



## Does Corruption Really Affect the Growth of Entrepreneurship in Zimbabwe?

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### Abstract

*Like in most developing countries, the level of entrepreneurship growth as measured by the number of new firm start-ups has become a central economic issue in Zimbabwe. Necessity and opportunity-driven entrepreneurial activities in the country are being driven by weakening economic growth, poverty, idiosyncratic macro-uncertainties and high levels of unemployment. The country has consistently been listed by the Transparent International Perception of Corruption Index as one of the most corrupt countries in Sub-Saharan Africa outside a war zone. The study examined the nexus between entrepreneurial activities and corruption in Zimbabwe using Ordinary Least Regression equation for the period 1998 to 2016. Our findings suggest that productive entrepreneurial activities in Zimbabwe are significantly being curtailed by regressive tax regimes coupled with enfeebled public institutions. We also demonstrate a positive one way causality running from entrepreneurial activities to corruption and, hence proving the applicability of the greasing hypothesis of corruption in Zimbabwe. The study recommends a number of policy prescriptions that include: reducing levels of taxes on entrepreneurial activities, eliminating red-tape and regulations that add costs on opportunity-driven entrepreneurship, increasing the effectiveness of public institutions especially those that deal with entrepreneurs, introducing robust legislation aimed at reducing public officials' opportunities for rent seeking in entrepreneurial activities that are most prone to corrupt practices. In addition, there is need to monitor bureaucrats and impose severe penalties in order to make corruption payoffs too risky. Our study contributes to the literature on the greasing effect of corruption on entrepreneurial activities in developing countries.*

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## 1. Introduction

Since the years starting from 2000, the Transparent International Perception of Corruption Indexes have unfailingly ranked Zimbabwe as one of the countries with highest corruption in Sub-Saharan Africa. The country was ranked 4.1 in 1999 but the ranking has since deteriorated progressively to 2.2 in 2018. Putting into context, the country's main trading partners in the Southern African region, South Africa is ranked 4.3, Botswana (6.1), Zambia (3.7) and Malawi (3.1). In the Sub-Sahara region, only war-torn and political unstable countries such as the Democratic Republic of Congo, South Sudan, Chad, Sudan and Somalia fare much worse than Zimbabwe. However, of critical significance is that Zimbabwe is endowed with abundant natural resources and has advanced human capital development that can foster an entrepreneurial spirit among its poverty-stricken citizens. Even though the country has not been listed in all editions of the Global

Entrepreneurship Index which measures the health of the entrepreneurship ecosystem in a given country, the spirit of entrepreneurship in Zimbabwe is alive and evident in all sectors of the economy. Since the downturn of the economy that started in the second decade after independence in 1980, entrepreneurial activities have been propelled by a number of factors that include unrelenting decline in economic growth, widespread poverty, political instability, high levels of unemployment and unfettered state interventions in entrepreneurial activities and new start-ups operations. In addition, one of the main cause of corruption in Zimbabwe has been linked to bad government regulations and investment policies that has been frequently creating corrupt incentives for bureaucrats, policy makers and some unproductive entrepreneurs.

Nevertheless, the entrepreneurship ecosystem in Zimbabwe is in fine fettle given that the country is one of the few countries in Africa with the most educated and resilient people. Most of its people are able to identify opportunities for innovation, incubate new business start-ups and are willing to take risks given appropriate returns. Most entrepreneurs that operate in the shadow economy are able to create geographically concentrated networks in all parts of the country and to a large extent in the region as well. The entrepreneurial ecosystem in Zimbabwe includes a well-developed human capital base which provides potential entrants with requisite opportunities, skills and knowledge to start their own business and to rapidly absorb and embrace new technology. In addition, the majority of the population is young and highly trained and hence, are able to embrace the rapid growth of social networks in order to create unique products and services, and to develop new products by integrating new technology.

However, in recent years the downside entrepreneurial risks that has been impeding the growth of entrepreneurial activities in Zimbabwe include a litany of factors such as; institutional inadequacies, political instability, high taxation regimes, idiosyncratic uncertainties, lack of collateral and endemic bureaucratic corruption. As a consequence, the entrepreneurship environment has become difficult to manage, especially the optimisation of returns on entrepreneurial investments. Both current and potential new entrepreneurs face credit and capital constraints which force them either not to invest or to defer investment decisions. In particular, the institutional environment which is often characterised by economic instability and political uncertainties make it particularly difficult for existing entrepreneurs to reduce transactional costs and to realise identified opportunities. The country has been 'blessed' with a reputation for high public corruption. The country has also been finding it difficult to commit itself to trustworthy, non-extortionate corruption policies and to convince potential entrepreneurs of its dedication to eradicate the scourge of corruption. As a result domestic investment, foreign direct investment inflows and the growth of entrepreneurial activities have significantly deteriorated with growing public corruption.

According to [Global Entrepreneur Index \(2018\)](#) the Sub-Sahara region's lowest average scores are in the areas of start-up skills, risk acceptance and risk capital. However, the entrepreneurial environment in Zimbabwe is also exposed to some idiosyncratic factors unlike its trading partners. For instance, the country has extensive regulations and rules that encumber entrepreneurial innovation and diffusion of technological progress. Politicians and bureaucrats are heavily involved in most private exchange markets. This often gives birth to corruption as well as accelerating illegal practices such as smuggling, transfer pricing, externalisation of foreign currency, bribery, and other illicit activities that impact on the health of the entrepreneurial ecosystem. As a result, rent seeking activities and subsequent corruption rentals have natural increasing returns.

Research on the linkage between corruption and entrepreneurial activities in Zimbabwe is difficult because many causes of entrepreneurial activities also seem to be consequences of corruption. There are also numerous feedback loops between the two variables that make it hard to isolate the underlying causes of corruption and its impact on entrepreneurial growth. Furthermore, owing to requests for corruption rentals, many domestic and foreign investors that intend to employ simple production technologies in Zimbabwe are likely to prefer forming joint ventures with local entrepreneurs rather than Greenfield investments that can provide entrepreneurs with opportunities for outsourcing and long-term partnerships. This is because most local entrepreneurs are likely to be familiar with corrupt practices, and hence, facilitating the entry of lower return joint ventures into the domestic market.

On the hand, foreign investors intending on using sophisticated production technologies, may fear leakage of technological know-how and loss of essential knowledge to corrupt entrepreneurs. Above all, bureaucrats have been creating artificial bottlenecks in the economy by formulating and implement unnecessary regulations and policies as an avenue to extract more speed money from potential investors and entrepreneurs. The unnecessary gridlocks are reducing national productivity and service quality since bribe-seeking bureaucrats and politicians are likely to favour national projects that provide a robust foundation for corruption rentals than those that accrue benefits to the public. As a survival strategy, existing entrepreneurs' having been by-passing extortionate corruption rentals by opting to operate in the shadow economy where tax records are not kept, hence, resulting in low taxation revenue to the government. Thus, an increase in corruption rentals is likely to make rent seeking and corruption activities more rewarding to entrepreneurs operating in the shadow economy. The blight of public corruption and rent seeking activities have consistently been dislocating domestic savings from productive public investment towards unproductive entrepreneurial activities, hence, fuel more corrupt practices through reverse causation effect. This is because an economy such

as one in Zimbabwe with high corruption has multiple equilibrium with bad equilibria exhibiting very high levels of corruption and rent seeking and low national output.

For instance, a vicious and iterative process has been operating in Zimbabwe where corruption has limited entrepreneurial growth and low entrepreneurial growth has been encouraging corruption. Arguably corruption has become a major source of competitive advantage for existing entrepreneurs by acting as a barrier to new entrants. Entry barriers, a result of bureaucratic corruption rentals affect potential entrepreneurs especially those that cannot afford high corruption rentals that are required in order to circumvent government regulations and policies.

The problem is that grand corruption comes with three major costs that affect both existing and new entrepreneurs. To begin with, there is a rent seeking cost to the entrepreneur which represents the cost of the resources used up in seeking the corruption rents or overcoming bureaucratic restrictions and regulations. This cost includes the loss of potentially investible resources by the entrepreneur in bribes that are transferred to bureaucrats who are likely to use them less efficiently. The direct effect of this cost is a reduction in entrepreneurial activities and an indirect effect on domestic investment and economic growth. Second, corruption rentals comes with a heavy social cost to the economy owing to unnecessary regulations and policy restrictions created by bureaucrats. The social cost that bureaucrats create on behalf of the government include; import restrictions that create monopoly rents, monopoly rents themselves, subsidies to politically correct entrepreneurial businesses that never grow up, and subsidies to special-interest groupings of entrepreneurs that are linked to the ruling party. Thus, politically connected entrepreneurs are likely to be less productive but represent a major drain on public funds. Social costs associated with corruption rentals therefore generate deadweight losses for society leading to growth of poverty and lower economic growth. Third, corruption is an indirect retrogressive tax on entrepreneurial investments. Superfluous policy regulations and restrictions on entrepreneurial activities increase transaction costs and efficiency losses. In addition, policy regulations and restrictions have a reverse causation effect on the growth of corruption and hence, cause significant reductions in economic efficiency and in turn more deadweight welfare losses. This often results in further reductions of domestic investment, economic growth and development. The other main consequence of corruption is a larger shadow economy that does not contribute meaningfully to government tax revenues and hence, causing smaller and less productive national capital stock. Eventually, this might cause distorted and inefficient allocations of public and private resources.

The study is important for a number of reasons. First; entrepreneurship is vital to investment and economic growth, development and well-being of the whole society. This is because entrepreneurs create quality jobs and hence, leading to reduction of poverty, starvation and unemployment. Entrepreneurs drive technological progress and shape innovative activities in any economy through joint ventures with foreign investors. Entrepreneurs speed up structural changes in the economy by enhancing knowledge management, introducing more product and services offerings and also by facilitating rapid technology adoption and diffusion. By introducing new competition, entrepreneurs contribute directly to the country's productivity. Productive entrepreneurs catalyse international trade competitiveness, domestic investment, and economic growth. Perhaps a more apropos observation in developing countries such as Zimbabwe is that entrepreneurial activities generate positive externalities that benefit urban and rural communities, societies and humanity at large. This is because most entrepreneurs utilise innovative and affordable technologies that can solve various socio-economic issues that beset developing economies such as sewage reticulation, food and water shortages, environmental pollution and sustainability.

Second, in circumstances such as obtaining in Zimbabwe where necessity-driven entrepreneurship is more predominant when compared to opportunities-driven entrepreneurship, the economy can derive immense benefits from self-employment initiatives particularly in situations where formal work options are less available, and where employee redundancies and poverty are rampant. Formal unemployment levels in developing countries are high and as a result, pursuing necessity-driven entrepreneurial activities could offer a practical avenue for escaping abject poverty and starvation. Third, entrepreneurs are known to disrupt the market equilibrium by introducing new products and services in different market segments. Therefore, entrepreneurial activities that are highly innovative and technology-driven are likely to drive out less productive and inefficient mature firms from the economy. Innovative entrepreneurial activities in developing countries are also likely to advance production and marketing frontiers. Fourth as observed in many empirical literatures, corruption when practiced by self-serving bureaucrats and politicians is likely to hurt potential innovative activities of entrepreneurs more than everyday production of existing firms.

The argument advanced in literature is that entrepreneurs at start-up stage or entry level often require bureaucrat-supplied goods and services such as trading permits, licences, import quotas, foreign currency allocation, tax documents, import licences and other important documents. However, the acquisition of these documents has a high inelastic demand with respect to price and entrepreneurial activities cannot take off without these documents. Hence, acquiring these critical documents exposes not only new entrepreneurs but existing ones to corruption and rent seeking rentals. When entrepreneurs fail to pay corruption rentals they are likely to cease current and future long-term investment plans. The impact on the economy is seen by the reduction of the country's capital stock. Fifth, corruption rentals represent a major cost to entrepreneurs. For

instance, start-up investment expenditures such as roads, buildings and pipelines represent sunk costs that are incurred by entrepreneurs. Such costs cannot be redeployed elsewhere within the economy if the institutional environment of a country deteriorates or changes. This suggests that corruption is costly on irreversible entrepreneurial investment decisions. In Zimbabwe, grand corruption is a common occurrence and is rarely frowned upon. Politicians and bureaucrats often abuse their positions by delaying the issuances of permits and licences until offered speed money. Unfortunately, this normally happens when entrepreneurs have already incurred sunk costs which cannot be easily recouped without incurring most substantial costs.

In empirical literature that investigates the subject of corruption there are two major strands of dichotomies. The first construct is that corruption is an efficient grease that helps entrepreneurs avoid cumbersome bureaucracy in order to acquire government-supplied documents (Dreher & Gassebner, 2013; Muzurura, 2018; Wiseman, 2016). This argument owes its genesis from studies by Leff (1964) and Huntington (1968) who first proposed the corruption greasing hypotheses. The basis of the argument is related to the public choice theory of corruption that asserts that self-interested bureaucrats and politicians are rational utility maximizers and therefore, are expected seek low-cost ways to maximize utility in line with their position. Therefore in order to circumvent cumbersome bureaucracy and government regulations, paying corruption rentals could be the only way of speeding up the issuance of necessary documents, hence, corruption rentals enhances investment efficiency. On the other hand, the second leitmotif contends that paying corruption rentals hinder entrepreneurial activity and investment growth within an economy (Williamsp and Martinez-Perez (2016); d'Agostino, Dunneb, and Pieroni (2016) and Estrin, Korosteleva, and Mickiewicz (2016).

This line of argument suggests that corruption instead of having a greasing effect actually has a sanding effect on the wheels of entrepreneurship growth. The paper argues that as utility maximizers, public officials responsible for issuing permits for start-ups in Zimbabwe are likely to be engaging in low-risk but high-rewarding rent-seeking activities. Owing to the need to observe good corporate governance and to comply with stock exchange regulations, most large firms in Zimbabwe are audited annually. This makes it difficult for large companies to conceal corruption rentals in their financial records. Such a situation suggests that corrupt bureaucrats are likely to collude with potential and existing entrepreneurs in the informal sector or shadow economy where most entrepreneurial activities thrive. Consequently, this leaves new entrepreneurs and those entrepreneurs operating in the shadow economy more exposed to grand corruption since corrupt bureaucrats face lower risks of detection. In Zimbabwe, it is likely that is corruption misallocating entrepreneurial talent towards rent-seeking activities. It is also distorting sectoral priorities in the allocation of public resources and technology choices within small entrepreneurial firms. In addition, most entrepreneurs are likely to be illiquid and credit- constrained, thereby making it hard to pursue legal recourse in the event of being forced to pay corruption rentals. This reasoning imply that entrepreneurs who fail to pay corruption rentals are likely to forsake their innovations leading to lower domestic investment equilibrium in the country.

Most empirical studies in developing countries that that examine the effect of corruption on the growth of entrepreneurship have focused on regional and cross-country studies (see (Delavallade, 2012; Faruq & Webb, 2013; Olken & Pande, 2011; Williams, Horodnic, & Windebank, 2015)). However at country-level, there is negligible literature in many developing countries that on the effects of corruption on entrepreneurship growth. For instance, the impact of corruption on the growth of entrepreneurship in Zimbabwe has not been extensively interrogated even though the country has consistently scored lower on both the Transparent International Perception of Corruption Index and the World Bank Ease of Doing Business. The country's unemployment rate is estimated to be over ninety percent, suggesting that most people have no choice but to opt for self-employment using their entrepreneurial skills. In addition, the economy has been in economic recession for the past five years, implying also that opportunity-driven entrepreneurship may not be the main motivation for the people to opt for self-employment, but rather, people are being pushed into entrepreneurship by necessity.

As our main contribution to empirical literature, we investigate the linkage between corruption, entrepreneurship activities and economic growth using ordinary Least Regression Technique for the period 1998 to 2016. We believe that using a positivist philosophy is likely to bring to the fore more objective findings given that the few studies on corruption in Zimbabwe have often relied on surveys. We argue that pursuing an interpretivist approach by using surveys and interviews in order to investigate corruption is likely to lead to biased inferences since corruption is illegal both to the payer and receiver of a bribe. All most all corrupt practices are done in privacy between two willing parties who in complicit prefer to remain anonymous in order to avoid being criminally prosecuted. Hence, using survey approaches the extant study argues that the researcher is left with insufficient information on the extent of corruption on entrepreneurial activities. The strategy of this paper is as follows; the first section covers background and introduction, the second section is on literature review, the third section covers the methodology while the final section presents findings and recommendations.

## 2. Literature Review

Entrepreneurship is a key cogwheel for rapid economic recovery and a crucial engine of technological progress, economic and social growth. According to Muzurura (2018) entrepreneurs have introduced new technologies that have spawned countless industries, creating jobs and improving the social and economic conditions of nations. Dutta and Sobel (2016) examined the effects of corruption in seven countries and reported that corruption under a bad investment climate hurts entrepreneurship. In contrast, Dreher and Gassebner (2013) show that corruption helps entrepreneurship and economic growth. They argue that corruption creates private and social deadweight losses and hence, entrepreneurs are willing to pay corruption rentals (bribes) in order to circumvent red tape that reduces productivity. Estrin et al. (2016) suggest that less corruption and stronger protection of property rights increases the growth of entrepreneurship. When barriers to opening new business by entrepreneurs are severe, being able to bribe political agents can ease the business start-up process thereby improving the level of entrepreneurial activity in an economy relative to an environment in which there was less corruption (Dutta & Sobel, 2016). The Transparent International (2018) reveals that corruption is much more likely to propagate where democratic foundations are feeble and also where undemocratic and populist politicians can use it to their advantage. The report adds that corruption produces a vicious cycle, where corruption destabilises democratic institutions and, in turn, weak institutions are less able to control corruption. Festus, Bassey, and Uyang (2014) in a study of Nigeria demonstrate that high information costs and limited access to resources may increase the potential gains from corruption. Corruption helps to grease the wheels of economic activity and can allow entrepreneurs to bypass costly regulation and engage in productive activity at lower costs (Bologna & Ross, 2015; Dreher & Gassebner, 2013; Dutta & Sobel, 2016).

By measuring the linkage between institutional quality, corruption and the shadow economy (Wiseman & Young, 2013) establish that corruption affects the size of the shadow economy and hence, creating a negative relationship with entrepreneurship. Corruption shifts the allocation of resources towards more corruptible activities because entrepreneurs recognize the ability to profit from those activities (d'Agostino et al., 2016; Williams & Horodnic, 2015a). As far back (Leff, 1964) suggested that if the government has erred in its decision, the course made possible by corruption may well be the better one. Similarly, Huntington (1968) observed that corruption might be a way of achieving certain benefits which make work in the formal economy easier such as winning a contract from a public authority, getting a licence or getting investment permits. Alvarez and Urbano (2011) examined a panel data of Latin American countries over a period between 2004 and 2009 in order to investigate the influence of the environmental factors in entrepreneurship. Their findings indicated that factors such as political instability, corruption control and role models affect the growth of entrepreneurship in Latin American countries.

Wiseman (2016) opines that public officials such as law enforcement who are less visible to the public eye are likely to accrue corruption rentals from smaller firms and new entrepreneurs. The findings infer that entrepreneurs and small firms will probable flee corruption by taking their business underground. Dreher and Gassebner (2013) show that collusion between firms and corrupt officials in high-income countries result in a negative-substitutive-relationship between corruption and the size of shadow economy. Liu and Mikesell (2014) show that corruption reduces economic growth, lowers investment, and corrodes trust in government officials creating an institutional environment which pushes entrepreneurs from productive to destructive activities. Olken and Pande (2011) concur, in corrupt regimes, rent-seeking and cronyism crowd-out value-creating entrepreneurship.

Corruption reduces economic growth, lowers domestic investment, and corrodes trust in government officials creating an institutional environment which pushes entrepreneurs from productive to destructive activities (Holcombe & Boudreaux, 2015; Mawuli & Stinchfield, 2013; Williamss & Shahid, 2016). However, we argue that the above observation suffer from the likely effect of reverse causality when the prospects of accruing more corruption related incomes (after paying corruption rentals and obtaining required documents) may also motivate entrepreneurs to pay corruption rentals in turn for bureaucrats offering more market restrictions. Liu and Mikesell (2014) aver that corruption tends to prevail when barriers to entry are high and bribe givers face less competition. Corruption not only lowers economic output but also shifts resources toward some industries and away from others (Bologna & Ross, 2015); (Estrin et al., 2016; Muzurura, 2018; Wiseman & Young, 2013). Aidt (2016) reports the close connection between corruption, rent-seeking and corruption.

Khan and Quaddus (2015) observe that in more corrupt countries, corruption shifts entrepreneurial activity toward less competitive industries in which connections and cronyism carry more weight, making rents from corruption more readily available. According to Wiseman (2016) corruption and shadow economy size are positively related and both contagious and cross-contagious in the U.S. states. Greater entrepreneurial activity is nurtured by, among others the availability of credit and venture capital, solid laws and well-defined property rights, good political and economic institutions, and efficient regulation of the economy (Aidt, 2016; Dreher & Gassebner, 2013; Dutta & Sobel, 2016; Wiseman, 2016). However, the quality of the legal system, restrictions on international trade, and regulations do not significantly affect entrepreneurial activity (Doern & Goss, 2014; Efendic, Mickiewicz, & Rebmann, 2015). Williamsp and Martinez-Perez (2016) say that

opportunity-motivated entrepreneurs create their small business in order to seize an opportunity in the market. However, necessity-motivated entrepreneurs do so by necessity because they might not have any other career alternatives (ECA, 2016). Opportunity motivated entrepreneurs are more sensitive to corruption and more likely to grease the wheels compared to necessity motivated entrepreneurs (Welter, 2011; Welter & Smallbone, 2011). Under corrupt-ridden business environments, it is difficult to calculate and monitor the payoffs of a new venture as investments in innovation or economic opportunities become uncertain and transaction cost increases (Aidis, Estrin, & Mickiewicz, 2012; Williams, Martinez-Perez, & Kedir, 2016a). In a highly corrupted business environments, talented individuals prefer unproductive or destructive activities over productive ones (Desai, Acs, & Weitzel, 2013). From the institutional standpoint, corruption is a by-product of formal institutional imperfections which leads to an asymmetry arising between formal and informal institutions (Wiseman, 2016).

The reason that corruption is often found to be greater in developing than in developed countries is due to the deficiencies of formal institutions are greater (Williams et al., 2016a). Mair, Marti, and Ventresca (2012) also observed that the greater prevalence of corruption in developing economies than developed economies was due to the huge formal institutional deficiencies that led to incongruence between formal and informal institutions. At the macro-level, countries with a high level of corruption display relatively lower levels of firm performance (Faruq & Webb, 2013; Williams & Horodnic, 2015a). In the African perspective, Faruq and Webb (2013) report that less productive firms are more likely to pay corruption rentals. Mawuli and Stinchfield (2013) argue that corruption reduces the heavy bureaucratic burden and cumbersome regulations.

Wiseman (2016) agrees, bureaucratic regulations and red tape that hinder entrepreneurship activities aided by formal institutional imperfections. Jiang and Nie (2014) establish that payments given by entrepreneurs to public officials in return for services help them to navigate the market failures induced by the failings of formal institutions. At a country-level corruption was seen to boost economic development (Jiang & Nie, 2014; Muzurura, 2018). The assertion suggests that corruption contributes positively to entrepreneurial activity performance because it compensates for the consequences of an ineffective institutional framework, the weak rule of law and lack of laws that protect private property rights. For instance, Ayaydin and Hayaloglu (2014) examined the relationship between firm growth and corruption in 41 manufacturing firms in Turkey, and demonstrated that making corrupt payments or speed money to public officials had a positive effect on firm growth. However, Lavallée and Roubaud (2011) find no association between corruption and firm output. Williams et al. (2016a) analysed 132 countries and reported that corruption in the form of bribery enhanced firm performance with firms that pay public officials to get things done. They also reported that small firms that paid bribes had 13.9 percent and 48 percent higher average annual sales and productivity growth rates respectively. Meon and Weill (2010) used data from 69 developed and developing countries and found positive evidence for the greasing the wheels hypothesis in situations where institutions were ineffective. The findings imply that some firms are motivated to pay some additional speed money in order to reduce the time lag involved in many bureaucratic procedures.

Corruption can also raise the cost of operations, which can have a negative effect on survival of young firms (Athanasouli, Goujard, & Sklias, 2012). Tonoyan, Strohmeyer, Habib, and Perlitz (2010) show that corruption raises the level of business uncertainty and reduces the willingness of entrepreneurs to invest and create new innovative companies. Where institutions are weak, entrepreneurs can become exposed to and embroiled in corrupt practices (Xheneti, Smallbone, & Welter, 2012). Institutional framework that prevails in a country is essential for shaping entrepreneurial orientation, new venture creation, aspirations, perceptions and economic growth (Doern & Goss, 2014; Efendic et al., 2015; Welter, 2011). Obtaining credit is a major constraint on entrepreneurial activity in emerging economies (Aidis et al., 2012).

Estrin et al. (2016) suggest that entrepreneurs and small firms often either have to resort to the informal credit markets or resort to bribing bureaucrats to secure the access to capital. The likelihood for entrepreneurs to be embroiled in corruption is affected by the perception of how many other individuals in the society are engaged in corrupt arrangements (Muzurura, 2018). Taxation reduces the reward to entrepreneurial innovation and therefore discourages investments that are important for economic growth (Fiorino, Galli, & Petrarca, 2012; Glaeser, Kerr, & Kerr, 2015; Haltiwanger, Jarmin, & Miranda, 2013). This viewpoint suggests that minimizing the tax burden on successful entrepreneurs could encourage more people to try to become successful entrepreneurs and innovators.

Aghion, Cagé, Akcigit, and Kerr (2016) report that entrepreneurs frequently rely heavily on public goods such as infrastructure and legal systems, therefore, higher taxation can raise expected returns on entrepreneurial activities and enhance economic growth especially if the taxes are used to provide public goods. The findings imply that a high taxation regime and redistribution can help to increase investment opportunities for entrepreneurs in an economy with imperfect credit markets. Nanda (2011); Djankov, Ganser, McLiesh, Ramalho, and Shleifer (2010) and Rohlin, Rosenthal, and Ross (2013) have also demonstrated the impact of corruption and taxation on entrepreneurial activities. Chakraborty and Dabla-Norris (2011) and Glaeser, Kerr, and Ponzetto (2010) also provide extensive discussions of the nexus among corruption, public finances, and economic growth. We argue that whilst corruption may cause policy distortions, nevertheless this may create problems of simultaneity bias among public finance and economic growth.

### 3. Methodology

In order to obviate the estimation of a spurious regression in this study, model diagnostic tests such as stationarity, multicollinearity, autocorrelations, heteroscedasticity and model specification tests were carried out before data the interpretation of the model.

### 4. Conceptual Framework

The paper develops a Schumpeterian growth model showing the relationship between corruption and entrepreneurship. Our model builds on the important framework that was developed by Aghion et al. (2016) and also has theoretical and empirical links with studies carried out by Glaeser et al. (2015); Haltiwanger et al. (2013) and Acemoglu, Ufuk, Harun, Nicholas, and Kerr (2018). First, we assume that the economy of Zimbabwe consists of a representative household who has choices between consumption and leisure. We can therefore use a continuous time model given by;

$$U = \int_0^{\infty} e^{-\theta t} \{ \ln C_t - L_t \} dt \tag{1}$$

Where  $L_t$ , represent labour supply by the household,  $C_t$  is consumption. The labour supply can be used for entrepreneurial activities ( $L_E$ ) and to provide public infrastructure ( $L_P$ ). We also assume that the household has a budget constraint given by;

$$B_t + C_t = s_t B_t + w_t L_t + \alpha T_t \tag{2}$$

Where  $w_t$  denotes the wage rate,  $s_t$  is dividend from asset holdings in a firm,  $B_t$  is new investment by an entrepreneur and  $T_t$  represent government taxes used in provision of pure public goods or public infrastructure used by entrepreneurs. We assume a constant returns to scale (CRS) production technology given by the following equation;

$$Q_t = K_t^{\delta} Y_t^{1-\delta} \tag{3}$$

The equation shows that the final consumption of good  $Q_t$  is produced using capital  $K_t$  and the basket of intermediate varieties  $Y_t$  as per CRS production function. If we assume that  $\delta = 0$  then  $Q_t$  equals  $Y_t$ . This implies that the final good is produced the intermediate goods basket  $Y_t$  only which is also produced using the CES aggregator given by;

$$\ln Y_t = \int_0^1 \ln_{y_t}(p) dp \tag{4}$$

(For proof of this equation see Aghion et al. (2016)). In the above equation,  $p$  indexes a unique product line and using the Bertrand pay-off matrix, only the latest innovation by an entrepreneur is active in equilibrium. Entrepreneurs rely heavily on the government to provide quality public infrastructure. In particular, public infrastructure such as roads, railway and communication networks help the innovation efforts of entrepreneurs by reducing an entrepreneur's operating costs. We therefore assume that infrastructure ( $\phi_t$ ) stock depreciates per annum at the rate  $\phi \alpha \in (0, 1)$ . However, if the government invests  $IF_t$  in new infrastructure using money from tax revenue, we can express the law of motion for the public infrastructure as follows;

$$\dot{\Phi}_t = -\delta_{\alpha} \alpha_t + IF_t \tag{5}$$

To produce  $IF_t$  units of infrastructure with a one to one technology, the government hires  $L_{Gt}$  workers at;

$$IF_t = L_{Gt} \tag{6}$$

The government taxes profits from entrepreneurial activities are  $\Pi_t$  using tax rate  $\tau \in (0, \tau)$ . We assume that taxation revenue is subject to corruption rentals at a fraction  $\phi \in (0, 1)$ . Resultantly, only the proportion  $(1-\phi)/100$  turns into government investment in public infrastructure.

$$IF_t = \frac{(1-\phi)\tau_t}{w_t} \tag{7}$$

Where  $T_t \equiv \int_0^1 \tau_t \Pi_t(p) dp$  (8)

Aghion et al. (2016) say that the same amount of tax payers' money turns into better infrastructure if government institutions (such as the Police and Anti-Corruption Agencies) that deal with corruption are also effective and efficient. However, corrupted money  $\phi T_t$  is added to the household budget as revenue and the resource constraint  $Y_t = C_t$  with all expenses shown in labour units. We can assume that an entrepreneur produces only one good and that output is produced with a well-behaved neoclassical production function with positive and strictly diminishing marginal product of physical capital. We use a Cobb-Douglas production function such that production at time  $t$  is given by;

$$Y_t = X_t K_t^{\alpha} C_t^{\phi} G_t^{\beta} H_t^{\theta} L_t^{\gamma} \tag{9}$$

Where,  $Y_t$  is output (GDP),  $K_t$  new innovations,  $G_t$  public infrastructure  $H_t$  stocks of human capital and  $K_t$ , are the,  $C_t$  public corruption and  $L_t$  at time  $t$ . Adopting an endogenous growth model where any combination of the capital inputs exhibits constant returns to scale, such that;

$$\alpha + \theta = 1; \beta + \theta = 1; \beta + \gamma = 1 \text{ and } \theta + \gamma = 1$$

$F_t$  as the product of the level of entrepreneurship and other institutional factors at time  $t$ , such that;

$$X_t = F_t \text{Corr}_t Y_t \quad (10)$$

Where  $X_t$  is the exogenous level of new technology introduced by the entrepreneur,  $\text{Corr}_t$  represents the level of corruption, and  $F_t$  is a row vector of exogenous variables that influence entrepreneurship output (proxied by the level of real GDP growth rate). The growth of entrepreneurship is subject to decreasing returns to scale with respect to physical and human capital. This implies that the economy over the long-run, due to corruption tends to have constant capital-labour, human capital-labour, and public capital-labour ratios which have been normalised to 1.

The econometric model specification can be expanded as follows:

$$\text{Entre}_t = \partial_0 + \partial_1 \ln \text{tax}_t + \partial_2 \text{Corr}_t + \partial_3 \text{Inst}_t + \partial_4 \text{Lit Rate}_t + \mu_t \quad (11)$$

Where the dependent variable *entre* represents entrepreneurial growth rate in Zimbabwe and was proxied by the real GDP growth rate. The GDP growth rate captures both the level of economic opportunities in a country as well as a pointer to unemployment and levels of poverty. A rising GDP suggests increasing market size and hence, the growth of more opportunities seeking entrepreneurs. On the other hand, a low GDP suggest unemployment, low incomes and poverty and hence driving the growth of necessity driven entrepreneurs.  $\ln \text{tax}$  represents natural logarithm of tax revenue. High taxation growth rates depress entrepreneurial activities and may also drive existing entrepreneurs in the shadow economy which is highly unobservable.  $\text{Corr}$  denotes the corruption variable. Studies on the effects of corruption on entrepreneurship growth use data from different sources such as, the Transparent International Perception of Corruption index, the Institute for Management Development and the World Economic Forum, the Business Environment Survey from 2000 developed by the World Bank and the University of Basel (WB/UB), the Business International index (BI) demonstrated in Mauro (1995) and the Political Risk Service's International Country Risk Guide (PRS/ICRG). Our study relied the Transparent International Perception of Corruption index (2018). The PCI is computed as an average of different surveys of perceptions of corruption in a country in a year and a country is ranked from 0 to 10 with 10 being the least corrupt and 0 the most corrupt. The PCI corruption database are thus based on subjective perceptions of experts, and in the study we assume that the PCI are correlated with underlying real levels of corruption in Zimbabwe. An alternative is using a survey methodology. However, relying on primary data collection on the number of people convicted for corruption and abuse of office for personal gain could suffer from intrinsic biases regarding reliability, validity and usability. In any case, the corruption data base of Zimbabwe Republic Police and Anti-Corruption Agencies are a composition of the number of convictions. The database do not differentiate among various forms of corruption, such as nepotism, frauds, embezzlement of public funds or bribery. These constituents of corruption have different effects on entrepreneurial growth in Zimbabwe. However, using the PCI index comes with many shortcomings. The PCI is constructed using a survey of perceived corruption, hence, the index reflect perceptions only and cannot be considered as a fool-proof objective measure of actual levels of corruption in the country. The perception of corruption in a country depends on a number of multiple factors such as individual's culture, the nature of the former coloniser, institutions, political leadership, age, gender, education and possibly a person's social standing. Many of these factors have not been incorporated into the PCI. The paper argues that outside expert assessments of corruption in developing countries such as Zimbabwe correspond little, if at all, with the experiences and views of actual entrepreneurs of those countries. The extant study argues that the hidden nature of corruption often results in definitional variances even in heavily used indices such as PCI. Whilst recognizing the limitations of perception-based indices, many researchers have nevertheless been able to use them to significantly advance the study of corruption (see Muzurura (2017)). Although corruption may grease the wheels of entrepreneurial activities we argue that any benefit that accrue from it is more than offset by negative impact of corruption, especially slowing down entrepreneurial activities in the country. A number of studies have used this variable by adopting various metrics that range from qualitative (corruption surveys) to quantitative approaches such as number of convictions (d'Agostino et al., 2016; Estrin et al., 2016; Pinotti, 2012; Williams & Martinez-Perez, 2016).  $\text{Inst}$  denotes public institutions that fight corruption,  $\text{Lit}$  denotes literacy rate and  $\mu$  is the error term. We thus anticipate negative  $\partial_1, \partial_2, \partial_3$  coefficients and a positive  $\partial_4$  coefficient.

The major challenge in econometric specification of this form is that corruption can be both an endogenous and exogenous variable. Concerning the former, a change in entrepreneurship growth rate might give rise to the corruption through increased demand for permits, licences and other regulatory requirements. The demand of these documents are inelastic and thus entrepreneurs are forced to pay corruption rentals to regulatory officials, and hence giving rise to more corruption rentals. On the contrary, declining entrepreneurial growth rate may also shift economic activities towards corruption since rent seeking by corrupt bureaucrats becomes the most productive way to make money than actual entrepreneurial activities. In addition, causality might also run in both directions. Corruption is likely to be higher in terms of GDP per capita since the country does not only lack adequate resources to fight corruption effectively, but also there is



no political commitment to fight corruption. To resolve this issues the study carried out Granger causality tests on entrepreneurship and corruption using the following equations. Starting from a simple (Granger, 1969) specification the Equation 11 below can be built follows;

$$Entrepreneurship_{t-1} = \varnothing \sum Entrepreneurship_{t-1} \tag{11}$$

$$Corruption_{t-1} = \gamma \sum Corruption_{t-2} \tag{12}$$

The two equations can be expanded as shown below;

$$Entre_{t-1} = \gamma + \sum_s^S \beta_i^{(k)} Entre_{t-s} + \sum_{t-j}^S \beta_i^{(s)} Corr_{t-s} + \mu_t, \tag{13}$$

$$Corr_{tm-1} = \varnothing + \sum_s^S \beta_i^{(s)} Corr_{t-s} + \sum_{t-j}^S \beta_i^{(s)} Entre_{t-s} + \varepsilon_t, \tag{14}$$

Where  $Entre_{t-1}$  and  $Corr_{t-1}$  are stationary time series sequences,  $\gamma$  and  $\varnothing$  are intercept sequences and  $\varepsilon_t$  and  $\mu_t$  are uncorrected white noise error terms.  $S$  is the optimum lag length of  $\varnothing$  which was determined using the Akaike Information Criterion. We chose a lag length of 2 on the assumption that most start-ups in Zimbabwe took at least 2 years to grow owing to numerous constraints, and the chief constraint being corruption. In the specification, we postulated that corruption Granger caused entrepreneurship if  $\vartheta$  was not statistically and significantly equal to zero. Similarly,  $Entre$  Granger caused corruption if  $\theta$  was not equal to zero. If these two conditions held we concluded that there was bidirectional causality between the two variables. Nevertheless, if none of the conditions held we concluded that the two variables were independent and therefore there was non-Granger causality. Having specified  $Entrepreneurship$  and  $Corruption$  variables the likely four cases of causation are; if corruption causes the growth of entrepreneurship but the growth of entrepreneurship do not cause the growth of corruption it would be concluded that there is uni-directional causation from corruption and entrepreneurship. Similarly, if the growth of entrepreneurship causes the growth of corruption but the growth of corruption do not cause the growth of entrepreneurship it would be concluded that there exists an uni-directional causation from entrepreneurship to corruption. If entrepreneurship caused corruption and corruption caused entrepreneurial growth it would imply a bi-directional causation between the two variables. If entrepreneurial activities do not cause corruption growth and corruption growth does not cause growth of entrepreneurial activities it means that there exists no causal relationship between the corruption and entrepreneurial activities. The estimation of the Granger causality was carried out using the Generalised Method of Moments since such models are intended to handle auto-regressive properties in the explained variable when lagged values are included as explanatory variables. Secondary data used in the study was obtained from World Bank (2017) database. Regarding the data for corruption variable, the paper relied on Transparent International Perception of corruption indices (2018).

### 5. Findings and Discussions

As shown in Table 1, the independent variables did not move together in a systematic and hence, suggesting no multicollinearity. When independent variables are high correlated among themselves it becomes difficult to separate individual effects of each variable and this leads to wrong inference.

Table-1. Multicollinearity.

Correlation Matrix				
Variables	Corruption	Institutions	ln tax	Literacy
Corruption	1			
Institutions	0.425	1		
Ln tax	0.4888	0.721	1	
Literacy	0.090	-0.449	-0.013	1

Table-2. Unit Root Test.

Variables	t-ADF	Critical-1%	Critical-5%	Conclusion
DEntre	-4.373	-4.373	-3.120	I(1)
DCorruption	-3.861	-4.122	-3.144	I(1)
DInstitutions	-3.317	-4.058	-3.120	I(1)
ddln tax	-4.171	-4.122	-3.145	I(2)
Literacy	-5.596	-4.200	-3.175	I(0)

The Augmented Dickey and Fuller unit root test was used to investigate the null hypothesis that a variable had a unit root against the alternative of being stationary. The presence of unit root shows that the variables did not have constant mean, constant variance and constant autocovariance. If variables are not stationary may lead to wrong inferences on the findings. All the probability value of ADF test statistic were compared to 0.01, 0.05 and 0.1<sup>2</sup>. The results of unit root tests are shown in Table 2. Heteroscedasticity is a

major problem in time series data that is caused by non-standard errors. Using the Breusch-Pagan-Godfrey test Appendix B shows that the errors were homoscedastic. Other model diagnostic tests for correct model specification, autocorrelation and normality are shown in Appendix A, C and D respectively.

**Table-3.** Regression Output.

<b>Dependent Variable: DGDPT_1</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
DCORR	13.517	5.111	2.645	0.0295
DDLNTAX	-7.124	2.041	-3.490	0.0082
DINSTITUTIONS	-10.214	5.254	-1.943	0.0878
LIT	-2.657	1.714	-1.550	0.1596
C	260.966	166.685	1.565	0.1561
R-squared	0.731	Mean dependent var		0.589
Adjusted R-squared	0.596	S.D. dependent var		9.605
S.E. of regression	6.105	Akaike info criterion		6.739
Sum squared resid	298.176	Schwarz criterion		6.957
Log likelihood	-38.809	Hannan-Quinn criter.		6.695
F-statistic	5.426	Durbin-Watson stat		2.220
Prob(F-statistic)	0.021			

The effect of corruption on entrepreneurial activities in Zimbabwe was found to be positive and statistically significant at 5 percent level of confidence. The findings indicate that a unit increase in corruption levels is expected to increase entrepreneurial activities in economy. Whilst these findings are surprising, however, a strong empirical evidence suggests that corruption greases entrepreneurial activities in many countries (see (Ayaydin & Hayaloglu, 2014; Estrin et al., 2016; Murphy, Shleifer, & Vishny, 1991)). The finding suggests that Zimbabwe entrepreneurs are risk takers and hence, prefer to pay corruption rentals as a way of circumventing government regulations and red tape. A possible explanation for the positive relationship rests on issues of timing and likely irreversibility of investments done by entrepreneurs. Entrepreneurial activities are very risk and involve sunk costs that may not be recoupable. In order to manage the value of waiting to carry out new start-ups, most entrepreneurs might opt to pay bribes to responsible officials in order to access vital documents. Taxes were found to be negative and significant at 10%. A one percent increases in taxes for entrepreneurs and new start up business will reduce entrepreneurial activities by at least 700%. The results are consistent with a number of studies by (see (Fiorino et al., 2012; Glaeser et al., 2015; Haltiwanger et al., 2013)). The effect of institutions on entrepreneurial activities was established to be negative suggesting that a unit increase in deficient public institutions reduces entrepreneurial activities by 1000%. Our findings suggest that corruption reduces could be corroding trust in bureaucrats and likely to be creating an institutional environment that is pushing entrepreneurs towards destructive activities compared to productive activities. Holcombe and Boudreaux (2015); Williamss and Shahid (2016); Mair et al. (2012) and Barro (1991) also reported similar findings in developing economies. Our findings do not confirm the effect of education on entrepreneurial activities. Regarding the direction of causality between entrepreneurial activities and corruption, as shown in the table below, we can reject the null hypothesis and conclude that in Zimbabwe there is a one way causality running from Entrepreneurship to Corruption. Our findings imply that entrepreneurs are forced to pay corruption rentals in order to obviate government bureaucracy and inefficient public institutions. The growth in the number of entrepreneurs in Zimbabwe is likely to catalysed corruption through increased demand for permits, licences and other regulatory requirements. The effect is likely to be more pronounced on opportunity-driven entrepreneurs than necessity-driven entrepreneurs because the former is likely to be well- resourced and connected and therefore, are able to pay speed money. Even though there is a feedback mechanism from low entrepreneurial growth to high corruption and from high entrepreneurial growth to low corruption, we argue that the growth process cannot begin unless reasonably effective institutions in place.

**Table-4.** Granger Causality

<b>Null Hypothesis:</b>	<b>Obs</b>	<b>F-Statistic</b>	<b>Prob.</b>
Entrepreneurs do not Granger Cause Corruption	19	4.270	0.0254
Corruption does not Granger Cause Entrepreneurship		0.497	0.6141

Sample: 1998 2015

Lags: 2

## 6. Conclusions and Recommendations

Both necessity and opportunity driven entrepreneurial activities in Zimbabwe are being driven by weakening economic growth, political and economic instability and high levels of unemployment. Zimbabwe has been listed as one of the most corrupt countries in Sub-Saharan Africa. The study examined the nexus

between entrepreneurial activities and corruption in Zimbabwe. Our findings suggest that entrepreneurial activities are being curtailed by high taxes and deficient public institutions. We also show a positive relationship between corruption and entrepreneurial activities. The study recommends that policy makers should reduce taxes, reduce red tape and increase the efficiency of public institutions that deal with entrepreneurs.

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### Appendix-A. Ramsey RESET Test

Equation: EQ01

Specification: DGDPT\_1 DCORR DDLNTAX DINSTITUTIONS LIT C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.120751	7	0.9073
F-statistic	0.014581	(1, 7)	0.9073
Likelihood ratio	0.027050	1	0.8694
F-test summary:			
	Sum of Sq.	df	Mean Squares
Test SSR	0.619799	1	0.619799
Restricted SSR	298.1768	8	37.27210
Unrestricted SSR	297.5570	7	42.50814
Unrestricted SSR	297.5570	7	42.50814

LR test summary:

	Value	df
Restricted LogL	-38.80899	8
Unrestricted LogL	-38.79547	7

Unrestricted Test Equation:

Dependent Variable: DGDPT\_1

Method: Least Squares

### Appendix-B. Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.941812	Prob. F(4,8)	0.1969
Obs*R-squared	6.404049	Prob. Chi-Square(4)	0.1709
Scaled explained SS	2.412607	Prob. Chi-Square(4)	0.6604

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1932.952	802.0715	-2.409949	0.0425
DCORR	32.28225	24.59258	1.312683	0.2257
DDLNTAX	6.686314	9.822505	0.680714	0.5153
DINSTITUTIONS	12.81782	25.28189	0.506996	0.6258
LIT	20.15844	8.245794	2.444694	0.0403
R-squared	0.492619	Mean dependent var		22.93668
Adjusted R-squared	0.238929	S.D. dependent var		33.67409
S.E. of regression	29.37707	Akaike info criterion		9.882029
Sum squared resid	6904.100	Schwarz criterion		10.09932
Log likelihood	-59.23319	Hannan-Quinn criter.		9.837367
F-statistic	1.941812	Durbin-Watson stat		1.833491
Prob(F-statistic)	0.196862			

### Appendix-C. Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.120810	Prob. F(2,6)	0.8883
Obs*R-squared	0.503246	Prob. Chi-Square(2)	0.7775

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Included observations: 16

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DCORR	-0.730788	6.039159	-0.121008	0.9076
DDLNTAX	-0.247428	2.425248	-0.102022	0.9221
DINSTITUTIONS	0.209558	6.429936	0.032591	0.9751
LIT	-0.583676	2.422135	-0.240976	0.8176
C	56.57372	235.3972	0.240333	0.8181
RESID(-1)	-0.190106	0.459143	-0.414046	0.6932
RESID(-2)	-0.187741	0.531979	-0.352910	0.7362
R-squared	0.038711	Mean dependent var		-2.70E-15
Adjusted R-squared	-0.922578	S.D. dependent var		4.984783
S.E. of regression	6.911753	Akaike info criterion		7.008057
Sum squared resid	286.6340	Schwarz criterion		7.312260
Log likelihood	-38.55237	Hannan-Quinn criter.		6.945529
F-statistic	0.040270	Durbin-Watson stat		1.905075
Prob(F-statistic)	0.999453			

### Appendix-D. Normality Tests

