

ENTREPRENEURSHIP FACTORS AMONG DEVELOPED COUNTRIES AND EMERGING REGIONS

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Abstract

The paper contributes to the understanding of entrepreneurial activity by assessing the relative importance of eight entrepreneurial readiness factors across countries in different regions and stages of economic development. Drawing on the literature, this paper identifies eight principle national entrepreneurial readiness factors (NERFs) as (1) business freedom; (2) investment freedom; (3) investor protection; (4) property rights protection; (5) technological readiness; (6) innovation; (7) freedom from corruption; and (8) access to risk capital. NERF country data is subjected to a linear regression analysis for each factor's influence on the sum of all eight factors which is called a country's National Entrepreneurial Readiness Value (NERV). Six South East European countries, eight South American countries, ten South East Asian countries, and six West African countries are compared against one another and the benchmark of the four largest G7 economies. Results of this analysis are presented and show that investor protection, property rights protection, and freedom from corruption are the most impactful entrepreneurial readiness factors. These findings present future research implications of how these results link to endowments and relate to improving entrepreneurial readiness.

Keywords: *entrepreneurship, emerging markets, developing countries, developed countries*

JEL classification: O57

1. Introduction

The importance of entrepreneurship in building strong national and regional economies is well established in the literature. (Wennekers and Thurik 1999; Ács and Szerb 2007; Carree and Thurik 2010; Ács et al. 2016). Policy makers recognize that new and small businesses are the primary sources of job creation and serve as major agents of change within a nation (European Commission 1999). While much attention is

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paid to policies supporting entrepreneurial activity in the most developed economies, less is known about the status and development of entrepreneurial support factors among developing economies. Even less is known about the degree of influence each factor has in the early stages of development of a national entrepreneurial ecosystem. This goes to the heart of entrepreneurship, and the development of both metrics and policies consistent with it.

Despite its economic importance, the rate of entrepreneurship differs widely between nations around the world (Freytag and Thurik 2007). A variety of resource, cultural, behavioral, legal and other institutional factors are believed to play important roles in the complex process by which entrepreneurs accept the risk of establishing a business and entering a market. Scholarly studies over two decades have examined entrepreneurial intent and decision making at the individual level. (Vullo, Morando, and Platania 2017). Even micro factors, such as individual resources (Bhagavatula et al. 2010) and entrepreneurial cognition (Lim, Trimi, and Lee 2010; Mitchell and Shepherd 2010) have been examined and shown to have an important influence on individual perceptions of entrepreneurial opportunities within a given environment.

This paper builds upon the literature by examining how several long-term comparative institutional datasets from reputable international sources might be used to assess the level of entrepreneurial readiness of developing national economies relative to a benchmark readiness level computed from the four largest national economies among the G7 nations. These national economies (referred to herein as G4) are the U.S., Japan, Germany, and Great Britain. In particular, this paper seeks to complement the work that has been on individual entrepreneurial readiness factors by assessing a series of national entrepreneurial readiness factors (NERFs). Specifically, it examines a series of eight institutional-level NERFs that correspond generally to the four readiness dimensions defined by the literature and identified above. (Stenholm, Ács, and Weubker 2013; Urban and Muzamhindo 2017) This study builds upon a previous work examining the same 8 NERFs in the narrower contexts of South East Europe (Potts, Affholter, and Puia 2015) and West Africa (Puia, Affholter, and Potts 2015). Other scholars, notably Dempster and Isaacs (2017), have tested a similar set of questions by a different mechanism, looking at 47 countries over 17 years evaluating Total Entrepreneurial Activity (TEA), economic freedom, corruption and human capital. This study is the first attempt to systematically organize and assess the relative importance of the eight selected NERFs in the early stages of national and regional economic

development among 30 developing economies across four- distinct geographical regions.

In this study, the sum of the 8 NERFs (each normalized to a 100 point scale) is referred to as the national entrepreneurial readiness value (NERV) for a given country. The sensitivity of the NERV to differences in each of the 8 contributing NERFs is assessed using linear regression analysis. This paper tests several hypotheses related to the relative importance of eight key factors in efforts to establish an advanced entrepreneurial ecosystem among developing nations. Hypotheses were tested by selecting developing economies of similar sizes and stages of development from within four rapidly developing geographically distinct regions, each with the availability of robust third-party economic scoring data. The study integrates the high-quality, third-party datasets into an analytical framework that can help scholars develop more detailed theoretical constructs to explain the impact of institutional factors and on entrepreneurial behavior and policy makers allocate resources and set priorities. For each nation and region this study asks three questions: how well does the nation/region score against an established global performance index (established by the 4 largest of the G7 economies)? And how does it compare to its peers within its region? Are there overlapping institutional models and strengths within each region that nearby nations can draw on to build a more effective institutional framework to support entrepreneurship?

The paper is structured as follow. The preceding introduction describes the intent and purpose of the paper. This is followed by: Literature Review – setting the scholarly context of the study and defines the NERFs that are used in it; Theoretical Framework – discussing each NERFs place in the literature and rationale for inclusion; Hypothesis and Methodology – the hypotheses being tested, the methods used to test them; Results – tabular and graphical comparisons summarizing the tests and illustrating regional similarities and differences; Discussion – discussing the importance of the rule of law readiness factors and next step opportunities for regional improvement; and Conclusions and Future Research - assessing potential implications and limitations of the study and potential future directions.

2. Background Literature Review

Entrepreneurship scholars have begun to identify and prioritize the critical institutional factors that impact entrepreneurial readiness within geographical or national contexts. Studies by Autio and Ács (2010)

and Bowen and De Clercq (2008) provided empirical evidence that new businesses are influenced by country-level institutions (e.g., Autio and Ács 2010; Bowen and De Clercq 2008). Other scholars illustrated that micro-level factors like people's resources were important factors (Bhagavatula et al. 2010; Davidsson and Honig 2003). Lim, Trimi, and Lee (2010) then showed that entrepreneurial cognition mediates between institutions and entrepreneurship such that it creates institutions, changes individuals' perceptions, and influences entrepreneurship or the opportunities available in an environmental setting (Terrell and Troilo 2010). The Global Entrepreneurship Research Association (2018) provides meaningful data through their Global Entrepreneurship Monitor (GEM) reports to accompany the scholarly literature.

As pointed out by Schillo, Persaud and Jin (2016) and others (Raza, Muffatto, and Saeed 2019; Ács, Autio, and Szerb 2014), however, relatively few studies have effectively examined the specific institutional factors that impact entrepreneurial activity and intent on a national scale. More recently publications show that scholars are interested on factors impacting entrepreneurial activity at a national level (Pfieffer et al. 2021; Kryeziu and Coşkun 2018) and across countries (Sugiyanto and Yolanda 2020; Siljak 2018). These and other authors have suggested that such factors tend to modulate the rate of entrepreneurship at the national level (Ács et al. 2012; Audretsch and Keilbach 2008). Importantly, Schillo, Persaud, and Jin (2016) suggest that these institutional factors serve to modulate the conversion of individual entrepreneurial readiness (IER) into startup intent at the individual level, with some factors acting more directly than others. Cao and Shi (2021) further suggest that these modulating affects may operate in a fundamentally different manner in advanced versus a developing economies.

Regardless of the specific theoretical lens through which one views its impact, the institutional framework within any country or region is comprised of a complex series of formal and informal factors that have an influence on entrepreneurial activity and decision making. The literature places these factors in four pillars (or dimensions): the regulatory, the cognitive, the normative, and conducive environments. (Kostova 1997; Manolova, Eunni, and Manev 2008; Busenitz, Gomez, and Spencer 2000; Stenholm, Ács, and Weubker 2013; Urban and Muzamhindo 2017)

In recent years, entrepreneurship scholars have begun to examine which factors operate at the individual level to influence rates of entrepreneurship, especially in high-growth, knowledge-based startup categories (Thornton, Ribeiro-Soriano, and Urbano 2011). Ács et al. (2012) have argued that national-level

institutions are most likely to explain the differences in entrepreneurial activities. A number of recent studies have sought to identify key institutional factors that may be important in countries that have a national-level institutional environment (Stenholm, Ács, and Weubker 2013; Walter and Block 2016); however, more consideration of these differences is required (Schillo, Persaud, and Jin 2016).

The institutional environment in any country or economic region is complex, comprised of a number of formal institutions with a few institutions likely being most important. Examination of the relative importance of these institutional factors is seldom addressed in the extant literature. Holmes et al. (2013) argue that political, regulatory and economic institutions are the most important in establishing and defining the environment in which businesses operate. In identifying these categories, the authors build and test a unique set of measures of formal institutions and offer suggestions for future research. Responding to a call for closer examination of these institutional factors, Raza, Muffatto, and Saeed (2019) conducted a review of >15 years of entrepreneurship literature to identify studies that have empirically explored the impact of these three formal institutions on entrepreneurial behavior. In doing so, the authors identified sixty-one studies that examined the impact of certain political, regulatory, and/or economic institutions in some form on the various types of entrepreneurship. They found that no study had addressed the relationship between entrepreneurial behavior and political, regulatory and economic institutions in a single study. Moreover, the examination of multiple factors within each of these formal institutions is only rarely found in the literature. Clearly, the study of institutional factors examining national-level entrepreneurship is a field still in its early stages of development; and one in which key impact factors are still being identified and characterized. As such, theories that explain institutional impact on entrepreneurial behavior are still in their formative stages. A brief examination of some of this literature is of relevance to this study.

The present research responds to the call for studies that examine specific institutional factors that can be assessed both prospectively and retrospectively, and addressed through policy decisions as a country seeks to migrate through various stages of economic development; changes in which it might encourage entrepreneurial behavior (De Clercq, Dimov, and Thongpapanl 2013; Stenholm, Ács, and Weubker 2013; Schillo, Persaud, and Jin 2016). The present study employs a set of 8 distinct measures (i.e. factors) that can be accessed through extant datasets to assess the impact of several formal institutions on computed

differences in national entrepreneurial readiness. The sum of these 8 factors is referred to herein as the National Entrepreneurial Readiness Value (NERV). Previous research on such relationships has tended to focus on the relationship of single institutional factors on national entrepreneurship (e.g., Fuentelsaz, Maicas, and Montero 2015; Kim and Li 2014; Nyström 2008).

The present study uses published country-level data to examine 8 well defined factors that fall within the formal institutions described by Holmes et al. (2013). Each of these factors offers either direct or indirect support to entrepreneurial behavior within a national entrepreneurial ecosystem; thereby, contributing to the overall entrepreneurial readiness of a nation. This study takes the view that structural institutions, such as regulatory boundaries, as well as political and cognitive dimensions have a direct impact on the national entrepreneurial ecosystem, whereas other dimensions, such as the education system, technological awareness and general economic environment have an impact that is important, but less direct. One might expect a disproportionate impact by some of these factors over others in early-stage development. This study shows that 3 rule of law related factors (i.e. Investor Protection, Property Rights Protection, and Freedom from Corruption) of the 8 factors examined do contribute disproportionately to the computed differences in total readiness (i.e. NERV) values among a group of 30 developing economies in 4 distinct economic regions examined.

Entrepreneurs engage strategically in risk and uncertainty. (Puia and Potts Forthcoming). One possible explanation to the importance of the three rule of law factors examined in this paper is that they reduce the amount of systematic risk to entrepreneurs, isolate business risk (or unsystematic risk), resulting in more efficient systems and greater predictable rewards to the entrepreneur. This paper sets a foundation for the examination of the mechanisms and impact of rule of law related factors. This study appears to be the first to determine the disproportionate influence among the 8 institutional (i.e. NERF) factors examined. As such, it poses some important questions for both entrepreneurship scholars and policy makers related to the assessment and advancement of national entrepreneurship ecosystems.

3. Theoretical Framework

Surveys of the literature identified eight prominent factors that are measured annually by reputable international organizations and offer both prospect and retrospective insight into the state of

development of a supportive national entrepreneurial ecosystem (Potts, Affholter, and Puia 2015). These entrepreneurial readiness factors include: Business Freedom, Investment Freedom, Investor Protection, Property Rights Protection, Technological Readiness, Innovation, Freedom from Corruption, and Access to Risk Capital. Highly developed economies, such as the G7 nations, tend to score highly in all eight of the factors. Less developed nations score lower. The order of importance of these factors and how they influence one another over time is poorly understood. Consequently, policy makers, entrepreneurship scholars, and economic development advisors lack the kind of robust temporal and theoretical framework needed to effectively evaluate potential priorities and actions, and determine best-uses of limited resources to improve their entrepreneurial readiness. In this study each of the 8 factors are each referred to as a national entrepreneurship readiness factor (NERF), or together as NERFs. The sum of these 8 NERFs (each normalized to a 100 pt. scale) is referred to as the National Entrepreneurship Readiness Value (NERV). This study examines the level of entrepreneurial readiness of 30 developing nations using these NERF and NERV measures. As such, it is important to consider the context of each factor within the entrepreneurship and economic development literature.

3.1. Factor 1 – Business Freedom

Business Freedom is one of the subcomponents of economic freedom (Miller and Kim 2013). More generally, Fuentelsaz, Maicas, and Montero (2018) show that high levels of economic freedom serve to catalyze economic exchange and facilitate efficiencies. Bryant and Javalgi (2018) demonstrate that economic freedom also attracts inward foreign direct investment. Other recent evidence suggests that trade freedom and economic freedom have a more significant impact on the level of start-up activity in developing economies than in developed economies (Roman, Rusu, and Stoica 2018). The Business Freedom factor, within the context of economic freedom, addresses the level of freedom an entrepreneur has when launching a business, changing direction, and operating without unnecessary barriers. It is established in the literature that more successful democratic economies have significantly fewer barriers and regulations to limit market entry (Djankov et al. 2002). Similar studies find that the more complex the business startup process, the higher capital requirements and the more detrimental it is to cultivating entrepreneurship (Dreher and Gassebner 2013). Therefore, understanding the

number of steps and procedures required to launch a business in a country is crucial information when assessing a nation's capacity to increase its level of entrepreneurship.

Business Freedom is included among the eight critical entrepreneurial readiness factors included in this paper as a factor having a direct impact on entrepreneurial readiness. This paper utilizes the Heritage Foundation's (2018) business freedom score to assess this factor. In it, countries are scored on 100 point scale using data from the World Bank's Doing Business (2019) and giving equal weight to the following ten factors: the number of procedures required to start a business, the time required to start a business, the cost required to start a business, the minimum capital required to start a business, the number of procedures required to obtain a license, the time required to obtain a license, the cost required to obtain a license, the time to close a business, the cost to close a business, and the recovery rate associated with closing a business. The Business Freedom factor is reported in the dataset using a 100 point scale, with 100 being the highest level of business freedom. (Heritage Foundation 2019).

3.2. Factor 2 – Investment Freedom

Investment freedom examines the freedom one has when making an entrepreneurial investment within a nation. It is known that investment freedom maximizes entrepreneurial opportunities, expands economic activity, and creates jobs. (Heritage Foundation 2018). Foreign direct investment plays an important role in economic development (Zitta and Powers 2003). The literature on the subject is well developed, stretching over several decades (Dunning 1973; Porter 1990). More recent literature examines the effect of Foreign Direct Investment (FDI) on a more local level by documenting its potential for positive developmental impact within regions, cities, and industrial clusters. (Iammarino 2018). The current literature also explores the role that social and cultural differences can have on FDI, as seen through the expansion activities of large multinational enterprises. (Beugelsdijk et al. 2018). Motivation for FDI is also a current topic of the literature. (Park and Choi 2014). While it is impacted by cultural factors, it is principally a function of regulations and policies that either encourage or discourage investment. While its impact is indirect, the widespread presence of investment freedom in the entrepreneurship and economic development literature establishes it as an important institutional factor. This paper utilizes the Heritage Foundation's (2018)

investor protection score for this factor. Countries are scored on a 100 point scale, with 100 being the highest level of investment freedom. The Heritage Foundation (2019) creates its score using 25 factors that can increase or decrease a country's score. These factors relate to the national treatment of foreign investment, foreign investment code, restrictions on land ownership, expropriation of investments without fair compensation, foreign exchange controls, and capital controls. The Heritage Foundation takes its data from standardized official government publications for each country, Economist Intelligence Unit, U.S. Trade Representative, and United States Department of Commerce.

3.3. Factor 3 – Investor Protection

While bureaucratic hurdles can restrict investment, strong investor protection attracts inward firm investment and leads to higher firm value. (Giofré 2014; Lan and Wang 2004). Moreover, Perotti and Volpin (2007) found in a broad cross-section of countries and industries that investor protection was more critical to market entry than the level of financial market development. Furthermore, they found entry rates and the total number of producers are positively correlated with investor protection in financially dependent sectors. (Perotti and Volpin 2007). Recent literature has examined the relationship between shareholder protection and success of financial exchanges. (Bernstein, Dev, and Lerner 2018). Even in countries with high levels of venture capital activity, innovation, and financial market development, shareholder protection was very important for exchange success. (Bernstein, Dev, and Lerner 2018). Notably, countries with better shareholder protection experienced younger, less profitable, but faster growing companies which raised more capital through second-tier exchanges. (Bernstein, Dev, and Lerner 2018). Investor protection helps create an environment in which entrepreneurship can thrive and is included as an entrepreneurial readiness factor with a direct impact and national-level entrepreneurial readiness.

Investors experience protection primarily through judicial effectiveness where judicial systems ensure laws are fully respected and protect the rights of all citizens, and providing a foundation for economic growth. (Heritage Foundation 2018). The Heritage Foundation (2018) scores countries based on "judicial effectiveness". A country score is an equal weighting of judicial independence, quality of the judicial process, and favoritism in decisions of government officials. The Heritage Foundation (2019) draws on data from

the World Economic Forum and World Bank to create its score. This paper uses judicial effectiveness to quantify Investor Protection because it appropriately evaluates the judicial function of protecting private party property rights from unlawful acts by government or other private parties. Countries are scored on a 100 point scale, with 100 being the highest level of judicial effectiveness.

3.4. Factor 4 – Property Rights Protection

While the Investor Protection NERF examines how foreign direct and other investors are treated, the Property Rights Protection factor examines how real property and intellectual property is treated, and how property laws are made and administered within a nation. Protection of property rights plays a direct and crucial role in regulating entrepreneurial activity, supporting entrepreneurial activity by giving citizens confidence to save their income and make long term plans with intellectual and physical property because they know it is safe from theft or expropriation. (Heritage Foundation 2018). Chowdhury (2016) showed, for example that new firm startup is positively related to property rights protection. Fuentelsaz, Maicas, and Montero (2018) further demonstrated that weak protection of property rights reduced entrepreneurial activity and innovation. However, Aidis, Estrin, and Mickiewicz (2009) suggested that property rights protection has a more significant impact in countries with a lower level of development than in countries where the rule of law is already high. To this end, a five-country survey of small private manufacturing firms in post-communist Central and Eastern European countries showed that weak property rights discouraged firms from reinvesting their profits, even when other sources of financing (e.g. bank loans) were available. (Johnson, McMillan, and Woodruff 2002). The authors also found that entrepreneurial firms were willing to reinvest their profits in geographies where property rights were strong but not where property rights were weak. Examining Latin American countries, Salinas, Ortiz, and Muffatto (2019) identified that higher levels of Property Rights Protection correlated with fewer own-account workers and an increased number of business startups. The authors suggest that improved property rights protection encourages individuals to advance from necessity entrepreneurship to higher potential entrepreneurship.

This study utilizes the Heritage Foundation's (2018) Property Rights Protection score to assess this import NERF. The factor is an average of physical property rights, intellectual property rights, strength of

ownership protection, risk of expropriation, and quality of land administration. The Heritage Foundation (2019) uses data from the World Economic Forum, World Bank, and Credendo Group. Countries are scored on a scale of 100 points, with a score of 100 being the highest level of property rights protection.

3.5. Factor 5 – Technological Readiness

The development and adoption of technology plays an enormous role in entrepreneurial innovation and financial opportunities. Increased development and use of technology helps drive economic growth providing greater innovation leverage to entrepreneurs; thereby, creating an expanding virtuous cycle of innovation (Ács, Autio, and Szerb 2014). Adoption and integration of technology is extremely important in developing nations, as improvements in competitiveness and productivity can be achieved by adopting existing technologies. (Herman 2018). As such, the ability to adopt and deploy technology within a nation is an important indicator of entrepreneurial readiness at the institutional level.

Data used to measure technological readiness is taken from World Economic Forum. (Schwab 2017). The Technological Readiness factor (also referred to as Networked Readiness) measures the propensity and capability of a region (or country) to take advantage of opportunities provided by communications and information technology. Data for Macedonia and Ivory Coast are from 2016 (Schwab) and Myanmar data is from 2015 (Schwab) due to lack of the availability of more recent data. The raw score is based on a scale of zero to seven with seven being the highest level of technological readiness. To convert the scores to a 100 point scale, the authors divided the reported score by seven and multiplied it by 100.

3.6. Factor 6 – Innovation

Whereas technological readiness may lead to increased innovation, studies have shown that larger companies outperform smaller ones in their innovation departments; due to a strong feedback loop from innovation to increased R&D expenditure. (Carree et al. 2002). A recent in Kosovo showed that improved innovation characteristics also improve SME growth in a developing economy. (Mahmutaj and Krasniqi 2020). The innovation factor here examines how much is spent on research and development (R&D) across an economy. Technological progress generally drives the improvements in scale, speed, capacity and

productivity needed to build wealth in a developing economy. As such, developing regions and nations must factor in their technological capacity into their growth strategy. (Peris-Ortiz, Ferreira, and Fernandes 2018). Surprisingly, cultural factors can play an important role in the speed with which new forms of innovation are received. The examination of the relationship of between innovation and culture is new to the literature. (Lounsbury et al. 2018). Openness to digitalization appears to differ between nations, and also impacts the rate and process by which a developing economy might rapidly advance in the presence of serious limitations in readiness in other areas (Cao and Shi 2021). While its impact is indirect, Innovation is an important institutional factor impacting national entrepreneurial readiness.

The Innovation score is taken from World Economic Forum's Global Competitiveness Report. (Schwab 2017). It assesses the output of a country based on several innovation factors discussed above. Data for Macedonia and Ivory Coast are from 2016 and Myanmar data is from 2015 due to lack of the availability of more recent data. The raw score out of a scale of zero to seven with seven being the highest level of innovation. To convert the scores to a 100 point scale, the authors divided the reported score by seven and multiplied it by 100.

3.7. Factor 7 – Freedom from Corruption

While some studies suggest limited or expected low-level corruption has minimal impact on business formation activities (Campbell and Cordis 2014), the vast majority of studies suggest that corruption serves to restrain economic growth because entrepreneurs are hesitant to invest or rely on legal amenities (Anokhin and Schulze 2009). This and other studies suggest its impact is pervasive and direct. If entrepreneurs do not have adequate resources to overcome corruption, they are vulnerable (Chowdhury 2016), and may choose to change locations or refrain from launching altogether. As such, corruption discourages potential stakeholders from investing in economic activities such as innovation when the payoff cannot be guaranteed (Anokhin and Schulze 2009). Reports show that corruption hinders entrepreneurial activity and innovation (Fuentelsaz, Ferreira, and Fernandes 2018). It can also decrease rates of entrepreneurship in a community (Lecuna and Chávez 2018). This can have a particularly devastating impact in developing countries by deepening poverty and reducing development activity (Shah 2018). A recent study in Montenegro, for example, shows the direct relationship between

corruption and reduced levels of entrepreneurship and economic development (Williams et. al. 2017). Corruption introduces coercion and economic insecurity to economic relations; of greatest concern is systemic government corruption. Corruption, cronyism, and nepotism may also be intertwined. (Williams and Yang 2017). The role that systemic corruption plays in economic development and entrepreneurship establishes its restraint as a key factor in national entrepreneurial readiness. (Heritage Foundation 2019)

This paper uses the government integrity scores reported by the Heritage Foundation to evaluate Freedom from Corruption because this score appropriately captures the practices that reduce public trust and increase the cost of economic activity. The Heritage Foundation (2019) derives its government corruption score from six sub factors: (1) public trust in politicians; (2) irregular payments and bribes; (3) transparency of government policymaking; (4) absence of corruption; (5) perception of corruption; and (6) government and civil service transparency. The Heritage Foundation (2019) draws on data from the World Economic Forum, World Justice Project, Transparency International, and TRACE International.

3.8. Factor 8 – Access to Risk Capital

While its impact is indirect the availability of early-stage investment capital is an important factor in any regional or national entrepreneurial ecosystem (Spigel and Harrison 2018). In business incubators, for example, available capital is a factor in an incubator's success (Harper-Anderson and Lewis 2018). In contrast, some studies has suggest that the conventional belief that access to risk capital is required in order to cultivate entrepreneurship may not be true. (Kreft and Sobel 2005). Specifically, Kreft and Sobel's (2005) causality tests concluded that entrepreneurial activity causes increased venture funding; not the other way around (Kreft and Sobel 2005). Whether increased entrepreneurial activity leads to availability of more venture capital or vice versa, few would argue the importance of risk capital in driving entrepreneurial growth. Whether it is a leading or lagging indicator, Access to risk capital remains an important factor.

Access to risk capital is taken from World Economic Forum's Global Competitiveness Report. (Schwab 2017). Data for Macedonia and Ivory Coast are from 2016 and Myanmar data is from 2015 due to lack of the availability of more recent data. Here the authors took the raw scores for financing through the local equity market and venture capital availability. Those scores are out of a scale of zero to seven with seven

being the highest level of financing through local equity markets and venture capital. To scale the scores, the authors averaged the two scores, divided the average raw score by seven, and multiplied quotient by 100.

4. Hypotheses and Methodology

4.1. Hypotheses

This paper examines the significance of the eight national entrepreneurial readiness factors (NERFs) described above. The sum of the 8 NERFs is referred to herein as the national entrepreneurial readiness value (NERV). While the literature clearly supports the importance of these factors, their relative contributions is not known. It is unlikely, for example, that they contribute equally to the total entrepreneurial readiness at all stages of development. As such, the authors seek to test the hypothesis that the factors contribute disproportionately to the total entrepreneurial readiness (i.e., NERV) of the 30 developing nations under examination. Furthermore, the authors postulate that the Technological Readiness, Innovation and Access to Risk Capital factors correlate less with total readiness in early stage economies than Freedom from Corruption and other factors that protect the ownership interests of entrepreneurs. To this end, the authors sought to test four simple hypotheses using the publicly available entrepreneurial readiness factor data described above. These are as follows:

Hypothesis 1: The individual national entrepreneurial readiness factors (NERFs) do not correlate equally with differences in total National Entrepreneurial Readiness Values (NERV) of the 30 developing countries examined in the study.

Hypothesis 2a: Investor Protection, Property Rights and Freedom from Corruption correlate more strongly with the differences in total NERV than the other 5 NERFs among the 30 nations studied.

Hypothesis 2b: Investor Protection, Property Rights and Freedom from Corruption account for >75% of the variation in total NERV between the 30 early stage developing economies.

Hypothesis 3: Freedom from Corruption corresponds most strongly with the differences in total National Entrepreneurial Readiness Values (NERV) scores between the 30 developing nations.

4.2. Model and Methodology

Table 1 shows the list of 30 study nations and 4 benchmark nations used in this study. The nations are grouped by region and the GDP, population and GDP per capita is provided for each. As can be seen in the regions are grouped together not only by geographical location and cultural nearness, but also because they have similar GDP-to-population ratios which makes them comparable regarding the NERFs examined in this report.

Table 1. Key Economic Factors for Each Country in the Study

Country	GDP (\$, billions)	Population (millions)	GDP per Capita (\$)
South East European countries included in this study:			
Albania	13.0	2.90	4,496
Bulgaria	39.6	7.10	5,577
Croatia	54.8	4.20	13,060
Macedonia	11.3	2.07	5,465
Romania	212	19.8	10,700
Serbia	41.4	7.00	5,919
West African countries included in this study:			
Benin	9.27	11.1	835.5
Ivory Coast	40.4	24.3	1,663
Ghana	47.3	27.6	1,715
Liberia	2.16	4.40	490.5
Senegal	16.4	15.4	1063
Sierra Leone	3.77	6.40	589.7
South American countries included in this study:			
Venezuela	482	31.0	15,560
Colombia	309	48.7	6,349
Ecuador	103	16.5	6,246
Peru	211	31.5	6,711
Chile	277	18.2	15,220
Uruguay	56.2	3.50	16,040
Paraguay	29.7	6.90	4,309
Argentina	638	43.6	14,620
South East Asian countries included in this study:			
Thailand	455	69.0	6,597
Myanmar	69.3	53.4	1,299
Vietnam	201	92.6	2,174
Philippines	314	104	3,010
Indonesia	1,016	259	3,927
Malaysia	315	31.7	9,921
Cambodia	22.2	15.8	1,402
Nepal	24.2	28.9	836.4
Laos	16.9	7.2	2,341
Bangladesh	250	162	1,546
G4 Benchmark Developed Countries			
Benchmark Country	GDP (in US trillions)	Population (millions)	GDP per Capita
US	19.4	323	59,980
UK	2.62	65.6	39,970
Japan	4.87	127	38,390
Germany	3.68	82.7	44,460

(Schwab 2017).

The authors compare countries using publicly available data and a scaled scoring system to establish a common numerical basis for comparison. Where necessary the reported for each factor was normalized to a 100-point scale as described below. Total NERV scores were calculated as the sum of all 8 NERFs for each nation.

After compiling data, the authors completed a series of statistical tests and ANOVA linear regression to test their hypotheses and explore the effect of the eight individual NERFs on total NERV for each nation.

5. Results

5.1. Regression Analyses and Hypotheses Testing

Single factor correlation coefficients (R^2) were compiled for each of the entrepreneurial readiness factors (i.e., NERFs) vs. the total NERV values for each of the 30 nations studied. The results of these analyses

are tabulated in the Table 2A. The data shown illustrates that all 8 factors correlate positively with total NERV. However, the coefficients for Freedom from Corruption, Property Rights Protection, Investor Protection are substantially higher than those of the other factors. Moreover, the p-values for these factors indicate a high level of significance.

The data provides a meaningful test of the hypotheses developed in this study. Hypothesis 1 is confirmed, in that there is a wide range of R^2 correlation factors ($R^2 = 0.888, 0.796, 0.773$, respectively) and significance (p-values all $<10^{-10}$) between the top three readiness factors and the bottom three factors (with R^2 of 0.484, 0.465, 0.251, respectively, and p-values of $>10^{-5}$).

Hypothesis 2A is also confirmed based on the single factor regression data shown in Table 2A. Specifically, those NERFs associated most directly with rule of law, in protecting property and investors correspond most strongly with the level of NERV totals across the 30 nations examined. To test Hypothesis

Table 2. Single Factor and Multi-Factor Regression Analysis for Individual Readiness Factors vs Total National Entrepreneurial Values (NERV) among 30 Developing Countries

A. Single Factor Regression (Single Factor vs Total National Entrepreneurial Readiness Value)

Readiness Factor	Correlation Coefficient (R^2)	P value			
Property Rights	0.888256	7.47375×10^{-15}			
Freedom from Corruption	0.795759	3.65135×10^{-11}			
Investor Protection	0.773055	1.61847×10^{-10}			
Technological Readiness	0.684615	1.71434×10^{-8}			
Business Freedom	0.625518	1.97744×10^{-7}			
Investment Freedom	0.483648	1.99120×10^{-5}			
Innovation	0.465436	3.28997×10^{-5}			
Access to Risk Capital	0.251087	4.79295×10^{-3}			

B. Three Factor Regression (Three Factors vs Total National Entrepreneurial Readiness Value)

Selected Factors	Correlation Coefficient (R^2)				
Investor Protection Property Rights Protection Freedom from Corruption	0.965324				
ANOVA					
	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3	55102.29436	18367.43145	241.264887	4.31457×10^{-19}
Residual	26	1979.37306	76.12973309		
Total	29	57081.66742			
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-Value</i>	
Intercept	29.693677	5.331179	5.569815	7.52107×10^{-6}	
Investor Protection	1.362889	0.222167	6.134530	1.74182×10^{-6}	
Property Rights Protection	1.135211	0.187200	6.064156	2.08702×10^{-6}	
Freedom from Corruption	0.804587	0.270010	2.978849	6.19517×10^{-3}	

2B, the three top scoring factors were subjected to a multi-factor, ANOVA regression analysis. The R² factor for the analysis is 0.965, indicating that the three factors together provide an enhanced correlation with the Total Entrepreneurial Readiness. The ANOVA significance factor is <10⁻¹⁸, indicating an extraordinarily high level of significance. The coefficients, p-values and other results of the regression analysis are listed in Table 2B. These values suggest that 96.5% of the variation in Total Entrepreneurial Readiness can be accounted for by the differences in Investor Protection (I), Property Rights Protection (P) and Freedom from Corruption (F). Based on these results, an equation can be constructed relating total Entrepreneurial Readiness (ER) to these three factors, as follows:

$$ER = 29.695677 + 1.362889(I) + 1.135211(P) + 0.804587(F)$$

(Equation 1)

In other words, ER represents a meaningful approximation of the total NERV for an individual country, yet only requires assessment of the three NERFs listed.

Based on the data tabulated in Table 2B, Hypothesis 3 is not confirmed. Whereas the authors hypothesized that Freedom from Corruption would be the most important institutional factor influencing differences in national entrepreneurial readiness and would, therefore, correlate most strongly with NERV totals. In fact, it is the second strongest correlate of NERV. The NERF that correlates most strongly with total NERV is Property Rights Protection.

5.2. Tabular and Graphical Results

Table 3 characterizes the NERFs of each region by comparing the mean score for each region against the G4 benchmark mean for that factor ("G4 benchmark"). A graduated tabulation was constructed for each region evaluating each factor in terms of whether: (a) it reached a level of at least 60% of the G4 benchmark (white background), (b) fell between 50% and 60% of the G4 benchmark (horizontal lined background) the regional average for that factor or (c) was <50% of the G4 benchmark (vertical and horizontal lined background).

Table 3. Primary and Secondary Opportunities for Regional Improvement in 8 National Entrepreneurial Readiness Factors

National Entrepreneurial Readiness Factor	South East Europe	West Africa	South America	South East Asia	G4 Benchmark Average
<i>Direct Factors</i>					
Business Freedom	68	56	63	61	85
Freedom from Corruption	40	41	38	32	76
Investor Protection	48	39	39	38	80
Property Rights Protection	59	38	47	45	85
<i>Indirect Factors</i>					
Technological Readiness	65	45	58	50	88
Innovation	45	43	43	47	78
Investment Freedom	71	67	61	43	81
Access to Capital	39	42	42	50	71
Average National Entrepreneurial Readiness Value (NERV) – of region	435	371	391	366	644

Key:

White = >60% of G4 Benchmark average

Horizontal Lined Background: 50.1-59.9% of G4 Benchmark average

Horizontal and Vertical Lined Background: <50% of G4 Benchmark average

Of the 18 lined rectangles, 11 (61%) of them fall in the Investor Protection, Property Rights Protection and Freedom from Corruption categories. Moreover, all the horizontal and vertically lined rectangles fall into these categories of entrepreneurial readiness. Clearly, these are areas where substantial improvement is needed. Other than these categories, the only other NERF with 3 lined rectangles is Innovation. It is interesting to consider whether this may, in fact, be a lagging (or following) indicator of entrepreneurial readiness whereas the other factors are leading (pre-requisite factors). What seems clear from this is that the NERFs relating to the rule of law seem to be the areas where there is the greatest opportunity for improvement.

Table 4 is the regression analysis for “Rule of Law” National Entrepreneurial Readiness Factors vs Total National Entrepreneurial Readiness Value among 30 Developing Countries. The results of these 30 countries are shown individually on Figures 1-5. On Figures 1-5, spider graphs illustrate the differences in the entrepreneurial readiness factor averages among the four regions examined in the study. In each of these figures, the solid black outer line represents the aspirational horizon, established herein as the G4 benchmark (and represents the mean of the scores of the U.S., Japan, U.K. and Germany).

Table 4. Regression Analysis for “Rule of Law” National Entrepreneurial Readiness Factors vs Total National Entrepreneurial Readiness Value among 30 Developing Countries

<i>Regression Statistics</i>	
Multiple R	0.982508951
R Square	0.965323840
Adjusted R Square	0.961322744
Standard Error	8.725235417
Observations	30

<i>ANOVA</i>					
	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3	55102.29436	18367.43145	241.264887	4.31457E-19
Residual	26	1979.37306	76.12973309		
Total	29	57081.66742			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	29.69367705	5.331178748	5.569814567	7.52107E-06	18.73528219	40.65207191	18.73528219	40.65207191
Investor Protection	1.362888844	0.222166797	6.134529843	1.74182E-06	0.906218453	1.819559235	0.906218453	1.819559235
Property Rights Protection	1.135210724	0.187200124	6.064155822	2.08702E-06	0.750415357	1.52000609	0.750415357	1.52000609
Freedom from Corruption	0.804586895	0.270099894	2.978849357	0.006195175	0.249388612	1.359785178	0.249388612	1.359785178

Figure 1. Regional Entrepreneurial Factor Averages Compared to G4 Average

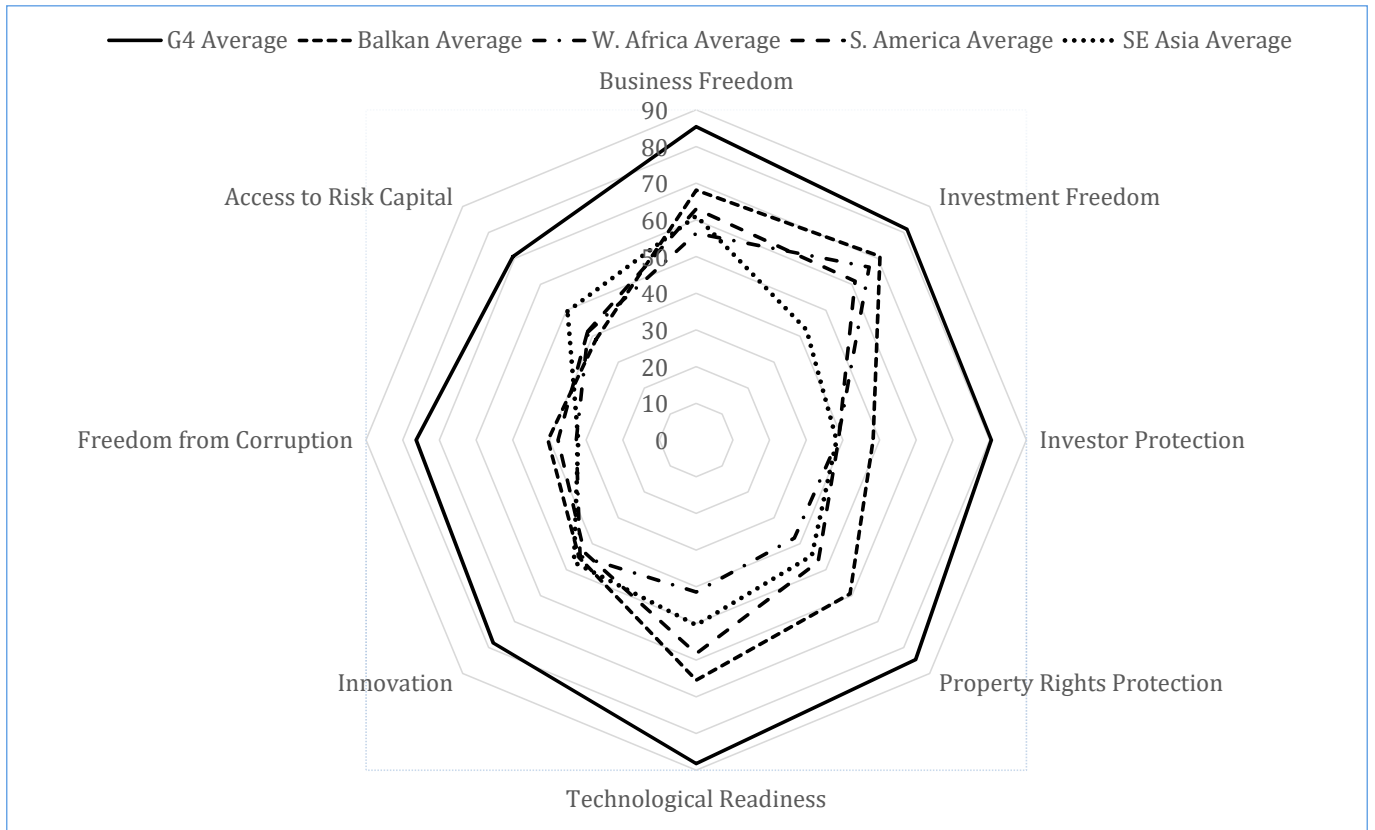


Figure 2. Entrepreneurial Factors in West Africa vs. G4 Average

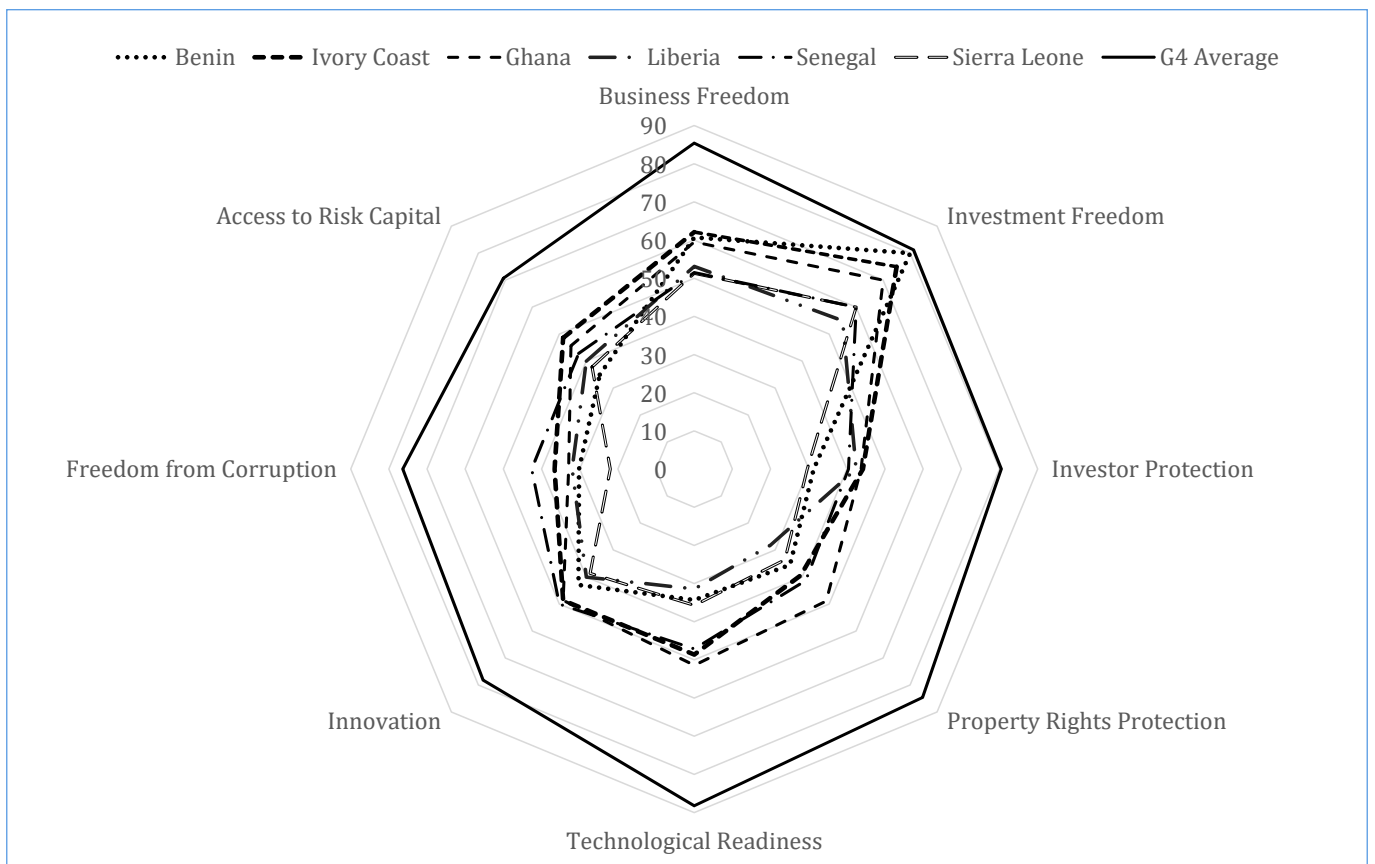


Figure 3. Entrepreneurial Factors in South East Europe vs. G4 Average

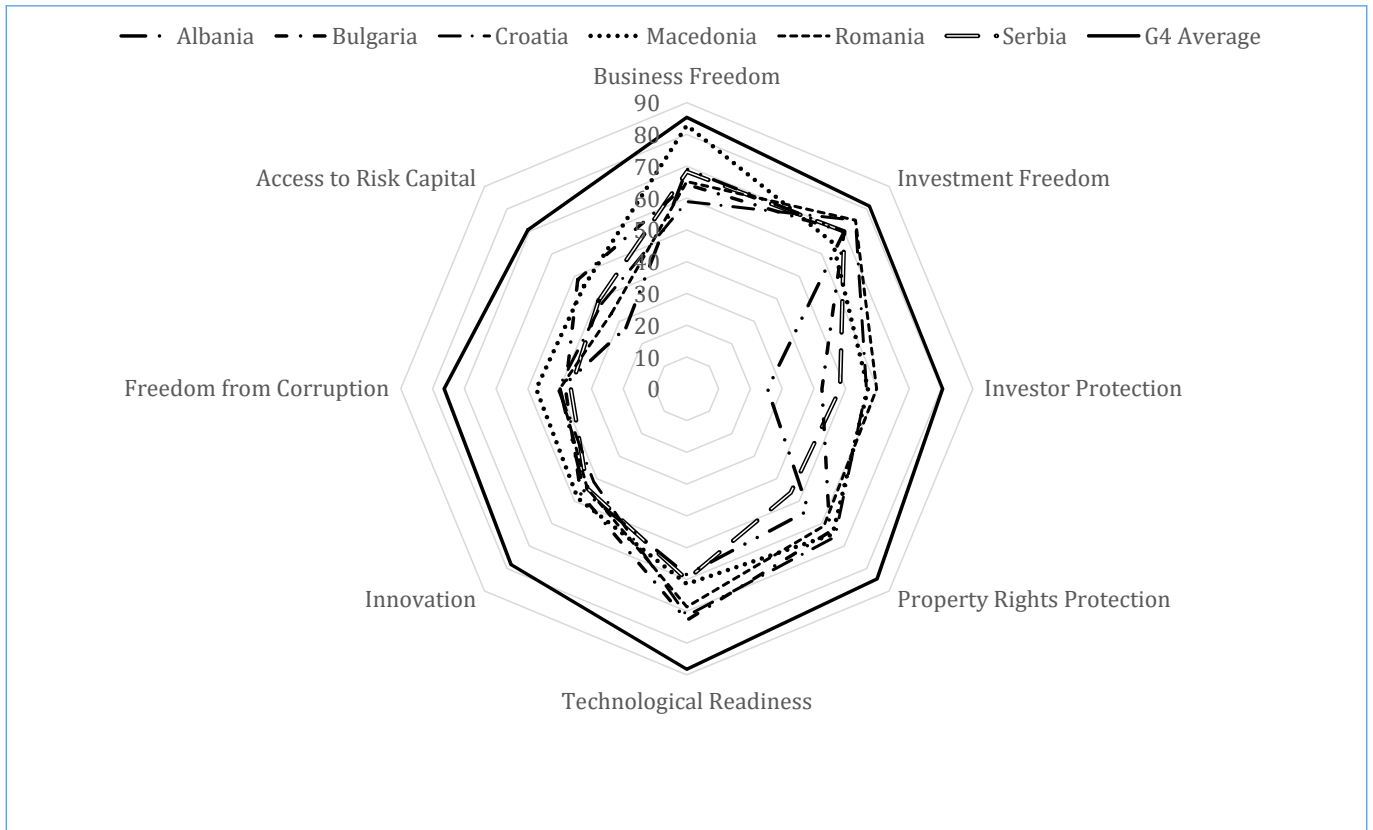


Figure 4. Entrepreneurial Factors in South American vs. G4 Average

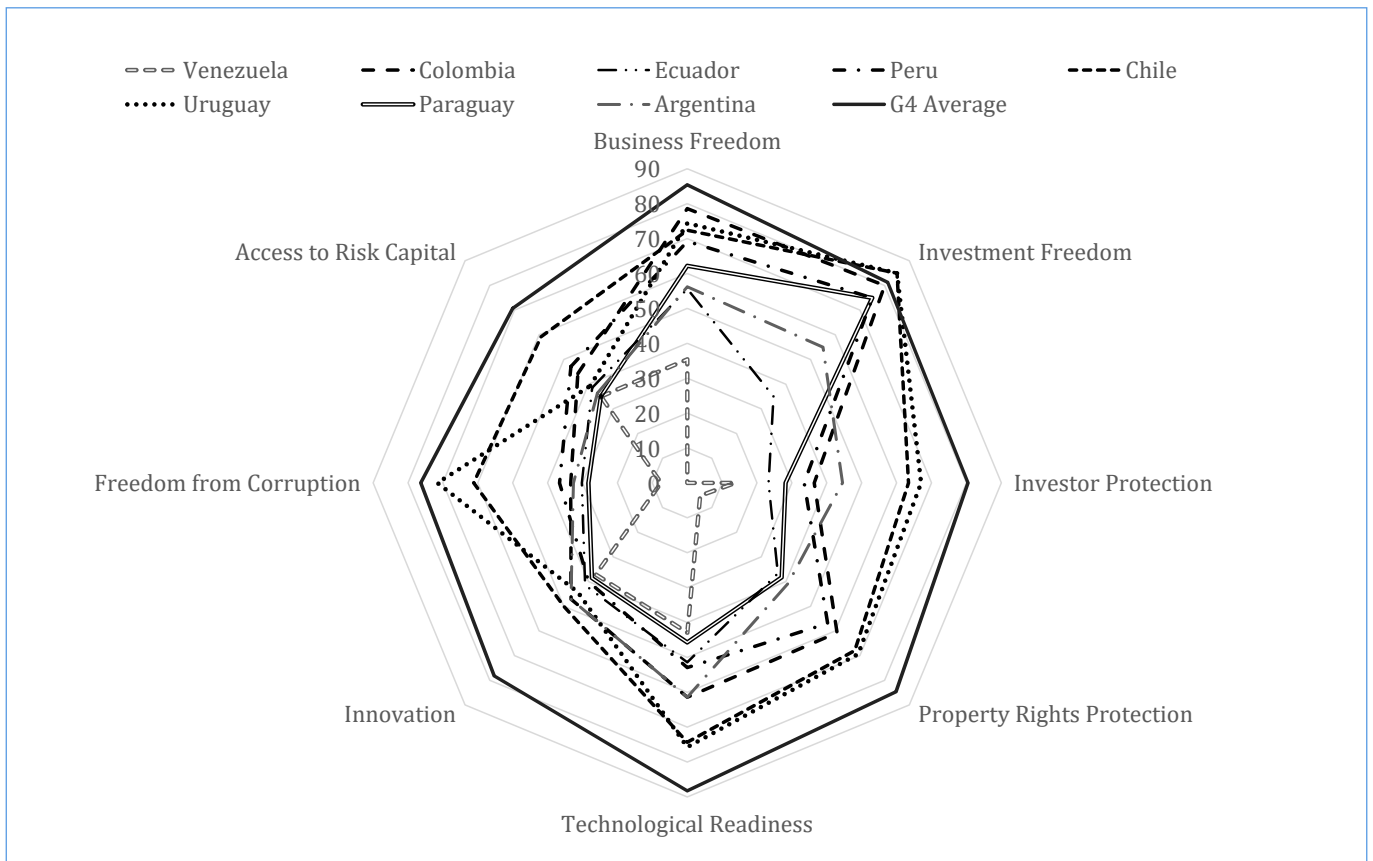
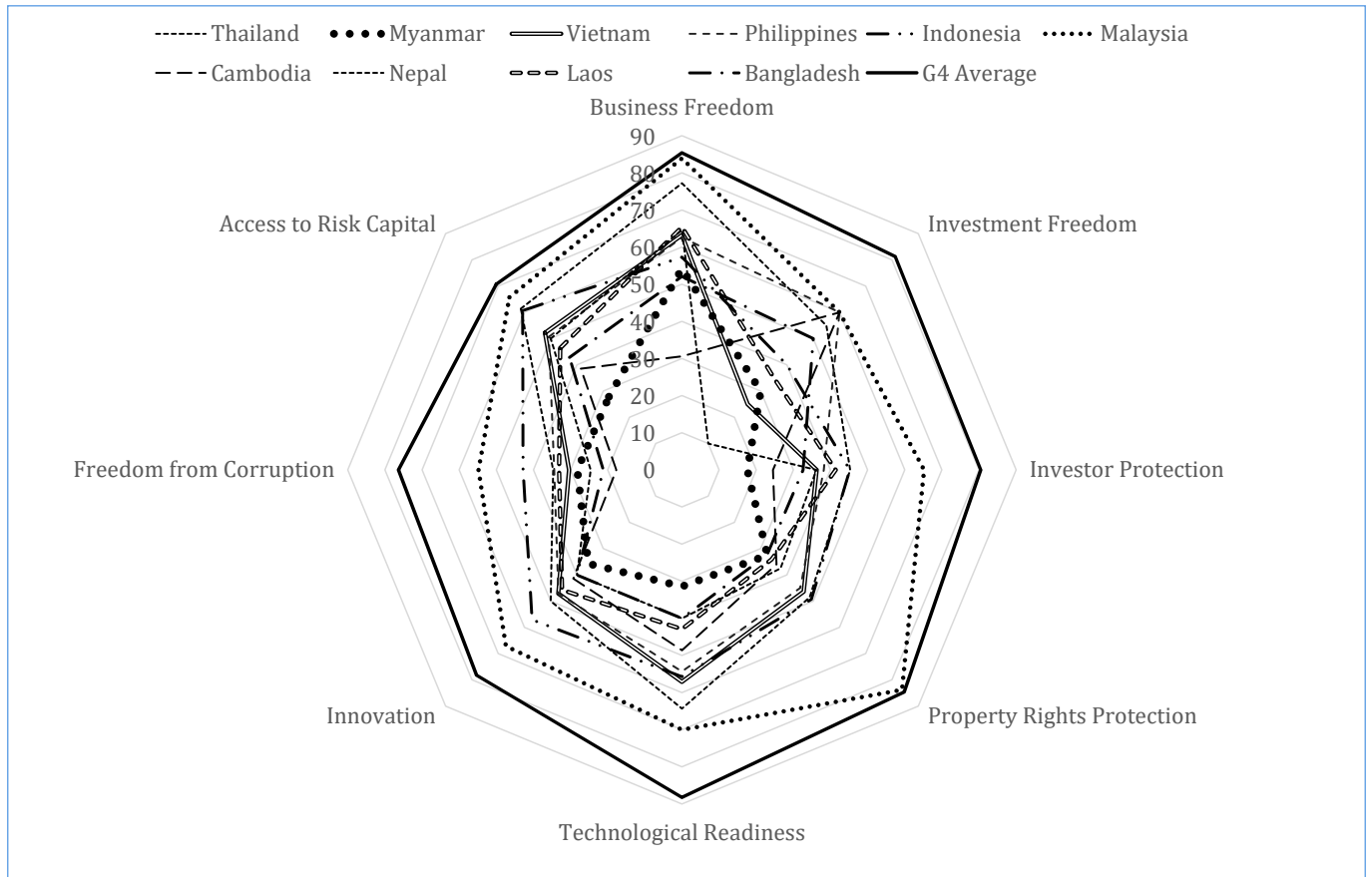


Figure 5. Entrepreneurial Factors in South East Asia vs. G4 Average



6. Discussion

6.1. Importance of Rule of Law Readiness Factors

Based on the linear regression analyses referenced above, it appears that the Investor Protection, Property Rights Protection, and Freedom from Corruption NERFs are not only the three most impactful ones, they are also thematically related. These factors deal with fairness and justice within institutional systems and their human administration. Each is identified as a direct impact factor in this study, falling under the regulatory and economic dimensions described by Holmes et al. (2013) and the regulative dimension of Schillo, Persaud, and Jin (2016).

Based on the individual regression scores for these factors, the rule of law factors (i.e. Investor Protection, Property Rights Protection, and Freedom from Corruption) appear to account for well over 90% of the variation in total NERV between the 30 nations examined in this study. This result is also consistent with a recognition of the strategic decisions regarding risk and uncertainty made by entrepreneurs (Puia and Potts Forthcoming) and how the rule of law may reduce systematic risk to thereby incentivize and reward

the business decisions made by entrepreneurs.

The contribution of each factor to the NERV of these early stage economies is captured in equation 1. While the equation is useful in characterizing the readiness of the thirty countries in the four regions examined, it would be reasonable to expect that it would apply to developing countries in other regions as well. Testing that expectation with other regions and future datasets will be important in establishing the general applicability of this relationship.

As shown in Figure 1, the SE European Countries clearly stand out among the four developing regions. The region ranks highest in five NERFs, including the three identified in this paper as correlating most strongly with NERV totals across the 30 developing economies. In contrast, the group of ten developing SE Asian nations stand out clearly in terms of providing better Access to Risk Capital, while scoring poorly in terms of Investment Freedom and Freedom from Corruption. Indeed, all four regions score poorly (<60% of the average of the G4 benchmark average) in terms of Freedom from Corruption (rule of law) and Innovation. The greatest diversity of scores among the regional average scores occurs in the category of Technological Readiness. In terms of regional strong

points, S. America scores well in Business Freedom, Investment Freedom and Technological Readiness, trailing the SE Europe only slightly in these categories. West Africa excels in the category of Investment Freedom. Yet it lags the other regions in terms of Property Rights Protection and Technological Readiness.

These observations suggest that each of the developing nations and regions exhibits strengths and weaknesses in terms of formal institutional factors impacting entrepreneurship. As one examines each region in more detail, considerable diversity and nuance can be seen. One question that arises from this study is whether cooperation between neighbors in a proximate region might be a low risk-high impact route by which scholars, entrepreneurs, policy makers and investors within a region might draw on regionally extant knowledge to rapidly improve entrepreneurial readiness among neighboring economies.

6.2. Next-Step Opportunities for Regional Improvement

Based on the analysis shown in Table 3, it is clear that each region has a number of categories (white background) in which their entrepreneurial readiness is within 60% of the average of the aspirational benchmark represented by the average of the G4 developed economies. Interestingly, all 4 regions exceed that threshold in terms of the Business Freedom marker and all but one (SE Asia) reaches the 60% mark in Investment freedom. Similarly, all but one (SE Europe) reaches the 60% threshold in Access to Capital. Granted, Sub-Saharan Africa and South America reach exactly that threshold, but do not exceed it. SE Europe reaches the 50-60% threshold (horizontal lined background) for this marker. What these observations suggest is that neither Access to Risk Capital, Business Freedom, nor Investment Freedom are likely to be sources of major deficiency in entrepreneurial readiness among the sub-regions examined. As discussed above, there is some variation among them, but there appears to be a reasonable level of resource already present in each region. In other words, it would appear that some level of investable capital is available, and there is a reasonable level of freedom in place to pursue that investment capital (Business Freedom) and deploy it (Investment Freedom).

In terms of Technological Readiness, there also appears to be considerable resources available in all four of the regions studied. In particular, 2 of the 4 regions (SE Europe and South America) reach the

60% threshold in Technological Readiness, while the remaining 2 score only modestly lower, achieving the 50-60% threshold.

In contrast, the regions display a greater diversity and potential deficiency in terms of the Property Rights Protection, Innovation and Freedom from Corruption factors. While it is reasonable to assume that Technological Readiness is a precursor to developing a culture of innovation, it is clearly insufficient to enable such innovation on its own. It likely requires concerted action around many of the entrepreneurial readiness factors discussed here. Even among the G4 developed economies, Innovation appears to lag Technological Readiness by a substantial margin. It seems reasonable that the top 5 factors (Business Freedom, Investment Freedom, Investor Protection, Technological Readiness and Property Rights Protection) may work together to facilitate an environment that brings forth sustained innovation, and improved access to capital, while progressively pushing out the kind of corruption (i.e., the bottom three factors) that would hinder the capacity of entrepreneurial entities to scale-up, create value, and reinvest that value to support further scaling and innovation. Whether through this mechanism or others, it seems reasonable that the factors work in concert to create entrepreneurial readiness. The interrelationships between them deserve further study.

While visually mapping these regional distinctions is one objective of the report, another is to assess the diversity of entrepreneurial readiness in nearby states within each of 4 developing regions. Two questions of interest in this study were: (1) Which NERFs are likely to be most important to future entrepreneurial progress within these regions and countries? (2) Is there enough diversity and depth within each region to provide a basis for regional cooperation and knowledge-sharing? If so, it may be possible for scholars, advocates and policy makers within these regions to facilitate rapid sharing and adoption of best practices in such a way as to catalyze improvement in entrepreneurial readiness and an increase in economic growth and entrepreneurship in each region.

The results of this study demonstrate considerable heterogeneity in entrepreneurial readiness (NERV) scores both within and between four diverse geographical regions. While culture clearly plays a role in many of these, it is unlikely that all the factors are equally influenced by cultural attributes. In other words, some are more cultural or subjective, while others are more objective. For example, Technological Readiness is seen as talent focused and education related. It may be improved by shifting educational

priorities and other resources. Innovation activity is also seen as a derivative of investment in talent, technology and tertiary education.

Other entrepreneurial readiness factors are more complex and, perhaps, difficult to address due to cultural factors. A lack of Business Freedom may reflect a burdensome set of laws or it may reflect the comfort that a given society takes in minimizing risk and controlling outcomes. In effect, the establishment of high barrier, bureaucratic and regulatory processes may be a means to providing reassurance, and a cultural means to minimize risk. However, it also translates into a series of statutory and enforcement mechanisms that may be modified and adjusted according to economic and societal requirements. These mechanisms may be altered without addressing the cultural factors that led to those barriers.

A similar mixture of culture, statutory and enforcement factors may also impact the development of Investment Freedom, Investor Protection and Freedom from Corruption. In contrast, nations scoring high in Property Rights in this study are those that maintain a functional, fair and effective judiciary and use it to secure and defend ownership rights within a nation. This parameter is strongly tied to judicial effectiveness and consistency in applying the law within a culture. Cultural attributes, however, do factor heavily in establishing Freedom from Corruption within a nation. The positive influence of consistent law enforcement and judicial processes, however, are modulated by the degree of cultural acceptance of marketplace corruption. The results of this study suggest there may be a variety of interactions among the 8 readiness factors, such as those that link intellectual property rights with innovation. (Kale and Rath 2018) and those demonstrating that dynamic capabilities are integral to firm competitiveness and performance (Monteiro, Soares, and Rua 2019).

Consistent with the findings of Kreft and Sobel (2005), the findings in this report suggest that Access to Risk Capital may be a following indicator, rather than a leading indicator, of entrepreneurial activity. In other words, investable capital becomes increasingly available as entrepreneurial activity (and successes) increase within a culture or a region.

The results of this study suggest that scholars and policy makers would both benefit from a detailed theoretical framework to describe how strengthening property rights, reducing corruption and protecting investors impact entrepreneurial behavior.

7. Conclusions and Future Research

Like the study of entrepreneurship itself, the tools required to study progress of nations toward establishing a robust entrepreneurial ecosystem are a work in progress. This study suggests identifies eight important factors that contribute national entrepreneurial readiness, and that three of these factors account for most of the differences in National Entrepreneurial Readiness Values that are observable among the 30 countries examined in this study. Whether this is generalizable to all similar groups of developing economies is unclear, and worthy of further study. And while the study employs a broad range of robust, non-overlapping readiness factors, there is no guarantee that another set of factors would not better represent the similarities and differences between the 30 countries examined here. Furthermore, the heterogeneous nature of the regions examined, both within and between them, may create a sample bias that is not accounted for within the scope of analysis and discussion provided above.

Other research may examine how best to use judicial monitoring, media and public awareness efforts to reinforce property rights, diminish corruption and extend investor protection at a regional or national level. A further body of research would focus on the development of best methods for communicating and transferring entrepreneurial support structures and knowledge within or between economic regions. For example, South East Europe, scoring highest among the developing regions in this study, might be well suited to communicate lessons learned and best practices to countries in other developing regions.

The study of national entrepreneurial readiness factors among thirty developing nations provides insight into the policy development of robust entrepreneurial economies at the national and regional levels. The work suggests clear opportunities for policy makers to facilitate synergistic entrepreneurial "cross-training" between nations within all four regions examined. More work is needed to understand the best methods and practices for establishing beneficial cooperation in these regions to improve entrepreneurial readiness and success. Since the rule of law readiness factors (i.e. Investor Protection, Property Rights Protection, and Freedom from Corruption) are the most impactful, further academic research is needed to understand how they link to endowments and relate to improving entrepreneurial readiness.

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