T.C.
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İKTİSAT ANA BİLİM DALI
İKTİSAT (İNGİLİZCE) BİLİM DALI

EVALUATION OF FIRM PERFORMANCE WITH REGARDS TO INSTITUTIONAL QUALITY

Yüksek Lisans Tezi

YASİN SOLAK

İstanbul, 2021

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ABSTRACT

In this dissertation, we investigate the effects of institutional quality on firm performance for emerging economies. In order to achieve this, we use a firm-level panel data obtained from World Bank Enterprise Surveys, consisting of more than 100.000 firms in 127 emerging economies. For the measurement of the firm performance, we use variables from Enterprise Surveys representing the firm performance. These variables consist of buying fixed assets, employment growth and capacity utilization, each of which captures the different aspect of firm performance. For the measurement of institutional quality, we also use different varaibles from Enterprise Surveys representing the institutional quality. In this regard, we create three group of regressions based on: (1) the average of all enterprises, (2) small-scale enterprises, and (3) large-scale enterprises. Therefore, we also check whether the results for small enterprises are different from the results for large enterprises.

The empirical findings show that buying fixed assets of all enterprises is negatively affected by bribery and political instability. On the other hand, while bribery has a facilitating effect on employment growth of small-scale enterprises, it has no relationship with the employment growth of large-scale enterprises. We also find out that political instability has a negative effect on employment growth. The negative effect also holds true for small and large-scale enterprises. The findings also reveal that capacity utilization of small-scale manufacturing enterprises is negatively associated with political instability and corruption. However, this negative effect does only hold true for small-scale enterprises.

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ÖZET

Bu tezde, kurumların kalitesinin firma performansı üzerindeki etkisi gelişmekte olan ülkeler için incelenmiştir. Bunu yapmak için Dünya Bankası Girişim Anketlerinden elde ettiğimiz 127 gelişmekte olan ekonomideki 100.000'den fazla firmadan oluşan panel veriyi kullanıyoruz. Firma performansını hesaplamak için Girişim Anketlerinden elde ettiğimiz firma performansını temsil edecek değişkenler kullanıyoruz. Bu değişkenler duran varlık alımı, istihdam büyümesi ve kapasite kullanımından oluşmakla birlikte her biri firma performansının farklı noktalarına odaklanmaktadır. Kurumların kalitesini hesaplamak için de Girişim Anketlerinden kurumların kalitesini temsil edecek değişkenlerden faydalanılmıştır. Bu bağlamda analiz ettiğimiz regresyonlar üç gruptan oluşmaktadır: (1) tüm girişimlerin ortalaması, (2) küçük ölçekli girişimler ve (3) büyük ölçekli girişimler. Böylece sonuçların büyük ve küçük ölçekli firmalar için nasıl farklılaştığını da kontrol ediyoruz.

Ampirik bulgular firmaların duran varlık alımının rüşvet ve siyasi istikrarsızlık tarafından negatif yönde etkilendiğini göstermektedir. Ayrıca rüşvet küçük ölçekli firmaların istihdam büyümesine kolaylaştırıcı bir etki sağlarken, büyük ölçekli firmaların istihdam büyümesine herhangi bir etkisi yoktur. Ek olarak siyasi istikrarsızlığın istihdam büyümesine negatif bir etkisi olduğunu gözlemlemekteyiz. Bu negatif etki hem küçük hem de büyük ölçekli girişimler için geçerlidir. Ampirik sonuçlar ayrıca sanayi firmalarının kapasite kullanımı ile siyasi iktidarsızlık ve yolsuzluk arasında negatif yönlü bir ilişki olduğunu göstermektedir. Fakat bu negatif yönlü ilişki sadece küçük ölçekli firmalar için geçerlidir.

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ABBREVATIONS

BEEPS : Business Environment and Enterprise Performance Surveys

BFA : Buying Fixed Assets

CEEC : Central East European Countries

CU : Capacity Utilization

EBRD : European Bank for Reconstruction and Development

EG : Employment Growth

IDD : Independent and Identically Distributed

LPG : Labor Productivity Growth

NEI : New Institutional Economics

SG : Real Sales Growth

TCE : Transaction Cost Economics

WBES : World Bank Enterprise Survey

WGI : Worldwide Governance Indicators

WDI : World Development Indicators

1. INTRODUCTION

There are sharp differences in economies' performance across countries, and these differences are clearly the result of the differences in firm performance. One of the most desired aims in today's economic system is to increase economic performance, which can be done efficiently through increasing firm performance. Moreover, as globalization has been increasing, the competition among the firms is also subject to increase, notably nationwide. In this regard, it is getting more difficult for the firms to survive unless having good performance compared with their competitors. Therefore, it is notable to understand the dynamics and behaviors of firms to conduct policies for the improvement of economic performance.

The studies related to the firm performance based on the analysis of firm-level data provide us some useful information that can't be obtained from the studies based on macro-level analysis. The reason behind this idea is that economic performance is measured by macro-level tools, such as GDP growth rate and GDP per capita. However, other studies benefit from a firm-level dataset, so that they can provide more detailed information for policy recommendations. For instance, country-level analysis tells nothing about how policy's effect changes across firm size and age, but the firm-level study does provide us information regarding these issues. Therefore, studies based on firm-level analysis are important in terms of understanding the dynamics of firms, which is crucial for reaching a higher level of economic performance and development.

In this dissertation, we seek to clarify the factors explaining performance of firms or countries based on the firm-level data. The neoclassical model states that capital accumulation or technological differences are the fundamental reason for explaining the productivity differences across countries. According to Solow (1956), different paths of factor accumulation is the reason for income differences across countries. Romer (1986) and Lucas (1988) emphasize the importance of physical and human capital accumulation in terms of explaining the income differences across countries. On the other hand, North and Thomas (1973) states that productivity can come about through a reduction in market imperfections, which is the result of uncertainty and information costs. In their sense, innovation, economies of scale, education, and capital accumulation are not the causes of growth. They are the growth. Acemoglu, Johnson and Robinson

(2005) also emphasizes the role of institutional quality in terms of explaining the income differences across countries.

The main question we attempt to explore is: what role does institutional quality play for firm performance? Additionally, we investigate how the effect of institutional quality differs by small and large-scale enterprises. Lastly, we also check whether the effect of institutional quality changes across firm age. By institutions, we mean rules, regulations, laws, beliefs, values, and norms. The basic idea is that qualified institutions shape the policies and the behavior of individuals in a way that the government is likely to invest more to increase the productivity. In the literature, this type of researches mostly associated with some well-known studies. (Douglass C, 1992; North, 1990; Hall and Jones, 1999; Johnson, McMillan, and Woodruff 2002; Acemoglu et al., 2005). These studies have significantly emphasized the role of institutions in explaining the performance of economies and productivity differences across countries.

The existing researches evaluating the effect of institutional quality on economic performance mostly based on macroeconomic analysis. This dissertation is distinct from most of the current studies in the sense that it uses firm-level data. Although there are some existing studies using the firm-level data, this study is also different from most of the others in the sense that it involves capacity utilization and buying fixed assets indicators as proxy for the firm performance. Moreover, the model we attempt to make estimations in this dissertation is also different from the models in existing studies in the sense that it includes different control variables.

This study is organized in the fallowing way. In chapter two, we discuss firm theories and attempt to understand what the firm is in the context of neoclassical and institutional economics. We elaborate on their approach to firm theory because the way they look at the firms is different. The difference in their approaches to the understanding of the firm is the main reason why they explain the firm performance differently. Therefore, we refer to different approaches of firm theories to understand firms' functioning better in theory.

In chapter three, we attempt to review the theoretical background of institutions so that we elaborate on the institutions in terms of some different perspectives. In this sense, we seek to explain what sort of things are called institutions and how the old institutional economics is distinct from new institutional economics? How institutions are related to justice? Which institutions are

subject to change, and which are not? These are the main points that we discuss in the chapter three.

In chapter four, we provide the literature on firm performance. Additionally, we identify the biggest obstacles for firms in developing countries using the World Bank Enterprise Surveys. Then, we attempt to show how the level of institutional quality relates to the primary biggest obstacles.

In chapter five, we provide the methodologies of variables representing institutional quality and firm performance in the context of this dissertation. Moreover, as we use unbalanced panel data from World Bank Enterprise Surveys (WBES), we provide an overview of the methodology for panel data methods. In chapter six, we provide empirical models that present how institutions affect firm performance when firm characteristics and major obstacles are controlled for. Then, we provide the conclusion in chapter seven.

2. FIRM IN THEORY

The firm in an economic theory is an organization that converts inputs into outputs. In this sense, the firm can sell outputs in the market to make a profit. It is evident that the more the firms sell, the more they make a profit. However, producing more or employing more resources does not mean that there will be a higher profit. Firms should decide (1) what and how much to produce (2) how to produce (3) for whom to produce. These three decisions have an influence on the performance of firms, and they are discussed in the neoclassical theory. Thus, there will be a literature overview of firm theory in neoclassical economics to understand what firms mean in their views.

Although the neoclassical theory is good in explaining the allocation of resources and movement of factor prices, it does not include some essential aspects that could affect the firms' performance. The neoclassical theory does not have anything related to transaction costs, which could potentially affect firm performance. Moreover, it does say nothing about the boundaries of the firms. Furthermore, the theory does not answer when the firms should emerge. In that sense, the new institutional economists somehow attempt to fill the missing points of neoclassical firm theory. Therefore, considerable thoughts of new institutional economists are mentioned shortly in the following part.

Hart (2011) elaborates the thoughts of Spulber on the firm theory that's why I also read the first three chapter of Daniel Spulber's book "The theory of the Firm: Microeconomics with Endogenous Entrepreneurs, Firms, Markets, and Organizations" and provide some valuable thoughts on firms in the last part this chapter.

2.1 Firm in Neoclassical Theory

Although firms play a vital role in economics, there is no clear definition of it. When it comes to the firm in neoclassical theory, Marshall mentioned a representative firm in his Principle of Economics published in 1890. He used the representative firm to make aggregate analyses, but he did not detail in firm theory because his aim is not to clarify the firm theory. However, the sense of an average firm, a representative firm, is a useful tool to observe an industry's aggregate behavior in reaction to policy changes or input price changes.

First, we remember that the main assumptions hold (the market is perfectly competitive, the firms are price takers, the individuals have rationality). Then, we go through the analysis of firms with Cobb-Douglass Production Function in a basic sense by focusing on the firm's definition and performance under neoclassical economics assumptions.

2.1.2 The Firm as Cobb-Douglass Production Function

In the neoclassical theory, the firm is represented by production function and production set. To exemplify the static model, let's consider a firm with the Cobb-Douglass production function

$$F(K, L) = Y = A\, K^{a}\, L^{1-a} \tag{1}$$

where A shows the total factor productivity (TFP) and represents the state of technology, including the skill and education level of the workforce. Capital and labor inputs are represented respectively by K and L. Moreover, Y represents the quantity of output produced by a firm or country based on a different level of analysis. In this sense, *a* represents the elasticity of output with respect to capital, and it can be thought of as a share of capital to output. *(1-a)* represents the elasticity of output with respect to labor, and it can be considered as the share of labor to output.

The production function also has some properties. $F_K > 0$ and $F_L > 0$ mean that the production function is strictly increasing. $F_{LL} < 0$ and $F_{KK} < 0$ also mean that the production function is strictly concave. Additionally, the production function is twice differentiable and continuous.

The total cost is given in the following form function. In the following function, w and r represent the wage rate and the price per unit of capital.

$$TC = wL - rK \tag{2}$$

The representative firm attempts to maximize its profit function (π) by choosing the quantities of capital (K) and labor (L).

$$\pi(K, L) = P A\, K^{a}\, L^{1-a} - wL - rK \tag{3}$$

Solving for the profit maximization above yields the FOCs:

$$\frac{\partial \pi}{\partial K} = a\, A\, K^{a-1} L^{1-a}\, P \; - r = 0 \qquad (4)$$

$$\frac{\partial \pi}{\partial L} = (1-a)\, A\, K^{a}\, L^{-a}\, P \; - w = 0 \qquad (5)$$

Rearranging (3) and (4) yield the equality capturing the demand for capital and labor.

$$\underbrace{\frac{r}{P}}_{\text{Real MCK}} = \underbrace{a\frac{Y}{K}}_{\text{MPK}} \qquad (6)$$

$$\underbrace{\frac{w}{P}}_{\text{Real MCL}} = \underbrace{(1-a)\frac{Y}{L}}_{\text{MPL}} \qquad (7)$$

In equations (5) and (6), the real marginal cost of capital (real MCK) is equated to the marginal product of capital (MPK), and the real marginal cost of labor (real MCL) is equated to the marginal product of labor (MPL). The firm's decision on the demand for capital and labor depends upon the equation (5) and (6), respectively. If the real cost of employing labor and capital is less than the marginal products of labor and capital, the firm will continue to hire labor and capital until the point where real MCK and real MCL are equal to the MPK and MPL, respectively.

The combined form of equation (5) and (6) below shows the marginal rate of technical substitution (MRTS), shows the rate at which labor can be exchanged with capital, holding all else constant.

$$\frac{w}{r} = -\frac{(1-a)K}{aL}$$

Under the assumptions of the neoclassical model, the firm's decision to hire labor depends on real MCL, real wage, and the marginal product of labor. The real wage is also an outcome of the capital-labor ratio, which makes sense because having greater capital-labor ratio results in a

higher amount of production without changing the number of inputs. When it comes to performance or productivity differences, the only reason is the differences in the capital-labor ratio. It is considerable to note here the two missing points in the perspective of institutional economics. First, the neoclassical theory does not take into account transaction costs in maximizing the firm's profit. Second, the theory does not include economic or political institutions in explaining the performance of economies. In this sense, analyzing firms or economies with these assumptions is incomplete because the production function is missing information from the real world.

2.2. Firm in New Institutional Economics

We have already mentioned the neoclassical theory of the firms. It doesn't explain why do firm exists and what is the boundary of the firm? How is production organized within the firm? Since the neoclassical firm theory does not answer these questions, it has been subject to many critics. However, "the theory is useful for analyzing the consequences of strategic interaction between firms under conditions of the imperfect competition" (Hart, 1989, p2).

As we wish to analyze firm performance in terms of institutional quality, we should understand how the firm theory works in NIE. In neoclassical theory, a firm is a technical unit in which goods and services are produced to maximize profit. On the other hand, NIE sees the firm as an organizational structure, which minimizes the transaction costs to increase its benefit or performance in the market. Thus, we provide an overview of the literature on thoughts of leading new institutional economists' (Ronald Coase, Oliver Williamson) approaches on neoclassical firm theory as well as their contributions and understandings to the firm theory.

2.2.1 Coase on the Nature of the Firm

It is obvious that most of the people in economies are employed by firms. Individuals exchange goods and services in the market by means of firms. Despite these facts, the firm theory did not take the attention of economists until the 20th century. Even though there are previous studies about the firms, Coase (1937) is known as the foremost economist in the field of firm theory with his remarkable article "The Nature of the Firm."

According to Coase (1937), the reason why a firm exists is the transaction costs[1]. He claimed that the introduction of the firm was due primarily to the existence of marketing costs. He also observed that the production process involves a chain of early-stage processing and assembling activities. He also argued that a firm would continue to expand until the transaction cost inside the firm is greater than the transaction cost outside the firm.

Moreover, he published another paper and stated that there are negotiations to be undertaken, contracts must be drawn up, inspections must be made, arrangements must be made to settle disputes, and so on. These costs are known as transaction costs. In this view, the existence of the transaction costs within the market would explain the reason why firms exist with respect to the idea that the firms are established to avoid transaction costs (R. Coase, 1992; R Coase, 1993).

2.1.2. Williamson on Boundaries of Firms

Oliver E. Williamson started his research on organizations in the 1960s and was also awarded the 2009 Nobel Prize in economics with his studies on economic governance and the boundaries of the firm. He was inspired by Ronald Coase, and his studies mainly concentrated on firms, organizations, and transaction costs.

According to Williamson (2002), the main motivation behind neoclassical economics is to understand how the price system coordinates the use of resources rather than the inner working systems of the firms. However, neoclassical economists just see the firm as a black box that transforms inputs into outputs.

When transactions are complex, or the firms are mutually dependent, it is more desirable to have transactions within the firm. For instance, a coal mine and electricity generating plant are close to each other, and their decision on vertical integration depends on the distance to other mines and plants. He also claims that organizing transactions within the firm could reduce the loss. He also emphasized the significance of laws, which can protect fair competition because firms in the

[1] Coase does not directly use the expression "transaction cost" in his study of "The Nature of the Firm". However, the terms he uses, such as marketing costs, contract costs, or cost of the price mechanism, means transaction cost in today's literature.

uncompetitive environment can't grow efficiently (The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel, 2009).

In contrast to the rationality in the theory of the neoclassical model, Williamson emphasized the bounded rationality, which is firstly used by Herbert A. Simon and means that individuals are limited in knowledge. Williamson attributes bounded rationality to some reasons, such as complexity, uncertainty, and language. Therefore, transactions in the NIE are conducted under the assumption of bounded rationality (Williamson, 1975).

2.3 A Review of Firm Theory: Daniel F. Spulber

Daniel F. Spulber is the writer of "The Theory of the Firm: Microeconomics with Endogenous Entrepreneurs, Firms, Markets and Organizations." He has a significant contribution to microeconomics, especially firm theory. The purpose of the book is to provide a general theory of the firm. He states that "The Theory of the Firm seeks to explain (1) why firms exist, (2) how firms are established, and (3) what firms contribute to the economy. The book addresses the foundations of microeconomics by making institutions endogenous" (Spulber, 2009, p. ix).

"In his book, the firm is defined as a transaction institution whose objectives are separate from its owners."(p. ix). He seeks to explain the existence of the firm with the idea that "firms exist only when they improve the economic efficiency of transactions" (p. ix). "The general theory of the firm also includes the full range of transaction costs, including the absence of a double coincidence of wants, communication costs, search costs, moral hazard, adverse selection, contracting costs and free-riding" (p. x).

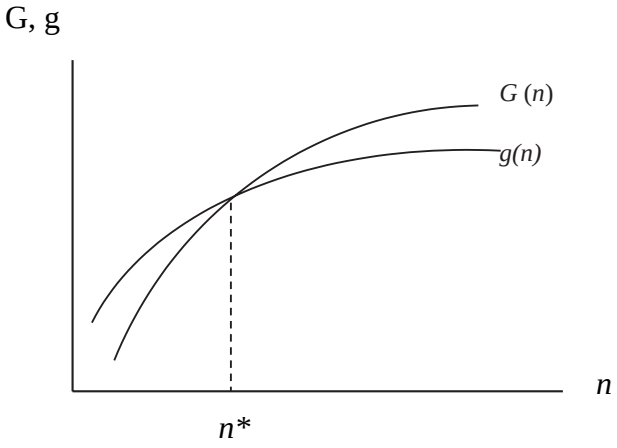
The general theory of the firm is also different from the firm theory of neoclassical economics in many ways. First, the entrepreneur plays a key role in the general theory of the firm. In contrast to the general theory of the firm, there are no entrepreneurs in neoclassical economics as the firms are already established. Second, the firm is responsible for intermediating transactions in the general theory of the firm. However, neoclassical economics restricts the function of the firm as being a producer that operates technology.

There are other differences between the general theory of the firm and neoclassical economics, but the main difference between them stems from the notion that the general theory of the firm is founded on transaction costs. However, neoclassical economics is different in the sense that markets are already established and work without transaction costs (Spulber, 2009 p.3-5).

2.3.1 Entrepreneurs, number of consumers and Firm Creation

His view on the establishment of the firm related to the consumers in the market. In the case where there are too few consumers in the market, the direct exchange is likely the most efficient economic process. However, in the case where there are so many consumers like in today's world, the best economic process for this situation is for the firms to intermediate the exchanges between consumers. In Figure 2.1, g(n) demonstrates the consumers' net gains from trade when there are n consumers and no firms in the economy. G(n) shows the gains from trade when the exchange is done through firms in the market.

Figure 2.1 Firm Establishment and Number of Consumer



Source: (Spulber 2009 p. 5)

Entrepreneurs set up a firm when the number of consumers exceeds n* because the gains are higher when the number of consumers exceeds n*. Here the consumer, who wants to become an entrepreneur, plays an important role but in the neoclassical model, there is no entrepreneur as the firms are already established.

2.3.2 The Separation Theorem

The basic definition of the firm in Spulber's view based on the separation criterion. "The separation criterion holds when the objectives of firms are separate from the objectives of its owners" (p. 64). This criterion clarifies the distinction between consumer organizations and firms. According to Spulber, consumer organizations, family businesses, or non-profit organizations are not classified as firms because they do not satisfy the separation criterion. The definition goes back to the separation theorem of Fischer, as he states that the separation of a firm's investment decision is independent of the consumption decision of its owner's consumptions and savings.

2.3.3 Transaction Costs

According to Spulber, transaction costs consist of explicit and implicit transactions. The explicit transaction costs are related to communication, information processing, and search. These explicit transactions may result in implicit transactions. He states that the transaction costs such as matching, bargaining, moral hazard, adverse selection, contracting, and free riding can be implicit. These implicit transaction costs appear in the form of efficiency distortions.

Transaction costs have an impact on economic activities in the sense that they can prevent the existence of exchange activities. Let's suppose that we have a simple economy with two consumers and two goods. The first consumer gets the v benefit per unit of the first good and the unitary benefit for the second good. Therefore, the consumer's utility function for the first person is

$$U^1(q_{11}, q_{12}) = vq_{11} + q_{22}$$

The second consumer receives benefit c from consuming first good and the unitary benefit for the second good. The consumer's utility function for the second person is

$$U^1(q_{11}, q_{12}) = cq_{11} + q_{22}$$

The endowments for the first and second goods are (0, w) and (1,0) respectively. Assume that the first good is not divisible so it is in a discrete unit, but the second good is divisible so it can be considered as money. There exists also transaction cost that consumes t units of the second good.

Suppose also that w > t + c, which means that the initial endowment of divisible good is enough to covert (transaction cost) and c (first good of the second customer).

$U^1(0, w) = w$ → Buyer's – first consumer's initial benefit

$U^2(1, 0) = c$ → Seller's – second consumer's initial benefit

For simplicity, we assign all transaction costs to the seller. Consider that first consumer buys one unit of discrete good and pays w > p to the second consumer, the consumer's benefits are

$$U^1(1, w - p) = v + w - p$$

$$U^2(0, p - t) = p - t$$

The exchange would take place only if there are gains from. The initial benefits are subtracted from the benefits after trade for two of the consumers.

$$U^1(1, w - p) - U^1(0, w) = v - p \geq 0$$

$$U^2(1, 0) - U^2(0, p - t) = p - c - t \geq 0$$

The both consumers to get positive gain from trade, it is necessary to have $v - c - t \geq 0$. In that sense, exchange activities are associated with the transaction costs.

As it has been mentioned before, "t", i.e., transaction cost could reflect many different costs such as searching for goods and services, communication with the other companies, or the time for dealing with the enforcement of contracts in the courts. Spulber believes that the existence of the firm itself alone reduces the transaction costs. We also agree with the idea that the firm may reduce the transaction costs in the economy as firms help the exchange activities take place more efficiently.

It is indeed more accurate to claim that the more the firm has a specialization on the source of the transaction cost, the less the transaction cost is in the market. For example, if transaction cost arises due to the requirement of the time that must be spent on courts in dealing with contracts,

a big law firm with many lawyers helps to reduce the transaction cost by providing law services to the market. However, what if the country has unqualified institutions and the law system does not work well? This type of transaction cost can't be reduced by the firms that have the specialization on the source of the transaction cost. In this situation, the only way to reduce the transaction cost is to improve the quality of institutions in the sense that they can provide a sound legal system.

3. INSTITUTIONS: THEORETICAL FRAMEWORK AND LITERATURE

3.1 Understanding Institutions

3.1.1 Definition

The term “institutions” has become very common in many fields of social sciences such as politics, sociology, philosophy, and especially in economics. The term of institutions has a long history in the social sciences as it dates back at least to Italian philosopher Giambattista Vico’s New Science, which is published in 1725 (Hodgson, 2006).

There are plenty of definitions for institutions, and the definition of Douglass North for institutions is the foremost in the economics literature. “Institutions are the humanly devised constraints that structure political, economic, and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct) and formal rules (constitutions, laws, property rights)” (North, 1991, p1).

Hodgson defines institutions as “the system of established and prevalent social rules that structure social interactions.” Moreover, Veblen and John R. Commons think about the institutions as a special type of social structure that is likely to change agents' purposes or preferences. (Hodgson, 2006, p.2)

There could be other definitions for institutions as it is so extensive concept that even economists could barely agree on the definition of it. At the end of Hodgson (2006), he shares some notes, in which he discussed the definition of institutions with Douglas North.

3.1.2 Types of Institutions

To analyze the institutions, it is crucial to know the types of institutions. Basically, there are four types of institutions: values, norms, conventions, laws. Institutions are categorized into two parts as formal and informal institutions.

Formal institutions are the public rules that are created by the government with legislative power. For instance, parliament, senate, constitutions, laws, contracts, and regulations are examples of formal institutions. They are also enforced by the government's executive power in the sense that the government can penalize them by judiciary force. We can think of these institutions as polices, judges. This type is the one NIE deals with and it based on macro-level analysis.

Informal institutions are developed spontaneously. As Douglass North stated, they are unwritten socially shared rules, which are enforced by people's own accord, not through official channels. Thus, informal institutions consist of norms, beliefs, habits, and behaviors. The OIE mainly focuses on that type of institution, and it based on micro-level or behavioral analysis.

Acemoglu and Johnson (2005) defines the classification of institutions in a different way. They proposed two sets of institutions, "horizontal" and "vertical". While horizontal institutions regulate the transactions between ordinary citizens, vertical institutions regulate the relations between the state and citizens.

3.1.3 Functions of Institutions

Is every law accepted as a rule? We know that some laws exist, but they are not practiced. If any law is ignored, it is not a rule. Institutions can limit one behavior, but at the same time, they enable other behaviors. For example, although traffic rules restrict us, to some extent, they could be helpful in terms of flowing the traffic more easily and safely. On the other hand, the rule of law can increase personal safety. (Hodgson, 2006). Overall, the world has several complex situations, so institutions exist to decrease the complex world's risk and regulate human behaviors.

According to the North (1990), more than 45 percent of national income was spent on transacting in US. Additionally, it was around 25 percent in the previous century, so transaction costs have increased over time. In his view, the most important way to reduce the transaction cost is to have well-functioning institutions, which creates a stable structure for human interactions. In that sense, institutions mitigate the complexity of the world and so decrease the transaction costs.

Rodrik, Subramanian, and Trebbi (2004) mentions three market-creating institutions, and they clarify the functions of institutions in terms of the market:

a) Institutions regulate the market by dealing with externalities and imperfect information.
b) Institutions stabilize the market by ensuring low inflation and less macroeconomic volatility.
c) Institutions legitimize the market by providing social protection and insurance as well as managing the conflicts.

3.2 Perspectives on Institutions

The idea of institutions or institutional economics dates back to the 1890s. The existence of institutional economics enriches the content of economics because it differs from the other school of economics. Although theories in neoclassical economics are efficient in explaining the economic phenomena, they are insufficient because they cannot explain every aspect of an economic phenomenon due to the existing rigid and missing assumptions.

In this part, there is an overview of old institutional economics. Who contributed to old institutional economics, and whose ideas are the most influential? Also, we provide the literature about new institutional economics and refer to the most influential academics in the field. Lastly, we refer to some influential economists' considerable ideas, who emphasize the role of institutions (legal system) in explaining the productivity or income differences across countries.

3.2.1 Old Institutional Economics

The term American institutional economics, old institutional economics, institutional economics, and original institutional economics used interchangeably in the literature. The term "institutional economics" was initially used in 1918 in the American Economic Association conference paper by Walton Hamilton entitled "The Institutional Approach to Economic Theory." According to Hamilton, the economic theory must relate to institutions in some ways. First, it must relate to the institutions as changeable elements of economic life. Second, the economic theory relates to the institutions as agencies through which they are to be directed. His definition of economic theory fits only institutional economics. (Rutherford, 2000).

Although Hamilton is the one who used institutional economics at the very beginning, the ideas behind institutional economics relate to Thornstein Veblen, John R. Common and Wesley Mitchell. Thornstein Veblen is the one who gives much of the inspiration for institutional economics with his ideas on evolutionary economics. The ideas of Veblen are significant because it lies on the basis of institutional economics, so it is important to understand what Veblen considered about institutionalism. Veblen used extensively evolutionary ideas, mostly from Darwinism, in his studies and the ideas are still important for researchers today because they contribute to having a grasp of institutions and technological change. According to Veblen, institutions were not only constraint on human action but also embodied generally accepted ways of thinking and behaving. (Rutherford, 2001). In this sense, institutions structure individuals' preferences, thereby influencing the behavior or decisions of individuals.

Charles Darwin, a well-known naturalist, lived in the 19th century, and his ideas on evaluation have a considerable effect on many thinkers. This impact of Darwin is clearly seen on Veblen. According to Veblen, society was in a situation, which always changes to adapt to the new circumstances. In contrast to what Veblen thinks, the neoclassical model has the assumption that all humans are identical.

Veblen adopted concepts of instinct and habit. Veblen saw these concepts as an innate propensity or desire. Veblen clearly admits that institutions are dependent on both "material environment and the innate propensity of human nature". He also states that "all instinctive behavior is subject to development and hence to modification by habit." As instinctive behaviors are subject to change, we can say that they are not fixed and inherited. He seems to suggest that an individual's development and environment could change the individual's instinct. (Camic and Hodgson 2010, p.19)

Veblen (1914, p.557) explained that

"The habitual acquirement of the race handed on from one generation to the next, by tradition, training, education, or whatever general term may best designate that discipline of habituation by which the young acquire what the old have learned."(cited in Camic and Hodgson 2010, p.20)

The concept of technology also plays a significant role in institutional economics. The term technology is perceived as increasing productivity in other schools of economic thoughts. We know that technology is also in a changing process so, technological change has an influence on cultural evolution within the context of institutional economics. Therefore, Veblen urged upon the role of technological habits and thoughts as a significant reason for economic change. In that sense, the problem arises when institutional adjustments do not keep up with the rapid change in the technological process. (Lower, 1987).

3.2.2 New Institutional Economics

The new institutional economics(NIE) started with the article "The Nature of the Firm" (1937), which is published by Ronald Coase. The article implicitly introduced transaction costs into economics. The new institutional economics is a phrase first used by Oliver Williamson to differentiate it from old institutional economics. (R. Coase, 1998)

NIE mainly focus on institutions and attempt to explain how institutions interact with organizational arrangements. As we touch upon above, institutions consist of written and unwritten rules, norms, and constraints, by which humankind reduce the uncertainty and control their environment. The organization arrangements are (a) markets, firms, and other forms of economic actors developed for performing transactions, (b) contractual agreements that provide a framework for organizing activities, and (c) behavioral traits that underlie the arrangements chosen. (Menard and Shirley, 2005)

To some extent, NEI is complementary to neoclassical economics because neoclassical economics is missing some very crucial points in its theories and new institutional economics fill these missing points. For instance, theories of neoclassical economics do not include the term "transaction" in their analysis. Furthermore, new institutional economics assumes that individuals have bounded rationality, completely different from the neoclassical economics assumption of perfect information. These differences between neoclassical economics and NIE stems from the fact that they look at the market from different perspectives. In NIE, the market is social institutions or institutional arrangements that facilitate exchange. However, the neoclassical model has the concept of perfect competition, so it sees the real-world market as its model; thereby, it does not suffice to explain some concepts that we use in NIE.

NIE deals with institutions' structure and attempts to explain how institutions emerge, operate, and evolve. In that sense, institutions play a notable role in economic activities by shaping the markets, firms, transactions, agreements, etc. Thus, it has drawn considerable attention because it relates the country's political and social structure to its economic activities since the other school of economic thought has not included these concepts in their theories and analysis. (North, 2005)

O. Williamson mentions four levels of social analysis so as to specify the boundaries of NIE. It it important to note that each level constraints the one level below.

Figure 3.1 Economics of Institutions

	Levels	Frequency (Years)
(L--1)	"Embeddedness"	10^2-10^3
(L--2)	"Institutional environment"	10 -10^2
(L--3)	"Governance"	10
(L--4)	"Resource allocation and employment"	Continuous

Source: (O. E. Williamson 2000, p.597)

Even though (L1) has been studied by some economic historians, it is taken as given by many institutional economists. Institutions at that level do change very slowly. North also poses a question, "What is it about informal constraints that give them such a pervasive influence upon the long-run character of economies?"

Furthermore, (L2) is presents the institutional environment, especially in formal rules (constitutions, property rights, laws). It involves the executive, judicial, legislative and bureaucratic functions of government. In particular, the definition and enforcement of property rights are notable in the sense that the private enterprise system requires the existence of reliable property rights. Thus, the sound legal system, which defines the property rights well and ensures

their enforcement, will somehow eliminate chaos. Still, it will not be enough because the transactions do not qualify, so that we need to define "contracts" as well. Considering that individuals with limited knowledge can't foresee each outcome, that's why we have incomplete contracts. In that sense, we need qualified governance, which is (L3). (Williamson, 2000)

(L4) relates to neoclassical economics and agency theory. In the upshot, Williamson claims that NIE is mainly concerned with (L2) and (L3). In other words, NIE deals mainly with property rights, contracts, and transaction costs.

3.2.2.1 Transaction Cost Theory

Transaction cost is a significant concept and should be understood well in order to comprehend the NIE. "Transaction costs are divided into two parts as ex (before exchange) ante and ex-post (after exchange). Ex-ante costs consist of search and information costs and negotiation and contracting costs. Ex post costs are monitoring and enforcement costs". (Teraji 2018, p.37)

The foremost economist who wrote in this field is Ronald Coase in his paper "The Nature of the Firm, 1937" and "The Problem of Social Costs, 1960". Coase illustrates the existence of firms based on the presence of transaction costs. Williamson also another economist who has considerable contributions to the transaction cost theory. Williamson and Coase basically consider that economic organizations exist due to the existence of transaction costs.

The transaction cost is the cost of the exchange. According to the NIE, institutions aim to reduce transaction costs. Considering that individuals have the feature of bounded rationality, they have incomplete information about the market, and they can't predict the future, which makes all contracts unavoidably incomplete (Williamson, 1998). In that sense, the transaction costs existing due to the incomplete contracts has the ability to change firm behaviors. It is also important to realize that small firms do not have the opportunity to have vertical integration with their suppliers so that transaction costs may hurt them more.

According to Adam Smith, the productivity of the economic system depends upon specialization. If the transaction costs (the costs of exchange) is lower, there will be more specialization and greater productivity. However, transaction costs depend on the quality of institutions. (R. Coase, 1998)

Consequently, the transaction cost is considered as the cost of exchange as it arises due to exchange activities. It can encourage or discourage exchange activities, thereby, the ability to affect the productivity in production and exchange processes, which eventually affect economic outcomes.

3.2.3 Institutions as Justice

In the recent studies, institutions are emphasized as a fundamental reason in explaining the productivity differences across countries. In other words, the governance structure has a key role in terms of economic performance and productivity. In this type of study, institutions are considered mainly as "the rule of law" and "property rights." It is likely that the roots of that type of ideas on institutions are also related to Genevan philosopher Jean-Jacques Rousseau's thoughts. His views on property rights and social contract theory are significant in providing justice and order into a society, which in turn increases the economic performance.

The origin of the countries' law system has a considerable effect on economic institutions. They compare civil law and common law countries in the sense that common law gives investors stronger protection right than civil law do (Porta et al., 1998). In common law, legislators and courts make law. In civil law, the parliament makes law. The courts have nothing to do with making law in the civil law system, so this may be the reason why common law provides a better environment for economic activities.

According to Acemoglu, Johnson, and Robinson (2005), one of the reasons why there exists inefficient economic institutions is due to the fact that political elites want to protect their political power. The political elites preserve their political power because it is the source of income, privileges, and rent of the elite. The economic growth under the circumstances will increase income distribution inequality because it makes richer those who hold political power.

The primary institutional framework consists of the rule of law, an independent judiciary, and a free press. (Rodrik et al., 2004). In this view, institutional quality could be represented by a healthy democracy.

Joseph E. Stiglitz also has remarkable thoughts on institutions with an emphasis on inequality and allocation of resources. He saw the markets as institutions since they are structured

by rules that are created by the government. Moreover, the way the market functions depend on the set of rules created by the political process. In this sense, the rules governing the institutions are crucial in terms of markets' functioning, in which allocation of resources occurs (Stiglitz, 2017).

3.3 Literature Review on Institutions

Institutions have a pervasive influence on economics through many channels because it shapes the behavior of governments and individuals, which in turn affect the macroeconomic outcomes. Here we touch on shortly the literature regarding how the institutions shape the economic outcomes.

The idea that institutions impact economic performance is associated mostly with the studies of Douglas North. As mentioned before, under in part of NIE, North mainly focused on transaction costs. However, he associates transaction costs to the property rights in the sense that "rulers devised property rights in their own interests and transaction costs resulted in typically inefficient property rights prevailing. As a result, it was possible to account for the widespread existence of property rights throughout history and in the present that did not produce economic growth." (North 1990, p.7)

Rodrik et. al. (2004) studies the differences in income levels, which also means the productivity differences across countries. The study relates to the differences in income levels for three reasons: institutions, geography, and trade. The findings support that institutional quality trumps geography and trade over the effect on productivity differences across countries.

While economic institutions have the potential to encourage and discourage economic activities, political institutions determine the political power in society and have an influence on the allocation of resources. In this sense, economic and political institutions play an important role in shaping economic outcomes. The literature also emphasizes the role of historical roots of institutional differences across countries in determining the economic outcomes. (Acemoglu et al., 2005; Acemoglu et al., 2012).

The regulations or set of rules created by institutions are shaping the entrepreneurship activities. Therefore, qualified institutions foster entrepreneurship (Chowdhury, Audretsch, and Belitski 2019). Moreover, in countries with weak property rights, investors are not inclined to reinvest their profits. The investors do not tend to invest even if they are provided credits provided by the bank (Johnson et al., 2002).

Yasar, Paul, and Ward (2011) studies the link between quality of property rights and firm performance. The findings show that there exists a significantly positive relationship between a firm's performance and property rights protection, and the significant relationship is independent of other firm characteristics.

Parente and Prescott (1994) studies the barriers to technology adoption for entrepreneurs. They consider that these barriers take different forms, such as regulatory and legal constraints or bribes. In their theory, each of them creates a barrier in entrepreneurs' path and increases the cost of technology adoption.

3.4 Critiques to Institutional Approach

The literature on the relationship between the institutions and economic performance is very extensive. It is believed that institutional differences across countries is the fundamental reason explaining the income differences or economic performance across countries(Acemoglu et al., 2005; Acemoglu et al., 2012; Johnson et al., 2002; North, 1990; Rodrik et al., 2004). Moreover, North and Thomas (1973) states that productivity can come about through a reduction in market imperfections, which is the result of uncertainty and information costs. They believe that innovation, economies of scale, education, and capital accumulation are not the causes of growth. They are the growth.

Contrary to institutional approach, it is believed that better or qualified institutions are the result of the economic development. For instance, it is believed that “democracy is related to the state of economic development. The more well-to-do a nation, the greater the chances it will sustain the democracy.” (Lipset, 1960, p.48). Additionally, Lipset (1960) also believes that more

industrialization, high per capita income and high education level of a nation's population contribute the state of democracy. Shortly, he considered that growth and development give rises to better institutions, not the other way around. Moreover, "growth leads to better political institutions has received considerable support in the work of Przeworski and his associates (Alvarez et al., 200) and Barro (1999)"(cited in Glaeser et al., 2004, p272).

Glaeser et al. (2004) also examines whether change in the country's development starts with the change in institutions or economic development. Their findings support that better institutions occurs as a consequence of economic development. Additionally, the main thing shaping the economic development is human and social capital, which also improves the quality of institutions. Shortly, investment policies, improving the human capital and technology, is considered as a result of political constraints on government in institutional approach. However, some others believe that these policies are the consequences of unconstrained governments.

4. FIRM PERFORMANCE

The literature on economic performance, proxied by GDP per capita and GDP growth rate, is very extensive. However, studies on economic performance, measured by the firm-level indicators, are not that extensive. The reason why we do not have that much of studies on economic performance by using the firm-level indicators is probably due to the unavailability of firm-level data.

Understanding the structure of firms has considerable importance in today's world because improving the performance or development of economies is possible only if we can detect the drawbacks of economies correctly. In this sense, we believe that firm-level studies provide us more detailed and useful information, which can help us detect the problems or drawbacks of economies in the best possible manner. Therefore, studying economic performance with the firm-level dataset has a lot to contribute to our understanding of the functioning of economic activities in many ways.

In this chapter, we provide an overview of the literature associated with firm performance. Moreover, even though this dissertation predominantly focuses on the relationship between the quality of institutions and firm performance, it also touches upon the other factors affecting firm performance. Thus, we provide the major obstacles for the firm performances based on the Enterprise Surveys. Furthermore, we show how the major obstacles for the firms pertain to institutional quality.

4.1. Literature Review on Firm Performance

Dollar et. al., (2005) studies the investment climate and firm performance in developing countries. They used the WBES data and analyzed China, India, and Bangladesh. The investment climate is defined as the policy and regulatory environment in which firms operate. The results show that investment climate plays a significant role in determining the level of productivity, wages, profit rates, and the growth rates of output, employment, and the capital stock in garments and similar sectors. Furthermore, they state that the lack of power and custom delays are the biggest obstacles to productivity and profitability.

Dinh et. al., (2010) studies the binding constraints on firm's growth in developing countries with the WBES (2006-2010). They used employment growth as a proxy for the firm's growth. Firms in developing countries confront several problems such as corruption, lack of infrastructure, and inability to access finance. However, they mention access to finance as the most binding constraint for the firm's growth across all countries. The results also show that the informal sector competition is the second-biggest constraint standing against the firm's growth.

Aterido et. al., (2011) attempts to explain the effect of constraints on firm growth. They employ the growth of permanent workers as a proxy for firm growth. The results show that access to finance, especially external finance to fund investment, is positively linked o the growth of small, medium, and large firms. Moreover, business regulations measured as the time spent dealing with regulations or inspections constitute an impediment to small firms' growth.

Gaviria (2002) studies the effects of corruption and crime on firm performance. They observed how corruption and crime affect sales, employment growth, and investment at the firm-level. The data they used based on a private sector survey conducted by the World Bank and the Inter-American Development Bank in 1999. Moreover, the OLS method is used, and cross-country analysis is undertaken. The results show that corruption and crime substantially decrease competitiveness and negatively affect firm performance.

Hanousek and Kochanova (2016) examines the relationship between bureaucratic corruption and firm performance in CEE countries. In the study, the authors benefit from BEEPS and financial data from the Amadeus database and conduct panel data analysis. They found that higher bribery mean in a market impedes both real sales and labor productivity growth. The increase in the bribery mean by its average sample value is associated with about a 3.0 % and 4.3% decrease in the firm performance.

S.N. and Sen (2017) examines the effect of institutions on firm performance using firm-level data on manufacturing enterprises in India, and the data has been drawn from WBES for 2013-2014. In this study, firm performance is measured as labor productivity and total factor productivity. The results indicate that the level of corruption has a clear negative impact on firm performance, and the effect is higher than other institutional variables in India.

Goel and Nelson (2020) studies the effect of institutions and infrastructure on capacity utilization. In this study, firm-level from the WBES is used. Moreover, firm-specific characters such as firm size, firm age, ownership structure are also used as control variables to have better results in the model. The results show that the existence of corruption and informal competition alleviates the firm's incentives to capacity utilization. Additionally, the findings also showed that water supply constraints and severe electricity supply restrictions limited the firm's ability to utilize capacity. However, transportation constraint is not as binding as the electricity and water supply constraints.

In Appendix 4, there are three tables, in which we provide the related literature review in a more precise way.

4.2 Constraints to Firm Performance

It is crucial to identify the major constraints that constitute an impediment to the firm's growth. Identifying these major constraints is crucial for the improvement of firm performance. Thus, we attempt to identify the major constraints to the firm performance by using the Enterprise Surveys dataset. The Enterprise Survey dataset is created by surveying business owners and managers, mostly in developing countries, with the World Bank and EBRD's joint work. The survey questions cover different dimensions of business environments ranging from access to finance to political instability. In one section of this survey, firms were asked to consider the elements that are the biggest obstacle for their establishment out of 15 obstacles. The answers to the given survey questions provide valuable information because they help us detect the major constraints to firms and provide policy recommendations to improve the firm performance.

Figure 4.1 below is created based on the Enterprise Surveys dataset. This figure shows the biggest obstacles for firms in the 2016-2020 period for developing countries. Before looking at the figure, it is important to understand how we interpret the survey results. Let's look at the fifth biggest obstacle among the 15 obstacles in Figure 4.1. The number, 10.69, tells us that 10.69 percent of respondents choose political instability as their biggest obstacle. In this sense, one can clearly see from Figure 4.1 that the biggest obstacle for enterprises in all economies, on average,

is access to finance with 15.43 percent. The other leading biggest obstacles are tax rate, informal sector practices, electricity, and political instability in order. In Figures 4.2 and 4.3, we can observe that the first five biggest obstacles, on average, for all economies are very similar over the 2006-2010 and 2011-2015 periods.[2]

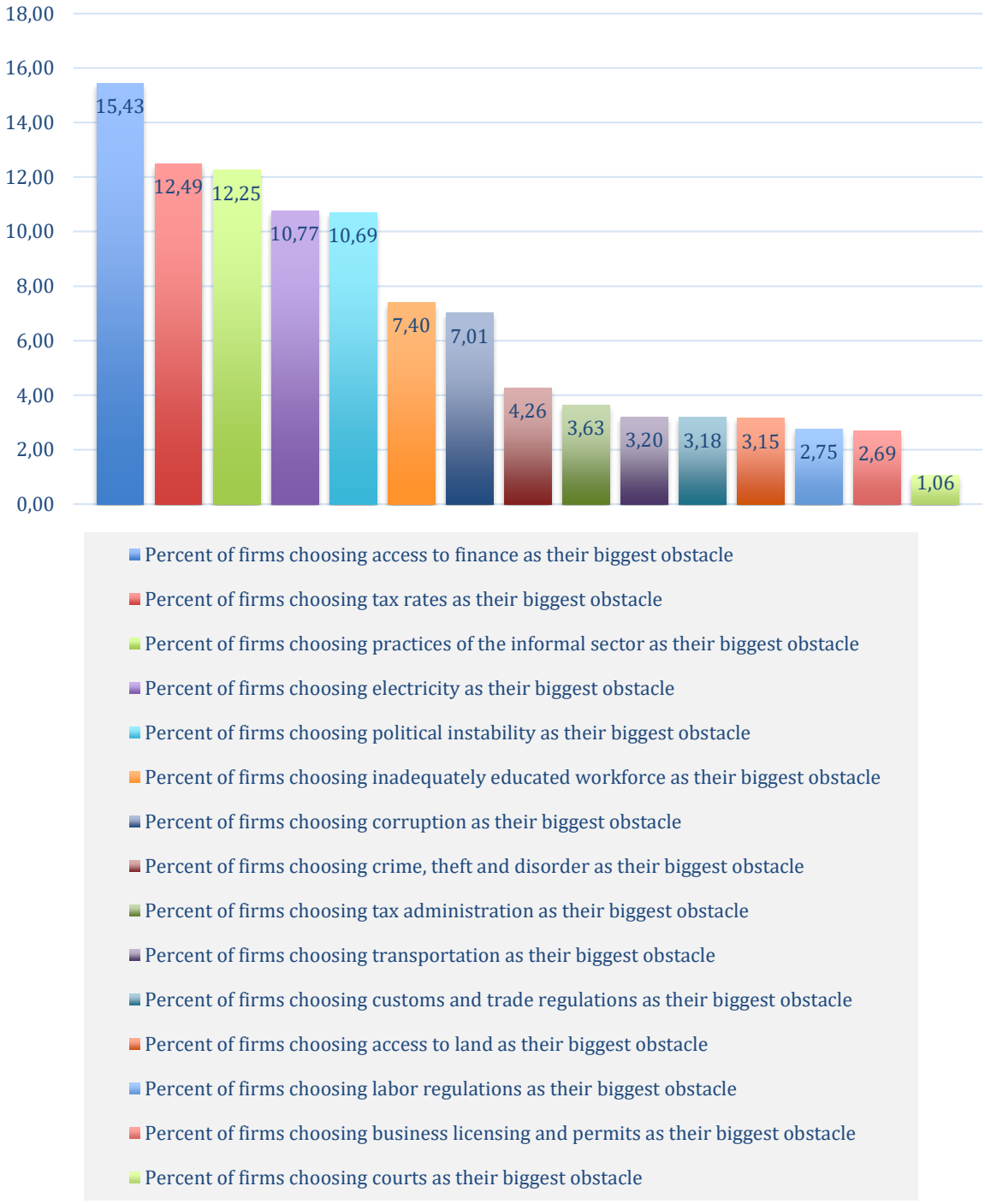
It is also important to realize that the biggest obstacles vary with respect to firm size, so we also provide how the biggest obstacles vary across firm size. Figure 4.4 shows that the tax rate was the biggest obstacle for small enterprises in 2016-2020.[3] Fallowing the tax rate, the biggest obstacles for small enterprises are practices of the informal economy, access to finance, political instability, and inadequate workforce in order. Moreover, one can see that access to finance is the biggest obstacle for medium enterprises in all economies for 2016-2020. Fallowing access to finance, the other essential obstacles are the practice of informal sector, tax rate, political stability, and electricity. Furthermore, political instability is the biggest obstacle for large enterprises for all economies in 2016-2020. The other significant obstacles for large firms are tax rates, electricity, an inadequately educated workforce, and access to finance.

Figure 4.5 and 4.6 depicts the biggest obstacles for the manufacturing and services sectors, respectively. [4]. In this sense, access to finance is the biggest obstacle for firms in the manufacturing sector. Fallowing access to finance, practices of informal sectors, and tax rates are also among the major obstacles. Figure 4.6 shows that the tax rate is the biggest obstacle for firms in the services sector. Practices of the informal sector and access to finance and political instability are also among the major constraint.

We have visualized this data to identify the major obstacles for firms. Based on the figures, one can see that access to finance, tax rates, practices of the informal sectors, and political stability are the biggest obstacles for enterprises. We believe that improvement in the most constrained obstacles enhance firm performance most. Therefore, we refer to access to finance, tax rates, and practices of informal sectors in detail in the following parts.

[2] The Figures 4.2 and 4.3 are available in Appendix 2.
[3] The Figure 4.4 available in Appendix 2.
[4] The Figures 4.5 and 4.6 are available in Appendix 2.

Figure 4.1 Distribution of the Biggest Obstacles for Enterprises in all Economies



Source: Author's own Calculation based on World Bank Enterprise Survey (2016-2020)

We believe that institutional quality is the biggest constraint to firm performance as its effect is very pervasive, and so that improving institutional quality at once could lead to an improvement in the situation of many other obstacles. It is considerable to note that the political instability is also something capturing the quality of political institutions, and so that we do not refer to the political instability as it is unnecessary to relate it to institutional quality. However, we touch upon the technological constraints since it is emphasized in neoclassical economics as the primary impulse for firms and economies' performance.

4.2.1 Access to Finance

There is no doubt that financing has a substantial influence on economic outcomes since it is necessary to boom economic activities and bring new ideas into being. Additionally, access to finance has considerable importance in the sense that enterprises can expand their operations by investing in new production facilities. According to Malhotra et al., (2007), inadequate access to finance poses an obstacle to firm growth. Moreover, access to finance is significant for economic outcomes because inadequate finance poses an obstacle to firm growth (Aterido, Hallward-Driemeier, and Pagés, 2011; Fowowe, 2017). Therefore, the literature on the impact of inadequate finance on a firm's growth support Figure 4.1, showing that access to finance is the biggest obstacle for firms in developing countries in 2016-2020.

T. Dinh et al., (2010) asserts that firms confront serious constraints on their growth, such as corruption, lack of infrastructure, or inability to access finance. Moreover, constraints to firms differ from each other with respect to firm characteristics. They found that access to finance is the most binding constraint among the other obstacles.

Demirgüç-Kunt and Maksimovic (1998) studies the importance of the financial system and legal enforcement on firm growth. In countries whose legal system is improved, a high proportion of firms use long-term external financing. Beck et. al., (2008) assert that protection of property rights increases the chance of obtaining external financing for small firms more than large firms. La Porta et al., (1997) argues that countries with weak investor protection in terms of the character of legal rules and the quality of law enforcement have smaller capital markets.

Johnson et al., (2002) ask the question of whether weak property rights or limited access to external finance has a tighter constraint on private sector investment. They find the weak property rights discourage firms from reinvesting their profits, even in the case that the bank loans are available.

It is important to realize that the effect of other constraints could also be alleviated if the institutional environment of the country improved. For example, access to finance problems could be, at least, reduced if the policymakers do some reforms attempting to provide a better legal system and political stability. In this case, two important things happen. First, confidence in this country could increase, and firms can use external financing. Second, as the risk and uncertainty in the country are alleviated by reforms attempting to improve the quality of institutions, the real cost of finance, risks, could also decrease, and so that it becomes easier to find the financial resources within the country.

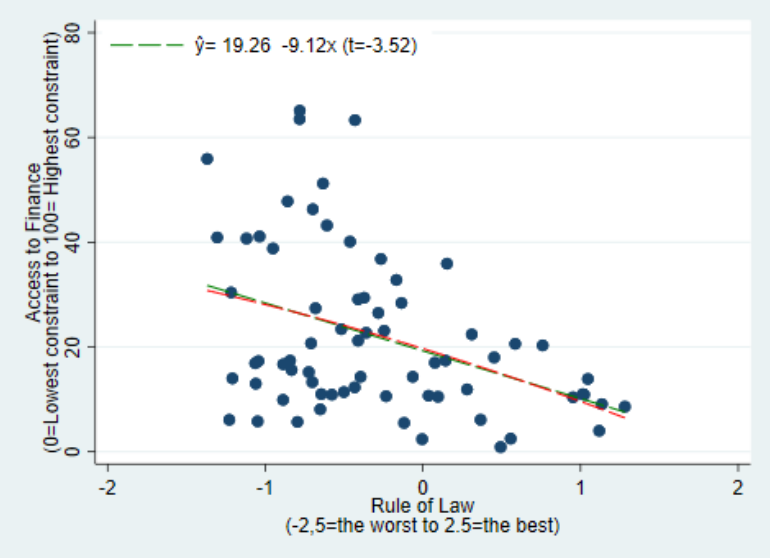
We have plotted access to finance against the rule of law representing institutional quality Let us first explain how we interpret the access to finance and rule of law variables. The variable access to finance represents the constraint level of access to finance. In this sense, the higher the value of access to finance is, the more difficult access to finance is. For the rule of law estimator, higher values represent a better institutional environment.

In Figure 4.7a, we regressed access to finance against the rule of law. The relationship between them is significantly positive. In Figure 4.8 and 4.9, there exist the same scatter plots for 2006-2010 and 2011-2015 periods.[5] They also have similar results, as in Figure 4.7. Thus, in countries with qualified institutional environment, the firms are likely to face less constraints in access to finance.

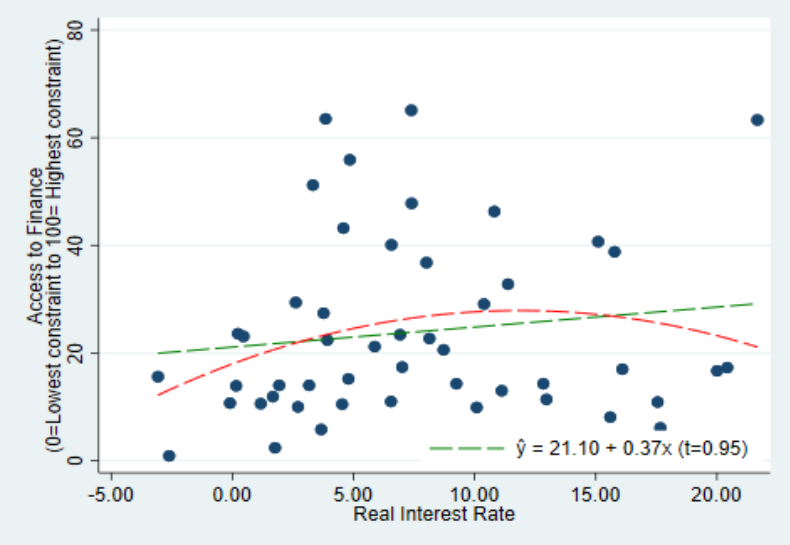
[5] The Figures 4.8 and 4.9 are available in the Appendix 2.

Figure 4.7 Institutional Quality, Access to Finance and Real Interest Rate in 2016-2020

a.



b.



Source: Author's own calculation based on Enterprise Survey, World Governance Indicators and World Development Indicators

When it comes to access to finance, a high-interest rate is one of the most primary obstacles that come into our mind as it leads to an increase in the cost of financing. Therefore, we have also plotted access to finance against the real interest rate in Figure 4.7b. The results show a slightly positive relationship between access to finance and the real interest rate. However, the relationship is statistically insignificant with the t value of 0.95. The figures for 2006-2010 and 2011-2015 also have very similar results, but they are also statistically insignificant. In case individuals facing high interest rate, they are likely to postpone their consumption, which results in a decrease in economic performance. On the other hand, in case of firms facing with high interest rates, they could find finance anyway if it is profitable with low risk.

Hence, it is evident that access to finance, one of the most binding obstacles for firms, is significantly related to the institutional quality. Therefore, providing stronger court systems and reliable property rights could improve firms' situations in access to finance.

4.2.2 Tax Rate

The issue of taxation in the literature mostly concentrates on economic growth. In theory, there are several views regarding the effects of taxation on economic growth, and these views vary for the different schools of thought. In neoclassical economics, Solow model states that taxation has a neutral effect on economic growth in the long run. However, the Romer model differs from the Solow model because the Romer model suggests taxation may positively influence the economic growth in the long run.

When we look at the empirical studies, the effect of taxes on economic activities is not very clear. Engen and Skinner (1996) asserts that taxation exerts an influence over economic growth negatively through different channels to the extent that it discourages investors, reduces the efficiency in human capital utilization, and diminishes the marginal productivity of capital.

Tosun and Abizadeh (2005) studies the effect of the tax rate on economic growth, and the findings show that there are two different results. According to the results, the shares of personal and property taxes positively impact economic growth. However, the shares of the payroll and taxes on goods and services have a negative effect on economic growth.

Aydin and Esen (2019) explores the effect of tax revenue as a percentage of GDP on economic growth in transition countries. They found strong evidence that total tax revenues as a share of GDP have a nonlinear effect on economic growth.

There is also an ongoing debate over the effect of taxation on economic activities in firm-level studies. Fisman and Svensson (2007) studied the effect of taxation and corruption on firm performance for Ugandan firms. The results are negative, but the magnitude of the negative effect of corruption on firm performance is stronger than taxation's magnitude effect.

The governments must undertake some costly activities. For instance, they must provide social insurances, national defense, or any other public goods beneficial for society. Considering that taxes are the only sources of government revenue, the government must collect taxes when needed. Therefore, rather than considering conventionally by asking whether the taxes are harmful to economic activities, it is crucial to consider the way taxes are collected and spent. For instance, for which characteristics of countries tax harmful for economic outcomes? The way taxes are collected and spent is at least as important as the tax rates in economic activities.

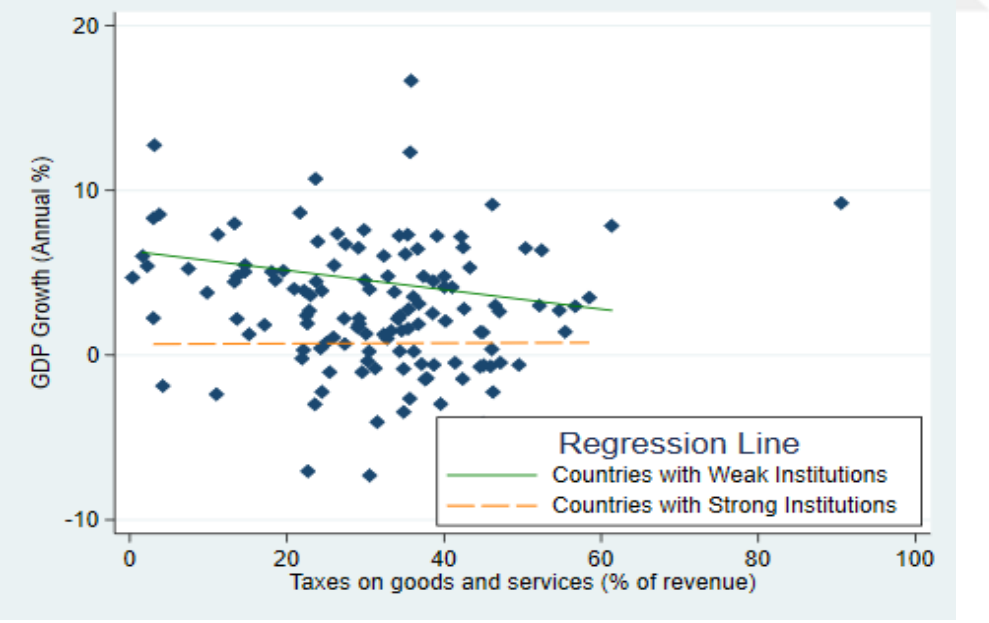
First, in some countries, taxes are more burdensome for low and fixed-income earners than high-income earners. In this regard, the collection of taxes unfairly leads to a deterioration in income distribution that hurts the economy through many channels. Second, the most significant point that should be considered here is the way taxes are spent. Usually, the taxes are not spent on what they are collected for. In this case, the taxes are spent for the benefit of some group of people rather than the whole society. This problem mostly arises due to the deficiency of transparency. We believe that transparency is a notable deficiency for governments with weak institutions. In this regard, the case that taxes are not spent what they are collected for is a systematic problem in countries with weak institutions due to the absence of transparency.

In economics, one can find two different outcomes for studying a specific question if the study is based on two different samples of countries or one set of the country for different time periods. The underlying reason for having two different outcomes for a specific question based on the sense that human behaviors lie at the heart of economic analysis. As the set of countries or the time period in the study change, the study is no longer subject to the same human behaviors, and

so that it is possible to have different outcomes for a specific question. The Figure 4.10 realizes what we mention in this paragraph.

In Figure 4.10, the GDP growth rate is regressed against the taxes on goods and services. The straight line with a negative slope stands for countries with weak institutions (performing less than 0 in the rule of law estimator). The discrete line with a slightly positive slope represents the countries with strong institutions (performing more than 0.9 in the rule of law estimator). To avoid misperception, this figure is not created to show that taxes are beneficial for economic activities in countries with strong institutions. Rather, it is created to show that the effect of taxes on economic activities is different from each other, and this difference is based on the level of institutional quality because countries with strong institutions are likely to spend the taxes in support of society, rather than their own benefits.

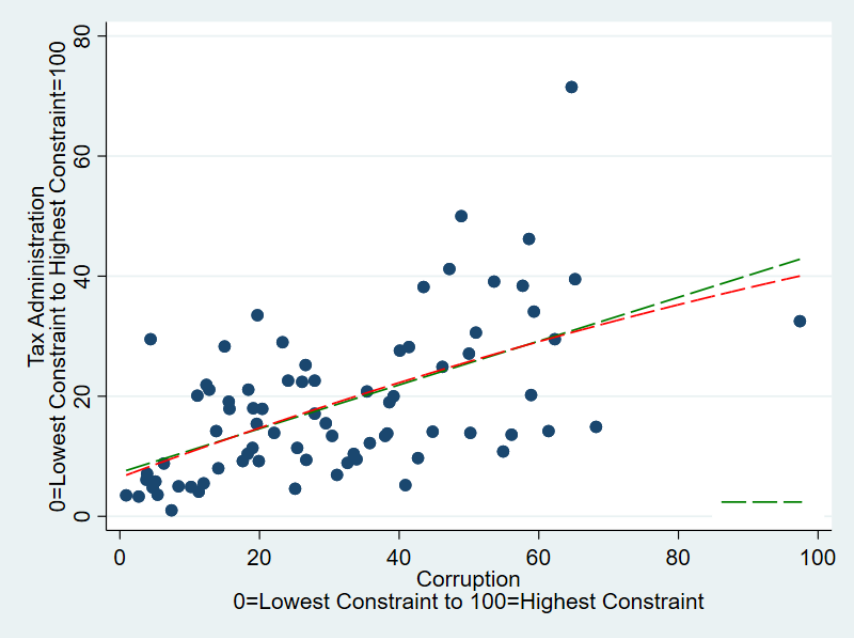
Figure 4.10 GDP Growth Rate and Taxes on Goods & Services for 2012



Source: Author's own calculation based on World Development Indicators and Worldwide Governance Indicators

Based on what we have discussed regarding how taxes are spent and collected, it is essential to realize that taxes are likely to hurt the economic activities under the administration of government with weak institutions because taxes are not spent for the benefit of society. In this case, the tax rates are expected to be higher than what it should be. However, even if the tax rates are not very high, it strongly hurts the performance of businesses.

Figure 4.11 Constraint level of Tax Administration and Corruption for 2016-2020



Source: Author's own calculation based on Enterprise Survey

In Figure 4.11, we have constructed the constraint level of tax administration against the corruption index for 2011- 2015. The curve's positive slope tells us that in countries where corruption exists, the tax administration is identified as a major constraint by enterprises. The same scatter plot for different period is available in Figure 4.13.[6] Therefore, it is crucial to evaluate the negative effect of taxation on economic activities not only in terms of the tax rates but also the way taxes are collected and spent. In this case, institutions play the very critical role in explaining the effect of taxation on economic activities.

[6] The Figure 4.13 is available in Appendix 2.

4.2.3 Innovation and Technology Adaptation

The neoclassical theory attributes the differences in economic performances to technological differences. In this view, countries with more capital per worker have a high level of productivity, and so that they can produce more using the same level of resources. Therefore, there is no doubt that there is a close relationship between technology and economic performance.

There is a strong relationship between technological progress and economic growth, as supported by Romer (1990), with an emphasis on human capital. Yang (2006) studies the effect of innovation, both domestic and worldwide, on Taiwan's economic growth for the 1950-2000 period. The empirical results show that an increase in patenting pushes up the economic growth in Taiwan in the long-run and short-run.

According to Schumpeter (1962, p.83), "The fundamental impulse that keeps the capitalist engine in motion comes from the new consumers, goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates." In that sense, Schumpeter asserts that the fundamental impulse to keep the capitalist engine in motion is possible with the increase in innovation or improvement in the technological process.

Parisi et al., (2006) shows that difference in technology is an essential determinant for total factor productivity across firms. Bronzini and Iachini (2014) studies the effect of a business R&D subsidy program in the early 2000s for Italy. The study looks at the innovation output and uses patent activity for measuring the firm innovation. They used a regression discontinuity method and find out a positive relationship between the program and the number of patent applications of subsidized firms.

So far, we have referred to some of the existing literature on innovation and R&D, so we know that an increase in R&D expenditures leads to a rise in innovation, which ultimately increases productivity, and economic and firm performances. It is crucial to realize that institutions also play an essential role in terms of improving innovation. Parente and Prescott (1994) states that institutional barriers lead to an increase in the cost of technology adaption, thereby, decrease the GDP per capita over the long run.

According to Acemoglu and Akcigit (2012), richer intellectual property rights policies may lead to an increase in innovation, economic growth, and welfare. Moreover, Papageorgiadis and Sharma (2016) assert that to encourage innovation and R&D spending, the intellectual property regime plays a vital role in addressing market failures.

Chen and Puttitanun (2005) examines the relationship between intellectual property (IPRs) rights and innovation for 64 developing based on empirical analysis. The results of the study confirm that there is a positive link between IRPs and innovation. The study further approves the existence of U-shaped between IPRs and economic development.

Considering that property rights institutions are intimately related to innovation, which is the impulse behind productivity, it is obvious that institutions also have an indirect effect on economic performance through improving innovation activities.

4.2.3 Practices of Informal Sector

Informal firms constitute the half of economic activities in developing countries (La Porta and Shleifer, 2014). Informal firms do not abide by the regulations and do not pay taxes. Additionally, they do not report all their sales in order to avoid the taxation. Hence, they have difficulty in finding finance to expand their activities. On the contrary, formal firms are different from the informal ones in the sense that they do comply with the regulations and pay taxes.

Williams and Bezeredi (2018) evaluates the impact of informal sector competition on firm performance. The findings suggest that enterprises asserting that their competitors participate in the informal economy have significantly lower real annual sales growth rates in comparison with the others asserting that their competitor do not practice informal activities. This negative impact stems from the existence of unfair competition, which is result of the practices of informal sectors.

La Porta and Shleifer (2008) assert that informal firms avoid taxes and regulations, thereby, they have substantial cost advantage. The unofficial firms benefit from this cost advantage in the sense that they can undercut the prices of official firms. Therefore, the practices of informal firms

are harmful for formal firms because they take away market shares from bigger and productive firms.

For the firms in developing countries, the informal sector practices are the third most significant obstacle, as is shown in Figure 4.1. Moreover, Figure 4.4 presents the biggest obstacles across firm size. Based on figure 4.4, the informal sector practices are identified as a more significant obstacle for small firms than medium and large firms.

Based on the literature and the survey results, it is obvious that practices of an informal sector hurt enormously the firm performance. The informal sector practices are strongly related to the country's development and digitalization rather than institutional quality. Providing sound legal system and protection of property rights is not that effective way to reduce the informal sector practices.

4.2.5 Other Constraints

Up to now, we have mentioned the four most detrimental constraints to firm performance in detail, and we relate three of them to the institutional quality. There are other obstacles to firm performance, but these obstacles are not that much important as tax rate or access to finance, so that we mention them here very briefly.

Quality of Infrastructure is also a very significant determinant for economic activities. In the above Figure 4.1, the quality of infrastructure is represented by three elements: electricity, transportation, and access to land. Figure 4.1 presents that 10.67 percent of the respondents, on average, identify electricity as their biggest obstacle. Whereas, transportation and access to land are recognized as the biggest obstacle by the respondents as 3.20 and 3.15 percent, respectively. Figure 4.4 presents that electricity is more obstacle for larger enterprises than small and medium enterprises. Additionally, when compared, electricity is more obstacle for manufacturing enterprises than services enterprises.

An inadequately educated workforce also constitutes an impediment to firm performance since it is recognized as the biggest obstacle by 7.40 percent of the respondents for all enterprises

in 2016-2020. Moreover, in Figure 4.4, the inadequately educated workforce is identified as the biggest obstacle by 11.13 percent of respondents for large enterprises, so it is more obstacle for large firms than both small and medium enterprises. The other obstacles for the firms in emerging economies could be found at the related tables.

5. METHODOLOGY

5.1 Classification and Measurement of Institutions

It has already been mentioned that the term “institutions” are pervasive. Thus, institutional quality is measured in many ways, each of which focuses on different aspects or sides of institutions.

Institutions are, indeed, not numerical such as GDP growth rate, inflation, or interest rate. However, some numerical indexes or variables measure the institutional quality in the literature so that institutional quality can be a part of quantitative analysis. Moreover, the measurement of institutions is categorized into two groups in the sense that it can be used for firm-level or country-level analysis. Thus, we provide a summary of firm-level and country-level indicators measuring institutional quality.

5.1.1 Firm-Level Institutional Measurement

5.1.1.1 World Bank Enterprise Survey

In this part, there is an overview of the World Bank Enterprise Survey (WBES), in which firm-level institutional quality is measured by some indicators. These indicators are created by the joint work of EBRD and World Bank under the project of Business Environment and Enterprise Survey (BEEPS). In this survey, questions focusing on different dimensions of firms are asked to business managers and weighted averages of responses to these questions are used to create these indicators that can quantitatively represent the institutional quality.

The enterprise survey data consists of 164.000 firms in 144 countries. Although the indicators represent firms, they are provided at an aggregated level and eligible for country-level analysis. The indicators created by this project measure the different dimensions of institutions such as regulations, corruption, trade and workforce. In this dissertation, some of these indicators are employed, and so that they are shortly covered here.

a. **"Average Number of visits or required meetings with tax officials :** Average number of visits or required meetings with tax officials." The survey question used to measure this varaible is J4.[7]

b. **"Political Instability as a major constraint :** This indicator represents the percent of firms recognizing political Instability as a major constraint." This indicator is created by the survey question J30e.

c. **"Corruption as a major constraint :** This indicator represents the percent of firms identifying corruption as a major constraint." The indicator is based on the survey question J30f.

d. **"Firms expected to give gifts to get things done:** The indicator shows the percentage of establishments that consider that firms that are resemble them are making informal payments to public officials in terms of customs, taxes, regulations, services etc." This indicator is based on the survey question j7.

e. **"Percent of firms expected to give gifts in meeting with tax officials:** The indicator shows the percent of firms that are expected to give gifts or informal payment in meetings with tax officials." The indicator is created by using survey question J5.

f. **"Bribery depth (% of public transactions where a gift or informal payment was requested):** The depth of Bribery is the percentage of instances in which a firm was either expected or requested to provide a gift or informal payment during solicitations for public services, licenses or permits." (Enterprise Surveys Indicators Data - World Bank Group, 2017)

   The indicators are obtained from the World Bank Enterprise Surveys Indicator Descriptions, so more detailed information about the indicators is available there.[8]

[7] The related survey questions are available in Appendix 1.

[8] Available at Enterprise Surveys (http://www.enterprisesurveys.org), The World Bank.

5.1.2 Country-Level Measurement of Institutional Quality

Several authors have proposed different indicators for measuring the institutional quality believing that the indicators capture the different dimensions of institutions. The datasets including some specific indicators for measuring the different dimensions of institutional quality are Worldwide Governance Indicators (WGI), Press Freedom Index (PFI), Corruption Perception Index (CPI), Administrative Quality Index (AQI), International Country Risk Guide (ICRG).

We only provide only the sources of different datasets including the indicators that can be used for the measurement of institutional quality. However, we only refer to the Worldwide Governance Indicators (WGI) here since it has been used in the previous chapter to measure institutional quality.

5.1.2.1 Worldwide Governance Indicators

In order to measure the different dimensions of institutions, (Kaufmann, Kraay, and Mastruzzi, 2008) categorized governance institutions into six groups, consisting of 194 variables, each of which represents the different dimensions of institutions. These six indicators produced by Daniel Kaufmann and Aart Kray representing the governance institutions are:

a. Voice and Accountability: measures the situation in which the citizens of a country can participate in the selection of their government as well as freedom of expression and free media.

b. Political Stability and Absence of Violation: represents the perception of the likelihood that the government will prevail in political instability.

c. Government Effectiveness: measures the ability of government to formulate and implement sound policies as well as the perception of the quality of good public services and the government's commitment to these policies.

d. Regulatory Quality: represents the ability of the government to formulate and implement sound policies as well as regulations that promote private sector development.

f. Rule of Law: measures the perception of individuals in trusting and abiding by the rules of society. Additionally, it includes information regarding the quality of contract enforcement, property rights, and courts.

e. Control of Corruption: measures the perception of the extent to which public power is used for private gains.

5.2. Classification of Firm Performance and Measurements

In this study, we use the Enterprise Surveys provided by the joint project of the European Bank for Reconstruction and Development and World Bank. The Enterprise Survey provides an aggregated micro-level dataset that can be used for country-level analysis. There are many types of research available in the literature focusing on firm performance, but to some extent, these studies differ from each other in several ways, and so that we limit our research with the studies using aggregated firm-level dataset rather than focusing on individual firms.

Since firm performance is a broad term and there are many ways to measure firm performance, it is essential to clarify what we mean by firm performance and how it is measured in this dissertation's context so that it makes the study more understandable. Thus, we provide five different methodologies for the measurements of firm performance in this part. Indeed, these methodologies are the way the World Bank used to calculate the performance indicators in the Enterprise Survey. After explaining how the firm performance is measured differently, we also provide the existing literature for each of the methodologies.

5.2.1 Employment Growth

Employment growth shows the rate of change in full-time employments in percentage. The rate of change or growth is generally calculated for two years, but for some countries, it is calculated for three years because of data unavailability. The formula for employment growth is

$$\frac{1}{t} * \frac{L1-L2}{(L1+L2)/2} * (100)$$

t shows the time interval between the current and previous fiscal years. L1 and L2 represent the questions from the Enterprise Survey. We provide the survey questions for the measurement of performance in Table 4.1 in the Appendix 1.

Dinth et al., (2010) studies the binding constraints on firm's growth in developing countries. Outcome variable of interest in the study is employment growth. They prefer employment growth over the sales growth because sales growth is more volatile and, more prone to reporting and measurement biases, especially when survey respondents are reporting sales realized three years before. It is also likely that firms may not prefer to report actual sales in order to avoid taxes. Thus, it is considered that employment growth is a better option for the measurement of firm growth. (T. Dinh, Mavridis, and Nguyen 2010)

Aterido et al., (2011) attempts to explain the effect of constraints on firm growth. They employ the growth of permanent workers as a proxy for firm growth or firm performance. The other forms of employment such as contract labor and temporary worker are not used. The main reason for why the study concentrates on the growth of permanent employment is that it is more likely to capture the long-run performance of the firm.

5.2.4 Capacity Utilization

Capacity utilization is a key economic indicator as the firm can see how much more they could produce without changing the inputs. It is based on the comparison of the potential and the actual output of the firm. Actual output is the output level produced by a firm in a given year. Potential output is the maximum output that could be produced by a firm using the current inputs. The formula is

$$\text{Capacity Utilization Rate} = \frac{Y_{a,t}}{Y_{p,t}} * 100$$

where $Y_{a,t}$ and $Y_{p,t}$ shows the actual and potential output levels at time t respectively.

Goel and Nelson (2020) deals with the effect of institutions on capacity utilization. To the best our knowledge, this study is the only one that used the capacity utilization from the WBES dataset.

5.2.5 Buying Fixed Assets

It shows the percent of firms buying fixed assets such as building, land, machinery, equipment etc. In order to calculate the indicator, the question K4 is asked to business managers and owners. The survey question K4 is available in Appendix 1.

We believe that buying fixed asset is a crucial way to observe the firm performance. The firms can increase the production capacity basically in two ways (1) an increase in labor, (2) an increase in capital. The term "buying fixed assets" also includes the capital. Therefore, we believe that firms increase their capacity with buying fixed assets if they are confident about the future and expect to have a prospective yield with little risk. However, increasing the capacity with labor does not necessarily based confidence and expectation of prospective yield. The firms can also hire labors to meet the high demand in the market for a short period of time.

5.3 Panel Data Methods

Panel data (longitudinal data) is the term used to describe the pooling of observations on a cross-section of households, countries, firms over several time periods (Baltagi, 2008). In this sense, example, time series for sales growth, labor productivity and employment growth for a sample of firms can be considered as panel data.

In some situations, researchers prefer to use panel data in order to increase the number of observations or the sample size. Another advantage of using panel data is to provide answers to some questions which can't be answered by using cross-sectional and time series data. Moreover, if the data is not available to capture some changes in dependent variable, they are not included in the regression model, and so that the regression coefficient could have omitted variable bias. In this case, studying with panel data eliminate the effect of omitted variables that differ across entities but are constant over time.

If the panel has same years for every variable and every individual, the type of data is balanced panel data. On the other hand, if the panel has different years for some of the individuals

and variables, the type of data is unbalanced panel data. Most of the time, researchers use unbalanced panel data.

The panel data models are constructed based on three different methods: (a) the pooled OLS (the common constant method); (b) fixed effect (least squares dummy variables); and (c) random effects (Asteriou and Hall, 2015).

5.3.1 Pooled OLS Method

The estimation of the pooled OLS gives the results assuming that there are no differences among the data matrices of the cross-sectional dimension. In other words, the pooled OLS method estimates a common constant over all cross-sections.

$$Y_{it} = a + ßX_{it} + U_{it} \qquad (\mu_i = 0) \qquad \text{i= 1, 2, …N; t: 1, 2, … T} \qquad (1)$$

The equation (1) represents the estimation by common constant method. In this regard, the intercept term "*a*" will be same for all entities. Therefore, the pooled OLS method is more applicable for the datasets, which consist of entities that are homogenous and there are no individual specific effects.($\mu_i = 0$)(Asteriou and Hall, 2015; Baltagi, 2008)

5.3.2 Fixed Effects Method

The main difference between the pooled OLS method and the fixed effects method is based on their intercept terms. In the fixed effects model, the intercept term "*a*" is allowed to vary for each entity rather than having constant "*a"* for all entities. In other words, each country has different intercept term when using fixed effects method.

In this regard, the simple fixed effect model for N entities and T times is written as the fallowing:

$$Y_{it} = (a + \mu_i) + \sum_{j=1}^{n} \beta_j X_{it} + V_{it} \qquad \text{i= 1, 2, …N; t: 1, 2, … T} \qquad (2)$$

To comprehend the logic of fixed effect method, we divided the disturbance term into two parts, consisting of μ_i, denotes the unobservable individual-specific affects, and V_{it}, denotes the

remainder disturbance as it is shown in (3). It is important to realize that μ_i is time invariant, and it explains the individual effects that is not included in the regression.

$$U_{it} = \mu_i + V_{it} \quad (3)$$

In this sense, the the marginal effects of variables do not change over time because the only thing that change here is the intercept of the model. However, adding a dummy variables for (N-1) entities causes (N-1) loss in the degrees of fredoom.

5.3.3 Random Effects Method

An alternative way to estimate a model with panel data is the random effect model. The main difference between the random effect and the fixed effect method is that the fixed effects model assumes that each country differs in its intercept term. However, in the random effect model, each country differs in its error term(Asteriou and Hall 2015). The fallowing equation represents the simple random effects model:

$$Y_{it} = a + \sum_{j=1}^{n} \beta_j X_{it} + (\mu_i + V_{it}) \qquad \text{i= 1, 2, …N; t: 1, 2, … T} \quad (4)$$

In case where there are large number of entities in the model, the loss of degrees of freedom can be avoided if we assume that μ_i is random. In this case, μ_i~ IDD (0, $\sigma_\mu{}^2$), V_{it}~IDD (0, $\sigma_\mu{}^2$). Moreover, the X_{it} are independent of the μ_i and V_{it}. Random effect model could be useful if we take the sample randomly from a very large population. In this sense, this is usually the case for household panel studies (Baltagi, 2008).

5.4 Method Selection in Panel Data

5.4.1 The Breusch-Pagan Lagrange Multiplier Test

The Breusch-Pagan Lagrange Multiplier (LM) test is used to make a choice between a random effect and simple pooled OLS regression. The null hypothesis, H_0, is that the variances

across entities are zero. The alternative hypothesis for the test, H_1, is that there are no significant differences across units. Breusch and Pagan's (1980) uses the fallowing test statistic:

$$LM_u = \frac{nT}{2(T-1)}\left[\frac{T^2\bar{e}\prime\bar{e}}{e\prime e} - 1\right]^2 \sim X^2$$

If the statistic is larger enough to reject the null hypothesis, we can conclude that there is a significant random effect in the data. It also means that the random effect model is better than the pooled OLS model in dealing with heterogeneity.

5.4.2 The Chow Test

In the FE method, the model includes dummies to control the individual effects. In this sense, the Chow test is used to examine the joint significance of these dummies. The null hypothesis for the Chow test is that the regressors have the same slope regardless of countries or individuals. Baltagi (2005) presents the test in the fallowing way:

$$\mathrm{F}_0 = \frac{(RRSS - URSS)/(N-1)}{URSS/(NT-N-K)} \sim F_{N-1,\ n(T-1)-K}$$

If the null hypothesis is rejected, we also reject that the regressors have the same slope regardless of countries or individuals. This means that the data are not poolable since each country has its own slopes.

6. EMPIRICAL FINDINGS

6.1 Data Description

"World Bank Enterprise Surveys provide us the most comprehensive firm-level data in emerging markets and developing economies. This survey consists of a large range of topics including access to finance, corruption, crime, infrastructure, competition, and performance measurements. The data collection is based on face to face interviews with business owners and top managers." (World Bank, 2020)

"The Enterprise Surveys conducted in European and Central Asian countries are also known as Business Environment and Enterprise Performance Survey, which is jointly implemented by the World Bank Group and the European Bank for Reconstruction and Development."[9] (World Bank, 2020)

In this dissertation, we also benefit from the Enterprise Surveys. The analysis in this dissertation based on more than 100.000 firms in 127 emerging economies for the period of 2006-2020. We provide the list of emerging economies in Appendix 1. It is important to note that our analysis based on aggregated firm-level data. In this regard, the firms are clustered randomly within country, and each cluster represents the firms in different emerging economy.

6.2 Empirical Model

6.2.1 Model Selection

In this dissertation, we estimate the effects of institutional quality on firm performance based on the data obtained from the Enterprise Surveys. As it was mentioned before, WBES provides us unbalanced panel data, which consists of two or three continuous years.

As it is stated before, analysis with panel data mostly based on fixed effects and random effects methods. In this dissertation, we use random effects rather than fixed effects for two reasons. First, analysis with fixed effects model based on the change within units. In random

[9] For more information regarding the Enterprise Surveys: https://www.enterprisesurveys.org

effects model, we take the weighted average of between and within estimates in analyzing the data. In theory, it is difficult to observe a substantial change in institutions for a short period of time as it is supported by Williamson (2000). Moreover, the data consists of mostly two years for each economy, which makes it more difficult to make analysis within change over time. Therefore, the fixed effects method does not fit the model we want to create.

Second, Baltagi (2008, p.12) claims that using fixed-effects model is an appropriate way if we concentrate on a specific set of observations. For instance, our focus could be a set of specific N firms, so that having individual effect would be plausible. In this sense, the inferences we made is limited to these specific firms and countries. On the other hand, the random effects model is an appropriate way of specification if we want to make inferences regarding the entire population based on the set of N firms withdrawn randomly from the population. In this dissertation, we use the dataset, in which the firms are clustered randomly within country. Each cluster represents the firms in an emerging economy at time "t". Therefore, we generalize the results obtained from the sample of firms to the population (the firms in countries). Thereafter, the firms in the clusters also changes across time, which also contradicts with the idea of individual-specific effects of fixed effects model. For these reasons, we prefer to use Pooled OLS and random effect models rather than fixed effects model.

6.2.2 Description of Model

In this dissertation, we study the effects of institutional quality on firm performance. Thus, we estimate the fallowing models:

Models:

$$FP_{it} = ß_0 + ß_1 INS_{it} + ß_2 Age_{it} + ß_3 INS * Age_{it} + + v_i + U_{it} \quad (1)$$

$$FP_{it} = ß_0 + ß_1 INS_{it} + ß_2 Size_{it} + ß_3 INS * Size_{it} + + v_i + U_{it} \quad (2)$$

$$FP_{it} = ß_0 + ß_1 INS_{it} + \sum_{j=2}^{n} ß_j X_{it} + v_i + U_{it} \quad (3)$$

i= 1, 2, …N; t: 1, 2, … T

We estimate the effect of institutional quality on firm performance by above models. As it has been mentioned before, we use the Pooled OLS and random effects methods. Instead of writing down two separate set of equations, one can think as random effect is equal to zero (v_i = 0) if the pooled OLS model is used. On the other hand, v_i could be thought as component of the error term in the random effects model.

FG represents the firm performance, and it is proxied by five different variables, each of which captures the different dimension of firm performance. The first proxy is the buying fixed assets, demonstrates the percent of firms buying fixed assets such as machinery, land, equipment, or buildings. The second proxy is employment growth, shows the growth rate of permanent full-time workers. The third proxy is capacity utilization, defined as the establishment's current output produced as a proportion of the maximum output possible using the current inputs.

As it was mentioned, the main independent variable is institutional quality, which is represented by *INS* in the models. It is measured by six different variables. The variables measuring institutional quality consists of *political instability, corruption, bribery*, *taxgift (*the percent of firms expected to make informal payments in meetings with tax officials), *tax visits* (average number of visits or required meetings with tax officials), and *gift_done* (firms expected to give gifts to get things done). In each case, we use the average values of all scale of enterprises for institutional measurement because we believe that institutional quality is same within country. Using average values for institutional quality is helpful in terms of solving the endogeneity problem.

In the model above, we exploit some control variables that play an important role in explaining the firm performance. For instance, one can claim that the firm performance distinct for old and new firms, or small and large firms. Therefore, we use some control variables in the sense that they explain the change in firm performance due to size and age. In this regard, *Age* represents the age of the establishment in years, so we can control for the effect of the firm's age on its performance. Additionally, *Size* represents the number of workers in the firm, thereby, we can control for the effect of firm's size on its performance. The other control variables could be thought in the same way.

6.2.3 Description of Variables

Table 6.1 Summary Statistics and Variable Descriptions

VARIABLES	(2) mean	(3) std	(4) Description of Variables
Measures of Firm Performance			
Capacity Utilization (CU)	72.36	7.993	"Capacity Utilization (%)"
Buying Fixed Assets (BFA)	44.39	15.03	"The percent of firms buying fixed assets"
Employment Growth (EG)	5.148	4.096	"Employment Growth (%)"
Measures of Institutional Quality			
p_instability	10.69	11.63	"Firms identifying political instability as major constraint"
corruption	33.81	20.40	"Firms identifying corruption as major constraint"
taxgift	13.42	14.18	"Firms expected to give gifts in meeting with tax officials (%)"
bribery	13.89	13.63	"Bribery depth"
N_taxvisits	2.816	1.641	"The average number of meetings by tax inspectors"
gift_done	23.29	20.59	"Firms expected to give gifts to public officials (" to get things done")"
Control Variables			
Age	16.26	4.870	"The age of establishment in years"
Size	36.68	22.39	"The number of workers in the firm"
Const_finance	27.47	16.45	"Percent of firms identifying access to finance as major constraint"
formal_training	49.78	16.12	"Proportion of workers offered formal training (%)"
Const_taxadm	21.58	13.90	"Percent of firms identifying tax administration as a major constraint"
Const_taxrate	32.59	17.49	"Percent of firms identifying tax rates as a major constraint"
Sales Growth	2.594	10.47	"Real annual sales growth (%)"
informality	53.16	19.30	"Percent of firms competing against unregistered or informal firms"
f_ownership	11.24	9.658	"Percent of firms with at least 10% of foreign ownership"
security_cost	3.157	2.344	"If the establishment pays for security, average security costs (% of annualn sale)"
avg_Theftlosses	20.65	12.78	"If there were losses, average losses due to theft and vandalism"
innovation	32.28	21.71	"Percent of firms that introduced a process innovation"
R&D	17.01	13.23	"Percent of firms that spend on R&D"
F_technology	14.98	9.974	"Percent of firms using technology licenced from foreign companies"
own_webS	41.89	21.69	"Percent of firms having their own website"
Co_water	1.115	1.838	"Number of water insufficiencies in a typical month"
Const_electricity	34.49	19.92	"Percent of firms identifying electricity as a major constraint"
Const_transportation	19.51	11.60	"Percent of firms identifying transportation as a major constraint"

Source: Author's own estimation based on Enterprise Surveys
Note: "*std"* represents the standard deviations of varaibles.

6.3 Estimation Results

6.3.1 Buying Fixed Assets

In this part, we deal with the interpretation of the estimation results, in which buying fixed assets (BFA) is used as a proxy for firm performance. As main variable of interest representing institutional quality, we use political instability and bribery. The estimation results for BFA is available in Tables 6.2 and 6.3. Additionally, the Table 6.9, available in Appendix 3, also presents the results for BFA considering the nonlinearity of *Age* and *Size* variables separately. Moreover, we have regressed the effect of political instability and bribery on BFA separately for large and small-scale enterprises. These regression results are available in Appendix 3.

The significant positive coefficient of *Size* depicts that larger firms in emerging economies perform better in BFA. In Table 6.2, we also test whether the effect of political instability and bribery on BFA depends on firm size and age by interaction term. The findings show that BFA of larger firms is hampered more than the BFA of small firms when both firms are exposed to the same level of political instability and bribery. Also, the BFA of older firms is prevented more when both firms are expose to same level of bribery.

The empirical findings support that in emerging economies where firms are expose to political instability and bribery, we expect these firms to perform less in BFA. The negative effect of political instability and weak political institutions is supported in the literature (Alesina et al, 1996; Acemoglu et al, 2012). We also observe that the quadratic parameters for bribery variables are individually significant, which means that the relationship between BFA and bribery is nonlinear. In this regard, as bribery increases, BFA decreases at an increasing rate. However, the quadratic terms for the variables representing bribery is insignificant for large enterprises.

For the control variables, foreign ownership is observed to have a positive impact on BFA of firms in emerging economies which indicates that the more the number of foreign ownership firms are, the higher the BFA is expected to be in emerging economies. In order words, firms with foreign ownerships in emerging economies are expected to perform better in BFA.

Table 6.2

Regression Analysis of Buying Fixed Assets, Institutional Quality and Firm Characteristics based on Average of All Enterprises

	Dependent Variable: Buying Fixed Assets (BFA)											
Independent	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variables	Pooled OLS	Pooled OLS	Pooled OLS	Pooled OLS	Pooled OLS	Pooled OLS	RE	RE	RE	RE	RE	RE
p_instability	0.0156	0.0139					-0.239	0.0262				
	(0.254)	(0.128)					(0.256)	(0.125)				
bribery					0.360	0.0228					0.262	0.0940
					(0.221)	(0.105)					(0.219)	(0.110)
taxgift			0.416*	-0.0231					0.335	0.0282		
			(0.214)	(0.0961)					(0.212)	(0.102)		
age	0.532**		0.625**		0.615**		0.126		0.427*		0.385	
	(0.265)		(0.249)		(0.261)		(0.276)		(0.260)		(0.273)	
Size		**0.206*** **		**0.230*** **		**0.272*** **		**0.249*** **		**0.264*** **		**0.320*** **
		(0.0579)		**(0.0583)**		**(0.0666)**		**(0.0547)**		**(0.0592)**		**(0.0683)**
Pinstability x Age	-0.0139						0.00271					
	(0.0147)						(0.0147)					
Pinstability x Size		**-0.00615** **						**-0.00598** **				
		(0.00297)						**(0.00272)**				
Taxgift x Age			**-0.0406*** **						**-0.0333** **			
			(0.0137)						**(0.0136)**			
Taxgift x Size				**-0.00485** **						**-0.00475** **		
				(0.00192)						**(0.00203)**		
Bribery x Age					**-0.0370** **						**-0.0278* **	
					(0.0143)						**(0.0142)**	
Bribery x Size						**-0.00647*** **						**-0.00685*** **
						(0.00230)						**(0.00243)**
Constant	38.96***	39.96***	37.60***	39.50***	37.88***	38.23***	44.92***	37.87***	40.14***	37.31***	40.84***	35.50***
	(4.355)	(2.396)	(4.400)	(2.464)	(4.591)	(2.697)	(4.592)	(2.406)	(4.619)	(2.581)	(4.828)	(2.812)
Observations	258	258	258	258	258	258	258	258	258	258	258	258
R-squared	0.041	0.073	0.070	0.093	0.060	0.095						
Number of id							127	127	127	127	127	127

Table 6.3
Regression Analysis of Buying Fixed Assets and Institutional Quality based on Average of All Enterprises

	Dependent Variable: Buying Fixed Assets							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Pooled OLS	Pooled OLS	RE	RE	Pooled OLS	RE	Pooled OLS	RE
p_instability	**-0.160****	**-0.166****	**-0.132***	**-0.124**				
	(0.0738)	**(0.0785)**	**(0.0744)**	**(0.0786)**				
taxgift					**-0.703*****	**-0.482****		
					(0.205)	**(0.206)**		
bribery							**-0.684*****	**-0.533****
							(0.219)	**(0.236)**
size	0.0802**	-0.0133	0.157***	0.0197	-0.000315	0.0211	-0.00156	0.0152
	(0.0398)	(0.0475)	(0.0412)	(0.0475)	(0.0473)	(0.0474)	(0.0472)	(0.0482)
age	0.0715	0.489**	-0.182	0.322	0.363*	0.260	0.388*	0.314
	(0.191)	(0.207)	(0.200)	(0.216)	(0.207)	(0.218)	(0.206)	(0.220)
taxgift2					0.0123***	0.00841**		
					(0.00393)	(0.00408)		
bribery2							0.0106**	0.00793*
							(0.00410)	(0.00449)
C_finance	-0.0219	-0.0471	0.0733	0.0288	-0.0345	0.0287	0.0352	0.0680
	(0.0622)	(0.0709)	(0.0638)	(0.0707)	(0.0696)	(0.0704)	(0.0725)	(0.0739)
f_ownership	**0.392*****	**0.403*****	**0.389*****	**0.378*****	**0.414*****	**0.383*****	**0.422*****	**0.371*****
	(0.0899)	**(0.111)**	**(0.0928)**	**(0.116)**	**(0.108)**	**(0.114)**	**(0.106)**	**(0.112)**
Const_taxrate	0.0885	0.0504	0.0690	0.0345	0.0546	0.0413	0.0384	0.0419
	(0.0569)	(0.0597)	(0.0571)	(0.0597)	(0.0583)	(0.0590)	(0.0578)	(0.0596)
innovation		**0.217*****		**0.251*****	**0.223*****	**0.251*****	**0.227*****	**0.253*****
		(0.0458)		**(0.0424)**	**(0.0451)**	**(0.0426)**	**(0.0453)**	**(0.0442)**
security_cost	**-1.339*****	**-1.526*****	**-1.379*****	**-1.544*****	**-1.161*****	**-1.348*****		
	(0.380)	**(0.396)**	**(0.351)**	**(0.365)**	**(0.412)**	**(0.377)**		
avg_Theftlosses							**-1.073*****	**-0.873*****
							(0.281)	**(0.276)**
Constant	40.31***	29.50***	38.91***	27.89***	31.84***	29.86***	31.87***	29.03***
	(4.256)	(4.624)	(4.374)	(4.900)	(4.633)	(4.991)	(4.634)	(5.008)
Observations	257	175	257	175	175	175	170	170
R-squared	0.169	0.335			0.362		0.391	
Number of id			127	112		112		111

Note: * Indicates significant at the 10% level, **Indicates significant at the 5% level, ***Indicates significant at the 1% level

Moreover, we observe that *avg_Theftlosses* and *security_cost* have a negative impact on BFA. In other words, in emerging economies where firms are exposed to pay higher security costs, we expect firms in these emerging economies to perform less in BFA. This finding also supports the Gaviria (2002). Additionally, innovation is also observed to have a positive effect on BFA. The positive sign of innovation indicates that the more the process innovation is, the higher the BFA is expected to be. The positive impact of process innovation also supports the literature (Atalay, Anafarta, and Sarvan, 2013; Gunday et al., 2011)

6.3.2 Employment Growth

In this part, we deal with the interpretation of estimation results for firm performance, in which firm performance is proxied by employment growth (EG). As main variable of interest representing institutional quality, we use political instability, bribery(*gift_done*) and the number of meetings with tax officials(*N_taxvisits*). In Tables 6.4 – 6.6, we present the estimation results for EG. Additionally, the Table 6.10, available in Appendix 3, presents the results for EG considering the nonlinearity of *Age* and *Size* variables. Moreover, the seperate regression results for large and small-scale enterprises are also available in Appendix 3.

The estimation results support that *Age* is negatively associated with EG, which means that older firms in emerging economies are expected to have less EG. In the sixth column of Table 6.4, the significantly negative interaction term indicates that EG of old firms is prevented more than the EG of young firms when both firms are exposed to the same level of political instability. Also, the EG of old firms is expected to be higher than the EG of small firms when both firms are exposed to the same number of tax visits by inspectors.

The empirical findings show that political instability is observed to have a negative effect on EG of firms in emerging economies. The negative effect of political instability and weak political institutions on economic performance is also emphasized in the literature (Acemoglu and Robinson, 2012 ; Alesina et al., 1996). On the other hand, *N_taxvisits* and bribery (*gift_done)* are expected to have a positive impact on EG. Based on the separate empirical findings for large and small enterprises in Appendix 4 , we can say that the positive effect of the *N_taxvisits* holds true

for both small and large enterprises, however, the positive effect of bribery is valid only for small enterprises. Therefore, there is no relationship between bribery and EG for large enterprises. In this regard, bribery facilitates the EG of small firms, which supports the "grease the wheels" hypothesis in the literature. The empirical findings of Kalyuzhnova et al., (2019) and Hanousek et al., (2016) also supports "grease the wheels" hypothesis based on the firm-level data. On the contrary, other studies find out negative relationship (Gaviria, 2002; Fismann et al, 2007; S.N. and Sen, 2017).

Most of the macro-level studies shows that bribery has a negative impact on economic growth and development in the long-run because it deteriorates the allocation of resources and is a kind of an ineffciient taxation that reduces the profits of investment. In this regard, we believe that the bribery has a facilitating effect on EG of small enterprises because bribery helps them get rid of paying high transaction cost.

Moreover, it is observed that *own_Webs* is observed to have a negative impact on EG. The negative effect of *own_Webs* means that firms having their own website creates less job. Additionally, it is observed that foreign ownerships has positive relationship with EG. However, this relationship only holds for small firms. The sales growth is also observed to have a positive impact on EG as it is suggested by Okun's law. This positive effect holds for small and large enterprises. It is also observed that informality has positive relationship with EG of firms in emerging economies.

We observe that *Age* is negatively associated with EG of firms in emerging economies. It means that older firms in these emerging economies grow slower than younger firms. The significance of quadratic parameter for *Age* means that EG decreases at an increasing rate as *Age* increases. However, the quadratic parameter of age does not hold for large enterprises.

Table 6.4

Regression Analysis of Employment Growth, Institutional Quality and Firm Characteristics based on Average of All Enterprises

	Dependent Variable: Employment Growth											
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) RE	(4) RE	(5) Pooled OLS	(6) Pooled OLS	(7) RE	(8) RE	(9) Pooled OLS	(10) Pooled OLS	(11) RE	(12) RE
p_instability	0.0263	-0.0994***	0.00547	-0.107***								
	(0.0585)	(0.0341)	(0.0592)	(0.0344)								
N_taxvisits					-0.648	0.378	-0.706	0.359				
					(0.481)	(0.290)	(0.486)	(0.296)				
gift_done									0.0475	0.0695***	0.0394	0.0679***
									(0.0333)	(0.0189)	(0.0333)	(0.0192)
Age	**-0.290*** (0.0611)**		**-0.316*** (0.0630)**		**-0.590*** (0.107)**		**-0.610*** (0.107)**		**-0.326*** (0.0657)**		**-0.348*** (0.0674)**	
Size		-0.0177		-0.0136		-0.0246		-0.0247		0.000849		0.00373
		(0.0154)		(0.0152)		(0.0265)		(0.0266)		(0.0181)		(0.0184)
Pinstability x Age	**-0.00615* (0.00339)**		-0.00517 (0.00341)									
Pinstability x Size		0.000168		0.000194								
		(0.000792)		(0.000767)								
Ntaxvisit x Age					**0.0731****		**0.0767****					
					(0.0334)		**(0.0337)**					
Ntaxvisit x Ssize						0.00362		0.00465				
						(0.00844)		(0.00843)				
Giftdone x Age									-0.00173		-0.00130	
									(0.00209)		(0.00208)	
Giftdone x Size										-0.000518		-0.000533
										(0.000359)		(0.000364)
Constant	11.10*** (1.003)	7.228*** (0.638)	11.64*** (1.042)	7.232*** (0.654)	13.65*** (1.633)	5.013*** (0.982)	14.09*** (1.656)	5.051*** (1.005)	10.32*** (1.167)	4.346*** (0.762)	10.78*** (1.202)	4.348*** (0.779)
Observations	258	258	258	258	258	258	258	258	257	257	257	257
R-squared	0.293	0.087			0.272	0.052			0.247	0.077		
Number of id			127	127			127	127			127	127

Table 6.5
Regression Analysis of Employment Growth and Institutional Quality based on Average of All Enterprises

Dependent Variable: Employment Growth								
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) RE	(4) RE	(5) Pooled OLS	(6) Pooled OLS	(7) RE	(8) RE
p_instability	**-0.0910*** (0.0212)**	**-0.0657*** (0.0187)**	**-0.0996*** (0.0220)**	**-0.0770*** (0.0195)**				
N_taxvisits					**0.265** (0.132)**	**0.135 (0.120)**	**0.270** (0.136)**	**0.148 (0.123)**
size	0.0162 (0.0129)	0.0159 (0.0111)	0.0185 (0.0134)	0.0170 (0.0117)	0.0155 (0.00988)	0.0124 (0.00897)	0.0189* (0.0103)	0.0140 (0.00935)
age2	0.00941 (0.00745)	0.0313*** (0.00728)	0.00952 (0.00755)	0.0300*** (0.00758)	0.0130** (0.00646)	0.0267*** (0.00635)	0.0112* (0.00645)	0.0245*** (0.00644)
age	-0.667** (0.284)	-1.435*** (0.271)	-0.684** (0.290)	-1.424*** (0.283)	-0.803*** (0.235)	-1.209*** (0.226)	-0.754*** (0.235)	-1.149*** (0.228)
own_webS	**-0.0296* (0.0157)**	**-0.0398*** (0.0136)**	**-0.0279* (0.0159)**	**-0.0370*** (0.0140)**	**-0.0247* (0.0135)**	**-0.0337*** (0.0122)**	**-0.0216 (0.0140)**	**-0.0311** (0.0126)**
f_ownership	0.0315 (0.0297)	0.0387 (0.0258)	0.0376 (0.0309)	0.0447 (0.0272)				
C_finance	-0.00158 (0.0189)	0.00745 (0.0166)	0.00524 (0.0196)	0.00937 (0.0172)	-0.00147 (0.0155)	0.00114 (0.0141)	0.00322 (0.0159)	0.00303 (0.0144)
informality	0.0193 (0.0165)	0.0210 (0.0143)	0.0139 (0.0167)	0.0172 (0.0146)				
RD	0.0344 (0.0237)	0.0227 (0.0207)	0.0220 (0.0240)	0.0143 (0.0209)				
exporter					-0.0468 (0.0535)	-0.0488 (0.0481)	-0.0644 (0.0556)	-0.0583 (0.0498)
SG		**0.167*** (0.0256)**		**0.175*** (0.0254)**		**0.127*** (0.0186)**		**0.125*** (0.0183)**
Constant	13.23*** (2.772)	19.27*** (2.564)	13.72*** (2.909)	19.67*** (2.750)	14.82*** (2.252)	18.01*** (2.102)	14.32*** (2.263)	17.55*** (2.130)
Observations	174	173	174	173	256	254	256	254
R-squared	0.329	0.476			0.297	0.414		
Number of id			112	112			127	127

Note: * Indicates significant at the 10% level, **Indicates significant at the 5% level, ***Indicates significant at the 1% level

Table 6.6

Regression Analysis of Employment Growth and Institutional Quality based on Average of All Enterprises

	Dependent Variable: Employment Growth							
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) Pooled OLS	(4) Pooled OLS	(5) RE	(6) RE	(7) RE	(8) RE
gift_done	**0.0544**	**0.102*** **	**0.0850** **	**0.0298**	**0.0556**	**0.112*** **	**0.0905** **	**0.0308**
	(0.0341)	**(0.0383)**	**(0.0351)**	**(0.0314)**	**(0.0342)**	**(0.0385)**	**(0.0352)**	**(0.0318)**
size	0.00787	-0.0186*	-0.0181*	0.00738	0.0112	-0.0162	-0.0177*	0.00806
	(0.0100)	(0.0108)	(0.00996)	(0.00919)	(0.0103)	(0.0112)	(0.0104)	(0.00956)
gift_done2	**-0.000494**	**-0.000790***	**-0.000697**	**-0.000374**	**-0.000531**	**-0.000952** **	**-0.000804***	**-0.000386**
	(0.000421)	**(0.000477)**	**(0.000432)**	**(0.000380)**	**(0.000414)**	**(0.000470)**	**(0.000425)**	**(0.000380)**
F_technology		-0.00184	-0.0117	-0.0351*		-0.00213	-0.0136	-0.0354*
		(0.0243)	(0.0228)	(0.0201)		(0.0243)	(0.0227)	(0.0201)
informality		0.0131	0.00432	0.0296**		0.0123	0.00457	0.0263**
		(0.0136)	(0.0132)	(0.0120)		(0.0147)	(0.0142)	(0.0126)
f_ownership			**0.0639*** **	**0.0553*** **			**0.0718*** **	**0.0618*** **
			(0.0235)	**(0.0205)**			**(0.0242)**	**(0.0210)**
Const_finance			0.0229	-0.00181			0.0240	0.00150
			(0.0160)	(0.0143)			(0.0163)	(0.0145)
Sales Growth			**0.126*** **	**0.124*** **			**0.124*** **	**0.123*** **
			(0.0210)	**(0.0184)**			**(0.0204)**	**(0.0181)**
age	**-0.925*** **			**-1.314*** **	**-0.896*** **			**-1.231*** **
	(0.231)			**(0.222)**	**(0.231)**			**(0.224)**
age2	**0.0157** **			**0.0275*** **	**0.0144** **			**0.0249*** **
	(0.00638)			**(0.00623)**	**(0.00637)**			**(0.00631)**
Constant	14.93***	3.871***	3.056***	16.28***	14.82***	3.824***	2.973***	15.72***
	(2.079)	(1.000)	(0.946)	(2.070)	(2.095)	(1.030)	(0.973)	(2.108)
Observations	257	254	253	253	257	254	253	253
R-squared	0.267	0.080	0.234	0.423				
Number of id					127	127	127	127

Note: * Indicates significant at the 10% level, **Indicates significant at the 5% level, ***Indicates significant at the 1% level

6.3.3 Capacity Utilization

In this part, we attempt to investigate the effects of institutional quality on firm performance, in which firm performance is measured by capacity utilization (CU). The estimation results for CU are available in Table 6.7 and 6.8. In Table 6.11, the effect of *Age* and *Size* are estimated separately. We have also separate regressions for large and small-scale enterprises in Appendix 3. It is important to note that capacity utilization is different from the other firm performance measurement in the sense that it consists only of manufacturing firms.

Based on the estimation results in Table 6.7 and 6.11, it is observed that *Age* is positively associated with CU. This means that older firms are expected to perform better in CU. Also, we test whether the effect of political instability and corruption on CU differ by firm age and size. The results reveal that CU of old firm is prevented more than the CU of young firms when both firms face with the same level of political instability and corruption.

The explanatory variables representing the institutional quality is political instability and corruption. We have also regressed the average number of tax visits and bribery on capacity utilization, but they do not have a significant effect on capacity utilization. The empirical findings reveal that political instability and corruption have a negative impact on capacity utilization. However, these negative effect holds only for small-scale enterprises. This finding also supports the idea that extractive institutions negatively effects the economic performance. (Acemoglu et al., 2005; Acemoglu and Robinson, 2012). Also, Alesina et al., (1996) also supports the idea that political instability has a negative effect on economic growth. Besides, some other firm-level studies also find out a negative relationship between corruption and firm performance. (Aterido, Hallward-Driemeier, and Pages 2007; Fowowe 2017; Gaviria 2002; Hanousek and Kochanova 2016; Goel and Nelson 2020)

For the control variables, in emerging economies where firms offer more formal trainings, these firms are expected to have higher CU. The negative effect of offering formal trainings holds true for large and small-scale enterprises. On the other hand, firms facing with water insufficiencies are expected to have less CU, which is supported by the findings of Goel and Nelson (2020). However, this effect does not hold true for the large-scale manufacturing firms. It is also observed that firms facing with difficulty in access to finance are expected to have perform less in CU. The

negative effect of difficulty in accessing finance holds true for both large and small-scale enterprises. However, financial constraints hamper CU of small enterprises more than the CU of large enterprises.

Table 6.7
Regression Analysis of Capacity Utilization, Institutional Quality and Firm Characteristics based on Average of All Enterprises

	Dependent Variable: Capacity Utilization							
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) RE	(4) RE	(5) Pooled OLS	(6) Pooled OLS	(7) RE	(8) RE
p_instability	0.206 (0.137)	-0.112 (0.0707)	**0.280** (0.136)**	-0.0813 (0.0692)				
corruption					0.0618 (0.0824)	**-0.131** (0.0504)**	0.0218 (0.0793)	**-0.105** (0.0502)**
Age	0.179 (0.144)		0.255* (0.150)		0.261 (0.192)		0.170 (0.193)	
Size		0.0166 (0.0321)		0.0102 (0.0296)		-0.0221 (0.0555)		-0.0152 (0.0547)
Pinstability x Age	**-0.0185** (0.00804)**		**-0.0213*** (0.00787)**					
Pinstability x Size		0.000372 (0.00163)		0.000294 (0.00145)				
Corruption x Age					**-0.00832* (0.00468)**		-0.00525 (0.00453)	
Corruption x Size						0.00131 (0.00126)		0.00100 (0.00124)
Constant	70.75*** (2.357)	72.93*** (1.332)	69.23*** (2.520)	72.92*** (1.361)	70.87*** (3.199)	75.98*** (2.085)	71.98*** (3.279)	75.37*** (2.106)
Observations	258	258	258	258	258	258	258	258
R-squared	0.042	0.025			0.053	0.053		
Number of id			124	124			124	124

Notes: (1) * Indicates significant at the 10% level, **Indicates significant at the 5% level, ***Indicates significant at the 1% level

Table 6.8
Regression Analysis of Capacity Utilization and Institutional Quality based on Average of All Enterprises

	Dependent Variable: Capacity Utilization							
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) RE	(4) RE	(5) Pooled OLS	(6) Pooled OLS	(7) RE	(8) RE
p_instability	**-0.0980** (0.0427)**	**-0.0832** (0.0413)**	**-0.0764* (0.0448)**	**-0.0721* (0.0433)**				
corruption					**-0.100*** (0.0378)**	**-0.0678* (0.0397)**	**-0.107*** (0.0401)**	**-0.0573 (0.0429)**
Age	-0.178* (0.107)	-0.202* (0.109)	-0.111 (0.113)	-0.139 (0.115)	-0.230* (0.130)	-0.179 (0.134)	-0.191 (0.141)	-0.182 (0.146)
Size	0.0217 (0.0226)	0.0155 (0.0219)	0.0285 (0.0241)	0.0274 (0.0236)	0.0302 (0.0309)	0.0171 (0.0304)	0.0316 (0.0323)	0.0187 (0.0321)
formal_training	**0.105*** (0.0315)**	**0.0705** (0.0310)**	**0.0714** (0.0313)**	**0.0385 (0.0312)**	**0.141*** (0.0395)**	**0.0982** (0.0399)**	**0.116*** (0.0420)**	**0.0755* (0.0422)**
Water_insufficiency	**-1.005*** (0.301)**	**-0.475 (0.310)**	**-0.954*** (0.302)**	**-0.509* (0.308)**				
Const_taxadm	-0.0130 (0.0359)	0.0662 (0.0406)	-0.0136 (0.0364)	0.0617 (0.0409)				
F_technology	-0.0962* (0.0531)		-0.0666 (0.0504)					
Const_transportation					0.0525 (0.0706)	0.112 (0.0751)	0.0673 (0.0690)	0.129* (0.0716)
innovation					-0.0368 (0.0311)	-0.0300 (0.0304)	-0.0343 (0.0309)	-0.0244 (0.0308)
Sales Growth		0.0330 (0.0514)		0.0265 (0.0454)		0.0224 (0.0757)		0.0521 (0.0753)
Const_finance		**-0.164*** (0.0392)**		**-0.161*** (0.0398)**		**-0.147*** (0.0532)**		**-0.176*** (0.0549)**
Constant	73.19*** (2.584)	78.04*** (2.809)	72.95*** (2.793)	77.86*** (3.006)	71.99*** (3.036)	74.97*** (3.240)	72.71*** (3.483)	76.29*** (3.643)
Observations	239	237	239	237	170	168	170	168
R-squared	0.129	0.175			0.152	0.174		
Number of id			115	114			105	104

Notes: (1) * Indicates significant at the 10% level, **Indicates significant at the 5% level, ***Indicates significant at the 1% level
(2) Correlation between F_technology and CU is -0,062. (3) The data for capacity utilization is exclusively based on manufacturing enterprises.

7. CONCLUSION

It is believed that economic and political institutions play a substantial role in explaining the economic performance, which is mostly associated with the studies of Douglas North. Moreover, Acemoglu et al., (2005) and Rodrik et al., (2004) emphasize the role of institutions in explaining the income differences across countries. However, these studies mostly based on the analysis of macroeconomic variables such as GDP growth rate and GDP per capita. In this dissertation, we benefit from firm-level data in explaining the economic performance, which makes it different from many studies in the literature.

In this dissertation, we investigated the effect of institutional quality on firm performance based on unbalanaced panel data of World Bank Enterprise Surveys (WBES). Our firm-level analysis relates to the firms in emerging economies as the dataset consists of the emerging countries. In order to understand the basic structure of firm, we basically review what the firm is in neoclassical and institutional economics. Then, we go through the theory of institutions in order to clarify what we mean by institutions. Based on this, we determine a set of variables representing the institutional quality. These variables consist of political instability, corruption, bribery measurements and average number of tax visits. We selected the measurement of institutions in the sense that they capture the different dimension of institutions.

In the WBES, the indicators are classified with regards to their main interests. Therfore, the survey also includes a group of variable representing the firm performance. We select the variables representing firm performance among these variables. Hence, the variables we use so as to measure the firm performance are buying fixed assets, employment growth and capacity utilization. This dissertation is distinct from most of the studies in the literature in the sense that it uses buying fixed assets and capacity utilization as well as employment growth for the measurement of firm performance. Moreover, our model is different in the sense that it has diversified control variables. To the best of our knowledge, the other studies do not control for the sales growth in explaining the employment growth and capacity utilization but our model does.

The empirical findings reveal that political instability, representing the quality of political institutions, is observed to effect the firm performance negatively in terms of buying fixed assets,

employment growth and capacity utilization. However, political instability is not associated with any change in capacity utilization of large enterprises. The results also show that the political instability hurts the older firms more. In this regard, as political instability is a symptom of extractive or weak institutions, we can say that weak institutions are the reason why firms in some of the emerging economies are weaker than the firms in some other emerging economies. As it is also claimed by Acemoglu et al. (2012), countries with extractive institutions conduct policies in favor of those holding the power at the expense of the rest of the society. Therefore, we believe that in countries where political institutions are weak, it is unlikely to expect much accumulation of human capital, physical capital and technology because weak political institutions do not provide any incentive to invest on human capital, physical capital and technology.

Another important point is that countries with weak institutions also have the problem of uncertainty. In case of uncertainty, it is difficult for the firms to make a long-term investment plans especially in terms of buying machinery and equipment, which we also observe by looking at the buying fixed assets indicator. Therefore, we can say that weak institutions hurt the performance of firms in emerging economies in terms of buying fixed assets.

Based on the empirical findings, bribery is expected to have a negative effect on buying fixed assets, and this negative effect is stronger for old and large firms. On the other hand, while bribery is positively related to employment growth of small enterprises, it is not associated with any change in employment growth of large-scale enterprises. It is also observed that corruption has a negative impact on firm performance in terms of capacity utilization of firms in emerging economies. However, the negative effect of corruption on capacity utilization does not hold true for large-scale enterprises.

The significantly positive effect of bribery on small-scale enterprises may be attributed to the fact that bribery increases the efficiency as it allows firms to avoid some regulations or high transaction costs. Additionally, bribery would continue to facilitate the economic activities until transaction cost is higher than bribery. We believe that bribery is an inefficient tax, which hurts the firm performance in terms of buying fixed assets very strongly.

Also, corruption worsens the capacity utilization of small-scale manufacturing enterprises strongly. As corruption and bribery is a kind of income transfer in exchange for nothing, it

deteriorates the income distribution and increases income inequality, which eventually hurts the human development. The negative effect of bribery and corruption on human development is also supported in the literature by Akçay (2006). It is also evident in macro-level studies that bribery and corruption have a negative effect on economic development in the long-run. Therefore, emerging economies needs to provide an environment where firms can produce and exchange with lower transaction costs, especially for small firms because they have difficulty in minimizing the transaction cost.

Another finding is that the average number of tax visits by inspectors positively related to employment growth of firms in emerging economies. Also, we do not observe any significant relationship between the average number of tax visits and firm performance in terms of capacity utilization and buying fixed assets. Therefore, the positive relationship between the average number of tax visits and employment growth may be attributed to the fact that higher number of tax visits by inspectors would force the employers to convert their activities into formal.

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APPENDIX 1

List of Countries in Regression Analysis

Afghanistan
Albania
Angola
Antigua and Barbuda
Argentina
Armenia
Bahamas, The
Bangladesh
Barbados
Belarus
Belize
Benin
Bhutan
Bolivia
Bosnia and Herzegovina
Botswana
Brazil
Burundi
Cambodia
Cameroon
Central African Republic
Chad
Chile
China
Colombia
Congo, Dem. Rep.
Congo, Rep.
Croatia
Cyprus
Czech Republic
Côte d'Ivoire
Djibouti
Dominican Republic
Ecuador
Egypt, Arab Rep.
El Salvador
Estonia
Eswatini
Ethiopia
Fiji
Gambia, The
Georgia
Ghana
Greece
Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana, CR
India
Indonesia
Iraq
Jamaica
Jordan
Kazakhstan
Kenya
Kosovo
Kyrgyz Republic
Latvia
Lebanon
Lesotho
Liberia
Lithuania
Madagascar
Malawi
Malaysia
Mali
Malta
Mauritania
Mauritius
Mexico
Moldova
Mongolia
Montenegro
Morocco
Mozambique
Namibia
Nepal
Nicaragua
Gabon
Niger
North Macedonia
Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Portugal
Romania
Russian Federation
Rwanda
Samoa
Senegal
Serbia
Sierra Leone
Slovak Republic
Slovenia
Solomon Islands
South Sudan
South Africa
Sri Lanka
St. Kitts and Nevis
St. Lucia
St. Vincent and the Grenadines
Sudan
Suriname
Tajikistan
Tanzania
Timor-Leste
Togo
Trinidad and Tobago
Tunisia
Turkey
Uganda
Uzbekistan
Uruguay
Vanuatu
Venezuela, R.B.
Vietnam
West Bank and Gaza
Yemen, Rep.
Zambia
Zimbabwe

List of Countries with Strong Institutions

Australia
Austria
Barbados
Belgium
Chile
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece

Iceland
Ireland
Israel
Japan
Korea, Rep.
Luxembourg
Malta
Mauritius
Netherlands
New Zealand
Norway
Portugal
San Marino
Singapore
Slovenia
Spain
St. Kitts and Nevis
St. Lucia
St. Vincent and the Grenadine
Sweden
Switzerland
United Kingdom
United States

List of Countries with Weak Institutions

Afghanistan
Angola
Argentina
Armenia
Bangladesh
Belarus
Belize
Bolivia
Bosnia and Herzegovina
Brazil
Bulgaria
Burkina Faso
Cambodia
China
Congo, Rep.
Cote d'Ivoire
Dominican Republic
Egypt, Arab
El Salvador
Equatorial Guinea
Ethiopia
Fiji
Georgia
Guatemala
Honduras
Iran, Islamic Rep.
Jamaica
Lebanon
Lesotho
Liberia
Madagascar
Maldives
Mali
Moldova
Mongolia
Morocco
Nepal
Nicaragua
North Macedonia
Paraguay
Peru
Philippines
Romania
Russian Federation
Seychelles
Thailand
Togo
Trinidad and Tobago
Ukraine
Zambia

Characteristics of Counties 10 Countries

Country	Access to Finance	Real Interest Rate	Court	Rule of Law	Population for 2020 (in million)	Region
Kyrgyz	16,7	20,01	17,7	-0,88	6,45	Central Asia
Tajikistan	6,1	17,67	2,9	-1,22	9,50	Central Asia
Myanmar	9,9	10,09	5,3	-0,88	54,40	Southeast Asia
Mozambique	17,3	20,43	8,0	-1,04	31,25	East Africa
Rwanda	17,0	16,1	1,2	0,07	12,95	East Africa
Paraguay	8,1	15,6	20,7	-0,65	7,13	South America
Peru	11,4	12,96	25,5	-0,5	32,97	South America
Suriname	14,3	9,25	4,0	-0,06	0,58	South America
Guatemala	13,0	11,12	38,2	-1,05	17,91	Central America
Dominic R.	14,3	12,83	25,0	-0,39	10,84	North America

Source: Informations drown from www.wikipedia.org

Survey Questions

Codes	Questions
L1	*"At the end of fiscal year [insert last complete fiscal year], how many permanent, full-time individuals worked in this establishment? Please include all employees and managers"*
L2	*"Three fiscal years ago, at the end of fiscal year [insert three complete fiscal years ago], how many permanent, full-time individuals work in this establishment? Please include all employees and managers"*
D2	*"In fiscal year [insert last complete fiscal year], what were this establishment's total annual sales for ALL products and services?"*
N3	*"In fiscal year [insert three complete fiscal years ago], three fiscal years ago, what were total annual sales for this establishment?"*
K4	*"In fiscal year [insert last complete fiscal year], did this establishment purchase any new or used fixed assets, such as machinery, vehicles, equipment, land or buildings?"*
F1	*"In fiscal year [insert last complete fiscal year], what was this establishment's output produced as a proportion of the maximum output possible if using all the resources available (capacity utilization)?"*
J4	*"Over the last year, how many times was this establishment either inspected by tax officials or required to meet with them?"*
J30e	*"To what degree is political instability an obstacle to the current operations of this establishment?"*

Codes	Questions
J30f	*"As I list some factors that can affect the current operations of a business, please look at this card and tell me the degree to which you think each factor is an obstacle to the current operations of this establishment."*
J12	*"In reference to that application for an import license, was an informal gift or payment expected or requested?"*
J6a	*"Over the last year, has this establishment secured or attempted to secure a government contract?"*
J6	*"When establishments like this one do business with the government, what percent of the contract value would be typically paid in informal payments or gifts to secure the contract?"*
J5	*"In any inspections or meetings, was a gift or informal payment expected or requested?"*
J7	*"It is said establishments are sometimes required to make gifts or informal payments to public officials "to get things done" with regard to custom, taxes, licenses, regulations, services etc. On average, what percentage of total annual sales, or estimated total annual value, do establishments like this one pay in informal payments or gifts to public officials for this purpose?"*

Source: Enterprise Surveys (http://www.enterprisesurveys.org), 2020, The World Bank

APPENDIX 2

Figure 4.2 Distribution of the Biggest Obstacles for All Enterprises in all Economies, 2006-2010

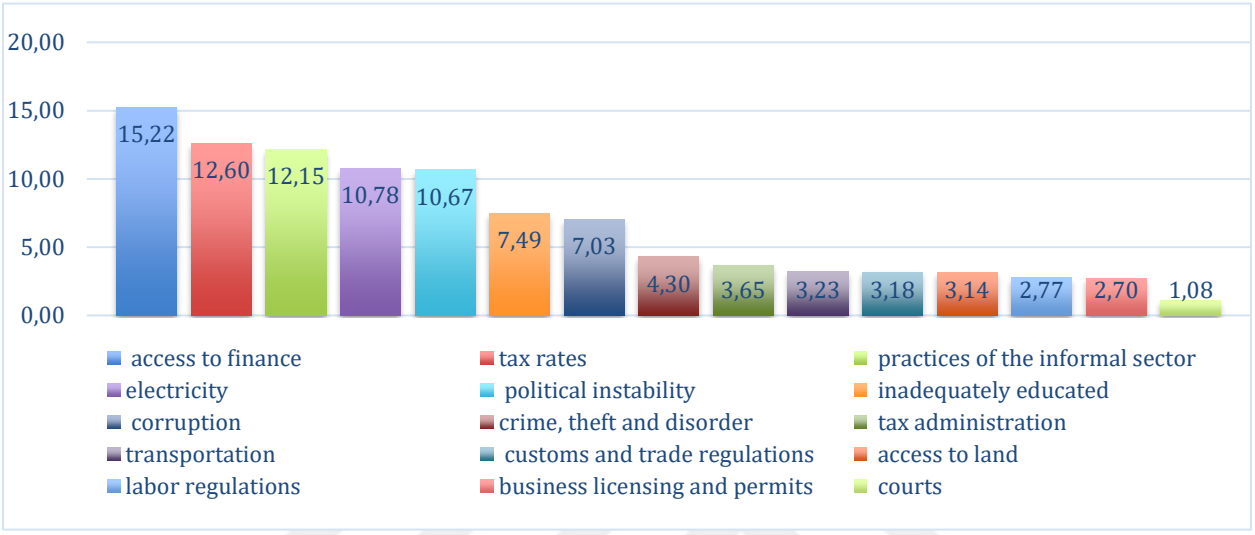
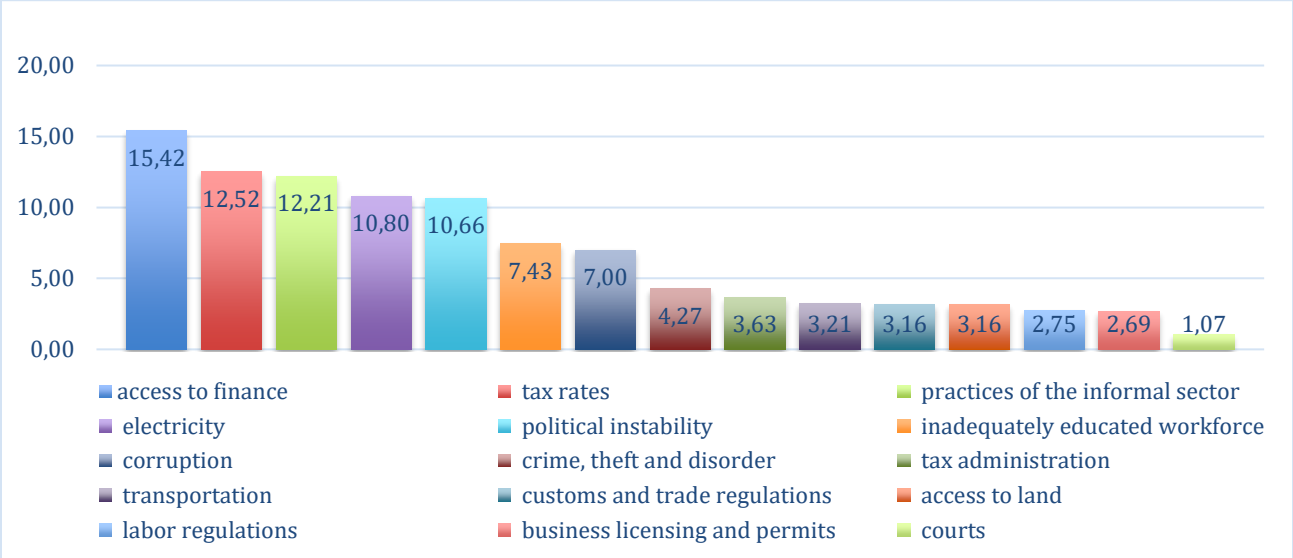
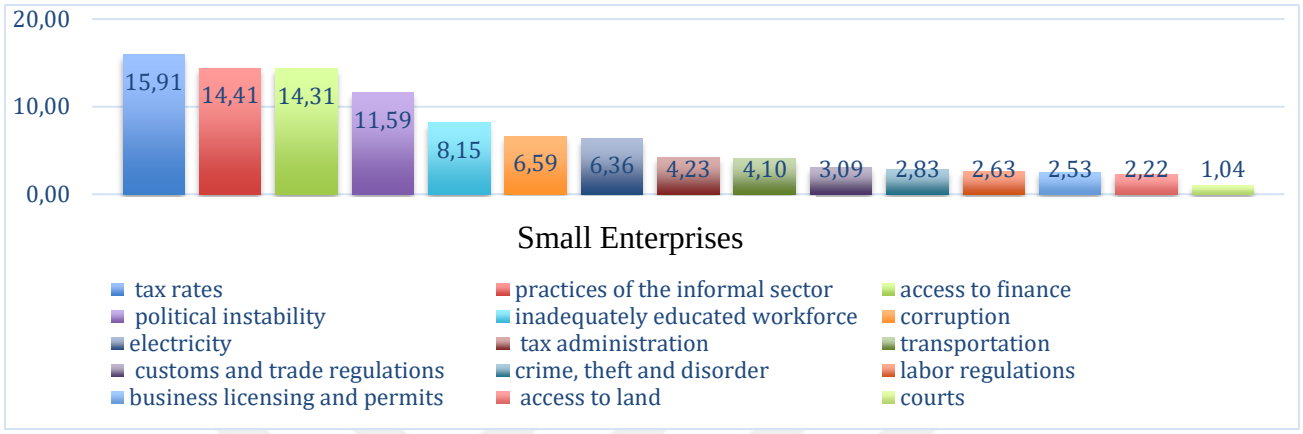


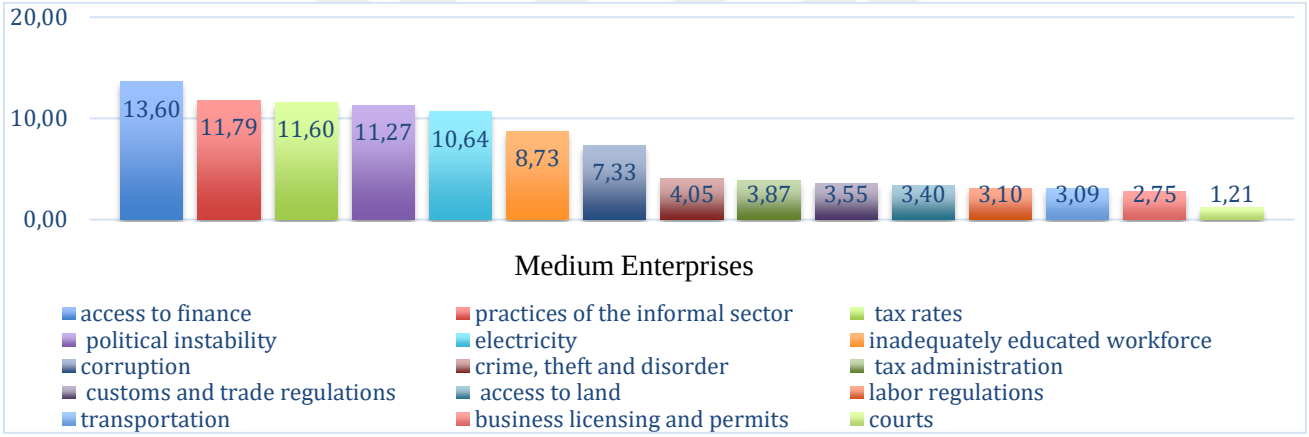
Figure 4.3 Distribution of the Biggest Obstacles for All Enterprises in all Economies, 2011-2015

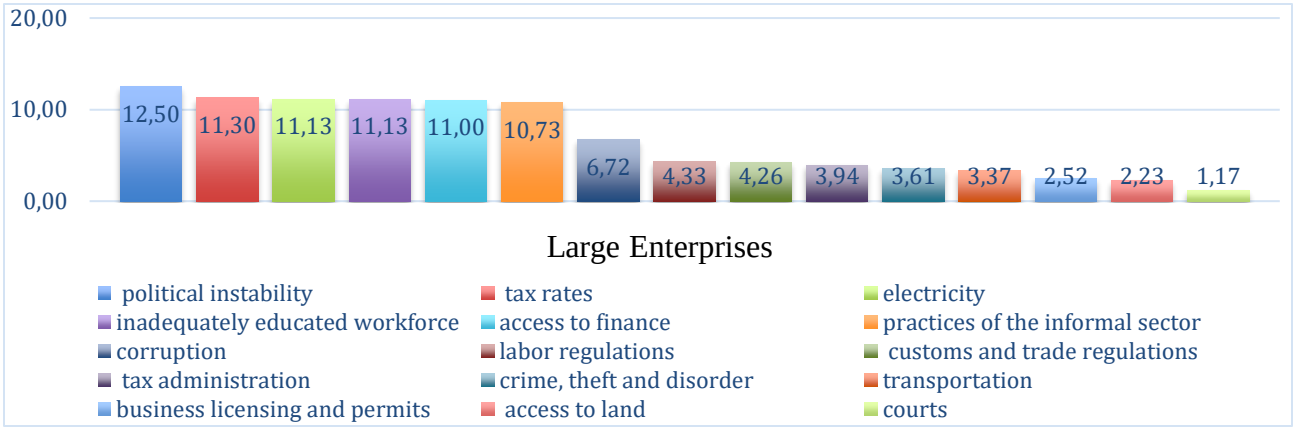


Source: Author's own Calculation based on World Bank Enterprise Survey (2011-2015)

Figure 4.4 Distribution of the Biggest Obstacles for Small, Medium and Large Enterprises in all Economies. 2016-2020







Source: Author's own Calculation based on World Bank Enterprise Survey

Figure 4.5 Distribution of the Biggest Obstacles for Manufacturing Enterprises in all Economies, 2016-2020

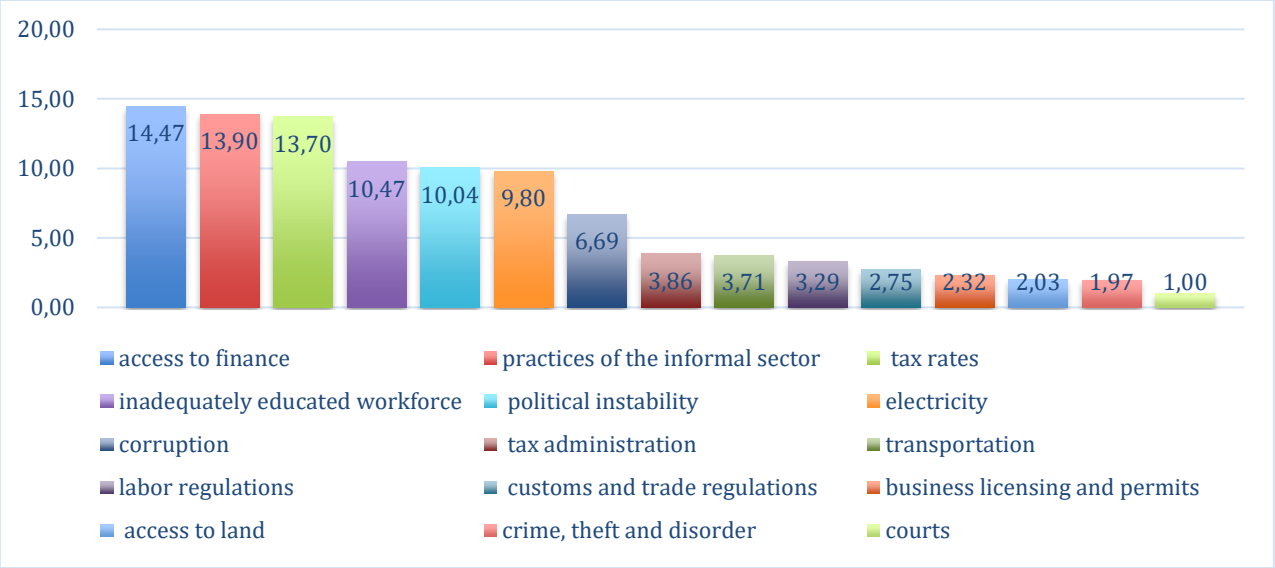
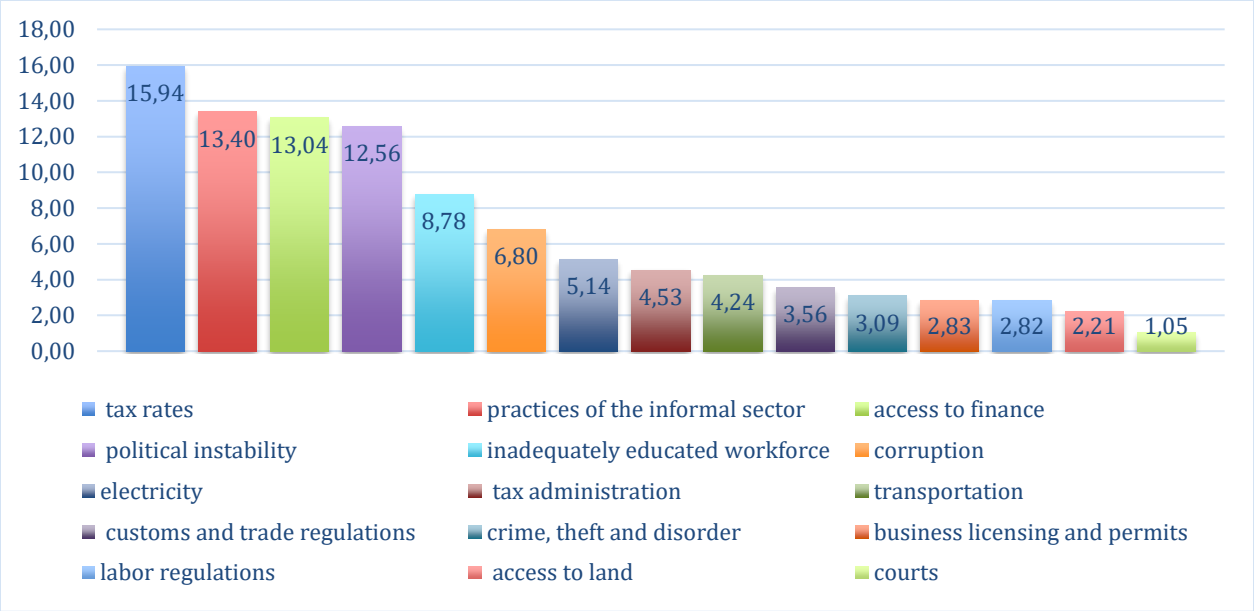


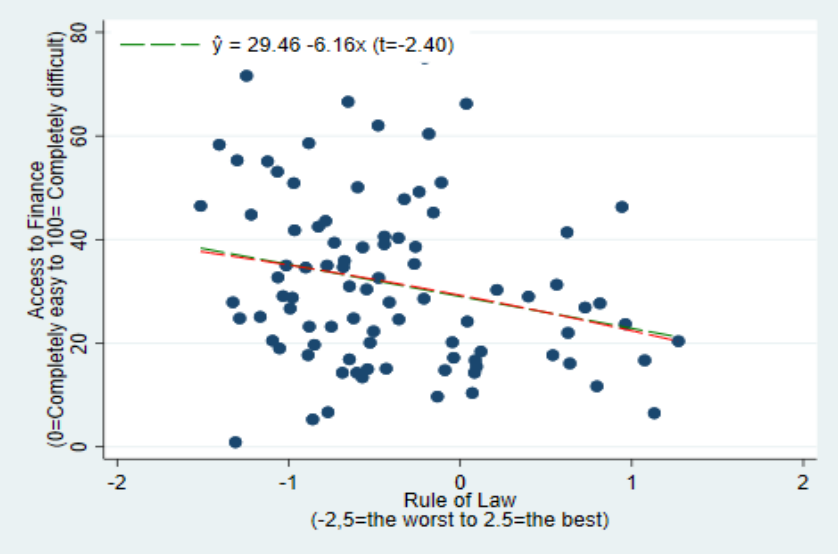
Figure 4.6 Distribution of the Biggest Obstacles for Services Enterprises in all Economies, 2016-2020



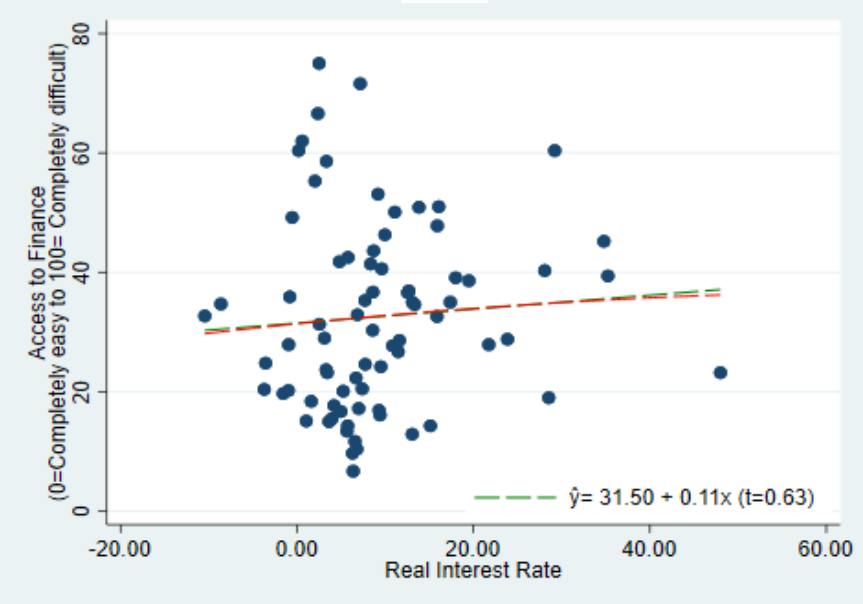
Source: Author's own Calculation based on World Bank Enterprise Survey

Figure 4.8 Institutional Quality, Access to Finance and Real Interest Rate for 2006 - 20010

a.



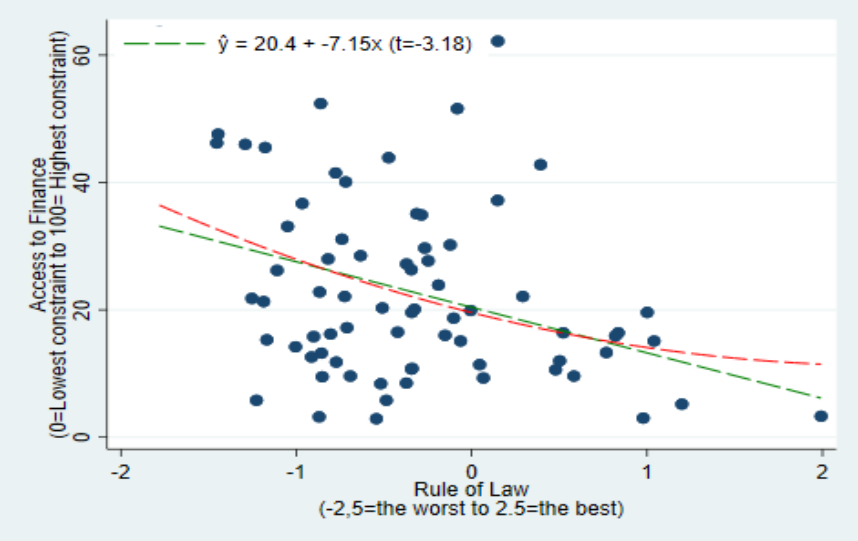
b.



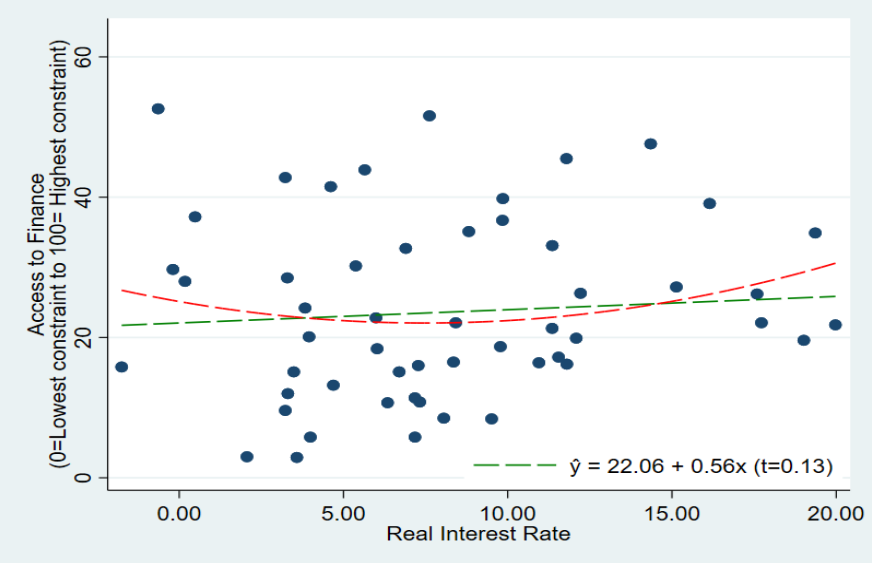
Source: Author's own calculation based on Business Enterprise Survey, World Governance Indicators and World Development Indicators

Figure 4.9 Institutional Quality, Access to Finance and Real Interest Rate for 2011 - 2015

a.

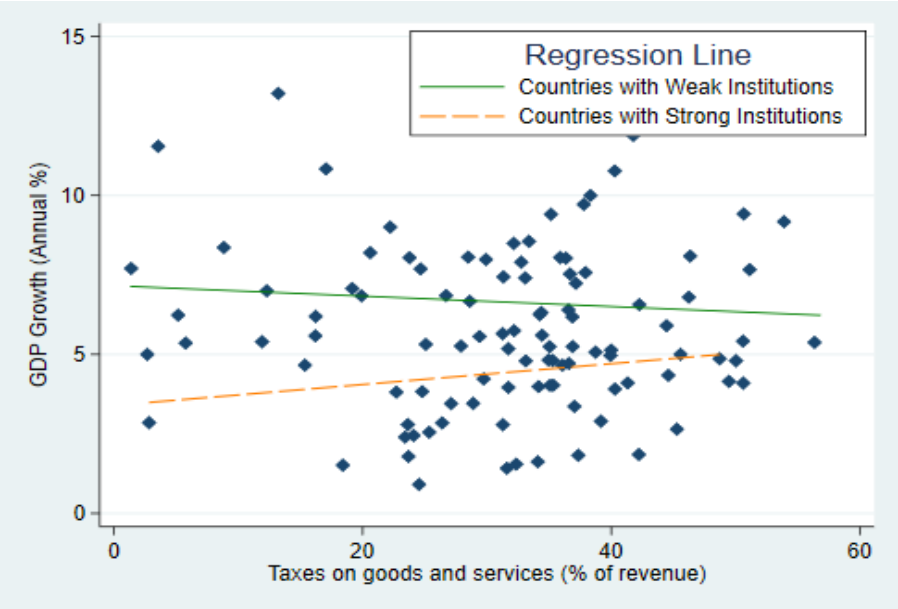


b.



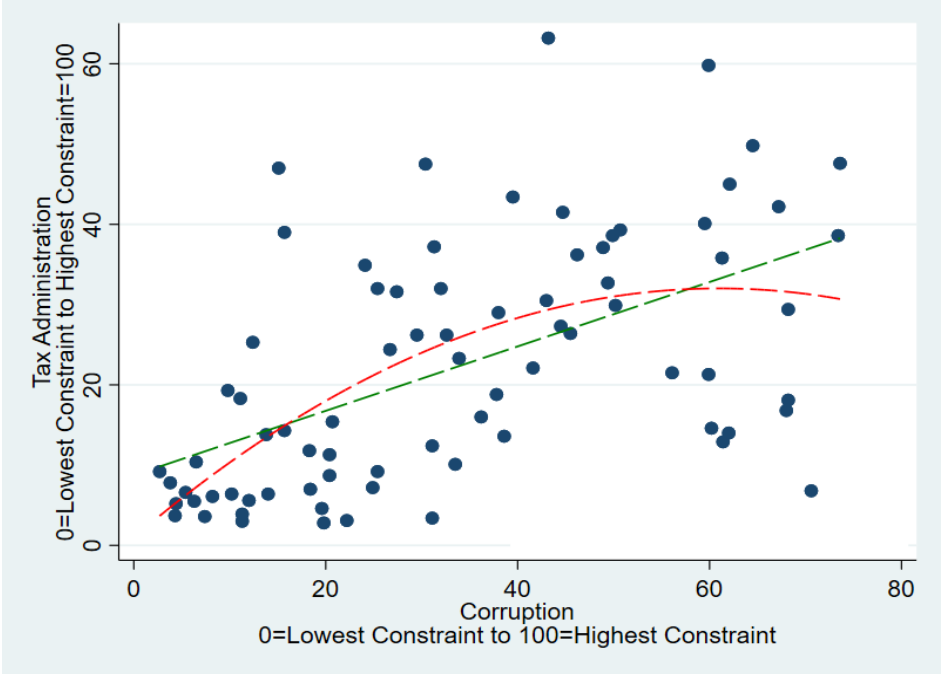
Source: Author's own calculation based on Business Enterprise Survey, World Governance Indicators and World Development Indicators

Figure 4.12 GDP Growth and Taxes on Goods & Services in 2006



Source: Author's own calculation based on World Development Indicators

Figure 4.13 Constraint level of Tax Administration and Corruption for 2016-2020



Source: Author's own calculation based on Enterprise Surveys

APPENDIX 3

Table 6.9
Regression Analysis of Buying Fixed Assets, Institutional Quality and Firm Characteristics based on Average of All Enterprises

	Dependent Variable: Buying Fixed Assets											
Independen	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variables	Pooled OLS	RE	Pooled OLS	RE	Pooled OLS	RE	Pooled OLS	RE	Pooled OLS	RE	Pooled OLS	RE
p_instability	**-0.219*** **	**-0.204** **	**-0.187** **	**-0.175** **								
	(0.0777)	**(0.0797)**	**(0.0760)**	**(0.0772)**								
bribery					**-0.190*** **	**-0.145***	**-0.183*** **	**-0.106**				
					(0.0703)	**(0.0767)**	**(0.0683)**	**(0.0746)**				
taxgift									**-0.191*** **	**-0.153** **	**-0.186*** **	**-0.119***
									(0.0672)	**(0.0730)**	**(0.0650)**	**(0.0707)**
age	-0.707	-1.464			-0.953	-1.567*			-0.920	-1.537		
	(0.959)	(0.937)			(0.969)	(0.948)			(0.965)	(0.944)		
age2	0.0303	0.0465*			0.0314	0.0450*			0.0302	0.0440*		
	(0.0269)	(0.0262)			(0.0269)	(0.0263)			(0.0269)	(0.0263)		
size			**0.302*** **	**0.375*** **			**0.262** **	**0.363*** **			**0.263** **	**0.361*** **
			(0.104)	**(0.106)**			**(0.106)**	**(0.108)**			**(0.105)**	**(0.108)**
size2			**-0.00133***	**-0.00156** **			**-0.00102**	**-0.00148***			**-0.00104**	**-0.00148** **
			(0.000692)	**(0.000742)**			**(0.000709)**	**(0.000758)**			**(0.000704)**	**(0.000751)**
Constant	50.34***	57.43***	38.60***	36.00***	54.29***	59.42***	40.02***	35.95***	54.00***	59.27***	39.95***	36.11***
	(8.226)	(8.114)	(2.984)	(3.029)	(8.552)	(8.448)	(3.156)	(3.234)	(8.477)	(8.361)	(3.099)	(3.166)
Observations	258	258	258	258	258	258	258	258	258	258	258	258
R-squared	0.043		0.070		0.040		0.074		0.043		0.078	
Number of id		127		127		127		127		127		127

Table 6.10
Regression Analysis of Employment Growth, Institutional Quality and Firm Characteristics based on Average of All Enterprises

	Dependent Variable: Employment Growth											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	Pooled OLS	Pooled OLS	RE	RE	Pooled OLS	Pooled OLS	RE	RE	Pooled OLS	Pooled OLS	RE	RE
p_instability	**-0.0787*** **	**-0.0967*** **	**-0.0835*** **	**-0.103*** **								
	(0.0177)	**(0.0201)**	**(0.0182)**	**(0.0209)**								
N_taxvisits					**0.335*** **	**0.473*** **	**0.334** **	**0.492*** **				
					(0.128)	**(0.145)**	**(0.131)**	**(0.150)**				
gift_done									**0.0183***	**0.0472*** **	**0.0169**	**0.0452*** **
									(0.0110)	**(0.0121)**	**(0.0111)**	**(0.0123)**
age	**-1.012*** **		**-0.972*** **		**-0.891*** **		**-0.865*** **		**-0.901*** **		**-0.871*** **	
	(0.219)		**(0.219)**		**(0.226)**		**(0.226)**		**(0.229)**		**(0.229)**	
age2	**0.0184*** **		**0.0169*** **		**0.0146** **		**0.0136** **		**0.0152** **		**0.0139** **	
	(0.00613)		**(0.00612)**		**(0.00630)**		**(0.00629)**		**(0.00636)**		**(0.00636)**	
size		-0.0601**		-0.0466		-0.0408		-0.0306		-0.0292		-0.0222
		(0.0275)		(0.0287)		(0.0282)		(0.0291)		(0.0283)		(0.0290)
size2		0.000322*		0.000262		0.000191		0.000140		6.44e-05		3.27e-05
		(0.000183)		(0.000196)		(0.000187)		(0.000197)		(0.000190)		(0.000198)
Constant	17.54***	8.222***	17.45***	7.972***	14.83***	5.351***	14.78***	5.097***	15.35***	5.385***	15.31***	5.286***
	(1.876)	(0.789)	(1.885)	(0.818)	(2.013)	(0.907)	(2.018)	(0.925)	(2.040)	(0.851)	(2.051)	(0.868)
Observations	258	258	258	258	258	258	258	258	257	257	257	257
R-squared	0.308	0.098			0.274	0.055			0.262	0.070		
Number of id			127	127			127	127			127	127

Table 6.11
Regression Analysis of Capacity Utilization, Institutional Quality and Firm Characteristics based on Average of All Enterprises

	Dependent Variable: Capacity Utilization							
Independent Variables	Pooled OLS	(1) RE	(2) Pooled OLS	(3) RE	(4) Pooled OLS	(5) RE	(6) Pooled OLS	(7) RE
p_instability	**-0.0879****	**-0.0623**	**-0.103****	**-0.0718***				
	(0.0417)	**(0.0431)**	**(0.0420)**	**(0.0433)**				
corruption					**-0.0805*****	**-0.0705*****	**-0.0837*****	**-0.0704*****
					(0.0241)	**(0.0259)**	**(0.0243)**	**(0.0267)**
Age	**1.470*****	**1.076****			**1.607*****	**1.243****		
	(0.515)	**(0.492)**			**(0.510)**	**(0.490)**		
Age2	**-0.0432*****	**-0.0313****			**-0.0461*****	**-0.0356*****		
	(0.0143)	**(0.0136)**			**(0.0141)**	**(0.0135)**		
Size			-0.0429	-0.0201			-0.0164	0.0108
			(0.0568)	(0.0585)			(0.0564)	(0.0589)
Size2			0.000465	0.000265			0.000339	0.000108
			(0.000376)	(0.000419)			(0.000372)	(0.000416)
Constant	62.01***	64.80***	74.33***	73.56***	62.39***	65.04***	75.28***	74.32***
	(4.459)	(4.321)	(1.651)	(1.691)	(4.397)	(4.268)	(1.679)	(1.711)
Observations	258	258	258	258	258	258	258	258
R-squared	0.056		0.031		0.080		0.052	
Number of id		124		124		124		124

Table 6.12 Correlation Matrix for Buying Fixed Assets based on Average of All Enterprises

	Buying Fixed Assets (BFA)	Political Instability	Corruption	Bribery	Gifts in meeting with tax officials	Gift to "get things done"	Average Number of tax visits
BFA	1.000						
Political Instability	-0.1369	1.000					
bribery	-0.1733	0.0524	1.000				
taxgift	-0.1790	0.0373	0.9743	1.000			
corruption	0.0435	0.2873	0.2713	0.2640	1.000		
gift_done	-0.0168	-0.0310	0.7304	0.7247	0.2113	1.000	
N_taxvisits	0.1152	-0.0922	0.3419	0.3522	0.2081	0.3129	1.000

Table 6.13 Correlation Matrix for Employment Growth Based on Average of All Enterprises

	Employment Growth	Political Instability	Average Number of tax visits	Gift to "get things done"	Bribery	Gifts meeting with tax officials	Corruption
Employment G.	1.000						
Political Instability	-0.2542	1.000					
N_taxvisits	0.2097	-0.0922	1.000				
gift_done	0.2038	-0.0310	0.3129	1.000			
bribery	0.1155	0.0524	0.3419	0.7304	1.000		
taxgift	0.1036	0.0373	0.3522	0.7247	0.9743	1.000	
corruption	0.0700	0.2873	0.2081	0.2113	0.2713	0.2640	1.000

Table 6.14 Correlation Matrix for Capacity Utilization based on Average of all Enterprises

	Capacity Utilization	Political Instability	Corruption	Gift to "get things done"	Bribery	Gifts meeting with tax officials	Average Number of tax visits
Capacity Utilization	1.000						
Political Instability	-0.1313	1.000					
corruption	-0.1840	0.2805	1.000				
gift_done	-0.0381	-0.0530	0.1914	1.000			
bribery	-0.0434	0.0396	0.2686	0.7225	1.000		
taxgift	-0.0475	0.0256	0.2667	0.7184	0.9763	1.000	
N_taxvisits	-0.0492	-0.0928	0.2281	0.3100	0.3405	0.3504	1.000

Table 6.15 Regression Analysis of Firm Performance and Institutional Qualty based on Average of all Enterprises

	Pooled OLS							
Independent	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**BFA**	**BFA**	**BFA**	**EG**	**EG**	**EG**	**CU**	**CU**
p_instability	**-0.195** (0.0773)**			**-0.0942*** (0.0201)**			**-0.0939** (0.0416)**	
bribery		**-0.198*** (0.0674)**						
taxgift			**-0.200*** (0.0645)**					
N_taxvisits					**0.498*** (0.145)**			
gift_done						**0.0458*** (0.0118)**		
corruption								**-0.0538** (0.0254)**
Constant	47.31***	47.96***	47.90***	6.586***	4.134***	4.458***	72.74***	73.57***
	(1.250)	(1.317)	(1.268)	(0.326)	(0.481)	(0.370)	(0.686)	(1.020)
Observations	258	258	258	258	258	257	232	232
R-squared	0.024	0.033	0.036	0.079	0.044	0.056	0.022	0.019

Table 6.16 Regression Analysis of Buying Fixed Assets, Institutional Quality and Firm Age for Small-Scale Enterprises

Dependent Variable: Buying Fixed Assets						
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) Pooled OLS	(4) RE	(5) RE	(6) RE
p_instability	0.0255			-0.0368		
	(0.212)			(0.208)		
bribery			0.205			0.195
			(0.173)			(0.170)
taxgift		0.0971			0.0954	
		(0.171)			(0.167)	
Age	0.220	0.0328	0.128	-0.0922	-0.205	-0.102
	(0.249)	(0.238)	(0.230)	(0.252)	(0.241)	(0.234)
Pinstability x Age	-0.0152			-0.00930		
	(0.0134)			(0.0130)		
taxgift		0.0971			0.0954	
		(0.171)			(0.167)	
Taxgift x Age		**-0.0203***			-0.0178	
		(0.0118)			(0.0114)	
Bribery x age			**-0.0286****			**-0.0252****
			(0.0122)			**(0.0119)**
Constant	37.46***	40.27***	38.95***	41.48***	43.09***	41.66***
	(3.679)	(3.853)	(3.750)	(3.798)	(3.960)	(3.886)
Observations	258	257	258	258	257	258
R-squared	0.032	0.040	0.046			
Number of id				127	126	127

Table 6.17 Regression Analysis of Buying Fixed Assets, Institutional Quality and Firm Age for Small-Scale Enterprises

Dependent Variable: Buying Fixed Assets						
Independent Variables	(1) Pooled OLS	(2) RE	(3) Pooled OLS	(4) RE	(5) Pooled OLS	(6) RE
P_instability	**-0.202*** (0.0749)**	**-0.177** (0.0766)**				
Bribery			**-0.179*** (0.0670)**	**-0.141* (0.0732)**		
Taxgift					**-0.182*** (0.0640)**	**-0.145** (0.0697)**
Age	-1.050 (0.884)	**-2.067** (0.847)**	-1.426 (0.894)	**-2.310*** (0.857)**	-1.376 (0.889)	**-2.253*** (0.852)**
Age2	0.0333 (0.0265)	**0.0561** (0.0252)**	0.0382 (0.0267)	**0.0585** (0.0253)**	0.0363 (0.0265)	**0.0565** (0.0252)**
Constant	48.11*** (6.979)	57.02*** (6.810)	52.76*** (7.320)	60.12*** (7.166)	52.43*** (7.234)	59.74*** (7.064)
Observations	258	258	258	258	258	258
R-squared	0.033		0.033		0.036	
Number of id		127		127		127

Table 6.18 Regression Analysis of Buying Fixed Assets and Institutional Quality for Small-Scale Enterprises

Dependent Variable: Buying Fixed Assets								
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) RE	(4) RE	(5) Pooled OLS	(6) RE	(7) Pooled OLS	(8) RE
P_instability	**-0.188****	**-0.203****	**-0.156****	**-0.169****				
	(0.0744)	**(0.0788)**	**(0.0762)**	**(0.0807)**				
Taxgift					**-0.818*****	**-0.687*****		
					(0.181)	**(0.189)**		
Bribery							**-0.742*****	**-0.634*****
							(0.191)	**(0.206)**
age	-0.0629	0.396*	-0.248	0.263	0.314	0.240	0.330	0.257
	(0.196)	(0.209)	(0.204)	(0.219)	(0.206)	(0.220)	(0.207)	(0.221)
C_finance	0.0315	0.0197	0.0969*	0.0688	0.0357	0.0732	0.0638	0.0787
	(0.0567)	(0.0639)	(0.0585)	(0.0641)	(0.0625)	(0.0634)	(0.0669)	(0.0674)
f_ownership		**0.325****		**0.304****	**0.417*****	**0.373*****	**0.385*****	**0.334****
		(0.134)		**(0.137)**	**(0.137)**	**(0.142)**	**(0.129)**	**(0.134)**
C_taxrate	0.0837	0.0488	0.0593	0.0195	0.0360	0.0118	0.0350	0.0244
	(0.0547)	(0.0579)	(0.0545)	(0.0574)	(0.0558)	(0.0564)	(0.0568)	(0.0577)
innovation		**0.161*****		**0.190*****	**0.169*****	**0.186*****	**0.173*****	**0.193*****
		(0.0466)		**(0.0444)**	**(0.0451)**	**(0.0441)**	**(0.0468)**	**(0.0459)**
security_cost	**-0.837****	**-1.077*****	**-0.875****	**-1.015*****	**-0.712***	**-0.743***		
	(0.367)	**(0.389)**	**(0.353)**	**(0.372)**	**(0.397)**	**(0.382)**		
avg_lossesTheft							**-0.684*****	**-0.527****
							(0.233)	**(0.232)**
taxgift2					0.0143***	0.0121***		
					(0.00332)	(0.00348)		
bribery2							0.0126***	0.0109***
							(0.00359)	(0.00393)
Constant	40.67***	26.45***	41.73***	26.51***	28.36***	28.35***	28.76***	27.89***
	(3.965)	(4.464)	(4.120)	(4.764)	(4.497)	(4.875)	(4.491)	(4.837)
Observations	257	174	257	174	173	173	164	164
R-squared	0.065	0.205			0.273		0.285	
Number of id			127	112		111		108

Table 6.19 Regression Analysis of Employment Growth, Institutional Quality and Firm Age for Small-Scale Enterprises

Dependent Variable: Employment Growth						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Pooled OLS	RE	Pooled OLS	RE	Pooled OLS	RE
p_instability	-0.00281	-0.0272				
	(0.0565)	(0.0567)				
N_taxvisits			-0.362	-0.428		
			(0.504)	(0.511)		
gift_done					0.0335	0.0344
					(0.0371)	(0.0371)
Age	**-0.340*** **	**-0.376*** **	**-0.607*** **	**-0.636*** **	**-0.394*** **	**-0.411*** **
	(0.0670)	**(0.0688)**	**(0.129)**	**(0.131)**	**(0.0775)**	**(0.0790)**
Pinstability x Age	-0.00546	-0.00418				
	(0.00358)	(0.00355)				
Ntaxvisit x Age			0.0610	0.0648		
			(0.0405)	(0.0412)		
Giftdone x Age					-0.00126	-0.00146
					(0.00283)	(0.00283)
Constant	10.57***	11.26***	12.09***	12.66***	10.02***	10.40***
	(0.989)	(1.026)	(1.728)	(1.755)	(1.224)	(1.257)
Observations	257	257	257	257	256	256
R-squared	0.278		0.248		0.227	
Number of id		126		126		126

Table 6.20 Regression Analysis of Employment Growth, Institutional Quality and Firm Age for Small-Scale Enterprises

Dependent Variable: Employment Growth						
Independent Variables	(1) Pooled OLS	(2) RE	(3) Pooled OLS	(4) RE	(5) Pooled OLS	(6) RE
p_instability	**-0.0865*** (0.0195)**	**-0.0925*** (0.0202)**				
N_taxvisits			**0.303** (0.141)**	**0.293** (0.146)**		
gift_done					0.0124 (0.0124)	0.0112 (0.0127)
Age	**-1.362*** (0.237)**	**-1.324*** (0.235)**	**-1.286*** (0.247)**	**-1.266*** (0.245)**	**-1.314*** (0.251)**	**-1.284*** (0.249)**
Age2	**0.0298*** (0.00723)**	**0.0279*** (0.00711)**	**0.0266*** (0.00749)**	**0.0253*** (0.00739)**	**0.0276*** (0.00755)**	**0.0260*** (0.00746)**
Constant	18.51*** (1.855)	18.56*** (1.856)	16.34*** (2.029)	16.47*** (2.031)	17.07*** (2.062)	17.15*** (2.068)
Observations	257	257	257	257	256	256
R-squared	0.317		0.277		0.265	
Number of id		126		126		126

Table 6.21 Regression Analysis of Employment Growth and Institutional Quality for Small-Scale Enterprises

Dependent Variable: Employment Growth								
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) RE	(4) RE	(5) Pooled OLS	(6) Pooled OLS	(7) RE	(8) RE
p_instability	**-0.105*** (0.0224)**	**-0.0735*** (0.0198)**	**-0.113*** (0.0234)**	**-0.0804*** (0.0207)**				
N_taxvisits					**0.334** (0.146)**	**0.184 (0.139)**	**0.308** (0.153)**	**0.189 (0.145)**
age	-1.015*** (0.306)	-1.460*** (0.272)	-1.002*** (0.310)	-1.401*** (0.278)	-0.419*** (0.0544)	-0.334*** (0.0551)	-0.445*** (0.0580)	-0.367*** (0.0594)
age2	0.0212** (0.00867)	0.0338*** (0.00776)	0.0204** (0.00868)	0.0314*** (0.00785)				
own_webS	**-0.0297* (0.0156)**	**-0.0394*** (0.0136)**	**-0.0289* (0.0161)**	**-0.0390*** (0.0140)**		**-0.0420*** (0.0135)**		**-0.0359** (0.0143)**
f_ownership	**0.0986** (0.0407)**	**0.0987*** (0.0357)**	**0.0971** (0.0422)**	**0.0986*** (0.0370)**				
Const_finance	-0.00233 (0.0187)	0.00736 (0.0165)	0.00610 (0.0195)	0.00963 (0.0171)	0.0162 (0.0160)	0.000251 (0.0171)	0.0138 (0.0167)	0.000182 (0.0176)
informality	0.0179 (0.0163)	0.0227 (0.0142)	0.0121 (0.0167)	0.0193 (0.0145)				
RD	0.0160 (0.0287)	-0.00995 (0.0251)	0.000151 (0.0298)	-0.0175 (0.0260)				
F_technology					-0.00951 (0.0239)	-0.00101 (0.0229)	-0.0140 (0.0235)	-0.0112 (0.0226)
Const_taxrate					-0.00691 (0.0149)	0.00175 (0.0143)	0.00122 (0.0153)	0.00633 (0.0147)
Sales Growth		**0.177*** (0.0255)**		**0.180*** (0.0257)**		**0.125*** (0.0207)**		**0.120*** (0.0203)**
Constant	14.77*** (2.736)	18.09*** (2.407)	15.17*** (2.887)	18.14*** (2.534)	9.662*** (1.178)	10.09*** (1.161)	10.10*** (1.250)	10.41*** (1.228)
Observations	173	170	173	170	255	249	255	249
R-squared	0.348	0.507			0.246	0.348		
Number of id			111	109			126	123

Table 6.22 Regression Analysis of Employment Growth and Institutional Quality for Small-Scale Enterprises

Dependent Variable: Employment Growth								
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) Pooled OLS	(4) Pooled OLS	(5) RE	(6) RE	(7) RE	(8) RE
gift_done	0.0179	**0.0416*** **	**0.0338** **	0.00294	0.0163	**0.0398*** **	**0.0314** **	0.00252
	(0.0126)	**(0.0139)**	**(0.0132)**	(0.0126)	(0.0129)	**(0.0142)**	**(0.0135)**	(0.0129)
Age	-0.418***			-0.397***	-0.439***			-0.410***
	(0.0550)			(0.0547)	(0.0574)			(0.0572)
F_technology		0.0113	0.000807	-0.0220		0.00544	-0.00605	-0.0286
		(0.0258)	(0.0241)	(0.0224)		(0.0254)	(0.0237)	(0.0220)
informality		0.0187	0.0154	0.0285**		0.0172	0.0163	0.0240*
		(0.0144)	(0.0134)	(0.0131)		(0.0155)	(0.0144)	(0.0139)
f_ownership			**0.110*** **	**0.0778*** **			**0.117*** **	**0.0866*** **
			(0.0306)	**(0.0280)**			**(0.0317)**	**(0.0290)**
Const_finance				0.00561				0.00700
				(0.0150)				(0.0153)
Sales Growth			**0.118*** **	**0.117*** **			**0.116*** **	**0.115*** **
			(0.0227)	**(0.0205)**			**(0.0221)**	**(0.0200)**
Constant	10.36***	2.517***	1.848**	7.905***	10.80***	2.817***	1.957**	8.419***
	(0.966)	(0.926)	(0.862)	(1.190)	(1.009)	(0.981)	(0.915)	(1.270)
Observations	256	253	248	248	256	253	248	248
R-squared	0.226	0.049	0.195	0.349				
Number of id					126	126	123	123

Table 6.23 Regression Analysis of Capacity Utilization, Institutional Quality and Firm Age for Small-Scale Enterprises

Dependent Variable: Capacity Utilization				
Independent Variables	(1) Pooled OLS	(2) RE	(3) Pooled OLS	(4) RE
P_instability	-0.0607 (0.128)	0.0372 (0.125)		
Corruption			0.0418 (0.0810)	0.0193 (0.0758)
Age	-0.0944 (0.153)	-0.0170 (0.155)	0.120 (0.228)	0.0773 (0.218)
Pinstability x Age	-0.00425 (0.00813)	-0.00887 (0.00776)		
Corruption x Age			-0.00688 (0.00506)	-0.00527 (0.00469)
Constant	73.12*** (2.262)	71.83*** (2.365)	70.80*** (3.369)	71.53*** (3.314)
Observations	231	231	231	231
R-squared	0.044		0.041	
Number of id		111		111

Table 6.24 Regression Analysis of Capacity Utilization, Institutional Quality and Firm Age for Small-Scale Enterprises

Independent Variables	(1) Pooled OLS	(2) RE	(3) Pooled OLS	(4) RE
p_instability	**-0.122*** (0.0454)**	**-0.0939** (0.0473)**		
corruption			**-0.0639** (0.0280)**	**-0.0635** (0.0295)**
Age	**0.947*** (0.554)**	0.747 (0.524)	**1.013*** (0.559)**	0.839 (0.525)
Age2	**-0.0337** (0.0167)**	**-0.0267* (0.0156)**	**-0.0356** (0.0168)**	**-0.0294* (0.0156)**
Constant	65.83*** (4.351)	66.97*** (4.215)	66.19*** (4.385)	67.48*** (4.223)
Observations	231	231	231	231
R-squared	0.060		0.052	
Number of id		111		111

Table 6.25 Regression Analysis of Capacity Utilization and Institutional Quality for Small-Scale Enterprises

Dependent Variable: Capacity Utilization								
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) RE	(4) RE	(5) Pooled OLS	(6) Pooled OLS	(7) RE	(8) RE
p_instability	**-0.199*** (0.0534)**	**-0.178*** (0.0588)**	**-0.162*** (0.0549)**	**-0.173*** (0.0614)**				
Corruption					**-0.0928** (0.0391)**	**-0.0429 (0.0438)**	**-0.0945** (0.0432)**	**-0.0308 (0.0493)**
age	-0.162 (0.127)	-0.166 (0.150)	-0.0991 (0.134)	-0.196 (0.165)		-0.227 (0.162)		-0.218 (0.175)
innovation		0.0713 (0.0480)			-0.0122 (0.0382)	-0.00662 (0.0368)	-0.00800 (0.0377)	0.000230 (0.0371)
Water Insufficiency	**-0.648* (0.332)**	-0.0312 (0.487)	-0.548 (0.337)	0.222 (0.537)				
Const_electricity					0.150 (0.0922)	0.134 (0.0906)	0.131 (0.0993)	0.121 (0.0978)
formal_training	0.0306 (0.0351)	0.0601 (0.0448)	-0.0174 (0.0312)	0.00524 (0.0455)	**0.0868* (0.0482)**	0.0515 (0.0465)	0.0489 (0.0481)	0.00791 (0.0470)
Const_taxadm	-0.0173 (0.0432)	0.0244 (0.0543)	-0.0384 (0.0431)	-0.0388 (0.0564)				
Const_finance		**-0.102* (0.0514)**		**-0.123** (0.0533)**		**-0.108** (0.0512)**		**-0.142*** (0.0546)**
Sales Growth		0.0604 (0.0796)		0.0704 (0.0767)		0.0763 (0.0798)		0.102 (0.0794)
innovation		0.0713 (0.0480)			-0.0122 (0.0382)	-0.00662 (0.0368)	-0.00800 (0.0377)	0.000230 (0.0371)
RD				-0.113 (0.0721)				
Constant	74.67*** (2.778)	75.18*** (3.816)	76.28*** (2.942)	81.31*** (4.250)	68.25*** (3.132)	74.83*** (4.020)	70.80*** (3.239)	77.87*** (4.490)
Observations	178	125	178	125	127	125	127	125
R-squared	0.108	0.200			0.077	0.116		
Number of id			94	78			79	78

Table 6.26 Correlation Matrix for Buying Fixed Assets, Small-Scale Enterprises

	Buying Fixed Assets	Political Instability	Bribery	Requesting Gift as a Tax	Corruption	Gift " to get things done"	Average Number of Tax Visits
Buying Fixed Assets	10.000						
Political Instability	-0.1673	10.000					
Bribery	-0.1507	0.0643	10.000				
Requesting Gift as a Tax	-0.1626	0.0450	0.9735	10.000			
Corruption	-0.0417	0.2921	0.3000	0.2910	10.000		
Gift " to get things done"	-0.0001	-0.0286	0.7347	0.7261	0.2340	10.000	
Average Number of Tax Visits	0.1188	-0.0892	0.3479	0.3604	0.2023	0.3004	10.000

Table 6.27 Correlation Matrix for Employment Growth, Small Enterprises

	Employment Growth	Political Instability	Gift "to get things done"	Average Number of Tax Visits	Bribery	Requesting Gift as a Tax	Corruption
Employment Growth	10.000						
Political Instability	-0.3028	10.000					
Gift "to get things done"	0.2235	-0.0322	10.000				
Average Number of Tax Visits	0.1927	-0.0886	0.3177	10.000			
Bribery	0.1018	0.0640	0.7448	0.3498	10.000		
Requesting Gift as a Tax	0.0781	0.0460	0.7541	0.3583	0.9770	10.000	
Corruption	-0.0363	0.2927	0.2445	0.2012	0.3009	0.2900	10.000

Table 6.28 Correlation Matrix for Capacity Utilization, Small-Scale Enterprises

	Capacity Utilization	Political Instability	Corruption	Average Number of Tax Visits	Bribery	Requesting Gift as a Tax	Gift "to get things done"
Capacity Utilization	10.000						
Political Instability	-0.1918	10.000					
Corruption	-0.1634	0.2806	10.000				
Average Number of Tax Visits	-0.0092	-0.0950	0.2212	10.000			
bribery	-0.0026	0.0458	0.3017	0.3565	10.000		
Requesting Gift as a Tax	-0.0032	0.0302	0.2971	0.3616	0.9793	10.000	
Gift "to get things done"	-0.0054	-0.0574	0.2330	0.3207	0.7402	0.7516	10.000

Table 6.29 Regression Analysis of Firm Performance and Institutional Quality for Small-Scale Enterprises

	Pooled OLS								
Independent Variables	(1) BFA	(2) BFA	(3) BFA	(4) EG	(5) EG	(6) EG	(7) EG	(8) CU	(9) CU
p_instability	**-0.199*** (0.0749)**			**-0.0834*** (0.0201)**				**-0.123*** (0.0457)**	
bribery		**-0.169** (0.0668)**							
taxgift			**-0.176*** (0.0640)**						
N_taxvisits					**0.365** (0.143)**				
gift_done						**0.0484*** (0.0132)**	0.0179 (0.0126)		
Corruption									**-0.0615** (0.0282)**
age	0.0357 (0.188)	-0.176 (0.191)	-0.189 (0.191)	-0.406*** (0.0514)	-0.429*** (0.0520)		-0.418*** (0.0550)	-0.146 (0.117)	-0.145 (0.118)
Constant	40.10*** (2.851)	43.38*** (3.271)	43.59*** (3.241)	11.52*** (0.774)	9.900*** (0.930)	3.586*** (0.411)	10.36*** (0.966)	73.85*** (1.771)	74.61*** (1.870)
Observations	258	258	258	257	257	256	256	231	231
R-squared	0.027	0.025	0.029	0.271	0.241	0.050	0.226	0.043	0.033

Table 6.30 Regression Analysis of Buying Fixed Assets, Institutional Quality and Firm Age for Large-Scale Enterprises

Dependent Variable: Buying Fixed Assets						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Pooled OLS	Pooled OLS	Pooled OLS	RE	RE	RE
P_instability	0.177			0.167		
	(0.178)			(0.179)		
Taxgift		-0.0761			-0.0366	
		(0.123)			(0.130)	
Bribery			0.0298			0.0517
			(0.131)			(0.137)
Age	0.298*	0.194	0.240	0.167	0.0971	0.143
	(0.173)	(0.162)	(0.166)	(0.181)	(0.174)	(0.178)
Pinstability x Age	**-0.0110****			**-0.0104****		
	(0.00484)			**(0.00481)**		
Taxgift x age		**-0.00982****			**-0.00904****	
		(0.00418)			**(0.00408)**	
Bribery x Age			**-0.0135*****			**-0.0120*****
			(0.00457)			**(0.00453)**
Constant	61.23***	65.96***	64.72***	63.98***	67.24***	66.03***
	(4.441)	(4.306)	(4.458)	(4.678)	(4.657)	(4.844)
Observations	251	242	250	251	242	250
R-squared	0.030	0.065	0.064			
Number of id				122	117	121

Table 6.31 Regression Analysis of Buying Fixed Assets, Institutional Quality and Firm Age for Large-Scale Enterprises

Dependent Variable: Buying Fixed Assets						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Pooled OLS	RE	Pooled OLS	RE	Pooled OLS	RE
p_instability	-0.166	-0.157				
	(0.104)	(0.109)				
Bribery			**-0.265*** **	**-0.210** **		
			(0.0928)	**(0.102)**		
Taxgift					**-0.245*** **	**-0.190* **
					(0.0888)	**(0.0971)**
Age	-0.427	-0.518	-0.721	-0.674	-0.668	-0.626
	(0.673)	(0.682)	(0.677)	(0.687)	(0.675)	(0.684)
Age2	0.00995	0.00905	0.0138	0.0110	0.0130	0.0103
	(0.0125)	(0.0126)	(0.0124)	(0.0126)	(0.0124)	(0.0125)
Constant	72.47***	74.79***	78.84***	78.56***	77.71***	77.49***
	(8.757)	(9.001)	(9.073)	(9.327)	(8.978)	(9.208)
Observations	252	252	252	252	252	252
R-squared	0.013		0.034		0.032	
Number of id		122		122		122

Table 6.32 Regression Analysis of Buying Fixed Assets and Institutional Quality for Large-Scale Enterprises

Dependent Variable: Buying Fixed Assets								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Pooled OLS	Pooled OLS	RE	RE	Pooled OLS	RE	Pooled OLS	RE
p_instability	**-0.171***	**-0.207***	-0.135	-0.0777				
	(0.102)	**(0.120)**	(0.107)	(0.127)				
Taxgift					**-0.568*****	**-0.484*****		
					(0.152)	**(0.162)**		
Bribery							**-0.567*****	**-0.513****
							(0.193)	**(0.210)**
Age	0.0945	0.231	-0.0242	0.150	0.0994	0.0715	0.410**	0.378*
	(0.153)	(0.182)	(0.162)	(0.203)	(0.177)	(0.197)	(0.179)	(0.198)
taxgift2					0.00182	0.00148		
					(0.00208)	(0.00216)		
bribery2							0.00202	0.00121
							(0.00269)	(0.00282)
Const_finance	-0.124	-0.173	-0.121	-0.112	**-0.191***	-0.129	**-0.193***	-0.177
	(0.0911)	(0.107)	(0.0902)	(0.108)	**(0.100)**	(0.102)	**(0.110)**	(0.111)
f_ownership		**0.176****		**0.166***	**0.222*****	**0.191****	**0.176****	**0.188****
		(0.0863)		**(0.0891)**	**(0.0838)**	**(0.0874)**	**(0.0873)**	**(0.0907)**
Const_taxrate	0.0447	0.0155	0.0700	0.116	0.0323	0.117	-0.0903	-0.0564
	(0.0720)	(0.0837)	(0.0731)	(0.0882)	(0.0810)	(0.0862)	(0.0794)	(0.0861)
innovation		**0.195*****		**0.231*****	**0.256*****	**0.277*****	**0.189*****	**0.210*****
		(0.0546)		**(0.0533)**	**(0.0546)**	**(0.0546)**	**(0.0575)**	**(0.0584)**
security_cost	**-1.699*****	**-2.019*****	**-1.752*****	**-2.000*****	**-1.322****	**-1.501*****		
	(0.441)	**(0.507)**	**(0.431)**	**(0.500)**	**(0.514)**	**(0.510)**		
avg_lossesTheft							**-2.550*****	**-2.401*****
							(0.597)	**(0.613)**
Constant	71.57***	54.88***	72.95***	48.54***	55.27***	50.91***	60.37***	57.48***
	(4.713)	(6.425)	(4.964)	(7.215)	(6.074)	(6.903)	(6.314)	(7.005)
Observations	243	167	243	167	164	164	127	127
R-squared	0.083	0.253			0.313		0.406	
Number of id			117	105		102		82

Table 6.33 Regression Analysis of Employment Growth, Institutional Quality and Firm Age for Large-Scale Enterprises

Dependent Variable: Employment Growth						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Pooled OLS	RE	Pooled OLS	RE	Pooled OLS	RE
p_instability	**-0.0611****	**-0.0655****				
	(0.0296)	**(0.0313)**				
N_taxvisits			**0.496***	**0.478***		
			(0.270)	**(0.277)**		
gift_done					0.0176	0.0174
					(0.0190)	(0.0197)
Age	-0.0479	-0.119	-0.0357	-0.0861	-0.0183	-0.0701
	(0.210)	(0.219)	(0.210)	(0.218)	(0.213)	(0.221)
Age2	-0.00173	-0.000608	-0.00222	-0.00139	-0.00243	-0.00170
	(0.00369)	(0.00382)	(0.00369)	(0.00379)	(0.00373)	(0.00383)
Constant	9.405***	10.51***	7.392**	8.181***	8.050***	8.896***
	(2.868)	(3.042)	(2.935)	(3.081)	(2.975)	(3.131)
Observations	175	175	175	175	174	174
R-squared	0.097		0.092		0.079	
Number of id		87		87		87

Table 6.34 Regression Analysis of Employment Growth, Institutional Quality and Firm Age for Large-Scale Enterprises

Dependent Variable: Employment Growth						
Independent Variables	(1) Pooled OLS	(2) RE	(3) Pooled OLS	(4) RE	(5) Pooled OLS	(6) RE
P_instability	**-0.108** (0.0541)**	**-0.123** (0.0565)**				
N_taxvisits			-0.324 (1.033)	-0.599 (1.005)		
gift_done					0.0221 (0.0346)	0.0158 (0.0349)
Age	**-0.168*** (0.0491)**	**-0.182*** (0.0530)**	**-0.248** (0.116)**	**-0.285** (0.117)**	**-0.150*** (0.0487)**	**-0.167*** (0.0535)**
Pinstability x Age	0.00136 (0.00133)	0.00165 (0.00138)				
Ntaxvisit x Age			0.0325 (0.0394)	0.0436 (0.0390)		
Giftdone x Age					-0.000232 (0.00116)	2.58e-05 (0.00115)
Constant	11.26*** (1.307)	11.71*** (1.417)	11.20*** (3.038)	12.15*** (3.050)	9.686*** (1.396)	10.16*** (1.524)
Observations	175	175	175	175	174	174
R-squared	0.101		0.094		0.077	
Number of id		87		87		87

Table 6.35 Regression Analysis of Buying Fixed Assets and Institutional Quality for Large-Scale Enterprises

Dependent Variable: Employment Growth								
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) RE	(4) RE	(5) Pooled OLS	(6) Pooled OLS	(7) RE	(8) RE
p_instability	**-0.0547***	-0.0276	**-0.0623****	-0.0404				
	(0.0299)	(0.0299)	**(0.0315)**	(0.0317)				
N_taxvisits					**0.580****	0.260	**0.551***	0.170
					(0.278)	(0.310)	**(0.282)**	(0.312)
age	**-0.166*****	**-0.125****	**-0.165*****	**-0.115****	**-0.156*****	**-0.106****	**-0.162*****	**-0.103****
	(0.0445)	**(0.0484)**	**(0.0479)**	**(0.0515)**	**(0.0431)**	**(0.0457)**	**(0.0467)**	**(0.0496)**
formal_trainingg	**0.0405****	0.00227	0.0303	-0.0124				
	(0.0184)	(0.0205)	(0.0198)	(0.0218)				
informality		**0.0397****		**0.0435****				
		(0.0169)		**(0.0187)**				
C_finance	-0.000111	-0.0262	0.00345	-0.0329	-0.0130	-0.0267	0.00208	-0.0190
	(0.0253)	(0.0264)	(0.0259)	(0.0270)	(0.0278)	(0.0282)	(0.0288)	(0.0290)
F_technology					0.0111	0.0211	0.0296	0.0417
					(0.0241)	(0.0275)	(0.0242)	(0.0267)
C_electricity					-0.0194	0.00678	-0.0226	-0.00286
					(0.0210)	(0.0211)	(0.0219)	(0.0221)
SG		**0.142*****		**0.173*****		**0.152*****		**0.170*****
		(0.0396)		**(0.0396)**		**(0.0379)**		**(0.0370)**
Constant	8.588***	7.614***	9.278***	8.346***	9.188***	7.108***	8.733***	6.822***
	(1.616)	(1.709)	(1.785)	(1.941)	(1.686)	(1.898)	(1.788)	(1.980)
Observations	173	148	173	148	174	152	174	152
R-squared	0.122	0.174			0.101	0.147		
Number of id			87	80			87	80

Table 6.36 Regression Analysis of Employment Growth and Institutional Quality for Large-Scale Enterprises

Dependent Variable: Employment Growth								
Independent Variables	(1) Pooled OLS	(2) Pooled OLS	(3) Pooled OLS	(4) Pooled OLS	(5) RE	(6) RE	(7) RE	(8) RE
gift_done	0.0233	0.00820	0.0177	0.0221	0.0216	0.0111	0.0224	0.0288
	(0.0194)	(0.0241)	(0.0218)	(0.0221)	(0.0201)	(0.0242)	(0.0223)	(0.0227)
age		**-0.204*** **	**-0.116** **	**-0.118** **		**-0.198*** **	**-0.112** **	**-0.114** **
		(0.0475)	**(0.0474)**	**(0.0474)**		**(0.0487)**	**(0.0502)**	**(0.0503)**
F_technology			0.0220	0.0164			0.0451*	0.0417
			(0.0270)	(0.0274)			(0.0264)	(0.0265)
informality		**0.0209**	**0.0365** **	**0.0377** **		**0.0211**	**0.0360** **	**0.0387** **
		(0.0176)	**(0.0164)**	**(0.0164)**		**(0.0180)**	**(0.0183)**	**(0.0185)**
innovation		**0.0366** **				**0.0343** **		
		(0.0159)				**(0.0158)**		
Const_finance				-0.0319				-0.0359
				(0.0262)				(0.0270)
SG			**0.155*** **	**0.155*** **			**0.173*** **	**0.177*** **
			(0.0380)	**(0.0380)**			**(0.0380)**	**(0.0380)**
Constant	5.731***	8.114***	5.821***	6.512***	5.808***	7.949***	4.965***	5.578***
	(0.546)	(1.460)	(1.751)	(1.838)	(0.612)	(1.525)	(1.817)	(1.887)
Observations	174	129	149	149	174	129	149	149
R-squared	0.008	0.165	0.168	0.176				
Number of id					87	81	80	80

Table 6.37 Regression Analysis of Capacity Utilization, Institutional Quality and Firm Age for Large-Scale Enterprises

Dependent Variable: Capacity Utilization				
Independent Variables	(1) Pooled OLS	(2) RE	(3) Pooled OLS	(4) RE
P_instability	0.0697	0.0978		
	(0.0875)	(0.0888)		
Age	-0.000370	-0.0231	0.0469	-0.0303
	(0.0850)	(0.0905)	(0.0902)	(0.0981)
Pinstability x Age	-0.00298	-0.00359		
	(0.00228)	(0.00228)		
Corruption			0.0532	0.0246
			(0.0509)	(0.0515)
Corruption x Age			**-0.00306***	-0.00158
			(0.00165)	(0.00166)
Constant	76.17***	76.66***	75.44***	77.13***
	(2.176)	(2.333)	(2.380)	(2.595)
Observations	212	212	212	212
R-squared	0.013		0.022	
Number of id		101		101

Table 6.38 Regression Analysis of Capacity Utilization, Institutional Quality and Firm Age for Large-Scale Enterprises

Dependent Variable: Capacity Utilization				
Independent Variables	(1) Pooled OLS	(2) RE	(3) Pooled OLS	(4) RE
p_instability	-0.0169	-0.00551		
	(0.0491)	(0.0528)		
corruption			-0.0242	-0.0113
			(0.0299)	(0.0323)
Age	0.381	0.325	0.410	0.331
	(0.341)	(0.353)	(0.339)	(0.350)
Age2	-0.00814	-0.00769	-0.00850	-0.00773
	(0.00619)	(0.00635)	(0.00613)	(0.00627)
Constant	72.18***	73.16***	72.37***	73.38***
	(4.515)	(4.758)	(4.467)	(4.737)
Observations	212	212	212	212
R-squared	0.013		0.015	
Number of id		101		101

Table 6.39 Regression Analysis of Capacity Utilization and Institutional Quality for Large-Scale Enterprises

Dependent Variable: Capacity Utilization								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Pooled OLS	Pooled OLS	RE	RE	Pooled OLS	Pooled OLS	RE	RE
p_instability	-0.0197	-0.00490	-0.0201	-0.0135				
	(0.0500)	(0.0656)	(0.0541)	(0.0704)				
corruption					-0.0305	-0.0302	-0.0213	-0.0232
					(0.0421)	(0.0433)	(0.0462)	(0.0495)
Age	-0.0531	-0.0342	-0.0837	-0.0776	-0.0612	-0.0218	-0.0754	-0.0656
	(0.0798)	(0.106)	(0.0850)	(0.114)	(0.0975)	(0.103)	(0.108)	(0.115)
RD		-0.0155		0.000535				
		(0.0593)		(0.0437)				
innovation		-0.00713			-0.0213	-0.00846	-0.0203	-0.0177
		(0.0465)			(0.0314)	(0.0336)	(0.0310)	(0.0338)
F_technology			-0.0158					
			(0.0450)					
Water Insufficiency	-0.664	0.111	-0.771	0.150				
	(0.478)	(0.698)	(0.487)	(0.739)				
Const_transportation					-0.0330	-0.0212	-0.00189	0.0274
					(0.0561)	(0.0639)	(0.0552)	(0.0628)
formal_training	0.0501	0.0486	0.0532	0.0590	**0.0911***	0.0647	**0.0855***	0.0796
	(0.0372)	(0.0551)	(0.0401)	(0.0561)	**(0.0461)**	(0.0527)	**(0.0492)**	(0.0551)
Const_taxadm	0.0133	0.0325	0.0387	0.0334				
	(0.0386)	(0.0576)	(0.0394)	(0.0593)				
Sales Growth		0.00952		0.0334		-0.0127		0.0274
		(0.0871)		(0.0864)		(0.0824)		(0.0855)
Const_finance		**-0.146****		**-0.116***		-0.108		-0.101
		(0.0675)		**(0.0673)**		(0.0677)		(0.0687)
Constant	75.56***	78.02***	76.18***	77.18***	76.23***	77.94***	75.92***	77.28***
	(2.821)	(3.741)	(3.550)	(4.106)	(3.346)	(3.644)	(3.829)	(4.121)
Observations	167	108	167	108	121	108	121	108
R-squared	0.028	0.074			0.047	0.077		
Number of id			84	68			73	68

Table 6.40 Correlation Matrix for Buying Fixed Assets, Large-Scale Enterprises

	BFA	Political Instability	Corruption	Bribery	Gifts in meeting with tax officials	Gift to "get things done"	Average Number of tax visits
Buying Fixed Assets	10.000						
Political Instability	-0.1073	10.000					
Bribery	-0.1693	0.0740	10.000				
Requesting Gift as a Tax	-0.1636	0.0556	0.9735	10.000			
Corruption	0.0094	0.2755	0.3178	0.3136	10.000		
Gift " to get things done"	-0.0236	-0.0197	0.7269	0.7146	0.2533	10.000	
Average Number of Tax Visits	0.0914	-0.0998	0.3687	0.3791	0.2008	0.3143	10.000

Table 6.41 Correlation Matrix for Employment Growth, Large-Scale Enterprises

	Employment Growth	Political Instability	Gift "to get things done"	Average Number of Tax Visits	Bribery	Requesting Gift as a Tax	Corruption
Employment Growth	10000						
Political Instability	-0.2054	10000					
Gift "to get things done"	0.1087	-0.0402	10.000				
Average Number of Tax Visits	0.1115	-0.0607	0.3521	10.000			
Bribery	0.0804	0.1240	0.7084	0.3670	10.000		
Requesting Gift as a Tax	0.0709	0.0995	0.7293	0.3656	0.9755	10.000	
Corruption	-0.0036	0.3386	0.2693	0.3595	0.3253	0.3085	10.000

Table 6.42 Correlation Matrix for Capacity Utilization, Large-Scale Enterprises

	Capacity Utilization	Political Instability	Corruption	Gift to "get things done"	Bribery	Gifts meeting with tax officials	Average Number of tax visits
Capacity Utilization	10.000						
Political Instability	0.0359	10.000					
Corruption	-0.0564	0.2899	10.000				
Average Number of Tax Visits	-0.0736	-0.0747	0.2770	10.000			
bribery	-0.0830	0.0570	0.3384	0.4455	10.000		
Requesting Gift as a Tax	-0.0709	0.0448	0.3271	0.4470	0.9755	10.000	
Gift "to get things done"	-0.0356	-0.0873	0.2720	0.3714	0.7335	0.7279	10.000

Table 6.43 Regression Analysis of Firm Performance and Institutional Quality for Large-Scale Enterprises

	Pooled OLS							
Independent Variables	(1) BFA	(2) BFA	(3) BFA	(4) EG	(5) EG	(6) EG	(7) CU	(8) CU
p_instability	**-0.177***			**-0.0686****			-0.0208	
	(0.104)			**(0.0294)**			(0.0498)	
bribery		**-0.243****						
		(0.0939)						
taxgift			**-0.225****					
			(0.0900)					
N_taxvisits					0.442			
					(0.270)			
gift_done						0.0193		
						(0.0191)		
Corruption								-0.0199
								(0.0307)
age	0.101	0.00756	0.0181	**-0.130*****	**-0.149*****	**-0.140*****	-0.0592	-0.0525
	(0.152)	(0.154)	(0.153)	**(0.0437)**	**(0.0435)**	**(0.0440)**	(0.0756)	(0.0767)
Constant	66.66***	70.26***	69.67***	10.42***	8.872***	9.426***	77.53***	77.83***
	(3.952)	(4.307)	(4.236)	(1.163)	(1.361)	(1.288)	(1.950)	(2.040)
Observations	246	246	246	170	170	169	206	206
R-squared	0.013	0.028	0.026	0.092	0.078	0.069	0.004	0.005

APPENDIX 4

Table 4.1 Summary of Literature Surveys

	Time Period	Country	Dependent Variable	Independent Variable	Result
Gaviria (2002) "Assessing the Effects of Corruption and Crime on Firm Performance: Evidence from Latin America"	1999	Latin American Countries	Sales Growth	Corruption & Crime	Corruption and crime have a significant negative effect on the economic outcomes of firms.
Dollar, Hallward-Driemeier, and Mengistae (2005) "Business Climate and Performance in Developing Economies"	WBES - Pooled Data	Pakistan, Bangladesh, China, India	Sales Growth Employment Growth Fixed Assets	Variables for Business Climate: Custom days to export, custom days to import and days to get phone	The low bottlenecks are associated with higher firm performance.
Fissman and Svensson (2007) "Are Corruption and Taxation Really Harmful to Growth? Firm Level Evidence"	1998 Ugandan Industrial Enterprise Surveys	Uganda	Sales Growth	bribery tax payment as share of sales	Corruption and taxation negatively affect the firm performance. However, corruption hurts the sales growth more than taxation. Additionally, firms with foreign ownerships are observed to have higher sales growth.
Aterido, Hallward-Driemeier, and Pagés (2007) "Business Climate and Employment Growth: The Impact of Access to Finance, Corruption and Regulations Across Firms "	2000-2006	85 Developing Countries	Employment Growth	1.) Business Climate Variables: Days to get an operating license, time dealing with government regulations and days spent on inspection. 2.) Corruption 3.) Infrastructure	Better investment climate is associated with higher employment growth. Corruption and unqualified business regulations are negatively related to employment growth.
Yasar, Paul, and Ward (2011) "Property Rights Institutions and Firm Performance: A Cross-Country Analysis"	cross -country analysis for different years between 2002-2005	52 Emerging Economies	Labor Productivity Gros Profit	Two indicators representing property rights: a.) Their property rights will be protected by the legal system. b.) Property rights index from heritage foundation	Property rights institutions have substantial role for firm performance and competitiveness. The estimation results suggest that qualified institutions provide an environment where firms can invest more confidently and produce efficiently.

Source: Prepared by Author
Note: The independent variables only include the main independent variables in the models.

Table 4.2 Summary of Literature Surveys

	Time Period	Country	Dependent Variable	Independent Variable	Result
Aterido, Hallward-Driemeier, and Pagés (2011b) "Big Constraints to Small Firms' Growth? Business Environment and Employment Growth across Firms"	2000 - 2006 WBES	90 developing countries	Employment Growth	a.) Access to finance b.) Business regulations c.) Corruption d.) Infrastructure	Small firms are more credit constrained. A higher time for dealing with government regulations is negatively related to small firms' growth. Corruption has a negative impact on the small firms' growth. Poor business climate is likely to harm the firm growth.
Dinh et al. (2012) "The Binding Constraint on Firms' Growth in Developing Countries"	2006-2010	30 African Countries	Employment Growth	1.) Access to finance 2.) Infrastructure 3.) Corruption	First, access to finance is one of the most binding constraint for firm performance. Second, informal sector competition is also a substantial constraint for firms' growth.
Hanousek and Kochanova (2016) "Bribery Environment and Firm Performance: Evidence from CCE Countries"	2002- 2010 WBES&Amadeus	14 CEE Countries	Real Sales Growth Real Labor Productivity	Bribery mean Bribery dispersion Corruption	A higher bribery mean in a local market negatively effects real sales and labor productivity growth. However, bribery dispersion of individual firms facilitates firm performance, which supports the "grease the wheels" hypothesis.
(S.N. and Sen 2017) "Does Institutional Quality Matter for Firm Performance? Evidence from India"	2013 & 2014 - WBES	India	Labor Productivity Total Factor Productivity	a.) Average number of tax visits b.) Expectation of gift or informal payments by tax officials c.) Expectation of gift or informal payments for obtaining license. d.) Gift “to get things done”	Corruption is negatively associated with firm performance. The negative effect of corruption for India matters more than other variables. Number of tax visits and time for dealing with government regulations are not associated with any change in firm performance for India.

Source: Prepared by Author
Note: The independent variables only include the main independent variables in the models.

Table 4.3 Summary of Literature Surveys

	Time Period	Country	Dependent Variable	Independent Variables	Result
Chauvet and Ehrhart (2018) "Aid and Growth: Evidence from Firm Level Data"	2006-2013	29 Developing Countries	Sales Growth	Variables representing the infrastructure: Transportation, Electricity, Water. Also controlled with Corruption	Total aid tends to reduce electricity obstacle, but it does not have any significant effect on transportation obstacle. Through this channel, the findings show that firms do not fully utilize their capacity are positively affected by aid, while firms utilize their capacity are negatively affected by aid. Corruption is negatively related to the sales growth
Kalyuzhnova and Belitski (2019) "The Impact of Local Content Policy on Firm Performance: Evidence from Kazakhstan"	2009 & 2013 WBES	Kazakhstan	Employment Growth Sales Growth	Corruption index	Corruption has a greasing the wheels effect, so it facilitates the employment and sales growth in Kazakhstan.
Fowowe (2018) "Access to Finance and Firm Performance: Evidence from African Countries"	WBES	30 African Countries	Employment Growth	The main dependent variable is access to finance but the model in the study includes variables such as political instability and corruption.	Inadequate finance has an inhibiting effect on growth of African firms. The findings also showed participation in financial markets increases the firm growth. Corruption and political stability negatively affect the firm performance.
(Goel and Nelson 2020) "Capacity Utilization in Emerging Economy Firms: Some New Insights Related to the Role of Infrastructure and Institutions"	2006 -2018 WBES	111 emerging economies	Capacity Utilization	a.) Corruption b.) Infrastructure limitations such as constraint to electricity, transportation, and water insufficiency.	Corruption and Informal competition negatively associated with capacity utilization. Constraint electricity and water insufficiency negatively effects the capacity utilization.

Source: Prepared by Author

Note: The independent variables only include the main independent variables in the models.