THE IMPACT OF PUBLIC POLICY ON ENTREPRENEURIAL ACTIVITY IN EMERGING MARKETS

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ABSTRACT

The outcome of this research paper provides guiding principles to policymakers in emerging markets at a specific policy level in an effort to stimulate entrepreneurial growth and, in turn, increased economic growth. Seven hypotheses relating to either starting a business or the ease of continuing to do business were assessed. The study was completed using a sample of seven emerging markets including Argentina, Brazil, Chile, China, India, Russia and South Africa. Data was sourced from the World Bank and Global Entrepreneurship Monitor.

Two multiple regression models were produced to compare the BRICS markets sample to the total sample. It showed that the complexity and time to start a business were not significant to the total sample but were influential within the BRICS countries. Similarly, complexity and time to enforce a contract was proven significant to the BRICS markets but not within the total sample. The total tax rate and the number of tax payments were influential in both models, whilst the time to prepare and pay taxes was significant only within the total sample. The cost to start to start a business did not prove to be significant in either case. Several practical recommendations have been provided to leverage these findings.

KEY WORDS

Entrepreneurship, Public Policy, Emerging Markets
DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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CHAPTER 1 - INTRODUCTION

The debate surrounding economic growth has raged for many years, with various avenues of research attempting to decipher the key ingredients. With at least one billion people worldwide living below the poverty line and most of these in the developing markets (see Figure 1), there is a strong incentive for these developing nations to unpack the factors potentially leading to economic success.

Figure 1: Population Living Below the Poverty Line (Population below poverty line - country comparison, 2011)

However, despite this position, some countries cannot begin to explore these possibilities due to local conditions, for example, civil war or dictatorial regimes inhibiting the creation of enabling institutions or even strictly socialist economies. Disease, mortality rates (see Figure 2) and birth rates also differ significantly,
impacting the potential of these markets. Thus, the focus of economic growth has
been shifted to the markets dubbed “emerging”.

**Figure 2: Mortality Statistics (Standard of living in the developing world, 2011)**

At a foundation level, economists predict growth on the basis of Keynes theory for
GDP growth, namely: Consumption Spending (Private and Government),
Investment and the difference between Export and Import Spend (Colander, 2010,
p. 184). Dissecting these elements to understand specific contributors is essential
in understanding the actions that can be taken in order to enhance economic
growth in emerging markets.

These elements include foreign direct investment (De Clercq, Hessels & Van Stel,
2007); investment into R&D, innovation and technology (Kirchhoff, Newbert,
Hasan, & Armington, 2007); financial liberalization (Huang, 2010); free mobility of
capital flows (van, Cunha & Alves, 2010); education (Rao, Gounder & Loening,
2010); trade liberalisation (Solow, 2009); and interest rate reforms (Odhiambo, 2010), amongst others.

Entrepreneurship is also one of these ingredients that seem to unlock the promise of a burgeoning economy and, thus, a world devoid of poverty. Aidis, Estrin & Mickiewicz (2010) suggest multiple reasons for the success of entrepreneurship, including the creation of sustainable employment as well as the potential for more equitable income distribution. Gurley-Calvez & Bruce (2008) agrees with this and also suggests technological advancement as an additional impact of entrepreneurship.

Benzing, Chu & Kara (2009) collected statistics on the number of jobs created by entrepreneurs in specific markets of interest to that research. They show that the UK, Europe, Japan, South Korea and Turkey are dominated by small and medium enterprises – making up approximately 99% of businesses. They also show that the job creation from these ventures is substantial, ranging from 59% to 80%. Thus, the focus on entrepreneurship in all markets is very relevant in unpacking the contributors to job creation and, ultimately, economic growth.

However, growth in entrepreneurship should be considered within specific contexts and Bruton, Ahlstrom, & Obloj (2008) demonstrate that literature and research relating to entrepreneurship and emerging markets lags behind the research based on developed economies. They also remind us that emerging economies house
one sixth of the world’s poorest people and yet, until 2008, no global investigations have focused substantially on these countries, particularly Sub-Saharan Africa, Latin America or the Middle East. These economies have the most to gain from a growing theory base for predictors of entrepreneurial activity and yet, very little comes to the fore.

The Global Entrepreneurship Monitor (GEM) study (Bosma & Levie, 2010) describes the level of entrepreneurship in a country using the Total Entrepreneurial Activity (TEA) ratio. Using this ratio trended over the last 9 years (Bosma & Levie, 2010), the results in South Africa is concerning as the country has shown no significant growth in its TEA rate over this time. In addition, given that firm survival rates is often less than 50% (Asel, De La Vina, & Lingelbach, 2005), the entrepreneurial contribution to economic growth diminishes even further.

This leads to the question of why some markets succeed in cultivating an environment that is conducive to entrepreneurship and why some do not. Acs, Desai, & Hessels (2008) argue that the value of entrepreneurship to economic development creates a dependency on government to institute appropriate public policy. Carlsson & Mudambi (2003) further position that the role of government is to foster an environment that encourages entrepreneurial activity and facilitates all elements of doing business. However, Dahles (2008) shows that government has not been able to easily impact the patterns of entrepreneurial behaviour, no matter how dominant they are. Thus, although there is this lever of public policy at their
disposal, there is no overarching framework describing the impact on entrepreneurial activity (Begley, Wee-Liang Tan, & Schoch, 2005).

Various studies have been conducted on the impact of public policy on entrepreneurial activity (Bruton et al., 2008; Kim, Kim, & Yang, 2010) but few have focused comprehensively on emerging markets. There is much to be gained by research into emerging markets as they hold the potential to provide guidance and predictive power to policy-makers regarding entrepreneurial activity and thus, improve economic growth.

The research will focus on the following questions within emerging markets:

1. What is the effect of reducing the time, effort and cost of starting a business on the entrepreneurial rate?
2. What is the effect of the tax rate and the burden of complying with tax legislation on the development of entrepreneurship?
3. Does the entrepreneurial rate improve with the implementation of stricter contract enforcement (including property contracts)?
4. What is the effect of easier cross-border trading on the development of entrepreneurship?
CHAPTER 2 - LITERATURE REVIEW

2.1 ENTREPRENEURSHIP – DEFINED AND MEASURED

2.1.1 WHAT IS ENTREPRENEURSHIP?

Audretsch (2007, p.3) acknowledges that there is no universally accepted definition of entrepreneurship but proposes that it is about the process of change, and concurs with the view that “entrepreneurs are agents of change and growth in a market economy and they can act to accelerate the generation, dissemination and application of innovative ideas..”. Inci (2007) adds to this definition by highlighting that entrepreneurs specifically drive growth through the creation of new products and new production processes, thus creating new jobs. Troilo (2011) expands the definition to include “one who owns, launches, manages, assumes the risks of an economic venture”. These perspectives emphasise the importance of entrepreneurship as one of the key factors in economic growth.

2.1.2 TYPES OF ENTREPRENEURSHIP

Classifying entrepreneurs is important in the effort to understand the factors that motivate and enable them. Various cross-sections have been proposed, the most common of which is the motivation to become an entrepreneur. Nieman & Nieuwenhuizen (2009) discuss the factors that “pull” an individual into entrepreneurship, indicating that these individuals spot an opportunity in the market and pursue it – thus, called opportunity entrepreneurs. They contrast this to
individuals that are “pushed” into entrepreneurship due mainly to the lack of any other better option – thus called necessity entrepreneurs (Nieman & Nieuwenhuizen, 2009).

Block & Wagner (2010) concur with this definition and further argue that the earning potential of opportunity entrepreneurs are significantly higher than that of necessity entrepreneurs due to their ability to identify more profitable opportunities. However, Williams (2007) demonstrates that the two may not be mutually exclusive and that both push and pull factors could motivate an individual to become an entrepreneur.

Other classifications of entrepreneurs include a division along ethnic and cultural lines (Morris & Schindehutte, 2005). Various authors (Drori, Honig, & Wright, 2009; Sequeira, Carr, & Rasheed, 2009) also analyse entrepreneurship from the perspective of transnationalism which is defined as “… individuals that migrate from one country to another, concurrently maintaining business-related linkages with their former country of origin, and currently adopted countries and communities.” (Drori et al., 2009). As the number of foreign-born increases, this type of entrepreneur becomes more important from the perspective of the host country due to its influences on international trade (Sequeira et al., 2009).

Other classifications of entrepreneurship include social and corporate (or firm-level) entrepreneurship. Both these categories form a field of study separate to this
research as the business models and business goals may differ substantially to those of the entrepreneurs being considered in this paper.

2.1.3 MEASURING ENTREPRENEURSHIP

Despite the importance of entrepreneurship, there are varying levels of entrepreneurial activity within different markets (Bosma & Levie, 2010). Measuring entrepreneurship in a justifiable and consistent manner is essential to understanding these variances between markets. It is also important in order to allow for comparison between economies and provide insight into key drivers of entrepreneurial activity. Apergis & Pekka-Economou (2010) suggest using the percentage of individuals within an economy that are self-employed.

Other measures include the number of new firms in a region relative to the region’s population (Sumner, 2009) and in the US, federal income tax return data is used to identify entrepreneurial activity (Gurley-Calvez & Bruce, 2008). Salgado-Banda (2007) suggests a combination of the number of patent applications by residents per member of the labour force and self-employment as a percentage of the total labour force.

Cheng, Stough, & Jackson (2009) criticizes the use of the self-employment statistic, arguing that this measure contradicts the growth essence of entrepreneurship as entrepreneurs lose their self-employment status once they
employ more people. The entrepreneur, however, should still be classified as such (Cheng et al., 2009).

Sumner (2009) poses a more complicated measurement method by highlighting three elements:

1. The proportion of economically active people who are self-employed
2. The number of new businesses created in a given time scale
3. The number of small businesses

The basis of this measurement method is to assess the subtle differences posed by various time periods and geographies, with a particular view on population clustering.

Bosma & Levie (2010) build on these concepts and incorporate the GEM model into this thinking. The GEM model considers economies at various stages of development (see Figure 3), including the core drivers of economic growth. Using this holistic approach, the GEM model provides guidelines for key entrepreneurial focus areas based on the economic maturity of the market.

Figure 3: Characteristic of Economic Groups and Key Development Focus (Bosma & Levie, 2010, p.14)
They also ultimately define the Total Entrepreneurial Activity (TEA) rate as the combination of nascent entrepreneurship rate and new business ownership rate. Nascent entrepreneurship refers to those individuals who are actively involved in setting up a business that has not incurred expenses for more than three months whilst the new business ownership rate refers to those businesses that have incurred expenses for more than 3 months but less than 42 months (Bosma & Levie, 2010, p.61). The TEA rate is frequently used (Kim et al., 2010; Uhlaner & Thurik, 2007) as a measurement of entrepreneurial activity and will prove useful to this research.

Cheng et al., (2009) criticises the extensive research covering the quantity of entrepreneurs versus the lack of research discussing the quality of entrepreneurs. This critique is relevant, however, as GEM positions entrepreneurship as a process
(as shown in Figure 3). Thus, in this context, quality is non-existent without the element of a reasonable quantity.

2.2 Emerging Markets

The investigation into entrepreneurial activity is a context-based one (Kim et al., 2010) and therefore requires a focused analysis. Bruton et al. (2008) shows that most research with regards to entrepreneurship apply to developed economies and demonstrate a serious need for research to extend towards emerging markets. Kessler (2007) also demonstrates distinct differences between entrepreneurship in emerging markets versus developed markets, thus highlighting further the need for increased quantity and depth of research in this arena.

The World Bank classifies only countries with a population of 30 000 or more into various income groups (using GNI per capita calculated using the World Bank Atlas method), as follows:

- Low Income: $995 or less
- Lower Middle Income: $996 - $3 945
- Upper Middle Income: $3 946 - $12 195
- High Income: $12 196 or more

where low and middle income economies are referred to as “developing”. The balance is referred to as developed economies (World Bank, 2011).
Developing markets are frequently considered synonymous with emerging markets. This is supported by Muradoglu, Taskin, & Bigan (2000, p.36) who concur with the International Finance Corporation (a member of the World Bank Group) that emerging markets are “any market belonging to low- and middle-income less-developed countries, with the implication that all have the potential for development”. Further to this, “emerging economies are characterized by an increasing market orientation and an expanding economic foundation” (Bruton et al., 2008).

It is essential to differentiate emerging markets from developed markets as the political, social and economic structures contribute in varying ways to the development of entrepreneurship. A key concern, traditionally, is the political climate that dominates within these markets that may or may not hinder the countries’ ability to develop entrepreneurship. Thus, we build on the definition of emerging markets by adding that emerging markets are “low-income, rapid-growth countries using economic liberalisation as their primary engine of growth” (Tracey & Phillips, 2011).

Elements that also argue for an in-depth analysis of emerging markets include the lack of institutional structure, bureaucratic barriers, lack of adequate business regulation, ambiguous laws of contract and lack of property rights (intellectual and physical) (Kshetri & Dholakia, 2011). These serve to deter entrepreneurship or make it difficult for entrepreneurs to initiate their business ventures, thus retarding
long-term growth. In addition, lack of savings mechanisms and limited price transparency result in inefficient market structures. This adversely affects market equilibrium and market prices (Asel et al., 2005; Kumar & Tsetsekos, 1999).

A subset of emerging economies that is of relevance is the BRIC countries i.e. Brazil, Russia, India and China. South Africa has recently joined this group of high potential emerging markets but limited research is available due to the limited timeframe. The BRIC countries have several distinct characteristics which help to paint a favourable picture of their futures:

- they are among the top seven largest countries in land area
- they are among the top eight most populous countries (accounting for about 40% of the world population)
- they are among the ten biggest economies in terms of GDP purchasing power parity
- they are among the top fourteen biggest economies in terms of nominal GDP
- Russia and China are also part of the five permanent members of the U.N. Security Council and the two of them, along with India, possess nuclear capabilities (Bharadwaj, 2006).

These countries continue to flourish during the global recession and have shown significant growth rates over the medium-term. It is thus worth pursuing an analysis
of emerging markets, including the BRICS countries specifically, in order to assess the policy effects prevalent within those economies.

2.3 Public Policy

Public policy and its effect on entrepreneurship has been highlighted as a key enabler or disabler of entrepreneurship (Bosma & Levie, 2010, p.12). However, public policy relates to many factors, some of which have no proven effect on entrepreneurial activity (Kim et al., 2010). Lim, Morse, Mitchell, & Seawright (2010) propose their conceptual model which highlights public policy relating to institutions, proving that regulatory complexity will result in reduced entrepreneurial levels.

Carlsson & Mudambi (2003) provide an interesting perspective – the higher the barriers to entering the entrepreneurial space, the lower the quality of the entrepreneurs. This stems from the fact that so-called high-quality individuals would not be prepared to risk their guaranteed income thus, the only individuals who would become entrepreneurs are those who do not have another viable choice.

Public policy regarding factors that relate to entrepreneurship should be formulated based on insights stemming from proven relationships between various public policy initiatives and their effect on entrepreneurial activity. Within the context of emerging economies, increasing human capital, technology availability and
promotion of new enterprises positively correlate with entrepreneurial activity (Acs & Szerb, 2007). Within developed economies, studies argue that focus should be on labour market reform and the deregulation of financial markets (Acs & Szerb, 2007).

In addition, Carlsson & Mudambi (2003) question the provision of business incentives and startup capital as a means to promote entrepreneurial activity, arguing that the causality is unclear and marred by various other factors. Support for this comes from Kim et al. (2010) who, using the OECD countries as a basis, propose that policy should focus on education, lowering the individual tax rate and social security contributions, reduce spend on labour reform and reconsidering policy on general public services.

Emerging economies in Eastern Europe have demonstrated that assistance from government in starting businesses will positively impact the development of entrepreneurship (Manolova, Eunni, & Gyoshev, 2008). Kim et al. (2010) also demonstrate contradictory evidence that shows progressivity of tax discourages entrepreneurship but also show that many tax factors can be tested in order to assess the effect on entrepreneurship. Case study discussions also raise the effect of the cost burden that is placed on entrepreneurs simply to comply with tax legislation (in addition to the tax itself) (Lerner, 2010).
Aidis et al. (2010) position that the size of the state sector is inversely related to the entrepreneurial rate and that the quality of property rights play a relatively less important role in the development of nascent entrepreneurs, particularly in developed economies. This is contradictory to Lim et al. (2010) and would be of interest in emerging economies, where property rights are hotly debated.

These studies have given limited insight into the effects of public policy formulation on entrepreneurial activity within emerging markets and contradict each other in certain cases. Without clear indication of policy measures that do not affect entrepreneurial activity within emerging markets, there is a case for investigating each of the above-mentioned policies within the context of emerging economies.

This investigation can be grouped into two distinct sub-topics:

- Policy affecting the setup of a business
- Policy affecting the ongoing operations of business

### 2.3.1 Policy Affecting the Setup of a Business

In setting up a business, governments have put various regulatory measures in place. To an entrepreneur, the amount of time spent in setting up a business not only results in financial costs but also reduces the potential capital that could be earned from that business through reduced trading time. Thus, in totality, the longer it takes to register a business, the more it costs in economic terms.
The focus on studying the effect of startup procedures on entrepreneurial activity has been mainly at the individual level. Troilo (2011) shows the various aspect of business startup, including number of procedures, time and cost and demonstrates its applicability to various types of entrepreneurs. This research uses the individual as the unit of analysis and demonstrates the applicability of each startup element as significant to all categories of entrepreneurs tested.

At a macro level, commercial research has shown that country-level investment into all business is adversely affected by the increased economic cost of setting up a business (Yemen: Risk summary, 2005). In Singapore, compliance costs have been cited as a factor contributing towards slowing growth in new business (Choo & Wong, 2006) and US investors have expressed concern over regulatory procedures in India, which have increased business implementation timelines and reduced cash flow (Hangover fears for those trading with India, 2010). Benzing et al. (2009) concur with this view and discourage over-regulation as a means to improve small business growth.

Efforts by government to improve entrepreneurship through regulation has shown to have the reverse effect (Begley et al., 2005). Bureaucracy is not limited to permits and paperwork but can include extended inspection and licensing time due to inefficient or insufficient government resources.
Djankov, La Porta, Lopez-De-Silanes, & Shleifer, (2002) built on Hernando De Soto’s work and studied 85 countries, specifically assessing the number of procedures, official time and official cost of entry into the market. The research drew a distinction on democratic versus non-democratic economies, showing these factors as significant. The work did not take into account any other market factors, included “unofficial” costs resulting from corruption or potential to increase the speed of the regulatory procedures.

Patzelt & Shepherd (2009) demonstrates government action in attempting to remove administrative hurdles and, in some cases, provide assistance to new businesses in completing the required procedures. Despite the evidence that bureaucracy is inconvenient to the startup entity and has an adverse effect on a market's risk profile, emerging markets have received little focus. As a result, there is limited evidence demonstrating that the increased economic cost of starting a business in an emerging market would serve as a complete deterrent and thereby adversely affect entrepreneurial longevity.

2.3.2 Policy affecting the ongoing operations of a business

2.3.2.1 Tax

An aspect that is most often associated with the ongoing operations is the issue of tax. Various taxes are paid by entrepreneurs including Income/Corporate Tax, VAT, Employee Taxes and Capital Gains Tax, amongst other. Taxes vary in relevance depending on the country concerned. Additionally, taxes are considered
by the entrepreneur in two distinct circumstances: the total real tax rate applicable
to the business (Choo & Wong, 2006) and the process that is required to comply
with the applicable tax requirements (Benzing et al., 2009).

The issue of tax rate is important as income spent on tax reduces the
entrepreneur’s ability to invest further into the business, thus impacting
entrepreneurial survival rates (Patzelt & Shepherd, 2009). With this in mind,
entrepreneurs tend to draw the comparison of after-tax earnings as an employee
versus after-tax profits as an entrepreneur, given the additional risk factor in the
latter case (Gurley-Calvez & Bruce, 2008).

These may differ not only due to the marginal income tax rate but also due to other
factors such as VAT and benefit preferences (health, pension, etc). Gurley-Calvez
& Bruce (2008) show evidence that tax rates on wage/salary earners have the
opposite effect versus tax rates on entrepreneurs – if the wage sector tax rate is
reduced, this has the effect of decreasing entrepreneurial activity and conversely, if
the entrepreneurial sector tax rate is reduced, entrepreneurial activity is increased.

Whilst this is intuitive, Fossen & Steiner (2009) compare a number of studies and
show that there is little consensus between leading researchers as to the exact
impact of the tax rate on entrepreneurship. This could be due to the fact that
entrepreneurs have an option that is rarely available to wage earners – self-
declaration of taxes. Given this circumstance, the entrepreneur is capable of
misrepresenting earnings, thereby reducing their total tax liability. In this instance, the effect of the tax rate becomes a negligible element in the survival of the entrepreneur. Additionally, Patzelt & Shepherd (2009) also show an inverse relationship between the entrepreneurs access to finance and the effect of the tax rate on longevity of entrepreneurship.

Another element of the tax debate is the burden of compliance with tax legislation (Choo & Wong, 2006). Increased complexity and bureaucracy in complying with tax responsibilities also indirectly raises the cost of taxes. Entrepreneurs have less time to manage and grow the business whilst completing paperwork and dealing with tax institutions. Gurley-Calvez & Bruce (2008) mention potential outcomes of a complex tax regime, namely increased outsourcing of tax-related work, unintentional tax miscalculation or tax evasion. Limited academic research is available to understand the burden of tax administration on entrepreneurial activity.

In order to gain a holistic understanding of tax and its use as a policy instrument to improve entrepreneurial longevity, both the rate and the burden of compliance should be considered in order to understand the total cost of taxes to the entrepreneur. Evidence-based policy advice in this regard is, for the most part, contradictory and in some cases lacking completely (Fossen & Steiner, 2009).
2.3.2.2 CROSS-BORDER TRADING

The Doing Business Report (World Bank Group, 2010, p. 64) cites the World Bank Logistics Performance Index, showing that “government can create an environment that encourages entrepreneurs to look beyond their own borders for business opportunities. However, the literature is limited in terms of whether or not this element is instrumental in increasing entrepreneurial longevity within an economy.

De Clercq et al. (2007) shows that research has been primarily at an industry rather than a country level. The study also presents evidence that improving trading conditions influences the export orientation of entrepreneurs and that increased engagement in export activities leads to the emergence of new business.

However, Cieslik & Kaciak (2009) shows that entrepreneurs who do not engage in cross-border trading activities early in their formation are far less likely to expand into this arena later on (specifically in emerging economies that have recently democratized). From a macro perspective, the opportunity lies in extrapolating these findings to a country level within a set of emerging economies.


2.3.2.3 Contract Regulation

Contracts span a very broad range of elements, namely property contracts, contracts of sale, credit contracts, safeguarding of intellectual property, employment contracts and various other commercial contracts that are required to do business. The rights of owners to obtain value from an investment have to be protected in order to ensure further investment and, subsequently, business growth (Shahzad & David, 2010).

The existence of dominant trade unions could also be seen in this context as a deterrent to the effective enforcement of labour contracts. Thus, the issue of contract enforcement is a very relevant one especially when one considers the weakness in the institutional environment of emerging markets (Benzing et al., 2009).

Enforcing contracts requires a robust judicial system where the entrepreneur can be confident that his/her case will be heard in a fair and just manner. The Doing Business report (World Bank Group, 2010) shows that there are three aspects that measure a market’s ability to enforce contracts in a manner that will reassure an entrepreneur: time, cost and number of procedures to enforce a contract through the judicial system (See Figure 5 below).
One can argue, though, that all three can be described in one word: cost. An increase in the number of procedures invariably increases the time and therefore cost of enforcing a contract. In addition, favourable contract enforcement conditions protect the entrepreneur from a loss of income and/or other assets, thus increasing the chance of survival.

In a market where conditions are unfavourable to contract enforcement, other costs may also come into play. Bribery to ensure an advantage in a dispute has been shown to substitute for formal contract enforcement (Tao & Zhu, 2001). Also, mitigating controls are put in place to better “police” contracts which also adds to the cost of doing business. Other informal forms of contract enforcement also come to the fore, including the use of gangs and other physically violent methods, personal networks (e.g. Guanxi in China) and reputational effects (Tao & Zhu, 2001).
There is also evidence that the size of the informal sector increases as the degree of contract enforcement regulation decreases. This results from the entrepreneurs desire to avoid formal costs e.g. tax, in order to improve business profitability (Quintin, 2008). Formal business is intuitively more desirable in that it is tax registered, thus contributing to GDP growth, which in turn impacts long-term sustainable economic growth as the money multiplier effect comes into play.

Anderson (2009) posits a more circular argument, stating that the higher the number of formal traders, the more likely contract enforcement will be improved due to the pressure on government by business. This will lead to more formal traders thus leading to even better contract enforcement, creating a natural upward spiral. His research also suggests that the converse is true, painting a bleak picture for those markets with poor regulation in place currently.

Despite the risk that poor regulation poses to business, entrepreneurs may find ways to circumvent the issue. One of these is the simple “rent or buy” concept. This concept in itself poses a paradox - Benzing et al. (2009) show that poor contract enforcement regulation leads to entrepreneurs selecting the option that requires the least amount of regulation i.e. the “buy” option. However, the opposite may be true in that the uncertainty posed by poor regulation may increase the risk factor to a point where the entrepreneur selects the “rent” option in order to minimise potential long-term losses. The literature is unclear as to which school of thought dominates.
Despite the various workarounds, there is little conclusive research to show the effects of poor contract enforcement on business. Troilo (2011) shows that results vary for different types of entrepreneurs and cites “number of procedures to enforce a contract” as significant within a certain category of entrepreneurs. At a country level, Nunn (2007) has shown a significant relationship between the comparative advantage of an economy and its ability to enforce contracts and Shahzad & David (2010) shows the same result when considering strategic investments.

In addition, some governments have put assistance measures in place on the basis that this will encourage higher entrepreneurial rates (Patzelt & Shepherd, 2009). The focus on TEA rates is important going forward as resources spent on improving contract enforcement must be prioritised appropriately.
CHAPTER 3 - RESEARCH QUESTION

3.1 RESEARCH CONSTRUCTS

From the literature, it is evident that a large number of research constructs could be tested to understand the various elements of public policy and its effect on the development of entrepreneurship within emerging markets. An element that is frequently raised is the institutional framework that exists within a market and the degree to which it helps or hinders entrepreneurship. In addition, the cost of complying with particular legislative elements as a small business can threaten the life of an entrepreneurial venture but it is not clear as to whether these costs actually hinder entrepreneurial growth rates.

Property rights have come up frequently within the literature but with varying conclusions. Extending this to include contract enforcement could prove valuable in understanding the emerging market context. Finally, an element that has not surfaced in many studies is the impact of cross-border trading which may have a positive impact on entrepreneurial rates due to the expansive potential that it poses.

Thus, the proposed research constructs are divided into two high level elements as follows:

**Starting a Business**

- Number of procedures to start a business
- Number of days to start a business
- Cost (% of income per capita) to start a business

**Ease of Doing Business**
- Administrative burden of paying taxes
- Tax Rate (relative to start-up businesses)
- Trading across Borders (Rating of ease and ability)
- Contract Enforcement (Rating based on length of time and complexity to enforce a contract)

See Figure 6, which highlights constructs that are potentially inversely related to the entrepreneurial rate in red.

### 3.2 Research Hypotheses

The hypotheses that will be tested during this research are as follows:

H$_1$: Reducing the number of procedures required to start a business will increase the entrepreneurial rate

H$_2$: Reducing the number of days required to start a business will increase the entrepreneurial rate

H$_3$: Reducing the cost to start a business will increase the entrepreneurial rate

H$_4$: Reducing the administrative burden required to comply with tax requirements will increase the entrepreneurial rate
H₆: Increased small business tax rates results in a decreased rate of entrepreneurship

H₇: Higher liberalization of trade for small business will increase the entrepreneurial rate

H₈: Reducing the burden of contract enforcement will increase the entrepreneurial rate

Figure 6: Proposed Research Constructs
CHAPTER 4 - RESEARCH METHODOLOGY

4.1 RESEARCH METHOD AND DESIGN

4.1.1 RESEARCH VARIABLES

A quantitative descriptive approach to the research has already been undertaken demonstrating that entrepreneurial activity is prevalent with varying success rates in different countries (Audretsch, 2007). Drawing from that research, this study will be quantitative and causal in nature, as the model should provide predictive power for policy-makers wishing to improve entrepreneurial activity. The dependent variable \( y \) is the TEA rate for selected emerging markets and the independent variables are as follows:

- \( x_1 \) - Number of procedures to start a business
- \( x_2 \) - Number of days to start a business
- \( x_3 \) - Cost to start a business
- \( x_4 \) – Time to prepare and pay taxes
- \( x_4 \) – Tax payments (number)
- \( x_5 \) – Total Tax Rate (% of Profit)
- \( x_6 \) - Trading across Borders
- \( x_7 \) – Cost to enforce a contract
- \( x_7 \) – Procedures required to enforce a contract
- \( x_7 \) – Time required to enforce a contract
4.1.2 Statistical Methodology

The research seeks to find a relationship between a number of independent variables and its effect on the dependent variable – in this context, the TEA rate of a given economy. Thus, the research is causal in nature.

The method of testing the causal nature between variables is highly dependent on the nature of the data and the number of data points. The data available is continuous for both the dependent and independent variables, thus allowing the use of regression analysis to model the relationship between them (see Figure 7). Due to the fact that multiple explanatory variables will be used in the model, a multiple regression was necessary (Albright, Winston, & Zappe, 2009, p.574).

Figure 7: Causal Analysis of Data (Wedgwood, 2007, p.362)
Prior to running any statistical tests, the data was assessed for completeness and the ability to measure each policy through the use of reliable and tangible datasets. In doing this, the data used to measure the variable $x_6$ (trading across borders) was found to be inadequate to test accurately. As a result, despite its importance in the context of this research, this variable has been omitted from all statistical tests.

The first step in the statistical process was to analyse the relationship between each variable in the equation. This was done graphically through the use of scatter diagrams which visually depicted any relationship that exists between the dependent variable and each independent variable in turn, as well as the relationship between each independent variable with other independent variables. The scatter diagram also gave an indication of the strength of the relationship, if any (Albright et al., 2009, p.576).

Following this, it was essential to run a correlation test between the same combination of variables discussed above. The Pearson’s correlation coefficient tested the strength of association between each variable and provided a numerical assessment of the relationship (Albright et al., 2009, p.584). This also provided an indication of multi-collinearity, which highlights the possibility of independent variables being highly correlated.

This is important as it could hinder the estimation of the dependent variable during regression analysis. If significant interaction between independent variables was
discovered, the model was amended as required. Intuitively, potential interaction was expected between:

- Number of procedures to start a business ($x_1$) and Number of days to start a business ($x_2$) and Cost to start a business ($x_3$)
- Ease of Paying Taxes ($x_4$) and Tax Rate ($x_5$)
- Cost to start a business ($x_3$) and Tax Rate ($x_5$)

The literature also reveals potential interaction between tax ($x_4, x_5$) and contract enforcement ($x_7$) and between the cost of starting a business ($x_3$) and contract enforcement ($x_7$) (Quintin, 2008). There was also potential for interaction between contract enforcement ($x_7$) and trading across borders ($x_6$), using the assumption that entrepreneurs may choose to trade internationally only if local contract enforcement regulation is poor. This, however, was not relevant as variable $x_6$ had been removed.

Once the initial statistical tests were run, several interactions were found. Several iterations of the stepwise regression were performed to reduce the effect of these interactions and the most appropriate method to do so was dependent on other statistical tests.

Stepwise regression was performed, with the aim of devising a multiple regression model that predicts the TEA rate using the independent variables that prove to be significant. The coefficient of determination was key in assessing the explanatory
power of each x-variable to the regression equation, using a 95% confidence level.

Variables have been added to the model as follows:

1. \( x_3 \) - Cost to start a business
2. \( x_5 \) - Total tax rate
3. \( x_7 \) - Procedures required to enforce a contract
4. \( x_7 \) - Time required to enforce a contract
5. \( x_7 \) - Cost to enforce a contract
6. \( x_1 \) - Number of procedures to start a business
7. \( x_2 \) - Number of days to start a business
8. \( x_4 \) - Tax payments (number)
9. \( x_4 \) - Time to prepare and pay taxes

Where interaction variables were created, these were added in to replace the first variable in the model. Also, when variables were removed, the next variable was simply added one step earlier.

Following this, the regression analysis yielded a mathematical equation, predicting the TEA rate as the dependent \( y \)-variable from the independent \( x \)-variables:

\[
Y_{TEA} = a + c_1 x_1 + c_2 x_2 + c_3 x_3 + c_4 x_4 + c_5 x_5 + c_6 x_6 + c_7 x_7 + \varepsilon
\]

In the equation above, “\( a \)” and “\( c \)” are placeholders for the constants that are derived during the regression analysis and \( \varepsilon \) serves as an error term to explain any
residual effect that is not catered for using the given variables. The final regression equation will be outlined in the results section (Chapter 5).

4.2 Population and Unit of Analysis

The research will only consider emerging market economies as defined by Muradoglu et al. (2000) and the IFC. Developed economies will be excluded from all data sets. As the research is only relevant at an aggregated level due to the economic factors involved, the unit of analysis is at a country level.

4.3 Size and Nature of Sample

Countries have been selected based, firstly, on each market’s conformance to the definition of emerging markets discussed earlier. Secondly, the availability of data for the dependent variable as well as all independent variables was used to filter the list of countries. This resulted in a list of seven countries being selected:

1. Argentina
2. Brazil
3. Chile
4. China
5. India
6. Russia
7. South Africa
The timeline for the data is limited by the timeframe for which each variable has been collected. Thus, the timeline for the study will include 2001 until 2010, with no longitudinal projections required for any of the independent variables.

4.4 DATA SOURCE AND DESCRIPTION

4.4.1 DATA SOURCE – DEPENDENT VARIABLE

There is limited availability of complete data that measures the rate of entrepreneurship on a global scale. Three sources of entrepreneurship data have surfaced during this study. The first is research compiled by the Global Entrepreneurship Monitor (GEM) research programme that was initiated in 1999. Its current research spans 11 years and 59 economies worldwide (GEM, 2011). In 2005, the London Business School and Babson College formed a not-for-profit organisation called the Global Entrepreneurship Research Association (GERA) which owns the GEM brand and oversees the governance of the GEM research.

A second source of entrepreneurship data is via the Entrepreneurship Indicators Programme, which was initiated in 2006 by the OECD and currently partners with Eurostat to produce a set of empirical data which aids in the measurement of key entrepreneurship indicators (OECD, 2009). A final source of entrepreneurship data is the World Bank Group Entrepreneurship Survey which measures only formal sector entrepreneurship by the number of new officially registered limited liability
corporations (Desai, 2009). Publicly available data for this study spans the years 2004 to 2009 (World Bank, 2011).

Given the need for as many data points as possible, a longer time frame is desired. In order to produce a more robust regression model, it is also necessary to use data that spans a relatively large number of emerging economies. The GEM data provides the most coverage and will therefore be used as the source for the dependent variable.

4.4.2 DATA SOURCE – INDEPENDENT VARIABLES

Despite extensive research, the independent variables to be tested are only available in the World Bank Data Catalogue. It is produced to support the Doing Business Report, which is a publication of the World Bank and the International Finance Corporation, which benchmarks business regulation in 183 economies worldwide (World Bank, 2010). This data spans the appropriate timeframe to match the data sourced from GEM.

4.4.3 DATA DESCRIPTION

The Doing Business report (World Bank Group, 2010) uses two types of data – readings from laws and regulations and time and motion indicators that measure the complexity of achieving a particular goal. These incorporate local experts (government, businessmen, legal, business consultants, accountants, etc) and
numerous market visits for data verification purposes. If an economy has no laws or regulations covering a specific area or if regulation exists but is not used or if competing regulation prohibits the practice, it receives a “no practice” mark, putting it at the bottom of the rankings for that particular element.

In all cases, the most popular process and documentation is measured (if numerous options exist). Shortcuts are only used to assess policies and procedures if they are legal, available to the general public, used by the majority of businesses and avoiding them causes substantial delays. The time that is spent on gathering information to complete documentation is ignored as this varies from entrepreneur to entrepreneur (World Bank Group, 2010). In assessing the procedures, if any can be performed in parallel, it is deemed as such. Only legal costs are used in cost calculations.

The dependent variable (y) is the TEA rate for selected emerging markets and the independent (explanatory) variables are as follows (World Bank Group, 2010):

- **x₁** - Number of procedures to start a business
  This includes pre-incorporation, registration, incorporation and post-incorporation procedures.

- **x₂** - Number of days to start a business
  This is calculated in calendar days from the first day that the entrepreneur begins to prepare for registration by getting information
ready and application forms completed – what the World Bank calls pre-registration.

- $x_3$ - Cost to start a business
  This is measured as a percentage of the economy’s income per capita.

- $x_4$ - Ease of paying taxes
  This is relative to businesses in their second year of operation. The rating based on the number of tax payments per annum, time in hours per year to prepare and file tax returns, and additional costs incurred in paying taxes. VAT, social security and all other taxes are included here as they add to administrative tasks, even though they do not impact the Income Statement.

- $x_5$ - Tax Rate
  This is relative to businesses in their second year of operation and is measured as a percentage of profit. It includes income tax, social contributions, labour taxes, property taxes, property transfer taxes, dividend tax, capital gains tax, financial transactions tax, municipal taxes and fees, vehicle and road tax, other small fees and taxes. VAT is excluded as it does not impact the Income Statement. The methodology for calculating the total tax rate is broadly consistent with the Total Tax Contribution framework.

- $x_6$ - Trading across Borders
The rating is of ease and ability. Time and cost of actual transport are not included. This variable has been omitted from all statistical tests due to inadequate data.

- $x_7$ - Contract Enforcement

The rating is based on the length of time and complexity to enforce a contract, effectively measuring the efficiency of the judicial system in resolving a commercial dispute. It includes the number of procedures required, time in calendar days and three types of cost namely, court costs, enforcement costs and average attorney fees.

4.5 Research Limitations

As the research is limited to emerging market economies, the results hold little predictive power for economies that fall outside this definition. In addition, due to the limited sources of data, the model demonstrates predictive power based only on one definition of the dataset with little freedom to compare results over multiple datasets, as those datasets are either non-existent or limited in scope/timeframe.

Also, given the fact that the independent variables will be retrieved from only one data source, the definition of the variables is subject to the definition of the World Bank, which has to be globally applicable. This may mask nuances specific to emerging economies, thus affecting the quality of the model. The variables also do not account for security concerns, macroeconomic issues, corruption or skill level. The informal sector is also considered on a very limited basis.
Finally, as with all regression models, the model can be used within certain boundaries to predict outcomes. Thus, extrapolating the data is acceptable but one should proceed with caution when moving very far beyond the boundaries of the model.
CHAPTER 5 - RESULTS

Please refer to Appendices A-F for a complete repository of statistical data. Each variable is discussed individually in this section followed by the results of estimating regression models by way of stepwise addition of variables to the regression models. Both the total sample and BRICS sample have been used. All tests are run at a 5% significant level, unless otherwise specified.

As will become evident, a fair amount of interaction has been observed between the independent variables. This phenomenon is known as multicollinearity. Multicollinearity is a common problem in multiple regression. It arises when a high amount of correlation is observed between the dependent and independent variables or between the independent variables themselves. If two or more independent variables are highly correlated, it is difficult to “untangle” their separate effects on the dependent variable. The higher the correlation between variables, the bigger the problem of multicollinearity (Albright et al., 2009, p.648).

Multicollinearity can be detected using the correlation matrix which maps each variable against the other and it can also be observed using scatterplots. Variance inflation factors are also used to understand the degree of correlation between variables (Albright et al., 2009, p.648).

The challenge posed by multicollinearity is that the variance of the regression coefficients can increase, making them unstable and difficult to interpret. The
confidence intervals may also be too large. A number of solutions to this problem exists:

- Increase the sample size
- Create interaction variables
- Remove highly correlated predictors
- Partial Least Squares Regression
- Principal Components Analysis

The results show that a high degree of multicollinearity exists in the data set. The use of scatterplots was sufficient to observe the correlation and assess variables that could potentially be removed or amended through the creation of interaction variables. The specific actions taken are discussed in the regression results.

5.1 DATA DESCRIPTORS

5.1.1 NUMBER OF PROCEDURES TO START A BUSINESS

In comparing the complexity of starting a business, Brazil proves to have the highest numbers of procedures, averaging 16.8 and South Africa coming in at the lowest average of 7.6 procedures. All countries except Argentina, China and India have shown a declining trend over the time period i.e. there has been an improvement in their performance to decrease the number of procedures to start a business (refer to Figure 8). The mean for this data is 11.7 (Appendix A).
From the scatterplot (see Figure 9), a positive relationship to the TEA rate can be observed. The correlation is significant with a correlation coefficient of 0.432 (refer to Appendix B). The correlation coefficient between the number of procedures to start a business and the following variables also proves to be significant (refer Appendix C):

- Number of days to start a business
- Time to prepare and pay taxes
- Total tax rate
- Procedures required to enforce a contract

Figure 8: Time Series - Startup Procedures to Register a Business
5.1.2 Number of Days to Start a Business

The number of days to start a business has shown a declining trend for all countries, with Argentina and India showing marked improvement as the time to start a business has decreased dramatically (Figure 10). Despite this, Brazil once again shows the highest number of days to start a business whilst South Africa shows the lowest. Despite a more than 20% improvement over the time series, Brazil still ends as the country requiring the most time to start a business. It exceeds sixth place India by approximately 92.9 days and the group average by 91 days (refer to Figure 10 and Appendix A).
The scatterplot shows a limited relationship to the TEA rate with a large number of outliers in the data (see Figure 11) and the p-value is not significant at the 5% level (Appendix B). Significant correlation is observed between this variable and the following (Appendix C):

- Time to prepare and pay taxes
- Procedures required to enforce a contract

**Figure 10: Time Series – Time required to start a business**
5.1.3 COST TO START A BUSINESS (% OF INCOME PER CAPITA)

The average cost to start a business is 16.7%, with India being the most expensive at 64.1%. Russia comes in at the lowest cost of 6.3%, improving by 75% over the time period. China shows a similar improvement of 74.7% (see Figure 12). The scatterplot shows a large clustering below the 20% range, with the India data containing the most outliers relative to the full dataset (see Figure 13).

The correlation coefficient with the TEA rate does not prove to be significant at the 5% level (refer to Appendix B). Significant correlation is observed between the cost to start a business and the following (Appendix C):
- Number of tax payments
- Cost to enforce a contract
- Procedures required to enforce a contract
- Time required to enforce a contract

Figure 12: Time Series – Cost of Business Startup Procedures

Figure 13: TEA Rate vs Cost of Business Start-up Procedures
5.1.4 EASE OF PAYING TAXES

The ease of paying taxes is measured using two factors: the time required to prepare and pay taxes as well as the number of tax payments required, as these both contribute towards administrative complexity. Brazil requires the most time and this remains consistent over the time period (see Figures 14-15). However, Argentina shows the most number of payments required, despite the relatively lower total time required. South Africa proves to be least burdensome in the payment of taxes (Appendix A).

The scatterplot provides limited insights into the relationship between each x-variable and the TEA rate (refer to Figure 16-17) and neither variable proves to be significantly correlated to the TEA rate (see Appendix B). No significant correlation is observed between the time to prepare and pay taxes and any other variable as well as the number of tax payments and any other variable.

Figure 14: Time Series – Time to Prepare and Pay Taxes
Figure 15: Time Series – Number of Tax Payments

Figure 16: TEA Rate vs Time to Prepare and Pay Taxes
5.1.5 TAX RATE

Chile has the lowest tax rate of all countries tested and Argentina demonstrates the highest total tax rate at a counterintuitive 108.1% of profit (refer to Appendix A and Figure 18). The average tax rate is 60.9% with only Chile, Russia and South Africa coming in below this level. The scatterplot shows a positive trend (see Figure 19) in the data and the correlation coefficient proves to be significant at the 5% level (Appendix B). Correlation between the tax rate and the procedures to enforce a contract is also significant.
Figure 18: Time Series – Total Tax Rate

Figure 19: TEA Rate vs Total Tax Rate
5.1.6 Contract Enforcement

Contract enforcement is measured in three ways: number of procedures to enforce a contract, cost to enforce a contract and the time required to enforce a contract. India and Brazil have driven the average number of procedures up to 37.825 whilst India and South Africa prove to be the most expensive countries to enforce a contract (see Figures 20-22). India also requires the longest time period for contract enforcement at more than double the average of 628.5 days.

The scatterplots do not show a clear relationship between each variable and the TEA rate (Figures 23-25), with no correlation coefficient proving to be significant (see Appendix B). In addition to previously-mentioned variables, the number of procedures to enforce a contract is significantly correlated to the time required to enforce a contract.

Figure 20: Time Series – Procedure Required to Enforce a Contract
Figure 21: Time Series – Cost to Enforce a Contract

Figure 22: Time Series – Cost Required to Enforce a Contract
Figure 23: TEA Rate vs Procedures Required to Enforce a Contract

Figure 24: TEA Rate vs Time Required to Enforce a Contract
5.2 Regression Results

The models were estimated by investigating the fit of the models firstly on the total sample of countries. This was followed by estimating the models on the BRICS countries only. Results are discussed below.

5.2.1 Total Sample

Refer to Table 1, which shows the results of the stepwise regression. Based on the high degree of correlation between some of the independent variables, several iterations were necessary in order to estimate the best-fitting regression model.

Model 1 shows the results using all variables. In totality, the model shows an $r^2$ value of 64.5%, indicating that the variables explain 64.5% of the variation in the TEA rate. The cost of business startup procedures proves to have very little predictive power within the model. The following variables have proven to be significant:

- Startup procedures to register a business
- Time required to start a business
- Time to prepare and pay taxes

The number of tax payments appears to decrease the predictive power of the model (as can be seen from the decrease in the adjusted $r^2$ value). The procedures, time and cost to enforce a contract also appear to reduce the explanatory ability of the model.
Model 2 shows the results once all variables that were deemed not significant were removed except the total tax rate. This was kept in order to review the interaction with the remaining variables more closely. An $r^2$ value of 54.1% and an adjusted $r^2$ value of 46.7% shows a reduction in the explanatory power of the model but using 5 fewer variables.

Table 1: Regression results using the total sample

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Model 1 (coefficients)</th>
<th>Model 2 (coefficients)</th>
<th>Model 3 (coefficients)</th>
<th>Model 4 (coefficients)</th>
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<tbody>
<tr>
<td>Intercept</td>
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<td>0.223100</td>
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<td></td>
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<td>(0.06104)</td>
<td>(0.04196)</td>
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<td>Cost to start a business</td>
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<td>-0.000644</td>
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<td></td>
<td>(0.002384)</td>
<td>(0.0008206)</td>
<td>(0.0004312)</td>
<td>(0.0003598)</td>
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<tr>
<td>Total tax rate</td>
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<td>-0.000092</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.003425)</td>
<td>(0.0002161)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedures required to enforce a contract</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.004741)</td>
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<td></td>
<td></td>
</tr>
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<td>Time required to enforce a contract</td>
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<td></td>
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<tr>
<td></td>
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<td>(0.00329)</td>
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<td>Time per procedure to enforce a contract</td>
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<td>0.020614***</td>
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<td></td>
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<td>-0.04928***</td>
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<td></td>
<td>(0.0007261)</td>
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<td>Time to prepare and pay taxes</td>
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<td>0.00008879*</td>
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<td>(0.00003866)</td>
<td>(0.00003478)</td>
<td>(0.00003212)</td>
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<td>54.10%</td>
<td>60.00%</td>
<td>51.70%</td>
</tr>
<tr>
<td>$R^2$ adjusted</td>
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<td>46.70%</td>
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<td>44.00%</td>
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<td>Degrees of freedom</td>
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<td>4</td>
</tr>
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</table>

* p < .05
** p < .01
*** P < .001
After reviewing the scatterplots (see Appendix D), Model 3 was estimated. It provided an improved fit on the data compared to model 2, at an $r^2$ value of 60.0% and an adjusted $r^2$ value of 49.5%. The major amendment was the creation of two interaction variables in an attempt to reduce the effect of multicollinearity – Time per procedure to enforce a contract and Time per procedure to start a business.

Time per procedure to enforce a contract was created using the total time to enforce a contract and dividing it by the number of procedures to enforce a contract. Similarly, time per procedure to start a business was created using the total time to start a business and dividing it by the number of procedures to start a business. This interaction variable was found to be significant in Model 3.

In Model 4, the time per procedure to enforce a contract was removed as it showed a p-value that was not significant. This model showed the lowest predictive ability with an $r^2$ value of 51.7% and an adjusted $r^2$ value of 44.0%.
Of the four models created, Model 3 provided the best fit on the data as it shows the most predictive ability after adjusting for the number of variables. The regression equation is as follows:

\[
Y_{\text{TEA Rate}} = 0.234 - 0.000644 x_5 \text{ Total tax rate (\% of profit)} + 0.00366 \text{ Time per procedure to enforce a contract} - 0.00048 x_7 \text{ Cost to enforce a contract} - 0.0630 \text{ Time per Procedure to start a business} - 0.00108 x_4 \text{ Tax payments (number)} + 0.000169 x_4 \text{ Time to prepare and pay taxes}
\]

An increase in the time per procedure to enforce a contract and the time to prepare and pay taxes both have a positive effect on the TEA rate.

### 5.2.2 Regression Model Using the BRICS Sample

Refer to Table 2, which shows the results of the stepwise regression using the BRICS countries only. Model 1 shows an impressive \(r^2\) value of 99.1\% and an adjusted \(r^2\) value of 98.3\%, indicating that the variables explain 99.1\% of the variation in the TEA rate. This is vastly different to the model built using the total dataset.

Again, the cost of business startup procedures proves to have very little predictive power. All other variables are significant at a 5\% level. The only variable that has
decreased the predictive power of the regression model is the time to prepare and pay taxes, although marginally so.

Table 2: Regression results using the BRICS countries

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Model 1 (coefficients)</th>
<th>Model 2 (coefficients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.063400</td>
<td>-0.013400</td>
</tr>
<tr>
<td></td>
<td>(0.1685)</td>
<td>(0.1429)</td>
</tr>
<tr>
<td>1 Cost to start a business</td>
<td>-0.002023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.001104)</td>
<td></td>
</tr>
<tr>
<td>2 Total tax rate</td>
<td>0.006524***</td>
<td>0.007893***</td>
</tr>
<tr>
<td></td>
<td>(0.00141)</td>
<td>(0.001223)</td>
</tr>
<tr>
<td>3 Procedures required to enforce a contract</td>
<td>-0.007054*</td>
<td>-0.006866**</td>
</tr>
<tr>
<td></td>
<td>(0.002733)</td>
<td>(0.002257)</td>
</tr>
<tr>
<td>4 Time required to enforce a contract</td>
<td>0.00041901***</td>
<td>0.00022659*</td>
</tr>
<tr>
<td></td>
<td>(0.00007668)</td>
<td>(0.00008691)</td>
</tr>
<tr>
<td>5 Time per procedure to enforce a contract</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Cost to enforce a contract</td>
<td>-0.003952</td>
<td>-0.000189</td>
</tr>
<tr>
<td></td>
<td>(0.00266)</td>
<td>(0.0029)</td>
</tr>
<tr>
<td>7 Number of procedures to start a business</td>
<td>-0.008499**</td>
<td>-0.006946*</td>
</tr>
<tr>
<td></td>
<td>(0.002303)</td>
<td>(0.002995)</td>
</tr>
<tr>
<td>8 Number of days to start a business</td>
<td>-0.000467</td>
<td>-0.000362</td>
</tr>
<tr>
<td></td>
<td>(0.00002988)</td>
<td>(0.0002786)</td>
</tr>
<tr>
<td>9 Time per procedure to start a business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Tax payments (number)</td>
<td>-0.0048841***</td>
<td>-0.0061677***</td>
</tr>
<tr>
<td></td>
<td>(0.00007013)</td>
<td>(0.0008339)</td>
</tr>
<tr>
<td>11 Time to prepare and pay taxes</td>
<td>0.000007</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00002618)</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>99.10%</td>
<td>97.60%</td>
</tr>
<tr>
<td>$R^2$ adjusted</td>
<td>98.30%</td>
<td>96.20%</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>

*p < .05
**p < .01
***P < .001
In Model 2, those variables that were not significant in model 1 were removed. The \( r^2 \) value is 97.6% and an adjusted \( r^2 \) value of 96.2%. In looking at the scatterplots for this data, limited correlation is apparent. The removal of two variables in model 2 decreases the correlation further. As a result, the preferred model is model 2 as the appropriate adjustments have been made to the data to ensure reliable predictive power.

The regression equation has been calculated as follows:

\[
Y \, \text{TEA RATES} = -0.013 + 0.00789 \times_5 \, \text{Total tax rate (% of profit)} \\
-0.00687 \times_7 \, \text{Procedures required to enforce a contract} \\
+0.000227 \times_7 \, \text{Time required to enforce a contract} \\
-0.00019 \times_7 \, \text{Cost to enforce a contract} \\
-0.00695 \times_1 \, \text{Start-up procedures to register a business} \\
-0.000362 \times_2 \, \text{Time required to start a business} \\
-0.00617 \times_4 \, \text{Tax payments (number)}
\]

An increase in the total tax rate and time required to enforce a contract both have a positive effect on the TEA rate. An increase in all other variables have a negative effect on the TEA rate. The relationship between the TEA rate and the total tax rate differs between the two datasets and will be explored in Chapter 6.
5.2 CONCLUSION TO RESULTS

To summarise the discussion above, the following general observations must be explored in context of the research problem - the time series has generally shown an improvement in the country trend of most variables; statistical results reveal a high level of interaction between several of these variables, which has been taken into account when building the regression model; and the fit of the regression models yield significantly different results between the total data set and the BRICS countries only. These results will be discussed further in Chapter 6.
CHAPTER 6 - DISCUSSION OF RESULTS

Results will be discussed using the two primary themes of the research, namely starting a business and the ease of doing business. The discussion will center around the total sample firstly, followed by an analysis of the differences when estimating the models on the BRICS countries only. The interaction between variables will also form a critical component of the analysis. See Table 3 for a summary.

Table 3: Summary of interaction between variables

<table>
<thead>
<tr>
<th>X1 Number of procedures to start a business</th>
<th>X2 Number of days to start a business</th>
<th>X3 Cost to start a business</th>
<th>X4 Time to prepare and pay taxes</th>
<th>X4 Tax payments (number)</th>
<th>X5 Total tax rate (% of Profit)</th>
<th>X7 Cost to enforce a contract</th>
<th>X7 Procedures required to enforce a contract</th>
<th>X7 Time required to enforce a contract</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X1 Number of procedures to start a business</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>X2 Number of days to start a business</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>X3 Cost to start a business</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X4 Time to prepare and pay taxes</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>X5 Total tax rate (% of Profit)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X7 Cost to enforce a contract</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X7 Procedures required to enforce a contract</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X7 Time required to enforce a contract</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Total data set shows correlation X
BRICS data shows correlation X
Both datasets show correlation X
6.1 Total Sample

After reviewing the correlation matrix (Appendix C) and scatterplots (Appendix D), a high degree of interaction between variables became apparent. Refer to Table 2 for a summary.

Variables $x_1$, $x_2$ and $x_3$ show a fair amount of interaction with severable other variables. $x_1$ (the number of procedures to start a business), shows significant positive correlation to $x_2$ (the number of days to start a business). This makes intuitive sense as it may not be possible to perform some/all procedures concurrently, thus increasing the length of time taken to start a business.

The interaction between $x_1$, $x_4$ (time to prepare and pay taxes) and $x_7$ (procedures required to enforce a contract) are perhaps indicative of general bureaucracy i.e. inefficiencies perpetuate all government processes, thus showing the trend of increased administrative burden across a variety of business procedures. This is true as well for the interaction between variables $x_2$ and $x_4$ and $x_2$ and $x_7$, as these prove to be positively correlated.

The cost to start a business ($x_3$) also shows positive correlation to the number of tax payments ($x_4$). The implication is that entrepreneurs factor in additional resources when starting their businesses in order to ensure compliance after the set up. The other alternative is that tax payments form a part of the requirements to start a business and hence increase the cost to start the business. This could
include the fact that various taxes become due within the first month of starting a business e.g. VAT, sales tax, compliance tax, taxation on imports, duties, etc.

The correlation between the cost to start a business ($x_3$) and all variables related to contract enforcement ($x_7$) indicates that contract enforcement is either preemptively considered at start-up phase and resources are dedicated to it or that contract enforcement is required upfront. Considering that the variables related to contract enforcement only pertain to commercial disputes, the former seems more plausible. An example of this includes the setting up of performance guarantees related to funding, anticipating potential disputes e.g. WTO trading laws, property, setting up the company legal form and also understanding the impact of current legislation on trading activities, product specification, marketing regulation, etc.

Significant interaction is also observed between the number of procedures to enforce a contract ($x_7$) as well as the time required to enforce a contract ($x_7$). Given that most requirements for contract enforcement require legal counsel and other external consultants and that procedures cannot be conducted in parallel in most cases, the time required for contract enforcement will automatically be driven up as the number of procedures increases.
6.1.1 Starting a Business

The three elements related to starting a business includes the number of procedures involved in starting a business, the amount of time required to start a business and the total cost as a percentage of GNI to start a business. The hypotheses include:

H₁: Reducing the number of procedures required to start a business will increase the entrepreneurial rate

H₂: Reducing the number of days required to start a business will increase the entrepreneurial rate

H₃: Reducing the cost to start a business will increase the entrepreneurial rate

The administrative and cost burden on entrepreneurs is often raised to understand its impact on entrepreneurial rates. Part of the debate relates to whether or not the entrepreneur will be totally deterred by the administrative burden or will this simply slow the entrepreneurial rate.

Given the results discussed in Chapter 5, only the number of procedures to start a business has shown to be significantly correlated to the TEA rate. This variable, in addition to the time taken to start a business, has proven to be significant in the regression analysis. These variables are positively correlated to each other and necessitated the need to create an interaction variable in order to minimize the effect of multicollinearity – the time per procedure to enforce a contract. Only the interaction variable has been used as part of the best fitting model. The results
show that an increase in time per procedure to start a business results in a decreased TEA rate.

The results agree with the work of Troilo (2011), who investigated several types of entrepreneurs. The research found that an increase in the number of procedures and the time taken was significant to all types of entrepreneurs and resulted in a decreased TEA rate. However, the cost of starting a business showed ambiguous results across the various cases. It also did not prove to be significant in all cases.

Troilo (2011) used a more recent dataset and covers all countries as opposed to emerging markets. The investigation cites some research papers which totally contradict the results shown in Chapter 5 but these have used GEM expert data instead of the Doing Business data. Benzing et al. (2009) states that the excessive regulatory burdens are not significant within a Turkish context. The investigation did, however, focus on entrepreneurs at the individual unit of analysis and within a limited geographic region.

Thus, based on the results of Model 3, we accept the hypotheses $H_1$ and $H_2$, as an increase in the interaction variable will result in a decreased TEA rate and is significant at a 1% level. We reject $H_3$ as this variable has not proven to be significant at a 5% level and, as a result, has been omitted from the best fitting regression model due to its limited influence on the TEA rate.
If we had used model 2, looking at \( H_1 \), the hypothesis proposes that the TEA rate will increase as the number of procedures decrease. However, this hypothesis would have been rejected as the regression model proposed a significant relationship where an increase in the number of procedures results in an increase in the TEA rate. A potential explanation for this is that the number of procedures in the specific markets analysed may not be high enough to be a deterrent.

Also, perhaps despite the increased number of procedures, the time to start a business is not affected hence reducing any negative effect on the TEA rate. This can be seen, for example, in India where the number of procedures increased over the time period surveyed but the time taken to start a business decreased dramatically over the same period. However, the interaction variable shows the combined effect of the two variables, proving that there is a significant relationship where an increase in the time per procedure results in a decreased TEA rate.

Djankov, La Porta, Lopez-De-Silanes, & Shleifer, (2002) has proposed that “countries with heavier regulation of entry lead to higher corruption and larger unofficial economies”. This also implies that, despite the regulatory procedures required to start a business, entrepreneurs may find an alternate method to start their business or to perhaps continue operating in the informal sector.

In considering the significance of \( H_2 \), the time taken to start a business has shown a dramatic improvement in most markets and has proven to be instrumental in
affecting the TEA rate. A potential reason for this significance is that entrepreneurs are currently employed and the opportunity cost of time spent starting a business is more important than the actual cost of starting a business.

The cost of starting a business is not significant, not only in this study but also in others (Djankov et al., 2002; Troilo, 2011). A number of concepts may be relevant in this case. Firstly, funding may be readily available to start a business, either through the entrepreneurs own earnings or loans dedicated to entrepreneurial ventures within those markets.

Secondly, the psychological aspect of entrepreneurship where an entrepreneur will start his/her business regardless of the cost. Thirdly, the cost itself may not be high enough to deter entrepreneurship i.e. a threshold value exists but there are not enough data points to demonstrate the existence of a threshold.

Finally, as per the theory from Djankov et al. (2002), other “unofficial” methods exist to circumvent the official cost of starting a business. These methods would not have been considered as part of the Doing Business data due to its potentially dubious nature.

### 6.1.2 EASE OF DOING BUSINESS - TAXES

The ease of doing business incorporates a variety of factors, including the concept of taxes. This involves not only the tax rate but also the number of tax payments
required and the procedures required to comply with tax regulation. Thus, the total cost of taxes, including its administrative burden, is taken into account.

The hypotheses related to taxes are as follows:

$H_4$: Reducing the administrative burden required to comply with tax requirements will increase the entrepreneurial rate

$H_5$: Increased tax rates results in a decreased rate of entrepreneurship

$H_4$ was tested using two variables – the number of tax payments as well as the time to prepare and pay taxes. Both variables have proven to be significant at a 5% level. However, as the number of tax payments increase, the TEA rate decreases and, as the time taken to prepare and pay taxes increases, the TEA rate increases. Thus, we reject $H_4$ due to inconclusive results.

Gurley-Calvez & Bruce (2008) and Patzelt & Shepherd (2009) have positioned that entrepreneurs will be deterred by any non-productive activities that tie up resources. Their proposition is that an increased administrative burden in complying with tax legislation will result in decreased entrepreneurial activity. The results of this study do not, however, give conclusive support to these propositions.

The results of this research suggest that entrepreneurs are deterred by the number of tax payments but will continue their entrepreneurial journey when the time taken to prepare and pay taxes increases. The latter result may be due to the fact that
tax-related work is outsourced or that due time and consideration is not given to completing the requirements resulting in miscalculation or tax evasion. Another reason for this result may be that the time taken to prepare and pay taxes may give the entrepreneur some flex in allowing cash outflows at a later, more convenient time. Entrepreneurs are potentially deterred by the number of tax payments as this could increase the permanent resources required and decrease cash flow at more regular intervals.

The results also show that the total tax rate (H₅) is significantly correlated to the TEA rate. However, it appears that correlation is not causation in this case as the regression results have shown that this variable does not have a significant effect on the TEA rate. There is a negative effect on the TEA rate i.e. as the tax rate increases, the TEA rate decreases but the tax rate itself is not significant at a 5% level. As a result, we reject H₅.

This may hinge on the fact that this study did not take into account any tax rate differentiation between wage-earners and entrepreneurs. As Gurley-Calvez & Bruce (2008) have demonstrated, changing the tax rate for each of these groups has the opposite effect for entrepreneurs, i.e. if the wage-earner tax rate is reduced, the TEA rate should decrease and if the entrepreneurial tax rate is decreased, the TEA rate should increase.
However, Fossen & Steiner (2009) contradict this by showing that entrepreneurs have the opportunity to misrepresent their taxable earnings as they have the benefit of self-declaration. As a result, using the average data points may not give adequate insight into the impact of the tax rate on the TEA rate.

Another factor that has not been considered in the data is a progressive tax rate. Fossen & Steiner (2009) discuss investigations showing that more dramatic progression in tax rates causes decreased entrepreneurial incentives. This study has used an average tax rate which is automatically skewed by the size of the entrepreneurial venture.

Thus, given the results above, we reject \( H_4 \) and \( H_5 \). The tax rate is not significant to the regression model but the cost to comply with tax legislation (in terms of both time and money) is significant but does not concur with the hypothesis proposed.

### 6.1.3 Ease of Doing Business – Trading across Borders

The hypothesis related to the concept of trading across borders is as follows:

\( H_6 \): Higher liberalization of trade for small business will increase the entrepreneurial rate

As discussed in Chapter 4, the dataset was not adequate to test the hypothesis. As a result, this research can neither accept nor reject \( H_6 \).
6.1.4 EASE OF DOING BUSINESS – CONTRACT ENFORCEMENT

The concept of contract enforcement within the context of easing the burden of ongoing business has been researched as follows:

H7: Reducing the burden of contract enforcement will increase the entrepreneurial rate

This hypothesis is measured using three variables, on the premise that an increase in either of these will result in a decreased entrepreneurial rate:

1. The number of procedures to enforce a contract
2. The time required to enforce a contract
3. The cost to enforce a contract

Given the results outlined in Chapter 5, none of these variables are significant predictors of the TEA rate. Thus, we reject H7.

This contradicts the work of Nunn (2007) and Shahzad & David (2010), who both show that the issue of contract enforcement is quite important, particularly in the decision of strategic spending. Nunn (2007) further shows that contract enforcement influences trading patterns more than physical capital and skilled labour combined. This becomes particularly marked when the production of more complex goods is involved. Shahzad & David (2010) do, however, concede that investment is likely even when contract enforcement is challenging. Under-investment is the more likely outcome under these circumstances.
Ardagna & Lusardi (2010) also agree that contract enforcement is of concern to entrepreneurs, but has little effect when looking at necessity entrepreneurs as they do not have any better options. Quintin (2008) concurs with this view, arguing that improved contract enforcement will encourage entrepreneurs to give up tax benefits in the informal sector to join the formal sector. The true incentive of this will be the safeguarding of business assets but Quintin (2008) shows that the trade-off has to provide economic benefit if contract enforcement is to be relevant to the entrepreneur.

Tao & Zhu (2001) provide alternatives to formal contract enforcement, including bribery, guanxi (the use of relationships), reputational effects and violence. Anderson (2009) positions that contract enforcement will only be subject to this so-called self-enforcement for a limited time – as the market grows, informal enforcement becomes impractical and difficult to manipulate.

Tao & Zhu (2001) supports this opinion by painting bribery as “only an imperfect and costly substitute for formal contract enforcement”. They extrapolate this further to agree that contract enforcement must be improved in the long run to foster the growth of the private sector, even though there is room for flex in transition economies where state enterprises play a dominant role in the private sector.

Another reason for this result could be the limited requirement for contract enforcement regulation and procedures when entrepreneurs are in the nascent and
new business ownership phases of the business. Entrepreneurs may choose to not enter into contracts during this time in order to better manage the start-up P&L (profit and loss statement) by limiting fixed costs. Also, entrepreneurs may prefer the uncertainty in order to protect themselves in an uncertain business environment.

Thus, despite the varying perspectives on the role of contract enforcement in encouraging entrepreneurship, the results of this research and several other investigations show minimal impact of contract enforcement on the TEA rate in the short-run. The discussion also shows various alternatives to formal contract enforcement, thus minimizing its impact on the TEA rate.

6.2 BRICS SAMPLE

The BRICS data shows markedly less interaction between the independent variables, most of which mirrors interaction observed in the total dataset. These include interaction between the following variables:

- Number of procedures to start a business \((x_1)\) and Time to prepare and pay taxes \((x_4)\), Total tax rate \((x_5)\), Procedures required to enforce a contract \((x_7)\)
- Number of days to start a business \((x_2)\) and Time to prepare and pay taxes \((x_4)\)
- Cost to start a business \((x_3)\) and Cost to enforce a contract \((x_7)\), Time required to enforce a contract \((x_7)\)
The proposition for this interaction remains as discussed in Section 6.1. The only additional interaction observed is the total tax rate ($x_5$) with the procedures required to enforce a contract ($x_7$).

### 6.2.1 Starting a Business

The three elements related to starting a business includes the number of procedures involved in starting a business, the amount of time required to start a business and the total cost as a percentage of GNI to start a business. The hypotheses include:

- **H$_1$**: Reducing the number of procedures required to start a business will increase the entrepreneurial rate
- **H$_2$**: Reducing the number of days required to start a business will increase the entrepreneurial rate
- **H$_3$**: Reducing the cost to start a business will increase the entrepreneurial rate

Using the BRICS data, distinct differences can be observed. Firstly, there is no significant correlation between variables $x_1$ (the number of procedures to start a business) and $x_2$ (the number of days to start a business). This removes the need to create an interaction variable. Secondly, in addition to the correlation between the TEA rate and variable $x_1$, correlation is observed between the TEA rate and variable $x_2$. Finally, the number of days to start a business has not proven to be a significant predictor of the TEA rate.
The results outlined in Model 2 show that only variable $x_1$ (the number of procedures to start a business) proves to be significant. The variable has a negative effect on the TEA rate, indicating that the TEA rate will decrease as the number of procedures to start a business increases. As a result, we accept $H_1$. 

Although the number of days to start a business is inversely related to the TEA rate, it has not proven to be significant in this case. Thus, $H_2$ is rejected. Variable $x_3$ (the cost to start a business) is also shown to have a negative effect on the TEA rate but is not significant at a 5% level. It also shows little predictive ability and has been omitted from the final regression model. Given these results, $H_3$ is rejected.

The number of procedures to start a business has proven to be significant whilst the number of days has not shown the same result. A potential reason for this is that the performance of procedures deters entrepreneurs as it requires physical presence and personal effort in order to complete these procedures. The time taken to start a business may not be as significant due to the fact that the process will continue and does not require participation from the entrepreneur for the full duration of the process.

As per results observed in the total sample, the cost to start a business is not significant. Again, the reason for this may be that be funding is available, psychological elements exists, cost thresholds or that other methods are available
to circumvent the official costs. For a more detailed explanation, refer to Section 6.1.1.

6.2.2 EASE OF DOING BUSINESS - TAXES

The hypotheses related to taxes are as follows:

H₄: Reducing the cost to comply with tax legislation will increase the entrepreneurial rate

H₅: Increased tax rates results in a decreased rate of entrepreneurship

H₄ is measured using two variables: the number of tax payments and the time to prepare and pay taxes. The results show that an increase in the number of payments will result in a reduced TEA rate. Conversely, it shows than an increase in the time to prepare and pay taxes will result in an increase in the TEA rate. This relationship has not been shown to be significant at a 5% level. H₄ is thus rejected.

The time to prepare and pay taxes may not be significant because the work may be outsourced, thus not impacting the entrepreneur him/herself. Another reason could be that extending the time taken to prepare and pay taxes has a positive effect on the business cashflow, thus improving the survival prospects of the business. The number of tax payments may have the opposite effect, increasing the resources required and decreasing cash flow at more regular intervals.
Contradicting the results shown by using the total dataset, the total tax rate \( (x_5) \) has been shown to be significant at a 0.1% level with a positive effect on the TEA rate i.e. as the tax rate increases, the TEA rate increases. This agrees with Fossen & Steiner (2009), who interpret the entrepreneurial ability to self-declare taxes as a reason to enter the entrepreneurial arena when tax rates increase. These results lead us to reject \( H_5 \).

6.2.3 EASE OF DOING BUSINESS – TRADING ACROSS BORDERS

The hypothesis related to the concept of trading across borders is as follows:

\( H_6 \): Higher liberalization of trade for small business will increase the entrepreneurial rate

As discussed in Chapter 4, the dataset was not adequate to test the hypothesis. As a result, this research can neither accept nor reject \( H_6 \).

6.2.4 EASE OF DOING BUSINESS – CONTRACT ENFORCEMENT

The concept of contract enforcement within the context of easing the burden of ongoing business has been researched as follows:

\( H_7 \): Reducing the burden of contract enforcement will increase the entrepreneurial rate
This hypothesis is measured using three variables, on the premise that an increase in either of these will result in a decreased entrepreneurial rate:

1. The number of procedures to enforce a contract
2. The time required to enforce a contract
3. The cost to enforce a contract

The results show that as the number of procedures to enforce a contract increases, the TEA rate decreases and that as the time required to enforce a contract increases, the TEA rate increases. In addition, as the cost to enforce a contract increases, the TEA rate decreases. This relationship is not significant. Given the ambiguous results of the various components, $H_7$ is rejected.

The BRICS countries are theoretically at a more advanced stage of development with more experienced entrepreneurs, given its level of growth and trading potential. As a result, entrepreneurs may have a more in-depth knowledge of the challenges posed by contract enforcement and its impact on the business performance.

As Anderson (2009) has also shown, informal enforcement can be viable for a limited period of time. Within the context of BRICS, these countries cannot be seen to rely on informal enforcement and have improved their contract enforcement tools and processes.
The cost to enforce a contract has not been shown to be significant but does have an inverse effect on the TEA rate. This relationship makes logical sense as entrepreneurs do not want to direct resources away from profit-maximising activities.

6.3 SUMMARY

The results of this study have shown a distinct difference when evaluating different datasets, further reinforcing the need to expand the body of knowledge in emerging markets. Key differences in the final results between the two datasets are summarised in Table 4 below. For the most part, the results are similar except $H_2$ as highlighted within the table. The rationale behind the results do, however, appear to differ between the datasets.

<table>
<thead>
<tr>
<th>Table 4: Summary of Results</th>
<th>Total Dataset</th>
<th>BRICS Dataset</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Reducing the number of procedures required to start a business will increase the entrepreneurial rate</td>
<td>Accept</td>
<td>Accept</td>
</tr>
<tr>
<td>H2: Reducing the number of days required to start a business will increase the entrepreneurial rate</td>
<td>Accept</td>
<td>Reject</td>
</tr>
<tr>
<td>H3: Reducing the cost to start a business will increase the entrepreneurial rate</td>
<td>Reject</td>
<td>Reject</td>
</tr>
<tr>
<td>H4: Reducing the cost to comply with tax legislation will increase the entrepreneurial rate</td>
<td>Reject</td>
<td>Reject</td>
</tr>
<tr>
<td>H5: Increased small business tax rates results in a decreased rate of entrepreneurship</td>
<td>Reject</td>
<td>Reject</td>
</tr>
<tr>
<td>H6: Higher liberalization of trade for small business will increase the entrepreneurial rate</td>
<td>Inconclusive</td>
<td>Inconclusive</td>
</tr>
<tr>
<td>H7: Stricter legislation to enforce contracts will increase the entrepreneurial rate</td>
<td>Reject</td>
<td>Reject</td>
</tr>
</tbody>
</table>
Table 5: Comparison of Regression Models

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Total Dataset (coefficients)</th>
<th>BRICS Dataset (coefficients)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(coefficients)</td>
<td>(coefficients)</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.234300</td>
<td>-0.013400</td>
</tr>
<tr>
<td></td>
<td>(0.06104)</td>
<td>(0.1429)</td>
</tr>
<tr>
<td>1 Cost to start a business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Total tax rate</td>
<td>-0.000644</td>
<td>0.007893***</td>
</tr>
<tr>
<td></td>
<td>(0.0007007)</td>
<td>(0.001223)</td>
</tr>
<tr>
<td>3 Procedures required to enforce a contract</td>
<td></td>
<td>-0.006866**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.002257)</td>
</tr>
<tr>
<td>4 Time required to enforce a contract</td>
<td></td>
<td>0.00022659*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.00008691)</td>
</tr>
<tr>
<td>5 Time per procedure to enforce a contract</td>
<td>0.003658</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.004741)</td>
</tr>
<tr>
<td>6 Cost to enforce a contract</td>
<td>-0.000484</td>
<td>-0.000189</td>
</tr>
<tr>
<td></td>
<td>(0.00329)</td>
<td>(0.0029)</td>
</tr>
<tr>
<td>7 Number of procedures to start a business</td>
<td>-0.006946*</td>
<td>(0.002995)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Number of days to start a business</td>
<td></td>
<td>-0.000362</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0002786)</td>
</tr>
<tr>
<td>9 Time per procedure to start a business</td>
<td>-0.06302***</td>
<td>(0.01326)</td>
</tr>
<tr>
<td>10 Tax payments (number)</td>
<td>-0.001077*</td>
<td>-0.0061677****</td>
</tr>
<tr>
<td></td>
<td>(0.0005189)</td>
<td>(0.0008339)</td>
</tr>
<tr>
<td>11 Time to prepare and pay taxes</td>
<td>0.00016898***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00003478)</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>60.00%</td>
<td>97.60%</td>
</tr>
<tr>
<td>R² adjusted</td>
<td>49.50%</td>
<td>96.20%</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

*  
**  
***  

Interaction Variable
Table 5 displays a comparison of the regression models produced. The total tax rate shows contradicting effects between the two models, with the tax rate being significant to the BRICS dataset and more influential on the TEA rate (as indicated by the coefficient). The reason for this may be that the BRICS countries have more advanced tax monitoring and collection processes, thus making it a more important factor when deciding to become an entrepreneur.

The fact that tax rate increases results in an increase in the TEA rate shows that entrepreneurs in BRICS countries are encouraged by the concept of self-declaration and will manage financial reporting to maximize after-tax income. It also implies a higher level of opportunity entrepreneurs as these individuals appear to have the choice between formal employment and entrepreneurial endeavours.

The time per procedure to start a business proves to be most influential on the TEA rate within the total dataset. This may be because of the less experienced entrepreneurial base. The BRICS dataset, however, shows limited difference between the coefficients of the significant variables, indicating that a change in each variable has a similar effect on the TEA rate.
CHAPTER 7 - CONCLUSION

7.1 IMPLICATIONS FOR PUBLIC POLICY

The results of this research help to identify policies that are significant for emerging markets to focus their resources on. Within the context of starting a business, both datasets have shown that the cost of starting a business has not been significant in predicting the TEA rate.

However, for the BRICS countries, the number of procedures to start a business has been proven to be significant and both the number of procedures and time to start to a business has been proven to be significant using the total dataset. The implications of these conclusions for government are extremely pertinent as it will allow them to direct their limited resources more appropriately.

Troilo (2011) maintains that reducing the regulatory burden should be a top priority in the endeavor for economic growth. Actions that can be taken to decrease the number of procedures and the time to start a business include (World Bank Group, 2010, p. 20):

- Transparent and easily accessible regulatory processes and requirements
- Registration simplification through the use online application forms and payments – this may include a workflow tool to guide the entrepreneur through the registration processes. Online help and field limitations may also be available to assist entrepreneurs in completing the forms correctly.
• Introduction of a “one-stop shop” – this requires the consolidation of procedures into a single access point. It does not have to imply the creation of new institutions but, rather, the merging/delegation of procedures to one agency. An example of this is the merging of the tax registration function with the company registration function. Other examples include unified tax, VAT and social security registrations as well as a single form for registering with the employment bureau, health fund, pension fund and tax administration.

• The creation of public service centres – these assist not only with business start-up, but also with other services like investment, privatisation procedures and state-owned property management. This concept of “company in a day” could be a good opportunity for public private partnerships as companies could also provide advice on business plans and funding.

The tax rate has been shown to be significant to the BRICS countries. Further research, however, is required to understand the exact effect of the tax rate when considering the rate applicable to entrepreneurs versus employed individuals. This understanding is key to implementing the correct tax rate for each group of individuals to encourage entrepreneurship, whilst ensuring maximum tax collections.

The administrative burden of taxes has also been shown to be quite significant when testing the BRICS countries and the total dataset. In the case of the BRICS countries, the number of tax payments is key to the TEA rate whilst in the total
dataset, both the number of payments and the time to prepare and pay taxes is found to be significant.

Various activities have been performed in several markets in order to reduce the administrative burden of taxes. As Gurley-Calvez & Bruce (2008) shows, the significance of the tax code to entrepreneurs increases the excess burden of the tax system. This should be considered by emerging markets in an effort to improve the TEA rate (World Bank Group, 2010, p. 59):

- Replacing many different taxes with one e.g. Sierra Leone replaced 4 different sales taxes with a Value Added Tax
- Eliminating, merging and/or reducing the frequency of filing and payments and simplifying the tax compliance process.
- Reducing the total number of payments and the filing of a single corporate tax return
- Electronic filing – simple processes and high quality security systems are needed. A lesson was learnt in Uganda where the effort increased because online forms were too complex.
- Improved transparency and explanation of the various taxes and government assistance to the entrepreneur
- Tax policy should consider tax rates in their entirety and then consider reducing the total tax rate in tiers. This should encourage business profitability and, thus, longevity.
- Lowered profit taxes or total abolishment of taxes accompanied by wider tax bases (for entrepreneurs only)
- One tax per tax base to encourage compliance and improve collections
- Eliminating the need to interact with various levels of government for tax administration and payment
- Voluntary compliance and self-assessment – administrative costs and the burden of compliance are lower. This also reduces the discretionary power of tax officials and opportunities for corruption. Key learnings show that this would have to be introduced properly and implemented with transparent rules, penalties for noncompliance and established audit processes.

In order to facilitate on-going business, contract enforcement was considered a key factor in entrepreneurial decision-making. Within the total dataset, the research has shown all the elements of contract enforcement to be insignificant in predicting the TEA rate. However, within the BRICS countries, the time and number of procedures to enforce a contract are significant whilst the cost is not.

The BRICS countries (and other countries with similar profiles) could consider the following ways to improve these elements of contract enforcement (World Bank Group, 2010, p. 72):
- Introduced/Expanded specialised commercial court or specialised commercial section within existing courts or specialised judges within a general civil court
- Increasing the number of judges
- Made enforcement of judgement more efficient (sometime private agents have been used). This included the use performance management to improve judicial efficiency. Measures can also be put in place to tie court performance to budget allocation and include quality benchmarks.
- Reduced backlog by introducing periodic reviews to clear inactive cases and active case management
- Introduced/Expanded computerised case management system that tracks deadlines and uses automated notifications (workflow management) – this also increases transparency and decreases corruption. Fines can be implemented for timelines that are not met.
- Electronic document management system
- 24 hour electronic filing
- Emphasis on alternate dispute resolution
- Implement a small claims court which offers simplified procedures that take less time and parties are allowed to represent themselves. Filing fees are also lower and judges issue decisions more quickly.

In terms of understanding where to direct resources, governments can draw two main concepts from this research: the first is to classify itself as a market in terms of its current performance and growth potential and the second is to use this classification to better understand the key influencers that will improve the entrepreneurial rate. In doing this, particular policies can be targeted based on the
magnitude of the influence as well as the amount of resources required to make high impact changes.

7.2 SUGGESTION FOR FUTURE RESEARCH

The results of this research have raised several exciting opportunities for future investigation. As has been highlighted, there is merit in doing the same research but using various subsets of entrepreneurs e.g. opportunity versus necessity entrepreneurs. Similarly, a distinction can be made between males and females as these groups are sometimes subjected to different policies within the same market. Research of this nature will assist in identifying actions that can be taken to directly influence specific groups of entrepreneurs, as dictated by the strategic plan of that market.

Where possible, an extended dataset with additional markets and longer timeframes should be used. Future research should conduct thorough tests comparing emerging and developed markets, but using the same public policies outlined in this research.

Furthermore, distinct ambiguity exists in the explanation of the impact of the tax rate. It would be beneficial to differentiate the total tax rate for employees versus entrepreneurs. In addition, the relationship between other tax elements (the time to prepare and pay taxes; number of tax payments) and elements related to starting a business (number of procedures, time and cost to start a business) should be
explored further. Some correlation has been observed between the policies and further practical exploration would be beneficial to the body of knowledge related to entrepreneurship in emerging markets.

The concept of trading across the borders has come across as quite important in the literature but was not included in the statistical tests as the data was inadequate. Future research should consider incorporating this policy but perhaps using a different data source. Finally, depending on the availability of data, there is an opportunity to take advantage of the recession and investigate the impact of various policies during various stages of economic growth.
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doi:10.5465/AMBPP.2007.26523103


doi:10.1162/003355302753399436


growth in emerging countries: A panel data estimation using a new index


http://www.gemconsortium.org/about.aspx?page=ab_what_gem_is


## Appendix A – Summary of Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Minimum</th>
<th>Q1</th>
<th>Median</th>
<th>Q3</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
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<td>X1 Number of procedures to start a business</td>
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<td>11.714</td>
<td>6</td>
<td>9</td>
<td>13</td>
<td>14</td>
<td>18</td>
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<td>X2 Number of days to start a business</td>
<td>63</td>
<td>50.37</td>
<td>22</td>
<td>27</td>
<td>31</td>
<td>48</td>
<td>152</td>
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<tr>
<td>X3 Cost to start a business</td>
<td>63</td>
<td>16.77</td>
<td>2.7</td>
<td>6.9</td>
<td>9.7</td>
<td>13.1</td>
<td>78.4</td>
</tr>
<tr>
<td>X4 Time to prepare and pay taxes</td>
<td>49</td>
<td>703</td>
<td>200</td>
<td>316</td>
<td>398</td>
<td>479</td>
<td>2600</td>
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<tr>
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<td>49</td>
<td>19.65</td>
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<td>9</td>
<td>10</td>
<td>19</td>
<td>62</td>
</tr>
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<td>X5 Total tax rate (% of Profit)</td>
<td>49</td>
<td>60.87</td>
<td>25</td>
<td>37.35</td>
<td>63.8</td>
<td>72.15</td>
<td>108.2</td>
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<td>X7 Cost to enforce a contract</td>
<td>49</td>
<td>22.7</td>
<td>11.1</td>
<td>13.4</td>
<td>16.5</td>
<td>33.2</td>
<td>39.6</td>
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<td>X7 Procedures required to enforce a contract</td>
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<td>37.825</td>
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<td>45</td>
<td>46</td>
</tr>
<tr>
<td>X7 Time required to enforce a contract</td>
<td>63</td>
<td>628.5</td>
<td>281</td>
<td>406</td>
<td>590</td>
<td>616</td>
<td>1440</td>
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</table>
## Appendix B – Correlation of Each Dependent Variable to the Independent Variable

<table>
<thead>
<tr>
<th>Correlation to Y</th>
<th>Correlation Coefficient</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1 Number of procedures to start a business</td>
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<td>0.005</td>
</tr>
<tr>
<td>X2 Number of days to start a business</td>
<td>0.248</td>
<td>0.122</td>
</tr>
<tr>
<td>X3 Cost to start a business</td>
<td>0.010</td>
<td>0.953</td>
</tr>
<tr>
<td>X4 Time to prepare and pay taxes</td>
<td>0.282</td>
<td>0.131</td>
</tr>
<tr>
<td>X4 Tax payments (number)</td>
<td>-0.028</td>
<td>0.884</td>
</tr>
<tr>
<td>X5 Total tax rate (% of Profit)</td>
<td>0.380</td>
<td>0.038</td>
</tr>
<tr>
<td>X7 Cost to enforce a contract</td>
<td>-0.304</td>
<td>0.103</td>
</tr>
<tr>
<td>X7 Procedures required to enforce a contract</td>
<td>0.246</td>
<td>0.126</td>
</tr>
<tr>
<td>X7 Time required to enforce a contract</td>
<td>0.113</td>
<td>0.487</td>
</tr>
</tbody>
</table>
## APPENDIX C – CORRELATION MATRIX ON ALL COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>TEA Rate</th>
<th>X1 Number of procedures to start a business</th>
<th>X2 Number of days to start a business</th>
<th>X3 Cost to start a business</th>
<th>X4 Time to prepare and pay taxes</th>
<th>X4 Tax payments (number)</th>
<th>X5 Total tax rate (% of Profit)</th>
<th>X7 Cost to enforce a contract</th>
<th>X7 Procedures required to enforce a contract</th>
<th>X7 Time required to enforce a contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEA Rate</td>
<td>0.432</td>
<td>0.005</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>X1 Number of procedures to start a business</td>
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<td>0.770</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>X2 Number of days to start a business</td>
<td>0.122</td>
<td>0.000</td>
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<td></td>
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</tr>
<tr>
<td>X3 Cost to start a business</td>
<td>0.010</td>
<td>0.981 -0.051</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X4 Time to prepare and pay taxes</td>
<td>0.282</td>
<td>0.791 -0.178</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X4 Tax payments (number)</td>
<td>-0.028</td>
<td>0.134 -0.209 -0.781 -0.214</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X5 Total tax rate (% of Profit)</td>
<td>0.380</td>
<td>0.654 0.144 0.171 0.203 0.399</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>X7 Cost to enforce a contract</td>
<td>-0.304</td>
<td>-0.440 -0.285 -0.607 -0.394 0.287 -0.457</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>X7 Procedures required to enforce a contract</td>
<td>0.246</td>
<td>0.678 0.693 0.531 0.610 0.338 0.266 0.025</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X7 Time required to enforce a contract</td>
<td>0.113</td>
<td>0.127 0.111 0.917 -0.048 0.681 0.197 0.690 0.540</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correlation Coefficient

P-Value
APPENDIX D – SCATTERPLOTS DISPLAYING INDEPENDENT VARIABLES ONLY FOR ALL COUNTRIES

Scatterplot of X1 Start-up procedures t vs X2 Time required to start a bus
Scatterplot of X2 Time required to start vs X5 Total tax rate (% of profit)

Scatterplot of X2 Time required to start vs X7 Cost to enforce a contract
Scatterplot of X2 Time required to start vs X7 Procedures required to enforce

Scatterplot of X2 Time required to start vs X7 Time required to enforce
Scatterplot of $X_4$ Time to prepare and pay taxes vs $X_4$ Tax payments (number)

Scatterplot of $X_4$ Time to prepare and pay taxes vs $X_5$ Total tax rate (% of profit)

Scatterplot of X4 Time to prepare and pay taxe vs X7 Cost to enforce a contract

Scatterplot of X4 Time to prepare and pay taxe vs X7 Procedures required to enforce a contract
Scatterplot of X4 Tax payments (number) vs X7 Cost to enforce a contract

Scatterplot of X4 Tax payments (number) vs X7 Procedures required to enforce
Scatterplot of X5 Total tax rate (% of profit) vs X7 Procedures required to enforce

Scatterplot of X5 Total tax rate (% of profit) vs X7 Time required to enforce
### APPENDIX E – CORRELATION MATRIX FOR BRICS COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>X1 Number of procedures to start a business</th>
<th>X2 Number of days to start a business</th>
<th>X3 Cost to start a business</th>
<th>X4 Time to prepare and pay taxes</th>
<th>X4 Tax payments (number)</th>
<th>X5 Total tax rate (% of Profit)</th>
<th>X7 Cost to enforce a contract</th>
<th>X7 Procedures required to enforce a contract</th>
<th>X7 Time required to enforce a contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1 Number of procedures to start a business</td>
<td>0.589</td>
<td>0.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.126</td>
<td>0.063</td>
<td>-0.324</td>
</tr>
<tr>
<td>X2 Number of days to start a business</td>
<td>0.458</td>
<td>0.833</td>
<td>0.016</td>
<td>0.000</td>
<td></td>
<td>0.637</td>
<td>0.509</td>
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<td></td>
</tr>
<tr>
<td>X3 Cost to start a business</td>
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<td>0.047</td>
<td>-0.133</td>
<td>0.637</td>
<td>0.509</td>
<td>0.034</td>
<td>0.000</td>
<td>0.000</td>
<td>0.266</td>
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<tr>
<td>X4 Time to prepare and pay taxes</td>
<td>0.477</td>
<td>0.851</td>
<td>0.979</td>
<td>-0.261</td>
<td>0.034</td>
<td>0.000</td>
<td>0.266</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X4 Tax payments (number)</td>
<td>0.126</td>
<td>0.063</td>
<td>-0.324</td>
<td>0.637</td>
<td>0.509</td>
<td>0.034</td>
<td>0.000</td>
<td>0.000</td>
<td>0.266</td>
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<tr>
<td>X5 Total tax rate (% of Profit)</td>
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<td>0.770</td>
<td>0.386</td>
<td>0.353</td>
<td>0.450</td>
<td>0.534</td>
<td>0.000</td>
<td>0.127</td>
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<td>0.726</td>
<td>0.681</td>
<td>0.513</td>
<td>0.582</td>
<td>0.377</td>
<td>0.632</td>
<td>0.039</td>
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<tr>
<td>X7 Procedures required to enforce a contract</td>
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<td>0.726</td>
<td>0.681</td>
<td>0.513</td>
<td>0.582</td>
<td>0.377</td>
<td>0.632</td>
<td>0.039</td>
<td>0.067</td>
</tr>
<tr>
<td>X7 Time required to enforce a contract</td>
<td>0.387</td>
<td>0.726</td>
<td>0.681</td>
<td>0.513</td>
<td>0.582</td>
<td>0.377</td>
<td>0.632</td>
<td>0.039</td>
<td>0.067</td>
</tr>
</tbody>
</table>
APPENDIX F – SCATTERPLOTS DISPLAYING INDEPENDENT VARIABLES ONLY FOR BRICS COUNTRIES

Scatterplot of X1 Start-up procedures t vs X2 Time required to start a bus
Scatterplot of X1 Start-up procedures t vs X7 Cost to enforce a contract

Scatterplot of X1 Start-up procedures t vs X7 Procedures required to enforce
Scatterplot of X1 Start-up procedures t vs X7 Time required to enforce a c

Scatterplot of X2 Time required to start vs X3 Cost of business start-up pr
Scatterplot of X2 Time required to start vs X4 Time to prepare and pay taxes

Scatterplot of X2 Time required to start vs X4 Tax payments (number)
Scatterplot of X3 Cost of business start vs X7 Procedures required to enforce

Scatterplot of X3 Cost of business start vs X7 Time required to enforce
Scatterplot of X4 Time to prepare and pay taxe vs X4 Tax payments (number)

Scatterplot of X4 Time to prepare and pay taxe vs X5 Total tax rate (% of profit)
Scatterplot of X4 Time to prepare and pay taxes vs X7 Cost to enforce a contract

Scatterplot of X4 Time to prepare and pay taxes vs X7 Procedures required to enforce a contract
Scatterplot of X5 Total tax rate (% of profit) vs X7 Procedures required to enforce a contract

Scatterplot of X5 Total tax rate (% of profit) vs X7 Time required to enforce a contract
Scatterplot of X7 Cost to enforce a contract vs X7 Procedures required to enforce

Scatterplot of X7 Cost to enforce a contract vs X7 Time required to enforce

X7 Cost to enforce a contract ($)
X7 Procedures required to enforce
X7 Cost to enforce a contract ($)
X7 Time required to enforce

 Scatterplot of X7 Cost to enforce a contract vs X7 Procedures required to enforce

 Scatterplot of X7 Cost to enforce a contract vs X7 Time required to enforce

140 | Page
Scatterplot of X7 Procedures required t vs X7 Time required to enforce a c

Scatterplot of X1 Start-up procedures t vs X1 Start-up procedures t
Scatterplot of X7 Procedures required t vs X7 Procedures required t

Scatterplot of X7 Time required to enforce a c vs X7 Time required to enforce a c