BRIBERY AND FIRM PERFORMANCE IN PAKISTAN: FINITE MIXTURE BINARY LOGIT (FMBL) MODEL

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CERTIFICATE

This is to certify that this thesis entitled: **"Bribery and Firm Performance in Pakistan: Finite Mixture Binary Logit (FMBL)Model".** submitted by **Ms. Alweena Hasan** is accepted in its present form by the School of Economics, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree in Master of Philosophy in Econometrics.

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AUTHOR'S DECLARATION

I, **Alweena Hasan,** do hereby state that my M.Phil thesis titled **"Bribery and Firm Performance in Pakistan: Finite Mixture Binary Logit (FMBL) Model"** is my own work and has not been submitted previously by me for taking any degree from Pakistan Institute of Development Economics or anywhere else in the country/world.

At any time, if my statement is found to be incorrect even after my Graduation, the University has the right to withdraw my M.Phil Degree.

Date: 22.12.2022

Signature of Student

Name of Student: **Alweena Hasan**

DEDICATION

Dedicated to my beloved

PARENTS

"I am here because of your love and support"

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ABSTRACT

Corruption has been identified as a widespread problem in both developed and developing countries. Pervasive corruption at micro level i.e., firm, industry, service sector etc. inhibits economic growth. This study seeks to examine the impact of corruption on firms' performance in Pakistan. This study has used binary logit model using cross-sectional and short penal data to deal with unobserved heterogeneity. It is based on secondary data drawn from World Enterprise Survey 2013. Unmeasured (unobserved) differences between study individuals or samples that relate to the (seen) variables of interest are referred to as unobserved heterogeneity. The Probit model is a statistical probability model in which the dependent variable has two categories. Bureaucratic Problems, Crime, Foreign Firms, Real Sale and Exports all have statistically significant effect on the bribery and its means Bribe payment % Of firm that give gifts to government officials in linear logit binary regression. Our econometric analysis reveals that bureaucratic quality and corruption negatively impacts the firm's performance leading to low productivity. In addition, corruption also deters Foreign Direct Investment (FDI) in country. Therefore, it is argued that government's policies should set the course for minimizing bureaucratic interventions, streamlining regulatory procedures by enabling one window operations, setting clear penalties for bribe and graft, and empowering SMEs for a holistic economic growth and strong industrial sector.

Keywords*: Bribery; Firm Performance; Finite Mixture Binary Logit (FMBL) Model; World Bank Enterprise Survey*

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CHAPTER 1

INTRODUCTION

Corruption has been identified as a pervasive menace in both the developed and developing worlds. Associated with poverty traps, corruption leads to misallocation of resources, institutional failures that correspondingly retards economic growth and inhibits investment. At the grass root micro level, i.e., firm, industry and economic sector; corruption has long been regarded as disastrous for industrial growth and development. Referred to as engine of economic growth, a robust industrial growth is a backbone for any country's economic and social development. Nevertheless, growing variants of corruption pose a serious risk to industrial growth.

Corruption is increasingly making negative impact on firm performance and economic aspects of economies, especially in emerging economies and democratic countries of the world. Many organizations are examining the source and the solution for the corruption. The World Bank identified that corruption is a one of the greatest obstacles of firm performance and social development. Corruption in fact is distorting the legal system of the country and in result weakens the foundation of institutions on which the firm performance is based.

Building the same argument, this research focuses on the impact of bribery on firm performance. The main purpose of this study is to provide proof of the impact of corruption on firm performance. The research is quantitative in nature, with a cross-sectional temporal horizon. Enterprise Survey conducted by World Bank in 2013 encompassing firm-level data of 132 countries provides the data set consisting of

sample from 1247 firms. (Khan, F., Hussain, F., & Waheed, N, 2021) has identified that corruption remains the second most severe obstacle in doing business in Pakistan, the first one being the shortfall of electricity. However, this study has thoroughly examined that corruption is equally deleterious to firms' performance in Pakistan. Hence, the need arises to strongly combat the menace of corruption so that firms' performance could be geared up for holistic economic growth. This study determines findings that have implications at firms' as well as at policymaking level.

(Holm, A., Jæger, M. M., & Pedersen, M, 2008) proposes a new approach to dealing with unobserved heterogeneity in applied research using the binary logit model with cross-sectional data and short panels. Unobserved heterogeneity is particularly important in non-linear regression models such as the binary logit model because, unlike in linear regression models, estimates of the effects of observed independent variables are biased even when omitted independent variables are uncorrelated with the observed independent variables. We propose an extension of the binary logit model based on a finite mixture approach in which we conceptualize the unobserved heterogeneity via latent classes. Simulation results show that our approach leads to considerably less bias in the estimated effects of the independent variables than the standard logit model. Furthermore, because identification of the unobserved heterogeneity is weak when the researcher has cross-sectional rather than panel data, we propose a simple approach that fixes latent class weights and improves identification and estimation. Finally, we illustrate the applicability of our new approach using Canadian survey data on public support for redistribution.

The study is quantitative in nature, with a cross-sectional temporal perspective, and it draws on data from the World Bank Enterprise Survey 2013, which included 1247 businesses. The study's goal is to employ "the binary logit model" with cross-sectional data and short panels to deal with "unobserved heterogeneity." The Binary Logit is a type of regression analysis in which a binary dependent variable (for example, yes/no, pass/fail, win/lose) is modelled. Because this study 3 important variables dependent (Bribery Dummy Variable Bribe payment=1, Otherwise=0) and independent [Bureaucratic Problems (BUREAU) Time Spent=1 Otherwise=0, Crime (CRIM) Yes=1 No=0] are dummy. Unobserved heterogeneity refers to unmeasured (unobserved) differences between research individuals or samples that are linked to the (observed) variables of interest.

The corruption effects the country economically, politically, and socially at the national level. It reduces investment and impedes economic growth (Mauro, 1995), decreases public trust in institutions, makes hurdle in sustainable development (Aidt, 2009) and distorts government expenditures (Shleifer, 1993). At the firm level the corruption has an adverse effect on production and investment decisions due to higher cost and greater uncertainty (Olken, 2011). It reduces investment growth (Asiedu, 2009), and adversely effects the innovative capabilities of the firms (Paunov, 2016).

International Monetary Fund (IMF) states corruption is economic in nature because it directly effects the economic structure of the economy for example the bad governance clearly disturbs the economic activity and firm performance and corporate structure of the organizations of the world. The World Bank and IMF

support anti-corruption programs in the member countries and organizing seminars and conferences and making publications to acknowledge the importance of anti-corruption activities.

Although these organizations suggest that corruption effects the firm performance, but the financial analysts also consider the results of empirical studies which shows the mixed results so here in this study careful review of theoretical and empirical studies so that causal effect of corruption on firm performance can be checked by survey instrument (questionnaire) which is adopted from Indonesia Corruption Perception Index 2008 and Bribery Index. The estimation of corruption on firm performance could only be more valid if data is for long span of time because in short run corruption may promote firm performance according to some theoretical studies. One of the indicators or function of corruption is the government failure itself. In the long run corruption has deter mental effects on firm performance. While making the policies the long-term effect is given more consideration than short-term effect of corruption on performance. Theoretically, the literature has counter arguments about the corruption and performance of the firm. Some researchers suggest that corruption might be desirable (Leff, N. H, 1964). Corruption works like piece-rate pay for bureaucrats, which induces a more efficient provision of government services, and it, provides a leeway for entrepreneurs to bypass inefficient regulations. From this perspective, corruption acts as a lubricant that smoothest operations and, hence, raises the efficiency of firm performance. On the other hand, corruption tends to hurt innovative activities because innovators need government-supplied goods, such as permits and import quotas, more than established producers do. Demand for these goods is high and inelastic; hence, they become primary targets

of corruption. Moreover, innovators have no established lobbies and connections so that they are subject to particularly heavy bribes and expropriations.

Conventionally, corruption is viewed as deleterious to firm performance. Analysing World Bank Enterprise Survey firm-level data across 132 countries and controlling for other firm performance determinants, this paper finds that paying corrupt public officials enhances firm performance. This is argued because developing economies are characterized by formal institutional imperfections (e.g., inefficient public administration and the weak rule of law). Making bribe payments compensates for these formal institutional imperfections. Examining the policy implications of this rational economic act for entrepreneurs, but which is deleterious at the aggregate country level for economic development and growth, the argument is that public authorities should shift away from increasing the costs of corruption by improving the risks of detection and penalties, and instead focus upon the formal institutional imperfections that lead to endemic corruption in the developing world (Williams, 2016).

According to (Khan, F., Hussain, F., & Waheed, N, 2021), corruption has been deteriorating Pakistan's economic growth. Each year, Transparency International measures corruption perception in countries and publishes Corruption Perception Index (CPI). Coming to Pakistan, it has been seen that country is rapidly sliding towards corruption. Compared to 1996 when Pakistan's ranking is 53, the country now stands at 140th position out of 180 countries in the 2021 CPI. Similarly, The Global Competitiveness reports (2016-17 and 2017-18) released by World Economic Forum (WEF) have revealed that Pakistan remains an unfeasible country

for ease of doing business; the reason being rampant corruption. When it comes to cost and ease of doing business in Pakistan, it is clear as day light that corruption enhances the direct costs of firms through bribery. Furthermore, this creates bureaucratic roadblocks, red tape, and disturbs fair processes, particularly in the areas of collective bargaining agreement awarding, implementation, and intellectual rights protection.

1.1. Research Gap

The consequences of bribery on firm performance in Pakistan, a country noted for its extensive corruption, are investigated in this study. The study draws on the work of (Sohail, 2014) to examine the impact of corruption on a company's success. The study concludes that firm size has no bearing on bribery and, as a result, has no bearing on firm performance. This is consistent with (Sharma, 2015) definition of bribery. Three main accounting variables employed in the study to capture business performance are profitability, productivity, and export activity. Recent study has gone beyond a narrow focus on the link between bribery and economic outcomes to consider the interaction of political systems. Because the government functions as an agent in bribery transactions, electoral systems and political regimes have a significant impact on corruption. The goal of this research is to learn more about the impact of bribery on firm performance. The study is quantitative in nature, with a cross-sectional temporal perspective, and it draws on data from the World Bank Enterprise Survey 2013, which included 1247 businesses. The study's goal is to employ "the binary logit model" with cross-sectional data and short panels to deal with "unobserved heterogeneity." The Binary Logit is a type of regression analysis

in which a binary dependent variable (for example, yes/no, pass/fail, win/lose) is modelled. Because this study 3 important variables dependent (Bribery Dummy Variable Bribe payment=1, Otherwise=0) and independent [Bureaucratic Problems (BUREAU) Time Spent=1 Otherwise=0, Crime (CRIM) Yes=1 No=0] are dummy. Unobserved heterogeneity refers to unmeasured (unobserved) differences between research individuals or samples that are linked to the (observed) variables of interest. The probit model is a statistical probability model with two categories for the dependent variable (Liao). In probit analysis, the cumulative normal probability distribution is used. y is a binary dependent variable with two possible values: one and zero.

1.2. Statement of the Problem (SoP)

Corruption is a global phenomenon and Pakistan is no exception. It is an unfortunate menace blatantly unleashed in Pakistan. Each year, Transparency International measures corruption perception in countries and publishes Corruption Perception Index (CPI). In Pakistan, it has been observed that the country is fast devolving into corruption. In comparison to 1996, when Pakistan ranked 53rd, the country presently ranks 140th out of 180 countries in the CPI for 2021. Corruption is lowering company productivity and reducing profitable economic operations, especially in emerging countries (Sohail, 2014). The goal of this study is to evaluate firm-level data and provide proof of corruption's impact on firm performance. The World Bank Enterprise Survey (WBES) 2013 data has been analysed. The study is based on notions of organisation and transaction costs.

1.3. Research Problem

Based on the narrative of Statement of Problem as stated in the preceding text, I am narrowing my research problem into “Bribery and Firm performance in Pakistan: Finite Mixture Binary Logit (FMBL) model” and have operationalized my topic into following research questions and objectives.

Corruption is disastrous for any country and organization. This research study seeks to identify and analyze the impacts of bribery on firms’ performance. Business size is not relevant in bribery, according to (Sohail, 2014), and so has no effect on firm performance. This backs up (Sharma, 2015) bribery definition. This study combines three basic accounting variables to capture firm performance: profitability, productivity, and export activity. Recent research studies have looked at the relationship between bribery and a country's economic prosperity, including the political structure. Since government institutions are a vital part of executive machinery, it has recently been discovered that electoral procedures and political governments have a significant impact on bribery and corruption.

The goal of this study is to gather evidence regarding the effects of bribery on company performance. The study has a cross-sectional temporal perspective and is quantitative in character. The data collection includes a sample of 1247 businesses from the World Bank's 2013 Enterprise Survey, which contained firm-level data from 132 countries.

1.4. Research Questions

1. What is the logic behind the impact of corruption on performance of firms in Pakistan?
2. How to generate an average of converting the data to a representative that could be viewed as a linear function in Probit model?
3. How to deal with heterogeneity issue especially in binary logit model.

1.5. Objectives of the Research

1. To substantiate the evidence of the impact of corruption on firms' performance in Pakistan
2. To generate an average of converting the data to a representative that could be viewed as a linear function in Probit model
3. To investigate the heterogeneity in binary logit model with data and short panels and cross-sectional.

1.6. Explanation of the Key Terms

Bribery: The corrupt practice of offering money or any other valuable item to a private or public official to influence certain key decision making process, gain out-of-way benefit and by-pass institutional regulatory procedures

Firm Performance: It is an economic process wherein a business makes use of available resource to the best of its ability and potential in accordance with their set targets and market demands.

1.7. Units of Data Collection

The secondary data is obtained from the 2013 World Enterprise Survey. The Enterprise Survey has employed Questionnaires for industrial and service sector with respondents being the owners and top executives of the company. The FMBL model is used to discover the determinants of corruption due to categorical nature of dependent variables.

CHAPTER 2

REVIEW OF LITERATURE

Over the period, several research have been carried out to explore empirical evidence of corruption on performance of firms. Accordingly, a significant body of literature exists to substantiate this study. (Mauro, 1995) analyses the corruption index and per capita income growth rate from 1960 to 1985 to establish a baseline for this study. (Summers, 1988) employed comparable variables as well. According to (Mauro, 1995) According to the research, a one-standard deviation decrease raises the annual growth rate of GDP per capita by 8% per year. On the other hand, the results of this study are produced using basic regression without considering the control variables. Per capita real GDP for the period 1970 to 1985 was measured by (Mo, 2001) to determine long term economic growth rate. Using regression technique, Mo has used data from Transparency International Corruption Perception Index.

(Timipere, E. T., Peter, E. G., & Johnny, N, 2014) has used and applied similar technique suggested by Mo (2001). However, this study is based on a long-time span for analyzing the performance of firms from 1975 to 1996. Also, this study analyses the endogeneity problem and shows transmission channel of trade policies. Hausman test was applied on valid instrumental variable which showed same results as (Mo, 2001) since corruption significantly influences transmission variables. However, Corruption has a negative impact on a company's performance, according to (Timipere, E. T., Peter, E. G., & Johnny, N, 2014). In 2SLS regression, the negative effect is insignificant. The direct effect of corruption is insignificant with all control

variables in regression and positive in 2SLS regression, which is notable. Some important studies, on the other hand, do not use the decomposition method. Instead, OLS regression was utilised, with the control factors rather than the instrumental variables being considered.

(Rock, M. T., & Bonnett, H, 2004) delve deeper into the negative impacts of corruption on investment and growth. The results are the same after measuring four corruption indices, suggesting that corruption has a detrimental influence on corporate performance and economic growth. According to their research, corruption improves firm performance in East Asian economies such as Thailand, Japan, China, Indonesia, and Vietnam.

(Abed, 2002) used a multivariate regression to look at 25 different countries. They use panel and cross-sectional data from 1994 to 1998 to investigate bribery in emerging economies. In comparison to other research, this one is based on data collected during a short period of time. In both regressions, the growth rate remains high in economies with low corruption, according to the study, and the significance threshold is one percent. With structural reform index, this impact is negative in panel data. This empirical investigation produced inconsistent results, owing to methodological issues.

Corruption is a severe impediment to company operations and economic prospects, especially in emerging economies. Bribery is used as a control variable and company performance is used as a prediction variable in this study's hypothetical model. Bribery is practiced at the firm level in the form of money or other financial resources used to secure government contracts and bids. In addition, bribery also involves the

money paid by firms to government officials to by-pass regulatory procedures and evade taxes as well. Henceforth, this and previous studies reveal that firms with strong links to government officials emerge successful in obtaining contracts, or tenders from those competitor firms adopting fair practices (Sohail, 2014).

2.1. Corruption and Firm Performance

Pakistan is ranked 139th out of 176 nations in Transparency International's 2012 corruption perception report, with a corruption control percentile rank of under 12%. 1 All recent polls on the hurdles to doing business in Pakistan include corruption as a major factor. In the Enterprise Survey, it was identified as the second most important constraint. According to the ICA, corruption is a substantial impediment, with 56.7 percent of businesses ranking it as a major stumbling block in 2007, up from 40.3 percent in 2002 (Alinovi, 2009). However, polls performed by the World Bank Enterprise Unit reveal a three-year drop, from 27% in 2007 to 14% in 2010.

More than a third of the enterprises polled by (Erum, 2019) list corruption as one of their top three restrictions. Inconsistent interpretation and execution of legislation and policy among government departments critical to production, such as tax, labour, and licensing, is by far the most common type of corruption documented. Entrepreneurs, according to the survey, see the parliamentary process as purposely difficult and extractive, aiding government officials' rent-seeking. Most firms claim that in order to get things done, they must make unofficial payments to government officials, with labour and tax inspections being the most corrupt. Despite having fewer inspections than comparator countries, Pakistan has a greater rate of bribe payments in both departments (Brusca, 2018). According to (Erum, 2019), dealing

with government officials costs the industry sector three to seven days on average to address a single issue. Labor inspectors are the most corrupt, according to their findings, but electrical authorities have also been known to threaten firms with power interruptions and erroneous billing until they make side payments.

Corruption is a serious issue that stymies economic and social progress. The fact that countries with sunk economies have a high level of corruption is evident. As a result, there is a significant amount of literature to back up this study. According to (Pellegrini, 2004), bribery has a detrimental impact on growth, and taking actions to eliminate corruption is necessary to avoid the negative impacts of corruption on the economy in the long run. The impact of corruption on Bangladesh's economic development was investigated by (Pulok, 2017). Methodological techniques included an event study and a mean adjusted return model. The findings suggest that corruption and Bangladesh's economic growth have a long-term link, meaning that corruption has a detrimental impact on the country's progress. Countries that do not pay bribes are more cost-effective than their in-corrupt counterparts, whereas those that do pay bribes are less cost-effective (Fisman, 2007).

(Aidt, 2009) also look into the impact of corruption on governance regimes. The threshold model is used in the research to describe how economic growth and corruption are linked to one other and are mutually intertwined. According to the study, corruption has a detrimental influence on growth in high-quality establishments but has no effect on growth in low-quality establishments. In addition, research is being carried out to analyse the influence of corruption on Mauritania's corporate performance. According to the survey, enterprises in

Mauritania make unofficial unlawful payments to gain government contracts for about 4.8 percent of overall sales and 7.7 percent of contract value. The results of the poll demonstrate that the percentage of bribery varies depending on total sales. It has been discovered that large and medium businesses spend roughly 7.8% of the overall contract value to acquire government contracts or bids, while small businesses pay between 4.5 and 6.2 percent.

In Mauritania, medium-sized businesses confront increased corruption, as evidenced by econometric research on bribe propensity and intensity. Big enterprises, on the other hand, have deep entrenched networking and strong connections in the market and government; as a result, they are not threatened by market forces and thus leave a potential market untapped (Francisco, 2008). (Farooq, A., Shahbaz, M., Arouri, M., & Teulon, F) investigated corruption as a barrier for Pakistan's economic and social development. The study applies causality analysis and uses data from 1987 to 2009. The study's findings suggest that the analysis method utilized reveals a feedback relationship between corruption and the economic process, with the same logical thinking applied to trade and corruption. The benefits of trade and the economic process are mutual. The transaction cost theory and institutional theory provide a useful conceptual framework for understanding a wide range of corruption and business performance literature. The transaction costs framework was developed by (Coase, 1973), who postulates the nature of business and believes that the relative costs of doing a transaction within a firm's hierarchy or on the open market define the organization's borders. According to the transaction cost hypothesis, organisations with the best organisational structure are better equipped to cut exchange costs and hence achieve economic efficiency.

Transaction cost is incurred on commodities or services that are transferred across a 'technologically separable interface,' according to (Williams, 2016). The concept of transaction cost is bolstered by the opportunistic factor. It claims that a company's decision to establish itself abroad because of potential opportunism increases the cost of dispute settlement and the time it takes to make a contract. (North, 1990) also developed an institutional theory, claiming that institutions represent the game's formal rules, that written rules are publicised, and that institutions adhere to those rules. Institutions and good governance have a key role in shaping economic progress.

These institutions are critical to the proper operation of enterprises. The cost of transactions that arise from a lack of knowledge can be reduced by establishing relevant institutes. These institutions are required to ensure that property rights are respected, that a competitive atmosphere is created, and that market scenarios are assessed (Azfar, 2014). Multinational Enterprises (MNEs) do not find it possible to situate their enterprises in a specific country due to institutional friction in the public sector and developing cross-country discrepancies (Acemoglu, 2001).

Considering various studies and empirical evidence, organizations and financial analysts are certain about the fact that corruption effects firms' performance. However, this study thoroughly assessed both theoretically and empirically data to identify the consequences of bribery on company performance, utilizing a survey questionnaire derived from the Indonesia Corruption Perception Index 2008 and the Bribery Index.

If data is collected over a lengthy period of time, the influence of corruption on business performance can be further verified. A major factor behind widespread corruption is governance failure and near or total absence of rule of law. Corruption is deleterious for any flourishing investment or business in general and firms' performance. It has detrimental long-term and short-term effects on firms' performance. Hence, it is needed that policy making should consider both long-term and short-term impacts.

In contrast, a body of literature exists that offers counter arguments regarding corruption and firms' performance. Corruption, according to (Leff, 1964), can be beneficial. Their argument is built on the ground that corruption enables businessmen or entrepreneurs to by-pass inefficient institutional practices, unnecessary long dilatory tactics, regulatory procedures and bureaucratic hinderances. Seen from this viewpoint, it emerges that corruption streamlines firms' operations and enables them to function without any obstacles.

Nevertheless, corruption creates impediments for entrepreneurs and innovators since innovators require contracts, permits, import quotas, and government supplied goods more than established industrialists. In addition, innovators and budding entrepreneurs also face set back from well-entrenched lobbies and groups and thus get exposed to heavy bribes and exploitations.

Countering the prevailing notion that corruption is detrimental to growth, Chinese scholar Yuen Yuen Ang contends that corruption is not always damaging and "certain kinds of corruption may stimulate growth in the short term". Arguing against the standard measures of corruption like Corruption Perception Index (CPI), the

researcher points out that such standards are problematic due to lack of data quality, and institutional bias with dominant western thinking. The author brings out paradox on corruption by finely distinguishing three kinds of corruption that are bad and one that is good. Building on the same, Ang presents "Unbundled Corruption Index" (UCI) and introduces four typologies namely Petty Theft, Grand Theft, Speed Money, and Access Money. Focus on access money, it is argued that while first three types impede economic growth; access money—explained as "the purchase of lucrative privileges, both illegal and legal"—can be growth inducing. Nevertheless, access money creates long term structural distortions, inequity, debt, and economic risks. Based on examples from Chinese society that is largely based on model of access money, the researcher points out widespread inequality between politically connected and unconnected firms that eventually leads to imbalance the allocation of economic resources (Ang, 2020).

2.2. Overview of corruption in Pakistan

Corruption is a major impediment in Pakistan, where it is still perceived as widespread and pervasive. Bribery is a type of minor corruption that occurs frequently in law enforcement, procurement, and the delivery of government services. The judiciary is not widely regarded as independent, and it is often assumed that it shields corrupt political actions from prosecution. Various initiatives to construct institutional structures to address these concerns have been made in recent years. The National Anti-Corruption Strategy, first implemented in 2002, is a comprehensive framework for combating corruption. The executing agency, the National Accountability Bureau (NAB), is given broad investigative and

prosecutorial powers. However, in the fight against corruption, a lack of political will, as well as the concept of judicial co-optation and the arbitrariness of many anti-corruption proceedings, are important roadblocks.

Prosecutions against corruption have long been accused of being biased. They are mostly intended against members of the political opposition and small public personnel, while military officers are exempt from examination. Furthermore, the National Reconciliation Ordinance of October 2007 extended blanket protection for past acts of corruption, sparing numerous government officials and members from prosecution. The expulsion of Supreme Court members, including Chief Justice Chaudhry, has sparked deadly civil upheaval and shattered the public's faith in the judiciary's ability to prosecute corruption (Index, 2010).

In print, electronic, and social media, the term "corruption" has been used to describe a person representing the state dept and/or a governmental agency and is engaged inside the theft or public goods for personal benefit. Favoritism, producing content, unlawful payments facilitating, theft and laundering, fraud, bribery, and taking gifts are all examples of corruption in the public and private sectors.

According to the (Reinhart, 2016) cost of corruption is expected to be between 1.5 and 2 trillion dollars, or nearly 2% of world GDP. Corruption is not only a moral issue; it can also result in serious human rights violations, economic insecurity, and a halt in socioeconomic development (Knight, 2013). According to a recent World Economic Forum poll, the most difficult aspect of conducting business in Pakistan is corruption (Forum, World Economic, 2017). The policeman and tax management, and the judicial branch, public services, land registration, customs government, and

procurement practices, are all places where corruption is rampant (GAN Business Anti-Corruption Portal, 2017).

Pakistan is the fourth most corrupt country in Asia Pacific, according to the Global Corruption Barometer 2017. According to the survey, 64% of the lowest citizens paid a bribery, while only 26% of the wealthiest paid a bribe, making Pakistan one of the countries where bribery is a serious concern for the poor. It's unsurprising that Pakistanis felt the least empowered of the 16 countries analysed, with only 33% believing they can make a difference. Transparency International is a non-profit organisation dedicated to promoting (Baumann, H, 2017). Corruption in Pakistan has historical, ethnolinguistic, and political roots, and efforts to combat it have mostly failed; transformation takes political. According to a (Brusca, 2018) poll, nepotism/lack of ability, mass corruption, theft of public funds, and tax avoidance are most serious corruption issues in Pakistan. To fight corruption, you first must understand how it works. As a result, it is indeed critical to assess the corruption literature.

2.3. The Theory of Corruption

The misuse of public power for private gain" is how corruption is defined (Jenkins, 2018). Corruption is a widespread problem that many countries are still grappling with on a logical level. The abuse or abuse of authority is a popular concept. Corrupt is a kind of deceit defined as the intentional misrepresentation of the others to gain an unfair strategy to meet one's demands. Fraud is common not just in humans, but also in birds, monkeys, and insects (Ford, 1996). In a highly competitive atmosphere, the proposed concept of a group can reinforce this behaviour. Expert deceit in

animals has only one goal: to gain an advantage. Humans and animals are strikingly similar in this regard. To obtain an advantage or, at the very least, maintain the status quo, they breach the law and the actual order. It's tough to determine the extent of this behaviour. The sociology, political, and economics studies all have developed to a certain degree just on issue of the government's function in the undeveloped nations, and the notion that the government is indeed a significant device in economic development and growth (UNECA, 2011).

Efficient and suitable government, transparency, and the necessary economic adjustments are all necessary for progress. The underlying causes of corruption in low- and high-income countries are regularly distinguished in the literature. Low wages and poor working conditions increase the likelihood of corruption, yet corruption is considered as an exception rather than the rule in European (high-income) culture (Caiden, 2019). (Gbetnkom, 2012) defines corruption as an illegal substance interaction wherein state officials or bureaucrats represent the state, while outsiders who are impacted negatively or positively by bribery represents society (Donwa, P. A., Mgbame, C. O., & Julius, O. M, 2015). When government leaders receive payment or bribes and then use their position in nefarious manner to favour providers including such businessmen, businesses, or the public at large, this one is known as blatant corruption.

2.4. Finite Mixture Binary Logit Model

A finite mixture of logistic regression model (FMLR) was applied to analyze the heterogeneity within the merging driver population. This model can automatically provide useful hidden information about the characteristics of the driver population.

EM algorithm and Newton-Raphson algorithm were used to estimate the parameters. To accomplish the objective of this study, the FMLR model was applied to a trajectory dataset extracted from the NGSIM dataset and a 2-component FMLR model was identified. The important findings can be summarized as follows: The studied drivers can be classified into two components. One is called Risk-Rejecting Drivers. These drivers are consistent with previous studies and primarily merge in as soon as possible and have a distinct preference for the large gaps. The other is the Risk-Taking Drivers that are much less sensitive to the gap size and pay more attention to surrounding traffic conditions such as the speed of front vehicle in the auxiliary lane and lead space gap between the merging vehicle and its leading vehicles in the auxiliary lane. Risk-Taking Drivers use the auxiliary lane to get to the further downstream or less congested area of the main lane. The proposed model can also produce more precise predicting accuracy than logistic regression model (Li, 2018).

Unique parametrizations of models are very important for parameter interpretation and consistency of estimators. In this paper we analyze the identifiability of a general class of finite mixtures of multinomial logits with varying and fixed effects, which includes the popular multinomial logit and conditional logit models. The application of the general identifiability conditions is demonstrated on several important special cases and relations to previously established results are discussed. The main results are illustrated with a simulation study using artificial data and a marketing dataset of brand choices (Grün, 2008).

Finite mixture models have now been used for more than hundred years ((Newcomb, 1886); (Pearson, 1894)). They are a very popular statistical modeling technique given that they constitute a flexible and-easily extensible model class for (1) approximating general distribution functions in a semi-parametric way and (2) accounting for unobserved heterogeneity. The number of applications has tremendously increased in the last decades as model estimation in a frequentist as well as a Bayesian framework has become feasible with the nowadays easily available computing power.

The simplest finite mixture models are finite mixtures of distributions which are used for model-based clustering. In this case the model is given by a convex combination of a finite number of different distributions where each of the distributions is referred to as component. More complicated mixtures have been developed by inserting different kinds of models for each component. An obvious extension is to estimate a generalized linear model (McCullagh, 1989) for each component. Finite mixtures of GLMs allow to relax the assumption that the regression coefficients and dispersion parameters are the same for all observations. In contrast to mixed effects models, where it is assumed that the distribution of the parameters over the observations is known, finite mixture models do not require to specify this distribution a-priori but allow to approximate it in a data-driven way.

In a regression setting unobserved heterogeneity for example occurs if important covariates have been omitted in the data collection and hence their influence is not accounted for in the data analysis. In addition, in some areas of application the modeling aim is to find groups of observations with similar

regression coefficients. In market segmentation (Wedel, 2000) one kind of application among others of finite mixtures of GLMs aims for example at determining groups of consumers with similar price elasticities to develop an optimal pricing policy for a market segment.

2.5. The Bribery Paradox in Transition Economies

We develop a novel, sense-making perspective on corruption in transition economies. Prior research has focused on understanding why some entrepreneurs are more likely to pay bribes than others. It typically assumes that paying bribes will lead to an intended – albeit unfair – competitive advantage. We challenge this assumption and uncover a bribery paradox: drawing upon sense-making logic, we argue that beyond gaining an immediate benefit from bribing, entrepreneurs who frequently pay bribes may in the longer run by enacting a 'new normal' business environment perceived as high in obstacles, especially in transition countries. As sense making is grounded in identity construction and one's social context, we argue that owners of family firms will be especially vulnerable to the dangers of perceiving greater obstacles over time and enacting an obstacle-ridden 'new normal' business environment. We find empirical support for our framework on a sample of 310 privately held small and medium-sized enterprises (SMEs) from 22 transition economies (Eddleston, 2020).

2.5.1. Conceptual Background

As our conceptual framework integrates insights from two literatures – the literature on 'new normals' and the literature on corruption in transition economies – we first briefly review each before advancing to our theoretical development.

Existing Research on 'New Normals'

The term 'new normal' was coined by Dr. Mohamed El-Erian, PIMCO's CEO and Co-Chief Investment Officer, at the height of the Global Financial Crisis in 2009 (El-Erian, 2010) to capture how events that were previously abnormal had become commonplace, creating a fundamentally new economic landscape. Specifically, the 'new normal' was used to describe the difficulty of the global financial system to revert to its pre-2007 state of high leverage, strong growth, and low government intervention in the economy. The post-2007 crisis 'new normal' was triggered by preceding global events like the Fall of the Berlin Wall in 1989 (Fukuyama, 1989). Appendix A provides a historical overview of the different stages of global 'new normal' since the 1930s.

Throughout history, any 'new normal' state has reflected a novel joint state of affairs, at both the macro-level (e.g., government policies and societal norms) and the micro-level (behaviour of firms and households). We suggest that these two levels influence each other through what we refer to as downward cascading (from the macro-level to the firm or household) and upward cascading effects (from the firm or household to the macro-level), whereby cascades capture the flow of institutional signals surrounding a behaviour from one level to the next. Our characterization of cascading effects is in line with research on cascading leadership that explains how leaders' values and behaviours flow from one level of the organization to the next (e.g., (Bass, 1987); (Liu, 2012)). However, we extend the cascading effect concept by also considering how phenomena at the macro-level effect firm behaviour at the micro-level. This altered micro-level firm behaviour will, in turn, influence the

macro-level context of doing business in a country, with downward and upward cascades occurring between the macro- and micro-levels to develop a 'new normal' institutional environment.

Specifically, a 'new normal' state typically starts with a triggering event, such as a quantum change in the political, economic, social, and/or technological environment. This then leads to large-scale, high-frequency (i.e., generalized, or recurring) adaptations to the new situation by a myriad of actors at the macro- and micro- levels, leading to widespread effects that diverge from the past status quo. For management research purposes, it is therefore important to identify and carve out a segment of any 'new normal' situation, whereby a specific impact of one quantum change is assessed. As one example of a 'new normal,' the introduction of the European Monetary Union (EMU) influenced how governments managed a variety of budgetary and financial decision-making processes, and how EU-based multinational enterprises (MNEs) addressed institutional risk within the region. Research revealed that the common prediction from international business theory that associated higher institutional risk with a preference for joint ventures over wholly owned subsidiaries (Grøgaard, 2012), was reversed (Hillemann, 2019). Given the presence of high-quality regional institutions and a common currency, these MNEs began to perceive the usage of joint ventures in a higher-risk country as inviting corruption from the national level and encouraging undesirable features of institutional risk being imposed on the firm's operations. The new default (ceteris paribus) therefore evolved to a view of joint venture partners as possible carriers of institutional risk, rather than as actors capable of reducing such risk for the foreign MNE. This also implies that MNEs still preferring joint ventures, based on the old

paradigm that a local partner can more easily cope with local institutional risk, would de facto be enacting a 'new normal' environment fraught with higher risks than if they had selected to pursue wholly owned subsidiaries, combined with arm's length intermediaries to address punctual risks.

Our general view on how to assess the content and unfolding of a 'new normal' situation is therefore as follows. First, one needs to identify an impactful quantum change event at a higher level (typically spanning geographic and industry borders), which occurs in period t – n, whereby t is the reference or current period, and n is the time passed since the quantum change event. Second, it is critical to reflect on which strategic decision-making processes at the micro-level could be effected in period t + m (e.g., a company's frequency of bribery), in the sense of a perceived need for transformational adaptation because of the quantum change (Verbeke, 2013), whereby m is the time passed after the reference or current period. Third, it is important to account for how the current micro-level decision-making processes triggered by the earlier macro-level event could effect the future macro-level context for the firm (e.g., how might the business obstacles in the home country change). Fourth, given the presence of both a macro-level triggering event and ensuing large-scale and high-frequency adaptation by micro-level actors, it is important to reflect on both downward and upward cascading effects. Upward cascading effects occur when particular managerial practices of individual firms ultimately effect the unfolding of processes at the macro-level (e.g., new business obstacles arising in the home country). In contrast, with downward cascading effects, an earlier major event triggers subsequent changes in managerial practices down to the micro-level.

While research like this has contributed to our understanding of entrepreneurs' behaviour in transition economies and has shifted some of the blame of corruption from downward cascades initiated by public officials to upward cascades initiated by entrepreneurs, we go one step further. We develop a sensemaking perspective that portrays how entrepreneurs not only experience immediate effects from bribes, but also contribute to shaping their own 'new normal' at the micro-level through their responses to the 'new normal' at the macro-level.

2.6. Theory Development: A Sensemaking Perspective on Corruption in Transition Economies

2.6.1. Bribery Frequency's Effect on Entrepreneurs' Perceived Business Obstacles

Sensemaking refers to processes by which 'people generate what they interpret' (Weick, 1995). First introduced by (Garfinkel, 2016), the sensemaking framework seeks to explain how individuals' actions are influenced by, and in turn influence, their interaction and interpretation of reality. It is based on the idea that 'reality is an on-going accomplishment that emerges from efforts to create order and make retrospective sense of what occurs' (Weick, K. E, 1993). In this way, sensemaking explains how individuals interpret their environment based on their actions and become authors of their own version of 'reality' (Petriglieri, 2015). Whether or not that version of reality is accurate is not a concern to sensemaking because action generates new information that allows individuals to (re)assess their causal beliefs, thereby leading to new action (Weick K. E., 2005). This process of action and interpretation over time can alter the very environment under consideration (Porac,

1989), thus making individuals active participants in the environment they seek to understand.

Sensemaking often begins when individuals are confronted with an ambiguous event or issue that is important to them (Maitlis, 2014), in our case whether to bribe. The action taken, or not taken, then reduces equivocality by shaping what is most salient in the situation and shaping one's view of the environment (Brown, 2015). Equivocality causes individuals to focus on particular environmental cues and 'to use these in order to "make sense" of occurrences and to enact their environment'. As such, sensemaking explains how individuals author their realities through a continuous process of action and interpretation that, over time, creates a repertoire of plots and norms of action, allowing them to make sense of their environment and to see their environment as predictable and stable. Accordingly, we draw from sensemaking to explain how bribery can become a norm of action for entrepreneurs that thereby causes them to perceive a 'new normal' business environment that is harsh and constraining.

In contrast, the 'new normal' business environment is expected to be perceived quite differently by those entrepreneurs who rarely pay bribes. Entrepreneurs who rarely pay bribes will likely perceive their institutional environment as more supportive of business and will have adapted their behaviour to mitigate the demands for bribes and the need to supply bribes to public officials. Indeed, (Chen, 2008) argued that a 'record of not condoning bribery is the best signal that a firm can provide to government officials' (p. 240). A reluctance to bribe promotes sensemaking that informs the entrepreneurs' mental framework and guides the interpretation of the

business environment positively. Through repeated action of not paying bribes, the entrepreneur will come to perceive this reality as ‘how things ought to be done’ and ‘how things are done’. Thus, the lived histories (Weick K. E., 1995) of entrepreneurs who rarely pay bribes will enact a ‘new normal’ business environment perceived as less constraining in comparison to those who frequently pay bribes. The above predicted differences in sensemaking between frequently bribing and non-bribing SMEs would appear especially relevant in the context of transition economies, where institutions are in flux, and where different entrepreneurs may perceive the unfolding of very different new realities in their business environment.

Table 2.1: Literature Review

Study Title	Author and Year	Methodology	Findings
Impact of Corruption on Firms' Performance in Pakistan: Evidence from World Bank's Enterprise Survey Data	(Khan F. H., 2021)	Regression Analysis	According to the study, the primary hindrance to doing business in Pakistan is a lack of energy, with corruption coming in second. The effect of corruption on company performance has been investigated in more depth. It has been determined through analysis that corruption has a negative impact on business performance. As a result, there is a pressing need to address the issue of corruption, which has had a negative impact on the performance of Pakistani businesses. The conclusions of this study have far-reaching ramifications for businesses and policymakers alike.
Determinants of Corruption and Its Impact on Firm Performance: Global Evidence	Imran, S. M., Ur Rehman, H., & Khan, R. E. A. (2019)	Ordinary Least Square	According to a survey of 147 economies, corruption boosts a company's sales and export performance. According to a disaggregated analysis, corruption boosts a company's sales and exports in low-income countries while decreasing its performance in high- and middle-income ones.
The impact of corruption on firm performance: Evidence from Pakistan.	(Sohail, 2014)	Correlation and Regression	There is a negative relationship between firm performance and bribery (r = -0.8012). In the inquiry, company performance is judged in terms of receiving government contracts. Bribery is measured in terms of the cost of obtaining contracts. The size of the connection is (r = -0.0074 & -0.0056), indicating that size does not matter in bribery and so has no influence on corporate

			performance. The R-Square value of the data is around 0.649, indicating that it is well suited. It means that the response variable is responsible for more than 65% of the variance (bribery). In both tables, the F-test result is very significant, indicating that the model is the best match for the data. One of the study's drawbacks is sample size, which might be addressed in future research by increasing sample size.
Evaluating the impacts of corruption on firm performance in developing economies: an institutional perspective	(Williams, 2016)	Linear multilevel regression	This is thought to be the result of emerging economies' formal institutional shortcomings (e.g., inefficient public administration and the weak rule of law). In the formal sense, bribe payments are used to compensate for these institutional flaws. The argument is that instead of increasing the costs of corruption by improving detection and penalty risks, public authorities should focus on the formal institutional imperfections that lead to endemic corruption in the developing world.
Corruption Accusations and Bureaucratic Performance: Evidence from Pakistan	(Mazhar, 2021)	Two-stage least squares (2SLS)	This empirical study calculates the impact of these guidelines on firm leaders' replies in Enterprise Surveys. The number of allegations of bureaucratic corruption looks to be on the decline. While the quantity offered in talks has a negative overall effect, the sign of the quantity supplied changes over time, increasing the risks of longer-term corruption. The core findings hold true across a wide range of firm-level misbehavior indicators. The results of the instrumental variable estimations are equivalent.
Unobserved Heterogeneity in the Binary Logit Model with Cross-	(Holm, 2008)	Binary Logit Model	In comparison to the standard logit model, there is less bias in estimated effects of explanatory variables, according to simulation data. The research presented a method for adjusting latent class weights as well as better estimate methods. When

Sectional Data and Short Panels: A Finite Mixture Approach			compared to panel data, cross sectional data has a harder time detecting unobserved heterogeneity. The study uses data from a Canadian survey on popular support for redistribution to demonstrate the applicability of a novel technique.

2.7. Significance of Research

1) The study seeks to determine significant implications for the firms' performance. The findings aim to demonstrate that firms operating in Pakistan are facing obstacles in the form of widespread corruption and prolong electricity shortfall. As a result, cost of doing business in Pakistan is rising and profitability margin is diminishing. These factors may discourage the companies from expanding their businesses and may deter potential new investors and entrants into market.

2) As present study will provide successful initial insights regarding corruption and its impact on firms' performance in Pakistan, it will also undertake certain limitations which may be addressed by the future researchers. It will effect corruption issue, which are increasing rapidly. Although the study is based on the overall Pakistan firm performances. So, a detailed study on corruption impact on firms' performance at the small and stratification level should be conducted.

2.8. Motivation of the Study

The goal of this research is to learn more about the impact of bribery on firm performance. because Corruption is a global phenomenon at the national as well as micro-level like at firm, profession, industry and economic sector. Both the developed and developing countries are facing this complex issue of corruption. Transparency International measures corruption perception in countries and publishes Corruption Perception Index (CPI). Coming to Pakistan, it has been seen that country is rapidly sliding towards corruption. Compared to 1996 when

Pakistan's ranking is 53, the country now stands at 140th position out of 180 countries in the 2021 CPI. And to generate an average of converting the data to a representative that could be viewed as a linear function in Probit model; and to investigate the heterogeneity in binary logit model with data and short panels and cross-sectional. The study used the binary logit model using cross-sectional and short penal data to deal with unobserved heterogeneity. The study is based on secondary data drawn from World Enterprise Survey 2013.

CHAPTER 3

POLICY REVIEW

This chapter is based on policy reviews regarding firms and corruption as indicated in objective of this study. the policies reviewed are SME Policy 2021, National Anti-corruption strategy, Corruption Act 1947, National Accountability Ordinance (NAB) 1999. Moreover, corruption perception index is also discussed to highlight the issue of corruption in Pakistan.

3.1. SME Policy 2021

The most recent economic establishment census was place in 2015-16, although the results have yet to be made public. According to the most recent projections from the Small and Medium Enterprises Development Authority (SMEDA), there would be 5.2 million small medium enterprises (SMEs) operational in 2020, accounting for 98.6% of all firms.[1] (In SME Policy 2019 and SME Action Plan 2020, it was proposed that all MSMEs be classified as SMEs based on yearly sales rather than number of employees or fixed assets).

Policy Targets: According to government estimates, the SME sector (which includes all 5.2 million MSMEs) accounts for 40% of GDP and one quarter of total exports. As a result, this industry ought to get a consideration allocation of funds through bank financing. Venture capital requirements also need to be relaxed as part of the initiative, allowing eligible SMEs, particularly those in the IT sector, to access equity financing. Unfortunately, however, this has not been the case. According to a report released by State Bank of Pakistan released in October 2021, the lending by banks and other financial institutes to SMEs meagerly make up for just than 8 percent of their total loan to private

[1] The federal ministers are referring to all MSMEs, not just SMEs, when they state there are roughly 5 million SMEs.

sector firms. By the end of year 2020, the number of SMEs contracting bank loans remained well below the figure 2020 (Government of Pakistan, 2021).

Under the new SME policy, 30,000 new SMEs will receive collateral-free loans of Rs10 million apiece from banks at 9 percent interest rate. In addition to this, Rs. 23.5 billion funds have been allocated to cover 40 to 60 percent losses of those SMEs that have incurred losses in business operations. Furthermore, relaxation in venture capital requirements has also been made. This will particularly assist those eligible SMEs that are related to IT industry. Nevertheless, it will be a long way for implementation to gain roots and all these policy steps may not completely enable all SMEs to expand their business and function economically. (Government of Pakistan, 2021).

SME Aasan (easy) Finance Scheme (SAAF) launched by State Bank of Bank in August 2021, is the primary tool for implementing the new SME policy. A key benefit of SAAF is that it does not construct airborne castles. This is the most critical and turning point of this initiative. Majority banks lack the necessary capacity and desire to serve the SME sector as potential loan borrowers. This chiefly leads to a rise in loan default percentage of SMEs; making the banks believe firmly to ignore the SME sector for bank financing. This new SME oriented policy can gain success if banks take interest in enhancing their capacity to serve bank financing to SMEs with the belief that SME loaning will yield sufficient net interest income in the future. This goal can only become possible through subsidies in interest rates already conceded to banks through this refinancing scheme (Government of Pakistan, 2021).

Another notable feature of this new SME plan is that it provides eligible small and medium entrepreneurs with land (19,500 plots spread over 4200 acres) on easy instalments. This

incentive is particularly aimed to prioritize land allocation to high-priority future SME especially the ones related to IT services and agro industries. It is anticipated that this policy may yield the expected results before it eventually ends in 2025. (Government of Pakistan, 2021).

Another significant highlight of this new SME policy is its emphasis on assisting SMEs owned by women. The SMEs led by females will receive tax rebate up to 25 percent in addition to other benefits offered in the new SME policy. However, granting subsidies and tax breaks to women-led enterprises, particularly in the SME sector, is insufficient; it is more important to create female friendly feasible environment so that women could step forward and start their businesses easily. (Government of Pakistan, 2021).

Back in August 2017, the central bank had introduced a bank financing and loan guarantee scheme for women. The refinancing and credit guarantee under the scheme was raised from Rs1.5 million to Rs5 million in August 2020. However, the results and details of beneficiaries under this scheme has never been revealed. (Government of Pakistan, 2021).

Two reasons have particularly resulted in failure of any initiative aimed at encouraging SMEs or other group of potential bank loan borrowers. Firstly, facts are not shared transparently with the public, thus barring an in-depth debate of why the particular initiative failed. Secondly, responsible agents or organizations are not clearly identified when the initiative fails. There has never been a word from policy makers on why the SME policy of 2007 failed or how much it achieved success. This lack of transparency and hiding away of facts has always forestalled planning of new initiatives as well.

3.2. Corruption as Business Challenge

In Pakistan, corruption has proved deleterious to the business ethics and body politic. Each year, Transparency International measures corruption perception in countries and publishes Corruption Perception Index (CPI). Coming to Pakistan, it has been seen that country is rapidly sliding towards corruption. Compared to 1996 when Pakistan's ranking is 53, the country now stands at 140th position out of 180 countries in the 2021 CPI.

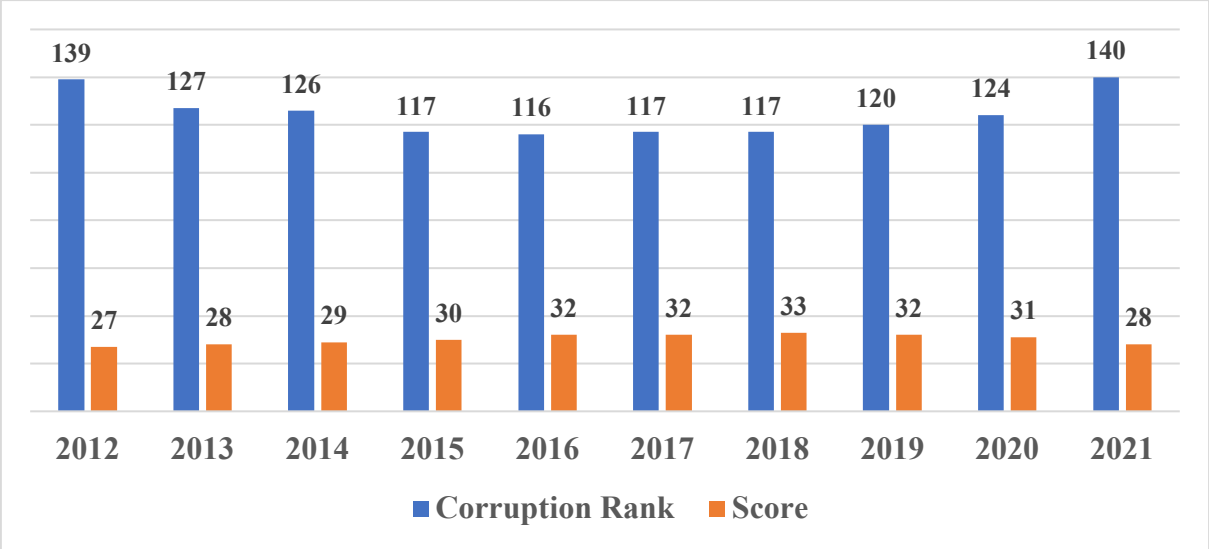

Figure 3.1: Pakistan Corruption Ranking & Score

Individual businessmen and businesses commit fraud in a variety of ways. Fraudulent activities massively enriched in Pakistan's business practices include tempering in record of registration of new businesses, tax evasion through under invoicing, low-quality product production, and black marketing. Despite the enforcement of National Anti-Corruption Strategy (NACS) in 2002, these malpractices continue.

The insider corruption of Pakistani officials makes it difficult for the country to tackle corruption effectively. Almost all sectors of activity have been contaminated by high levels of corruption in various forms, resulting in societal difficulties for the entire population.

Corruption and bad governance stifle economic progress and have a detrimental impact on the private sector's development.

The impact of corruption on Foreign Direct Investment (FDI) in Pakistan is studied by Gohar et al. (2012). The study has revealed an inverse negative relation between corruption with FDI. According to the study, corruption gives rise to an environment of uncertainty thereby hindering investment by international firms in the region. Foreign direct investment is the backbone of every economy. In comparison to other emerging countries, Pakistan's low FDI rate poses a severe threat to its economic success. To better regulate and implement anti-corruption legislation, policymakers must work hard and make major decisions (Khan, 2018).

3.3. Corruption in Pakistan:

There have been numerous corruption cases since the creation of Pakistan in 1947. The privatization of Pakistan Steel Mills (PSM) during the then President Musharraf's regime is one infamous example of blatant corruption (Farooq, 2006). The Musharraf government claimed to have sold the PMS for USD $362 million. Arif Securities (Pakistan), Magnitogrosk Iron and Steel Work open JSC (Russia), and Al-Tuqwairqi (Saudi Arabia) were the three enterprises who competed (Saudi firm). On finding irregularities in bidding procedure, The Supreme Court of Pakistan (SCP) later took Suo Moto action and halted PSM's privatisation (Awan, 2004). Similarly, Axact, a Pakistani software corporation, was found involved in delivering bogus degrees all over the world, according to Declan Walsh, a New York Times investigative journalist. In its final year, the firm stole money from around 215000 people in 197 countries, netting at least USD 89 million from these illicit activities. (Coca-Cola, 2012) According to the Federal Investigation Agency (FIA), Javeed

Khanani was charged with money laundering of 140 million Pakistani rupees to foreign nations in 2008 by breaking business rules.

3.4. Global Corruption Barometer (Corruption Perception Index):

The nature of corruption varies according to each country. This year's results demonstrate that efforts to eliminate public sector corruption in all parts of the world have come to a halt. Corruption thrives in various regions of Asia Pacific, the American continent, Eastern Europe, and Central Asian States due to multiple impediments on accountability mechanisms and basic human liberties. The autocratic regimes, and elite capture by vested powerful political dynasties in countries of Middle East, North Africa and South Asia have constrained civil and political liberties thereby indirectly giving rise to corruption. The Sub-Saharan Africa is rife with armed conflicts and increased violent upheavals that prevent meaningful anti-corruption initiatives and agreements, thereby depriving the region’s residents of basic human rights and access to public services. (Transparency International, 2021).

3.5. National Anti-Corruption Strategy:

The Quaid-i-Azam designated the maintenance of law and order as his government's top priority in his historic speech to Pakistan's first Draft Constitution on August 11, 1947. "One of the biggest curses that India is suffering from is bribery and corruption," he added of his second goal. "I'm not saying that other countries are free of it, but I believe our situation is much worse". That is truly lethal. With an iron grip, we must suffocate it." Unfortunately for Pakistan, for the past 75 years, these wise words have gone unheeded. Corruption has infiltrated every element of political, social, and economic life. Intermittent countermeasures are taken, but they lacked the requisite political will, and the majority of them, including the present accountability drive, are based on enforcement (NACS, 2002).

The National Accountability Bureau's (NAB) enforcement method was crucial in the early phases of the fight against corruption. Long-term corruption control, on the other hand, demands a bigger vision and a specific plan to attain that objective. Alongside, the mechanism requires to contain strategies on corruption awareness, prevention, and combat. Accordingly, the strategy is to be enforced through mutual efforts of government, civil society, and the corporate sector. Correspondingly, it is imperative to is necessary to holistically study and identify the menace of corruption in terms of its underlying factors and causes. The National Anti-Corruption Strategy (NACS) policy was created with this purpose in mind, to assist Pakistan in its long journey toward accountability and transparency. The core Project Team was made up of Government of Pakistan (GoP) personnel from a variety of public sector stakeholders. The UK's Department for International Development (DFID) contracted KPMG Consulting to provide assistance. The purpose of the initiative was to conduct a broad examination and assessment of the causes, type, scope, and impact of corruption and devise a high-level integrated framework for corruption awareness and prevention.

The causes of corruption and effective responses are widely known among interested parties. The NACS exercise has the advantage of assuring common understanding of the causes and bringing the various measures together as a cohesive strategy, resulting in a route to execution. Rather than written reports, the NACS initiative's main outcome has been the building of a broad coalition of stakeholders committed to implementing the strategy and combating corruption (NACS, 2002).

3.6. Corruption Act 1947:

On March 11th, 1947, the legislature passed a bill that got the Governor General's assent. Referred to as 1947 Prevention of Corruption Act, it aims to make bribery and corruption prevention more effective. The Act encompasses entire country, citizens and government officials. The Act provides for sufficient trial of public servant if found guilty of accepting gratification or bribe other than legal remuneration. Along the same, the Act allows the accused right to defence and if courts find gratification or bribe or any such accusation insignificant then the case of corruption against the said accused may be withdrawn.

3.7. National Accountability Ordinance (NAB) 1999:

National Accountability Ordinance was established in 1999 with the purpose of combatting corruption. The scope of NAB encompasses public office holders as well any other person if found guilty of charges of corruption. The institute of NAB is empowered to act against an individual if he obtains or offers bribe or gratification other than legal remuneration for a particular favor, if he offers or accepts any valuable thing for a favor in any specific business transaction and if he fraudulently embezzles any property entrusted to him for personal gains. NAB also has the mandate to act against a person who obtains any property, valuable assets for his spouse, dependents etc. through dishonest practices, and if a person or his dependents possess any benami property. With respect to public office holders, NAB is empowered to act if a person abuses his position of power to gain favorable profits, promotion, benefits, or issues any policy directive, Statutory Regulatory Order (SRO), grants concession to benefit himself or any dependent or benamidar.

CHAPTER 4

RESEARCH METHODOLOGY

The focus of this chapter is to explain the use of methodology used in this chapter bases on qualitative and quantitative methods

4.1. Research Design

This study uses both quantitative and qualitative methods to investigate bribery and corporate success in Pakistan: A political and economic point of view. The quantitative data was measure through Finite Mixture Linear Model and qualitative aspect was also added for capture the stance of policy makers

4.2. Methods of Data Collection/Research Strategy

The present study used secondary data of World Bank Enterprise Survey 2013. World Bank Enterprise Survey is based on Questionnaires for firms related to manufacturing and services sector. Business owners and key executives being respondents are part of this survey. The data period is from May 2013 to May 2015[2]. The study, which is aimed at the manufacturing and service sectors, is centered on questions about bribes, characteristics, and government-business ties. In a study of 147 economies, it was discovered that corruption boosts sales and exports at the business level, when combined with political and economic variables. In low-income

[2] The survey is named after the year in which the data collection began as this most accurately describes the data within.

economies, corruption improves sales and exports, according to the disaggregated analysis (Imran, 2019).

4.3. Sampling

This study is incorporate secondary and primary data based on Questionnaires in which Questions related to industrial and services sector and business owners or top managers of firms is responding to these Questions.

Table 4.1: Pakistan World Bank Enterprise Survey

Year	Fiscal Year	n3_l2_year	Number of sub-national regions	Duration of Fieldwork	Methodology	Region	Total	Number of firms in each subnational location level	Number of firms in each business sector level
2007	2005/2006	2002/2003	13	9/2006 - 6/2007	Global	SAR	935	Balochistan (73), Peshawar (69), Punjab (517), Sindh (276)	Chemicals & Chemical Products (23), Food (149), Leather Products (14), Machinery & Equipment & Electronics (54), Other Manufacturing (331), Services (151), Textiles & Garments (213)
2013	2011/2012	2009/2010	5	5/2013 - 5/2015	Global	SAR	1247	Balochistan (61), Islamabad (91), Khyber-Pakhtunkhwa (212), Punjab (668), Sindh (215)	Chemicals & Chemical Products (111), Food (233), Garments (86), Motor Vehicles & Transport Equip. (29), Non-Metallic Mineral Products (141), Other Manufacturing (319), Other Services (123), Retail (38), Textiles (167)

There are 13 sub-national regions in 2007 World Bank Enterprise Survey but 5 sub-national regions in 2013 World Bank Enterprise Survey. And total 935 surveys conducted in 2007 but 1247 surveys conducted in 2013. There are 73 Balochistan, 69 Peshawar, 517 Punjab and 276 Sindh surveys conducted from firms in 2007 and 61 Balochistan, 91 Islamabad, 212 Khyber-Pakhtunkhwa, 668 Punjab and 215 Sindh from firms in 2013.

4.4. Logit Models for Binary Data

This study used statistical software to estimate probabilities using a logistic regression equation to investigate the relationship between the dependent and independent variables. This kind of research can assist us in predicting the possibility of an occurrence or a decision taking place. We focused on dichotomous data regression models like logistic regression and probit analysis in this article. When the response has only two possible values, such as success or failure, or more broadly, the existence or absence of a property of interest, these models are applicable. The first step in learning about logistic regression is to look at an example of binary data analysis. The study looked at the data's stochastic structure using the Bernoulli and binomial distributions, as well as the orderly structure using the logit transformation. The outcome should generalize the linear model with binomial response and link logit.

4.5. Assumptions of effective logistic regression

While binary logistic regression is the most widely used and discussed, it's crucial to consider when each type is most effective.

Multinomial regression divides people into groups depending on a wide range of criteria to predict behaviour. A survey is performed, for example, in which participants are asked to choose their preferred product from a list of several competing possibilities. Because of the research, we've been able to create profiles of people who are most likely to be interested in our product, allowing us to customize our marketing strategy accordingly.

When modelling the event probability for a categorical response variable with two outcomes, binary regression is useful. Y is the resultant variable, which includes the values y = 0 and y = 1. Because the response variable is categorical, the binary logit (FMBL) model should be used to determine the sources of corruption.

Comparison to linear regression

A major question asked by researchers is whether to utilise linear or logistic analysis. In general, when the dependent variable is open-ended or continuous, linear regression analysis is more effective. When the dependent variable has a range of values between 0 and 1, use the logistic technique.

4.6. Finite Mixture Binary Logit (FMBL)

The Finite Mixture Binary Logit (FMBL) Model technique is shown to have significantly fewer bias in the estimate impacts of the independent variables in comparison to traditional logit model in this section. In addition, because the unobserved heterogeneity is discovered[3] is feeble when the investigator is dealing with short panels and cross-sectional data. The finite binary model has been thoroughly explained, and it has been contrasted to the simple binary logit model. This portion explained how FMBL expresses unobserved heterogeneity. As the FMBL model is developed to explain the expansion of the classic binary logit model, that incorporates a latent class model which accounts for unobserved variables' effects (on binary outcomes variable). Y is the resultant variable, which incorporates

[3] Unobserved heterogeneity usually occurs in non-linear regression models including binary logit mode. When co-related with linear regression models, If omitted independent factors are uncorrelated with the independent variables, findings obtained from their effects are skewed (Holm, 2008).

the values y = 0 and y = 1. Because of the categorical structure of the response variable, the binary logit (FMBL) model is suggested for determining the determinants of corruption. The FMBL model is compared to the logit model. Logistic regression is used to describe data and describe the relationship between the one predicted binary variable and one or even more nominal, ordinal, interval, or ratio-level control variables. The possibilities of a company taking bribes at random are represented by the equation below.

$$\boldsymbol{Pr(Barbary_I 1) = \alpha_0 + \beta_1(BUREAU) + \beta_2(TAXCON) + \beta_3(EXP) + \beta_4(FAGE) + \beta_5(FSIZE) + \beta_6(MANEXP) + \beta_7(EXAUDIT) + \beta_8(CRI) + \mu} \quad (4.1)$$

It is postulated that bureaucratic impediments β_1 $(BUREAU)$, tax constraint β_2 $(TAXCON)$, crime β_8 (CRI), firm age β_4 $(FAGE)$, firm size β_5 $(FSIZE)$, and higher manager experience β_6 $(MANEXP)$ enhances the risks of corruption whereas in situation of external audit exports β_3 (EXP) and β_7 $(EXAUDIT)$, occurrence corruption is assumed to be minimized. Sharma and Mitra (2015) calculated the impact of corruption on company performance using the model below and the equations below:

$$\boldsymbol{FP_1 = \alpha_0 + \beta_1\,(Barbary_i) + \epsilon_x\, X_I + \Upsilon_Y\, Y_i\, \mu} \quad (4.2)$$

In the above specification, FP_1 is the firm performance. It is determined by two aspects, that is, real annual sale growth, and export performance. X_I shows bureaucratic impediments, Y_i is a vector of firm-specific features. It includes features such as innovation, firm ownership, firm age, firm size, and external audit. The following equation is the econometric specification used to measure bribery and corporate performance in Pakistan.

$$FP_1 = \alpha_0 + \beta_1 (CORR_i) + \beta_2 (BUREAU_i) + \beta_3 (INNOV_i) + \beta_4 (FORFIR_i) + \beta_5 (FAGE_i) + \beta_6 (FSIZE_i) + \beta_7 (EXAUDIT_i) + \mu \quad (4.3)$$

Bribery and bureaucratic barriers (BUREAU) are seen to slow down firm performance, whereas innovation (INNOV), foreign firms (FORFIR), external audit (EXAUDIT), firm age (FAGE), and firm size (FIZE) are thought to speed up firm performance.

Table 4.2: Definitions of the Variables

Names of Variables	Unit of Measurement	Survey Question (World Bank Enterprise Survey, 2013)	The question reference number in the Survey
Bribery	Dummy Variable Bribe payment=1 Otherwise=0	% Of firm that give gifts to government officials	**J7a**
Bureaucratic Problems (BUREAU)	Dummy Variable Time Spent=1 Otherwise=0	The amount of time that senior management spends complying with government regulations.	**J2**
Crime (CRIM)	Dummy Variable Yes=1 No=0	In fiscal year did the industry/firm experienced any losses due to theft, robbery?	**i3**
Foreign Firms (FORFIR)	%	% Of companies controlled by private foreign people who own at least 10% of the company.	**b2b**
Firm Age (FAGE)	Years	When did the firm's operations begin? (The year of the survey minus the year of the firm's activities)	**b5**
Real Sale (LSALE)	%	Total sales of Last completed fiscal year's	**d2**
Exports (EX)	%	directly exported proportion of total sales	**d3c**

4.7. Finite Mixture Binary Logit (FMBL) model Assumptions

The resulting variable Y is taking the values y = 0 and y = 1. The FMBL model with become as follow J (j = 1,…,J) as

$$P(Y=1 \mid x) = \sum_{j-1}^{j-1} \left(P(Y=1 \mid x\, \Xi\, \varepsilon_j)\, P(\Xi\, \varepsilon_j) = \sum_{j-1}^{j-1} \frac{exp\,(\alpha + \beta x\, \varepsilon_j)\, P(\,\Xi = \varepsilon_j)}{1+exp\,(\alpha + \beta x\, \varepsilon_j)} \right) \quad (4.4)$$

α a constant term, while x shows a vector of independent variables, β explains corresponding row vector of regression coefficients, εj is the effect of the j'th firm performance on the probability of observing Y = 1, and $P(\,\Xi = \varepsilon_j\,)$ is the proportion (of the population) belonging to the j'th firm performance. The parameters to be measured are x, β, ε_j, and $P(\,\Xi = \varepsilon_j)$. The FMBL model considers unobserved heterogeneity resulting from omitted control variables by including firm performance. Unobserved heterogeneity is regarded as correlation between observables and unobservable (Lindsay 1983a, 1983b). The firm performance proportions $P(\,\Xi = \varepsilon_j)$ should fulfill the limitations: $P\big(\Xi = \varepsilon_j\big) > 0$ and $\sum_{j-1}^{j-1} P\big(\,\Xi = \varepsilon_j\big) = 1$. It is useful to re-parameterize the model when calculating the proportions $P(\,\Xi = \varepsilon_j)$ to.

$$\boldsymbol{P\big(\Xi = \varepsilon_j\big) = 1 + \frac{exp\,\bar{\delta}_j}{\sum_{j-1}^{j-1} exp\,(\widetilde{\bar{\delta}_j})}} \quad (4.5)$$

Where, now, $\bar{\delta}_j$ j = 1,…J are parameters is calculated. Divide by $\bar{\delta}_j$ to get

$$\boldsymbol{P\big(\Xi = \varepsilon_j\big) = \frac{exp\,(\bar{\delta}_j - \bar{\delta}_j)}{1+\sum_{j-2}^{j-1} exp\,(\bar{\delta}_j - \bar{\delta}_j)} = \frac{exp\,(\bar{\delta}_j)}{1+\sum_{j-2}^{j-1} exp\,(\bar{\delta}_j)}} \quad (4.6)$$

Equation (3) shows figure of recognizable parameters for the firm performance is J –1. Re-defining $\bar{\varepsilon}_j = \alpha + \varepsilon_j$ leaves $P(Y = 1 \mid x, \Xi\, \varepsilon_j)\, P(\Xi\, \bar{\varepsilon}_j)$ $P(Y = 1 \mid x, \Xi\, \varepsilon_j)\, P\big(\Xi\, \varepsilon_j\big), j = 1\ldots$.j and study need to regularize effects of firm performance, ε_j. The study uses standard dummy coding and normalises $\varepsilon_j = 0$. The FMBL model in its most basic form, with only one explanatory variable and firm performance. The finite mixture binary linear FMBL model is explained in this simple form. This model can theoretically be used to assess company performance in instances when there are multiple control factors. This model's basic version is as follows:

$$\boldsymbol{P(Y = 1 \mid x) = \sum_{j-1}^{j-2} \frac{exp\,(\alpha + \beta x\, \varepsilon_j)\, P(\,\Xi = \varepsilon_j)}{1 + exp\,(\alpha + \beta x\, \varepsilon_j)}} \qquad (4.7)$$

β is a regression coefficient and x are a continuous independent variable; where $\varepsilon_j = 0$ and $\varepsilon_2 = \varepsilon$. From Equation (4.4), the log-likelihood function for a sample of n independent observations as

$$\boldsymbol{In\, L = \sum_{j-1}^{j-n} Y_i\, InP(Y = 1 \mid x)\, \Xi\, x_i)\, (1 - y_i)\, In(1 - P)(Y = 1 \mid x_i)} \qquad (4.8)$$

4.8. Probit Model

The probit model is a statistical probability model with two categories for the dependent variable (Liao). In probit analysis, the cumulative normal probability distribution is used. In this study, the binary dependent variable, y, has two values: zero and one. The findings of y are mutually exclusive as well as exhaustive. The dependent variable, y, depends on k observable variables X_k where k=1,…,K (Aldrich, J. H., & Nelson, F. D, 1984). In the probit model, the dependent variable

had observed values of zero and one, but there is a latent, unobserved continuous variable, y*.

$$\boldsymbol{Y^*} = \sum_{\boldsymbol{k=1}}^{\boldsymbol{k}} \boldsymbol{\beta_k x_k} + \varepsilon \qquad (4.9)$$

$$\varepsilon \text{ is IN } (0, o^2$$

y, a dummy variable, is observed and determined by

$$Y = \begin{cases} 1 \; if \; y^* > & 0 \\ 0 & otherwise \end{cases}$$

The point of interest is the likelihood of y equaling one. As may be seen from the equations above:

$$\text{Prob (y=1)} = \text{prob } (\sum_{k=1}^{k} \beta_k \, k_k + \varepsilon > 0$$

$$= \text{Prob } (\varepsilon > - \sum_{k=1}^{k} \beta_k \, k_k)$$

$$= 1 - \text{ɵ } (-\sum_{k=1}^{k} \beta_k \, k_k)$$

Where Φ is the cumulative distribution function of ε (Liao).

The data are created from a random sample of size N with a sample observation represented by I I = 1,...,N, according to the probit model. To rule out serial correlation, the observations of y must be statistically independent of one another.

4.9. Conclusion

This work proposes a novel strategy for dealing with unobserved heterogeneity in the binary logit model that can be employed in applied research. Our method is based on the finite mixture context, which uses latent classes to capture unobserved

subgroups in the pictures to reflect unobserved heterogeneity. It also prepares you for scenarios involving different sorts of limited dependent variables. By modelling the relationship between these latent groups and the possibility of experiencing the binary result of importance, it is probable to minimize bias from unobserved heterogeneity. According to the study, our Finite Mixture Binary Logit (FMBL) technique could be useful in applied research when unobserved heterogeneity is difficult to discover.

CHAPTER 5

EMPIRICAL RESULTS AND DISCUSSION

5.1. Introduction

In this chapter, data analysis is used to obtain results from the World Enterprise Survey 2013 in Pakistan, which are then evaluated in a thorough manner. To begin, descriptive statistics are used in this study to display a data summary or overview; secondly, the study perform Correlation test to verify how strongly pairs of variables are related. The binary linear finite mixture estimation technique the binary logit model is used with cross-sectional data and short panels to deal with unobserved heterogeneity, and the study's goal is to deal with unobserved heterogeneity. The Binary Logit is a type of regression analysis in which a binary dependent variable (for example, yes/no, pass/fail, win/lose) is modelled. Because the dependent (Bribery Dummy Variable Bribe payment=1, Otherwise=0) and independent (Bureaucratic Problems (BUREAU) Time Spent=1 Otherwise=0, Crime (CRIM) Yes=1 No=0) variables in this study are dummies. Unobserved heterogeneity refers to unmeasured (unobserved) differences between research individuals or samples that are linked to the (visible) variables of interest. The probit model is a statistical probability model with two categories for the dependent variable (Liao). In probit analysis, the cumulative normal probability distribution is used. y is a binary dependent variable with two possible values: one and zero.

5.2. Graphical Analysis

The frequency with which a value falls into each of the bins is depicted in a histogram. The height of each bar represents the number of values in the data set that fall into each bin. When the y-axis is labelled "count" or "number," the numbers along the y-axis tend to be discrete positive integers. A graph of dependent variables is shown below. Dummy Bribery Variable: Payment of bribe=1.

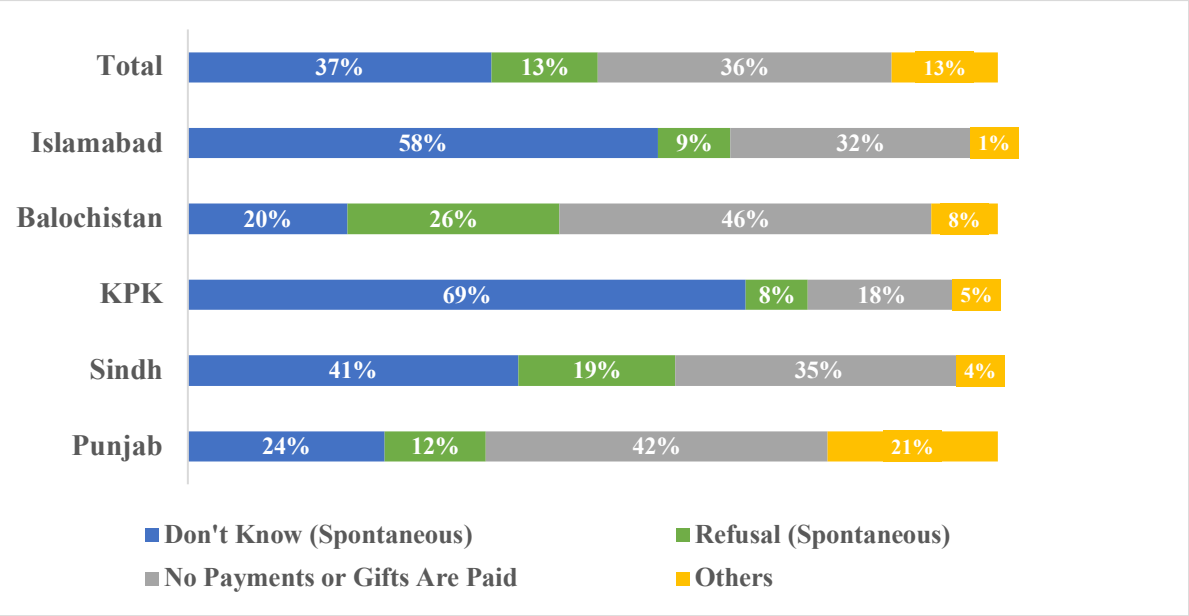

Figure 5.1: Bribery Dummy Variable: Bribe payment=1

The modest density numbers reported on the y axis are correct; if the area of the bars is added together, study would equal 1. Many individuals, however, are accustomed to seeing histograms scaled so that the bar heights add up. The graph no 5.1 shows the dummy variable Bribery Dummy Variable: Bribe payment=1 percentages and the most frequent response of Don't Know (Spontaneous) 37.48 percent and no payment or gift 36.26%, and Refusal (Spontaneous) 13.17 percent respondents, but other 13.09 percent.

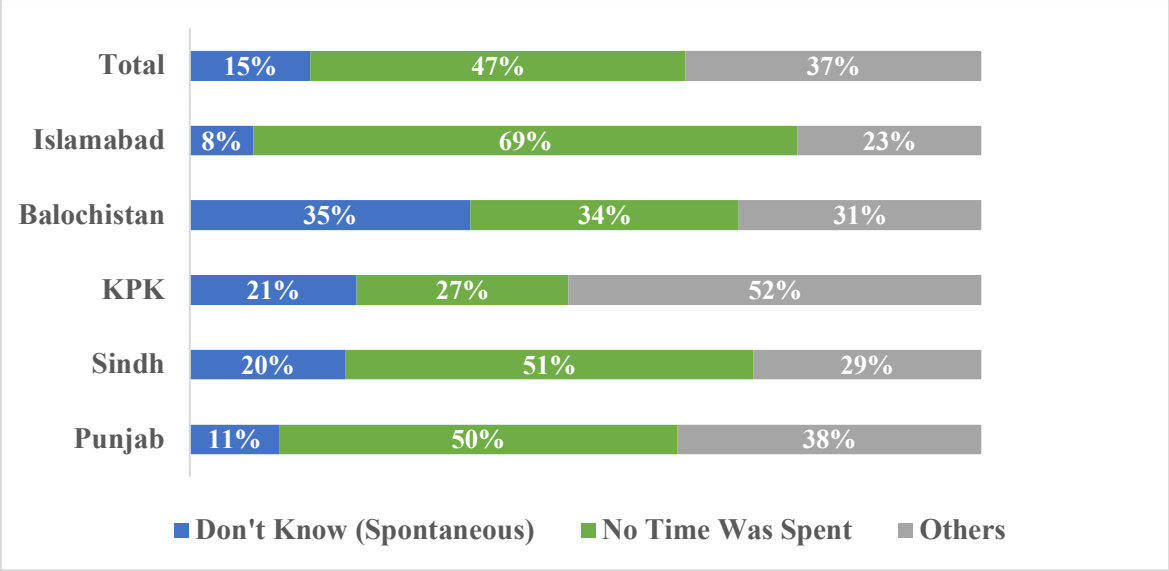

Figure 5.2: Bureaucratic Problems Dummy Variable: Time Spent=1

The graph no 5.2 shows the dummy variable of Bureaucratic Problems (Time Spent=1) percentages and the most frequent response of No Time is Spent 47.39 percent and Don't Know (Spontaneous) 15.24 percent and others are 37.37 percent respondents.

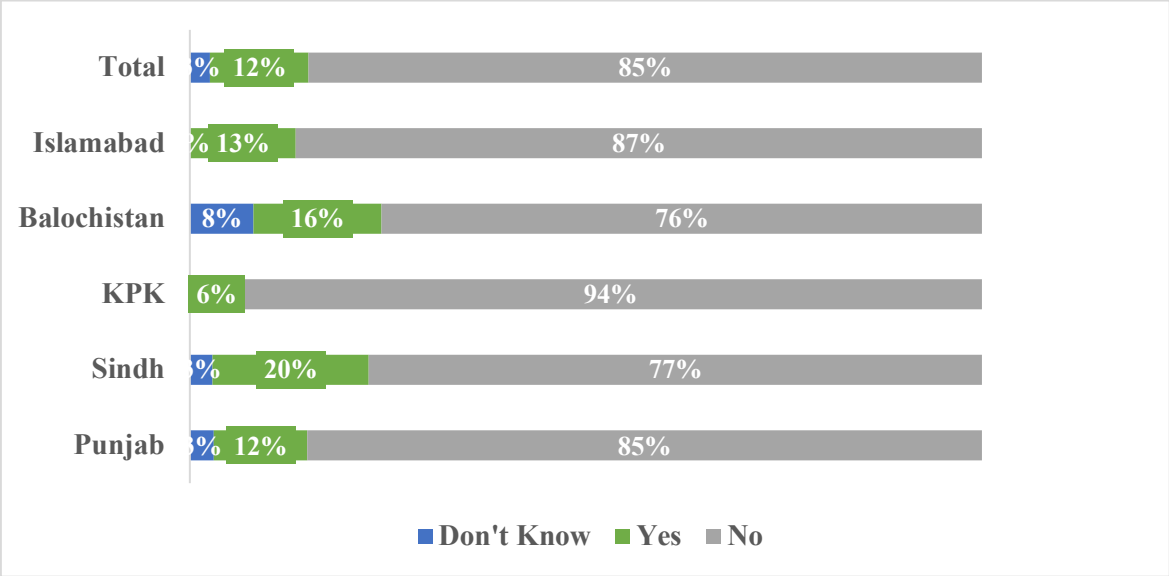

Figure 5.3: Crime (CRIM) Dummy Variable: Yes=1 No=0

The graph no 5.3 shows the dummy variable of Crime (Yes=1 No=0) percentages and the most frequent response of No 85 percent and Yes 12.43 percent and don't know 2.57 respondents.

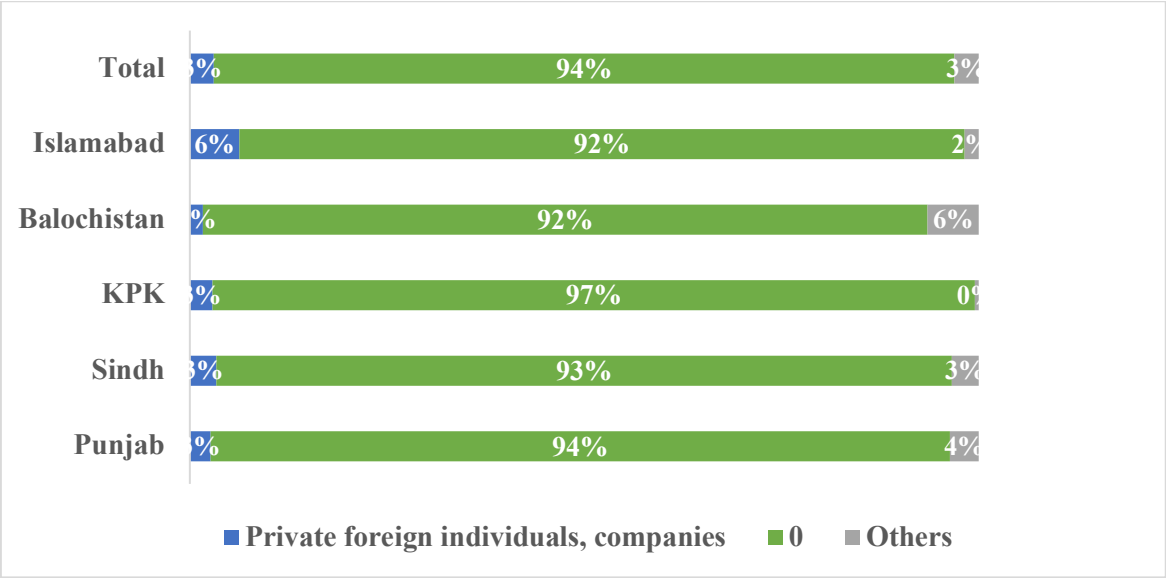

Figure 5.4: Foreign Firms (FORFIR): Percentage

The graph no 5.4 shows the Foreign Firms (FORFIR): Percentage and the most frequent response of Zero 93.9 percent and Private foreign individuals, companies' 3.05 percent and others are 3 percent respondents.

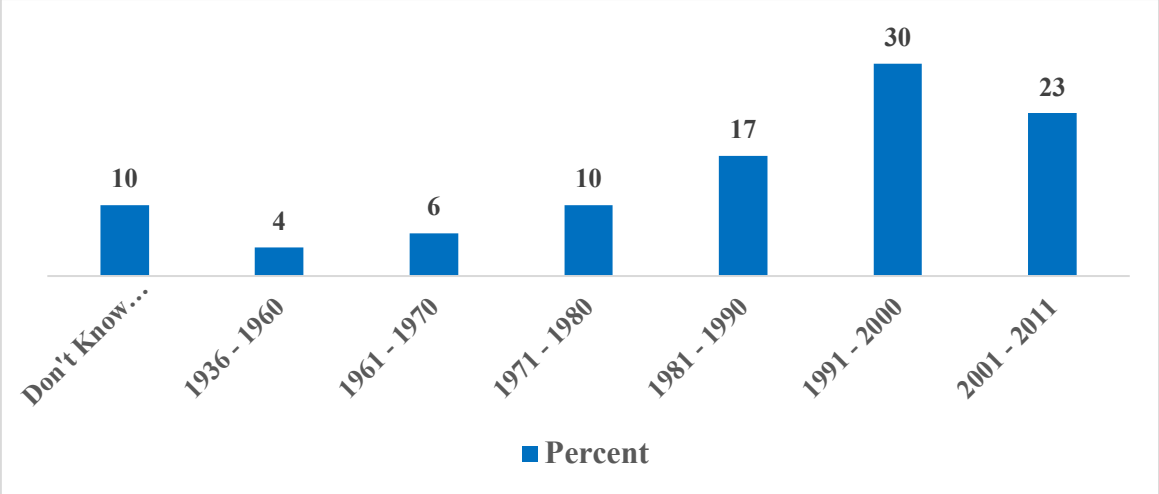

Figure 5.5: Firm Age (FAGE): Years

The graph no 5.5 shows the Firm Age (FAGE): Years and the most frequent response of 1991 to 2000 30 percent and 2001 to 2011 23 percent and 1981 to 1990 17 percent and 1971 to 1980 10 percent and 1961 to 1970 6 percent and 1936 to 1960 4 percent and lastly 10 percent is don't know.

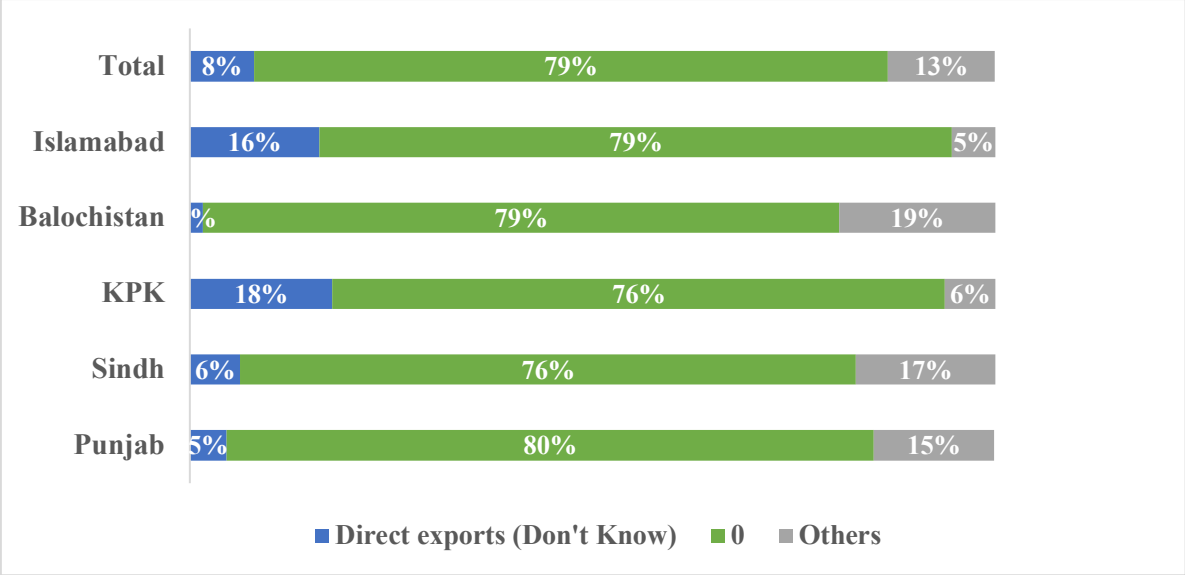

Figure 5.6: Exports (EX): % Percentage

The graph no 5.6 shows the Exports (EX): % Percentage and the most frequent response of zero 78.75 30 percent and direct export (don't know) 7.94 percent and other 13.31 percent.

5.3. Descriptive Statistics

For all variables utilised in empirical analysis, provide the number of observations (N) and summary statistics (Mean, Median, Maximum, Minimum, and Standard Deviation). For all variables, there are 1247 observations in this data set, which consist of only one year of annual observations for the data period is from May 2013 to May 2015.

Table 5.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Bribery	1,230	1.195918	0.55292	1	2
Bureaucratic Problems	1,247	0.902041	0.297868	0	1
Crime	1,247	0.126531	0.333127	0	1
Foreign Firms	1,246	1.057143	6.779671	0	56
Firm Age	1,247	1910.212	395.0477	1994	2011
Real Sale	1,247	1.96E+08	9.57E+08	10000000	1.06E+10
Exports	1,247	0.032653	0.178091	0	1

In table 5.1, the descriptive statistics are presented the dependent variable of the study is Bribery is measured as Dummy Variable Bribe payment=1 and otherwise=0 % of firm that give gifts to government officials, the mean value of bribery is 1.195918 with standard deviation of 0.55292. The independent variable of the study is Bureaucratic Problems (BUREAU) measured as Dummy Variable Time Spent=1 Otherwise=0. The time spent by Senior management in dealing with requirements of government regulations. It had an average value 0.902041 with standard deviation 0.297868. These variables are included as control variables in the study and indicate Crime (CRIM), Foreign Firms (FORFIR), Firm Age (FAGE), Real Sale (LSALE), and Exports (EX) these are taken as independent variables. The average of crime 0.126531 with standard deviation of 0.333127, the average for Foreign Firms (FORFIR) is 1.057143 with the standard deviation of 6.779671, the average for Firm Age (FAGE), is 1910.212 with standard deviation of 395.0477, and the average of Real Sale (LSALE) is 1.96E+08 with standard deviation of 9.57E+08.

5.3.1. Frequencies

A frequency table displays the distribution of observations based on the options in a variable. Frequency tables are useful for determining which options exist in a dataset more frequently or less frequently. This is useful for determining whether or not variables need to be recoded and for better comprehending each variable. Because it provides the count of each choice in a variable, a frequency table does not have a formula.

Table 2.2: Bribery Dummy Variable: Bribe payment=1 and otherwise=0

Categories	Freq.	Percent	Cum.
Don't Know (Spontaneous)	461	37.48	37.48
Refusal (Spontaneous)	162	13.17	50.65
No Payments or Gifts Are Paid	446	36.26	86.91
Others	161	13.09	100.00
Total	1,230	100	

The table no 5.2 shows the dummy variable Bribery (Bribe payment=1 and otherwise=0) frequencies and percentages and the most frequent response of Don't Know (Spontaneous) 461 and its 37%, and Refusal (Spontaneous) is 162 frequencies or respondents, but it is 13.17% and No Payments or Gifts Are Paid are also 446 frequencies and 36.26 percentage response.

Table 5.3: Bureaucratic Problems (BUREAU) Dummy Variable: Time Spent=1 Otherwise=0

Categories	Freq.	Percent	Cum.
Don't Know (Spontaneous)	190	15.24	15.24
No Time Was Spent	591	47.39	62.63
Others	466	37.37	100
Total	1,247	100	

The table no 5.3 shows the dummy variable Bribery (Time Spent=1 Otherwise=0) frequencies and percentages and the most frequent response of Don't Know (Spontaneous) 190 and its 15.24%, and No Time Was Spent is 591 frequencies or respondents, but it is 47.39%.

Table 5.4: Crime (CRIM) Dummy Variable: Yes=1 No=0

Categories	Freq.	Percent	Cum.
Don't Know (Spontaneous)	32	2.57	2.57
Yes	155	12.43	15
No	1,060	85	100
Total	1,247	100	

The table no 5.4 shows the Crime (CRIM) Dummy Variable: Yes=1 No=0 frequencies and percentages and the most frequent response of no 1060 and its 85%, and yes is 155 frequencies or respondents, but it is 12.43%, and lastly one paper have been published and lastly yes response is received from 155 and its 2,57%.

Table 5.5: Foreign Firms (FORFIR): Percentage

Categories	Freq.	Percent	Cum.
Private foreign individuals, companies	38	3.05	3.05
0	1,170	93.9	96.95
Others	38	3	100
Total	1,246	100	

The table no 5.5 shows the Foreign Firms (FORFIR): Percentage frequencies and percentages and the most frequent response of Foreign Firms (FORFIR): Percentage 38%.

Table 5.6: Firm Age (FAGE): Years

Categories	Freq.	Percent	Cum.
Don't Know (Spontaneous)	122	10	10
1936 - 1960	47	4	14
1961 - 1970	74	6	19
1971 - 1980	129	10	30
1981 - 1990	217	17	47
1991 - 2000	374	30	77
2001 - 2011	284	23	100
Total	1247	100	

The table no 5.6 shows the Foreign Firms (FORFIR): Percentage frequencies and percentages and the most frequent response of Foreign Firms (FORFIR): Percentage 38%.

Table 5.7: Exports (% Of sales: Direct exports)

Categories	Freq.	Percent	Cum.
Direct exports (Don't Know)	99	7.94	7.94
0	982	78.75	86.69
Others	166	13.31	100
Total	1,247	100	

The tables 5.7, shows the Exports (% Of sale) categories Direct exports (Don't Know) have 99 response and it is 7.94%.

5.4. Finite Mixture Model

The occupied units in finite-mixtures are defined as a given number of groups, each with a distinct detection probability. Because group membership is unclear based on the available data, the analysis must account for the fact that a unit may belong to any of the defined groups at any one time. Age categories, income ranges, and degrees of education are all used to split populations into groups or subpopulations. These groups' regression models or distributions are likely to differ. However, some studies lack a variable that distinguishes the groups because the identifying variable is just absent.[4] Perhaps it's an unobservable proclivity for dangerous activity, a strong desire to preserve money, and so on. Finite mixture models (FMMs) can be used to represent the probability of belonging to each unobserved group, to estimate separate parameters of a regression model or distribution in each group, to distribute individuals into the groups, and to draw inferences about how each group acts in such instances.

[4] Perhaps it is hard to collect—honest reporting of drug use, sex of goldfish, etc.

For example, based on age and medical problems, a study might aim to simulate an individual's annual number of doctor visits. Individuals who are more likely to arrange an appointment at the first sign of a problem than those who wait until conditions are more serious are likely to have a different model. A car insurance company might seek to categories drivers into risk groups. These groups could be high, medium, and low risk, or high, medium, and low risk. FMMs allow researchers to quantify the likelihood of belonging to a group and fit group-specific models.

5.4.1. Finite Mixture Logit Model

Two types of models are used in the research. First, only the first wave of data from the world enterprises survey is used to build a standard linear regression model. Second, the study uses both waves of the world businesses survey data to estimate binary logit models. We may examine how different models behave when cross-sectional data is used by using only the first wave of data. The results are then compared to quite precise results from models including both waves. Standard logit model is generally expected to be biased, the FMBL model is expected to be unstable, and the FMBL is more dependable when compared to standard binary logit and FMBL models in the cross-sectional case study.

Table 5.8: Finite Mixture Logit Model (Class 1)

Variables	Coef	Std. err.	z	P>z
1.Class	(Base outcome)			
2.Class				
Variables	**Coef**	**Std. err.**	**z**	**P>z**
Bureaucratic Problems	4.270	1.935	2.210	0.027**
Crime	-0.048	0.009	-5.37	0.000***
Foreign Firms	0.234	0.105	2.230	0.026**
Firm Age	-0.006	0.019	-0.280	0.777
Real Sale	1.779	0.881	2.020	0.044**
Exports	0.001	0.000	2.21	0.027**

"The ***, **, and * asterisks indicate the level of significance at 1%, 5%, and 10% respectively".

The results of the Finite Mixture Logit Model (Class 1) specifications are shown in Table 5.8. Bureaucratic Problems, Crime, Foreign Firms, Real Sale and Exports all have statistically significant effect on the bribery and its means Bribe payment % Of firm that give gifts to government officials, but crime is negatively effect on the bribery and Bureaucratic Problems, Foreign Firms, Real Sale and Exports are positively effect on the bribery.

Table 5.9: Finite Mixture Logit Model (Class 2)

Class: 2				
Response: Bribery				
Model Regress				
Variables	**Coef**	**Std. err.**	**z**	**P>z**
Bureaucratic Problems	0.253	0.084	3.000	0.003***
Crime	-1.541	0.807	-1.910	0.056**
Foreign Firms	0.000	0.000	-0.190	0.845
Firm Age	0.005	0.015	0.310	0.755
Real Sale	-2.180	1.070	-0.2	0.840
Exports	-0.015	0.008	-1.88	0.060*

"The ***, **, and * asterisks indicate the level of significance at 1%, 5%, and 10% respectively".

The results of the Finite Mixture Logit Model (Class 2) specifications are shown in Table 5.9. Bureaucratic Problems, Crime and Exports all have statistically significant effect on the bribery and its means others, but crime is negatively effect on the bribery and Bureaucratic Problems and Exports are positively effect on the bribery others.

5.4.2. Finite Mixture Probit Model

Table 5.10: Finite Mixture Probit Model (Class: 1)

	Coef	Std. err.	z	P>z
1.Class	**(Base outcome)**			
2.Class				
Variables	**Coef**	**Std. err.**	**z**	**P>z**
Bureaucratic Problems	-0.004	0.001	-3.330	0.001***
Crime	0.217	0.073	2.970	0.003***
Foreign Firms	0.008	0.002	3.010	0.003***
Firm Age	1.189	0.559	2.130	0.033**
Real Sale	-0.205	0.081	-2.520	0.012***
Exports	-0.001	0.000	-2.850	0.004***

"The ***, **, and * asterisks indicate the level of significance at 1%, 5%, and 10% respectively".

The results of the Finite Mixture Probit Model (Class: 1) specifications are shown in Table 5.10. Bureaucratic Problems, Crime, Foreign Firms, Firm Age, Real Sale and Exports all have statistically significant effect on the bribery and its means Bribe payment % Of firm that give gifts to government officials, but Bureaucratic Problems, Real Sale and Exports is negatively effect on the bribery and Crime, Foreign Firms and Firm Age are positively effect on the bribery.

Table 5.11: Finite Mixture Probit Model (Class: 2)

Response: Bribery				
Variables	**Coef**	**Std. err.**	**z**	**P>z**
Bureaucratic Problems	0.184	0.025	7.24	0.000***
Crime	0.066	0.093	0.710	0.481
Foreign Firms	0.000	0.000	0.940	0.348
Firm Age	0.000	0.000	0.050	0.964
Real Sale	0.006	0.010	0.570	0.566
Exports	-0.015	0.008	-1.88	0.060*

"The ***, **, and * asterisks indicate the level of significance at 1%, 5%, and 10% respectively".

The results of the Finite Mixture Probit Model (Class: 2) specifications are shown in Table 5.11. Bureaucratic Problems and Exports all have statistically significant effect on the bribery others, but Exports is negatively effect on the bribery others and Bureaucratic Problems are positively effect on the bribery others. However, the predicted log-odds ratios fluctuate significantly between model assumptions and cross-sectional and panel data estimations, according to the study. The influence of firm age on exports in high-income countries and sales in low-income countries reveals a negative relationship. In both aggregate and disaggregate analyses, external audit has a favourable relationship with corporate performance (Imran, S. M., Ur Rehman, H., & Khan, R. E. A, 2019).

5.5. Discussion

Based on our panel data, FMBL is our primary model because it takes advantage of the panel information in data and compensates for unobserved heterogeneity, yielding reliable findings. Using cross-sectional or panel data has no effect on the basic binary logit model, as one might assume. The model severely underestimates the log-odds ratios in both

scenarios when equated with FMBL panel data model. Based on cross-sectional data, the log-odds findings from FMBL model are remarkably comparable to ordinary logit model, hence, these are therefore substantially biased as well.

FMBL model's estimated weight parameter based on cross-sectional data is similarly quite big, indicating weak identification. Based on cross-sectional data, the standard error of most parameter findings in FMBL model is greater than standard logit and FMBL models, implying weak identification. To determine whether the estimated effects of the independent variables from the two different cross-sectional models differ considerably from those obtained from the panel data FMBL model highlights if the approximated effects of the explanatory variables from these models differ considerably in comparison to those extracted from panel data FMBL model. Only the estimated impacts of the explanatory variables in the cross-sectional FMBL model differ considerably through results derived from panel data FMBL model, according to the study. Three of the six effects in the ordinary binary logit and FMBL models are identical to those in the benchmark model. As a result, the FMBL model is slightly imprecise when applied to cross-sectional data. Nevertheless, it produces considerable reliable findings in comparison to both cross-sectional standard binary logit and the FMBL models.

In an aggregate analysis of 147 countries, findings of (Vial, 2010) have established that corruption is surprisingly known to have a positive impact on firm’s performance as well. Study conducted by (Egger, 2005) elaborates that corruption gives rise to beneficial trade thereby enhancing efficiency. (Lui, 1985) suggests that corruption can contribute to more efficient licensing and government contract allocation. In a disaggregated analysis, corruption is found to have a negative influence on business performance in high-income and middle-income countries, while it impacts favorably on real sales and exports in

developing nations. Corrupt bureaucratic structure and mal-functioning government institutions in less developed countries and offering bribes to public sector officials is found to boost a company's sales and exports. Higher and middle-income countries have stronger institutions, and corruption is one of the major obstacles in these economies, reducing sales and exports. (Sharma, 2015) India received the same kind of outcomes. Bureaucratic barriers have a detrimental influence on firm performance in high and middle-income countries but have a beneficial impact on firm performance in low-income countries. Variable factors including innovation, foreign-owned firm, years of operation, and enterprise size largely determine the sales and exports of enterprises in developed and developing countries. The influence of firm age on exports in high-income countries and sales in low-income countries reveals a negative relationship. In both aggregate and disaggregate analyses, external audit has a favourable relationship with corporate performance.

CHAPTER 6

QUALITATIVE DATA FINDINGS

Introduction

This is qualitative chapter of survey, which are conducted in the ministry of industry and production. According to the 2nd interviewer that Ministry of industry and production role is to facilitate to create enable environment for industrial growth in Pakistan. Last Year ministry/cabinet division notification that ministry of industry and production will control prices and prevention of profiteering and hoarding to support federal ministry secretary, poverty alleviation and social division and federal secretary, planning development and special initiative division. And lastly that ministry of industry is providing national level policies and strategies for industry **(See Appendix No 1 for interview questions).**

6.1. Small Medium Enterprise

According to interviewer, SMEs are small unit of firms, where less than 20 or 30 number are employees are working. "Small and Medium Enterprises Development Authority (SMEDA) is an autonomous institution of the Government of Pakistan under Ministry of Industries and Production. SMEDA is founded in October 1998 with the goal of promoting and enabling the growth and development of small and medium businesses in the country. SMEDA is not only the government of Pakistan's SME policy advisory organization, but it also assists other institutional stakeholders in addressing their SME development agendas."[5]

[5] https://smeda.org

6.2. SMEs Pakistan

Pakistan ranks third in government support supplied to SMEs to mitigate the impact of COVID-19, according to a newly released "Impact of COVID-19 on SMEs" Survey Report conducted on-line by SMEDA, Asian Development Bank Institute (ADBI), and Asian Productivity Organization (APO). The poll is conducted by ADBI and APO in Indonesia, India, Bangladesh, Malaysia, Vietnam, Mongolia, and the Lao People's Democratic Republic, among other countries in the region. 236 Pakistani SMEs participated in the online vote, which began in August 2020 and ended in September 2020 (SMEDA - ADBI - APO , Feb - 2021).

Most Pakistani enterprises are experiencing cash flow (82 percent) and raw material (65 percent) constraints, according to the survey's findings. However, 11.44 percent of Pakistani SMEs expect their sales revenue to increase in 2019 over 2018, while 12.29 percent expect it to remain same (SMEDA - ADBI - APO , Feb - 2021).

In terms of the number of enterprises reporting changes in the business climate between February and April 2020, Pakistan is the best performer in the region, with only 36.44 percent of respondents reporting a significant drop in domestic demand. In comparison, 72.29 percent of Bangladeshi firms, 50% of Indian firms, 42.52 percent of Indonesian firms, and 63.5 percent of Malaysian firms reported a significant drop in domestic demand (SMEDA - ADBI - APO , Feb - 2021).

In terms of government assistance, the Government of Pakistan's Electricity Support Package aided SMEs directly during these difficult times, with 27 percent of Pakistani respondents saying that they got assistance through the payment of utility bills. Respondents in other nations, on the other hand, reported receiving alternative types of assistance, such

as new bank loans or deferred bank loan payments. To deal with the impact of COVID-19, businesses who have been hit by the economic downturn because of the crippling epidemic have requested assistance with utility payments, tax exemptions or lower tax rates, and rent payment (SMEDA - ADBI - APO , Feb - 2021).

6.3. Function and objectives of SMEDA

To start and run a business in Pakistan, small and medium-sized businesses must meet a slew of registration criteria. SMEDA has established a one-of-a-kind service called SMEDA One Window (SOW) to give start-ups and SMEs with solutions through a single platform. From business idea validation to business registration, SOW provides quick, on-demand, and hassle-free services. It also helps with business branding, as well as trademark and copyright processing. Through the initiative, small and medium firms are supported up to Rs. 25,000 in lieu of professional services (SMEDA, 2022).

6.3.1. Program Objectives

Through its business concierge, professional, and technical services, the SMEDA One Window (SOW) programme strives to cut start-up expenses and boost time efficiency. SOW provides SMEs with hassle-free, on-demand services ranging from business idea validation to business registration, allowing them to focus entirely on their activities. SOW served as a one-stop shop for prospective start-ups and SMEs looking to set up shop and simplify their operations in Pakistan (SMEDA, 2022).

SMEDA has a proactive, well-trained staff of professionals and specialists who have direct access to all key government ministries. SOW provides services that are specifically tailored to the needs of local SMEs (SMEDA, 2022).

6.3.2. Impact & Benefits

Study envisages the following areas of impact through implementation of SMEDA One Window program (SMEDA, 2022):

- Providing nationwide access of Government led SME facilitation initiatives.
- Increasing competitiveness of businesses in Pakistan.
- Enhancing access of foreign investors to local businesses.
- Creating ease of doing business for SMEs in Pakistan.

Benefits for SMEs (SMEDA, 2022).

SMEDA has designed the program to facilitate SMEs by:

- Providing improved access to quality assured services.
- Reducing delays in fulfilling registration requirements.
- Providing customized advice and counselling.
- Creating ease in legal and regulatory compliances.

6.4. Registration of Small and Medium Enterprise

- According to the interviewer, the following steps for registration of SMEs
- Create account on SMEs portal
- Approval of company
- Documents of submission
- Provide certificate
- Share deposit
- Register sales tax and other taxes

6.4.1. Program Components

There are various kinds of businesses in terms of ownership, legal status, etc. SOW will focus on the following four types of businesses:

- Sole Proprietorship registered with FBR
- Partnership registered with Registrar of Firms
- Limited Liability Partnership registered with SECP
- Private Limited Company including Single Member Company registered with SECP

6.4.2 Problems facing in registration of SMEs

- Poor infrastructure
- Lack of entrepreneur skills
- Financial problems
- Difficulties in getting loans
- Black Marketing
- Complex registration form

6.5. Gifts or informal payments

The success of Pakistan's anti-corruption laws is assessed in this study by correlating government officials' wrongdoing to actual and perceived bureaucratic hurdles faced by formal businesses. It adopts a novel approach by focusing on cases in which accused officials voluntarily confessed to misappropriating public monies (or perks earned through corruption) in order to profit from the plea-bargaining option. The influence of these rules on company leaders' responses in Enterprise Surveys is calculated in this empirical study. The number of claims against bureaucratic corruption appears to be decreasing. While the

quantity supplied in negotiations has a negative overall effect, it changes sign with time, increasing the chances of longer-term corruption. The key conclusions are consistent across a wide range of firm-level misconduct measures. The results of the estimates of the instrumental variables are comparable (Mazhar, 2021).

6.6. Government regulations

According to the (Hussain, 2012) research, the most typical form of corruption is inconsistent interpretation and implementation of regulations and policies by government departments involved in manufacturing, such as tax, labour, and licensing. Businesses regard the process of creating rules and policies as purposely onerous and extractive to assist government officials' rent-seeking, according to the findings of their poll. Most firms claim that to get things done, they must make unofficial payments to government officials, with labour and tax inspections being the most corrupt. Even though fewer businesses are scrutinized in Pakistan than in other comparator countries, bribe payments are more common in both departments (ICA 2007). Industry takes an average of 3-7 days to address a single issue with government staff, according to (Erum, 2019)Their findings confirm that labour inspectors are the most corrupt, but they also include electrical officials on the list, with firms reporting threats of power disruptions and improper invoicing unless side payments are made.

6.7. Impact of corruption on firms' performance in Pakistan

The purpose of the study is to determine the influence of corruption and political instability on company performance in low-income nations. Both with and without the interaction term, corruption and political instability have a negative impact on business performance, implying that firms' investment in human capital is less likely because of corruption and

political instability. Enterprises that see political unrest as a hindrance to their operations have a detrimental influence on human capital. The findings reveal that as a firm's age increases, so does its performance, meaning that as a firm's age increases, so does its performance. The results of the firm's size show that the size of the firm has a positive impact on its performance. Furthermore, the findings reveal that large businesses outperform medium-sized businesses in terms of profitability. The findings suggest that the manufacturing sector is increasingly likely to have an impact on a company's performance. The interaction factors of political instability and firm size represent the diminishing probability of company performance. The results of the interaction terms of corruption and firm size suggest that a business's performance probability is decreasing. According to the study, corruption and political instability lower the likelihood of a firm's success. Human resources are more likely to be invested in by companies struggling with corruption and political turmoil. The likelihood of a firm's performance is influenced by firm-specific factors such as its age and size (Kazmi, 2022).

According to 2nd Interviewer that corruption in Pakistan is widespread and extends to every sector from government to judiciary, police, health, and education. The problem is long standing and despite ongoing calls for reform and money alternative to improve the situation.

Causes of corruption in Pakistan are that corrupt environment, political instability, corrupt political leader involvement, lack of rule of law and governance failure etc. And there are some types of corruption bribery, lobbying, extortion, nepotism, graft, parochialism and influence peddling etc.

Pakistan corruption perception ranking 140 in the world. Corruption is also effecting the investment, taxation, public expending and misallocation of resources. And government should control corruption to issued E-Tendering, e-Governance and simplification of procedure and system.

6.8. Important notes

According to interviewer, the ministry of industry and production have not received any reporting of any firms in Pakistan. There is not any monitoring system under the ministry to monitor the firms. They are providing policies and strategies at national level. But now registration is also authorized provincial government in the province.

6.9. Conclusion

We have conducted two interviews in the ministry of industry and production

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

In non-linear regression models, unobserved heterogeneity is very relevant. Unobserved heterogeneity leads to erroneous inference and distorted parameter estimations of the effect of independent factors on the result. Furthermore, dealing successfully with bias from unobserved heterogeneity may be challenging unless one has a large panel of data. This work introduces a new strategy to deal with unobserved heterogeneity in the binary logit model that can be used to solve real-world challenges. Our method is based on finite mixture, which estimates unobserved heterogeneity in the data using latent classes to capture unobserved subgroups. It also applies to situations in which there are a few more constrained significant factors. However, modelling the composition of these latent groups as well as the likelihood of encountering the binary result in interest is expected to root out all the bias of unobserved heterogeneity.

According to the publication, our Finite Mixture Binary Logit (FMBL) approach is found beneficial in practical research where otherwise, it is difficult to uncover unobserved heterogeneity, such as where available data source is cross-sectional or short panels. According to simulation studies, the FMBL model out numbers the traditional binary logit model with reference to minimize bias in the estimated effects of explanatory variables. In addition, this study demonstrates that it is beneficial to assign the weights of one or more of the latent classes in circumstances when the FMBL model is poorly defined, such as with cross-sectional data (or short panels) or less variations in the predicted and explanatory variables. Adjusting the weight of one of the latent classes has no influence on the model's other factors, it, however, improves identification and precision, especially when compared

to a standard binary logit model. Furthermore, this study includes grid search strategy for determining best fixed latent class weight value. Finally, using data from a world enterprise survey in Pakistan on public support for redistribution, the paper shows that when applied to cross-sectional data, our limited FMBL model outperforms the FMBL and traditional binary logit model. Our novel method helps us better grasp the consequences of unobserved variability in practical research, as well as the confines of standard regression models. To tackle this, the current study frequently refers to more complex models. Nevertheless, theoretical identification and practical implementation of these models is not always apparent and frequently problematic.

The study demonstrates about diverse sources of variation in the data can be used to identify a certain class of models, a binary logit model that allows for unobserved heterogeneity. Although our FMBL model is theoretically established, estimating it using cross-sectional data or short panels may be tricky. To address this issue, researchers propose that the FMBL model be simplified by adjusting one of the latent class weights. The simplification renders the model quicker to evaluate, but it has no influence on the precision of the estimated explanatory variable effects on the binary result. This simple method may then be practically useful for researchers whose primary goal is to generate unbiased estimates of independent variable impacts.

The results of the Finite Mixture Logit Model (Class 1) specifications are shown in Bureaucratic Problems, Crime, Foreign Firms, Real Sale and Exports all have statistically significant effect on the bribery and its means Bribe payment % Of firm that give gifts to government officials, but crime is negatively effect on the bribery and Bureaucratic Problems, Foreign Firms, Real Sale and Exports are positively effect on the bribery. The results of the Finite Mixture Probit Model (Class: 1) specifications are shown Bureaucratic

Problems, Crime, Foreign Firms, Firm Age, Real Sale and Exports all have statistically significant effect on the bribery and its means Bribe payment % Of firm that give gifts to government officials, but Bureaucratic Problems, Real Sale and Exports is negatively effect on the bribery and Crime, Foreign Firms and Firm Age are positively effect on the bribery.

We find that less productive firms are more likely to engage in corrupt activities; both poor bureaucratic quality and corruption reduce firm productivity; and corruption has a greater negative impact on productivity. Corruption has a stronger effect in deterring foreign firms' investment commitment, informal sector has a stronger effect in obstructing foreign firms' innovation commitment, and crime has a stronger effect in undermining foreign firms' production commitment.

Moreover, these negative effects will be alleviated when the developing country has efficient regulatory institutions or when the foreign firm has a low market dependence on the developing country. Our findings provide implications for managers of multinational enterprises (MNEs) investing in developing countries and offer suggestions for policymakers on how to improve the institutional environment for foreign investment. In a linear regression, however, foreign firms, real sales, and exports are all positively connected to Bribery. However, the predicted log-odds ratios fluctuate significantly between model assumptions and cross-sectional and panel data estimations, according to the study. The influence of firm age on exports in high-income countries and sales in low-income countries reveals a negative relationship. In both aggregate and disaggregate analyses, external audit has a favourable relationship with corporate performance

7.1. Recommendations for Policy Implementation

- To minimize unnecessary bureaucracy in business, bureaucracy can be inefficient when employees become overly focused on processes rather than results
    - Make priorities clear
    - Eliminate unnecessary paperwork
    - Empower employees
    - Reward team
- To create graft and crime-free business environment will enhance the efficiency and growth of firms' particularly for small firms. Also, the market rewards recognised quality assurance and good reputation.
- Improving export competitiveness in the global market essential for increasing Pakistan's exports, Empowering SMEs and Improving the Duty Drawback Schemes.
    - Simplifying Regulations.
    - Entrepreneurship and Workforce Development.

7.2. Suggestions for Future Research

This study has used World Enterprise Survey 2013 of Pakistan and latest survey is not available and it is very old survey data, if any researcher will find updated survey data than this is good research gap. Researcher have applied Finite Mixture Binary Model due to discrete and categorical variables**.**

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APPENDICES

1. Qualitative Data Questionnaire

Ministry of Industries and Production

This questionnaire is aimed at collecting information about Ministry of Industries and Production. It is a part of the research for a MPhil programme at Pakistan Institute of Development Economics to study the Bribery and Firm Performance in Pakistan. If there is any part irrelevant to you then leave it blank. The personal information in the questionnaire will be treated with extreme confidentiality. Your participation in the questionnaire will be highly appreciated.

Your Name _____

Your position _____

Your qualification _____

First Interview Questions

1) What is Small Medium Enterprise in Pakistan?

_____
_____
_____

2) How to register SMEs in Pakistan?

_____
_____
_____

3) What are the main problems facing in SMEs registration?

_____
_____
_____

4) How ministry received any report of firm's performance and how monitor its performance?

_____
_____

Thanks

2nd Interview Questions

5) What is the Ministry of Industry and Production role or aims?

6) There is any firm's performance-based reporting in the ministry?

7) Do you feel corruption in Pakistan?

8) What are the causes of corruption in Pakistan?

9) What type of corruption in Pakistan?

10) What's ranking of corruption of Pakistan in the world?

11) How corruption effect Pakistan economy?

12) Any recommendations to control corruption

Thanks for your valuable time