A STUDY ON CORRUPTION AND ENTREPRENEURSHIP

By

KIM, Oksana

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

MASTER OF DEVELOPMENT POLICY

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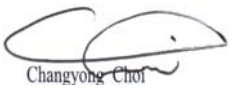
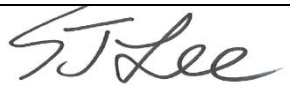
Professor Chang Yong CHOI, Supervisor 

Professor Seung Joo LEE 

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ABSTRACT

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By

Oksana Kim

Corruption is one of the important factors affecting country's economic growth and development. Mostly people tend to perceive corruption negatively as it is believed that corruption is detrimental for economic growth and development of the country as it discourages investments and deteriorates people's values and beliefs. This study investigates whether corruption should be perceived as negative phenomenon, or there are favorable sides of corruption that can positively contribute to country's development, particularly in developing countries. Given study uses 3 models linear regression OLS, fixed panel model and random panel model with two continuous variables from 2004 to 2009 to test if there is any positive correlation between level of corruption and entrepreneurial activities in the country, utilizing CPI index, GEM and WBGES data. The analysis of WBGES data revealed, in support of previous studies, that corruption negatively affects entrepreneurship, nevertheless, the correlation was weak. On the other hand, there was an evidence that corruption has positive correlation with entrepreneurship according to GEM dataset and country specific data analysis which doubts unflinching idea of negative sides of corruption.

KEYWORDS: (Corruption, Entrepreneurship, Corruption Perception Index (CPI), World Bank Group Entrepreneurship Survey (WBGES), Global Entrepreneurship Monitor (GEM), Developing Country)

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I. INTRODUCTION

"Corruption is worse than prostitution. The latter might endanger the morals of an individual, the former invariable endangers the morals of the entire country." Karl Kraus.

Corruption has always been considered as a negative factor of a country's development. With the exception of the profiteers, many organizations agree on negative effects of corruption. Corruption hinders economic development, discourages investments, makes the poor poorer, and deteriorates people's values and beliefs. Taking into consideration all these effects, people tend to develop a wholesale perception of corruption being bad. Yet, if corruption is really bad, why in some countries where the level of corruption is high, there is also high level of entrepreneurial activity (productive/unproductive). To give an example, Russia, Chile, Belarus, Sierra Leone's corruption level increases through the years according to Transparency International, however, the number of entrepreneurial activities according to WBEGS in the respective countries also grows year after year (see Appendix A).

1. Problem Statement

This study investigates whether or not corruption has any favorable effect on entrepreneurial activity. I argue that corruption is not always bad and in countries with poor institutions and high bureaucracy and inefficiency, corruption, within that country's cultural context, has favorable effects on entrepreneurship, at least in the short run. Short run in a given study would be defined within 3-6 years.

2. Definition of Entrepreneurship and Corruption

There are many definitions of entrepreneurship, however in a given study the following one would be the most appropriate: "Entrepreneurship is an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes, and raw materials through organizing efforts that previously had not existed" (Venkataraman, 1997; Shane and Venkataraman, 2000)

Same with entrepreneurship, there are many definitions of corruption, however "there is no single, universally accepted and comprehensive definition of corruption" (Anti-Corruption Internet Database). That is why in the given study, corruption will be looked at within a cultural context. The reason behind that is in different countries people define and perceive corruption differently. For example, if some practices such as nepotism are considered to be corrupted in one country, they can be acceptable and even be a way of doing things in others.

3. Background of the study

There are not many studies on effects of corruption on entrepreneurship, moreover, there are even less studies supporting favorable sides of corruption on entrepreneurship. Thus, due to the lack of supporting material on this particular issue, this study will also take into consideration studies on corruption and its effect on overall economic development. According to many studies there is a positive correlation between entrepreneurship and economic growth (Smith, 2010; Braunerhjelm, 2010; Kritikos, 2014; Wennekers and Thurik, 1999). Hence, the way corruption affects

entrepreneurship, the same way corruption should affect economic growth and vice versa.

Previous studies have been focused mainly on negative effects of corruption on entrepreneurship. Avnimelech G. (2011) argues that there is "clear evidence that corruption, after controlling to all variables that might be correlated both to corruption and to entrepreneurship, has a significant negative impact on entrepreneurship." Aidt, Toke S. (2009) found "a strong negative correlation between growth in genuine wealth per capita—a direct measure of sustainable development—and corruption." In their study, based on cross sectional data of the United States, Akai et al (2005) argued that the effect of corruption on economic growth should be estimated using a relatively long span of economic growth data for theoretical and practical reasons. They measured the level of economic growth and the effect of corruption on growth for various time spans: short (1998–2000), middle (1995–2000) and long (1991–2000). "We re-estimated the effects and confirmed the significantly negative effect, especially in the long and middle spans…" they stated, however, they couldn't confirm positive effects of corruption in a short run "whether corruption promotes growth given the government failures (in the short run) is still controversial".

Even though many studies treat corruption as having a negative effect on the economy, there are studies and cases that show no relationship or positive relationship between the two variables. Neeman at el. (2004) argued that "in open economies, corruption and GNP per capital are strongly negatively correlated, but in closed economies there is no relationship at all". Irene Ngunjiri (2010) wrote "Corruption affects entrepreneurship in a myriad of ways. By limiting access to government funds and permits, the government agents reduce participation in some kinds of

entrepreneurial activity to their own circle of friends and relatives, or to people who have access to this circle and can get a representative." Charles Wolf Jr. (2013) mentioned that "reformist China corruption actually facilitated innovation and entrepreneurship" Khan and Toufique (1995) mentioned that "corruption actually increased entrepreneurship since entrepreneurs have often sought out corrupt transactions as cost-reducing strategies." Though Campos and Dimova (2010) states that there is "limited support to the view that corruption greases wheels of growth", their study shows that 6 % of studies had positive and significant relationship between corruption and growth which gives room for an argument that corruption has positive effect on country's economic growth in a short run.

4. Research Purpose

"There is a need to humanize corruption and situate it within a cultural context that is far more easily absorbed and understood…" (Anti-Corruption Internet Database). Thus this study aims to give people a new, less detrimental perspective on corruption, because people always perceive corruption as something bad and negative, however this is not always the case. There is no doubt that corruption that exists in the country for a long time has negative impact on economic growth. However, people should be aware that corruption can be favorable and instrumental. For example, corruption may present immediate benefits on entrepreneurship and the country's economy if the money stays in the country. Hence, corruption should not always be blamed for the slow economic growth of a country. People should be aware that what one considers to be corruption might actually be a culture to another. Furthermore, one cannot say that this culture is bad and that culture is good. Corruption is not a disease but rather a symptom of the disease. Thus, if we get a deep insight into the corruption paradox

within a country, we can then properly assess whether the country's limited resources should be directed to reduce corruption or instead, efficiently utilized in other areas.

Given all the reasons above, this study goes beyond previous studies, to find if corruption has any positive correlation with entrepreneurship, and seeks to explain that it might be the case that in countries with poor institutions and high bureaucracy and inefficiency (mostly developing countries), corruption can aid in boosting entrepreneurial activities, in the short run. This issue will be addressed through thorough analysis of data from Transparency International (particularly Corruption Perception Index (CPI), World Bank Group Entrepreneurship Survey (WBGES) and Global Entrepreneurship Monitor (GEM) data to find out the relationship. The overall data comprises into the panel data and will be analyzed with the use of STATA through linear regression (OLS, fixed and random model).

It is important to mention that given study does not promote corruption of any kind, but seeks to find new perspective of looking at a given phenomenon.

II. ISSUE BACKGROUND

1. Entrepreneurship

There are many schools of thought that define entrepreneurship differently. Shane and Venkataraman (2000) point out that definition of entrepreneurship is the largest obstacle in creating conceptual framework for it. Stevenson (2006) mentioned two major school of thoughts that define entrepreneurship as economic functional approach and personal characteristics of entrepreneurs. However he argues that neither of these two approaches is sound enough and for each definitional type he could provide a number of counter examples.

Pirich (2001) said that entrepreneurship is clearly more than just an economic function and he went into discussion of entrepreneurship as a function of process, change and choice. Shane made the following definition of entrepreneurship "Entrepreneurship is an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes, and raw materials through organizing efforts that previously had not existed" (Venkataraman, 1997; Shane and Venkataraman, 2000). Professor Howard Stevenson at Harvard Business School also defined entrepreneurship as the pursuit of opportunity beyond resources controlled.

Entrepreneurship is one of the important drivers of country's economic development and growth. Many studies have emphasized its significance. Daniel Smith (2010) provided evidence that entrepreneurship has significant impact on economic development independent of the other factors. Sameeksha Desai (2009) mentioned

“entrepreneurship, at the very least, is associated with job creation, wealth creation, innovation and its related welfare effects and that across developed and developing countries, entrepreneurship has become a critical part of economic development strategies”. Wennekers and Thurik (1999) said “Entrepreneurship matters and in modern open economies it is more important for economic growth than it has ever been”

1.1. Types of entrepreneurship

Baumol has defined two types of entrepreneurship productive and unproductive. Productive entrepreneurship is “… any activity that contributes directly or indirectly to net output of the economy or to the capacity to produce additional output” (Baumol 1993, 30), unproductive entrepreneurship is an activity that makes no productive contribution to the output of the country or even plays a destructive role (Baumol, 1990, 893-919).

Also, Desai (2009) in her research paper on measuring entrepreneurship in developing countries emphasized 3 dichotomies of entrepreneurship which are

- formal/informal,
- legal/illegal,
- necessity/opportunity.

Formal and informal entrepreneurship is explained by registration status. Legal and illegal entrepreneurship might be confused with formal and informal. However, legal entrepreneurship is defined by activities that are permitted by law. Finally, necessity and opportunity entrepreneurship refers to motivation for activity.

1.2. Aspects influencing entrepreneurship

There are many factors influencing entrepreneurship such as culture, availability of resources, rules and regulations, access to education and many others.

Fogel et al. (2005) in their study emphasized economic environment which influence entrepreneurship and its factors which determine the abundance of entrepreneurs. They include:

- Rules, regulations and their property rights
- The quality of government
- Availability of education
- Culture

2. Corruption

There is no universal definition of corruption. Svennson (2005) defined public corruption as "the misuse of public office for private gain". Tanzi defined corruption as "the intentional non-compliance with the arm's-length principle aimed at deriving some advantage for oneself or for related individuals from this behavior"

Corruption can be seen from different perspective such as institutional, individual, cultural and historical. However, given study concentrates on corruption from a cultural perspective and there are number of reasons for that. Vitel et al. (1993) mentioned that culture can influence individual's perception of ethical situations which means culture can also influence corruption. We will not take institutional perspective in a given study as we emphasized before this study concentrates on developing countries with poor institutional base and infrastructure. Davis and Ruhe (2003) in their study emphasized that culture can explain corruption and moreover can be one of the important factors in doing so.

2.1. Types of corruption

Because "there is no single, universally accepted and comprehensive definition of corruption" (Anti-Corruption Internet Database), there is no valid typology of corruption (Vargas-Hernández, 2009). Boris Begovic (2005) emphasized three basic types of corruption independent of theoretical views. They are as follows:

- corruption for achieving or speeding-up materialization of some specific right that the citizen or legal entity is entitled to – corruption without theft, as suggested by Shleifer and Vishney (1993).
- corruption that violates the legal rules, or a very biased enforcement of the rules. This is administrative corruption and is the most modeled type of corruption – the vast majority of theoretical contributions in the field are about administrative corruption.
- "state capture" – corruption that is aimed at changing the rules and regulations into rules and regulations that favor the interests of the corruptor

Vargas-Hernández (2009) in his paper emphasized basic categorization which considers

- political corruption–gaining and abusing political power,
- economic corruption - sacrifice of the principal's interest for the agent's interest
- public administration corruption - transfer of public benefits to private benefits

According to him, corruption can be grand or petty, individual and systematic and etc. Some examples of forms of corruption mentioned and explained in his paper

are bribery, collusion, embezzlement of public funds and theft, fraud, extortion, abuse of discretion, favoritism, clienteles, nepotism, the sale of government property by public officials, patronage, etc.

2.2. Corruption within a Cultural Context

There is a sensitive line between corruption and culture, and it is sometimes hard to separate them. Different countries perceive corruption differently as what perceived as corrupt in one country can be a culture in another. Culture is basically a way of doing things. If gift giving considered to be bribery in western countries, in Asian countries it is part of a culture. That is why there is no clear and universal definition of corruption.

John Hooker (2008) in his study on Corruption from a Cross-Cultural Perspective stated"…each cultural world view brings a deep reservoir of ideas and resources for dealing with a rapidly changing world, whether it be the technology and efficient organization of the West, the theological and ethical perspective of the Middle East, the stability of Confucian relationships, the communal values of traditional African cultures, or the connectedness of all living things in Indian pantheism… Rather than fight corruption by trying to standardize behavior worldwide, it seems best to allow each cultural system to evolve organically in its own direction and work out its own problems, with enough interaction to exchange goods and ideas, but not so much as to create interference and dysfunction. Cultural diversity, no less than ecological diversity, is good for the planet."

If particular culture treats nepotism and gift giving as must, one cannot say that this culture is unethical or less ethical than another, because every culture has its unique

features. Some cultures emphasize rules, others emphasize relationship. In a culture with emphasize on relationship nepotism and gift giving would be a cultural norm and will not be treated negatively. Jones R.G. (2012) stated "although, nepotism is often judged negatively in America, it is a cultural norm in other countries". David James (2011) argued that "gift giving is important in Asian countries, because of the significance of interpersonal relationships in their cultures".

Hence, in order to find out the effects of corruption on economic development or entrepreneurship, we should define corruption within a context of culture.

2.3. Corruption and Economic Development

There are not many studies on effects of corruption on entrepreneurship, moreover, there are even less studies supporting favorable sides of corruption on entrepreneurship. Thus, due to the lack of supporting material on this specific issue, this study will also take into consideration studies on corruption and its effect on overall economic development. According to many studies there is a positive correlation between entrepreneurship and economic growth (Smith, 2010; Braunerhjelm, 2010; Kritikos, 2014; Wennekers and Thurik, 1999). Hence, the way corruption affects entrepreneurship, the same way corruption should affect economic growth and vice versa.

2.3.1. Negative Sides of Corruption

The negative effects of corruption in various aspects of life have always been a center of debate. It could be said that this is more traditional way as many studies support a perspective of corruption negative influence (Rose-Ackerman 1999; Fogel et

al. 2005; Baumol 1990; Myrdal 1968). Previous studies on corruption have been focused mainly on negative effects of corruption on economic development.

Avnimelechet al. (2011) argues that there is "clear evidence that corruption, after controlling to all variables that might be correlated both to corruption and to entrepreneurship, has a significant negative impact on entrepreneurship." In their study they employed unique dataset which was based on SNS (Social network service) LinkedIn and corruption perception index from TI (Transparency International). They referred to this data as more accurate comparing to survey and gave detailed explanation and support why LinkedIn is a comprehensive source on entrepreneurs.

Even though this study used several controlling variables to reduce potential bias such as internet usage level, however, it misses important point such as cultural aspect or rather user preference aspect. For example, LinkedIn[1] penetration rate in post-Soviet Bloc countries is not high and number of users for central Asian countries such as Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, and etc. are not mentioned at all. The reason for emphasizing this is if you look at Uzbekistan a country with increasing number of entrepreneurial activities based on the World Bank data, not many people in Uzbekistan use LinkedIn, mostly they tend to use Russian SNS. Thus LinkedIn in some form can be more accurate than survey however in post-Soviet Union countries specifically central Asian one survey might be more appropriate.

Aidt, Toke S. (2009) argues that corruption in a broader sense should be considered as an obstacle to development. The author provides micro and macro evidence to support his argument and tried to find out whether there is a link between corruption and growth in genuine wealth per capita. The result of his investigation is "a

[1] http://www.slideshare.net/amover/linked-in-demographics-and-statistics-2011

strong negative correlation between growth in genuine wealth per capita—a direct measure of sustainable development—and corruption."

Méon and Sekkat (2005) in their study used econometric approach and examined whether growth and investment increase or decrease with corruption when the quality of governance is low. By the results of the model they used, they strongly reject the "grease the wheels" hypothesis and support 'sand the wheels" hypothesis.

2.3.2. Favorable Sides of Corruption

There are no doubts that corruption exists everywhere, prevailing in some countries more than in others. However, is corruption always bad both in long run and in a short run?

The "grease the wheels" hypothesis dates long time back and it has been and will be a center of debate. Méon and Sekkat (2005) said that "there are various aspects of ill functioning of the bureaucracy that can be compensated by corruption, A first one concerns slowness (which is basically reduces waiting time in lines)…another consequence is the quality of civil servants (due to insufficient wages that government officials usually have, corruption can attract civil servants who could go to another sector)… and finally Beck and Maher (1986) suggested that corruption may enhance the choice of the right decisions by officials."

Akai, N. et al. in their study Short-run and Long-run Effects of Corruption on Economic Growth: Evidence from State-Level. Cross-Section Data for the United States argue that this is not always the case.

In their study, based on cross sectional data of the United States, Akai et al. argued that the effect of corruption on economic growth should be estimated using a relatively long span of economic growth data for theoretical and practical reasons. They measured the level of economic growth and the effect of corruption on growth for various time spans: short (1998–2000), middle (1995–2000) and long (1991–2000). "We re-estimated the effects and confirmed the significantly negative effect, especially in the long and middle spans…" they stated, however, they couldn't confirm positive effects of corruption in the short run "whether corruption promotes growth given the government failures (in the short run) is still controversial".

GDP Growth Rate and Corruption Index were used as the dependent and independent variables, respectively. However, due to some errors in the Corruption Index variable, additional control variables were used such as real GDP per capita, investment, government expenditure, and metropolitan population.

There are some problems and limitations with Akai's study. First of all, it is limited to the particular case of US economic growth, and it doesn't show any evidence for countries with closed economies where corruption can probably have positive effects on economic growth in the short run. Secondly, a causal variable, Corruption Index that was used in the study cannot be considered valid and reliable, because corruption is a sensitive issue and respondents could be biased. Thirdly, it was stated in the paper that the omission of urbanization as a controlling variable could be the reason why existing studies showed mixed and unstable effects of corruption on growth. However, we cannot think that only due to the omission of the urbanization variable all the previous studies showed positive or no relationships between corruption and growth.

In summary, while Akai's study is interesting and attempted to provide effects of corruption, both in the long run and in the short run, it does focus (as the majority of studies do) on negative effects of corruption, only with an emphasize on a time span, mainly on the long run, and does not provide any room for the opposite view. Akari's study gave me ideas that I can elaborate on in my thesis.

There is a debate whether corruption greases or sands the wheels of growth. The majority of research studies shows that corruption hinders economic growth, including Campos and Dimova's study on Corruption Does Sand the Wheels of Growth. Campos and Dimova's study was basically a review of previous studies. They used meta-regression techniques to summarize data collected from previous studies and try to solve the puzzle by shedding light on whether there is a genuine relationship between corruption and growth. They put together a total of 460 empirical estimates of corruption on growth form 41 different studies and found that 32% indicate a significant and negative effect of corruption on economic growth, 62% has insignificant relationship, and approximately 6% has positive and significant relationship.

There are a couple of interesting points. First, this study tried to show reasons that explain variation in the effects of corruption on growth and emphasizes three main factors: authors' affiliation, the use of fixed effects, and the inclusion in the model of trade openness and institutions. Second, it tried to identify biases of published academic papers to have statistically significant results and whether these biases can hide a genuine relationship between the two variables.

The findings are both predictable and promising for my thesis. It was stated that the given study provides limited support to the view that corruption greases wheels

of growth and that macro data and micro-evidence should be coupled together in order to find out how corruption affects growth. However, 6% of the studies showed positive and significant relationship between corruption and growth which gives a room for my argument that given certain economic conditions, corruption may have immediate positive effects on the country's economic growth.

Another interesting study that supports favorable sides of corruption is Mironov's study in which he defined bad corruption and residual corruption. And argues that bad corruption is always bad and negatively affects country's economic growth. However, residual corruption is bad for countries with sound institutional system and might be beneficial for countries with poor institutions which allows people to overcome burdensome red tape. There is a sense behind this argument as it can explain why in some countries with high corruption rate there is high growth and high level of entrepreneurial activities.

III. THEORY AND HYPOTHESIS

As stated in the introduction, corruption has always been considered as a negative factor for a country's development process. However, I argue that corruption is not always bad and in countries with poor institutions and high bureaucracy and inefficiency, corruption can be useful by having favorable effects on entrepreneurship in the short run. I hypothesize that level of corruption is related to productive (and unproductive) entrepreneurial activities in developing countries.

1. Corruption as a Lubricant

Corruption can serve as a lubricant for doing business in a country with a burdensome regulation environment and poor institutions. According to the World Bank's "Ease of Doing Business" study, Russia is the toughest place in the world for business.(World's Worst Countries for Business, 2011) For an entrepreneur to start up a business in Russia, for example, it will be difficult, however, corruption can ease the process by facilitating and speeding up the decisions making process. Another example is the Republic of Congo, where in 2012 it took 161 days to start a business, while to start up a business in New Zeeland took just 1 day (The World Bank. Time Required to Start a Business). In 2012, Congo ranked 144 with a score of 2.6 in Corruption Perception Index by Transparency International. In this case, corruption can actually help entrepreneurs to startup businesses by greasing the wheels of tough regulations.

2. Capital Accumulation – no "Switzerland Effect"

Therefore, it is reasonable to argue that in a country with very tough regulations, especially for new or foreign based entrepreneurs, corruption can be the only way that

these less fortunate entrepreneurs can start up a business. In that sense, corruption can be said to be "good" because it led to the growth of the country's economy. However, it is worth noting that this is true only when the money generated stays in the country. To elaborate on the above mentioned, capital accumulation is not the sustainable source of economic growth but a crucial part for increasing income level (GDP). Earnings that are brought by capital stimulate investment which in its turn creates capital, in the same way, when entrepreneurs start up a business, they earn money, that later could be saved, which is the source of future capital. Basically, capital accumulation can be increased through investments which are savings within the country which in its turn will lead to increase in income level (GDP). However, there is one "if". Money should stay in the country and should be reinvested in the country then and only then it will help country's economic growth. Otherwise, if there is outflow of capital, which John Nye calls "Switzerland factor[2]", the less corrupt money stays in the country, and thus the less can be reinvested in the country. J.S. Nye (1967) mentioned that corruption would be less damaging if money stayed in the country and were reinvested in the country's economy, rather than taken to a Swiss bank.

3. East Asian Paradox. Examples of China and South Korea

China and South Korea are vital examples of this corruption paradox. There was a high level of corruption and high economic growth. The question is if corruption always negatively affects the economy of the country, how could the economy of these countries develop? The answer is that "corruption can help economic development by making possible a higher rate of investment than would otherwise be the case. By

[2] "Switzerland Factor", when money goes to Swiss bank accounts

bribing officials to maintain certain political conditions, the success of an otherwise risky investment can be secured as there is a much more assured return on investment."[3]

Particularly in South Korea in 1960s there was a collaboration between public officials and businessmen, though some people says it was corruption. Since 1945 Korea has had high level of corruption, however Wedeman (1997) mentioned in his book that corruption that was in Korea that time was useful for economic growth. He also mentioned that type of corruption Korea had was dividend collection, which means that some amount of privately owned enterprises' profits were given to government officials. There was no Switzerland factor and this corrupted money stayed in the country and were reinvested.

There are a number of studies that were trying to get insight into East Asian Paradox. East Asian Paradox can be defined as a phenomenon that takes place mostly in East Asian countries and defined by steady economic growth while corruption prevails. Mazzara (2006) in her study took an example of two countries Liberia and Indonesia. Both these countries were ranked 21st in Corruption Perception Index by Transparency International, however in the first half of 1990 Indonesia reported annual growth rate of 7-9% while Liberia reported negative growth rate of 14-35%. In order to explain corruption paradox she employed empirical study as well as case study. In spite of existence of this phenomenon, Mazzara couldn't find any empirical evidence supporting it. Though, as many other studies she found negative correlation of corruption with GDP growth.

[3] What is the Impact of Corruption on Economic Development in the Newly Industrialized Countries of South East Asia? p. 8-9

Another study by Rock and Bonnett (2004) provided evidence in support of East Asian paradox. According to the results of their study corruption was found damaging to investment and economic growth in small countries, however, in large East Asian newly industrialized economies corruption actually increased growth.

Above reasons support the argument that corruption can be useful to some extent depending on conditions such as cumbersome regulations, poor institutions, high bureaucracy and inefficiency.

IV. METHODOLOGY

1. Methods

There are not many sources from which data on entrepreneurship can be obtained. In a given study there were two options GEM data and WBGES data. The reason behind taking both GEM and WBGES data is because "GEM mainly measures the number of individual entrepreneurs, overlooking the number of individuals that are involved in multiple businesses. WBGES dataset, on the other hand, measures number of businesses and captures this dynamics." (Zoltan, 2008) However, there is no consistent data through years in order to have balanced data which is why in the process of research some countries were eliminated due to incomplete data. Only those counties that had both WBGES data and CPI index from 2004 through 2009 were taken for a further analysis with STATA as well as GEM data and CPI index from 2009 to 2011. As long as complete data both for entrepreneurship and CPI is not available, it should be considered as one of the limitations of a given research.

2. Sample

In order to reveal the effect of corruption on entrepreneurship, CPI was taken as independent variable (IV). Both Global Entrepreneurship Monitor and World Bank Entrepreneurship Survey data were taken as dependent variable (DV). A given data set has been identified as a panel data since it includes measurements over time mainly from 2004 through 2012.

A total of 46 developing countries from different geographic regions were taken to find the relationship between corruption level and entrepreneurship. *A*

developing country (also called a less developed country) is a nation with low living standards, underdeveloped industrial base, and low human development index, relative to other countries. [4] Countries have been taken based on the availability of entrepreneurship data. After that Corruption Perception Index (CPI) from Transparency International was collected for available countries.

A statistical package STATA was used to test the hypothesis by performing a simple linear regression OLS (fixed model and random model) using mentioned above dataset, given that variables are continuous and can be assumed to follow a normal distribution. Several data transformation has been made in order to make comparison easier. Particularly, number of new firms have been converted from raw numbers to percentages (i.e. log New Firms was taken) which will control for initial difference across countries.

3. Hypothesis:

H_0: CPI is not related to number of New Firms ($\beta=0$) in developing countries

H_1: CPI is related to number of New Firms ($\beta\neq0$) in developing countries.

Here, the null hypothesis is denoted H_0, whereas the alternative hypothesis is denoted H_1. The slope of the regression line between the two variables is denoted β.

4. Models

The models will be as following

[4] https://www.boundless.com/sociology/understanding-global-stratification-and-inequality/global-stratification/industrializing-countries/

$$Y_{it} = \alpha_i + \beta_1 X_{it} \text{ (OLS)}$$

$$Y_{it} = \alpha_i + \beta_1 X_{it} + u_{it} \text{ (Fixed Effect)}$$

$$Y_{it} = \alpha_i + \beta_1 X_{it} + u_{it} + \varepsilon_{it} \text{ (Random Effect)}$$

Where

- α_i is the constant
- Y is the dependent variable, i.e. GEM or WBGES
- X is the independent variable
- B is the coefficient for independent variable
- u is the error term between entity
- ε is the error term within entity
- $_I$ and $_t$ indexes counties and time respectively

V. FINDINGS AND DISCUSSION

1. CPI and WBGES dataset

Above data set was identified as strongly balanced with time variable form 2004 through 2009.

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
ID	276	23.50	13.30	1	46
year	276	2,007	1.711	2,004	2,009
newfirms	276	34,660	79,591	136	577,069
cpi	276	36.44	15.23	13	83
lognew	276	9.184	1.614	4.913	13.27

Table 1. The descriptive statistics

Total number of observations is 276 which means 46 countries multiplied by 6 years from 2004-2009. Average number of New Firms across countries is 34,660 with standard deviation of 79,591. Average number of CPI is 36.44 with standard deviation of 15.23.

VARIABLES	(1) OLS	(2) Fixed Effect	(3) Random Effect
cpi	0.0235***	0.0190***	0.0196***
	(0.00624)	(0.00561)	(0.00527)
Constant	8.328***	8.490***	8.471***
	(0.246)	(0.205)	(0.302)
Observations	276	276	276
R-squared	0.049	0.048	
Number of ID		46	46

Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 2. Regression outcome for OLS, Fixed Effect and Random Effect\

Results showed that there is a weak positive correlation between number of new firms and CPI with p<0.01 (high significance) for all three models. It is important to

notice that the higher CPI the less corruption level in the country. On a scale from 0-100, 0 is the most corrupt country and 100 is the least corrupt country.

2. CPI and GEM dataset

Given dataset was found unbalanced as it has different numbers of time observations for each country, i.e. not all countries have available data from 2009 through 2011

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
ID	29	5.862	3.067	1	11
Year	29	2,010	0.823	2,009	2,011
TEA	29	17.29	6.726	5.900	33.60
CPI	29	33.41	7.366	18	47
lognewTEA	29	2.773	0.410	1.775	3.515

Table 3 The descriptive statistics

Total number of observations is 29 from 2009 to 2011 not all countries have consistent data for 2009-2011 years that is why as it was stated above dataset is found to be unbalanced. Average number of TEA across countries is 17.29 with standard deviation of 6.726. Average number of CPI is 33.41with standard deviation of 7.366.

VARIABLES	(1) OLS	(2) Fixed Effect	(3) Random Effect
CPI	-0.0222**	-0.00865	-0.0177
	(0.00984)	(0.0170)	(0.0115)
Constant	3.514***	3.062***	3.361***
	(0.336)	(0.568)	(0.395)
Observations	29	29	29
R-squared	0.158	0.015	
Number of ID		11	11

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4. Regression outcome for OLS, Fixed Effect and Random Effect

GEM dataset showed that there is weak negative correlation between corruption level in the country and total early-stage entrepreneurial activities with $p<0.05$ significance level in OLS model. The higher CPI (less corrupt country) the less number of TEA are in the country and the lower CPI (more corrupt country) the more number of TEA in the country.

3. CPI and WBGES country specific data

Even though CPI and WBGES data showed positive correlation between CPI and number of new firms, meaning the less corruption in the country the more entrepreneurial activities, there were several countries of particular interest because by looking at the data it clearly showed positive correlation of corruption level and entrepreneurship.

Data from WBGES for 2004 through 2009 as well CPI for Chile was taken to analyze country specific situation. Linear regression was conducted using SPSS to find out the relationship that country has between corruption and entrepreneurship. Tables 5 through 10 show the results of running the statistical simple linear regression in SPSS and descriptive statistics in STATA. Explanations of the results can be found in each table caption.

Descriptive Statistics

	Mean	Std. Deviation	N
New Firms	32851.17	4913.716	6
CPI	71.00	2.757	6

Table 5 The descriptive statistics.

Correlations

		New Firms	CPI
Pearson Correlation	New Firms	1.000	-.950
	CPI	-.950	1.000
Sig. (1-tailed)	New Firms	.	.002
	CPI	.002	.
N	New Firms	6	6
	CPI	6	6

Table 6 There is a strong correlation (~0.950) between CPI and TEA

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.950[a]	.902	.877	1722.634

a. Predictors: (Constant), CPI

b. Dependent Variable: New Firms

Table 7 From R Square, 90.2% of the variability in TEA can be accounted for by CPI. The standard error of the estimate is around 1918.85.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	108853137.500	1	108853137.500	36.682	.004[b]
	Residual	11869867.333	4	2967466.833		
	Total	120723004.833	5			

a. Dependent Variable: New Firms

b. Predictors: (Constant), CPI

Table 8 The correlation or 0.950 is statistically significant (0.004) with an F value of 36.682

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	153018.667	19853.274		7.707	.002	97897.142	208140.192
	CPI	-1692.500	279.448	-.950	-6.057	.004	-2468.372	-916.628

a. Dependent Variable: New Firms

Table 9 Decreasing the CPI value by 1 will result in an increase in TEA by 1692.500. With 95% confidence, we can say that if we decrease the CPI value by 1, the increase in TEA lie between 2468.372 and 916.628. When the corruption level is highest (CPI = 0), there is about 153,018 entrepreneurial activities. Or, with 95% confidence, we can say that when the corruption level is highest (CPI = 0), the number of entrepreneurial activities lie between 97,897 and 208,140.

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	27773.67	39621.17	32851.17	4665.901	6
Residual	-1845.667	2645.833	.000	1540.770	6
Std. Predicted Value	-1.088	1.451	.000	1.000	6
Std. Residual	-1.071	1.536	.000	.894	6

a. Dependent Variable: New Firms

Table 10 The mean value of the residuals is zero and they follow a normal distribution (Fig.1).

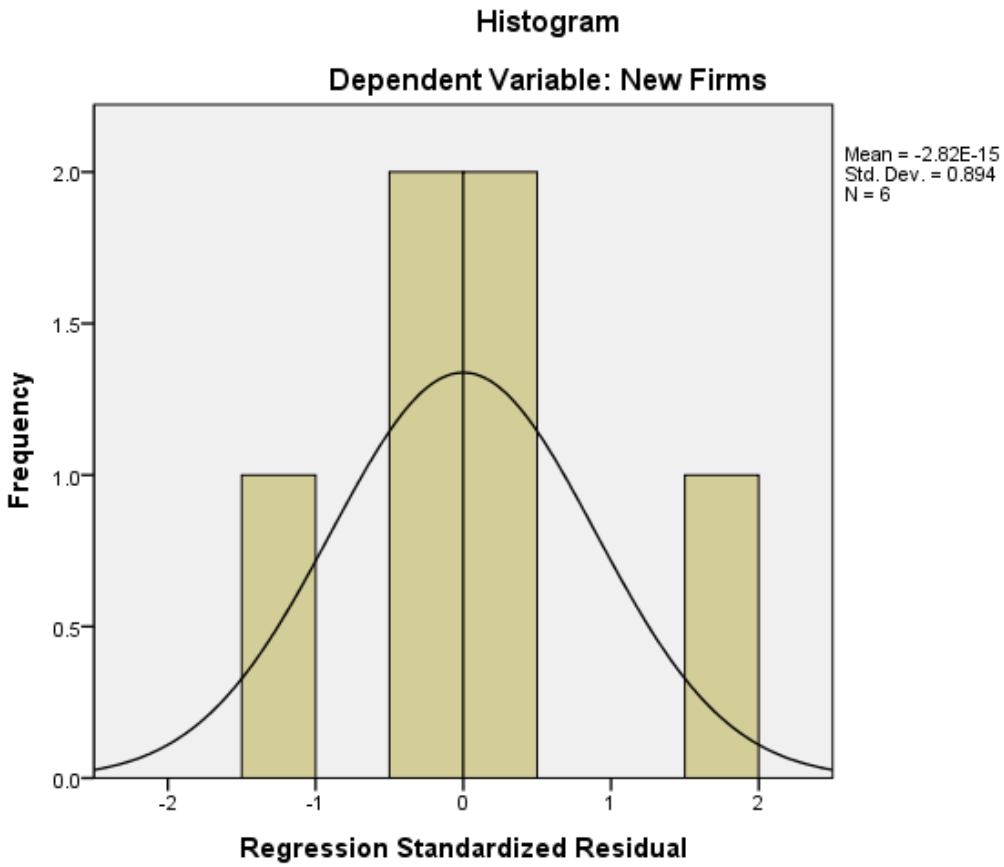

Fig. 1. Histogram and distribution of residuals. Residuals follow a normal distribution

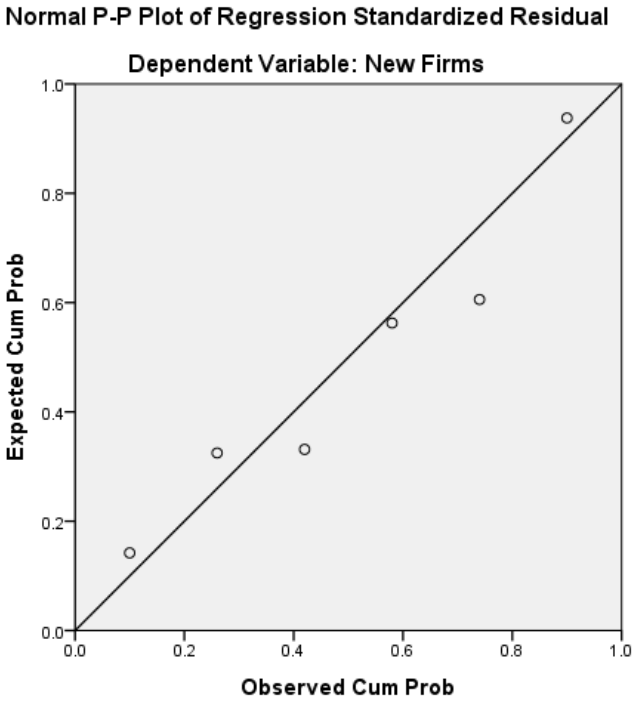

Fig. 2. The values lie near the line.

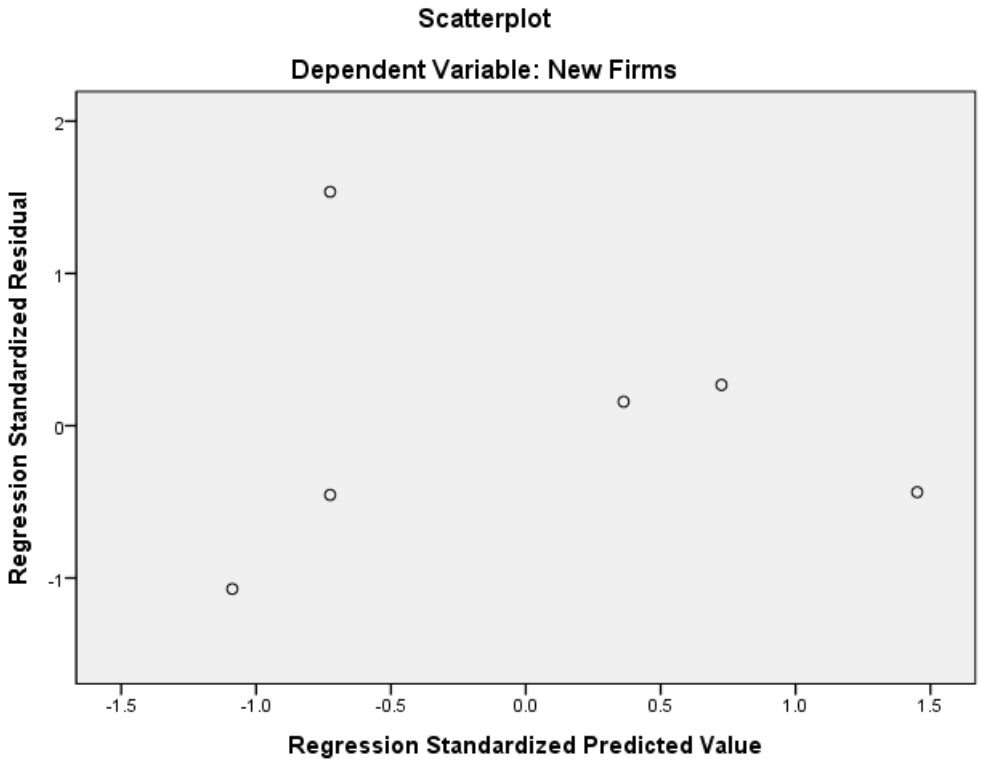

Fig. 3. The amount of error is not associated with a pattern of any sort.

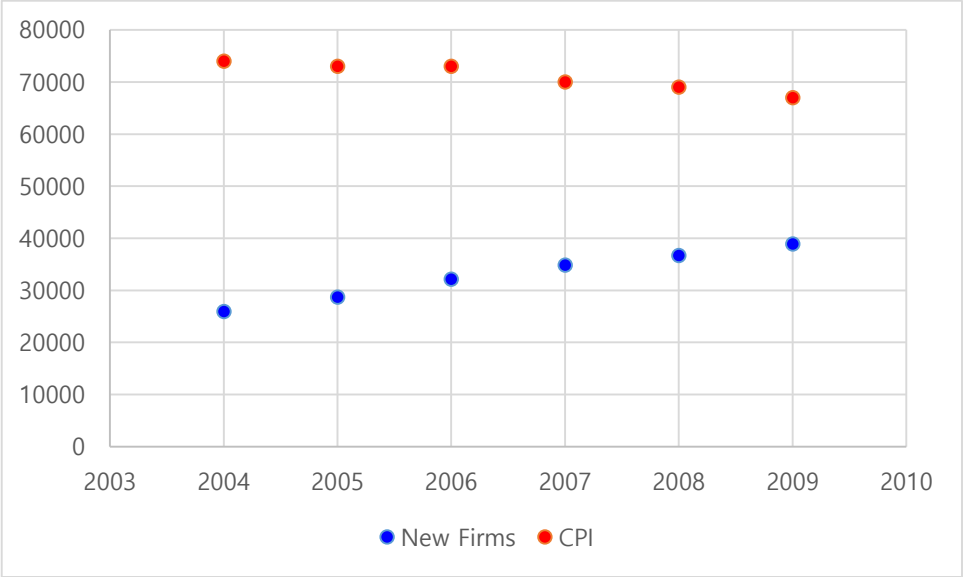

Fig. 4. Scatter plot to see the trend[5]

[5]Note. For Figure 4. CPI numbers were rescaled on a scale from 10,000 to 100,000. It was originally scaled from 1 to 100.

VI. CONCLUSION & LIMITATIONS

In this study corruption and entrepreneurship were examined in order to find out whether there is relationship or not between the two in developing countries. The majority of previous studies suggested a negative effect of corruption on economic development, with only a few indicating favorable effects of corruption on entrepreneurship. Hence, the purpose of this study was to find any positive correlation between corruption and entrepreneurial activities in developing countries in the short run.

The hypothesis was tested using 3 models linear regression OLS, fixed panel model and random panel model with two continuous variables from 2004 to 2009 as well as from 2009 to 2011. There was evidence, at 95% confidence interval, to support the results of previous studies that corruption negatively affects entrepreneurship though the correlation was weak. According to WBGES dataset, there is positive correlation between CPI and number of new firms, which means the lower the corruption level the higher the number of entrepreneurial activities in the country (the higher CPI the lower the level of corruption in the country).

However, there was also evidence that corruption positively affects entrepreneurship. According to the GEM dataset there was a negative correlation between CPI and total early-stage entrepreneurial activities in the country, which means the higher the corruption level in the country the higher TEA.

Moreover, taking country specific example supported hypothesis of the given study with strong negative correlation between CPI and entrepreneurship. In other words, countries with high corruption level will tend to have high level entrepreneurial

activities. It is important to emphasize, there are several countries having similar situation as Chile does, and it is important to analyze country specific examples in order to understand this phenomenon.

Different datasets have been analyzed and different results were obtained. This in part can be due to the reasons emphasized by Zoltan et al. (2008):

- GEM data reports significantly greater levels of early-stage entrepreneurship in developing countries than do the World Bank
- World Bank data measure rates of entry in the formal economy , whereas GEM data are reflective of entrepreneurial intent and capture informality of entrepreneurship
- GEM data may represent the potential supply of entrepreneurs while World Bank data may represent the actual rate of entrepreneurship
- GEM measures the number of individual entrepreneurs might be overlooking individuals that are engaged in multiple businesses, but World Bank data captures number of businesses

Another reason for having different results for GEM and WBGES is the number of countries taken for observation. In case of WBGES number of countries was 46, for GEM dataset only 11 countries were randomly chosen.

According to many sources that were cited above corruption considered to be detrimental for economic growth and development of the country. Nevertheless, there are examples and data that doubt unflinching idea of negative sides of corruption. Corruption cannot always be blamed for slow economic growth. Corruption is not a

disease but rather a symptom of a disease and should be treated accordingly. The evidence of favorable sides of corruption "should caution those committed to reducing or eradicating corruption as it suggests that efforts to reduce corruption may not always yield the expected economic outcomes" (Rock and Bonnett, 2004)

Finally, it is important to mention that corruption cannot be eradicated, as it is deeply connected with and engraved into culture that is why it is important to change culture first. As we know culture is considered to be a successful strategy in the past. If bribery i.e. corruption was a successful culture to promote business, gradually by implementing zero tolerance corruption should be decreased and if doing and opening business would be easier by following rules and regulations rather than corruption more and more people will consider doing clean business as a good strategy. Thus, it will become a culture. And culture is very difficult to change and even if changed it will take a number of years to do so. Assiotis and Krambia-Kapardis (2011) mentioned that "legislative regulation is not enough without change of culture so that zero tolerance is implemented…" And in order to create such culture those at the top should play a major role. None treats symptoms of the cancer but the cause of the cancer in order to have complete remission.

Limitations

There are a number of limitations in the given study.

First of all, the number of countries was limited to the data that was available in the WBGES, GEM and CPI reports. The small sample size of 11 and 46 countries was executed. Therefore, further study with larger sample is required. Second, the corruption perception index does not assess corruption in the cultural context which is why case study or another data that assesses corruption within a cultural context should

be found. Third, the data in the GEM reports only pertains to productive entrepreneurial activities. Fourth, in order to get more insight into the corruption paradox, several in-depth country case studies as well country specific empirical studies should be executed. Also in terms of accuracy a number of controlling variables should added to the dataset. In order to figure out whether corruption genuinely affects entrepreneurship or whether some other phenomena do. Education in terms of school life expectancy, level of literacy could be taken. GDP, Government effectiveness, rule of law, regulatory quality variables could be taken to control for another factors rather than corruption.

These limitations mentioned above will be addressed in further studies.

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Appendix A

List of Developing Countries WBGES					
ID	**Country**	**Year**	**NewFirms**	**CPI**	**LogNewFirms**
1	Albania	2004	1205	25	7.094235
1	Albania	2005	1245	24	7.126891
1	Albania	2006	1417	26	7.256297
1	Albania	2007	2176	29	7.685244
1	Albania	2008	3005	34	8.008033
1	Albania	2009	2045	32	7.623153
2	Algeria	2004	11268	27	9.329722
2	Algeria	2005	10361	28	9.245804
2	Algeria	2006	8864	31	9.089753
2	Algeria	2007	7955	30	8.981556
2	Algeria	2008	11120	32	9.316501
2	Algeria	2009	10661	28	9.274347
3	Argentina	2004	14542	25	9.584796
3	Argentina	2005	14219	28	9.562334
3	Argentina	2006	14694	29	9.595195
3	Argentina	2007	14805	29	9.60272
3	Argentina	2008	14493	29	9.581421
3	Argentina	2009	12118	29	9.402448
4	Armenia	2004	2537	31	7.838737
4	Armenia	2005	2290	29	7.736307
4	Armenia	2006	2811	29	7.941296
4	Armenia	2007	3562	30	8.178078
4	Armenia	2008	3453	29	8.146998
4	Armenia	2009	2576	27	7.853993
5	Bangladesh	2004	4710	15	8.457443
5	Bangladesh	2005	5157	17	8.54811
5	Bangladesh	2006	5707	20	8.649448
5	Bangladesh	2007	7992	20	8.986197
5	Bangladesh	2008	7425	21	8.912608
5	Bangladesh	2009	8007	24	8.988071
6	Belarus	2004	1606	33	7.381502
6	Belarus	2005	1680	26	7.426549
6	Belarus	2006	1783	21	7.486053
6	Belarus	2007	3820	21	8.248006
6	Belarus	2008	5168	20	8.550241
6	Belarus	2009	5714	24	8.650675
7	Bolivia	2004	1482	22	7.301148
7	Bolivia	2005	1604	25	7.380256
7	Bolivia	2006	1874	27	7.53583
7	Bolivia	2007	2121	29	7.659643
7	Bolivia	2008	2448	30	7.803027
7	Bolivia	2009	2623	27	7.872074
8	Botswana	2004	8990	60	9.103868

8	Botswana	2005	6581	59	8.791942
8	Botswana	2006	6591	56	8.79346
8	Botswana	2007	6927	54	8.843183
8	Botswana	2008	8050	58	8.993427
8	Botswana	2009	10852	56	9.292105
9	Brazil	2004	236072	39	12.37189
9	Brazil	2005	246722	37	12.41602
9	Brazil	2006	46456	33	10.74626
9	Brazil	2007	50168	35	10.82313
9	Brazil	2008	56704	35	10.9456
9	Brazil	2009	51717	37	10.85354
10	Chile	2004	25928	74	10.16308
10	Chile	2005	28684	73	10.26409
10	Chile	2006	32112	73	10.37698
10	Chile	2007	34815	70	10.4578
10	Chile	2008	36698	69	10.51048
10	Chile	2009	38870	67	10.56798
11	Costa Rica	2004	27373	49	10.21731
11	Costa Rica	2005	33879	42	10.43055
11	Costa Rica	2006	42707	41	10.66212
11	Costa Rica	2007	43503	50	10.68058
11	Costa Rica	2008	42640	51	10.66055
11	Costa Rica	2009	30966	53	10.34064
12	Croatia	2004	7046	35	8.860215
12	Croatia	2005	8386	34	9.034319
12	Croatia	2006	10010	34	9.21134
12	Croatia	2007	10728	41	9.280612
12	Croatia	2008	10068	44	9.217117
12	Croatia	2009	7740	41	8.954157
13	El Salvador	2004	1536	42	7.336937
13	El Salvador	2005	1717	42	7.448334
13	El Salvador	2006	1786	40	7.487734
13	El Salvador	2007	1848	40	7.521859
13	El Salvador	2008	2008	39	7.604895
13	El Salvador	2009	1753	34	7.469084
14	Georgia	2004	3231	20	8.080547
14	Georgia	2005	3958	23	8.283494
14	Georgia	2006	5698	28	8.64787
14	Georgia	2007	6898	34	8.838986
14	Georgia	2008	8537	39	9.052165
14	Georgia	2009	7779	41	8.959183
15	Ghana	2004	5989	36	8.69768
15	Ghana	2005	7346	35	8.901911
15	Ghana	2006	7651	33	8.942592
15	Ghana	2007	9624	37	9.172015
15	Ghana	2008	14485	39	9.580869
15	Ghana	2009	15324	39	9.637176

16	Guatemala	2004	4138	22	8.327968
16	Guatemala	2005	4198	25	8.342363
16	Guatemala	2006	4790	26	8.474286
16	Guatemala	2007	4925	28	8.50208
16	Guatemala	2008	5476	31	8.60813
16	Guatemala	2009	5126	34	8.542081
17	Haiti	2004	136	15	4.912655
17	Haiti	2005	144	18	4.969813
17	Haiti	2006	222	18	5.402678
17	Haiti	2007	189	16	5.241747
17	Haiti	2008	190	14	5.247024
17	Haiti	2009	201	18	5.303305
18	Hong Kong, China	2004	65558	80	11.09069
18	Hong Kong, China	2005	73359	83	11.20312
18	Hong Kong, China	2006	81974	83	11.31416
18	Hong Kong, China	2007	100761	83	11.52051
18	Hong Kong, China	2008	98645	81	11.49928
18	Hong Kong, China	2009	109424	82	11.60299
19	Hungary	2004	23526	48	10.06586
19	Hungary	2005	21672	50	9.983776
19	Hungary	2006	21672	52	9.983776
19	Hungary	2007	27335	53	10.21592
19	Hungary	2008	43598	51	10.68277
19	Hungary	2009	42046	51	10.64652
20	India	2004	36859	28	10.51486
20	India	2005	38129	29	10.54873
20	India	2006	20000	33	9.903487
20	India	2007	51700	35	10.85321
20	India	2008	84800	34	11.34805
20	India	2009	46000	34	10.7364
21	Indonesia	2004	20598	20	9.932949
21	Indonesia	2005	23348	22	10.05827
21	Indonesia	2006	23599	24	10.06896
21	Indonesia	2007	24938	23	10.12415
21	Indonesia	2008	37106	26	10.52153
21	Indonesia	2009	28998	28	10.27498
22	Iraq	2004	11262	21	9.329189
22	Iraq	2005	7760	22	8.956738
22	Iraq	2006	3456	19	8.147867
22	Iraq	2007	3600	15	8.188689
22	Iraq	2008	5134	13	8.54364
22	Iraq	2009	4534	15	8.41936
23	Jamaica	2004	1818	33	7.505492
23	Jamaica	2005	1700	36	7.438384
23	Jamaica	2006	1953	37	7.577122
23	Jamaica	2007	2023	33	7.612337
23	Jamaica	2008	2137	31	7.667158

23	Jamaica	2009	2056	30	7.628518
24	Jordan	2004	1104	53	7.006695
24	Jordan	2005	1775	57	7.481556
24	Jordan	2006	2189	53	7.6912
24	Jordan	2007	1982	47	7.591862
24	Jordan	2008	2315	51	7.747165
24	Jordan	2009	2735	50	7.913887
25	Kazakhstan	2004	20741	22	9.939868
25	Kazakhstan	2005	20431	26	9.924809
25	Kazakhstan	2006	22187	26	10.00726
25	Kazakhstan	2007	22536	21	10.02287
25	Kazakhstan	2008	17341	22	9.760829
25	Kazakhstan	2009	16734	27	9.725198
26	Malaysia	2004	38580	50	10.56049
26	Malaysia	2005	37672	51	10.53667
26	Malaysia	2006	38293	50	10.55302
26	Malaysia	2007	43337	51	10.67676
26	Malaysia	2008	41623	51	10.63641
26	Malaysia	2009	41638	45	10.63677
27	Mauritius	2004	4976	41	8.512382
27	Mauritius	2005	6260	42	8.741936
27	Mauritius	2006	7435	51	8.913954
27	Mauritius	2007	8888	47	9.092458
27	Mauritius	2008	9012	55	9.106313
27	Mauritius	2009	6631	54	8.799511
28	Mexico	2004	35081	36	10.46542
28	Mexico	2005	40398	35	10.60654
28	Mexico	2006	43899	33	10.68965
28	Mexico	2007	49050	35	10.8006
28	Mexico	2008	50392	36	10.82759
28	Mexico	2009	60358	33	11.00805
29	Namibia	2004	614	41	6.419995
29	Namibia	2005	717	43	6.575076
29	Namibia	2006	690	41	6.536692
29	Namibia	2007	749	45	6.618739
29	Namibia	2008	1057	45	6.96319
29	Namibia	2009	952	45	6.858565
30	Nepal	2004	5901	28	8.682878
30	Nepal	2005	5482	25	8.609225
30	Nepal	2006	5789	25	8.663714
30	Nepal	2007	7388	25	8.907613
30	Nepal	2008	8657	27	9.066124
30	Nepal	2009	10173	23	9.227492
31	Nigeria	2004	23457	16	10.06292
31	Nigeria	2005	28988	19	10.27464
31	Nigeria	2006	34531	22	10.44961
31	Nigeria	2007	46240	22	10.7416

31	Nigeria	2008	64017	27	11.0669
31	Nigeria	2009	65089	25	11.08351
32	Pakistan	2004	2367	21	7.769379
32	Pakistan	2005	3917	21	8.273082
32	Pakistan	2006	5171	22	8.550821
32	Pakistan	2007	4553	24	8.423542
32	Pakistan	2008	4286	25	8.36311
32	Pakistan	2009	2719	24	7.90802
33	Panama	2004	25804	37	10.15829
33	Panama	2005	40268	35	10.60331
33	Panama	2006	37454	31	10.53087
33	Panama	2007	47610	32	10.7708
33	Panama	2008	47067	34	10.75933
33	Panama	2009	37710	34	10.53768
34	Philippines	2004	13714	26	9.526173
34	Philippines	2005	13523	25	9.512147
34	Philippines	2006	13325	25	9.497397
34	Philippines	2007	12285	25	9.416134
34	Philippines	2008	13470	23	9.508221
34	Philippines	2009	11435	24	9.344434
35	Qatar	2004	1492	52	7.307873
35	Qatar	2005	1384	59	7.232733
35	Qatar	2006	1660	60	7.414573
35	Qatar	2007	2026	60	7.613819
35	Qatar	2008	2158	65	7.676937
35	Qatar	2009	1846	70	7.520776
36	Romania	2004	89909	29	11.40655
36	Romania	2005	92334	30	11.43317
36	Romania	2006	92979	31	11.44013
36	Romania	2007	102745	37	11.54001
36	Romania	2008	100646	38	11.51936
36	Romania	2009	56690	38	10.94535
37	Russian Federation	2004	330559	28	12.70854
37	Russian Federation	2005	380973	24	12.85048
37	Russian Federation	2006	547351	25	13.21285
37	Russian Federation	2007	567692	23	13.24933
37	Russian Federation	2008	577069	21	13.26572
37	Russian Federation	2009	401471	22	12.90289
38	Senegal	2004	835	30	6.727432
38	Senegal	2005	978	32	6.885509
38	Senegal	2006	1058	33	6.964136
38	Senegal	2007	3084	36	8.033982
38	Senegal	2008	1757	34	7.471363
38	Senegal	2009	2340	30	7.757906
39	Sierra Leone	2004	389	23	5.963579
39	Sierra Leone	2005	471	24	6.154858
39	Sierra Leone	2006	553	22	6.315358

39	Sierra Leone	2007	629	21	6.444131
39	Sierra Leone	2008	843	19	6.736967
39	Sierra Leone	2009	1045	22	6.951772
40	South Africa	2004	162715	46	11.99976
40	South Africa	2005	227624	45	12.33545
40	South Africa	2006	264726	46	12.48645
40	South Africa	2007	258091	51	12.46107
40	South Africa	2008	291323	49	12.58219
40	South Africa	2009	253217	47	12.442
41	Thailand	2004	31037	36	10.34294
41	Thailand	2005	32243	38	10.38106
41	Thailand	2006	30235	36	10.31676
41	Thailand	2007	25241	33	10.13622
41	Thailand	2008	27680	35	10.22847
41	Thailand	2009	27587	34	10.2251
42	Turkey	2004	39984	32	10.59623
42	Turkey	2005	45775	49	10.73149
42	Turkey	2006	51027	38	10.84011
42	Turkey	2007	54101	41	10.89861
42	Turkey	2008	47983	46	10.7786
42	Turkey	2009	42237	44	10.65105
43	United Arab Emirates	2004	6626	61	8.798757
43	United Arab Emirates	2005	7036	62	8.858795
43	United Arab Emirates	2006	7756	62	8.956222
43	United Arab Emirates	2007	8810	57	9.083643
43	United Arab Emirates	2008	9259	59	9.133351
43	United Arab Emirates	2009	6086	65	8.713746
44	Uruguay	2004	7063	62	8.862625
44	Uruguay	2005	7526	59	8.926119
44	Uruguay	2006	6349	64	8.756053
44	Uruguay	2007	8425	67	9.038959
44	Uruguay	2008	6496	69	8.778942
44	Uruguay	2009	4664	67	8.447629
45	Uzbekistan	2004	5390	23	8.5923
45	Uzbekistan	2005	6115	22	8.7185
45	Uzbekistan	2006	7554	21	8.929832
45	Uzbekistan	2007	8605	17	9.060099
45	Uzbekistan	2008	9084	18	9.11427
45	Uzbekistan	2009	13146	17	9.483872
46	Zambia	2004	3112	26	8.043021
46	Zambia	2005	3431	26	8.140607
46	Zambia	2006	3648	26	8.201935

46	Zambia	2007	5318	26	8.578853
46	Zambia	2008	6284	28	8.745762
46	Zambia	2009	5505	30	8.613412

Source: World Bank Group Entrepreneurship Survey (2004-2012) and Transparency international (2009-2011)

Appendix B

List of Developing Countries GEM					
ID	Year	Developing Country	TEA	CPI	lognewTEA
1	2009	Algeria	16.7	28	2.815409
1	2011	Algeria	9.3	29	2.230014
2	2009	Argentina	14.7	39	2.687847
2	2010	Argentina	14.2	29	2.653242
2	2011	Argentina	20.8	30	3.034953
3	2009	Brazil	15.3	37	2.727853
3	2010	Brazil	17.5	37	2.862201
3	2011	Brazil	14.9	38	2.701361
4	2009	China	18.8	36	2.933857
4	2010	China	14.4	35	2.667228
4	2011	China	24	36	3.178054
5	2009	Colombia	22.4	37	3.109061
5	2010	Colombia	20.6	35	3.025291
5	2011	Colombia	21.4	34	3.063391
6	2009	Ecuador	15.8	22	2.76001
6	2010	Ecuador	21.3	25	3.058707
7	2009	Iran	12	18	2.484907
7	2010	Iran	12.4	22	2.517696
7	2011	Iran	14.5	27	2.674149
8	2009	Peru	20.9	37	3.039749
8	2010	Peru	27.2	35	3.303217
8	2011	Peru	22.9	34	3.131137
9	2009	South Africa	5.9	47	1.774952
9	2010	South Africa	8.9	45	2.186051
9	2011	South Africa	9.1	41	2.208274
10	2010	Turkey	8.6	44	2.151762
10	2011	Turkey	11.9	42	2.476538
11	2009	Uganda	33.6	25	3.514526
11	2010	Uganda	31.3	25	3.443618

Source: Global Entrepreneurship Monitor (2009-2011) and Transparency international (2009-2011)