Entrepreneurial Ecosystem, Entrepreneurial Activity and Economic Performance

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Abstrak– In this research, we have empirically tested the impact of Entrepreneurial Framework Conditions (EFC) on entrepreneurial activity and ultimately on economic growth of a nation. In our sample all the 54 countries participating in the GEM study in 2017 are taken. 67.8% of the world’s population and 86.0% of the world’s GDP is represented by the economies included in GEM 2017. The entrepreneurial ecosystem is captured through 12 EFCs used in the GEM model that includes: Financial environment, government policy of support and relevance, government policy of taxes and bureaucracy, government programs, entrepreneurial education at school stage and post school stage, R&D transfer, commercial and legal infrastructure, internal market dynamics, access to physical infrastructure, and social and cultural norms. The impact of these EFCs and their significance in creating entrepreneurial activity (TEA) in a nation is analyzed using OLS estimation technique with TEA as dependent variable. Secondly, the impact of entrepreneurial activity (TEA) on economic growth ($\Delta$GDP) is estimated using OLS regression model with control variables such as global competitiveness index (GCI) and Gross national income per capita, expressed in purchasing power parity (GNIC). The results suggest that entrepreneurial education at post school stage, entry burdens and cultural and social norms are significant framework conditions that support entrepreneurial activity, while R&D transfer, internal market dynamics and commercial and legal infrastructure hinders the process of entrepreneurship. Furthermore, TEA is significantly contributing to the economic growth of factor driven and efficiency driven economies.

Keywords- Entrepreneurship, Entrepreneurial framework conditions, GEM model, economic growth, macroeconomic analysis.

I. INTRODUCTION

Entrepreneurship is the buzz word of the day. All the nations weather developing or developed have recognized the importance of entrepreneurship and innovation as an agent of economic growth and poverty alleviation(Bruton, Ketchen, & Ireland, 2013). Entrepreneurship is also a means of generating employment especially for the youth, women and people from rural areas (Bullough, De Luque, Abdelzaher, & Heim, 2015). With saturated job market, and the huge youth population governments all across the world along with higher education commissions have aimed at proliferation of entrepreneurship development programs, incubation centers, startup competitions. The purpose is to increase the supply of entrepreneurs and improve their chances of success (Brown & Hanlon, 2016). GEM data base captures 12 of these entrepreneurship support conditions as entrepreneurial framework conditions (EFCs) on national level.

The sole purpose of supporting entrepreneurship is to increase economic growth. Reynold (2005) have proposed GEM model arguing that along with established firm’s activity, nascent and budding entrepreneurs significantly contribute to the economic growth of a country. Literature suggests that entrepreneurship can support economic growth through three important channels: innovation creation, innovation diffusion, and competition (Bosma, Sanders, & Stam, 2018; Wennekers & Thurik, 1999).

Innovation creation means that variety could be increased by introducing new knowledge in the economy(Metcalf, 2004; J. Schumpeter, 1942). The second important channel is the diffusion of this new knowledge by entrepreneurs who are opportunity seekers and fill the market gaps (Kirzner, 1997). Finally, competition amongst the entrepreneurs will lead to economic growth(Aghion, Blundell, Griffith, Howitt, & Prantl, 2006; Kirzner, 2015). Although many researchers have established the fact that entrepreneurs are important for growth but causality between entrepreneurial activity and economic growth has not yet been established (Carree, Van Stel, Thurik, & Wennekers, 2007).

Although there is huge upsurge of these support conditions but the current study will explore the significance of these framework conditions on the entrepreneurial activity and will analyze the impact of entrepreneurial activity on economic growth by using 2017 GEM data for 54 countries at different development stage.

Overall this study has contributed to the available literature, the empirically tested significance of the 12 EFCs included in the GEM model. This will assist the policy makers of countries prioritizing entrepreneurship to identify the conditions that most significantly can increase the entrepreneurial activity depending upon their development stage. Though there are few studies that tested the impact of EFCs on entrepreneurial activity (Hechavarría & Ingram, 2018;
Levie & Autio, 2011) but since all the EFCs represents structural changes that need time to create an impact, the available studies fail to significantly relate most of these Entrepreneurial framework conditions on entrepreneurial activity. We expect that recent data will be able to capture the impact of the not so old explosion of these structural changes and thus provide a better guidance. Secondly there has been no holistic study that captures the simultaneous testing of entrepreneurial activity (based on these entrepreneurial framework condition) on economic growth. Following are the specific research objectives of this study:

- To analyze the impact of entrepreneurial framework conditions in different countries on the level of its entrepreneurial activity.
- To analyze the impact of entrepreneurial activity on economic growth by controlling for development stage in factor driven, efficiency driven, and innovation driven economies.

II. LITERATURE REVIEW

The GEM model

In 1997, Paul Reynolds proposed the GEM Model based on the idea by Michael Hay for the world Enterprise Index. The purpose was to suggest an equivalent for enterprise and entrepreneurship of IMD’s World Competitiveness Yearbook and the World Economic Forum’s Global Competitiveness Index (Levie & Autio, 2008). Paul Reynolds desired to provide something that accompanied the Global Competitiveness Model, in the reports produced by the World Economic Forum at the time. He added the importance of entrepreneurs and startups along with large established firms in the economic development of any nation (P. D. Reynolds, 2012).

The GEM model differentiates between entrepreneurial activity and established business activity by explaining the different factors influencing each type of activity, although both are interrelated (see figure 1). In this paper we restrict ourselves only on the Entrepreneurial activity side and establishment of new firms and finally their impact on the economic growth (figure 1, boxed portion). Thus drawing on the GEM conceptual model(P. Reynolds et al., 2005), we focus on EFC component only. This subset of the GEM model apprehends those conditions that assist or hinder the entrepreneurial activity in a country (Baumol, 1990; North, 1994; Sobel, 2008). It has been argued that country level entrepreneurial activity not only depends upon individual capacities and actions but also the institutional incentives (Welter, 2011). Moreover, the GEM model argues the growth in economic activity due to increased entrepreneurial activity.

In the current study, we propose to empirically test the GEM model underlying assumptions about influence of EFCs on entrepreneurial activity and then impact of entrepreneurial activity on economic growth. The next sections will explain the theoretical grounding of these relationships.

Entrepreneurial framework conditions and Entrepreneurial activity

The following sub sections will discuss 12 EFCs in the GEM model and its impact on entrepreneurial activity as explained by the literature to date:

Financial environment

The available literature suggests that access to finance is the most important regulator that controls the entrepreneurial activity in an ecosystem. As a rule, some upfront investment is required to kick off an entrepreneurial activity and even that is supported by initial theories of entrepreneurship including Schumpeter, who accepted the importance of bank credit availability or private equity providers to support entrepreneurship (Schumpeter, 1934). Thus the entrepreneurial activity in any country depends upon the sophistication of credit and lending systems (Leibenstein, 1968). These researches have led policy makers to include access to finance as an important object of entrepreneurship policy. It is equally recognized by the entrepreneurs themselves by reporting the unavailability of finance a major barrier to starting a new business (Choo & Wong, 2006; Kouriloff, 2000; Robertson, Collins, Medeira, & Slater, 2003; Volery, Doss, Mazzarol, & Thein, 1997). The earlier researches also suggest the difference between routine financing and entrepreneurial credit requirements and consequently these two types of financing should be considered separately in any policy model (Leibenstein, 1968).

Government policy: Support and relevance

Government policy of support and relevance reflects the emphasis of government on the broad policy interest of innovation and venturing (Stevenson & Lundström, 2007). There is a general consensus that entrepreneurship is a national phenomenon that can be addressed by policy makers at national and regional levels, and increased awareness and efforts of policy maker to positively influence entrepreneurial activity are widely acknowledged (Audretsch, Grilo, & Thurik, 2007). Most of the innovative driven economies have government policies that support entrepreneurship and thus shows the importance of policy intervention in the change of economic activity (Storey, 2003). The GEM
model under study, does not capture specific government policies in favor of entrepreneurship, but instead measures the general prioritization of entrepreneurship as a national objective in context of supporting and motivating entrepreneurs to develop the economy (Acs, Arenius, Hay, & Minniti, 2004; Leibenstein, 1968; Levie & Autio, 2011). There is ambiguous impact of government support policies of entrepreneurship in the empirical literature, as some studies support the argument (McMullen, Bagby, & Palich, 2008), while others show no evidence of such support (Levie & Autio, 2011).

**Government policies: taxes and bureaucracy**

Government policies regarding taxation, bureaucracy are common barriers towards entrepreneurial activity (Acs, Desai, & Hessels, 2008). Empirical research suggests two possible ways in which these regulations and policies impact the entrepreneurial process. First, the prolong and cumbersome regulations and delays in the venturing process may increase the time of startup (Klepper & Sleeper, 2005) and also lead to missed opportunity (Mullins & Forlani, 2005). Secondly, complying with regulations, also increases the cost of venturing into new business. Tax policies play a crucial role in incentivizing entrepreneurial activity and removes the barrier of this additional financial cost burden (Keuschnigg & Nielsen, 2004). Although some studies have also reported higher tax rates linked with higher level of entrepreneurial activity, as venturing allows the entrepreneur to under report the profits and thus save on taxes, which is not possible in case of wages (Blau, 1987).

**Government Programs**

Government programs refer to the nurturing of the entrepreneurs through providing professional services advisors, accountants, bankers, lawyers, and consultants (Clarysse & Bruneel, 2007; Fischer & Reuber, 2003). These government programs are based on the idea of filling the gap in resources and competencies of entrepreneurs. These services are provided at subsidized rate through government trade chambers or incubation and acceleration programs thus minimizing the transaction cost and enhancing the human capital (Keuschnigg & Nielsen, 2004; Shane & Cable, 2002).

**Entrepreneurial Education – at school stage and post school**

Entrepreneurial education and training is a widely researched and implemented program by the governments and private NGOs in order to foster entrepreneurial activity in a country. The entrepreneurial education at school stage helps develop the mindset of the youth to take up entrepreneurship as a career option (Peterman & Kennedy, 2003). Whereas entrepreneurship education and training at post school stage is focused to enhance the entrepreneurial activity through opportunity recognition and exploitation. This kind of training works on improving the cognitive capabilities of an individual and thus sharpening the skills to analyze and observe the surroundings for opportunity recognition (DeTienne & Chandler, 2004). Moreover these training and education programs also help budding entrepreneurs to obtain instrumental business skills required to start and manage a business (Honig, 2004). Previous studies on entrepreneurship education and training has been unsuccessful to provide much evidence that the skills taught are actually required by future entrepreneurs (Edelman, Manolova, & Brush, 2008) or that help generate more or better entrepreneurs (Martin, McNally, & Kay, 2013). Only a few empirical findings are available that favor the impact of entrepreneurship education design. While, most of the relationships between entrepreneurship education and the real world remain underspecified (Vanevenhoven, 2013), leaving researchers and educators relying too much on the theoretical framework.

**R&D Transfer**

Schumpeter and Kirzner supported innovation and entrepreneurship as engine of economic growth (Kirzner, 1997; J. Schumpeter, 1942). This theory was further extended by Knowledge spill-over theory of entrepreneurship that proposes the fact that venturing and new business activity capitalizes on the unutilized knowledge sources of other companies (Acs et al., 2004). This theory argued that entrepreneurs are able to exploit the knowledge spillovers because new asymmetric and uncertain knowledge attracts the risk taking and opportunity identifier entrepreneurs (Audretsch & Lehmann, 2005). Alertness and discovery are the two cognitive skills that are required to reveal and connect the unused knowledge created by incumbents (Acs & Varga, 2005). Countries with low cost of R&D transfer are likely to have higher levels of entrepreneurial activity where this process is slow and costly (Markman, Gianiodis, Phan, & Balkin, 2004).

**Commercial and Legal Infrastructure:**

Commercial and legal service embraces all those services that are fundamental for entrepreneurs and new firm formation. These services include availability of suppliers, consultants, and financial service providers, legal consultants that sets an
ecosystem for the entrepreneurs (Levie & Autio, 2008). The presence of these supporting services in the ecosystem, allows the entrepreneurs to concentrate on the innovation side of the business by taking care of the peripheral business functions (Suzuki, Kim, & Bae, 2002). Legal services are not only important throughout the business life but are most crucial at the initial stage (Ruef, 2005) and availability of such services reduces the entry barriers for nascent entrepreneurs (Brenner, 1992; Lee, Yamakawa, Peng, & Barney, 2011).

**Internal market dynamics**

Market dynamics is one of the macroeconomic variable (Klepper & Sleeper, 2005) that again make use of the risk taking ability of entrepreneurs. This variable has been recognized by earlier theories as a motivating factor in entrepreneurial activity (Kirzner, 1997; Leibenstein, 1968). Market dynamics that actually explains the speed of changes in the market, also known as clockspeed (Nadkarni & Narayanan, 2007) suggests that markets that are characterized by higher rates of unpredictability, change and uncertainty provide better opportunities for entrepreneurs by taking risk of the uncertainty (Knight, 1921). This factor is included in the GEM model as internal Market openness, based on market dynamics and market openness. Dynamism explains the pace of change in the market while openness explains the ease of entry in the market (Levie & Autio, 2011).

**Access to Physical Infrastructure**

Physical infrastructure which refers to transportation facilities, land for operation, communication and telecommunication services are vital at each stage of business (Trulsson, 2002; Van de Ven, 1993). Availability and easy access to these facilities ease the process of venturing and thus enhances the entrepreneurial activity (Carter, Gartner, & Reynolds, 1996). The availability of physical infrastructure widely varies from country to country. Some researches suggests that innovation driven economies are better in providing physical infrastructure services than factor driven economies (Bitzenis & Nito, 2005; Ghani, Kerr, & O'connell, 2014).

**Social and cultural norms**

Social and culture norms are commonly cited as drivers on entrepreneurial activity in a country. Various previous researches have attempted to measure the impact of Hofstede’s cultural scales and entrepreneurship (Hayton, George, & Zahra, 2002; Hofstede, 1980; Spencer & Gómez, 2004; Uhlner & Thurik, 2007). In the GEM model cultural context and entrepreneurial culture and social norms are dealt separately. The later covers the context level beliefs about entrepreneurship and is assumed to impact the entrepreneurial activity (Levie & Autio, 2011). One might argue that these are universal values and cannot be changed thus does not impact policy decisions but researches support that national values, attitudes and beliefs about entrepreneurship actually change quickly than other enduring universal values (Etzioni, 1987; Inglehart, 1997). The national attitude of celebrating entrepreneurial wealth and publicity on the media increases the desirability of an individual to engage in entrepreneurial activity (P. D. Reynolds, 2012).

All the above specified entrepreneurial framework conditions are claimed in literature to support entrepreneurial activity. Policy makers are only interested in these EFCs for the ultimate objective of economic growth. The available literature on the relationship between entrepreneurial activity and economic growth is explored in the next section.

**Entrepreneurial activity and Economic Growth**

Economic growth and the factors influencing it has been the research area since the inception of growth models. There are many factors reported in literature that supports the economic growth of a region. Such factors include, climate, value systems, institutions, property rights, saving propensity, presence of sea ports and the list goes on (Sala-i-Martin, 1997; Van Stel, Carree, & Thurik, 2005). In classical economics, entrepreneurship and new firm generation failed to be included in the list of these influencing variables unless Schumpeter (Schumpeter, 1934) and other neo classical economists claimed that entrepreneurial activity in any region is engine to economic growth and prosperity (Kirzner, 2015).

There is extensive literature review by Wong, Ho and Autio (2005) highlights the theoretical background as well as empirical studies that creates linkages between entrepreneurship and economic growth. It is suggested that entrepreneurs contribute to growth through different (Van Stel et al., 2005) behaviors that include innovation, combining resources in competitive environments. With various studies arguing that entrepreneurial activity using the “knowledge spill-over effect” and “Innovation” is resourceful for economic growth but causality between entrepreneurial activity and economic growth has yet not established significantly (Carree et al., 2007). Various empirical studies that tested these relationships have conflicting results. Research suggests that entrepreneurial activity in a country
depends upon its GDP and varies across the stages of development not only within countries but also within regions (Carree et al., 2007). The relationship between total entrepreneurial activity and per capita income appears to be u-shaped. It means that countries with very high or very low per capita rates showed high entrepreneurial activity, whereas, countries with middle levels of per capita income showed very low entrepreneurial activity (Minniti, Bygrave, and Autio 2005). Prior researches focusing on the developed countries suggest that entrepreneurial activity may be the most significant contributor to GDP growth rate. Thus taking measures to enhance favorable conditions for knowledge transfers, intellectual property rights protection, growth of venture capitalists by policy maker can accelerate the rate of budding entrepreneurs and in turn impact the overall growth rate (Levie & Autio, 2011; Van Stel et al., 2005; Wennekers, Van Wennekers, Thurik, & Reynolds, 2005). Public policy makers need to pay more attention to the factors that intervene with the personal motivation factors depending upon the entrepreneurial history of a region. The u-shaped relationship brings important implication that there are different socio economic forces that play differently for rich and poorer nations (Soto, 1989; Van Stel et al., 2005; Wennekers et al., 2005). Though studies suggest that for emerging countries total entrepreneurship activity does not support GDP growth (Carree et al., 2007; Van Stel et al., 2005) but it does not mean that entrepreneurship should be discouraged in these countries. Entrepreneurship contributes to lowering unemployment and policies regarding the established firms to create spillover effects can enhance the growth of these countries (Wennekers & Thurik, 1999).

To sum, previous studies suggest that GDP growth in emerging and developed economies may be driven by different independent variables. These variables could either be conditions at national and regional levels or the levels of entrepreneurial activity in the national economy. Different types of entrepreneurs may play a varying role in the economic development of specific countries. The variance could either be caused by the national conditions or socio-cultural influences. Thus, different types of entrepreneurial activity are likely to play variable roles in the economic growth among emerging and developed countries (Soto, 1989).

III. RESEARCH METHODOLOGY

Data:
We have used the data from following country level sources:

1. IMF data base
2. GEM Adult population survey 2017
3. GEM National experts survey 2017
4. Global competitiveness report 2017

In our sample all the 54 countries that participated in the GEM study in 2017 are taken. The GEM economies in 2017 comprise 67.8% of the world’s population and 86.0% of the world’s GDP. Every year, each nation participating in the GEM cycle, surveys at least 36 key experts or informants. The National Expert Survey (NES) is like other surveys that engage expert judgments to assess specific national conditions. However, the NES emphasizes only on the environmental conditions that are expected to have a significant impact on the entrepreneurial attitudes and activities rather than on general economic features. These environmental features are then defined as GEM entrepreneurial framework conditions. Experts are asked to express their views about the most important conditions in the ecosystem that can either nurture or limit entrepreneurial activity and development in their country. In 2017, National Expert Surveys provided data on these components of the entrepreneurial framework conditions using a Likert scale of one (highly insufficient) to nine (highly sufficient).

Estimation model:
Since the data is cross section with a continuous dependent variable, we have employed OLS regression model to evaluate the impact of EFC’s on Entrepreneurial activity. The following model is
used to test the relationship between entrepreneurial framework conditions and entrepreneurial activity captured in the form of TEA:

\[ TEA_t = \alpha_0 + \alpha_1 EF_t + \alpha_2 GPSR_t + \alpha_3 GPTB_t + \alpha_4 GEP_t + \alpha_5 EEt_t + \alpha_6 EIt_t + \alpha_7 RDT_t + \alpha_8 CLI_t + \alpha_9 IMD_t + \alpha_{10} MB_t + \alpha_{11} PI_t + \epsilon_t \]

The summary list of variables is as follows:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEA</td>
<td>Total Entrepreneurial Activity- The TEA index indicates the percentage of the adult working-age population (18–64 years old) in a country who are classified as either nascent or new entrepreneurs</td>
<td>GEM 2017 Adult Population Survey(APS)</td>
</tr>
<tr>
<td>EEA</td>
<td>Entrepreneurial employee activity – EEA is the percentage of the adult population aged 18–64 years who, as employees, have been involved in entrepreneurial activities such as developing or launching new goods or services, or setting up a new business unit, a new establishment, or a subsidiary.</td>
<td></td>
</tr>
<tr>
<td>SEA</td>
<td>Social entrepreneurial activity – SEA is the percentage of the adult population aged 18–64 years who are engaged in early-stage entrepreneurial activities with a social goal.</td>
<td></td>
</tr>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EF</td>
<td>Entrepreneurial finance</td>
<td>GEM 2017 National Experts Survey (NES)</td>
</tr>
<tr>
<td>GPSR</td>
<td>Government policies: support and relevance</td>
<td></td>
</tr>
<tr>
<td>GPTB</td>
<td>Government policies: regarding taxes and bureaucracy</td>
<td></td>
</tr>
<tr>
<td>GEP</td>
<td>Government entrepreneurship programs</td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>Entrepreneurship education at school stage</td>
<td></td>
</tr>
<tr>
<td>ET</td>
<td>Entrepreneurship education at post school stage and entrepreneurship training</td>
<td></td>
</tr>
<tr>
<td>RDT</td>
<td>Research and development (R&amp;D) transfer</td>
<td></td>
</tr>
<tr>
<td>CLI</td>
<td>Commercial and legal infrastructure</td>
<td></td>
</tr>
<tr>
<td>IMD</td>
<td>Internal market dynamics</td>
<td></td>
</tr>
<tr>
<td>IMB</td>
<td>Internal market burdens or entry regulation</td>
<td></td>
</tr>
<tr>
<td>PI</td>
<td>Physical infrastructure</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Cultural and social norms</td>
<td></td>
</tr>
</tbody>
</table>

In next stage, we have investigated whether entrepreneurial activity (TEA, SEA and EEA) impact economic growth using the model proposed by André van Stel (Verheul, Stel, & Thurik, 2006), apart from other technology, institutions and macroeconomic growth (captured by GCI). Since GCI and TEA are both structural characteristics therefore, medium term economic growth (average growth rates for last five years i.e. 2012-2017) will be taken as dependent variable. Furthermore, Gross National income per capita is used as control variable. Moreover we will include a lagged dependent variable to limit the potential impact of reverse causality.

The model can thus be explained as follows:

\[ \Delta GDP_t = \alpha_0 + \alpha_1 TEA_t + \alpha_2 GCI_t + \alpha_3 \log(GNIC)_t + \alpha_4 \Delta GDP_t_{t-1} + \epsilon_t \]

Furthermore, we have also evaluated the impact of entrepreneurial activity on economic growth for developing and emerging countries separately.

\[ \Delta GDP_t = \alpha_0 + \alpha_1 TEA(F)_t + \alpha_2 GCI_t + \alpha_3 \log(GNIC)_t + \alpha_4 \Delta GDP_t_{t-1} + \epsilon_t \]

\[ \Delta GDP_t = \alpha_0 + \alpha_1 TEA(E)_t + \alpha_2 GCI_t + \alpha_3 \log(GNIC)_t + \alpha_4 \Delta GDP_t_{t-1} + \epsilon_t \]

**Variable name** | Description | Source |
<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔGDP</td>
<td>Average GDP Growth rate from 2012-2017</td>
<td>IMF Data Bank</td>
</tr>
<tr>
<td><strong>Dependent variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEA</td>
<td>Total Entrepreneurial Activity- The TEA index indicates the percentage of the adult working-age population (18–64 years old) in a country who are classified as either nascent or new entrepreneurs</td>
<td>GEM 2017 Adult Population Survey(APS)</td>
</tr>
<tr>
<td>TEA(F)</td>
<td>Total entrepreneurial activity for factor driven countries (sub division of the sample)</td>
<td></td>
</tr>
<tr>
<td>TEA(E)</td>
<td>Total entrepreneurial activity for efficiency driven countries (sub division of the sample)</td>
<td></td>
</tr>
<tr>
<td>TEA(I)</td>
<td>Total entrepreneurial activity for innovation driven countries (sub division of the sample)</td>
<td></td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GCI</td>
<td>Global Competitiveness Index</td>
<td>Global Competitiveness report</td>
</tr>
<tr>
<td>GNIC</td>
<td>Gross national income per capita, expressed in purchasing power parity</td>
<td>IMF Data Bank</td>
</tr>
</tbody>
</table>
IV. DATA ANALYSIS AND RESULTS

Tables 1 and 2 present our descriptive and bivariate statistics. The mean and standard deviation of the variables are indicated normally of data as none of the standard deviation is too high to make the data skewed. Correlation analysis indicates that none of the dependent variables are highly correlated thus there is no issue of multicollinearity. Collinearity diagnostics for the separate regression equations modeled are calculated using the variance inflation factor (VIF), an indicator of how much of the inflation of the standard error could be caused by collinearity. AVIF of 10 or greater is a cause for concern; all the variables in our sample showed VIF less than 10.

Table 1: Descriptive Statistics of variables

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>min</th>
<th>max</th>
<th>mean</th>
<th>sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>dGDP</td>
<td>-7.46</td>
<td>8.92</td>
<td>1.158309</td>
<td>2.792089</td>
</tr>
<tr>
<td>TEA</td>
<td>3.7</td>
<td>29.62</td>
<td>12.56412</td>
<td>6.715701</td>
</tr>
<tr>
<td>GCI</td>
<td>3.33</td>
<td>5.81</td>
<td>4.62902</td>
<td>0.5978637</td>
</tr>
<tr>
<td>ln(GNIC)</td>
<td>7.279319</td>
<td>11.73607</td>
<td>10.07865</td>
<td>.7876627</td>
</tr>
<tr>
<td>Entrepreneurial Finance</td>
<td>1.62</td>
<td>3.71</td>
<td>2.614706</td>
<td>.4934708</td>
</tr>
<tr>
<td>Government Policies: Support and Relevance</td>
<td>1.56</td>
<td>3.75</td>
<td>2.580392</td>
<td>.5360036</td>
</tr>
<tr>
<td>Government policies: regarding taxes and bureaucracy</td>
<td>1.28</td>
<td>3.56</td>
<td>2.382941</td>
<td>.5696571</td>
</tr>
<tr>
<td>Government entrepreneurship programs</td>
<td>1.34</td>
<td>3.63</td>
<td>2.628824</td>
<td>.5469064</td>
</tr>
<tr>
<td>Entrepreneurial education at school stage</td>
<td>1.22</td>
<td>3.4</td>
<td>1.97549</td>
<td>.4764213</td>
</tr>
<tr>
<td>Entrepreneurial education at post school stage</td>
<td>2.03</td>
<td>3.86</td>
<td>2.878431</td>
<td>.442847</td>
</tr>
<tr>
<td>R&amp;D transfer</td>
<td>1.57</td>
<td>3.43</td>
<td>2.379686</td>
<td>.4256898</td>
</tr>
<tr>
<td>Commercial and legal infrastructure</td>
<td>1.26</td>
<td>3.69</td>
<td>2.95549</td>
<td>.409235</td>
</tr>
<tr>
<td>Internal market dynamics</td>
<td>1.78</td>
<td>4.26</td>
<td>2.998824</td>
<td>.5918907</td>
</tr>
<tr>
<td>Internal market burdens or entry regulation</td>
<td>1.29</td>
<td>3.73</td>
<td>2.548627</td>
<td>.4067531</td>
</tr>
<tr>
<td>Physical infrastructure</td>
<td>2.67</td>
<td>4.61</td>
<td>3.847843</td>
<td>.42129</td>
</tr>
<tr>
<td>Cultural and social norms</td>
<td>1.8</td>
<td>4.28</td>
<td>2.903922</td>
<td>.5723568</td>
</tr>
</tbody>
</table>

Observations: 51

Table 2: Correlation Table

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>TEA</th>
<th>TEA</th>
<th>TEA</th>
<th>TEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>dGDP</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEA</td>
<td>0.119</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GCI</td>
<td>-0.0666</td>
<td>-0.303*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ln(GNIC)</td>
<td>-0.0485</td>
<td>-0.461***</td>
<td>0.758***</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2: Correlation Table (continue)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>TEA</th>
<th>TEA</th>
<th>TEA</th>
<th>TEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(GNIC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results from the OLS model to analyze the impact of EFCs on entrepreneurial activity are presented in Table 3. Control variables are introduced to see the impact of these EFCs. The model with Established Business Operations (EBO) is giving better results and thus considered as an optimal model. Overall, significant framework conditions that positively influence entrepreneurial activity include entrepreneurship training programs at post school stage (β=6.15 and p=0.013), internal market burdens (β=7.147 and p=0.053), and cultural and social norms (β=4.014 and p=0.000). While the factors that negatively influence entrepreneurship includes R&D transfer (β=-12.03 and p=0.000), internal market dynamics (β=-2.87 and p=0.085) and commercial and legal infrastructure (β=5.42 and p=0.035). The remaining entrepreneurial framework conditions do not significantly contribute towards entrepreneurial activity but entrepreneurship finance, government entrepreneurship programs and physical infrastructure positively influence entrepreneurship. While, government policies and entrepreneurship education at school stage are negatively influencing entrepreneurship. It may be noted that established business operations in an economy very significantly supports entrepreneurship.

Table 3: Regression Results

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Results from the OLS model to analyze the impact of entrepreneurial activity on economic growth are presented in Table 4. Model 1 presents the impact of TEA on growth without any control variables. Table 2 has modeled control variables as GCI, GNIC, lagged value of the dependent variable and an interaction term. Model 3 is analyzing the impact of TEA of efficiency driven, factor driven and innovation driven economies on growth in isolation. Model 4 is analyzing the same results with control variables. The results show that TEA is not a significant factor contributing to economic growth of the country. Though TEA is positively influencing the economic growth in isolation but when analyzed with other control variables, it’s negatively impacting growth. TEA for factor driven economies is negatively influencing economic growth at significant level while TEA for innovation driven and efficiency driven economies also has negative coefficients but are insignificant.

V. CONCLUSION

The results suggest that entrepreneurship education at post school stage, entry burdens and cultural and social norms are significant framework conditions that support entrepreneurial activity, while R&D transfer, internal market dynamics and commercial and legal infrastructure hinders the process of entrepreneurship. Although theoretical foundations suggest that all of the EFCs should be positively influencing entrepreneurship but, since all of these are structural changes, therefore it will take time to get the impact of all these framework conditions significantly on entrepreneurship. Also established businesses are a big support factor and nascent entrepreneurs as well as established businesses go hand in hand for the economic development.

One striking result of our study is the negative impact of entrepreneurship on GDP growth. It shows that countries are not yet able to achieve the desired results of entrepreneurship as suggested by Schumpeter. The result that countries fail to benefit from entrepreneurial activity does not imply that entrepreneurship should be discouraged in these countries. Instead, it may be an indication that it will take some more time to create the Schumpeter’s regime. The results of the present study provide some support for such a regime switch. Even so, the small number of observations and the specificity of the time period under investigation do not allow for too strong conclusions.
VI. REFERENSI


