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Direct and Indirect Effects of ICT Infrastructure, Skills, and Use on Entrepreneurship:
A Cross-Country Empirical Investigation

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ABSTRACT

The information and communication technology (ICT)-enabling infrastructure, requisite skills, and subsequent usage in the country could facilitate ease of doing business (EDB) and support the heterogeneous distribution of resources for new businesses to flourish and remain competitive. However, from a policy perspective, the pathways through which ICT impacts entrepreneurial activities in a country are not clearly understood. In this study, the authors empirically investigate the direct and indirect (via EDB) effect of ICT infrastructure, skills, and use (at business, government, and individual levels) in influencing entrepreneurial activity in a country. The results show that the citizens' ICT skills and ICT use, directly and indirectly, impact entrepreneurial initiatives in a country. In contrast, ICT infrastructure and use by the government only have an indirect impact on them. The study's findings should help guide national initiatives for promoting the creation of new businesses in a country.

KEYWORDS

Country, Direct and Indirect Effects, Ease of Doing Business, ICT Infrastructure, ICT Skills, ICT Usage, Information and Communication Technology, New Business Density, Structural Equation Modeling

INTRODUCTION

Entrepreneurial activities are essential for the sustained economic viability of a country. In today's environment, society needs more job creators than job seekers. Due to outdated policies, governmental institutions can severely impact entrepreneurship within their borders. Therefore, it is no surprise that researchers have called for more detailed studies of entrepreneurial activities within a country, labeling them as an under-represented area of investigation (Busenitz et al., 2000).

The World Bank defines entrepreneurship as "the activities of an individual or a group aimed at initiating economic activities in the formal sector under a legal form of business" (Klapper et al., 2006). Researchers have found that the pace of new business creation is greatly influenced by differences in institutional environments across countries (Karlsson & Acs, 2002). There is also evidence of

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a positive relationship between entrepreneurship and information and communication technology (ICT) adoption, especially in developing countries with better e-government resources (Almeida & Zouain, 2016). But the critical factors (financial, infrastructural, and educational) needed for starting a new business differ between nations. There is a lack of research that investigates the effect of these country-level factors on entrepreneurial activities. This research fills the void.

Exploring the national context within which new businesses blossom is essential because much of the existing literature focuses on wealthy versus emerging countries. As such, it only repeats a worn-out narrative of the digital divide in terms of access to technology for business development (Baliamoune-Lutz, 2003). Even in developing countries, poor people spend a significant portion of their disposable income on ICT-enabled mobile phone services. In addition to communication, these services provide internet access and run businesses. This shows that citizens of developing countries are getting used to the digital world. Hence, based on the narrative that only wealthy countries have access to technology, the research on entrepreneurship sounds hollow.

It is well-established that ICT-supported innovations fuel entrepreneurial activities. Between 1980 and 2013, ICT-based startups (including mobile payments, electronic commerce, blockchain, and sharing platforms) have increased by 203% in the United States, while startups in the private sector as a whole declined by 9% (Hathaway, 2013). Businesses today are driven by ICT, and a sound understanding of technology tools and their applications is a must for new-age entrepreneurs (Dheeriya, 2009). Researchers argue that adoption and the knowledge of the latest ICT developments are the key drivers of entrepreneurship (Yunis et al., 2018; Zenebe et al., 2018). The annual Global IT report characterizes ICT use by the government, businesses, and individuals, which may influence new business creation differently (WEF, 2016). Also, ICT related infrastructure and skills can play a key role in providing relevant resources for new businesses to flourish (Burtch et al., 2018)

Equally important is a country's ability to provide a conducive environment that promotes entrepreneurial activities. Hence, the ease of doing business (EDB) in a country plays an essential role in reducing the cost of starting a business and encouraging entrepreneurship (Anokhin & Schulze, 2009). The World Bank's EDB index summarizes the regulatory environment's availability and maturity for starting a new business (Doingbusiness.org, 2016). While individual factors that make up the EDB have been examined for their effect on new business development, ICT's role in influencing EDB and indirectly impacting the entrepreneurial activity has rarely been explored (Canare, 2018).

In general, countries with institutions that support entrepreneurial activity have better EDB (Carbonara et al., 2016). However, only a few studies have quantified EBD's effect on the actual creation of new businesses or new business density (NBD) in a country. In a nation, the NBD is defined as the number of newly registered limited liability corporations (in the calendar year) per 1,000 people between ages 15-64 years (World Bank, 2019). The study examines the direct and indirect (via EDB) effect of five ICT indicators (ICT usage by individuals, businesses, governments, ICT skills, and ICT infrastructure) on NBD.

When individuals initiate economic activities to form a new business, they need access to resources (human, financial, production, etc.). Since access to these resources is essential to a new business formation, this study will use the Resource-based Theory (RBT) theoretical lens to explain the proposed hypotheses. The next section provides context for the use of RBT in entrepreneurship.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The Resource-Based Theory In Entrepreneurship

RBT is most commonly used in the field of strategy and strategic management (Peteraf, 1993) after first appearing in the mid-1980s by Wernfelt (1984). However, in recent years, it has been increasingly applied within the context of entrepreneurship (Bharadwaj, 2000; Alvarez & Busenitz, 2001; Li, 2019). The theory's primary basis is that firms have different bundles of resources and capabilities

(resource heterogeneity) that influence the production of goods or services. RBT emphasizes the importance of financial, social, and human resources. Entrepreneurial startups have unique sets of resources and value them differently (Alvarez & Busenitz, 2001).

Individuals with greater access to financial capital are more likely to acquire it to create a new business or identify business opportunities (Frese & Gielnik, 2014). Social capital is another relevant resource in entrepreneurship (Eckhardt & Shane, 2003). Entrepreneurs who have strong social ties with influential individuals have a distinct advantage over those who do not (Aldrich & Zimmers, 1986). Additionally, human capital focuses on education-related resources and the expertise needed to develop individuals' skills (Simpeh, 2011). Human capital has been linked to success in opportunity recognition and starting new businesses (Davidson & Honig, 2003). Human capital makes entrepreneurs more "outward-looking" and improves their ability to capitalize on business opportunities (Evald et al., 2011). According to RBT, the availability of different forms of resources needed for startups (i.e., financial, infrastructure, and social) is country-specific (Freytag & Thurik, 2007). Hence, it is crucial to consider country-specific differences, reflected in the EDB index, useful in new firm creation.

Entrepreneurs must maximize the utility of the resources and capabilities at hand because, typically, resources are difficult to accumulate and build (Zhang & Swanson, 2013). This is true for entrepreneurs in many countries, especially those with higher barriers to getting resources. An entrepreneur's ability to engage stakeholders, attract governmental support, generate income, can compensate for lack of resources or capabilities, or enhance the impact of limited resources (Bacq & Eddleston, 2016).

ICT-enabled tools and services can also support entrepreneurs in their endeavors in several ways. For instance, ICT can enhance financial capital through crowdfunding, social capital through social media use, and human capital through knowledge sharing and collaboration (Steinfield et al., 2010; Sussan & Acs, 2017). The use of technology is associated with increased efficiency, collaboration, and a higher likelihood of starting an entrepreneurial initiative (Ding et al., 2010, Fairlie, 2006). Considering the role of ICT in influencing the availability of financial, social, and human resources available at an entrepreneur's disposal, the RBT fits well in this exploration of ICT, EDB, and NBD.

Ease of Doing Business (EDB) and New Business Density

Countries differ not only in resource availability but also in terms of the entry barriers that hinder resource acquisition for startup businesses. These barriers include lengthy procedures to establish a new firm and high costs of doing business, among others (Van Stel et al., 2007). The EDB index evaluates a nation's business environment in terms of starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency (Doingbusiness.org, 2016). EDB index is a standardized score and is a relative indicator that, on a scale of 0 to 100, measures how easy it is to do a business in a nation compared with the best performing nation given 100 points (Contractor et al., 2020). Using a survey of over ten thousand professionals and experts worldwide, EDB is compiled annually by World Bank. EDB can influence the nations' regulatory policies through social pressure (Doshi et al., 2019). Keppler et al. (2009) find that "countries with lower barriers to entry and less corruption generally see higher percentages of new firms' registrations and entry." In a recent study, Canare (2018) looked at the impact of EDB on firm creation and found that more startups were established in countries where it was easier and less costly to do business. Therefore, it is argued that higher EDB is associated with starting a business. Hence, the first hypothesis is:

H1: Ease of doing business (EDB) in a country has a direct, positive effect on the new business density (NBD).

ICT and New Business Density

ICT Infrastructure (ICTIN)

ICT comprises hardware, software, and network components that allow businesses and individuals to store, receive, transmit, and process information (Charoensukmongkol & Moqbel, 2014). Advances in ICT have influenced every aspect of our lives, including changes within businesses, governments, and economies (Zenebe et al., 2018). Also, ICT improvement is a "powerful facilitator" for new business creation (Almeida & Zouain, 2016). The deployment of ICT-enabled services in a country depends on the enabling infrastructure, including broadband availability, mobile connections, secure servers, and electricity (Baller et al., 2016). The availability of these services allows individuals to connect and share knowledge. ICTIN resources are crucial for leveraging technologies such as blockchain, cloud computing, maintaining an uninterrupted online presence via websites, and encouraging collaborations through video conferencing (Zenebe et al., 2018; Shin & Ibahrine, 2020). Therefore, it is expected that better ICTIN would support opportunity identification for new entrepreneurs to impact NBD in a country directly. Hence, the following hypothesis is:

H2: ICTIN will have a direct positive impact on NBD in a country.

Lack of ICTIN has been cited as one of the key barriers to adopting ICT by government institutions (Yu, 2016). The uneven development of ICTIN in a country deprives the government of undertaking public initiatives such as e-governance online health and education services, affecting EBD. In developing countries, aid projects for providing ICT-based services have failed due to a lack of infrastructure (Heeks, 2002). Advanced ICTIN provides uninterrupted and reliable public services delivery through online channels, contributing to reduced corruption levels in a country (Bhattacherjee & Shrivastava, 2018). Moreover, ICTIN supports scalability, versatility, and integration of public services and key resources in the long run (Yunis et al., 2018). ICTIN also improves EDB by enabling access to technologies like cloud computing that reduce upfront costs and hardware requirements associated with starting a new business (Shin, 2013). Hence, the third hypothesis is:

H3: ICTIN positively influences the EDB, which indirectly impacts NBD in a country.

ICT Skills (ICTS)

ICTS refers to the capability of a country's citizens to operate and use ICT-enabled tools and services. The quality of science, technology, engineering, and mathematics (STEM) education is one of the key indicators of ICTS of the citizens of a country (Baller et al., 2016). In the digital economy, ICT-enabled tools and services are critical resources that support entrepreneurial activities (Burtch et al., 2018). An empirical study found that ICT knowledge drives the intention to create entrepreneurial ventures (Zenebe et al., 2018). ICT-enabled applications such as websites, email, and social media, are often used by entrepreneurs for opportunity creation and productivity improvements. ICT skills would also drive innovations in the latest technologies such as blockchain and big data, which have been argued to stimulate entrepreneurial initiatives (Shin, 2016; Shin & Ibahrine, 2020). Thus, ICT skills enable a prospective entrepreneur in business management and opportunity creation. Hence, the fourth hypothesis is:

H4: ICTS will have a direct positive impact on NBD in a country.

Countries with more individuals with ICTS would have higher levels of acceptance for ICT-enabled tools and services. Using the theoretical lens of the technology acceptance model (Davis, 1989), one can argue that ICTS would influence the perceived ease of use of ICT-enabled services

and promote their adoption. The electronic delivery of public services, including those related to registering a business, purchasing a property, or requesting a permit, would be encouraged in a country with a higher number of ICTS individuals. ICTS would enable entrepreneurs to connect with their peers and customers through their virtual network and encourage citizens to participate in credit, obtaining crowdfunding avenues. Hence, ICTS would improve EDB, which in turn would stimulate entrepreneurial activity in a country. This leads to the following hypothesis:

H5: ICTS positively influences the EDB, which indirectly impacts NBD in a country.

ICT Use by the Government, Businesses, and Individuals

ICT Use by Government (ICTG)

Studies have found that barriers to starting a new business have a detrimental impact on a country's entrepreneurial activity (Ven Stel et al., 2007). The government's ICT adoption could expedite public services and improve business startup procedures transparency (Bhuiyan, 2011). Entrepreneurs rely on state institutions and their regulations to license new companies, register property, or enforce contracts, among other activities contributing to EDB. Some governments undertake strategic initiatives to support adopting new technologies such as big data and the internet of things to spur economic growth and improve public services efficiency (Shin, 2016). Hence, the governments that promote and use ICT would facilitate more efficient and transparent public-private transactions, thus enhancing EDB and NBD. Therefore, the sixth hypothesis is:

H6: Higher ICTG improves EDB, which in turn positively impacts NBD in a country.

Entrepreneurs typically exploit a new invention or a technology to create a new product or a service. Hence, countries that facilitate innovation and discovery would nurture more entrepreneurial initiatives than others (Alvarez & Busenitz, 2001). Typically, private companies adopt new technologies such as cloud computing earlier than the governments (Shin, 2013). ICTG only facilitates new business creation by increasing transparency and efficiency of public services, and it would not directly contribute to profit-generating resources that stimulate NBD.

H7: ICTG has no direct effect on NBD in a country.

ICT Use by Businesses (ICTB)

Countries, where businesses invest in ICT adoption engage in higher numbers of B2B and B2C (business to business and business to consumer) electronic transactions (Baller et al., 2016). ICTB is linked to improved efficiency and competitive advantage in the marketplace. Walmart's investment in cutting-edge technology to manage its supply chain efficiently contributed to its leadership in the retail industry (Johnson, 2002). Similarly, Amazon adopted technology to reduce shipping times and increase cross-selling on their platforms to remain competitive (Higham, 1999). A recent survey found that businesses with digital platforms and virtual networks are more valuable, profitable, and grow faster than traditional businesses (Gawer, 2020). However, increased competitiveness and efficiency of existing companies due to their ICT use raises the "barrier-to-entry" for new companies, potentially deterring new entrepreneurial initiatives (Porter, 2008). Therefore, the following hypothesis is:

H8: ICTB has a direct negative impact on NBD in a country.

Social environment, technology compatibility, and attitude play a crucial role in technology adoption (Steinfield et al., 2010). Increased use of electronic channels by businesses for communication

with partners and customers improves social acceptance, compatibility, and a positive attitude towards ICT. Hence, ICTB should stimulate the adoption of e-governance services by governments and their use by the citizens. High ICTB should also promote transparency and control corruption (Bhattacherjee & Shrivastava, 2018). Therefore, ICTB would have an indirect effect on NBD via improvement in EDB. Hence, the next hypothesis is:

H9: Higher ICTB would indirectly increase NBD in a country by improving the EDB.

ICT Use by Individuals (ICTI)

ICTI refers to the use of mobile phones, internet services, social media, and other ICT-enabled devices and services by individuals. The citizenry's extensive use of ICT creates new resources, including data and user contributions for entrepreneurial innovation. Customer participation and resource sharing are the back-bone of new business models in the digital entrepreneurial ecosystem (Sussan & Acs, 2017). In the digital economy, customer data is a source of competitive advantage for businesses. Prominent technology startups, including Google, Facebook, and Instagram, thrive on users' content by providing free service; but generating revenue through advertisements. Several new business models, including the electronic marketplace, information aggregation, and the sharing economy, resulting from an explosion of individuals' ICT use. ICTI also helps entrepreneurs develop social capital to facilitate collaborations and partnerships (Eckhardt & Shane, 2003). Although social capital is essential for sustaining a mature business, it is even more important for startups to develop new collaborations and relationships (Steinfield et al., 2010). Therefore, the following hypothesis is:

H10: ICTI will have a positive direct impact on NDB in a country.

Another avenue through which ICTI can influence new business creation is by improving EDB. For instance, crowdfunding is a new source of seed funding for small startups. The Kickstarter crowdfunding platform raised over $2.5 billion for over 107,000 campaigns (Sorenson, 2016). ICTI plays a vital role in the success of these crowdfunding campaigns and the availability of new businesses' finances. Moreover, ICTI creates an overall positive perception of ICTs, leading to the acceptance of electronic government services and transparency in the public system (Davis, 1987). Thus, ICTI supports NBD by improving the quality of public services. Hence, the final hypothesis is:

H11: Higher ICTI improves EDB, which has an indirect positive impact on NBD in a country.

Based on the proposed hypotheses, we present the following conceptual model:

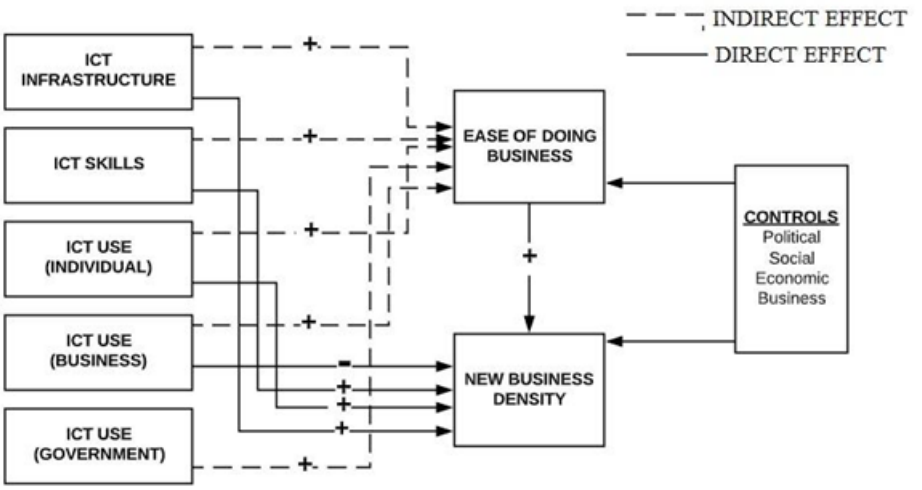
RESEARCH METHODOLOGY

To investigate the role of ICT in influencing the EDB and NBD, we collected data on 90 countries over five years from 2012 to 2016. The data is sourced and merged from several third-party reliable sources, including the World Bank (WB), United Nations (UN), and the World Economic Forum (WEF). The choice of secondary data is motivated by infeasibility in collecting primary data on variables such as EDB on a large scale and prior availability of the data from reputable global institutions. The data were obtained for the following variables used in the study:

Dependent Variables

The primary dependent variable of interest in this study is the NBD within a country. As stated earlier, the NBD of a country is the number of new limited liability corporations registered in a

Figure 1. *Conceptual Framework*



calendar year per 1,000 citizens between 15-64 years. This measure is sourced from the World Bank's entrepreneurship survey database (World Bank, 2019). National business registries or organizations such as tax and labor agencies, chamber of commerce, etc., are surveyed in each nation to get NBD.

The second key variable of interest is the Ease of Doing Business (EDB) in a country. We use the yearly EDB index compiled by the WB (Doingbusiness.org, 2016). More than 10,000 professionals in the legal and regulatory areas worldwide are surveyed to get information on the indicators that constitute EDB. Economic research and firm-level data guide the selection of indicators for EDB, which has been utilized and tested for robustness by numerous prior studies (Almeida & Zouain, 2016; Doshi et al., 2019). The EDB score of a country is a weighted index that measures the regulatory environment's availability and maturity to support new businesses. EDB score ranges between 0 and 100, where a higher score represents better EDB.

Explanatory Variables

The key ICT-related explanatory variables in this study have three aspects: infrastructure, skills, and ICT usage in a country. The extent of ICT infrastructure development and the growth potential is measured by WEF using the ICT infrastructure (ICTIN) index (WEF, 2016). It includes the extent of mobile and internet coverage, electricity availability, and internet bandwidth.

To incorporate the citizens' skills in effectively utilizing IT resources, we consider the ICT skills (ICTS) sub-index developed by the WEF (WEF, 2016). The ICTS index includes literacy, enrollment in science education, etc. It reflects the population's ability to innovate using IT skills.

Within the ICT usage dimension, we consider the extent of ICT adoption by three key stakeholders of a country: the government (ICTG), the businesses (ICTB), and the individuals (ICTI). The data comes from the ICT use indices compiled yearly by WEF (WEF, 2016). The ICTG index measures initiatives taken by governmental bodies to promote the online delivery of public services. The index also considers the long-term strategy and initiatives of the government to encourage ICT use. The ICTB index summarizes businesses' initiatives to integrate information technology into business operations and promote electronic commerce. The ICTI index, on the other hand, includes the adoption of ICT by the citizens of a country. This measure considers the use of the internet, personal computer, mobile telephony, and social media. Each of the three ICT use components (ICTG, ICTB, ICTI) can take

Table 1. *Correlation Matrix**

	Mean	PS	QEDU	GDP	COMP	ICTB	ICTI	ICTG	ICTIN	ICTS	EDB	NBD
PS	3.82	1.00										
QEDU	3.90	0.71	1.00									
GDP	24763	0.62	0.67	1.00								
COMP	5.06	0.44	0.51	0.53	1.00							
ICTB	4.00	0.64	0.75	0.73	0.62	1.00						
ICTI	4.28	0.51	0.63	0.79	0.59	0.81	1.00					
ICTG	4.25	0.70	0.66	0.69	0.55	0.72	0.70	1.00				
ICTIN	4.50	0.52	0.64	0.76	0.57	0.80	0.92	0.68	1.00			
ICTS	5.01	0.46	0.70	0.68	0.45	0.68	0.83	0.60	0.82	1.00		
EDB	67.64	0.54	0.55	0.60	0.55	0.70	0.78	0.69	0.79	0.71	1.00	
NBD	4.03	0.45	0.36	0.40	0.32	0.32	0.49	0.37	0.50	0.43	0.48	1.00

*Note: All correlations coefficients are significant at the alpha level of 0.05

any numeric value between 1 (low usage) and 7 (high usage). Appendix 1 describes the variables of interest and summarizes their descriptive statistics.

Control Variables

The EDB index and NBD can be influenced by the country's political, social, economic, and business environment. Political instability can hamper investors' confidence and impact the availability of funds for new businesses. Hence, to control the political environment, we utilize the political and regulatory environment sub-index (PE) developed by the WEF as a control variable (WEF, 2016). The societal differences among the nations are controlled for using the quality of education measure developed by WEF. We also control for the economic prosperity in a country using Gross Domestic Product (GDP) per capita at the purchasing power parity (PPP) (World Bank, 2019). The GDP at PPP helps compare economic prosperity between countries. Also, local competition can be a barrier to new businesses. Hence, we control market competition using the intensity of competition measure developed by WEF (WEF, 2016). A list of all countries included in the analysis is provided in appendix 2. Using the data from the sources described above, we computed correlations between the variables of interest and are presented in table 1.

A well-developed ICT infrastructure should encourage its use by the government, businesses, and citizens. Hence, not surprisingly, we observe a strong correlation between the five ICT explanatory variables analyzed in this study (see table 1). Also, GDP strongly correlates with ICTIN and ICTI. This suggests that countries with high GDP have better ICT infrastructure, and their citizens show increased ICT usage.

Empirical Strategy

To identify the direct and indirect effects of five ICT indicators (infrastructure, skills, and use (business, government individual) on NBD, we utilize a Structural Equation Modeling (SEM) based variable path analysis approach (Shook et al., 2004). The SEM approach is suitable in the context of our study as it allows us to simultaneously test hypothesized relationships in the presence of multiple dependent variables (Petkova et al., 2013). The proposed approach will enable us to assess the overall fit of the path model adopted in the study. We simultaneously estimate two linear equations for each

of the five ICT indicators (ICTB, ICTG, ICTI, ICTS, and ICTIN). The equations below describe the template of the SEM model.

$$\text{EDB} = \beta_0^i + \beta_1^i ICTindicator^i + \beta_2^i \text{ Political environment} + \beta_3^i \text{ Education} + \beta_4^i GDP + \beta_5^i \text{ Business Competition} + \varepsilon_1^i \text{ ----} \quad (1)$$

$$\text{NBD} = \alpha_0^i + \alpha_1^i ICTindicator^i + \alpha_2^i EDB + \alpha_3^i \text{ Political environment} + \alpha_4^i \text{ Education} + \alpha_5^i GDP + \alpha_6^i \text{ Business Competition} + \varepsilon_2^i \text{ ----} \quad (2)$$

In the above equations, superscript 'i' represents one of the five ICT-related indicators of interest. The linear model coefficients, $\left(\beta's\right)$ and $(\alpha's)$, would depend on the ICT indicator 'i' used in the equation. Both equations include political, social, economic, and business controls that can influence the interest's two dependent variables. Both EDB and NBD feature as a dependent variable in the system of equations, while EDB also features as an endogenous explanatory variable in equation (2) with NBD as a dependent variable. The SEM-based approach allows us to discern the direct (α_1^i), indirect (via EDB) ($\alpha_2^i * \beta_1^i$) and total effects ($\alpha_1^i + \alpha_2^i * \beta_1^i$) of each of the five ICT variables on NBD. We use the maximum likelihood (ML) estimation procedure to compute the coefficients in equations 1 and 2. The ML procedure is robust to skewness or kurtosis in the dependent and explanatory variables (Petkova et al., 2013). The estimates for equations 1 and 2 are obtained using the Lavaan library of the open-source R statistical programming language (Rosseel, 2012). We also test our models for the violation of the regression assumptions.

We first investigate each of the two linear equations for violating four distinct regression assumptions of linearity, homoscedasticity, uncorrelatedness, and normality. Due to high correlations between the country-level explanatory variables and repeated measurement for each country over five years (table 1), our data may be susceptible to the violation of the multiple regression assumptions. Hence, we conducted the Global test of four regression assumptions described by Peña & Slate (2006) for each of the five ICT variables. In total, ten Global tests (five for each equation) are performed with one ICT indicator at a time. We found that several assumptions of linear models were not satisfied with the complete sample.

To obtain unbiased coefficients for equations 1 and 2, we took the following steps to adhere to model assumption requirements: we first transformed the dependent variables NBD and EDB by taking their logarithm for an improved linear relationship (Peña & Slate, 2006). Next, we investigated the influential observations that may be leading to the violation of these regression assumptions. We used Cook's distance to identify influential observations (outliers) for equations 1 and 2 for all five indicators (Cook, 1977). On average, out of 415 total observations, we found 45 unique data points that were outliers for either equation 1 or 2. Most of the influential observations consisted of countries with variables on either extreme of the sample distributions. This included high-income nations like Luxembourg, Malta and low-income countries like Myanmar and Sierra Leone at the other end.

After excluding the outlier observations, the linear models satisfied the Global test of regression assumptions for all five ICT indicators under consideration. The Variance Inflation Factor (VIF) values are also below the threshold of 10 for all linear models under consideration, alleviating the multicollinearity concerns due to strong correlations (Yoo et al., 2014). In the following tables, we report the cluster robust standard errors to account for possible dependence between the variables and residuals due to repeated observations of the nations over five years (Savalei, 2014). However, we did not find evidence of heterogeneity in the residuals' variance due to repeated observations.

We estimate the SEM model using both a complete and partial dataset (excluding outliers) to assess our robustness estimates.

RESULTS

Table 2 below summarizes the parameters from the simultaneous estimation of equations 1 and 2 with ICT infrastructure (ICTIN) as the independent variable. When estimating parameters of equations 1 and 2 above, model 1 uses the complete sample, while model 2 excludes outlier observations in the dataset. We access the fit of both models using the Comparative Fit Index (CFI), Tucker Fit Index (TFI), Akaike Information Criterion (AIC), and Log-Likelihood Value (LL). Both CFI and TFI values for models 1 and 2 across all five ICT variables are greater than the suggested cutoff values of 0.90 and 0.95, respectively (Tables 2-5). CFI and TFI compare the fit of the hypothesized model with a baseline or worst fit model (Medsker et al., 1994). Values of CFI and TFI more than cutoff indicate acceptable fit of the model on the observed data (Hu & Bentler, 1999). There is no suggested cutoff value for the AIC and LL indexes as their absolute value compares two competing models. The model with the lower value of AIC and higher LL value is considered better (Lin et al., 2017). The explanatory variables in model 1 explain 64% (Adj. R Squared) and 47% variations in the EDB and NBD (table 2).On the other hand, model 2 explains 72% and 58% variation in EDB and NBD (table 2). Model 2 also satisfies the Global test for regression assumptions (Peña & Slate, 2006). Similar, favorable model fit findings for model 2 are observed across all other ICT indicator variables (tables 2-6). Hence, in the subsequent discussions, we adopt model 2 when examining the hypothesized relationships.

Table 2 displays coefficients and the associated standard errors for the variables in equations 1 and 2. EDB has a significant positive impact on NBD ($\alpha_2^i = 5.064$*), supporting the first hypothesis (H1) of our study. ICTIN also has a significant positive impact on the EDB ($\beta_1^{ICTIN} = 0.066$**). While ICTIN does not significantly impact NBD ($\alpha_1^{ICTIN} = 0.172$) at the alpha level of 0.05, the total impact of ICTIN (0.487**) is, however, significant and positive on NBD. The EDB significantly mediates about 70% of the total effect of ICTIN on NBD in a country. Thus, our findings also support the indirect effect of ICTIN on NBD via EDB (H3). However, the direct effect of ICTIN on NBD (H2) is not supported.

For the ICTS indicator, the coefficients of equations 1 and 2 for the two models (3 and 4) are reported in table 3. Model 4 fits much better (Adj. R Squared) than model 3, which contains outlier observations. ICTS has a significant positive impact on EDB for equation 1 ($\beta_1^{ICTS} = 0.09$**, model 4). ICTS also has a significant direct positive impact on NBD ($\alpha_1^{ICTS} = 0.64$**, model 4). The total effect of ICTS (1.001**) on NBD is also positive and statistically significant. The EDB mediates about 36% of the net effect of ICTS on NBD in a country. The direct effect of ICTS is 64% of the total effect on ICTS on NBD. Therefore, the results support both direct (H4) and indirect (H5) effects of ICTS on NBD in a country.

Table 4 presents the estimates of equations 1 and 2 for ICTG as the explanatory variable. ICTG has a significant positive impact on EDB ($\beta_1^{ICTG} = 0.036$**, model 6), while it has no significant direct impact on the NBD ($\alpha_1^{ICTG} = -0.289$, model 6). However, the indirect effect of ICTG on NBD via EDB is significant and positive at an alpha level of 0.05. Therefore, our results support a positive indirect effect (H6) and no direct effect (H7) of ICTG on NBD. However, the total effect of the ICTG (-0.077, p-value = 0.668), on NBD is not significant at $\alpha = 0.05$ level.

Table 5 below reports the coefficients associated with equations 1 and 2 with ICT use by businesses (ICTB) as the ICT indicator. The ICTB of a country does not have a statistically significant positive impact on EDB ($\beta_1^{ICTB} = 0.029$, model 8) at $\alpha = 0.05$ level. However, ICTB has a significantly

Table 2. *ICTIN and NBD*

	Model 1			**Model 2 (No Outliers)**		
	Equation 1 Ease of Doing Business			**Equation 1 Ease of Doing Business**		
Variables	Estimate	St. Err	P(>|z|)	Estimate	St. Err	P(>|z|)
ICT Infrastructure (ICTIN)	0.067**	0.014	0	0.066**	0.011	0
Political Environment	0.028*	0.012	0.024	0.023*	0.01	0.024
Education	-0.017	0.013	0.193	-0.016	0.011	0.165
GDP Per Capita	0.019	0.024	0.427	0.016	0.018	0.366
Business Competition	0.034	0.019	0.072	0.046**	0.015	0.002
Year	0.001	0.003	0.8	0	0.003	0.884
Adj. R Squared	0.643			0.718		
	Model 1			**Model 2 (No Outliers)**		
	Equation 2 New Business Density			**Equation 2 New Business Density**		
Ease of Doing Business	4.013**	0.987	0	5.064*	0.885	0
ICT Infrastructure (ICTIN)	0.098	0.167	0.559	0.172	0.124	0.164
Political Environment	0.204	0.119	0.086	0.172	0.095	0.071
Education	-0.177	0.139	0.202	-0.224*	0.114	0.049
GDP Per Capital	0.252	0.175	0.148	0.052	0.131	0.695
Business Competition	-0.213	0.171	0.214	-0.259	0.151	0.085
Year	-0.058*	0.028	0.038	-0.041	0.025	0.096
Adj. R Squared	0.474			0.581		
Observations	415			369		

Model Statistics	CFI	TLI	AIC	LL	CFI	TLI	AIC	LL
	1	1	439	-202	1	1	90	-27.9

	Estimate	St. Err	P(>|z|)	Estimate	St. Err	P(>|z|)
Direct Effect (ICTIN)	0.097	0.167	0.561	0.143	0.126	0.258
Indirect Effect (ICTIN)	0.268***	0.09	0.003	0.344***	0.08	0
Total Effect (ICTIN)	0.366**	0.158	0.02	0.487***	0.126	0

Note: ** represents p-value of estimate < 0.01 while, * represents p-value < 0.05

Table 3. *ICTS and NBD*

	Model 3			**Model 4 (No Outliers)**		
	Equation 1 Ease of Doing Business			**Equation 1 Ease of Doing Business**		
Variables	Estimate	St. Err	P(>|z|)	Estimate	St. Err	P(>|z|)
ICT Skills (ICTS)	0.085**	0.023	0	0.09**	0.018	0
Political Environment	0.042**	0.016	0.008	0.037**	0.011	0.001
Education	-0.037*	0.017	0.032	-0.04**	0.014	0.003
GDP Per Capita	0.034	0.026	0.186	0.03	0.02	0.142
Business Competition	0.059**	0.019	0.002	0.071**	0.017	0
Year	0	0.003	0.977	-0.001	0.003	0.831
Adj. R Squared	0.62			0.69		
	Model 3			**Model 4 (No Outliers)**		
	Equation 2 New Business Density			**Equation 2 New Business Density**		
Ease of Doing Business	3.43**	0.891	0	4.011**	0.926	0
ICT Skills (ICTS)	0.552**	0.19	0.004	0.64**	0.169	0
Political Environment	0.315*	0.125	0.012	0.409**	0.129	0.001
Education	-0.42**	0.155	0.007	-0.51**	0.144	0
GDP Per Capital	0.038	0.155	0.806	-0.064	0.151	0.671
Business Competition	-0.055	0.186	0.768	-0.104	0.169	0.536
Year	-0.078**	0.029	0.007	-0.055*	0.024	0.022
Adj. R Squared	0.50			0.581		
Observations	415			369		
Model Statistics	CFI	TLI	AIC	LL	CFI	TLI	AIC	LL
	1	1	440	-203	1	1	121	-43.8
	Estimate	St. Err	P(>|z|)		Estimate	St. Err	P(>|z|)	
Direct Effect (ICTS)	0.552**	0.19	0.004		0.641**	0.169	0	
Indirect Effect (ICTS)	0.292**	0.097	0.003		0.361**	0.101	0	
Total Effect (ICTS)	0.845**	0.2	0		1.001**	0.168	0	

Note: ** represents p-value of estimate < 0.01 while, * represents p-value < 0.05

negative direct effect on the NBD (α_1^{ICTB} = -0.538**, model 8) at $\alpha = 0.01$ level. Therefore, a direct negative effect of ICTB on NBD is supported (H8). However, it's indirect but positive; the effect on NBD is not supported (H9). The total effect of ICTB on NBD is not significant at the $\alpha = 0.05$ level.

Table 4. *ICTG and NBD*

	Model 5			**Model 6 (No Outliers)**		
	Equation 1 Ease of Doing Business			**Equation 1 Ease of Doing Business**		
Variables	Estimate	St. Err	P(>|z|)	Estimate	St. Err	P(>|z|)
ICT use Government (ICTG)	0.056**	0.019	0.003	0.036**	0.015	0.014
Political Environment	0.009	0.013	0.503	0.008	0.012	0.502
Education	-0.002	0.014	0.897	0.006	0.013	0.653
GDP Per Capita	0.075**	0.019	0	0.086**	0.015	0
Business Competition	0.032	0.02	0.106	0.043**	0.016	0.008
Year	0.003	0.003	0.359	-0.001	0.003	0.842
Adj. R Squared	0.59			0.68		
	Model 5			**Model 6 (No Outliers)**		
	Equation 2 New Business Density			**Equation 2 New Business Density**		
Ease of Doing Business	4.497**	0.879	0	5.857**	0.765	0
ICT use Government (ICTG)	-0.197	0.177	0.265	-0.289	0.166	0.083
Political Environment	0.254*	0.128	0.047	0.275*	0.109	0.012
Education	-0.129	0.136	0.343	-0.135	0.119	0.256
GDP Per Capital	0.366**	0.122	0.003	0.275**	0.112	0.013
Business Competition	-0.169	0.171	0.322	-0.256	0.148	0.084
Year	-0.071*	0.03	0.016	-0.051*	0.024	0.031
Adj. R Squared	0.47			0.58		
Observations (N)	415			371		
Model Statistics	CFI	TLI	AIC	LL	CFI	TLI	AIC	LL
	0.99	1	489	-227	1	1	152	-59
	Estimate	St. Err	P(>|z|)		Estimate	St. Err	P(>|z|)	
Direct Effect (ICTG)	-0.197	0.177	0.265		-0.289	0.166	0.083	
Indirect Effect (ICTG)	0.253**	0.09	0.005		0.211*	0.086	0.014	
Total Effect (ICTG)	0.056	0.184	0.759		-0.077	0.18	0.668	

Note: ** represents p-value of estimate < 0.01 while, * represents p-value < 0.05

The direct and indirect effects of ICT use by the individuals (ICTI) in a country on NBD are shown in table 6. We find that ICTI has a significant positive impact on the EDB ($\beta_1^{ICTI} = 0.077$**, model 10, eq. 1). ICTI has a significant direct effect on NBD ($\alpha_1^{ICTI} = 0.416$**, model 10, eq. 2)

Table 5. *ICTB and NBD*

	Model 7			**Model 8 (No Outliers)**		
	Equation 1 Ease of Doing Business			**Equation 1 Ease of Doing Business**		
Variables	Estimate	St. Err	P(>|z|)	Estimate	St. Err	P(>|z|)
ICT use Businesses (ICTB)	0.050**	0.019	0.008	0.029	0.016	0.073
Political Environment	0.021	0.014	0.136	0.018	0.012	0.116
Education	-0.013	0.014	0.345	-0.005	0.013	0.67
GDP Per Capita	0.076**	0.02	0	0.09***	0.015	0
Business Competition	0.03	0.02	0.134	0.041**	0.016	0.01
Year	0.002	0.003	0.527	0	0.003	0.977
Adj. R Squared	0.58			0.67		
	Model 7			**Model 8 (No Outliers)**		
	Equation 2 New Business Density			**Equation 2 New Business Density**		
Variables	Estimate	St. Err	P(>|z|)	Estimate	St. Err	P(>|z|)
Ease of Doing Business	4.616**	0.83	0	5.975**	0.798	0
ICT use Businesses (ICTB)	-0.391	0.23	0.089	-0.538**	0.2	0.007
Political Environment	0.226	0.127	0.076	0.231	0.109	0.034
Education	-0.005	0.185	0.978	0.082	0.152	0.59
GDP Per Capita	0.423**	0.141	0.003	0.34**	0.126	0.007
Business Competition	-0.128	0.173	0.462	-0.21	0.147	0.153
Year	-0.042	0.03	0.165	-0.046	0.024	0.057
Adj. R Squared	0.486			0.60		
Observations	415			371		
Countries	93			86		
Model Fit Statistics	CFI	TLI	AIC	LL	CFI	TLI	AIC	LL
	0.99	1	489	-227	1	1	148	-57
	Estimate	St. Err	P(>|z|)		Estimate	St. Err	P(>|z|)	
Direct Effect (ICTB)	-0.390	0.099	0.089		-0.538**	0.200	0.007	
Indirect Effect (ICTB)	0.230*	0.244	0.020		0.174	0.104	0.094	
Total Effect (ICTB)	-0.160	0.230	0.089		-0.363	0.221	0.100	

Note: ** represents p-value of estimate < 0.01 while, * represents p-value < 0.05

as well. Summarizing, we find that ICTI has a positive and statistically significant, direct, indirect, and net effect on the NBD. Approximately 49% of the effect of ICTI on NBD is indirect and is mediated by EDB. Thus, our results support both the H10 and H11 hypotheses.

Table 6. *ICTI and NBD*

	Model 9			**Model 10 (No Outliers)**		
	Equation 1 Ease of Doing Business			**Equation 1 Ease of Doing Business**		
Variables	Estimate	Std.Err	P(>|z|)	Estimate	Std.Err	P(>|z|)
ICT use individuals (ICTI)	0.073**	0.015	0	0.077**	0.014	0
Political Environment	0.031*	0.014	0.022	0.024*	0.01	0.017
Education	-0.016	0.012	0.175	-0.015	0.011	0.161
GDP Per Capita	0.003	0.028	0.914	-0.001	0.023	0.953
Business Competition	0.037	0.019	0.059	0.046**	0.015	0.002
Year	-0.01**	0.004	0.009	-0.011**	0.003	0.001
Adj. R Squared	0.63			0.725		
	Model 9			**Model 10 (No Outliers)**		
	Equation 2 New Business Density			**Equation 2 New Business Density**		
Ease of Doing Business	3.459**	0.905	0	4.632**	0.811	0
ICT use individuals (ICTI)	0.358	0.193	0.064	0.416**	0.145	0.004
Political Environment	0.234*	0.118	0.047	0.173	0.106	0.102
Education	-0.249	0.142	0.079	-0.312**	0.114	0.006
GDP Per Capital	-0.013	0.219	0.952	-0.227	0.168	0.178
Business Competition	-0.221	0.169	0.19	-0.192	0.145	0.187
Year	-0.07	0.045	0.121	-0.114**	0.035	0.001
Adj. R Squared	0.494			0.619		
Observations	415			365		
Model Statistics	CFI / TLI / AIC / LL			CFI / TLI / AIC / LL		
	0.995 / 1 / 434 / -200			1 / 1 / 52 / -9.29		
	Estimate	Std.Err	P(>|z|)	Estimate	Std.Err	P(>|z|)
Direct Effect (ICTI)	0.422**	0.193	0.028	0.393**	0.148	0.008
Indirect Effect (ICTI)	0.247**	0.08	0.002	0.374**	0.078	0
Total Effect (ICTI)	0.669**	0.184	0	0.767**	0.152	0

Note: ** represents p-value of estimate < 0.01 while, * represents p-value < 0.05

DISCUSSION

This study explores the association between three key aspects (infrastructure, skills, and use) of ICT and EDB and their influence on entrepreneurial activity (NBD) in a country. Our findings support a positive relationship between EDB and NBD and agree with the prior literature's published results

(Canare, 2018; Carbonara et al., 2016). Further, we also find that EDB significantly mediates the effect of ICT infrastructure. However, ICT infrastructure alone does not have a significant direct relationship with NBD. Therefore, the benefits of ICTIN for entrepreneurial activity are only through improvement in the EDB of a nation. The ICT skills of a country's citizenry are essential for entrepreneurship and innovation to thrive. Our results show that ICT skills (including higher STEM education) have a positive and significant direct and indirect (via EDB) effect on NBD.

Today the government, businesses, and individuals are using ICT-enabled applications, but the extent to which this usage impacts EDB and NBD has not been addressed in the extant literature. While RBT would suggest that having more valuable and unique resources will ensure better outcomes, this is not necessarily a straightforward explanation for increasing NBD. According to our findings, increased government use of ICT does have a significant indirect effect on NBD via EDB. However, ICTG does not have a direct impact on NBD. Moreover, the net (indirect and direct) impact is not statistically significant. This suggests that ICTG, by itself, does not encourage new startups.

Existing businesses in a country use ICT to establish valuable intellectual property, maintain close relationships with business partners and customers, and adopt firm-level technology. However, this raises too high a barrier for new businesses to overcome. As these established businesses build a competitive advantage through the valuable and unique resources, the chances for new companies to succeed in such competitive environments are small; thus, supporting our finding of a significant but negative relationship between ICTB and NBD. However, when the indirect impact of ICTB via EDB is considered, the net effect of ICTB on NBD becomes insignificant.

Finally, when considering the entrepreneurial activities in a country, the role of ICT use by individuals is critical to understand. ICTI provides startups with easy access to social capital and prospective customers. New opportunities for innovations, and even investment funding, can also be found online, thereby improving EDB and supporting entrepreneurial initiatives. Our findings strongly support this narrative.

Policy Implications

This study's findings suggest that governments prioritize policies supporting ICT infrastructure, skills, and citizens' ICT use. Reliable and accessible ICT infrastructure is the foundation upon which new businesses can enter a market confidently. The significant indirect impact of ICT infrastructure on NBD suggests that a country cannot focus on infrastructure alone to increase entrepreneurial activity. Additional attention should be paid to improve the elements of EDB. The governments should consider formulating strategies to standardize ICT infrastructure across industries to eliminate bottlenecks in ICT use between organizations (Kim et al., 2015).

The educational system, especially STEM-related education, also plays a vital part in increasing entrepreneurial activities. Hence, governments should invest in programs that enhance their citizens' ICT-related skills, including those in STEM areas. As children and adults engage in using ICT, the novel ideas for starting their new businesses in the future would flourish.

Consistent growth in ICT use by individuals promotes more interactive online user activities, such as online games, social media, and electronic commerce. ICT use by citizens has bailed out economies during the downturn by providing alternate revenue generation avenues in data services, consulting, and mobile commerce (Shin & Jung, 2012). Therefore, countries should develop policies to encourage the adoption and use of ICT by their citizens to promote entrepreneurial endeavors.

Conclusion

Several studies have emphasized the critical role of ICT and EDB in nurturing innovation and entrepreneurial initiatives (Zenebe et al., 2018; Burtch et al., 2018; Canare, 2018). However, our understanding of the pathways through which various aspects of ICT (i.e., infrastructure, skills, and use) influence a nation's entrepreneurial initiatives was limited. This study finds that the countries that have focused on improving the ease of doing business index to encourage entrepreneurial activities

should now pay close attention to the enablers of EDB: ICT infrastructure, skills, and use. By focusing on these societal necessities and providing more resources for successful market entry, countries will increase the number of job creators and strengthen their economy.

While our research method is robust and generalizable, our findings should be interpreted with caution as they are based on secondary data obtained from reliable, independent sources. For instance, EDB scores are based on a survey of qualified professionals and experts worldwide as determined by the World Bank (Doingbusiness.org, 2016). Therefore, EDB may not be a representation of the perception or reality of the entire nation. However, academic experts were involved in survey designs, and the measure is successfully utilized and tested for robustness by prior studies (Almeida & Zouain, 2016; Doshi et al., 2019). Also, the study only considers formal sector entrepreneurship due to limitations in gathering reliable data on informal sector entrepreneurship at the national level. Therefore, a relevant extension of this study would be to study ICT's role in informal business initiatives.

Future studies could also investigate specific areas or skills that are most suitable for entrepreneurial development. Regulatory concerns such as those related to net neutrality arising from extensive dependence on ICT services have social, economic, and political implications for a country (Shin & Lee, 2017). Therefore, understanding the impact of net neutrality and privacy-related concerns on the ICT usage patterns and subsequently on entrepreneurship is also an interesting avenue for future research.

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APPENDIX 1

Table 7 below describes and presents the summary statistics of the variables used in this study.

Table 7. Variables and Measures

Variable	Measure	Mean	SD	Min	Max
New Business Density (NBD)	The number of new limited liability corporations registered in the country for the year, per 1,000 population aged 15 to 64.	4.037	4.617	0.040	22.510
Ease of doing business (EDB)	EDB score measures a country's performance on regulatory practices in ten business areas, including ease of starting a business, dealing with construction permits, getting electricity, registering property, getting credit, investor protection, taxes, trading across borders, and enforcing contracts, and resolving insolvency.	67.64	10.492	40.98	90.87
ICT use by businesses (ICTB)	ICTB is measured using the business ICT usage sub-index of Network readiness index developed by WEF. This index comprises six indicators: firm-level technology adoption, capacity for innovation, patents, ICT use for B2B and B2C transactions, and staff ICT training.	4.001	0.873	2.150	6.218
ICT use by government (ICTG)	ICTG is measured using the government ICT usage sub-index of the Network readiness index developed by WEF. ICTG score comprises three indicators, including the importance of ICT in the government's vision, public online services, and government success in ICT promotion.	4.245	0.833	2.348	6.286
ICT use by individuals (ICTI)	ICTI is measured using the individual ICT usage sub-index of the Network readiness index developed by WEF. ICTI is a weighted score of seven indicators, including mobile phone and internet subscriptions, fixed and mobile broadband subscriptions, users of social media, internet, and personal computer.	4.278	1.459	1.471	6.864
ICT skills (ICTS)	ICTS is measured using the ICT skills sub-index of the Network readiness index developed by WEF. ICTS is a weighted score of four indicators: quality of education system, quality of math and science education, secondary education enrollment rate, and literacy rate.	5.017	0.924	1.922	6.549
ICT infrastructure (ICTIN)	ICTIN is measured using ICT infrastructure sub-index of the Network readiness index developed by WEF. ICTIN is a weighted score of four indicators, including electricity production, mobile network coverage, and internet bandwidth and secure internet servers.	4.581	1.431	1.165	7.000
Political Environment (PE)	PE is measured using the Political and regulatory environment sub-index of the Network readiness index developed by WEF. PE is a weighted score of nine indicators, including the effectiveness of law-making bodies and the judiciary's independence.	3.821	1.016	1.880	6.526
Education (EDU)	EDU is measured using the quality of education measure developed by the WEF. EDU is the weighted average score from an executive opinion survey to rate the education system's capability to meet a competitive economy's needs.	3.901	0.927	2.053	6.132
Economic Environment (EE)	The state of a nation's economy is measured using Gross Domestic Product (GDP / capita). GDP per capital compares the living standards between countries by accounting for relative costs and inflation.	24763	24763	1372	120366
Competition (COMP)	The competition in a nation is measured using the intensity of local competition scores from an executive opinion survey conducted by the WEF.	5.056	0.590	3.145	6.242

APPENDIX 2

Table 8 below lists all countries considered in the empirical analysis.

Table 8. List of Countries

Albania	**Georgia**	**Moldova**	**Slovak Republic**
Algeria	Germany	Mongolia	Slovenia
Armenia	Guinea	Morocco	South Africa
Australia	Hungary	Myanmar	Spain
Austria	Iceland	Namibia	Suriname
Azerbaijan	India	Nepal	Sweden
Belgium	Indonesia	Netherlands	Switzerland
Bhutan	Ireland	New Zealand	Tajikistan
Bolivia	Israel	Nigeria	Thailand
Bosnia and Herzegovina	Italy	Norway	Turkey
Botswana	Jamaica	Oman	Ukraine
Brazil	Japan	Pakistan	United Arab Emirates
Bulgaria	Jordan	Panama	United Kingdom
Canada	Kazakhstan	Paraguay	Uruguay
Chile	Korea, Rep.	Peru	Zambia
Colombia	Kyrgyz Republic	Philippines	
Costa Rica	Latvia	Poland	
Croatia	Lesotho	Portugal	
Cyprus	Lithuania	Qatar	
Czech Republic	Luxembourg	Argentina	
Denmark	Madagascar	Russian Federation	
Dominican Republic	Malaysia	Rwanda	
El Salvador	Malta	Saudi Arabia	
Estonia	Mauritania	Senegal	
Finland	Mauritius	Sierra Leone	
France	Mexico	Singapore	

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