Understanding the Determinants of Nascent Entrepreneurship in Entrepreneurially Active and Passive Economies: A Macro-Level Analysis

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Abstract: This quantitative study investigates the determinants of nascent entrepreneurship in GEM participating economies. Findings suggest that various economic and non-economic factors determine nascent entrepreneurial activity in these countries. However, complementing the on-going research on nascent entrepreneurship, the study has addressed a void in literature by examining the impact of entrepreneurial characteristic of an economy on its nascent entrepreneurial activity rate. Empirical estimates suggest that if an economy is entrepreneurially active it offers a significant positive impact on nascent entrepreneurship. Other active factors advancing nascent entrepreneurship in the sample countries include: per capita income, research and development expenditures, days required to start a business, certain age groups of the population, confidence of an individual on his/her skills to do business, desirability to pursue entrepreneurship as a career and the presence of entrepreneurial role models in an economy. Policy implications relate to measures suggested for advancing nascent entrepreneurship in entrepreneurially passive economies.

Keywords: Nascent entrepreneurship, entrepreneurially active and passive economies, GEM participating countries, economic and non-economic determinants, Macro level analysis
**JEL Classification:** L500

1. Introduction

The recent literature on entrepreneurship shows that researchers' interest in evaluating the role of new born enterprises in promoting economic welfare is increasing, resulting in the emergence of more popular areas of research such as nascent entrepreneurship (Davidsson, 2006; Wennekers *et al.,*

2005; van Stel *et al.,* 2004). Nascent entrepreneurs are the individuals who are involved in creating new ventures (Wagner, 2004). According to the Global Entrepreneurship Monitor (GEM), a nascent entrepreneur is a person who is actively involved in new firm start-up, expects to be full or part time owner, and his/her venture has not paid salaries for over three months (GEM, 2006). Nascent entrepreneurs thus serve as a driving force behind new start-ups, which are realized to have a stimulating impact on economic development (Wennekers *et al.,* 2005; Audretsch & Keilbach, 2004; Fritsch & Mueller, 2004).

It is, however, noteworthy that new born enterprises do not sprout evenly across countries. For example, the estimates of GEM survey for the year 2006 show that, amongst the 42 countries which participated in the survey, the highest rate of nascent entrepreneurship has been observed in Peru (30.01) and lowest in Japan (1.59) (Figure 1). Overall, 7.14 per cent of GEM participating economies have experienced a double digit nascent entrepreneurship rate, compared to 30.95 per cent countries falling between 5 and 10 and the remaining 61.90 per cent countries with nascent entrepreneurial activity rate of less than 5.

Figure 1: Nascent entrepreneurship rate in GEM participating economies (2006)
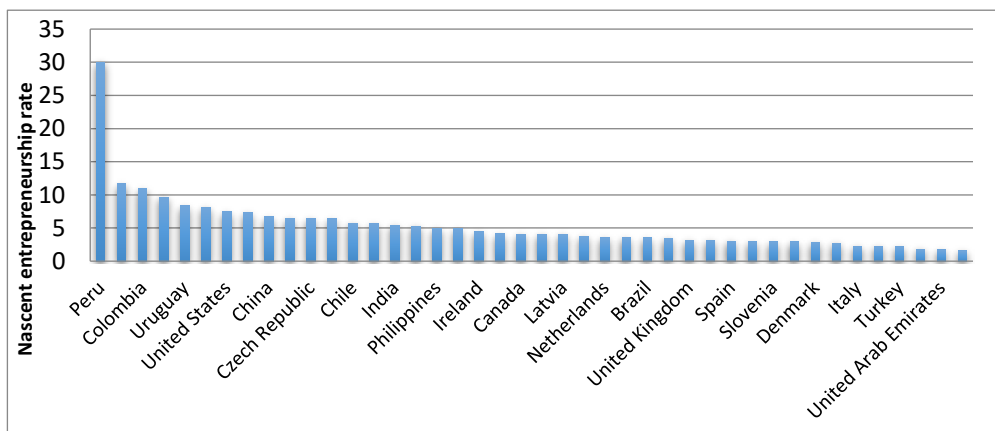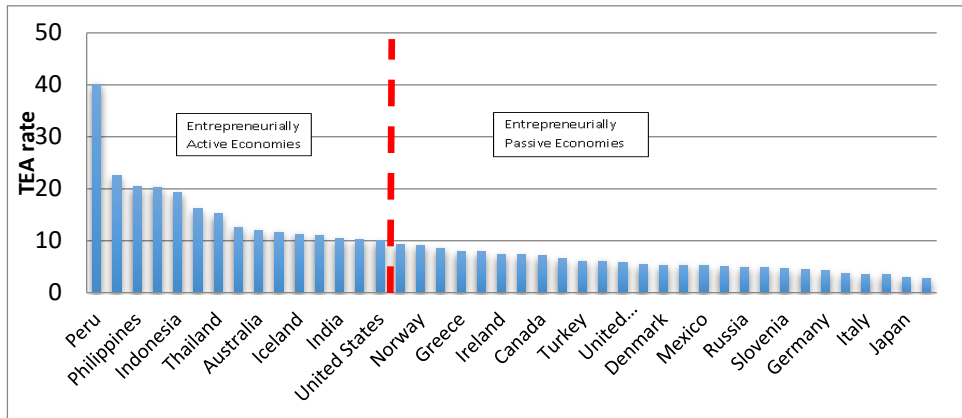

(Source: GEM data base, 2006)

Prior research generally attributes such a volatility in nascent entrepreneurship rate to various economic and non-economic factors

(Davidsson, 2006; Wennekers *et al.,* 2005; van Stel *et al.,* 2004; Wagner, 2004;). While the economic factors can include measures such as per capita income and GDP, non-economic ones relate to the demographic, institutional, cultural, perceptual and technological factors (Arenius & Minniti, 2005; Verheul *et al.,* 2002; Blanchflower, 2000). Although such drivers of nascent entrepreneurship have previously been investigated (Audretsch *et al.,* 2006; Wagner & Rolf, 2004; Audretsch & Keilbach, 2004; van Stel & Storey, 2004; Carree, *et al.,* 2002; Delmar & Davidsson, 2000; Reynolds, 1997), what has not been analysed is the impact of an economy's attribute of being entrepreneurially active or passive on its nascent entrepreneurial activity rate. This study thus fills such a void in extant literature by addressing the question: What are the determinants of nascent entrepreneurship in entrepreneurially active and passive economies?

It is important to elaborate at the outset that drawing on GEM data (2006)1, this study regards countries having double digit total entrepreneurial activity rate (TEA) as entrepreneurially active economies compared to entrepreneurially passive economies achieving single digit TEA (Figure 2). Of the GEM participant economies for the year 2006 about 36 per cent have registered double digit TEA, whereas 64 per cent have recorded single digit TEA. Thus in this study entrepreneurially active economies are: Peru, Colombia, Philippines, Jamaica, Indonesia, China, Thailand, Uruguay, Australia, Brazil, Iceland, Malaysia, India, Argentina, and United States), and entrepreneurially passive economies include; Chile, Norway, Croatia, Greece, Czech Republic, Ireland, Spain, Canada, Latvia, Turkey, Hungary, United Kingdom, Netherlands, Denmark, South Africa, Mexico, Finland, Russia, Singapore, Slovenia, France, Germany, United Arab, Emirates, Italy, Sweden, Japan, Belgium (Figure 2).

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[1] This study takes into account only Global Entrepreneurship Monitor (GEM) -a standardized portfolio of variables on entrepreneurship related issues- participating economies. The latest data set available for GEM is for the year 2006 (see: http://www.gemconsortium.org/about.aspx?page=gem_datasets). Thus the results of the study are based on information gathered from GEM 2006.

Figure 2: Entrepreneurially active and passive economies

(Source: GEM data base, 2006)

The proposed research carries great importance, not only because nascent entrepreneurial activity has the potential for negative displacement / competition effects as well as the positive economic and social effects and can therefore have bearing on the dynamics of entrepreneurial performance of a country, but also because it has implications for public sector managers and lessons for businesses.

It is a quantitative study. The conceptual and empirical analysis is brought together in investigation using econometric modelling and analysing data about 42 GEM (2006) participating economies. Desk-based research has been conducted extensively to collect data on a large number of macro level economic and non-economic determinants of nascent entrepreneurship (Appendix 1). In addition, some dummy variables as deemed appropriate for the analysis are also introduced to the models.

Overall, this article is structured in six sections. Following this introduction (Section 1), Section 2 presents a summary of key literature and develops the hypotheses. Section 3 outlines the methodology. Section 4 comprises of data. Empirical results are reported in Section 5. The

article finally concludes by offering some policy recommendations in Section 6.

2. Literature Review

While the main objective of this study is to investigate if nascent entrepreneurship is associated with the entrepreneurial characteristic of an economy – being an entrepreneurially active or passive country, it also draws on key literature on other economic and non-economic determinants of nascent entrepreneurial activity and therefore develops a number of hypotheses.

Prior research shows that various push and pull factors remain involved in determining the entrepreneurial activity rate of an economy (Vivarelli, 1991). These factors have also been viewed as demand and supply side determinants of entrepreneurship (Verheul *et al.,* 2002). The demand side variables offer market opportunities (e.g. diversity in consumers' wants) and supply side variables (demographic and cultural factors) come forward to create entrepreneurs who exploit the available and emerging opportunities. The seedbed for demand side factors of an entrepreneurial activity are economic and technological advancements along with newly emerging international actor of globalization (Davidsson, 2006; Verheul *et al.,* 2002). These factors perform indirectly i.e. by introducing industrial dynamism they tend to germinate diversity in product market thus create entrepreneurial opportunities. These opportunities attract entrepreneurs. The supply of entrepreneurs depends upon various economic, demographic, institutional, cultural and perceptual variables (Verheul *et al.,* 2002). These include unemployment rate of an economy, income level of residents, population growth, age structure and density of population in urban areas, economic system under which the state is administered, respect extended to entrepreneurs in a society, presence of role models, incumbent business ownership rate, fear of up taking an entrepreneurial venture, potential entrepreneurs' confidence in their skills to start a business and their opportunity perceptions (e.g. Parker & Robson, 2004; Wagner & Sternberg, 2004; Verheul *et al.,* 2002; Carree *et al.,* 2002; Audretsch & Thurik, 2000; Casson, 1995).

2.1 Economic Factors

2.1.1   Economic development

Economic development does not appear to have a determined impact on entrepreneurship (Verheul *et al.,* 2002). Some studies find support for positive relationship between economic dynamism and entrepreneurial activity (Carree *et al.,* 2002; Storey, 1999), while the others suggest that there exists a negative relationship between these two (Bregger, 1996; Schultz, 1990). With economic development, the purchasing power and consumption styles of individuals change. The variety in demand patterns opens new avenues for existing and would be entrepreneurs by providing them an opportunity in the form of unmet market demand. This results in the genesis of new ventures. Economic prosperity brings with itself a surge in the demand of more luxurious goods and services which are backed by technological advancements. This interaction of economic prosperity and advancements on the technological fronts provide supportive environment for entrepreneurship. On the other hand, the negative aspect is justified on the basis of the argument of opportunity cost associated with entrepreneurship. Economic prosperity results in higher wages, which makes employment more lucrative. Fewer workers will be inclined to start their own business when secure earnings are available. This discourages entrepreneurial spawning. Hence the following hypotheses are suggested.

Hypothesis 1: Per capita income and nascent entrepreneurship has a U-shaped relationship.

Hypothesis 2: Economic growth of a country positively affects nascent entrepreneurship.

2.1.2   Unemployment

The impact of unemployment on entrepreneurial activity can be viewed from the micro and macro perspectives. Micro perspective explains that unemployed individual tend to opt for starting their own business (necessity based entrepreneurship). This happens as the opportunity cost of self-employment falls (Verheul *et al.,* 2002). Macro perspective suggests a two-way causality between unemployment and entrepreneurial activity (Carree *et al.,* 2002; Audretsch & Thurik, 2000). When unemployment rate is lower

it suggests that the economic welfare is having an upward trend and therefore entrepreneurial opportunities are present to be exploited (Audretsch & Thurik, 2000). This raises the demand for entrepreneurship and promotes new venture creation process. On the other hand if self-employment is higher this suggests that more and more enterprises are being established as profitability attracts entrepreneurs. High entrepreneurial activity leads to higher economic development which in turn leads to a lower level of unemployment (Carree *et al.,* 2002). Further to that a depressed economy with suppressed entrepreneurial opportunities and reduced profitability will negatively affect the entrepreneurial activities. On the other hand necessity based entrepreneurship is expected to promote entrepreneurship when economy is not doing well. This leads to the following hypothesis.

Hypothesis 3: Unemployment positively affects nascent entrepreneurship.

2.2 Technological factors

2.2.1   Advancement in technology

Technological advancements have revolutionized the world. These are not only found to be supportive for enhancing the efficiency and productivity of existing businesses but are also identified to be a driving force behind reallocation of resources to produce new, better, faster and cheaper products (Verheul *et al.,* 2002). The production of new and comparatively high-tech products requires more and better skilled individuals and this generates demand for entrepreneurs (Verheul *et al.,* 2002; Wennekers & Thurik, 1999; Casson, 1995). The presence of ICT also supports entrepreneurial activity. The more easily the market information can be accessed, higher are the chances for entering into the market to serve the emerging needs (Zimmerer & Scarborough, 2005). At one end technological advancement raises demand for entrepreneurs to meet the emerging market needs, on the other hand it may also deter this process. For example, industry specific research and development activities which require high financial support will not allow potential entrepreneurs to step into an industry. Thus, just like economic prosperity, both positive and negative aspects are associated with technological advancement and entrepreneurial activity. Hence, the following hypotheses are suggested.

Hypothesis 4: Access to computers positively affects nascent entrepreneurship.

Hypothesis 5: Access to internet positively affects nascent entrepreneurship.

Hypothesis 6: Research and development expenditures have a u-shaped relationship with nascent entrepreneurship.

2.3 Institutional factors

2.3.1   Regulations regarding new venture establishment

Market dynamism can work independently or it may be monitored by the government. Active government intervention can be seen if authorities want to control the entry and exit of firms with an aim to control the number and quality of businesses (Suddle *et al.,* 2010; Verheul *et al.,* 2002). Various legislative measures can be adopted by the respective government departments to control the business turbulence. Licensing is one of the tools. Number of days required to start a businesses can be used as a proxy to measure it. The number of permits required to start a business in a country is another indicator. Higher the number of days and permits required to establish a venture lower will the entrepreneurial dynamism and lower the days and permits required to start a business more stimulus the entrepreneurial activity rate will be, ceteris paribus (Suddle *et al.,* 2010). This suggests the following hypothesis.

Hypothesis 7: Increased number of days required to start a business negatively affect nascent entrepreneurship.

2.3.2   Tax rate

Government policies have bearing on entrepreneurial activity rate in a country (Verheul *et al.,* 2002). These policies establish a framework for businesses to purse their activities under certain codes. Taxation policy is one of these codes. Research shows that the impact of taxes on entrepreneurial activity is complex (Davis & Henrekson, 1999; OECD, 1998a; Parker, 1996). Higher rate of taxes not only negatively affect the returns for an entrepreneur but also puts bar on the liquidity position of the firm. It is therefore expected that higher tax rates will discourage

entrepreneurial activity. However, if establishing personal business reduces the liability of tax then self-employment is expected to be preferred over wage-employment. This leads to the following hypothesis.

Hypothesis 8: Higher tax rates negatively impact on nascent entrepreneurship.

2.4 Demographic factors

2.4.1 Population growth

People of a nation can be an asset or a liability. They can therefore be regarded a double-edged sword, in that if properly educated and trained for efficiently engaging in various economic activities they become an asset but less educated and untrained human resources become a burden for the country (Verheul *et al.,* 2002). It is expected that a better educated and trained individual will pursue a job with higher wage rate. In this case the opportunity cost of starting a personal venture shall be higher. This will deter entrepreneurial activity. At the same time, increasing population growth generates demand for goods and services and attracts entrepreneurial activities. It is further stimulated by the future expectations of would be entrepreneurs who tend to target the emerging entrepreneurial opportunities associated with the rising trend of population. Thus, the following hypothesis is suggested.

Hypothesis 9: Population growth rate has a positive impact on nascent entrepreneurship.

2.4.2 Age structure of the population

All the age groups of a population do not have the same entrepreneurial potential. Some age groups generate more active entrepreneurs than others (Reynolds *et al.,* 1999). Prior literature has documented that entrepreneurial activity tends to rise with an increase in age (Acs *et al.,* 1994; Evans & Leighton, 1989a). It has been identified that people are more inclined to start their ventures between the age of 25 and 40 (Storey, 1994). The research by Reynolds *et al.,* (1999) has determined that the age group of 25 to 44 is entrepreneurially more active. This leads to the following hypothesis.

Hypothesis 10: Nascent entrepreneurship is not positively supported by all the age groups of population.

2.4.3   Education

Education helps an individual to refine his thinking skills to become more productive (Dakhli & De Clercq, 2004; Coleman, 1988). It promotes the ability to be independent, which advances self-confidence and responsibility. A better educated person can determine his career choice in a better and focused way. Education helps an individual to broaden his exposure and think outside the box (opportunity perception) to become competitive (Verheul *et al.,* 2002). Thus, the benefits attached with education are those which can help an individual to identify better entrepreneurial opportunities and exploit them efficiently (Delmar & Davidsson, 2000; Blanchflower & Oswald, 1998). It suggests that entrepreneurial activity rate on the part of government can not only be influenced through legislations but also through educational policies (Henrekson, 2007). Education may be imparted at primary, secondary and tertiary levels. However, the impact of tertiary education is documented to be higher on venture creation (Reynolds *et al.,* 1999). Education may not only impart the business-related skills but can also promote entrepreneurial values by influencing the perceptions of individuals and raising their inclination towards businesses instead of wage-employment (Shane, 2003; Fiet, 1996). This can help stimulate entrepreneurial culture in the country and thus the level of entrepreneurship (Suddle *et al.,* 2010; Verheul *et al.,* 2002). Hence, the following hypothesis is suggested.

Hypothesis 11: Education positively impacts on nascent entrepreneurship.

2.5 Perceptual factors

While up-taking an entrepreneurial activity, entrepreneurs along with other economic and non-economic determinants also take into account certain subjective perceptions (Arenius & Minniti, 2005). These perceptions are based on factors like confidence on one's skills to start a business, presence of role model, fear of failure and opportunity perception. Since perceptual factors are identified to be significantly associated with entrepreneurial activity, this leads to the following hypotheses.

Hypothesis 12: Individual's confidence of having skills to start and run a business successfully positively impacts on nascent entrepreneurship.

Hypothesis 13: Individual's ability to perceive entrepreneurial opportunities positively impacts on nascent entrepreneurship.

Hypothesis 14: Individual's fear of getting failed in business negatively impacts on nascent entrepreneurship.

Hypothesis 15: Individual's good relations with established business people positively impacts on nascent entrepreneurship.

2.6 Cultural factors

Culture plays an important role in determining the entrepreneurial dynamism in a country (Suddle *et al.,* 2010; Verheul *et al.,* 2002). Though culture cannot be measured directly, some indirect measures can include; respect of entrepreneurs in a certain society, the choice of business as a desirable career and the economic system of a country (centralized or market based). Reynolds *et al.,* (1999) have, for example, analysed that new venture creation and respect for entrepreneurs are positively associated. Suddle *et al.,* (2010) have also identified a significant positive impact of entrepreneurial culture on start-ups. Thus following hypotheses are suggested.

Hypothesis 16: Desirability of individuals to opt for entrepreneurship as a career choice positively impacts on nascent entrepreneurship.

Hypothesis 17: Higher the status and respect of entrepreneurs in a society more positively it shall impact on nascent entrepreneurship.

Hypothesis 18: Presence of entrepreneurial role models in a country positively impacts on nascent entrepreneurship.

Hypothesis 19: Inherited economic management structure of a country (previously centralized) negatively impacts on nascent entrepreneurship.

3. Data and Methodology

3.1 Methodology

This research adopts the quantitative approach (Saunders *et al.,* 2004). Regression analysis has been applied to the portfolio of variables under

consideration (Appendix 1). First, the study has estimated the relationship between the economic and non-economic factors and nascent entrepreneurship rate, determining the appropriate statistical specifications. At the second stage, the additive impact of an economy as being entrepreneurially active or passive has been examined on nascent entrepreneurship. Diagnostic tests for checking the statistical credibility of regression estimates have been conducted. For this purpose, support has been drawn from Breusch-Pagan-Godfrey LM test for checking serial correlation and ARCH test for testing heteroscedasticity (Wooldridge, 2010; Greene, 2003).

A limitation of regression analysis has been that the researcher had to omit some variables from the analysis due to non-availability of data for all the GEM participating countries in the survey for 2006. These variables include two institutional factors (permits required to start a business and real interest rate) and one technological factor (expenditure on ICT).

3.2 Model Specification

Overall six models relating to various economic and non-economic determinants of nascent entrepreneurship have been developed, each considering the influence of entrepreneurial characteristic of the sample countries on their nascent entrepreneurial activity rate.

3.2.1   Model 1

$$NE = f\ (PCI, GDP, U) \text{--}(1)$$

$$NE = \beta_0 + \beta_1\ PCI + \beta_2 GDP + \beta_3 U + \varepsilon_t \text{--------------------------------------}(2)$$

Linear specification

$$NE = \beta_0 + \beta_1 PCI + \beta_2 PCI_2 + \beta_3 GDP + \beta_4 U + \varepsilon_t \text{----------------------------}(3)$$

Statistically superior specification

$$NE = \beta_0 + \beta_1 PCI + \beta_2 PCI_2 + \beta_3 GDP + \beta_4 U + \beta_5 TEAD + \varepsilon_t \text{------------}(4)$$

(TEAD =1 for entrepreneurially active economy)

The first model represents the economic category of variables. Here NE represents Nascent Entrepreneurship Rate, PCI represents Per Capita Gross National Income, GDP represents Economic Growth, U is representative

for Unemployment Rate and TEAD is introduced as a dummy variable for catering the impact of entrepreneurial characteristic of the country. Keeping into consideration the stated hypotheses regression equations for economic factors have been specified both in linear and statistically superior forms. For linear specification, it is expected that $\beta_1 < 0$, β_2 and $\beta_3 > 0$. For statistically superior specification it is expected that $\beta_1 < 0$, β_2, β_3 and $\beta_4 > 0$. For the last equation of economic variables, it is expected that $\beta_1 < 0$, β_2, β_3, β_4 and $\beta_5 > 0$

3.2.2 Model 2

$NE = f(C, I, R\&D)$ --(5)

$NE = \beta_0 + \beta_1 C + \beta_2 R\&D + \beta_3 I + \varepsilon_t$ ---(6)

Linear specification

$NE = \beta_0 + \beta_1 C + \beta_2 I + \beta_3 RD + \beta_4 RD_2 + \varepsilon_t$---------------------------------(7)

Statistically superior specification

$NE = \beta_0 + \beta_1 C + \beta_2 I + \beta_3 RD + \beta_4 RD_2 + \beta_5 TEAD + \varepsilon_t$ ------------------ (8)

(TEAD =1 for entrepreneurially active economy)

The second model specifies the technological factors. Here C represents Computers Per Capita, I denotes Internet Subscribers Per Capita and RD is a label for Research and Development Expenditures. Following the stated hypotheses regression equations for technological factors have been specified both in linear and statistically superior specifications. For linear specification it is expected that β_1, β_2 and $\beta_3 > 0$. For statistically superior specification it is expected that β_1, β_2 and $\beta_4 > 0$ whereas $\beta_3 < 0$. In the final equation for technological factors it is expected that β_1, β_2, β_4 and $\beta_5 > 0$ whereas $\beta_4 < 0$.

3.2.2   Model 3

$NE = f(T, DR, RI)$--(9)

$NE = \beta_0 + \beta_1 T + \beta_2 DR + \varepsilon_t$--(10)

Linear specification

$NE = \beta_0 + \beta_1 T + \beta_2 DR + \beta_3 TEAD + \varepsilon_t$-------------------------------------(11)

(TEAD =1 for entrepreneurially active economy)

The third model has been developed to represent the institutional variables. Here T is representative of Tax Revenue and DR stands for Days Required to Start a Business. Keeping into consideration the stated hypotheses, regression equations for institutional factors have been specified only in linear form. For linear specification, it is expected that β_1 and $\beta_2 <0$. For the final equation of institutional factors, it is expected that β_1, $\beta_2 <0$ and $\beta_3 >0$.

3.2.3   Model 4

$$NE = f (PG, Edu, Age)\text{---}(12)$$

$$NE = \beta_0 + \beta_1 PG + \beta_2 Edu + \beta_3 Age + \varepsilon_t\text{----------------------------------}(13)$$

Linear specification

$$NE = \beta_0 + \beta_1 PG + \beta_2 Edu + \beta_3 Age + \beta_4 TEAD + \varepsilon_t\text{-------------------}(14)$$

(TEAD $=1$ for entrepreneurially active economy)

The fourth model contains demographic variables. Here PG stands for Population Growth Rate, Edu represents Educational Profile of the residents of a country and Age represents the Age Structure of residents in a country. Following the stated hypotheses regression equations for demographic factors have been specified only in linear form. For linear specification, it is expected that β_1, β_2 and $\beta_3 >0$. For the final equation of demographic factors, it is expected that β_1, β_2, β_3 and $\beta_4 >0$.

3.2.4   Model 5

$$NE = f (OP, KoE, S, F)\text{---}(15)$$

$$NE = \beta_0 + \beta_1 S + \beta_2 OP + \beta_3 F + \beta_4 KoE + \varepsilon_t\text{-----------------------}(16)\text{Linear}$$
specification

$$NE = \beta_0 + \beta_1 S + \beta_2 OP + \beta_3 F + \beta_4 KoE + \beta_5 TEAD + \varepsilon_t\text{--------}(17) \text{ (TEAD}$$
$=1$ for entrepreneurially active economy)

The fifth model specification caters perceptual variables. Here OP stands for Opportunity Perception of individuals, KoE represents Knowing other Entrepreneurs who have setup their businesses in past two years, S is representative of Confidence of an Individual on One's Skills and F denotes the Fear of Failure amongst individuals while up-taking an entrepreneurial

activity. Following the hypotheses of the study regression equations for perceptual factors have been specified only in linear form. For linear specification, it is expected that β_1, β_2, and $\beta_4 >0$ whereas $\beta_3 <0$. For final regression equation of perceptual variables, it is expected that β_1, β_2, β_4 and $\beta_5 >0$ whereas $\beta_3 <0$.

3.2.5 Model 6

$$NE = f\,(BD, ESR, IB, DC)\text{--}(18)$$

$$NE = \beta_0 + \beta_1 BD + \beta_2 ESR + \beta_3 IB + \beta_4 DC + \varepsilon_t \text{-----------------------------}(19)$$

Linear specification

$$NE = \beta_0 + \beta_1 BD + \beta_2 ESR + \beta_3 IB + \beta_4 DC + \beta_5 TEAD + \varepsilon_t \text{--------------}(20)$$

(TEAD =1 for entrepreneurially active economy)

The sixth model contains cultural factors. Here BD represents Desirability of Individuals to opt for Business as a Career, ESR stands for Entrepreneurs Status and Respect, IB is Incumbent Business Ownership Rate in a country (a representative of entrepreneurial role models) and Dc is a dummy for previously centralized economies. Following the hypotheses of the study regression equations for cultural factors have been specified only in linear form. For linear specification it is expected that β_1, β_2 and $\beta_3 >0$ whereas $\beta_4 < 0$. For final regression equation of cultural variables it is expected that β_1, β_2, β_3 and $\beta_5 >0$ whereas $\beta_4 <0$.

4. Data sources

For this study, data have been mainly gathered from two standardized national level data bases: Global Entrepreneurship Monitor (2006) and World Development Indicators (2001-2006).

5. Results

Using data of 42 countries which participated in GEM 2006, regression analysis has been conducted testing for both linear and statistically superior specifications as deemed appropriate following the stated hypotheses and trends of the data. Comparing on the basis of adjusted R2 values and related diagnostic tests of regression, such as D.W statistic, value of F-statistic, values of t-statistic for respective variable, Breusch-Pagan-Godfrey LM test

and ARCH test (Wooldridge, 2010; Greene, 2003) significant factors determining nascent entrepreneurship in entrepreneurially active and passive economies have been identified, and the results are presented below.

5.1 Economic determinants of nascent entrepreneurship

The linear regression analysis shows that per capita income has a negative relationship with nascent entrepreneurship (column 2 of Table 1). However, statistically superior specification reveals that per capita income assumes a U-shaped relationship (column 3 of Table 1) with nascent entrepreneurial activity, and this is a better fit compared to negative linear relationship. It implies that if individuals have a secure earning source (wage-based) and are satisfied with their income they would prefer to continue with the same earning source thus will not prefer entrepreneurial activity over it. In other words, it suggests that the opportunity cost of doing business is high. However, after a certain level of per capita income nascent entrepreneurial activity adopts an upward trend i.e. assumes a positive relationship with per capita income. It is supported by the argument that as per capita income rises beyond a certain level, changes in the purchasing power of individuals allow them to buy high quality products. The demand for high quality products generates market opportunities which attract new entrepreneurs. Economic growth has a positive impact on nascent entrepreneurship. Good economic health of country brings prosperity and diversification in demand patterns, this in turn opens new avenues for entrepreneurial activity. Unemployment and nascent entrepreneurial activity are also identified to be positively associated. Unemployed individuals on not finding appropriate paid jobs and in pursuit of earning their livelihood go for starting their own ventures. It implies that necessity based entrepreneurship gets flourished. To analyze the impact of entrepreneurial characteristic of the economy the study has estimated the similar regression approach as in the initial model with statistically superior specification (column 3 of Table 1) but with an addition of dummy variable TEAD. The results suggest a positive impact of a country being entrepreneurially active on nascent entrepreneurship (column 4 of Table 1).

Columns 5 and 6 of Table 1 contain results for consolidated regression equation showing that amongst economic variables per capita income is the

most powerful driver behind nascent entrepreneurship and that if an economy is entrepreneurially active it has an encouraging impact on nascent entrepreneurship.

Table 1: Economic determinants of nascent entrepreneurship

Variables	Initial linear model	Initial model with statistically superior specification	Initial model with Statistically superior specification including TEAD	Consolidated model with statistically superior specification	Consolidated model including TEAD
Constant	7.16 (2.32)	10.8 (2.99)	3.39 (0.75)	10.8 (5.45)	5.65 (1.98)
Per Capita Income	-0.11* (1.78)	-0.52** (2.22)	-0.10 (0.37)	-0.51** (2.38)	-0.15 (0.62)
Per Capita Income Squared		0.0091** (1.81)	0.0020 (0.36)	0.0089** (1.87)	0.0025 (0.48)
Economic Growth	0.08 (0.31)	0.03 (0.14)	0.03 (0.13)	---	---
Unemployment	0.02 (0.12)	0.03 (0.17)	0.15 (0.87)	---	---
TEAD	---	---	4.59** (2.51)	---	4.15** (2.40)
R2	0.12	0.19	0.31	0.19	0.29
Adjusted R2	0.05	0.10	0.21	0.15	0.24
F-Statistic	1.76 [0.17]	2.22 [0.08]	3.29 [0.01]	4.64 [0.01]	5.41 [0.00]
D.W Statistic	2.10	2.00	1.97	1.99	1.95
ARCH Test for Heteroskedasticity	0.05 [0.81]	0.06 [0.79]	0.05 [0.81]	0.06 [0.79]	0.07 [0.78]

Breusch-Godfrey Serial Correlation LM Test	0.28 [0.75]	0.00 [0.99]	0.01 [0.98]	0.00 [0.99]	0.02 [0.97]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

5.2 Technological determinants of nascent entrepreneurship

The estimates of initial linear regression model show that all the technological factors have a negative relationship with nascent entrepreneurship (column 2 of Table 2). Whereas the results of statistically superior specification show that a better statistical fit of technological factors is present supporting nascent entrepreneurship (column 3 of Table 2).

The presence of computers and internet subscription are identified to have a positive impact on nascent entrepreneurship (column 4 of Table 2). The use and application of ICT facilitates business activities/management. Such kind of easing is considered by a potential entrepreneur a support therefore raises their confidence that the dealings of venture can be managed with ease and speed. Moreover, using internet more entrepreneurial opportunities can be identified. It also helps to get connected to potential buyers both in local and international markets. Research and development expenditures are identified to have a U-shaped relationship with nascent entrepreneurship (column 3 and 4 of Table 2). It suggests that after a specific level spending on research and developmental activities turns out to be an encouraging factor for nascent entrepreneurs. Research and development expenditures facilitate the process of innovation. Once innovations are in place and commercialization of these can bring profitability it attracts new entrepreneurs. Since new and small businesses cannot spend much on research and development due to financial constraints so they enter the market at the commercialization stage of newly developed products. Large size firms get support from new and small size

firms by embedding them in their supply chains. This stimulates nascent entrepreneurship.

The additive impact of an economy being entrepreneurially active is also positive (column 4 of Table 2). Results of consolidated regression equations are documented in column 5 and 6 of Table 2. Findings highlight that among technological factors research and development expenditure dominate the factors affecting nascent entrepreneurship.

Table 2: Technological determinants of nascent entrepreneurship

Variables	Initial linear model	Initial model with statistically superior specification	Initial model with Statistically superior specification including TEAD	Consolidated model with statistically superior specification	Consolidated model including TEAD
Constant	7.30 (6.18)	9.35 (5.92)	5.77 (2.96)	9.25 (6.13)	5.65 (2.96)
Computer per Capita	-0.00 (0.13)	0.02 (0.49)	0.02 (0.43)	---	---
Research and Development Expenditure	-1.18 (0.85)	-6.56* (2.08)	-3.63 (1.17)	-5.54** (2.42)	-2.26 (0.93)
Research and Development Expenditure Squared	---	1.37* (1.88)	0.60 (0.82)	1.21** (1.86)	0.43 (0.65)
Number of Internet	-0.01 (0.08)	-0.01 (0.09)	0.04 (0.25)	---	---

Subscribers					
TEAD	---	---	4.22*** (2.76)	---	4.13** (2.77)
R2	0.10	0.18	0.32	0.18	0.31
Adjusted R2	0.03	0.09	0.23	0.13	0.26
F-Statistic	1.54 [0.21]	2.12 [0.09]	3.52 [0.01]	4.29 [0.02]	5.92 [0.00]
D.W Statistic	2.11	2.13	1.96	2.12	1.98
ARCH Test for Heteroskedasticity	0.04 [0.83]	0.04 [0.83]	0.08 [0.77]	0.04 [0.84]	0.07 [0.78]
Breusch-Godfrey Serial Correlation LM Test	0.15 [0.85]	0.33 [0.71]	0.07 [0.92]	0.30 [0.73]	0.09 [0.90]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

5.3 Institutional determinants of nascent entrepreneurship

The role of institutional factors in determining nascent entrepreneurship rate has been analysed through linear regression only as this is identified to be the best fit.

Table 3: Institutional determinants of nascent entrepreneurship

Variables	Initial Model	Initial Model Including TEAD	Consolidated Model	Consolidated Model Including TEAD
Constant	6.07 (2.81)	4.57 (2.31)	4.12 (4.08)	3.34 (3.63)
Tax	-0.10 (1.01)	-0.06 (0.70)	---	---
Days Required to Start a Business	0.04* (1.74)	0.01 (0.48)	0.04* (1.68)	0.009 (0.41)
TEAD	---	4.72*** (3.35)	---	4.85*** (3.50)
R2	0.09	0.29	0.06	0.28
Adjusted R2	0.04	0.24	0.04	0.25
F-Statistic	1.94 [0.15]	5.40 [0.00]	2.85 [0.09]	7.95 [0.00]
D.W Statistic	2.24	2.03	2.16	1.99
ARCH Test for Heteroskedasticity	0.03 [0.85]	0.06 [0.79]	0.06 [0.79]	0.07 [0.79]
Breusch-Godfrey Serial Correlation LM Test	0.63 [0.53]	0.13 [0.87]	0.28 [0.75]	0.00 [0.99]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

Initial model for institutional variables show that tax rates and nascent entrepreneurship are negatively associated (column 2 of Table 3), suggesting that rigid tax regime is not supportive for breeding nascent entrepreneurial activity. Days required to start a business is identified to have a positive relationship with nascent entrepreneurship. Though this result is surprising but these findings get support from the argument that if entrepreneurial opportunities abound even though more days are needed to officially start a business, opportunistic entrepreneurs will follow the unmet market demand to capture market profitability associated with such

opportunities. Moreover, in case of necessity based entrepreneurial activity increased number of days to set up a business will be positively associated with nascent entrepreneurship.

The addition of entrepreneurial characteristic determinant is also identified to be positively affecting nascent entrepreneurship while operating with institutional factors. Last two columns of Table 3 contain results of consolidated model showing that among institutional factors days required to start a business is the prominent determinant affecting nascent entrepreneurial activity in GEM economies.

5.4 Demographic determinants of nascent entrepreneurship

For demographic factors linear regressions are considered as this is identified to be the best fit for the data. The coefficient of population growth rate shows that it has a positive impact on nascent entrepreneurship (column 2 of Table 4). Increase in population raises demand for various products in an economy because the number of consumers rise and it generates entrepreneurial opportunities. At the same time an increasing population also supplies entrepreneurs as people tend to exploit various entrepreneurial opportunities for earning their livelihood. Education is also identified to have a positive impact on nascent entrepreneurship (column 2 of Table 4). The measure that depicts education is secondary level education. It suggests that those people who hold higher educational degrees generally tend to opt for paid jobs instead of entering into the entrepreneurial world. For analysing the impact of age on nascent entrepreneurship various age groups of population have been considered, however only the results of age group 45-54 years old are reported in table 4.4. It has been identified that people falling within the age groups of 35-44 and 45-54 years tend to opt for more entrepreneurial activities. It suggests that nascent entrepreneurs emerge frequently in mid-thirties and mid-forties.

Table 4: Demographic determinants of nascent entrepreneurship

Variables	Initial model	Initial model including TEAD	Consolidated model	Consolidated model including TEAD
Constant	-1.79 (1.14)	-1.39 (0.88)	-2.03 (1.39)	-1.73 (1.18)
Population Growth	0.15 (0.45)	0.20 (0.61)	---	---
Education	0.55*** (11.2)	0.61*** (9.21)	0.54*** (11.4)	0.61*** (9.30)
Age (45-54 years old)	0.12* (1.79)	0.09 (1.44)	0.12* (1.91)	0.10 (1.59)
TEAD	---	1.52 (1.41)	---	1.44 (1.36)
R2	0.77	0.78	0.77	0.78
Adjusted R2	0.75	0.76	0.76	0.76
F-Statistic	43.5 [0.00]	34.0 [0.00]	66.5 [0.00]	45.9 [0.00]
D.W Statistic	1.86	1.89	1.82	1.83
ARCH Test for Heteroskedasticity	0.004 [0.94]	0.16 [0.68]	0.01 [0.91]	0.07 [0.78]
Breusch-Godfrey Serial Correlation LM Test	0.66 [0.52]	0.20 [0.81]	0.78 [0.46]	0.34 [0.71]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

In addition to the demographic factors the impact of an economy being entrepreneurially active is also positive (column 3 of Table 4). Consolidated results for demographic factors show that education and the age group of 45-54 years old are statistically the most significant factors contributing to nascent entrepreneurship among GEM economies (column 4 and 5 of Table 4).

5.5 Perceptual determinants of nascent entrepreneurship

Table 5: Perceptual determinants of nascent entrepreneurship

Variables	Initial Model	Initial Model Including TEAD	Consolidated Model	Consolidated Model Including TEAD
Constant	-4.83 (1.37)	-2.75 (0.73)	-4.70 (2.24)	-3.14 (1.43)
Skills for Starting a Business	0.17*** (2.89)	0.13** (2.19)	0.21*** (4.98)	0.16*** (3.21)
Opportunity Perception of Individual	0.0096 (0.16)	0.01 (0.21)	---	---
Fear of Failure while Starting a Business	-0.05 (0.85)	-0.05 (0.71)	---	---
Knowing other Entrepreneurs	0.09 (1.26)	0.05 (0.71)	---	---
TEAD		2.19 (1.46)	---	2.63* (1.92)
R^2	0.42	0.45	0.38	0.43
Adjusted R^2	0.36	0.37	0.36	0.40
F-Statistic	6.77 [0.00]	6.01 [0.00]	24.8 [0.00]	15.09 [0.00]
D.W Statistic	1.84	1.87	1.97	1.95
ARCH Test for Heteroskedasticity	0.11 [0.73]	0.10 [0.75]	0.10 [0.74]	0.09 [0.75]
Breusch-Godfrey Serial Correlation LM Test	0.08 [0.92]	0.05 [0.94]	0.00 [0.99]	0.01 [0.98]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

Individual perceptions play an important role in the decision-making process of an individual to become an entrepreneur. For carting the impact that perceptual factors have on nascent entrepreneurship regression analyses are reported in table 4.5. The best fit has been identified to be linear specification. Results of initial regression show that if a person considers that he/she has the skills required to start and run a business successfully he/she is more likely to become an entrepreneur. Similarly, the coefficients of opportunity perception and knowing other entrepreneurs who have recently successfully established businesses also depict that the presence of such factors encourage an individual to become an entrepreneur. However, the fear that the business will fail is identified to discourage an individual to step into entrepreneurship. Just like previous regression results entrepreneurially active economies are identified to have a positive impact on nascent entrepreneurship. The consolidated models for perceptual variables are reported in column 4 and 5 of Table 5, suggesting that among this category the confidence of having skills to start and run a business is the most important factor that can encourage an individual to become an entrepreneur.

5.6 Cultural determinants of nascent entrepreneurship

For the cultural factors, linear specification is identified to be the best fit. The results of initial model show that nascent entrepreneurship gets boost if business is considered as a desirable career by the residents of a country. Individuals also tend to become entrepreneurs if in their countries entrepreneurs are perceived to be enjoying a high status and respect. In addition, presence of successful entrepreneurial role models is also identified to be a stimulating factor for nascent entrepreneurial activity. It therefore suggests that higher the number of established business in an economy higher will be the propensity of entrepreneurial spawning.

Table 6: Cultural determinants of nascent entrepreneurship

Variables	Initial Model	Initial Model Including TEAD	Consolidated Model	Consolidated Model Including TEAD
Constant	-0.45 (0.10)	0.82 (0.19)	-3.72 (1.14)	-2.06 (0.66)
Business as a Desirable Career	0.13** (2.28)	0.11* (2.01)	0.11* (2.04)	0.09* (1.78)
Entrepreneur's Status and Respect	0.06 (1.06)	0.06 (1.01)	---	---
Incumbent Business	0.29* (1.70)	0.02 (0.12)	0.27* (1.68)	0.0038 (0.02)
Previously Centralized Economy (Dummy = 1)	-0.69 (0.34)	-0.47 (0.25)	---	---
TEAD	---	4.05** (2.45)	---	4.14** (2.54)
R^2	0.25	0.36	0.23	0.34
Adjusted R^2	0.17	0.27	0.19	0.29
F-Statistic	3.22 [0.02]	4.12 [0.00]	5.96 [0.00]	6.69 [0.00]
D.W Statistic	1.91	1.91	1.94	1.96
ARCH Test for Heteroskedasticity	0.11 [0.73]	0.07 [0.77]	0.08 [0.76]	0.06 [0.80]
Breusch-Godfrey Serial Correlation LM Test	0.09 [0.91]	0.06 [0.93]	0.07 [0.92]	0.04 [0.95]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

However, the study has identified a negative impact of previously centralized economies on nascent entrepreneurship, possibly because their culture and institutional set up does not offer much support for setting up private ventures. Though they are in transition to take measures to encourage entrepreneurship yet better, entrepreneurially conducive environment is needed to nurture nascent entrepreneurship. In the final model, impact of entrepreneurial characteristic of the economy as being entrepreneurially active is again identified to be positive for fostering nascent entrepreneurship. The consolidated regression results are reported in column 4 and 5 of Table 6. Findings suggest that among the cultural factors presence of the desirability of adopting business as a career and successful entrepreneurial role model are the most important variables casting a positive impact on nascent entrepreneurship.

6.   Conclusions and policy implications

This research has investigated the relationship between various economic and non-economic determinants on the nascent entrepreneurial activity across GEM participating countries for the year 2006, while also estimating the impact of an economy being entrepreneurially active or passive on this form of entrepreneurship. It has tested several models. Various diagnostic tests of regression analysis, such as ARCH test for Heteroskedasticity and Breusch-Godfrey serial correlation LM test, have been used to determine the statistical credibility of these models (Wooldridge, 2010; Greene, 2003).

The study finds a significant positive impact of an economy being entrepreneurially active on its nascent entrepreneurship rate. As regards the impact of economic variables, per capita income has been identified to have a significant U-shaped relationship with nascent entrepreneurship. This U-shaped relationship becomes weaker when dummy variable for entrepreneurial characteristic of the economy is introduced in the analysis. It is however expected to improve with an increase in sample size for the signs of coefficients are as expected. Though the impact of economic growth and unemployment is also as expected but the variables are not found to be significantly contributing. It may be due to the fact that these are cyclical variables the behaviour of which can be better evaluated in a time series data set, whereas this study is cross-section. Considering the

technological determinants, research and development expenditures is found to be a significant stimulus for nascent entrepreneurship, and just like per capita income it also assumes a U-shaped relationship with nascent entrepreneurship. About the relationship between institutional factors and nascent entrepreneurship, most significant factor is the days required to start a business. Though its sign is not as expected (negative) but its positive relationship with nascent entrepreneurship suggests that if entrepreneurial activity emerges out of necessity or the market opportunity is so beneficial that entrepreneur will not let it go then this positive relationship would prevail. The impact of tax is also as expected but it is not identified to be very significant. Among demographic factors, education of an entrepreneur and the age group he/she belongs to is identified to have a significant positive impact on nascent entrepreneurship. The study has identified that most often nascent entrepreneurs step into entrepreneurial career after mid-thirties because the age groups of 35-44 and 45-54 are found to be positively associated with nascent entrepreneurship. The impact of population growth is positive but it is not significant.

Results of individual level variables suggest that the confidence of an individual that he /she has the skills to start and run the business successfully is the most significant driver behind a start-up business. Though the impact of other perceptual variables is as expected but they are not identified to be very significant. Considering the cultural factors, desirability of individuals to peruse entrepreneurship as a career and the presence of entrepreneurial role models in a country are identified to be significantly positively associated with nascent entrepreneurial activity. Though the relationship of other cultural variables is as expected but their impact is not significant.

Overall, findings of this study highlight that various economic and non-economic factors serve as push and pull forces in determining the dynamics of nascent entrepreneurship. However, another major force is the entrepreneurial characteristic of an economy. The results of this research bring in the limelight that if an economy is entrepreneurially active it will have a significant impact on the germination of nascent entrepreneurs in a country. On the policy side for those economies which are entrepreneurially passive they need to revisit their economic and enterprise policies. Even

more important is to note that it is not always the institutional factors which sever as stimuli for entrepreneurial activities but various economic, technological, demographic, perceptual and cultural factors create an environment which support the emergence of new and small businesses.

This research thus suggests that, first, entrepreneurially passive economies instead of focusing more on the promotion of business start-ups should focus on the skill development of their nationals i.e. improve their managerial and technical skills. Second, the promotion and efficient delivery of entrepreneurial education is an important tool for promoting entrepreneurial culture and thus entrepreneurial activities. Through entrepreneurial education entrepreneurial attitudes can be developed and promoted. Third, economic mangers need to come up with such flexible investment policies which attract foreign direct investment. The presence of multinationals through their spill over effects and by embedding the local firms in their supply chains become a seedbed for entrepreneurial spawning. Fourth, it is further required to be complemented with improved physical infrastructure to support the birth process of new ventures. Fifth, entrepreneurially passive economies can also find support from collaborative research and development activities from entrepreneurially active economies to come up with more and more such innovative products that attract customers. By stimulating the demand for goods and services more entrepreneurial opportunities can be created. Sixth, since tax is identified to have a negative impact on nascent entrepreneurship, flexible tax system should be introduced which provides relief to entrepreneurs. This shall attract individuals towards establishing their own enterprises. Finally, the study suggests for entrepreneurs not only to refine their personal skills but to develop strong networks to grasp possible good information about available and emerging market opportunities both in local and international markets. This will help them minimize the potential threats before entering into a new market while exploiting available and emerging market opportunities. Though in the short run the impact of government policies may be modest but in the long run they shall, if effectively implemented, bring fruitful results. For this the economic managers and political representatives should ensure economic and political stability. Since the study is cross section and takes into account only one moment in time, the impact of cyclical variables has not been observed to be significant. However, within the present framework of the study it can be concluded that structural variables play an important role in

determining nascent entrepreneurship rate. It is therefore suggested for potential researchers to also analyze the dynamics of nascent entrepreneurship by using time series data.

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Appendix 1
Variable description and data sources

Variables	Label	Description	Source
Nascent Entrepreneurship Rate	NE	Number of adults [18-64 years old] per 100 involved in nascent business (new firm start-up), defined as active, expect to be a full or part time owner, and no salaries or wages paid for over three months.	GEM 2006
Gross National Income per capita	PCI	GNI per capita based on purchasing power parity (PPP). PPP GNI is gross national income (GNI) converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current international dollars.	WDI 2005-06
Economic Growth	GDP	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2000 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	WDI 2005-06
Unemployment	U	Unemployment refers to the share of the labour force that is without work but available for and seeking employment. Definitions of labour force and unemployment differ by country.	WDI 2005-06
Population Growth	PG	Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not	WDI 2001-06

		permanently settled in the country of asylum, who are generally considered part of the population of the country of origin.	
Age Structure of Population	Age	a. Percentage within all people involved in TEA who are in age category 18-24 b. Percentage within all people involved in TEA who are in age category 25-34 c. Percentage within all people involved in TEA who are in age category 35-44 d. Percentage within all people involved in TEA who are in age category 45-54 e. Percentage within all people involved in TEA who are in age category 55-64	GEM 2006
Educational Profile of Nationals	Edu	a. Number of Adults with some secondary experience as highest qualification, per 100 involved in a nascent firm or young firm or both (if doing both, still counted as one active person). b. Number of Adults with secondary degree as highest qualification, per 100 involved in a nascent firm or young firm or both (if doing both, still counted as one active person). c. Number of Adults with post- secondary degree as highest qualification, per 100 involved in a nascent firm or young firm or both (if doing both, still counted as one active person). d. Number of Adults with graduate experience as highest qualification, per 100 involved in a nascent firm or young firm or both (if doing both, still counted as one active person).	GEM 2006
Tax Revenue	T	Tax revenue refers to compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded. Refunds and corrections of erroneously collected tax revenue are treated as negative revenue.	WDI 2005-06
Days Required to Start a Business	DR	Time required to start a business is the number of calendar days needed to complete the procedures to legally operate a business.	WDI 2005-06

			If a procedure can be speeded up at additional cost, the fastest procedure, independent of cost, is chosen.	
Real Interest Rate	I		Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.	WDI 2005-06
Business as Desirable Career	BD		Percentage yes on item [July 2006]: In your country, most people consider starting a new business a desirable career choice?	GEM 2006
Entrepreneurs Status and Respect in a Country	ESR		Percentage yes on item [July 2006]: In your country, those successful at starting a new business have a high level of status and respect?	GEM 2006
Incumbent Business Ownership	IB		Established Businesses: Number of adults [18-64 years old] per 100 involved in established firm as owner and manager for which salaries or wages have been paid for more than 42 months.	GEM 2006
Formerly Centralized Economy	DC		Dummy = 1 for formerly centralized economy Dummy = 0 for not formerly centralized economy	Based on Literature Survey
Opportunity Perception of Individuals	OP		In the next 6 months there will be good opportunities for starting a business in the area where an individual lives	GEM 2006
Knowing Other Entrepreneurs	KoE		The Individual personally knows someone who started a business in the past 2 years	GEM 2006
Confidence on One's Skills	S		The knowledge, skill, and experience which an individual has and is required to start a new business	GEM 2006
Fear of Failure to Start a Business	F		Fear of failure that would prevent an individual from starting a new business	GEM 2006
Computers per capita	C		Personal computers (per 100 people) are self-contained computers designed to be used by a single individual.	WDI 2005-06
Internet Subscribers	I		Fixed broadband Internet subscribers (per 100 people) are the number of broadband subscribers with a digital subscriber line, cable modem, or other high-speed technology.	WDI 2005-06
Research and Development Expenditures	RD		Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase	WDI 2005-06

		knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development.	
Entrepreneurial Characteristic of an Economy	TEAD	Dummy = 1 for Entrepreneurially Active Economy: countries having double digit entrepreneurial activity rate. Dummy = 0 for Entrepreneurially Passive Economy: countries having double digit entrepreneurial activity rate.	Based on GEM Data 2006