules, including policies on hard and soft infrastructures which help to enforce business contracts and make transactions easier. Informal institutions are socially approved, yet unwritten rules of behavioural norms that rely on customs and traditions of a society (North, 1990; Peng *et al.*, 2008). In societies with highly institutionalised contexts, formal organisational structures emerge and show considerable diversity in approach and form (Meyer and Rowan, 1977). These formal structures in turn become institutionalised and grant legitimacy to organisational actions and individual behaviour (DiMaggio and Powell, 1983; Scott, 1987). In his submission, Scott (1987) argues that institutionalisation is a process that instils value, which in turn promotes stability. These are essential ingredients necessary for the promotion of entrepreneurial initiative in any society (Scott, 1987).

There are a number of studies on informal institutions assessing its antecedents on EI, particularly from a cultural and social norms perspective (Liñán and Chen, 2009; Pruett *et al.*, 2009; Schmutzler *et al.*, 2019). Likewise, there are a number of studies that examined the effect of institutions on EI from a macro- and micro-level perspective. Some studies focused on macro-level institutional factors alone such as national culture and economic development variables (Lewellyn and Muller-Kahle, 2016; Nakara *et al.*, 2020; Schmutzler *et al.*, 2019) while

others paid attention to micro-level institutional variables influencing EI such as perceived EDS at the university and EE resources (Nguyen and Duong, 2021; Yi, 2021). Table 1 provides a summary of previous studies on EI that considered macro- and micro-level institutional factors and it reveals gaps in literature, as well as the uniqueness of this particular study. This study therefore focused on and incorporated distinct institutional factors at the macro- and micro-level by integrating them into the planned behaviour model with a view to understanding their independent and combined effects on EI. Macro-level institutional variable was explored by ICTi, while EDS was employed as a proxy for micro-level institutional factor.

2.2.1 Macro-level institutional factor: ICTi and TPB. Broad institutional factors that tend to influence entrepreneurship at the national or macro-level are those related to government policies, regulations and programs (Teixeira *et al.*, 2018), cultural and social norms (Pruett *et al.*, 2009) and infrastructure (McCoy *et al.*, 2018). Infrastructures such as ICTi are especially important because they provide an enabling environment for the creation of new business ventures through access to and usage of facilities (McCoy *et al.*, 2018). ICTi has become increasingly important for business formation in this digital age and is a critical element within the entrepreneurial ecosystem since it enables development of innovative digital solutions (Sussan and Acs, 2017). It is acknowledged that individuals who perceive themselves as having the requisite resources, such as ICTi, will develop a positive PA towards entrepreneurship (González-López *et al.*, 2019; Liñán and Chen, 2009). Additionally, with the availability of ICTi resources and facilities, individuals are likely to perceive an ease in the entrepreneurial venture process and their own ability to control the creation process of a new firm. It is therefore suggested that ICTi will positively predict EI, PA, SN and PBC. Hence, we propose:

H2a-d. ICTi is positively related to (a) EI (b) PA (c) SN (d) PBC

2.2.2 Micro-level institutional variable: educational support and TPB. At the micro-level of tertiary institutions, managers have employed factors such as policies, incentives, organisational culture, networks, EE and EDS to promote entrepreneurial activity (Kusio and Fiore, 2020). Studies have shown the importance of EDS to entrepreneurial development (Saeed *et al.*, 2015; Turker and Selcuk, 2009). Thus, we postulate that individuals with favourable EDS systems will probably develop ideas, intention and propensity for entrepreneurial business ventures. They are also likely to develop competences and a positive PA towards entrepreneurship. Further, friends and colleagues in the same educational environment with access to the same EDS system are expected to be supportive of one another's entrepreneurial ideas. Lastly, a great EDS system will possibly inspire confidence in individuals concerning perceived entrepreneurial easiness and their own ability to control the business creation process. Hence, it is advanced that EDS will positively influence EI, PA, SN and PBC. Thus:

H3a-d. EDS is positively related to (a) EI (b) PA (c) SN (d) PBC

2.3 Influence of individual motivators and elements in TPB

2.3.1 Predictive and mediating influence of subjective norms. The predictive influence of SN on other elements of the TPB, i.e. PA and PBC, remains a subject of debate since Liñán and Chen (2009) argued SN exerted its influence on both PA and PBC. In the context of developing and emerging economies; however, SN has been found to be high because there is a great reliance by individuals on social approval from family members, friends and close networks concerning intent to become entrepreneurs (Iakovleva *et al.*, 2011; Soria-Barreto *et al.*, 2017). Collectivistic societies in developing and emerging economies such as Latin America and the Caribbean countries and India (Hofstede *et al.*, 2010) are therefore likely to have high levels of SN. With such a high level of social approval from friends and family concerning entrepreneurship, it is

Table 1.
Sample studies of EI
considering macro- and
micro-level
institutional factors

	Macro-level institutional factor(s)	Micro-level institutional factor(s)	Micro-level individual attributes/characteristics	Nature of study	Main findings/contribution
Nguyen and Duong (2021)	None	Perceived educational support at the university	Individual factors such as entrepreneurial self-efficacy, P.A, SN and PBC	Empirical study of 2,218 students in 14 universities in Vietnam	Educational support influences EI and directly predicts P.A, SN and PBC
Yi (2021)	Government institutional support such as technical information, financial support and policy implementation	Institutional university support such as entrepreneurship education and resources	None	Primary data retrieved from 586 university graduates in China	University entrepreneurial support coupled with external government institutional support are important for green EI and behaviour
Zaman et al. (2021)	Macro institutional factors such as coercive, normative and mimetic forces	None	Individual characteristics such as family business exposure	Primary data from 367 university students in Pakistan	Family business exposure positively influenced institutional forces (coercive, normative and mimetic) which further developed individuals' EIs
Nakara et al. (2020)	Macro level factors represented by economic development but measured by gross domestic product (GDP) per capita and competitiveness	None	None	Longitudinal study based on secondary data from 72 countries between 2010 and 2016	Findings suggest individuals' EI differ between countries depending on levels of economic development. There is a link between GDP per capita and EI
Schmutzler et al. (2019)	National culture as macro-level determinant. Consideration for institutional individualism-collectivism orientation of nations	None	Individual factors such as entrepreneurial self-efficacy	Multi-level analysis using secondary data pooled from 39 countries between 2002 and 2010	Students' entrepreneurial self-efficacy and EI is contingent on the individualistic-collectivistic orientation of the national culture

(continued)

	Macro-level institutional factor(s)	Micro-level institutional factor(s)	Micro-level individual attributes/characteristics	Nature of study	Main findings/contribution
Lewellyn and Muller-Kahle (2016)	Considers formal institutions and national culture as macro-level business environment	None	Individual attributes such as entrepreneurial self-efficacy and opportunity recognition	Fuzzy-set qualitative comparative analysis based on secondary data obtained from 40 countries	Macro-level business environment combined with individual attributes create conditions that lead to high levels of entrepreneurial activity
Solesvik <i>et al.</i> (2014)	Cultural environment	Entrepreneurial specific education	Perceived desirability and perceived feasibility for entrepreneurship	Primary data from 321 students in three Ukrainian universities	Cultural factors combined with specific education and also interacting with individual attributes are not significantly associated with higher intensity of EI
Valdez and Richardson (2013)	Regulative, cognitive, and normative institutions as national institutions	None	Individual decisions such as venture start-up decision, financing arrangements and management methods	Multi-level analysis based on secondary data from 52 countries between 2005 and 2007	National institutional environments could explain differences in entrepreneurship across countries
This study	ICTI usage and adoption as macro-level institutional factor	Educational support (EDS) as micro-level institutions. Integration of macro- and micro-level institutional factors	Individual attributes and motivators such as P.A, SN and PBC	Primary data from 757 university students in Latin America and the Caribbean region and India	ICTI and EDS has an indirect effect on EI through individual attributes and motivators

Table 1.

expected SN will positively influence individuals' PA and PBC. Additionally, in environments with weak institutional structures such as those found in developing and emerging economies (Peng *et al.*, 2008), it is likely SN will mediate the relationship between institutional variables (ICTi and EDS) and other individual motivators of TPB (PA and PBC), including EI. A study of developing and emerging economies in Latin America by Soria-Barreto *et al.* (2017) attested to the strong influence of SN in being able to mediate the relationship between structural factors and EI. Consequently, the following hypotheses are proposed:

- H4a-h.* (a) SN is positively related to PA (b) SN mediates the relationship between ICTi and PA (c) SN mediates the relationship between EDS and PA (d) SN is positively related to PBC (e) SN mediates the relationship between ICTi and PBC (f) SN mediates the relationship between EDS and PBC (g) SN mediates the relationship between ICTi and EI (h) SN mediates the relationship between EDS and EI

2.3.2 Mediating influence of personal attitude. In developing and emerging economies, there is a possibility individuals will have high levels of PA towards entrepreneurship due to unreliability of salaried jobs (Iakovleva *et al.*, 2011). This implies that in countries with high levels of PA but weak institutional environments, PA is likely to mediate the relationship between institutional variables (ICTi and EDS) and the intent to become an entrepreneur. Furthermore, the relationship between SN and EI is expected to be mediated by PA. Studies conducted in developing and emerging economies allude to the mediating impact of PA (Otake *et al.*, 2021; Soria-Barreto *et al.*, 2017; Urban and Chantson, 2019). In their study of Chile and Colombia for instance, Soria-Barreto *et al.* (2017) found that PA mediates micro-level institutional variable (university environment) and EI. We therefore posit that in the context of developing and emerging economies, an individual's strong degree of attraction towards entrepreneurship will possibly mediate the relationship between institutions and EI, as well as the nexus between SN and EI. Hence, we propose:

- H5a-c.* PA mediates the relationship between (a) ICTi and EI (b) EDS and EI (c) SN and EI

2.3.3 Mediating influence of perceived behavioural control. Individuals in developing and emerging economies tend to have a strong sense of belief in their own capacity to start a business and they perceive themselves as having the requisite ability to control the creation process of a new firm (Soria-Barreto *et al.*, 2017). With high levels of PBC, institutional environment (ICTi and EDS) is likely to have an indirect effect on EI through PBC. Additionally, the effect of SN on EI is expected to be mediated by PBC. Studies show PBC could have a mediating effect in the TPB framework (Laguía *et al.*, 2019; Soria-Barreto *et al.*, 2017). In their treatise, Laguía *et al.* (2019) concluded that PBC mediated the relationship between psychosocial variables and EI. Thus, we submit that as it concerns developing and emerging economies, an individual's strong sense of belief in their own capacity to start a new business will possibly mediate the relationship between institutions and EI, as well as the link between SN and EI (Figure 1). Hence:

- H6a-c.* PBC mediates the relationship between (a) ICTi and EI (b) EDS and EI (c) SN and EI

3. Methodology

3.1 Research and study context

This study examined students' EI in India (Asia), as well as Mexico (North America), Dominican Republic (Caribbean) and Colombia (South America) – all developing and emerging economies in the Latin America and the Caribbean region. India is the world's largest democracy and the second fastest growing developing and emerging economies in the

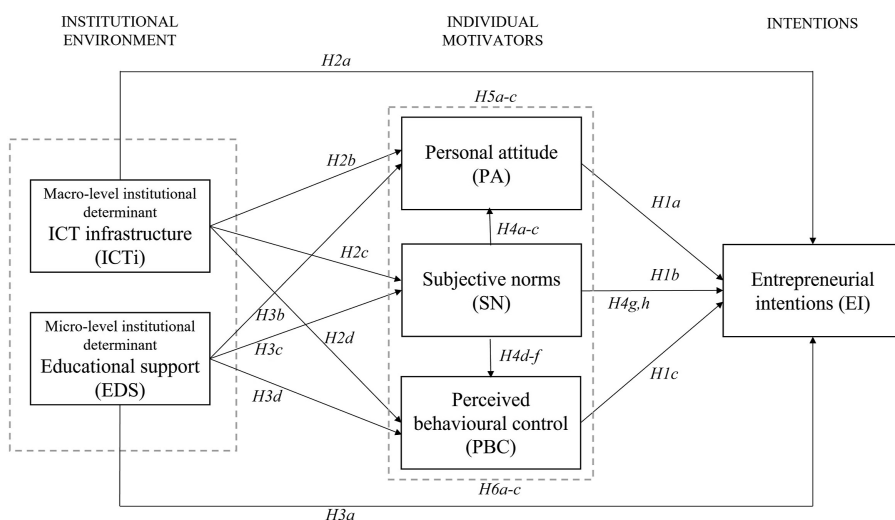


Figure 1. Conceptual framework of the study

world, Mexico is Latin America’s second largest country and 11th largest economy in the world, Dominican Republic is the highest exporter of goods and services in the Caribbean and is one of the fastest growing economies in Latin America, while Colombia is South America’s 2nd most populous country and one of the most attractive countries in the region for investments (CIA, 2020; World Bank, 2020). See Table 2 for country profile and general information.

Variables	Colombia	Dominican Republic	Mexico	India
1. Population (millions) ^a	50.34	10.74	127.58	1366.42
2. GDP per capita (US\$) ^a	6432.4	8282.1	9863.1	2104.1
3. Time required to register property (days) ^a	15	33	39	58
4. School enrolment, tertiary institutions (% gross) ^a	55.33	59.92	41.52	28.06
5. Infrastructure rank ^b	81st	79th	54th	70th
6. ICT adoption rank ^b	87th	79th	74th	120th
7. Mobile-broadband subscriptions rank ^b	101th	88th	78th	116th
8. Internet users % of adult population rank ^b	80th	53rd	72nd	107th
9. Skillset of graduates rank ^b	52nd	88th	70th	93rd
10. Personally have the skills and knowledge (% of adults) ^c	70.7%	N/A	72.4%	85.2%
11. Power Distance (Hofstede Dimension) ^d	67	65	77	81
12. Individualism (Hofstede Dimension) ^d	13	30	48	30
13. Masculinity (Hofstede Dimension) ^d	64	65	56	69
14. Uncertainty avoidance (Hofstede Dimension) ^d	80	45	40	82
15. Long term orientation (Hofstede Dimension) ^d	13	13	51	24
16. Indulgence (Hofstede Dimension) ^d	83	54	26	97

Note(s): a = Data for 2019 extracted from World Development Indicators (World Bank, 2020); b = Data extracted from Global Competitiveness Report 2019 rankings for 141 countries (WEF, 2020); c = Data for 2019/20 extracted from GEM; d = Data extracted from Hofstede country comparison (<https://www.hofstede-insights.com>) (Hofstede Insights, 2022)

Table 2. Country profile and information

Although there are similarities between India and the Latin America and the Caribbean countries, numerous differences exist. Culturally, India is close to the Latin America and the Caribbean nations based on Hofstede's masculinity and power distance dimensions (Hofstede Insights, 2022) but large disparities exist for all other dimensions concerning individualism, uncertainty avoidance, long term orientation and indulgence (see Table 2). Nonetheless, India is included in this study for three main reasons: One, just like Latin America and the Caribbean countries, India suffers from an absence of infrastructure and manufacturing capabilities. It has however distinguished itself from many nations through specialisations in the knowledge-intensive service industry with emphasis on ICT and healthcare services (Bhagavatula *et al.*, 2019; Mukherjee *et al.*, 2022). Two, India has emerged as a major developing and emerging economies in recent times and moved from a regional player to become an international hub for entrepreneurial new ventures with increased investments in technology and ICT infrastructure (Paul and Shrivatava, 2016), as well as producing a pool of chief executive officers (CEOs) for international organisations (Mukherjee *et al.*, 2022). Three, school enrolment for tertiary institutions range between 42 and 60% in the selected Latin America and the Caribbean countries in 2018 while it is a paltry 28% in India (World Bank, 2020). This educational disparity, along with reasons advanced here, provides justification for India's inclusion in the study.

3.2 Sampling and data collection

Data was collected between May and September 2020, which was at the peak of Covid-19 restrictions. Due to the restrictions, we employed a non-probability convenience sampling procedure, which is also common with multi-country studies on EI (Kautonen *et al.*, 2015; Nowiński *et al.*, 2019). However, to reduce generalisability issues associated with this sampling approach, data was collected from at least two universities in each country. Additionally, to minimise the effect of imposed lockdown on physical school interactions in all countries in our study, we relied on universities that were conducting online lectures. Researchers and teachers affiliated with higher educational institutions with online learning activities in the four countries were invited to assist with posting the online surveys, which facilitated easier data collection. Data was collected from National University of Colombia, Universidad de los Andes and Militar University of New Granada in Colombia; Pontificia Universidad Catolica Madre y Maestra and Technological Institute of Santo Domingo in Dominican Republic; Indian Institute of Technology and Central University of Kashmir in India; and Tecnologico de Monterrey, National Autonomous University of Mexico and Anahuac University in Mexico.

The survey was written in English but translated to Spanish, which is the predominant language in Latin America and the Caribbean nations. A back-translation approach was adopted to ensure content equivalence (Brislin, 1970). The English version was employed in India while both versions were made available to students as options in the Latin America and the Caribbean countries. Affiliated researchers in each country administered the surveys through various students' learning platforms. Respondents' gender and age across all countries was used to assess survey equivalence. No significant difference was observed at $p < 0.05$.

Based on screening questions concerning nationality and current country of study, as well as missing data, 379 responses were deleted from the initial 1,136 gathered, which left a total of 757 useable sample size. Mexico had 252 responses while Colombia, Dominican Republic (DR) and India had 210, 89 and 206 useable responses respectively. We note that the survey response rate in the Dominican Republic might be lesser due to the fact that it has a very low population (see Table 2) and a nascent technological ecosystem for online surveys (Curtin *et al.*, 2015). Still, after deleting responses with missing data, the useable sample size of 89 represented 76% of all total responses (117) obtained from the country, which is similar to

useable response rate percentages from previous studies on EI (Kautonen *et al.*, 2015; Liñán and Chen, 2009).

The final sample contained students enrolled in business and non-business courses as may be observed in Table 3. To address non-response bias, *t*-tests were performed on key variables between early and late responses. Also, tests were conducted on useable and deleted responses. Both evaluations showed there was no significant difference in variables ($p < 0.05$). Non-response bias was therefore not deemed a problem.

3.3 Variables and measures

3.3.1 Dependent variable. EI, the dependent variable, was measured by six-items adapted from previously validated studies (González-López *et al.*, 2019; Liñán and Chen, 2009) and was assessed on a Likert-scale of 1 (strongly disagree) to 7 (strongly agree). All items were retained as none showed low correlation.

3.3.2 Independent variables. The independent variables employed in this study are: ICTi, EDS, SN, PA and PBC. To measure ICTi, seven-items were adapted from ITU (2020) and Zhang and Li (2018). EDS was measured by 3-items adapted from Saeed *et al.* (2015) and Turker and Selcuk (2009). SN was measured using three-items from Liñán and Chen (2009).

	Colombia	Dominican Republic	India	Mexico	Total (%)
<i>Age (years)</i>					
Less than 18	3	2	1	3	9 (1.19%)
18–20	97	36	28	128	289 (38.18%)
21–23	62	39	76	104	281 (37.12%)
24–26	20	4	89	11	124 (16.38%)
Above 26	28	8	12	6	54 (7.13%)
<i>Gender</i>					
Male	95	32	78	118	323 (42.67%)
Female	115	57	123	134	429 (56.67%)
Prefer not to say	–	–	5	–	5 (0.66%)
<i>School type</i>					
Privately-owned	85	87	69	200	441 (58.26%)
Public/Government-owned	125	2	137	52	316 (41.74%)
<i>Educational level</i>					
Undergraduate	198	82	84	250	614 (81.11%)
Postgraduate	12	7	122	2	143 (18.89%)
<i>Academic programme</i>					
Business	163	30	108	76	377 (49.80%)
Arts	1	3	6	33	43 (5.68%)
Engineering, Science and Technology	24	25	31	77	157 (20.74%)
Social Sciences and Humanities	22	31	20	66	139 (18.36%)
Others	–	–	41	–	41 (5.42%)
<i>Took entrepreneurship class</i>					
Yes	117	58	112	183	470 (62.09%)
No	93	31	94	69	287 (37.91%)
<i>Previous entrepreneurial experience</i>					
Yes	70	21	45	109	245 (32.36%)
No	140	68	161	143	512 (67.64%)
<i>Total</i>	<i>210</i>	<i>89</i>	<i>206</i>	<i>252</i>	<i>757 (100%)</i>

Table 3. Summary of respondents' characteristics

PA consisted five-items from [González-López et al. \(2019\)](#). Finally, to measure PBC, seven-items were adapted from [Liñán and Chen \(2009\)](#). They were all measured on a Likert-scale of 1–7 (1 = strongly disagree and 7 = strongly agree). All items for the various independent variables were also retained in the study, except ICTi8 which did not load properly with other items in the construct.

3.3.3 Control variables. The following variables were included in the study as control variables: Nationality, age, gender, entrepreneurial experience and academic programmes. Cultural and institutional differences in nations could influence EI ([Iakovleva et al., 2011](#)). Nationality was therefore included and categorically coded. Age could affect EI such that the older an individual becomes, the harder entrepreneurial pursuit becomes ([Levesque and Minniti, 2006](#)). It was measured as a continuous variable in years. Also, men could develop EI more than women ([Bloemen-Bekx et al., 2019](#)); hence, gender was categorically measured (1 = Male, 2 = Female, 0 = No disclosure). Further, previous entrepreneurial experience, as well as exposure to entrepreneurial education could positively predict EI ([Hatak et al., 2015](#)), thus, it was assessed as a categorical variable (1 = Yes, No = 0). Lastly, students' departments and specific academic programmes could affect EI ([Bell, 2019](#)). It was evaluated as a categorical variable (1 = Business, 2 = Arts, 3 = Engineering/Sciences/Technology, 4 = Social Sciences/Humanities and 5 = others).

3.4 Data analysis

In respect of analysis of hypothesised relationships, structural equation modelling (SEM) through path analysis was employed to test the relationships using analysis of a moment structures (AMOS) 25 Software based on combined data from all countries ($n = 757$). When using SEM, there should be consideration for the model fit. This is usually a combination of multiple fit indices to establish overall model acceptability ([Fornell and Larcker, 1981](#)). The fit indices should meet certain thresholds, for the model to be acceptable for hypotheses testing. These conditions were met in this study as a criterion precedent to determining path significance. Additionally, since data was retrieved from multiple developing and emerging economies, it was considered important to compare differences in institutional contexts and EI along country dimensions. Due to ethno-linguistic and cultural similarities, Colombia, Dominican Republic and Mexico were classified as Latin America and the Caribbean countries [1]. They were therefore categorically coded as one group while India was coded as another group. To test for differences, a path invariance test using multi-group analysis was employed. Multi-group analysis permits testing across groups based on group-specific parameters ([Hair et al., 2018](#)).

4. Results and findings

4.1 Assessment of variables

Data normality was confirmed through skewness and kurtosis tests. Additionally, confirmatory factor analysis (CFA) was performed using AMOS 25 software. Survey items loaded more on their respective latent constructs than on other latent constructs. Further, although the variables' correlation matrix showed concerns for multi-collinearity ([Table 4](#)), additional tests through the variance inflation factor (VIF) were done and values ranged between 1.29 and 2.24, far less than the recommended threshold of 10 ([Hair et al., 2018](#)). Thus, multi-collinearity violation is not deemed a substantive concern for analysis. Also, reliability and validity tests were done to ensure stability and appropriateness of data for analysis.

4.1.1 Reliability and validity. Reliability was assessed through the respective Cronbach alpha of all variables, which were all above the recommended threshold of 0.70, suggesting high item reliability ([Hair et al., 2018](#)). Convergent validity of constructs was measured through composite reliability (CR) and average variance extracted (AVE). Measures with CR

above 0.70 suggests high internal consistency of a latent construct while AVEs above 0.50 infers at least 50% of constructs' variance is explained from its indicators rather than from measurement errors (Hair *et al.*, 2018). All constructs met this threshold (Table 5).

Additionally, discriminant validity was assessed through the square root of each latent construct's AVE, which exceeded the respective correlation coefficients with other latent constructs as suggested by Hair *et al.* (2018) and can be seen in Table 4. Also, validity was evaluated through survey items, which loaded more on their respective latent constructs than on other latent constructs. All factor loadings were significant and higher than 0.65 (Table 5).

4.1.2 *Common method variance.* Self-reported surveys could be prone to common method bias. To reduce this bias, some survey items were reverse-coded. Also, items of dependent and independent variables were separated and randomly distributed throughout the survey. Finally, Harman's one-factor test was employed to investigate its presence (Podsakoff *et al.*, 2012) and results showed common method bias is not a threat as no single factor accounted for more than 50% of variances (% of variance = 34.16%).

4.2 Results of hypotheses and analysis

The model fit for the structural equation met acceptable thresholds for SEM, thus justifying continuation with hypothesis testing (minimum discrepancy divided by degrees of freedom (CMIN/DF) = 2.43, comparative fit index (CFI) = 0.99, goodness of fit index (GFI) = 0.99, adjusted goodness of fit index (AGFI) = 0.95, normed fit index (NFI) = 0.98, Tucker–Lewis index (TLI) = 0.96, root mean square error of approximation (RMSEA) = 0.03, *p* of close fit (PCLOSE) > 0.05). The results suggest a positive relationship between two TPB dimensions and EI (PA: $\beta = 0.65, p < 0.001$; PBC: $\beta = 0.31, p < 0.001$), indicating support for H1a and 1c but not 1b (SN: $\beta = 0.04, p > 0.10$). Although no support was found for H2a which predicted a positive relationship between ICTi and EI ($\beta = 0.03, p > 0.10$); however, based on H2b, 2c and 2d, ICTi was found to positively influence all three dimensions of TPB (PA: $\beta = 0.08, p < 0.05$; SN: $\beta = 0.29, p < 0.001$; PBC: $\beta = 0.15, p < 0.001$). Similarly, no support was found for H3a which assumed a positive relationship between EDS and EI ($\beta = 0.01, p > 0.10$); nonetheless, in respect of H3b, 3c and 3d, EDS was found to positively predict all three dimensions of TPB (PA: $\beta = 0.10, p < 0.05$; SN: $\beta = 0.36, p < 0.001$; PBC: $\beta = 0.15, p < 0.001$). Further, support was found for the predictive and mediating influence of SN in respect of most hypotheses in H4. At 1% significant level, SN were found to positively influence PA ($\beta = 0.59, p < 0.001$) indicating support for H4a. SN also partially mediated the relationships between ICTi and PA ($Z = 6.80, p < 0.001$) and EDS and PA ($Z = 10.24, p < 0.001$), which provided support for H4b and 4c respectively. Additionally, support was found for H4d since SN positively predicted PBC ($\beta = 0.33, p < 0.001$). Also, SN mediated the relationships between ICTi and PBC ($Z = 6.05, p < 0.001$), EDS and PBC ($Z = 8.11, p < 0.001$), which provided support for H4e and 4f, respectively. However, no support was found for H4g and 4h as it concerns SN mediating ICTi and EI ($Z = 1.31, p > 0.10$), and EDS and EI

	EI	EDS	ICTi	PA	SN	PBC	Mean	SD	VIF
1. Entrepreneurial Intention (EI)	<i>0.84</i>						4.93	1.66	N/A
2. Educational Support (EDS)	0.41***	<i>0.88</i>					4.59	1.71	1.62
3. ICT Infrastructure (ICTi)	0.33***	0.37***	<i>0.80</i>				4.05	1.28	1.29
4. Personal Attitude (PA)	0.70***	0.40***	0.32***	<i>0.72</i>			5.15	1.57	2.24
5. Subjective Norms (SN)	0.59***	0.48***	0.38***	0.66***	<i>0.78</i>		5.37	1.56	2.07
6. Perceived Behavioural Control (PBC)	0.68***	0.42***	0.35***	0.63***	0.52***	<i>0.79</i>	4.43	1.36	1.85

Note(s): ****p* < 0.01, ***p* < 0.05, **p* < 0.1; SD = Standard deviation; VIF = Variance inflation factor
Italic diagonal

Table 4. Descriptive statistics, construct correlations and square root of AVE

Variables/items	Factor loadings
<i>Entrepreneurial Intentions (EI)</i> {Cronbach's alpha (α) = 0.969, CR = 0.933, AVE = 0.697}	
I will make every effort to start and run my own business (EI1)	0.824
I am determined to create a business venture in the future (EI2)	0.848
I have very seriously thought of starting a firm (EI3)	0.831
I am ready to do anything to be an entrepreneur (EI4)	0.817
My professional goal is not to be an entrepreneur (EI5) ^R	0.844
I have the firm intention to start a firm some day (EI6)	0.846
<i>Educational Support (EDS)</i> {Cronbach's alpha (α) = 0.941, CR = 0.910, AVE = 0.771}	
The education in my university encourages me to develop creative ideas for being an entrepreneur (EDS1)	0.872
My university provides the necessary knowledge about entrepreneurship (EDS2)	0.869
My university develops my entrepreneurial skills and abilities (EDS3)	0.894
<i>ICT infrastructure (ICTi)</i> {Cronbach's alpha (α) = 0.890, CR = 0.923, AVE = 0.632}	
In my country, there is widespread broadband availability in public places such as airports etc (ICTi1)	0.810
Electricity is not readily available in my country to support online activities (ICTi2) ^R	0.812
There is wide broadband Internet availability to support online activities (ICTi3)	0.830
The number of Internet users is high in my country (ICTi4)	0.777
In my country, there is a high percentage of households with Internet connection (ICTi5)	0.793
In my country, there is a high number of mobile phone subscribers (ICTi6)	0.816
Broadband adoption and use is widespread in my country (ICTi7)	0.722
Access to Internet is expensive in my country (ICTi8) ^R	N/A
<i>Personal Attitude (PA)</i> {Cronbach's alpha (α) = 0.948, CR = 0.859, AVE = 0.551}	
Being an entrepreneur would give me great satisfaction (PA1)	0.741
A career as an entrepreneur is not attractive for me (PA2) ^R	0.772
Among various options, I would rather be an entrepreneur (PA3)	0.777
Being an entrepreneur implies more advantages than disadvantages to me (PA4)	0.705
If I had the opportunity and resources, I would not like to start a business (PA5) ^R	0.712
<i>Subjective Norms (SN)</i> {Cronbach's alpha (α) = 0.925, CR = 0.820, AVE = 0.603}	
If I decided to be an entrepreneur, my family members support me (SN1)	0.785
If I decided to be an entrepreneur, my friends will not support me (SN2) ^R	0.810
If I decided to be an entrepreneur, my close network (from work, school) support me (SN3)	0.733
<i>Perceived Behavioural Control (PBC)</i> {Cronbach's alpha (α) = 0.947, CR = 0.915, AVE = 0.606}	
To start a business and keep it working would not be easy for me (PBC1) ^R	0.695
I am prepared to start a viable business (PBC2)	0.768
I am able to control the creation process of a new business (PBC3)	0.778
I know the necessary practical details needed to start a business (PBC4)	0.823
If I tried to start a firm, I would not have a high probability of succeeding (PBC5) ^R	0.775
I know how to develop an entrepreneurial project (PBC6)	0.808
If I wanted to, I could easily start and run a business (PBC7)	0.795
Note(s): CR = Composite reliability; AVE = Average variance extracted; ^R = Reverse-coded N/A = Not applicable (item did not load properly with other items in the construct)	

Table 5.
Questionnaire items,
reliability tests result
and factor loadings

($Z = 1.32, p > 0.10$). In respect of [Hypotheses 5](#), PA was found to have a mediating effect between ICTi and EI ($Z = 1.99, p < 0.05$), EDS and EI ($Z = 3.29, p < 0.001$), and SN and EI ($Z = 14.56, p < 0.001$), thus providing support for [H5a](#), [5b](#) and [5c](#), respectively. Finally, it was found that PBC mediated the relationships between ICTi and EI ($Z = 3.53, p < 0.001$), EDS and EI ($Z = 4.50, p < 0.001$), and SN and EI ($Z = 7.53, p < 0.001$), which provided support for [H6a](#), [6b](#) and [6c](#), respectively. [Table 6](#) is a summary of hypothesised results. [Figure 2](#) further summarises the result from the designed hypotheses of the study.

Hypotheses	Hypothesised path	Standardised estimates	Indirect effect	Sobel test (Z)	Results ^a	Mediation type
H1a	PA → EI	0.65*** (0.03)	–	–	Supported	–
H1b	SN → EI	0.04 (0.03)	–	–	Not Supported	–
H1c	PBC → EI	0.31*** (0.03)	–	–	Supported	–
H2a	ICTi → EI	0.03 (0.03)	–	–	Not Supported	–
H2b	ICTi → PA	0.08** (0.04)	–	–	Supported	–
H2c	ICTi → SN	0.29*** (0.04)	–	–	Supported	–
H2d	ICTi → PBC	0.15*** (0.04)	–	–	Supported	–
H3a	EDS → EI	0.01 (0.03)	–	–	Not Supported	–
H3b	EDS → PA	0.10** (0.03)	–	–	Supported	–
H3c	EDS → SN	0.36*** (0.03)	–	–	Supported	–
H3d	EDS → PBC	0.15*** (0.03)	–	–	Supported	–
H4a	SN → PA	0.59*** (0.03)	–	–	Supported	–
H4b	ICTi → SN → PA	–	0.17***	6.80***	Supported	Partial Mediation
H4c	EDS → SN → PA	–	0.21***	10.24***	Supported	Partial Mediation
H4d	SN → PBC	0.33*** (0.03)	–	–	Supported	–
H4e	ICTi → SN → PBC	–	0.10***	6.05***	Supported	Partial Mediation
H4f	EDS → SN → PBC	–	0.12***	8.11***	Supported	Partial Mediation
H4g	ICTi → SN → EI	–	0.01	1.31	Not Supported	No Mediation
H4h	EDS → SN → EI	–	0.01	1.32	Not Supported	No Mediation
H5a	ICTi → PA → EI	–	0.05**	1.99**	Supported	Full Mediation
H5b	EDS → PA → EI	–	0.07***	3.29***	Supported	Full Mediation
H5c	SN → PA → EI	–	0.38***	14.56***	Supported	Full Mediation
H6a	ICTi → PBC → EI	–	0.05***	3.53***	Supported	Full Mediation
H6b	EDS → PBC → EI	–	0.05***	4.50***	Supported	Full Mediation
H6c	SN → PBC → EI	–	0.10***	7.53***	Supported	Full Mediation
	Age → EI	–0.07* (0.04)				
	Gender → EI	–0.07 (0.07)				
	Programme → EI	–0.03 (0.03)				
	Ent Edu → EI	0.09 (0.07)				

Note(s): *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Standard errors in parentheses; ^a = Results are based on combined samples from all countries

Table 6. Results of the structural model and hypotheses for the full sample ($n = 757$)

4.2.1 Multi-group analysis to determine the difference in EI between Latin America and the Caribbean nations and India. Multi-group analysis was conducted using AMOS to compare the relationship between different hypothesised paths of the study between Latin America and the Caribbean countries and India. 551 participants (72.79%) were from Latin America

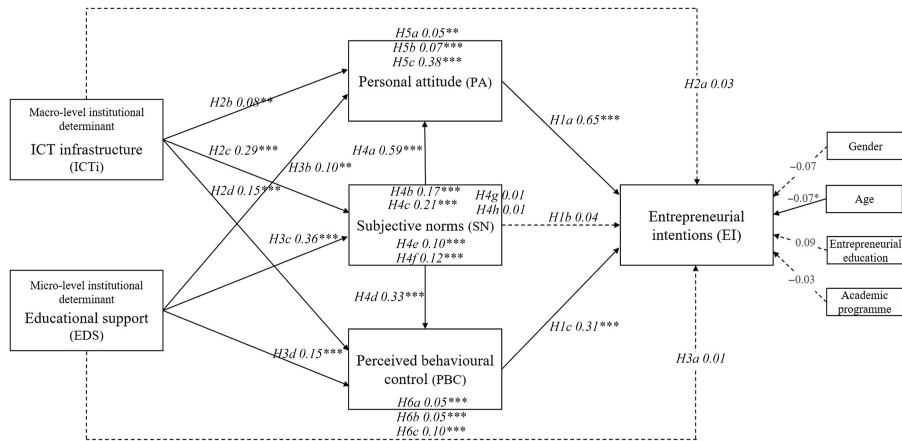


Figure 2.
Proposed model results

Note(s): Broken lines denote insignificant relationships
 *** significant at 0.001 ** significant at 0.01 * significant at 0.05

and the Caribbean countries and categorically coded as group one while India had 206 participants (27.21%), coded as group 2. The overall results for the difference between Latin America and the Caribbean region and India from multi-group analysis had a *p*-value of 0.92, which indicates there is no significant difference in the EIs of students in both groups based on macro- and micro-level institutional dimensions (Table 7).

Particularly, the path invariance tests showed there was no significant difference between both groups concerning the relationship between macro-level institutional factor (ICTi) and EI. The inability of ICTi to directly influence EI in both groups alludes to the state of institutional environment in many developing and emerging economies. Similarly, micro-level institutional variable (EDS) did not positively predict EI in both groups, although a negatively significant result was obtained in India. This finding suggests the state of EDS in both regions does not permit direct, positive effect on EI.

5. Discussion

A major objective of this study is to understand the predictive influence of macro- and micro-level institutional factors on students' EI in the context of developing and emerging economies. The study incorporated an institutional factor at the macro-level (ICTi) and another separately distinct institutional variable at the micro-level (EDS) into the planned behaviour model with a view to understanding the effect on EI.

The relationship between ICTi and EI as the results show is insightful because of the focus on Latin America and the Caribbean countries and India. The non-direct relationship between ICTi and EI as found in this study is reflective of the nature of ICTi in the countries under consideration. This relationship is largely unexplored in literature. ICTi, availability and adoption are the major pillars of any nation's economic growth and creates an enabling environment for businesses to thrive (ITU, 2020; WEF, 2020). In spite of its importance, only recently did ICTi start to generate interest among scholars, especially its role in entrepreneurship development (Colovic and Lamotte, 2015; McCoy *et al.*, 2018; Zhang and Li, 2018). As observed in Table 2, all countries in this study are ranked 74th or below in ICTi adoption {out of 141 countries} (WEF, 2020). This is highly suggestive of the weak state of ICT usage and prevalence of institutional voids in such developing and emerging economies.

Path	Latin America			India			Invariance test (H ₀ : There is no difference in variables between two regions)			
	Estimate	S.E.	C.R.	Estimate	S.E.	C.R.	Estimate	S.E.	C.R.	p-value
PA → EI	0.66	0.04	18.98	0.60	0.07	9.20	0.65	0.03	21.06	0.41
SN → EI	0.04	0.03	1.25	0.02	0.07	0.22	0.04	0.03	1.22	0.72
PBC → EI	0.29	0.04	8.12	0.35	0.07	4.97	0.31	0.03	9.49	0.50
ICTI → EI	0.01	0.03	0.04	0.08	0.06	1.40	0.02	0.03	0.77	0.25
ICTI → PA	0.09	0.04	2.08	0.01	0.06	0.13	0.06	0.04	1.76	0.27
ICTI → SN	0.24	0.05	5.14	0.41	0.08	4.92	0.24	0.05	5.14	0.07*
ICTI → PBC	0.17	0.04	3.87	0.08	0.06	1.41	0.14	0.03	3.94	0.23
EDS → EI	0.05	0.03	1.53	-0.10	0.04	-2.35	0.00	0.03	0.01	0.01**
EDS → PA	0.13	0.04	3.55	0.05	0.05	1.13	0.10	0.03	3.50	0.20
EDS → SN	0.35	0.04	10.18	0.31	0.06	4.88	0.34	0.03	11.27	0.54
EDS → PBC	0.17	0.04	4.85	0.13	0.04	3.03	0.17	0.04	4.85	0.51
SN → PA	0.51	0.04	12.57	0.79	0.05	16.24	0.62	0.03	19.68	***
SN → PBC	0.28	0.04	7.08	0.49	0.05	10.87	0.37	0.03	12.30	***
Age → EI	-0.04	0.04	-0.81	-0.15	0.08	-2.02	-0.06	0.04	-1.70	0.18
Gender → EI	-0.16	0.08	-1.98	0.13	0.11	1.20	-0.06	0.07	-0.94	0.04**
Programme → EI	-0.03	0.03	-0.89	-0.03	0.04	-0.87	-0.03	0.03	-1.24	0.92
Ent Edu → EI	0.06	0.09	0.72	0.09	0.13	0.66	0.07	0.07	0.97	0.90

Note(s): ***p < 0.01, **p < 0.05, *p < 0.1

Table 7. Path testing using multi-group analysis

Comparatively, in developed economies, institutions such as ICTi are treated as guaranteed background conditions for business due to their availability (Peng *et al.*, 2008). Many of the world's leading technological disruptors and innovative digital solutions in industries such as movie-streaming (e.g. Netflix, Hulu), ride-sharing (e.g. Uber, Lyft), video conferencing (e.g. Zoom, BlueJeans), and social media (Facebook, Snapchat) were developed in countries with essential enabling environment and supportive ICTi. Just like developed nations, if entrepreneurial technological advancements are to be made in developing and emerging economies, then aggressive investments in ICTi should be encouraged. Increased computer self-efficacy, Internet usage and ICT adoption among students as a consequence of availability of ICTi will spur interest in providing technological solutions and should lead to direct influence on EI, which ultimately leads to actual entrepreneurial behaviour (Ajzen, 1991).

Similarly, the study found institutional environments at the micro-level (EDS) to have no significant direct relationship with EI, although findings also showed that EDS does have a positive indirect effect on EI through TPB dimensions. The non-significant direct effect of EDS on EI as found in this study is contrary to findings from previous studies (Franke and Lüthje, 2004; Gelaidan and Abdullateef, 2017; Schwarz *et al.*, 2009; Zollo *et al.*, 2017). For instance, in their study of German and the United States (US) students, Franke and Lüthje (2004) suggested that a supportive university environment and uniqueness of specific academic programs does serve as a catalyst to foster EI and encourage creation of new businesses. Also, in their submission on the effect of university environment conditions on students' EI in Austria, Schwarz *et al.* (2009) found a positive relationship between EDS and EI while a similar result was obtained by Zollo *et al.* (2017) in Italy.

Since these studies were conducted in the context of developed countries, we argue that our findings represent the uniqueness of countries in Latin America and the Caribbean nations and India. The educational system in Latin America and the Caribbean countries and India is not at the level of those found in advanced countries (Ferreira *et al.*, 2017; Mukesh *et al.*, 2018), which explains the lack of direct support for EI in this study. As argued by Ferreira *et al.* (2017), higher education quality in Latin America and the Caribbean countries in terms of per-student spending and international academic rankings is lower when compared with high-income countries. Also, the majority of graduating Indian youths with inherent entrepreneurial potential are finishing college without the requisite entrepreneurial skills (Mukesh *et al.*, 2018). This represents a peculiar institutional void in the educational system of developing and emerging economies in Latin America and the Caribbean countries and India.

Furthermore, EE is an integral part of an organisation's EDS (Saeed *et al.*, 2015). Scholars have affirmed that EE does positively foster EI across different contexts (Bae *et al.*, 2014; Padilla-Angulo, 2019; Pfeifer *et al.*, 2016); however, our findings revealed EE in Latin America and the Caribbean countries and India is either absent, poorly executed or ineffective. We advance that the non-significant direct relationship between EDS and EI is symptomatic of a deeper challenge associated with the micro-level institutional environment of educational systems in developing and emerging economies. Apart from increased investments from governments on educational systems in developing and emerging economies, additional onus is on managers of tertiary institutions to prioritise quality EE and provide conducive, supportive educational environment that encourages formation of new business ventures. The authors agree with the position of Jafari-Sadeghi *et al.* (2019) that education in a country is related to the development of entrepreneurial competencies and the creation of firms.

In respect of SN, findings showed it had no effect on EI. The multi-group analysis also showed this result is consistent across both groups in Latin America and the Caribbean countries and India. This contributes to the debate on the predictive effect of SN on EI. Contrasting results have been obtained on the nexus between SN and EI. Some studies found

that SN does predict EI (González-López *et al.*, 2019; Karimi *et al.*, 2016; Kautonen *et al.*, 2015) while others did not establish any significant relationship (Liñán and Chen, 2009; Otache *et al.*, 2021; Padilla-Angulo, 2019). Previous mixed results could be a function of country differences and methodological approaches (Liñán and Fayolle, 2015). Specifically, the non-significant relationship between SN and EI is in line with findings from a study conducted by Otache *et al.* (2021) using the SEM approach in the context of Nigeria – a developing and emerging economy in Africa. Even though countries in our study are largely collectivistic in nature with emphasis on relationships with family members, friends and close networks (Hofstede *et al.*, 2010; Hofstede Insights, 2022), findings did not show students' reliance on support from close networks toward intention to become entrepreneurs. It is advanced that young adults in these societies are more trusting of their own individual competences towards EI rather than seeking validation through societal approval.

Also, in line with past research (Liñán and Chen, 2009; Padilla-Angulo, 2019), SN positively predicted PA and PBC. Additionally, the study finds support for the postulation that SN is able to mediate relationships between institutional factors and other dimensions of TPB such as PA and PBC. We posit that in environments with institutional voids, support and encouragement from close family members and friends could help in defining students' attitude towards entrepreneurship and how they perceive their entrepreneurial abilities. However, no support was found for the notion that SN is able to mediate relationships between ICTi and EI, as well as EDS and EI.

Findings concerning PA showed a positive relationship with EI. This is consistent in both regions based on the multi-group analysis. The significant influence of PA on EI is similar to previous findings (Kautonen *et al.*, 2015; Otache *et al.*, 2021; Trivedi, 2017). Also, the study found that PA is able to mediate ICTi and EI. It suggests that in environments with weak national infrastructures, students with a positive attitude towards entrepreneurship or who perceive a career in entrepreneurship as being attractive are likely to overcome such environmental and institutional hurdles in their quest to become entrepreneurs. Additionally, the study finds support for the postulation that PA mediates EDS and EI. This implies that in institutions or countries without requisite educational systems for students or where the university education does not quite encourage the development of creative entrepreneurial ideas; students could overcome this institutional obstacle through a positive personal conviction and attitude towards entrepreneurship. This finding is in line with the position advanced by Soria-Barreto *et al.* (2017) that university environment affects EI through attitude towards entrepreneurship. Personal attitude was also found to mediate the insignificant relationship between SN and EI.

As it concerns PBC and similar to previous research (González-López *et al.*, 2019; Liñán and Chen, 2009; Trivedi, 2017), a positive direct relationship between PBC and EI was found, which is also confirmed in both groups. Furthermore, the study found that PBC is able to mediate ICTi and EI, and EDS and EI respectively. A comparable result was obtained by Soria-Barreto *et al.* (2017) in regard to the mediating effect of PBC between EE and EI. Thus, we argue that the perception of ease of becoming an entrepreneur and the feeling of being able to become one is significantly material in environments rife with institutional voids. PBC was also found to mediate the insignificant relationship between SN and EI.

In this study context, a negative direct effect of age on EI ($\beta = -0.07, p < 0.10$) was found. The multi-group analysis also showed a similar negative effect of age on EI in both Latin America and the Caribbean region and India, although results were significant in India. Previous efforts on age and EI produced different conclusions. For instance, Pruett *et al.* (2009) reported no significant relationship between age and EI. Similarly, Chaudhary (2017) found age has no effect on EI. However, it has been argued that age does trigger entrepreneurship, especially when younger. As individuals get older, they tend to become comfortable on wages and paid salaries, rather than risk entrepreneurship with no certainty

of success and financial returns (Levesque and Minniti, 2006). In their research, Levesque and Minniti (2006) suggested a negative relationship exists between age and EI. Further, Hatak *et al.* (2015) found lower likelihood of EI as people got older. Similarly, a GEM study found that levels of early-stage entrepreneurship typically increase with age and then subsequently decline as individuals get older (Bosma *et al.*, 2020). Our findings support the inverse effect of age on EI. Two reasons are adduced. One, as people get older, they tend to have job-oriented mindsets and would rather seek paid employment than embrace entrepreneurial risks (Chaudhary, 2017). Two, developing and emerging economies are suggestively hostile to business creation. For instance, time required to start a business, register a property or enforce a contract is higher in many developing and emerging economies compared with developed countries (World Bank, 2020). The incentive to become an entrepreneur therefore dissipates as one gets older and realises the bureaucratic hurdles of doing business.

It is worth mentioning that participants were all university students and their intention towards entrepreneurship may change in the course of subsequent years after graduation, as they get older. The average age of this study's respondents is 20 years, which is many years below the average age of successful entrepreneurs in many countries. Thus, even though an inverse relationship was obtained between age and EI, future reality could be different for the participants.

In respect to gender, our findings show it does not significantly affect EI ($\beta = -0.07$, $p > 0.10$). Traditionally, men are more likely to start new businesses compared with women as reported by Bosma *et al.* (2020). However, in line with our findings, this traditional gender assumption could be immaterial because it differs from country to country based on culture and other socio-economic factors (Bosma *et al.*, 2020). Furthermore, we found that entrepreneurial experience did not significantly predict EI, which is similar to the submission by Liñán *et al.* (2011). We speculate that individuals in Latin America and the Caribbean countries and India did not have the requisite entrepreneurial experience to make a significant influence on their intentions. Also, the study found that students' academic disciplines did not matter because there was no significant effect on EI, which is in line with a previous study's perspective (Turker and Selcuk, 2009).

Lastly, it is emphasised that no significant differences were found in our comparison of Latin America and the Caribbean region and India based on a number of group-specific parameters. The effect of macro- and micro-level institutional dimensions on students' EI is consistent in both regions. Macro-level institutional factor, represented by ICTi, does not directly influence EI while micro-level institutional variable, represented by EDS, does not positively predict EI.

6. Conclusions

As found by this study, institutional factors are important variables impacting students' EI. Most recent studies that have assessed predictors of EI have either largely ignored the prevailing institutional context or failed to integrate macro- and micro-level institutional factors (see Table 1); however, as this study found, the institutional environment especially in developing and emerging economies is germane and does matter as it concerns TPB and EI. Institutional factors at the macro-level (ICTi) and micro-level (EDS) did not have a significant, positive and direct effect on EI; however, both had substantially positive and significant indirect effects on EI through individual motivators and factors of TPB. The insignificant direct effect of both institutional variables on EI is indicative of a weak, non-enabling and non-supportive institutional environment in developing and emerging economies especially as it concerns intent to become an entrepreneur.

The absence of intense ICT adoption and usage among students as a consequence of inadequate ICTi, as well as prevalence of weakly-enforced institutions at macro- and micro-

levels does have unintended consequences. With time, the disillusionment and frustration created by these institutional voids could stifle start-up ideas in prospective entrepreneurs, increase unemployment rates, foist additional pressure on limited available jobs, and push people towards the informal economy. This realism is particularly germane in the context of Latin America and the Caribbean countries and India because as individuals get older, the likelihood of embracing entrepreneurial risks becomes lower. Even though weak institutional environments tend to be predominant in developing and emerging economies, nonetheless, individual motivators and factors such as PA, SN and PBC are capable of influencing EI.

6.1 Theoretical implication

This study extends TPB (Ajzen, 1991) by incorporating broader institutional variables at the macro- and micro-level into the theory. The inclusion of institutional factors is justified through our findings which showed that institutions positively and significantly contribute indirectly to EI, especially in developing and emerging economies. Additionally, we extend institutional theory (DiMaggio and Powell, 1983; Meyer and Rowan, 1977; North, 1990; Scott, 1987) to entrepreneurship intention literature and advance that in developing and emerging economies, institutions are not just background conditions, but they do play a prominent role in indirectly influencing EI. Also, as found by this study, institutional environments in developing and emerging economies are non-supportive and weakly enforced.

6.2 Practical implications

One practical implication at the macro or national-level is that it is important for countries classified as developing and emerging economies to build enabling environments and invest in infrastructures such as accessible renewable energy, electricity, technology parks, fibre networks and base stations to facilitate easier digital communication among its populace. It is the availability of such infrastructures in developed countries, amongst other factors, that has contributed to the entrepreneurial digital revolution in areas such as movie-streaming, ride-sharing and video conferencing. Developing and emerging economies can therefore strive to provide enabling infrastructures that could help create their own indigenous versions of Silicon Valley, as well as spur students towards having the intention to become entrepreneurs.

A major implication is connected with the fact that EE does not have direct influence on students' EI in this study, even though EDS indirectly does through individual motivators. Stakeholders of the entire entrepreneurship field will have to quickly analyse reasons for the insignificant impact offered by formal EE. It may be a function of the content or curricula of the education being offered. It may also have to do with the delivery, method and style of educators. Students in the "Gen. Z" age range, for instance, will likely learn more via videos, mobile applications, integration of modern technologies into their curricula and pedagogical interactions with peers (Szymkowiak *et al.*, 2021) than use of conventional approaches. It therefore implies that prospective entrepreneurs may benefit from less formalised structures.

Additionally, for educational institutions, an orientation towards increasing entrepreneurial skillset among graduates is crucial, particularly in societies with high unemployment rates and a saturated labour market. There is a need for more organisational investments in supportive collegiate environments to guide students in the entrepreneurial direction of business creation. Additionally, citadels of learning are encouraged to provide enabling facilities and intensive entrepreneurship curricula to support students' EI.

Students in environments with prevalent institutional voids may see the glass as half-full, rather than half-empty. Since SN related to societal approval do not influence EI, it is incumbent upon prospective entrepreneurs to determinedly focus on developing, building and nurturing individual motivators and competences in entrepreneurship, especially in

regard to PA and PBC. In spite of institutional hurdles, students need to develop entrepreneurial self-efficacy and build up belief of new venture creation in themselves. Evidence of these individual motivators may be observed in the example of *Rutopia* – an ecotourism start-up by university students in Mexico (Hult, 2019). These young scholars overcame institutional challenges, developed a valuable project, pitched their idea and won the 2019 Hult Prize for social entrepreneurship, which came with a million-dollar reward for their entrepreneurial solution (Hult, 2019). The company continues to grow.

6.3 Research limitations and recommendations for future research

This study has a few limitations which could serve as avenues for further research. One, to improve generalisability of findings, it focused on four developing and emerging economies countries – three from the Latin America and the Caribbean region and one from Asia. This did not permit detailed examination of single-country entrepreneurial and institutional peculiarities. Future research could consider in-depth single-country studies. Also, more developing and emerging economies in the Latin America and the Caribbean region, Asia, Africa and Europe could be considered and included in future studies. A comparative study between developed and developing and emerging economies along institutional context, for instance, provides future research avenues.

Two, due to self-reported assessments, common method bias could be a challenge with studies of this nature. Even though additional measures such as items reverse-coding were taken to reduce this bias, nonetheless, future studies may rely on secondary data from GEM and global university entrepreneurial spirit students' survey (GUESSS) to analyse more intricate relationships between institutional variables. Additionally, we did not consider the nature/type of businesses that the students could want to create because emphasis was on intent generally and not intent for specific business types. This provides an avenue for future studies, especially through a longitudinal study. Further, longitudinal studies on intent-behaviour relationship may be explored using decision-making theories such as effectuation theory (Sarasvathy, 2001) and may be combined with TPB.

Three, the study employed a non-probability convenience sampling procedure. Although additional steps were taken to reduce the effect of sampling bias associated with this method, it is recommended that future studies could consider other sampling methods that could be more scientifically representative of the population. Finally, our results may be influenced by the choice of selected institutional factors. Future research may consider other forms of macro- and micro-level institutional variables, which could predict EI.

Note

1. Based on a reviewer's suggestion, we separately analysed responses from the Latin American nations and they were largely similar to the results obtained by combining the Latin America samples. The results are available upon request.

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