Factors Affecting Institutional Quality and Firm Performance

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CERTIFICATE

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بسم الله الرحمن الرحيم

To my beloved parents

This is to certify that this thesis entitled, "Factors Affecting Institutional Quality and Firm Performance" Submitted by Saima Bangash, is accepted in its present form by the Department of Economics, Pakistan institute of Development Economics (PIDE), Islamabad as satisfying the requirement for partial fulfilment of the Degree of Master of Philosophy in Economics.

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ABSTRACT

Institutions are the fundamental cause for economic growth and firm performance. The low level of firm productivity in developing countries is often associated to poor institutional quality. Therefore the presents studies examines the effect of institutional quality on firm performance for Pakistan. The studies further aims to investigate whether the firms have any alternative to negate the effect of low quality institutions. the study have utilized firm level dataset of "World Bank Enterprise Survey 2013"that contains information about private firms from key manufacturing and services sectors, covering wide range of topics about the business environment as well as detailed performance measures for each firm. The results from Ordinary Least Square (OLS) regressions provide that Institutional quality doesn't have significant impact on firm performance, whereas senior management efforts and informal payment play positive role to enhance firm performance. Senior management efforts to deal with authorities negates the effect of institutional environment.

Keyword: Institutional Quality, Firm Performance, Senior Management Efforts, Informal Payments, and Process Innovation

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List of Abbreviations

R&D   Research and Development

WBES   World Bank Enterprise Survey

SME   Senior Management Efforts

IQ   Institutional Quality

IP   Informal Payments

PI   Process Innovation

OECD   Organization for Economic Co-operation and Development

CPI   Corruption Perceptions Index

Contents

Chapter 1

Introduction

Primary objective of all nations across the globe is high and sustained economic growth. The nature and rate of economic growth is determined by various economic and non-economic factors. Whereas, economic theory for long related economic growth and output per capita with the societal ability to enhance its physical capital, human capital, and improved technology. However both physical and human capital, as well as technology are only proximate causes of growth, the fundamental cause of economic growth are institutions (Acemoglu & Robinson, 2010).

Institutions are "rules of the game" (North, 1990) that navigate domestic and foreign firm's strategies (Wright et al., 2005). Strong property rights and contract institutions facilitate economic performance and competitiveness by creating a business environment that inspires firms to produce on a larger scale, use better technology, have longer-term horizons, and operate within the legal framework (Aron, 2000). Therefore, productivity of firm and economic performance are anticipated to be enhanced by high institutional quality that provide more support to firm's competitiveness and business strategies (Yasar et al., 2011).

If the institutional setup fails in the provision of strong, formal and well-established mechanism for dispute settlement and contract enforcement between the contracting parties, then high transaction cost will be incurred on economic agents. (Shirley, 2005). Therefore, when rule of law and property rights are not reliable, transaction costs will be very high. In these scenario's, private firms will switch to operate on the small scale, or illegally in an underground economy, and firm might rely on informal payments or corruption to regulate firm's operations (Aron, 2000).

Poor quality institutions may also slow down the economic growth by decreasing innovations, because poor quality of institutional environment drains manager's effort and time, which deteriorates the manager's attention towards innovation (Barasa et al, 2017). The insufficient time for projects obstructs both product innovation (Utterback, 1971) and process innovation (Arundel & Kabla, 1998). Moreover, firms in high institutional quality requires relatively less R&D efforts to achieve a similar innovation growth than a firm that resides in low quality institutional environment (Back et al., 2014).

Well-established institutions can promote productive behavior by reduced uncertainty and transaction costs (Alonso & Garcimartin, 2013; Dollar & Kraay, 2003), providing opportunity for firms to enhance its productivity by effective planning and organizing. That results in high and sustained performance and competitiveness, ultimately contributing to high industry and country-level productivity growth (North 1990).

Institutions are well developed in the developed countries and underdeveloped in the developing countries. Developing countries are constituted by unstable regulatory environment, high levels of corruption and over-reach by local government officials in the manner they interact with managers of firms. All these factors plays instrumental role to inhibit firm performance in these countries (Sen, K. 2017). Likewise other developing countries, Pakistan also suffers from weak institutional quality. The present state of Pakistan's governance institutions remains below average, as depicted by the current measures.

According to the World Bank's latest governance indicators Pakistan falls in the 29th percentile for government effectiveness, the 27th percentile for regulatory quality, the 20th percentile for rule of law, and 19th percentile for control of corruption, based on 2016 data.

Furthermore, Pakistan goes down the table from 144th position back in 2016 to 148th position in 2018 at World Bank's ease of doing business. According to United Nations Development Program Human Development latest report published in 2018, Pakistan manages to secure 149th rank. However, Pakistan has improved its ranking on the World Economic Forum's Global Competitiveness Index 2018. Despite the improvement from 115th out of 137 countries back in 2017 to 109th Pakistan is still at very low level.

1.1. Process Innovation and Firm Performance

Innovation is broadly identified as one of the most crucial sources for the sustainable competitive advantage in an increasingly competitive environment. Bercovitz and Feldman (2007) defined innovation as "the ability to create economic value from new ideas". These new ideas generated by innovation will contribute to firm competitive advantage only, when they are successfully developed and implemented for firm's competitive advantage (Garcia & Catalone, 2002; Krishnan & Jha, 2011).

Process innovation is defined as "the implementation of new or significantly improved production or delivery methods" (OECD 2005). Process innovation doesn't necessarily change the quality of product but lowers the cost of production per unit. Therefore, by reducing cost and increasing production volumes, process innovation obtains efficiency gains. The current study will briefly examine the impact of process innovation on performance of the firm.

1.2. Senior Management and Firm Performance

Senior management or the top management team (TMT) is defined as those individuals who works are in the upper rank of any organization (Hambrick & Mason, 1984). Top managers of organizations are responsible for decision making about utilizing firm's resources and anticipating firm's strategic direction (Frishammar et al., 2012). Besides this senior management is also responsible for the all the decision regarding the production, innovation and regulation of the firm.

Therefore, the senior manager's time and concentration seems important for the firm's competitive performance. However, the existent literature have hardly any empirical evidence on the relation of senior management efforts and firm performance especially in Pakistan's perspective, providing room for investigation.

1.3.   Informal Payment and Firm Performance

"Transparency International" (2017) briefly define the term bribery as "The offering, promising, giving, accepting or soliciting of an advantage as an inducement for an action which is illegal, unethical or a breach of trust. Inducements can take the form of gifts, loans, fees, rewards or other advantages". Bribery or informal payment is the most dangerous kind of corruption and are often associated to double-edge sword that could lubricate the wheels of business by shunning the red tape or bureaucratic inefficiencies (Boukou, 2017) and could roughen the wheels of business by leading to inefficient allocation of human capital and resources from production to rent seeking (Murphy et al., 1993). Firm decision for providing informal payments to government official depends on the perceived benefits. Such that firm will pay informal payments to government official only when firm gets benefits to such an extent that without such payments firm will incur loss by losing essential resources (Boukou, 2017).

1.4.   Research Objectives

The present study aims to examine:

- The effectiveness of institutional quality on performance of firm.

- The impact of senior management efforts, informal payments (bribes) and process innovation on firm performance.

- The interactive effect of process innovation, informal payment (bribes) and senior management efforts on the relationship of institutional quality and firm performance.

1.5. Significance of Study

Significant previous empirical studies have been conducted to examine the influence of institutional quality on economic development. Whereas, a scant body of literature have investigated the influence of institutional quality on firm's performance especially in the case of Pakistan. The existing studies for the relationship of institutional quality and firm performance is narrow because empirical studies are mostly conducted for sub-Saharan countries. Hence, there is need to examine the influence of institutional quality on firm performance in other countries as well. The novelty of the present study is twofold. First, the study contribute to existing literature by providing evidence on the relationship of institutional quality and firm performance in the context of Pakistan. Secondly, the study will investigates whether senior management efforts, informal payment (bribes) and process innovation compensate for low quality institutions?

Firms are crucial for the growth and development of an economy by employing diverse factors of production, innovating new products, introducing goods and services, and investing in the new capital and technology. The ineffective or weak institutions are the primary element behind Pakistan's low productivity and investment performance (Dollar et al., 2005). Despite the significant role of institutions, the existing literature lacks the empirical evidence for the influence of institutional quality on firm's performance in Pakistan. Therefore, it provided motivation for the present study to conduct research on the impact of institutional quality on firm performance. Furthermore, the study examines the influence of senior management, process innovation and informal payments on firm performance. Besides this the study intends to investigate that can senior management, process innovation and informal payments compensate for the ineffective institutions.

1.6.   Organization of Study

The rest of the study is organized as follows. A brief theoretical and empirical literature on institutional quality, process innovation, senior management, bribes (informal payments) and firm performance is discussed in chapter 2. Chapter 3 presents conceptual framework for explaining the relationship between variables such as institutional quality, firm performance, process innovation, informal payment and senior management efforts. Chapter 4 discusses the data, variable descriptions and methodology. Chapter 5 deals with results, analysis and interpretations. Conclusion and policy recommendations will be discussed in the end.

Chapter 2

Review of Literature

"Commerce and manufactures can seldom flourish in any state ... in which there is not a certain degree of confidence in the justice of government". Adam Smith had identified the importance of institution long ago in his famous book "Wealth of Nations". However, initially institution's role as a determinant of growth, had been understated due to focus on other variables such as physical capital, human capital, and the technological advancement (Nawaz, 2015). Later, the studies of North & Thomas (1973) and North (1981) identified institutions as crucial element for economic growth, that explain significant differences in economic growth and income per capita differences across the globe(Acemoglu et al., 2006).

North (1990) defined institutions as "Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction." Acemoglu & Robinson, (2010) identified three important features of North's definition of institution. Firstly, institutions are created and navigated by humans unlike other causes of growth such as geographic factors, which are outside human control. Secondly institutions are "rules of law" which put limitations and constraints on individuals. Thirdly, the constraints placed by institutions shape human interaction and effect incentives, which is instrumental in affecting economic growth.

The significant literature on institution and economic growth develops positive relationship but the impact on economic growth due to institutions varies according to type of institution and development level of countries. Therefore, analysis at country level instead of firm level analysis could fail to identify the accurate channel by which institution can affect the economic

performance. (Yasar et al., 2011). Hence, the next section provide both empirical and theoretical evidences on the influence of institutions and firm performances.

2.1. Institutions and Firm performance

Firms operating in the underdeveloped economies have relatively low level of productivity as compared to firms operating in the developed economies (Hsieh & Klenow, 2009). Amongst all other factors, influencing the firm's productivity in developing economies, Institutional quality is considered to be most crucial (Dollar et al., 2005; Lu et al., 2013). Institutions are the mechanisms that creates the "rules of the game" (North, 1990) that navigate domestic and foreign firm's strategies (Wright et al., 2005). Furthermore, institutions influence the magnitude of transaction cost, that affect size of market, specialization, and technological process (Helgason, 2010).

Transformation and transaction cost can put constraints on firm growth, However the effective institutions leads to higher industry and country level growth by shrinking these transformation and transaction costs, and allowing firms to enhance its productivity by effective planning and strategizing. The transformation costs are the cost of production and processing, and transation cost is responsible for establishing relations and contracts with concerned agents, searching for potential trading products and partner, contract enforcement, monitoring and, negotiation. The transaction cost is more vulnerable by the institutional factors such that when rule of law and property rights are not reliable, transaction cost will be very high. (North, 1990; Yasar et al., 2011).

Strong property rights and contracting institutions facilitate economic performance and competitiveness by generating business conducive environment, allowing firm to expand its horizon by producing on large scale, employing better technology and operating in the legal framework (Aron, 2000). Therefore, productivity of firm and economic performance are

anticipated to be enhanced by high institutional quality higher quality institutions that provide more support to firm's competitiveness and business strategies.

Conversely contract enforcement is difficult in the low quality institutional environment that makes the informal payment or bribes as only way out. These delays and informal payments increase the cost of doing business, putting constraints on the growth of firm. (Yasar et al., 2011; Beck et al., 2005).

The link between corruption and firm productivity was empirically examined by De Rosa et al. (2015), utilizing firm-level data of "Business Environment and Enterprise Survey" (2009) for 28 countries of central and Eastern Europe and central Asia. Corruption was defined as bribe tax and captured by the question e.g. is it common to give informal payment to get work done etc and productivity was captured by total factor productivity. Holding the effect of age, size, innovation, foreign ownership and exports as controlled variables, the result of OLS estimation suggests that corruption do have negatively significant relation with productivity of firm.

Sen, K. (2017) investigates the relationship of institutional quality and firm performance for India by employing data of manufacturing firms by World Bank Enterprise Survey (WBES). Firm's performance was measured by two indicators namely, total factor productivity and labor productivity. Whereas, 7 proxies were used to measure institutional environment. Controlling for firm characteristics, The baseline results of 2 stage methodology pointed out that three institutional quality indicator that measure bribe tax have significant negative impact on firm performance whereas, other measures were insignificant for firm performance.

Further, Dollar et al. (2005) investigates the impact of investment climate on firm's performance, by establishing a robust link. Whereas investment climate is the regulatory environment and

institutional policy in which firms operates. The study utilized the World Bank survey of firms for four countries namely China (1500), India (1900), Pakistan (965) and Bangladesh (924). The results of the research provided support that investment climate indicators have significant impact on profit rates, output growth, employment, capital stocks, wages and productivity after controlling for firm- specific characteristics.

Fernandes and Kraay (2007) had examined the institutions effect on firm performance. Unlike former literature, the study had capture the institutional performance by contracting institutions and property rights institutions only. The result depicts property right institution to be more significant for firm's productivity as compared to contracting institutions across countries. Likewise, the findings of Lu et al. (2013) reinforce that, the protection of property rights have positively significant influence on manufacturing firm's productivity in China. In a similar vein the findings of Yasar et al., (2011) confirmed the role of property rights institutions for firm competitiveness and productivity. Furthermore, the study specified that high-quality institutions provide conducive environment for firms to organize and invest efficiently.

Issar et al., (2017) analyzed the influence of institutional quality and firm-level productivity (total factor productivity) growth at country level. The study utilized Thomson-Reuters' World scope database for firm-level data of 3,446 firms from 58 economies and World Governance Indicators for institutional quality. Holding GDP per capita, private credit, capital account openness, and trade openness, log of assets, ratios of market-to-book and equity-to-assets, leverage, and net income to assets constant, the baseline results of fixed effects and system generalized method of moments pointed out that institutions had statistically and economically significant impact on total factor productivity of firm.

Conversely, Beck et al. (2005) provided different result from all these studies by investigating the effect of economic institutions on the revenue growth. Employing the World Business Environment Survey (WBES) of 4000 firms over 54 countries, the results depicts that revenue growth rate was not affected by the economic institutional factor instead, revenue growth rate was affected by the size of firm. However, economic institutions had significant effect on the small and newly developed businesses. Commander et al., (2008) too provides evidence that country and firm performance are not affected by the business environment in fact business environment have limited role in country and firm performances. Whereas, financial, legal and institutional systems were taken as key features of the business environment.

2.2. Process Innovation, Institutions and Firm Performance

In an increasingly changing environment, innovation is broadly identified as the most crucial source for sustainable competitive advantage. Innovations make continuous advancements in process and product improvements that leads firms to reap the profit gains by growing quickly and efficiently as compared to non-innovating firms (Atalay et al. 2013). The concept of innovation is broad and defined as improvement in products, production process, policy, structure and management (Lopez-Nicolas & Merono-Cerdan, 2011).

Process innovation is defined as "the implementation of new or significantly improved production or delivery methods. It may be considered as changes in tools, human capital, and working methods or combination of all these such as installation of new improved software to speed up the claim settlement process and policy issuing "(OECD, 2005).

Process innovation is the type of innovation that don't change the quality of product while contribute in lowering the unit cost of production (Adner & Levinthal, 2001). Therefore, Process innovation increase the efficiency of firms by increasing production on a relatively low cost.

(Kurkkio et al., 2011; Lim et al., 2006). In addition, the development times of the products are reduced through process innovation (Pisano, 1996; 1994). Process innovation contribute for firm to gain the effectiveness by producing improved and reliable product which add direct value to the customers (Gopalakrishnan et al., 1999) leading firm to gain effectiveness.

Empirical research shows that firms innovating in products are also likely to innovate in process (Reichstein & Salter, 2006; Damanpour& Gopalakrishnan, 2001). The product and process innovation is closely related, particularly in manufacturing firms. The new products mostly cannot be manufactured and developed without innovating the process technology. (Frishammar et al., 2011; Linton & Walsh, 2008). Likewise, process innovation alone, without the introduction of new products, are associated with the risk of poor firm's performance (Goedhuys & Veugelers, 2012).

Though technological innovation both product and process innovation has positive and significant influence on firm performance (Atalay et al., 2013). However the magnitude of the returns from both type of innovations are different for example, Mairesse et al. (2005) found that firms, which introduced process innovation yield higher returns than product innovators. Parisi et al. (2006), by employing panel data of Italian firms examined the pattern of innovation activity and its effect on productivity. They too found a positive productivity effect for process innovation and provided the evidence that process innovation have relatively greater influence on firm's productivity than process innovation.

In contrary, Griffith et al. (2006) investigates the drivers of innovation and productivity at firm-level by employing the internationally harmonized Community Innovation Surveys for four major European countries - France, Germany, Spain, and the UK. Where estimates of structural equation modelling did not find positive impacts of process innovation for Spain, Germany and UK.

Previous empirical studies revealed that innovations have positive effect on firm performance. Whereas, rate of innovation (patent production) of an economy depends on the institutional quality (Tebaldi & Elmslie, 2013). Good institutions stimulates R&D activities by helping in registration process of the new patents, enforcement of property rights, diffusion of ideas across researchers, diffusion of current knowledge, and reduces the uncertainty of new projects (Tebaldi & Elmslie, 2013).

In contrary weak institution increase transaction costs and uncertainty that can curb firm's ability to access the required resources to stimulate their innovativeness (Peng, 2010; Zhu et al., 2011). However, Innovation serves as an important mechanism through which the institutional environment can contribute to enhance firm's performance. Chadee & Roxas, (2013) empirically examined the mediating role of innovation capacity on the relationship of institutional quality and firm performance in the context of Russia by employing data of World Bank's firm survey (2009). The results of structural equation modelling found that innovation capacity strongly mediates the effects on institutions on firm performance.

The theoretical and empirical research of process innovation and firm performance analyzed above concludes that innovation particularly process innovation is helpful in the survival and growth of a firms in competitive environment. Furthermore, innovation capacity have mediating effect on the relationship of institutions and firm performance.

2.3. Bribes, Institutions and Firm Performance

The most important and dangerous form of corruption is bribery (Guo, 2008) and often the two terms are used interchangeably within literature. "Transparency International" (2017) defines bribery as "The offering, promising, giving, accepting or soliciting of an advantage as an inducement for an action which is illegal, unethical or a breach of trust. Inducements can take the

form of gifts, loans, fees, rewards or other advantages". Pakistan ranked poorly at 117 out of total 180 countries was ranked 117 out of 180 countries on CPI (Corruption Perceptions Index) Transparency International's 2018. Transparency International suggests that certain factors such as lack of merit based promotion, accountability, and enforcement of penalties contributes to the persistent corruption problems.

Buchanan (1980) and Manion (2004) considered Government intervention in economic activities as major cause of bribery. However, firm will provide informal payments to the government official only when without such informal payments firm might lose important resource. (Boukou, 2017). Therefore, the literature supports that firm's benefit is positively related to the provision of informal payments (Gao, 2010). That is firms will increase the provision of informal payments when the benefit of firm increases from such payments.

Bribery are often compared to a double-edged sword that could grease the wheels of commerce by avoiding bureaucratic inefficiencies such as red tape (Boukou, 2017) and could sand the wheels of commerce by leading to inefficient allocation of human capital and resources from production to rent seeking (Murphy et al., 1993). Empirical studies have provided mixed results on the relationship of bribery and firm performance.

Teal and McArthur (2002) found that firms in Africa, that are engaged in corruption by bribing public officials have relatively 20% lower levels of output per worker. Firms that resides in country of pervasive corruption are relatively 70% less efficient than the firms resides in corruption free country. Fisman and Svensson (2007) examined the link between bribe payments, taxes and firm growth in Uganda over the period 1995-97, the results pointed out that firm growth is reduced by three percent with 1 point percentage increase in the bribery rate that retards the firm growth more than the tax.

Faruq and Webb (2013) examined the impact of corruption and poor bureaucratic quality on firm productivity over 12 years for 900 firms of Ghana, Kenya and Tanzania. The OLS and tobit regression analysis found that both corruption and bureaucratic quality reduces firm productivity. Furthermore, firms with low level productivity are anticipated to be involved in the corruption by bribing the government officials. Both developing and developed economies provide similar findings, for example, Athanasouli et al. (2012) examined the influence of corruption on performance of firms in Greece by utilizing firm-level data. The results provides that corruption negatively affect the sales growth. Gaviria (2002) analyzed the impact of corruption upon the performance of firms and the results pointed out that corruption and crime is responsible for reduction in sales growth and that corruption is quite unlikely to have any positive effects.

In contrary, some empirical studies have find positive relationship of corruption and firm performance for example Ayaydin and Hayaloglu (2014) examined impact of corruption on the firm growth in 41 manufacturing Turkish Firms, and points out that informal payments made to government officials had positively impacted the firm's growth, mainly due to bureaucratic delays. Vial and Hanoteau (2010) using panel data of Indonesian firms have found similar results, that output of firm and labor's productivity is positively impacted by corruption.

However, the literature mainly overlooks the fact that the institutional quality of a country plays a significant role in the structure, prevalence and effects of corruption (Méon & Weill 2010). Therefore, effects of corruption will vary according to different institutional settings and thus, economic effects of corruption will be different from place to place and time to time (Vaal & Ebben, 2011). In Economies where institutional quality is relatively high, corruption will deters the growth by taking form of rent seeking activities. On the other hand, when the institutional quality is low and provides low level of economic freedom the entrepreneurs will provide informal

payments to avoid or shun bureaucratic delays, promoting growth (Heckelman & Powell, 2010). Therefore, in such scenarios corruption will compensate its negative effects by overcoming bureaucratic delays.

Empirical studies on the impact of bribes on firm performance brings mixed result, one stream of studies suggests positive influence of bribes on firm performance and the second stream suggests negative relationship of bribes and firm performance. Whereas opposite stream believes that positive and negative effects of corruption depends on institutional quality.

2.4. Senior Management Efforts, Institutions and Firm Performance

Senior management or top management team (TMT) is defined as those who are in the upper tier in an organization (Hambrick & Mason, 1984). The potential members of TMT are president of the commissioner, director of finance, director of the operational, and so on (Tulung & Ramdani, 2016). These individuals are the major executives in an organization, and each of them provides instructions and directives on making important decisions (Tulang, 2016).

Top managers are the persons who decide about how a firm's resources are spent and in what strategic direction the firm is heading (Frishammar et al. 2012). Scholars in strategic management have recently emphasized the role of top management teams in strategy formation and organizational performance (Hambrick & Mason, 1984). Empirical research on the relationship between top team demographics and firm performance is scarce, even though there is evidence that they are related (Norburn & Birley, 1988). Senior management are at the top of their organization thus, able to affect the information flow within the organization by gathering and redistributing information across key external actors and internal locales. Structure and strength of the ties of TMT external and internal networks provide informational benefits that lead to competitive advantages and higher firm performance (Collins & Clark, 2003). Furthermore Daniel

et al, (2018) by employing WBES dataset and hierarchical regression analysis found significant and positive effect of senior management efforts on firm performance.

Institutions play an important role in reducing uncertainty about the behavior of other and allowing actors to make credible commitments to each other. In low quality institution senior management will put extra efforts in repeatedly meeting and consulting with authorities to clarify requirements, answer demands, maintain visibility, and drive progress on previously agreed promises by monitoring procedures, or by obtaining the resources that firms require from dishonest agents (Daniel et al., 2018). In contrary, less top management effort is required to navigate regulations in high quality institutional environments, characterized by clear predictable and properly enforced rules and regulations (Burki and Perry, 1998). The brief literature revealed that senior management efforts have positive effect on firm performance.

2.5. Conclusion

This chapter has presented a brief insight of theoretical and empirical literature on the relationship between institutions, process innovation, informal payments, senior management and firm performance. Institutional quality have positive relationship with both economic growth and firm performance. Significant extant literature had examined the relationship on institutions and economic growth but few studies have focused on the relationship of institutional quality and firm performance. The literature is further scant for Pakistan, there are significant literature for CG and FP but we can hardly find any studies about impact of institutional quality and firm performance. The present study has filled this gap by investigating the relationship among institutional quality and firm performance in the context of Pakistan. Furthermore, the study has contributed to the existing literature by examining the moderating effect of process innovation, informal payments, and senior management on the relationship of institutions and firm performance.

Chapter 3

Conceptual Framework

This chapters aims to provide theoretical framework to the current study. It presents theoretical connections or relationship between institutions, firm performance, process innovation, informal payments and senior managements. This chapter presents brief information about data, data source, variables of interest, construction of variables, model and data analysis techniques.

3.1. Institution and Firm Performance

The main focus of both, empirical and theoretical literature of economics remains on the relationship among institutional quality and economic development that is quite prevalent and developed. The institutional economist provides the theoretical foundation (e.g. North, 1990) by stating that economic development is the result of economic exchanges facilitated by the formal legal rules. The well-established formal institutions: property rights protection and contracts improves the innovation and investment at low cost and enhance market exchanges. According to North (1990) "The inability of societies to develop effective, low-cost enforcement of contracts is the most important source of both historical stagnation and contemporary underdevelopment in the third World because the absence of secure property and contractual rights discourages investment and specialization".

Secure property rights causes growth through both efficient use of capital and its effect on the allocation of capital. Capital allocated for the productive activities, will improve the economy's productive capacity. The existence of well-established system of property rights helps in the promotion of innovation by making effective investment and decreasing uncertainties. Conversely, the absence of property rights institution human capital is allocated for redistributive activities or

other rent seeking activities (Vijayaraghavan & Ward, 2001), the resource diversion from production can have important implication for performance of the firm (Qureshi & Velde, 2012).

Institutions are mechanisms that create the "rules of the game" (North, 1990) that navigate domestic and foreign firm's strategies (Wright et al., 2005). Furthermore, institutions influence the magnitude of transaction cost, that affect size of market, specialization, and technological process (Helgason, 2010). The effective institutions leads to higher industry and country level growth by shrinking transformation and transaction costs, and allowing firms to enhance its productivity by effective planning and strategizing.

Good Institutional Quality → Reduced Transaction Cost → Innovation → Competitiveness Productivity → Increased Exports → Increased Sales

3.2. Process Innovation and Firm Performance

Innovation has been widely recognized as crucial factor for firm performance since 1934 when Schumpeter acknowledged the significant role of innovation for economic development. Innovation itself is a complicated process related to changes in processes and production functions. Whereas, firms pursue to attain and create their distinctive technological competence, understood as the set of resources a firm retains and the way in which these are transformed by innovative capabilities (Therrien et al., 2011). Innovation is defined in the third edition of the Oslo Manual, as "implementation of a new or significantly improved product (good or services), process, a new marketing technique or a new organizational method in business practices, workplace organization or external relations" (OECD and Eurostat, 2005).

In early studies, innovation was classified in five types, namely, new products, new production processes, new materials and resources, new markets, and new organizational forms. Brouwer

(1991) classified innovation under two main types, as product or process innovations. The current study consider process innovation only.

A process innovation is the implementation of a new or significantly improved production or delivery method. Process innovation includes significant changes in techniques, equipment and/or software (e.g. installation of new or improved manufacturing technology, such as automation equipment or real-time sensors that can adjust processes, computer-aided product development). Furthermore, process innovation is the type of innovation that will not necessarily change the product quality but lowers per unit cost of production (Adner & Levinthal, 2001). Therefore, Process innovation reaps efficiency gains by means of reduced costs and increased production volumes (Kurkkio et al., 2011; Lim et al., 2006). In addition, process innovation can contribute to reducing development times for products (Pisano, 1996; 1994) and add value directly to customers through improved product quality and reliability (Gopalakrishnan et al., 1999) that leads firm to gain effectiveness. Hence process innovation or improvement lead firms to survive, grow quickly, be more efficient and ultimately be more profitable than non-innovators (Atalay et al. 2013)

Process Innovation ➔ *Efficiency gains* ➔ *Competitiveness* ➔ *Productivity* ➔ *Sales Growth increased*

3.3. Informal Payments and Firm Performance

Informal payments or bribes are seen as negative phenomenon form the moral standpoint. Transparency International (2017) defines bribery as "The offering, promising, giving, accepting or soliciting of an advantage as an inducement for an action which is illegal, unethical or a breach of trust. Inducements can take the form of gifts, loans, fees, rewards or other advantages"

The aggregate country level studies had shown that bribery had deleterious effect on economic growth and development; level of economic growth and development of country decreases when

level of bribery increases (Hellman et al., 2000; La Porta et al., 1997; Mauro, 1995). However at firm-level, bribery are often compared to a double-edged sword that could grease the wheels of commerce by avoiding bureaucratic inefficiencies such as red tape (Boukou, 2017) and could sand the wheels of commerce by leading to inefficient allocation of human capital and resources from production to rent seeking (Murphy et al., 1993).

However, the effects of corruption are dependent on the quality of institutions in place (Méon & Weill 2010). That is corruption will have different effects in different institutional settings and therefore, economic effects of corruption will be different from place to place and time to time (Vaal & Ebben, 2011). In Economies where institutional quality is relatively high, corruption will deters the growth by taking form of rent seeking activities.

Informal Payments (when institutional quality is good) ➔ *Rent seeking activities* ➔ *Reduced productivity* ➔ *Sales growth decreased*

 Contrary, the entrepreneurs provide informal payments to avoid bureaucratic delays at the institutional environment that provides quite low economic freedom, promoting growth (Heckelman & Powell, 2010). Therefore, in such scenarios corruption will compensate its negative effects by overcoming bureaucratic delays.

Informal Payments (when institutional quality is bad) ➔ *Improved bureaucracy* ➔ *Increased productivity* ➔ *Sales growth increased*

3.4. Senior Management Efforts and Firm Performance
Senior management are at the top of their organization and are able to affect the information flow within the organization by gathering and redistributing information across key external actors and internal locales. Structure and strength of the ties of TMT external and internal networks provide

informational benefits that lead to competitive advantages and higher firm performance (Collins & Clark, 2003). In low quality institution senior management will put extra efforts in repeatedly meeting and consulting with authorities to clarify requirements, answer demands, maintain visibility, and drive progress on previously agreed promises by monitoring procedures, or by obtaining the resources that firms require from dishonest agents (Daniel et al., 2018). In contrary, less top management effort is required to navigate regulations in high quality institutional environments, characterized by clear predictable and properly enforced rules and regulations (Burki and Perry, 1998).

Senior Management Efforts ➔ *Productivity* ➔ *Sales Growth increased*

Chapter 4
Data and Methodology

This chapter presents the data sources and econometric model that is to be used in the study. Further, this chapter presents explanation for each focus variable and how it is constructed and incorporated into the model.

4.1. Data

The study utilized World Bank Enterprise Surveys (WBES) firm level data of 1247 firms from Pakistan. World Bank Enterprise Surveys (WBES) provides private firms information from service and manufacturing sectors of 139 countries all over the world, with over 100,000 firms participating between 2006 and 2016. The World Bank enterprise survey provides a broad range of topics, covering about firm performance measure for each firm and business environment in the countries. The representation of each sample firm in country is ensured by following a stratified random-sampling technique for sample selection. Due to the nature of the survey, our sample is a cross-sectional dataset.

4.2. Variable Description and Construction

Detailed information about outcome variable, core explanatory variable and control variables are discussed below in this section.

4.2.1 Outcome Variable

Firm performance is the main outcome variable of the current study. Firm Performance has been measured by using proxy: annual sales growth of firm in a fiscal year.

4.2.2. Independent Variables: Core Specification

The specifications of the model constitute the effect of IQ, senior management efforts, informal payments, process innovation and their interactions.

Institutional quality can be instrumental for enhancing firm performance by reducing transformation and transaction cost. The first objective of the current research is to examine the impact of institutional quality on firm performance in the perspective of Pakistan. For fulfillment of this, the study form an index of institutional quality from 5 variables through Principal Component Analysis. These 5 variables are constructed by identifying different questions from WBES dataset that can represent institutional quality within Pakistan. The questions are previously used in literature for measuring regulatory quality, role of law and government effectiveness etc. The construction of variable and their related question are given in Table 1.

Senior management efforts are the percent of total time spent by top managers of a firm in dealing with the government regulations, inspections, negotiations and other bureaucratic burdens. This is the time that senior manager would otherwise spend on business matters. The variable does not include time that is spent on negotiating procurement contracts with the government, it only include the time spent with dealing red tape and bureaucracy (WBES).

Informal payments are the gift or cash payments paid to government official to "get things done. This is measured by binary variable taking value "1" if the firm pay informal payment and "0" otherwise.

Process Innovation is defined as "the cumulative improvements to the entire (production) process, which is applied to create a product or service" (Brem et al., 2016). Process innovation is captured

by a binary variable, taking value of "1" if the firm introduced any new or significantly improved processes and taking value "0" otherwise.

Table 4.1. WBES questions used for Institutional Quality index

Sr. No	WBES Survey Questions	Response Card
1	"To what degree tax rate are obstacle to the current operations of this establishment?"	"0" no obstacle "1" minor obstacle "2" moderate obstacle "3" major obstacle "4" very severe obstacle.
2	"To what degree tax administration are obstacle to the current operations of this establishment?"	"0" no obstacle "1" minor obstacle "2" moderate obstacle "3" major obstacle "4" very severe obstacle.
3	"To what degree business license and permits are obstacle to the current operations of this establishment?"	"0" on obstacle "1" minor obstacle "2" moderate obstacle "3" major obstacle "4" very severe obstacle.
4	"To what degree courts are obstacle to the current operations of this establishment?"	"0" no obstacle "1" minor obstacle "2" moderate obstacle "3" major obstacle "4" very severe obstacle.
5	"To what degree trade regulations are obstacle to the current operations of this establishment?"	"0" on obstacle "1" minor obstacle "2" moderate obstacle "3" major obstacle "4" very severe obstacle.

4.2.3. Independent Variable: Control Variables

The study will control for different firm-specific variables that can influence Firm performance, such as, **Age of a firm** has been measured by taking the difference between the year of observation and the year in which the firm was formally registered. **Size of a firm** it is measured by the total employees of the firm, and captured by categorical variable that will take the value "1" for small size firms with less than twenty employees, "2" for medium size firms with less than one hundred

employees, and "3" for large size firms with no less than one hundred employees. **Experience** is the number of years a firm's top manager has been working in the sector. **Locality** is the size of locality, captured by the size of population. **Sector** is the binary variable which take value "1" if the firm is in manufacturing sector and "0" for others. **Innopd** is the product innovation and it is captured by a binary variable, taking value of "1" if the firm introduced any new or significantly improved processes and taking value "0" otherwise. **Workerscdry** is variable that is measured the percentage of full-time permanent worker who have passed the secondary school. **Training** is measured by the binary variable that take value "1" if the firm had arrange formal training programs for the permanent workers and "0" otherwise. **Outages** is the number of power outages the firm experienced.

Table 4.2. Summary of variables descriptions and data source.

Variables	Descriptions/Computation	Data Source
Firm Performance	• Annual sales growth of firm in a fiscal year.	WBES
Institutional Quality	For institutional quality the present study construct an index from 5 questions e.g. to what degree tax rate, tax administration, business license and permits, courts, and trade regulation are obstacle to the operation of establishment. Where "0" indicates no obstacle and "4" indicates very severe obstacle. These questions are repeatedly used as institutional measure (Chadee & Roxas, 2013 ;Sen, K. 2017)	WBES

Senior Management	% of senior management's time spent in dealing with regulations (Daniel et al., 2018)	WBES
Informal Payment	% of a firm's total annual sales paid as informal payment (Williams et al., 2016)	WBES
Process Innovation	The aggregate improvements to the production process (Brem et al., 2016). Captured by Dummy, 0 for no process improvement and 1 for little or some process improvement	WBES
Age of a firm	Difference between the year of observation and the year in which the firm was formally registered (William et al., 2016; Daniel et al., 2018)	WBES
Firm Size	Categorical variable "1" sized "2" sized firms and "3" indicates large sized firms (William et al., 2016; Daniel et al., 2018)	WBES
Sector	Categorical variable "1" for manufacturing industry, "0" for others. (Yasar et al., 2011; Gunday et al., 2011)	WBES
Locality	Locality is the size of locality measured by the size of population (Sen and Raj, 2017).	WBES
Product Innovation(Innopd)	Introduction of new or improved product by firm in the last three discal year. It is a binary variable	WBES

	taking value "0" for no improvement and "1" otherwise.	
Manager's experience (Expr)	Number of years a firm's top manager has been working in the sector (Sen and Raj, 2017)	WBES
Worker secondary Education(workerscdry)	% of full time workers who have completed secondary education (Sen and Raj, 2017).	WBES
Training	Formal training program for the permanent worker of a firm. It is captured by binary variable taking values "1" if firm had arrange such trainings and "0" otherwise.	WBES
Outages	Number of power outages a firm had experienced last fiscal year.	WBES

Source: Author own creation.

4.3. Empirical Specification

The following econometric model is regressed for examining the relationship of institutional quality, senior management efforts, process innovation and informal payments.

$$Y_{ij} = \beta_0 + \beta_1 IQ_{ij} + \beta_2 SME_{ij} + \beta_3 PI_{ij} + \beta_4 Bribes_{ij} + \beta_5 X_{ij} + E_{ij}$$

Where,

Y is the firm performance, measured by annual sales growth.

IQ is the institutional quality

SME is the senior management efforts

PI is the process innovation

Bribes is the informal payments and

X represents all the control variable such as age, firm size, experience of the top manager, number of power outages, size of locality, sector, training of full time worker, education of full time worker and product innovation.

The study is utilizing dataset from World Bank enterprise survey, as nature of data is cross-sectional, we will estimate the model by ordinary least square (OLS).

Chapter 5

Results and Discussions

This chapter provides discussion on the impact of institutions, senior management efforts, informal payments, and process innovation. Section 5.1 provides descriptive statistics of variables understudy. Section 5.2 entails detailed discussion on empirically obtained results from the regression analysis.

5.1. Descriptive Statistics

First, the research provides the summary statistics of the outcome, explanatory variables and control variables used in the analysis in Table 5.1. The summary statistics for outcome variable "annual sales" shows that on average firm's annual sales is 16.87 with the variation of 2.63.

The results shows that firm's senior management spend on average 4.18 percent of its time in dealing with government regulations. The current study found that informal payment were expected from 0.23 firms on average. New process method are introduced on average of 0.21 firms from our dataset.

The firms on average are aged about 21 years with variation of 13.93 and employed around 2 workers. Among total firms in dataset on average168 firms experience power outages. 91 percent firms are manufacturing firms and the experiences of senior managers are high at 17 percent with variation of 9.56. Of the total full time worker of firm 49 percent of workers have secondary education or above and around 23 percent of firms have formally arranged trainings for full time workers. Product innovation were introduced in around 33 percent of firms on average with the variation of 0.46.

Table 5.1: Summary statistics of all the variables understudy

| Variable	Obs	Mean	Std. Dev.	Min	Max
lnsales	578	16.87775	2.635414	5.393628	24.99993
IQ	578	-9.58e-10	1.731949	-11.47244	3.162932
SME	546	4.184982	7.699198	0	60
Bribes	294	.2380952	.4266439	0	1
Process	570	.2122807	.4092817	0	1
Age	568	21.30458	13.93271	0	66
Age2	568	647.6637	800.3215	0	4356
FirmSize	578	1.698962	.7828528	1	3
Outages	536	168.041	139.9584	3	2400
Expr	571	17.35201	9.657852	1	60
Sector	540	.912963	.2821507	0	1
locality	578	2.550173	.7412634	2	5
Training	574	.2247387	.4177742	0	1
Workerscdry	542	49.28598	28.0869	0	100
Innopd	576	.328125	.4699387	0	1

Source: Authors own estimates based on World Bank enterprise Survey dataset.

Notes: outcome variable: lnSales is the annual sales growth in the fiscal year. Explanatory variables: IQ is the index for institutional quality made from 5 questions e.g. to what degree TR, TA, courts, business license and permits, and trade regulation are obstacle to the operation of establishment. Where "0" indicates no obstacle and "4" indicates very severe obstacle. SME is senior management efforts, Bribes are the informal payment and Process is the process innovation. Control Variables: Age is the age of firm, Age^2 is the square of Age, FirmSize is the size of firm which is categorical ordered variable taking values 1,2, and 3 for small, medium and large firms respectively. Outages is the power outages a firm experienced, Expr is the year of top manager experience in the firm. Sector is the binary variable taking value "0" for others and "1" for manufacturing sectors, locality is the size of locality measured with the size of population, Training is the formal training programs for the permanent employees, Workerscdry is the percentage of permanent employees who have completed secondary education and Innopd is the binary variable for product innovation taking value "0" if firm have not introduced any significant new product and "1" otherwise.

5.1.1.   Firm Size

Firm has been investigated about the size of enterprise, size is measured by the number of employees in the firm. Out of total 1247 firms, 50.17% are small sized firms that have less than 20 employees, 29.76% are medium sized firms having greater than 20 and less than 100 employees and 20.07% are large sized firm that have greater than 100 employees.
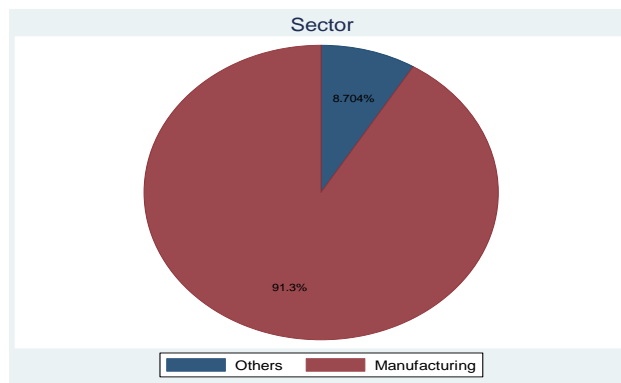
Figure 1
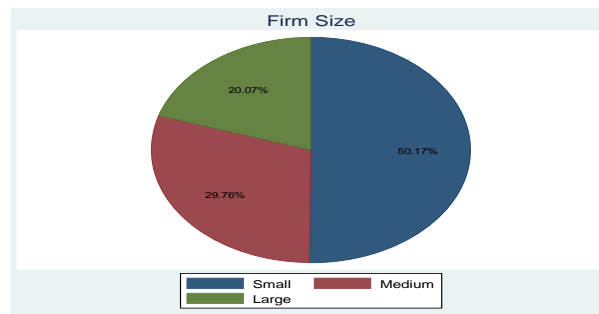
5.1.2. Sector

The representatives of WBES have inquired the firms that in which sector they lie. Out of total 1247 firms 91.3% firms lies in manufacturing sector whereas, 8.704 firms are in other sectors that is services etc.

Figure 2

5.1.3. Size of Locality

The firms were asked about the size of locality that was measured by population size. Out of total 1247 firms 58.48% are in locality having over I million population, 29.58% are in locality having over 250.000 to 1 million poupulation, 10.38% are in locatity that have 50,000 to 250.000 population and 1.555% are in locality having less than 50.000 population.
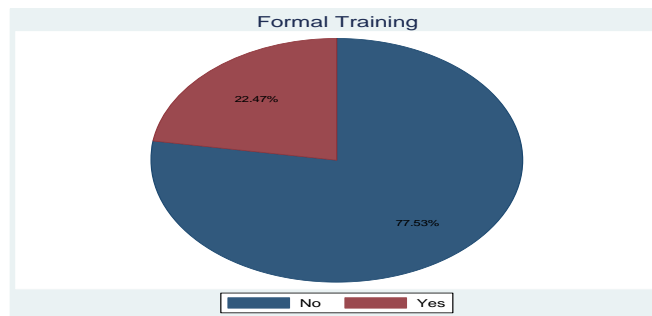
Figure 3
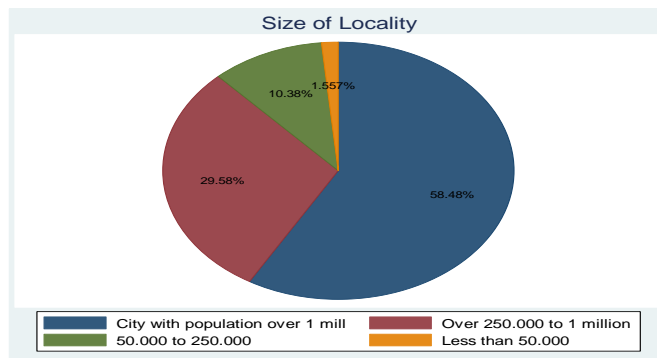
5.1.4. Formal Training of Full-Time Worker

The representative of world bank survey questioned the firms that did they have introduced any foraml training for permanent workers in last fiscal year. out of total 1247 firms 77.53 answered no and 22.47 answerd yes.

Figure 4

5.1.5. Process Innovation

The world bank representatives questioned the establishment that did this firm introduced new or improved process in last three year. 21.23 of 1247 firms said yes and 78.77% said no.

Figure 5
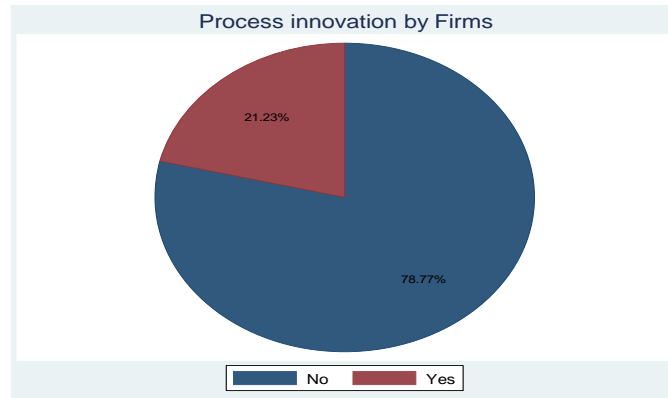
5.1.6. Informal Payments

The firms have inquired that did government official have asked or expected for any informal payment of gifts. Out of total 1247 firms 23.81 said yes informal payments were expected and 76.19% answered with no.

Figure 6

5.2. Baseline Regression Results

This section investigates the effect of IQ, senior management efforts, informal payments and process innovation on firm performance. The study regress Model 1 as baseline model containing all the control variable, Model 2 as main effect model containing all the key independent variables and Model 3 is the full model with all the required interaction terms.
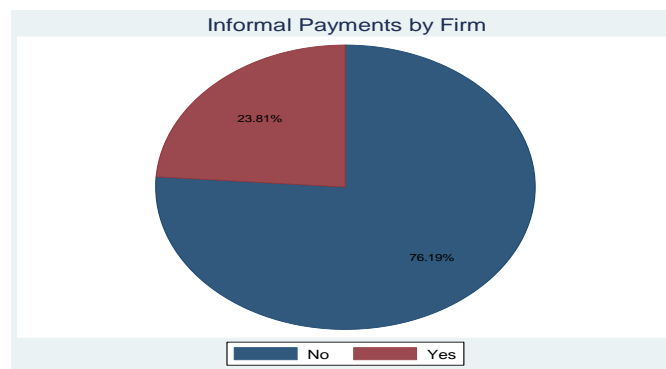
The regression results illustrated in table 5.2 depicts the impact of institutional quality on firm performance. For the initial model institutional quality have significant impact on annual sales growth which means firm annual growth increases with institutional quality enhancement. Further inclusion of interaction terms of institutional quality with senior management efforts, process innovation and informal payments in regression model 3 makes the institutional quality coefficient statistically insignificant.

The results illustrates that Senior management efforts have positive and significant impact on firm performance suggesting that annual sales growth rises when senior managers spend more time with dealing government regulations. In other words this suggests that increase in senior management efforts escalated the annual sales growth. The current study results of positive impacts of senior management efforts on firm performance is consistent with the results of Daniel et al, (2017).

Bribes or informal payments have found positive and significant effect on the firm performance, indicating that if firm give informal payments, the annual sales growth of the firm increases. In other words firms that give informal payment will have 0.98 more sales than the firm that don't give the informal payments. The possible reason behind the positive impact of informal payments on annual sales growth is due to the fact that bribes could grease the wheels of commerce by

Table 5.2. Basline Regression: Annual Sales Growth

VARIABLES	Model 1	Model 2	Model 3
IQ		-0.270*	0.0857
		(0.144)	(0.189)
SME		0.00837	0.0463*
		(0.0201)	(0.0274)
Bribes		1.008**	0.980**
		(0.391)	(0.460)
Process		0.658	0.723
		(0.404)	(0.498)
IQSME			0.0540**
			(0.0263)
IQBribes			0.187
			(0.392)
IQProcess			0.0825
			(0.407)
Age2	0.000272**	0.000372*	0.000332*
	(0.000138)	(0.000198)	(0.000199)
FirmSize(small)	-2.518***	-2.112***	-2.179***
	(0.301)	(0.452)	(0.458)
FirmSize(medium	-1.080***	-1.075**	-1.111**
	(0.300)	(0.437)	(0.436)
Outages	0.00154**	0.00277***	0.00292***
	(0.000756)	(0.000882)	(0.000885)
Expr	0.0148	0.0501***	0.0531***
	(0.0118)	(0.0171)	(0.0172)

Sector	0.776*	1.614***	1.594***
	(0.421)	(0.586)	(0.586)
locality	-0.110	-0.382*	-0.355
	(0.154)	(0.224)	(0.232)
Training	0.576*	0.410	0.263
	(0.300)	(0.403)	(0.410)
Wokerscdry	0.00503	0.00930	0.0103*
	(0.00404)	(0.00609)	(0.00611)
Innopd	0.106	0.550	0.623
	(0.250)	(0.369)	(0.383)
Constant	17.12***	16.05***	15.83***
	(0.718)	(1.040)	(1.047)
Observations	470	221	221
R-squared	0.243	0.335	0.349

parentheses *** p<0.01, ** p<0.05, * p<0.1

Avoiding bureaucratic inefficiencies such as red tape (Boukou, 2017). The results are in contrast with the results of (Fisman and Svensson, 2007; Faruq and Webb, 2013) where informal payments can never have positive influence on firm performance. However our results supporting the hypothesis that informal payment grease the wheel of business are aligned with (Ayaydin and Hayaloglu 2014; Vial and Hanoteau, 2010).

The results in table 5.2 shows that our expectation that senior management efforts, informal payment and process innovation can be used as a substitute for effective institutions are only true for senior management efforts. This is due to reason that in low quality institutional environment

there are bureaucratic inefficiency and delays therefore, extra senior management time and efforts are required to minimize the effect of ineffective institution on annual sales growth. Time spent by senior managers on the regular meetings with government officials for getting permits and license, checking or monitoring progress on previously agreed promises and obtaining required resources for the firm etc. compensates for the ineffective institutions.

Process innovation have neither direct nor indirect effect on the firm performance. Literature suggests that process innovation increase the efficiency of firm by reducing per unit cost of production and therefore, have positive influence on the firm performance. Our results are in contrast to the existing literature, one possible reason for the insignificant result of process innovation might be that limited firms of the total firms in the datasets have introduced process innovation. Therefore, it is possible that limited sample fails to capture the suspected relationship.

The regression results of the firm specific variable are according to initial prediction. The Age of firm (squared) have positive and significant impact on firm performance that is an increase in the age of firm will enhance the firm performance (Yasar et. al, 2011; Yim et. al, 2017). The results depicting negative relationship between firm size and firm performance is aligned with Nigel et. al, (2010). Worker-specific characteristics: Education and experience have positively significant influence on the firm performance. The present results of worker-level characteristics improving firm performance are consistent with the existing literature (Sen and Raj, 2017; Jones, 2001). The size of locality is seems to have negative influence on firm performance. Sector and number of power outages have significant and positive association with firm performance.

Chapter6

Conclusion

Firms are important for the growth and development of the countries, by employing different factor of production, producing diverse goods and services and investing in capital and technology. High and sustained economic growth is the key objective of economies whereas, institutions are believed fundamental cause for high-industry and country level growth by reducing transaction cost. The present study intends to examine the relationship of institutional quality and firm performance in the perspective of Pakistan. The study further investigates the influence of senior management efforts, process innovation and informal payments on firm performance and whether these variable can compensate for the ineffectiveness of institutions.

The study employs firm level cross-sectional dataset of World Bank Enterprise Surveys (WBES) for Pakistan (2013).World Bank Enterprise Surveys (WBES) comprises all the information regarding private firms that operates in both, manufacturing and service sectors. The survey covers broad range of topics about firm performance measures of each firm and business environment of the country. Due to the nature of the survey, our sample is a cross-sectional dataset.

To examine the impact of institutional quality on firm performance, the index for institutional quality is formed by utilizing various question from World Bank enterprise survey, through Principal Component Analysis (PCA). The results of Ordinary Least Square (OLS) estimates for the impact of institutional quality turns insignificant. The insignificant result might be due to the utilization of limited question for the institutional quality index.

Other main explanatory variable such as informal payments have positive and significant on firm performance. Literature suggests that informal payments have positive effects on performance of

the firms that operates in low quality institutional environment. In such low quality institutional environment informal payments works as lubricant by shunning the bureaucratic inefficiencies and speeding the regulations process. Therefore, in such environments bribes or informal payments compensates for its negative effect by overcoming the bureaucratic inefficiency.

Senior management efforts have both direct and indirect effect on firm performance. That is senior management efforts dealing with regulation have positive and significant effect on firm performances. In low quality institution senior managers are required to spend more time to direct the regulations. Our expectation that informal payment, senior management and process innovation will compensate for the effective institutions is true for the senior managements only. Senior managers will increase its time for dealing with government officials by repeatedly meeting, answer demand and clarify requirements or by obtaining the resources that firms require from the rogue agent.

Process innovation have neither direct nor indirect effect on the firm performance. One possible reason for the insignificant relation of process innovation is that limited firms of the total firms in the datasets have introduced process innovation. Of all control variables Age, outages, experience, sector and worker's secondary education have positive and significant effect on firm performance, firm size have negative and significant relation, and locality have negatively insignificant relation with firm performance. Whereas, training and product innovation have positively insignificant influence on firm performance.

The present study examines the impact of institutional quality on firm performance. However, the current study have only incorporated the effect of formal institutions, the future studies on the same topic or similar topic can incorporate both formal as well as informal institution in their analysis.

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