

Using a Qualitative System Dynamics Approach to Investigate Perceptions of Corruption

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Abstract

Over the past few decades, many studies of corruption have been carried out. These studies have mainly focussed on specific characteristics such as: economic issues, legal issues, social propositions, the impact on national development, and in relation to economic policy. System dynamics modelling allows researchers to discover 'hidden' dynamics. In this article we have described the concept of modelling corruption in Pakistan using a Causal Loop Diagram (CLD). Corruption represents a very dangerous social phenomenon being experienced in many parts of the world. However, its manifestation in a developing country is an especially destructive agent against human development. Metaphorically it is a kind of social cancer. Cure for which requires a strategy built of systemic and holistic therapy. The System Dynamics (SD) approach has been extended in the past several years through its application to new problems such as modeling state instability, supply chain management, software development, and analysis of different nation building policies among others. The main objective of this study is to develop a theoretical framework which can be used to study corruption dynamics by means of SD. The methodology employed is a case study. Semi structured interviews with key stakeholders such as: government ministries or agencies, donor agencies, judiciary, police departments, non-governmental organizations and the general public are conducted. On the basis of literature and social theory we have developed three preliminary CLD models of corruption. Because corruption belongs to a class of complex social problems, we expect insights from this study will be applicable in new areas. The data for the qualitative system dynamics analysis comes from 30 interviews conducted in (Islamabad) Pakistan.

Keywords: corruption, causal loop diagram, case study, developing countries, qualitative system dynamics, themes, perception.

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1. Introduction

Corruption is ubiquitous and has the most serious affects in developing countries. Over the past few decades many studies of corruption have been carried out (Leff 1964, Huntington 1968, Friedrich 1972, Nye 1989, Lambsdorff 1999, Treisman 2000 and Mahrwald 2009). These studies have mainly focussed on specific characteristics such as: economic issues, legal issues, social propositions, the impact on national development, and the relationship to policy making. Theoretical considerations of corruption have emphasised econometric modelling, game theory, and similar mathematical approaches. These approaches, to be analytically tractable, have addressed only particular subsets of an entire corrupt system (Dudley 2000). Corruption is an extensively studied but still a contested phenomenon (Andvig *et al.* 2000, Kaufmann *et al.* 1998).

Research on corruption is vital for understanding the dynamics of corruption, and for having an efficient anti-corruption strategy. However, since corrupt practices occur in the 'gray area' of social behaviour – which makes measuring the real extent of corruption difficult – the research on corruption is often illustrative and suggestive at best. Yet, an indirect approach to measuring corruption (via its perception) exists, and even though it remains open to criticism, it is usually assumed that perception of corruption can be used an approximate indicator of the real level of corruption (Lambsdorff 1999). Such an indirect approach remains less valid for assessing corruption at any particular point in time rather than for analysing the dynamics of corruption over time.

Corruption is conventionally understood and referred to as the private wealth-seeking behaviour of someone who represents the state and has public authority. It is the misuse of public resources by public officials, for private gains. As Moreno (2000) argued, "Corruption has a cultural side, and most societies have a certain degree of corruption permissiveness, with some of them being, on average, more likely to justify corrupt practices than others". The encyclopaedic and working definition used by the World Bank (1997), Transparency International (1999) and others is that corruption is the abuse of public power for private benefit (or profit). Incidental corruption is an aspect of life in more or less all societies, but it can be systematic in many public institutions in developing countries, if not systemic in society as a whole (Riley 1983), and it can be both prevalent and planned. According to Langseth (2002), consideration of the context or circumstances in which different forms of corruption tend to occur is critical to the development of effective anti-corruption strategies. In fact, a key lesson learned in recent years has been that simply criminalising corruption and punishing offenders does not work without some broader understanding of the economic, social, political and cultural factors which contribute to corruption, and putting in place additional measures based on that understanding. Figure 1 depicts the various forms of corruption in a society in broad terms. Stulhofer *et al.* (2008) stated that research on corruption is an important element of an efficient anti-corruption strategy.

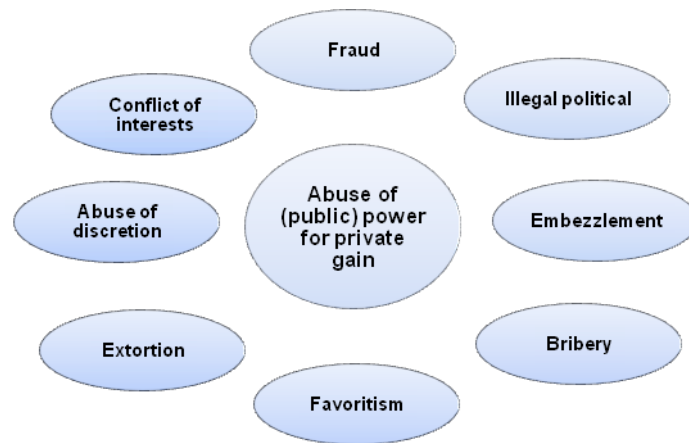


Figure 1: Forms of Corruption (Langseth 2002)

It has been observed by some researchers that developing countries normally have much higher levels of corruption than developed countries because the government typically occupies a strategic position in processes of early capitalism. While this seems to be true for all developing countries, the incidence of corruption and its effects are different because state capacities, policies and social and political contexts vary widely (Khan 2005, Ullah and Ahmed 2006). Pakistan is listed as one of the most corrupt countries in the world, but it is now going through a transition period that may allow reform to be more easily introduced. In this research, we plan to develop a qualitative system dynamics model for Pakistan. According to the Transparency International ranking, Pakistan is ranked 143rd out of 178 countries ranked from least to most corrupt, while Denmark, New Zealand and Singapore are tied at the top of the list with a score of 9.3, using its 2010 Corruption Perception Index. CPI scores range from 0 to 10, where 0 indicates a highly corrupt society and 10 a corruption free society.

The study proceeds by reviewing the situation of corruption in Pakistan in Section 2. Research methodology adopted in this study is described in Section 3, while Section 4 provides a detailed discussion on a qualitative system dynamics model of corruption. Finally, Section 5 discusses the conclusions of this study.

2. Corruption in Pakistan

Corruption takes place in societies where there is significant discretion for public officials, limited accountability, and little transparency in governmental operations; in such societies and cultures, civil society institutions and an independent private sector are often weak or undeveloped (Ullah et al. 2010, Khan 2006). The establishment of corruption on a systemic basis may be an outcome of the continuation of existing inequalities and weak ('soft' or 'hollow') states where corrupt practices can thrive "on disorganisation, the absence of stable relationships among groups and recognised patterns of authority" (Huntington 1968, Andreski 1970).

It has been argued that much of the failure in achieving a sustainable development path lies in poorly defined economic strategies. This aspect, in tandem with corruption, lack of transparency, political instability, lack of accountability, and weak judicial mechanisms has enhanced the economic governance crisis in Pakistan

since the late 1960s, undermining economic decision-making and foreign and domestic investment. It is pointed out by Mahrwald (2009) that major sectors of Pakistan’s social, political and economic structure, mainly politics and governance institutions, are ruled by elites or feudal families, hampering the rule of law and democracy for the sake of their own interests. The elite and privileged class are generally the only people with socio-economic benefits, access to quality education and health services or access to the judicial system.

Pakistan has been included in a number of research studies on perception of corruption, both on national and international levels. Pakistan Country Assistance Evaluation (2006) provides an independent assessment of World Bank assistance to Pakistan during the period 1994-2003. It analyses the objectives and content of the Bank’s assistance program during this period, and the outcomes in terms of economic and social development in Pakistan.

Year	Rank	Score	Number of Countries
1995	39	2.25	41
1996	53	1	54
1997	48	2.53	52
1998	71	2.7	85
1999	87	2.2	99
2001	79	2.3	91
2002	77	2.6	102
2003	92	2.5	133
2004	129	2.1	147
2005	144	2.1	159
2006	142	2.2	163
2007	138	2.4	179
2008	134	2.5	180
2009	139	2.4	180
2010	143	2.3	178

Table 2.1 – Pakistan’s Ranking on Corruption Perception Index (Transparency International 2010)

Since 1995 annual international studies conducted by Transparency International have measured corruption using the Corruption Perception Index (CPI)². Pakistan has been included in almost all the surveys conducted by Transparency International. As shown in Table 2.1, Pakistan’s CPI for the year 2010 (2.3) indicated deterioration as compared to its 2009 CPI score of 2.4. In fact, corruption is perceived to have worsened significantly over the last 20 years in Pakistan (Transparency International 2010). The CPI is based on a weighted average of approximately ten surveys of varying coverage. The goal of the Corruption Perception Index is to provide data on extensive perceptions of corruption within countries. The CPI is a composite index, making use of surveys of business people and assessments by country analysts. One should also note that, as the TI indexes in different years are derived from potentially different sets of surveys, they

² CPI score ranges from 0 to 10, where 0 indicates a highly corrupt society and 10 a corruption free society.

should not be used to measure changes in corruption levels over time for a particular country.

There can be no argument that corruption is enormously damaging to the development effort for a number of reasons. The monetary cost of misused funds is huge — bribery alone is estimated to cost US\$1 trillion annually in the world, moreover there is leakage of funds through misuse and illegitimate procurement. On top of this direct monetary loss, dishonesty among public servants damages the credibility of governance institutions, and expectations of dishonesty weaken trust in the private sector (World Bank 2004, Treisman 2000). Over the last 27 years, the corruption trend in Pakistan can be seen in Figure 2.

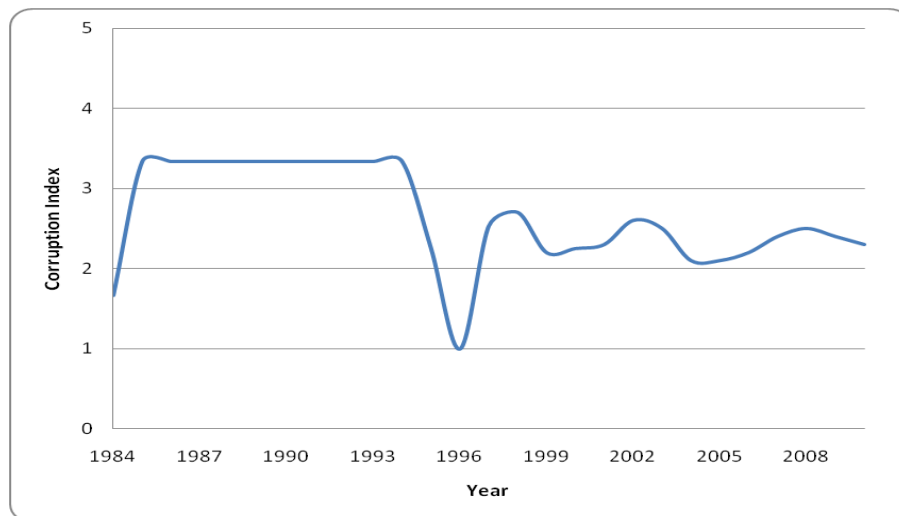


Figure 2: Corruption trend in Pakistan

(Source: International Country Risk Guide, Political Risk Services)

Haque (2000) argues that corruption is detrimental for economic growth of a country because it lowers incentives to invest. It also diminishes economic growth by lowering the quality of public infrastructure and services, decreasing tax collection, and distorting government expenditures. The growth rate of GDP and government expenditure as percentage of GDP in Pakistan from 1984-2010 can be seen in Figure 3. In the last 60 years, Pakistan's budget has been allocated mostly to debt servicing and defence spending (Tanzi 1998). "A large percentage also is lost to corruption, this leaves very little money to allocate toward economic development. Due to Pakistan's consistent failure to reform corruption in the past, foreign donors feel reluctant to give aid to Pakistan (Diamond 1994, Alam 1995). Ullah et al. (2006) uses panel data on the International Country Risk Guide (ICRG) corruption index, institutional quality, political stability indexes, and a number of state variables for 71 developed and developing countries. This study tried to explore a linear quadratic empirical relationship between corruption and economic growth. The empirical literature that noticed a linear relationship between corruption and economic development failed to differentiate between growth enhancing and growth reducing levels of corruption. In Figure 4 and 5, Income inequality and inflation trends can be seen over the last 27 years (1984-2010) in Pakistan.

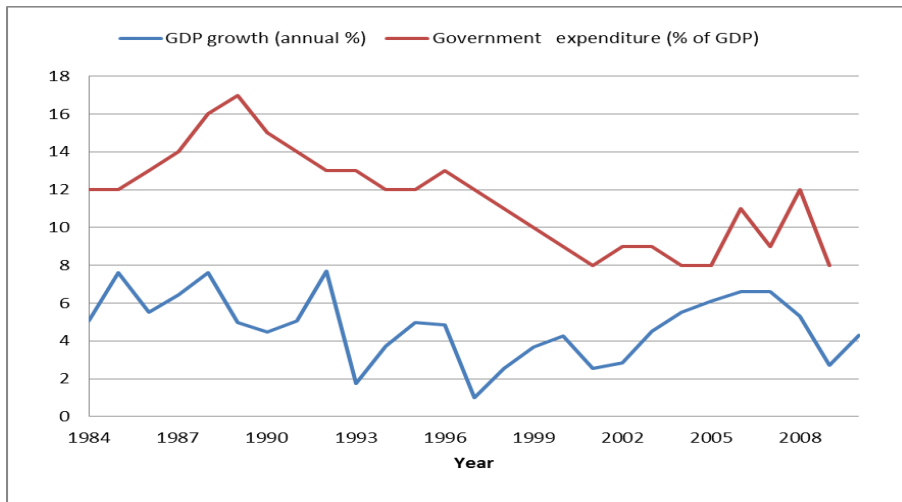


Figure 3: Economic Growth in Pakistan
(Source: World Development Indicator, World Bank)

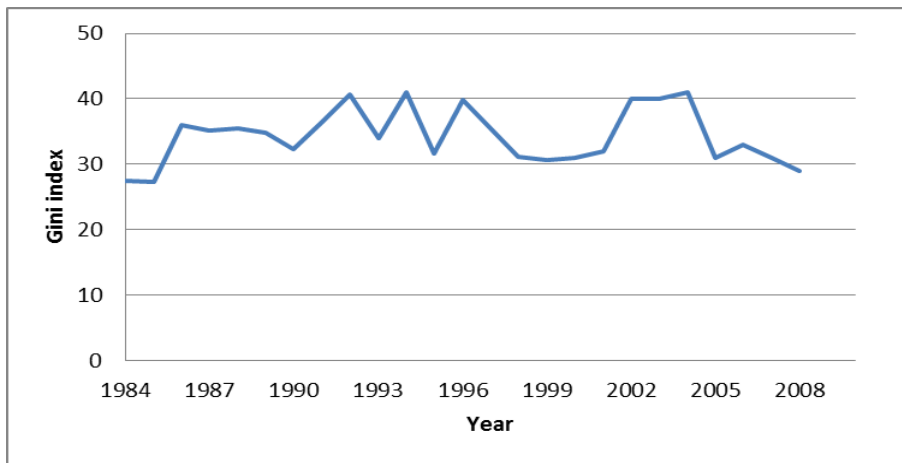


Figure 4: Income Inequality Trend in Pakistan
(Source: World Development Indicator, World Bank)

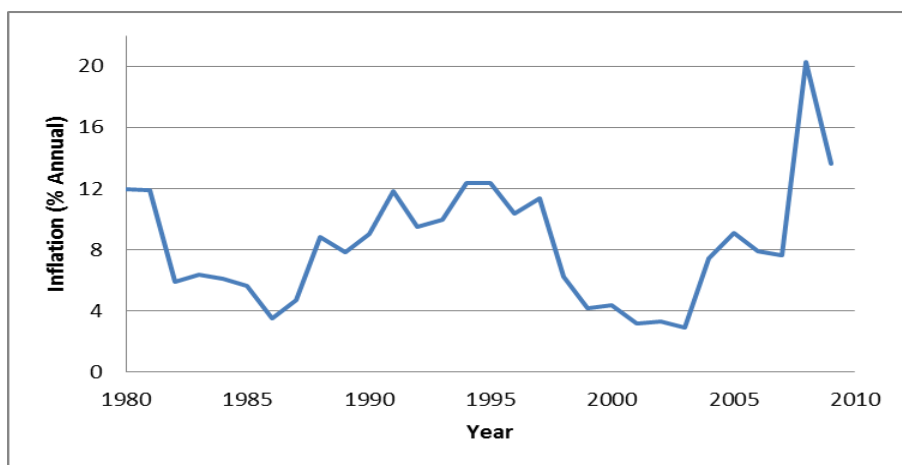


Figure 5: Inflation in Pakistan
(Source: World Development Indicator, World Bank)

The results of the National Corruption Perception Survey 2002, 2006, 2009 and 2010 conducted by Transparency International Pakistan (TIP) shows that corruption has increased in Pakistan over the past few years. According to National Corruption Perception Survey of TIP (2010), police remain the most corrupt department; power (Energy Sector) was seen as the 2nd most corrupt, and land administration has moved up from being 4th most corrupt in the last two surveys, to being third (see Table 2.2).

Rank	2010	2009	2006	2002
1	Police	Police	Police	Police
2	Power	Power	Power	Power
3	Land Admin	Health	Judiciary	Taxation
4	Education	Land Admin	Land Admin	Judiciary
5	Local Government	Education	Taxation	Custom
6	Judiciary	Taxation	Custom	Health
7	Health	Judiciary	Health	Land Admin
8	Taxation	Local Government	Education	Education
9	Custom	Custom	Railway	Railway
10	Tendering and Contracting	Tendering and Contracting	Bank	Bank

**Table 2.2 – National Corruption Perception Survey
(Transparency International Pakistan 2010)**

Torres et al. (2007) developed a system dynamics model to study the effect of bribery on economic growth. In this model, the difference between the public and private wage allows the model to introduce public corrupt activities in the economy. It also reflects normal economic activities and interactions between public and private sector, and the new causal relationships arising from the corrupt activities. The feedback processes thoroughly explain why corruption changes both public and private production as well as the wealth of some citizens. Figure 6 shows that the capital available to both the public and private sector differs from the capital used by the sectors in their productive processes as a result of corruption, which is quantified by means of the corruption index. In the figure, it is also possible to observe different feedback loops, which condition the dynamics of the model.

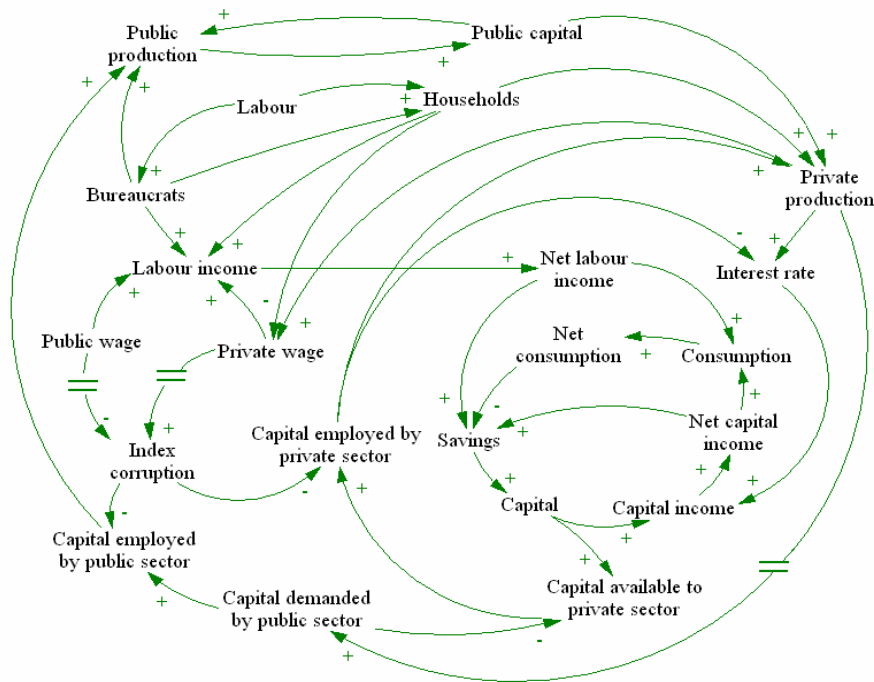


Figure 6: The Influence of Bribes on Economic Growth (Torres et al. 2007)

The main objective of this study is to help in the development of a logical theoretical framework which can be used to study corruption dynamics. The specific aim of this research is to investigate how our understanding of corruption can be extended by using a qualitative system dynamics approach. The inputs for the analysis come from interviewees in (Islamabad) Pakistan. Our conceptualisation of corruption is that it is a social phenomenon, which involves public dealing in general; manifested as a social system of corruption that has effects on all other systems in one way or another. Table 2.3 (given in Appendix I) gives brief picture of variables included in the qualitative system dynamics model and the sources of these variables.

3. Research Methodology

The strategies commonly used in qualitative research are the case study, ethnography, grounded theory, and action research (Collis and Hussey 2003). The main strategy of this research will be a case study, which will provide data for a structural model. The reason for choosing a case study strategy is due to the qualitative and exploratory nature of the study as “the flexibility of the case study strategy lends itself particularly well to exploration” (Robson 1993).

To understand the extent to which corruption occurs in a particular country, researchers analyse the social, economic, cultural and government systems qualitatively, or through descriptions and observations. Qualitative research is concerned with understanding the processes that bring about patterns, and measures information based on opinions and values, not on statistical data (Yin 2009). A case study is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context”; the case study is the most appropriate strategy, when “how” and “why” questions are there, to resolve mainly exploratory research (Yin 1989). The main advantage of the case study approach is that it allows the researcher to capture the whole real-life event or

series of events, and provides a deep and broad view of a particular phenomenon (Eisenhardt and Graebner 2007).

The case should include key stakeholders such as: government ministries or agencies, donor agencies, judiciary, police departments, non-governmental organisations and the general public. A combination of the following two methods was used to collect the data, a) Interviews — semi-structured and in-depth interviews, which were mostly face to face interviews with the “elite” participants. Elites are considered those particular types of respondents that are influential, prominent, expert and/or well-informed people in the organisation or community. It is also very important in any case study to identify and interview well-informed individuals/experts. It is important to mention here that the case study is the most popular qualitative research method used in business disciplines (Myers 2009). According to Yin (2009), interviews are an essential source of case study evidence because most case studies are about human affairs or behavioural events. Well-informed interviewees can provide pointers to the prior history of such situations, helping the principal investigator to identify other relevant sources of evidence.

According to the National Corruption Perception Survey (NCPS 2006), the most corrupt agencies in Pakistan are: 1) Police, 2) Power, 3) Judiciary, 4) Land, 5) Taxation, 6) Custom, 7) Health, 8) Education, 9) Railway, and 10) Banks. For donor agencies and non-governmental organisations, individuals were selected on three principal criteria: (a) high position within institutional hierarchy (b) working in the domain of governance or anti-corruption and (c) having some professional experience with corruption-related issues. In the case of citizens, the interviews were conducted with businessmen, retired government officials, lawyers and individuals who were involved in the policy matters in government.

The interviews covered a range of topics, such as: personal definition of corruption, assessment of corruption in Pakistan, the role of non-governmental organisations (NGOs), donor agencies, and the government in combating corruption in Pakistan, assessment of the public perception of corruption, the role of cultural/religious/political heritage in the dynamics of corruption, and the main efforts being made to fight corruption. The research data were collected during the April-June 2009 period, and were then coded and analysed to discover the existing patterns of understanding of corruption within the target expert groups.

This research mainly focuses on individuals’ perceptions of corruption and understandings of corruption. Interviews were carried out on the basis of the following categories: (a) perception of corruption, (b) examples of corruption; (c) seriousness of corruption in Pakistan; (d) dynamics of corruption; (e) causes of corruption; (f) consequences of corruption; (g) corruption and trust in government and private institutions; (h) the role of the anti-corruption agencies; (i) the role of NGOs; (j) measures for combating the corruption; and (k) the role of donor agencies; and (l) the role of social and religious values (see Appendix II). Table 3.1 provides a brief overview of the thirty interviews taken from government ministries/departments, donor agencies, non-governmental organisations and the general public. Names and other identifiers have been removed from the data throughout this research in order to ensure participant anonymity.

Sector	Demography / Experts		Interviews
Government Ministries/Departments	Government Bank, City Police, Anti-corruption Agency, Health and Education Department	Higher and middle management	6
Donor Agencies	International Donor Institutes, Aid Agencies of different countries	Head of section dealing with anticorruption and governance issues	7
Non-governmental Organisations	Transparency International, The Consumer Protection Network	Head of an institute	10
General Public	Supreme Court Lawyer, Retired Bureaucrat, Businessmen		7
Total			30

Table 3.1– Interviewee Information

As discussed above, the research method used is a semi-structured interview comprised of a group of questions that are related to the research objectives. Instead of asking only specific questions, a group of questions ‘indicative and specific’ were arranged and then improvised on during the interview. The principal investigator would go into the interview with specific questions and develop them on site as the respondent began to answer questions. The interview schedule included twenty (20) open ended and ten (10) closed questions concerning corruption-related issues in Pakistan.

After obtaining approval from The University of Auckland Human Participants Ethics Committee and having secured the funds for the fieldwork³ (see Appendix II), the fieldwork begin. Data collection was solely the responsibility of the principal investigator. 30 in-depth interviews were conducted from April-June 2009 in (Islamabad) Pakistan, exploring individuals’ perceptions of corruption. The reason for selecting Islamabad for this case study is that all the federal ministries, donor agency offices and non-governmental organisations of interest are located in the capital city (Islamabad).

Obviously, we could not have analysed the massive amount of data without computer aid. We created and organised electronic files for the transcripts from the in-depth interviews. We used NVivo (Version8.0) software package after completing manual coding. Despite the efficiency of using such powerful software, the analysis takes place in the principal investigator’s mind. At the end of the day NVivo® is no more than a database, although extremely useful in maintaining the chain of evidence for a massive amount of data which originated from a complex reality (Strauss 1987, Yin 2009).

Discussion of corruption is a difficult and very sensitive issue which demands many safeguards for participants. To achieve a somewhat coherent understanding of

³ In observation of The University of Auckland Human Participants Ethics Committee, identities of respondents are not disclosed and details of agencies are disguised.

statements, actions and perceptions, which may prove to be very different and even ambiguous, it is important to engage in participant observation in various social situations. Wadel (1991) argues that a good way of gaining access in a field is to integrate oneself into the system one wants to investigate. This meant different sorts of interviews and conversations with different stakeholders - ranging from 'informal conversations' to 'structured interviews' (Bernard 1994).

4. Qualitative System Dynamics Model of Corruption

In this study, the data gathered from the interviews is analysed, organised, and categorised based on themes, extracted from the literature review and interviews. The Table 4.1 (Appendix III) shows how the codes derived from the thematic analysis were reflected in their larger macro analytic counterparts, the themes. In the beginning, the transcript of communication was subjected to open coding. In an open coding line by line assessment of the data was done, to generate codes. This exercise is extremely time consuming, but has the benefits of getting many rich concepts and maintaining a very close tie with the data. The coding process involved recognising an important moment and encoding it prior to a process of interpretation (Boyatzis 1998). Open coding helps the researcher in breaking apart and separates the data analytically, leading to thematic conceptualisation. The themes identified in the transcripts were accordingly organised into sub-themes. Using themes as an analytic device is a useful way of scaling up analysis (Urquhart 1999).

To convey the main results of this paper and make it easy to explore the causalities, loops, and feedback effects in the system, a qualitative System Dynamics graphical tool called the Causal Loop Diagram or Influence Diagram was chosen. In our research we are planning to build a qualitative system dynamics model of corruption to capture the dynamics of corruption in social, economic, cultural, political, and legal systems, since the incidence of corruption itself can be seen as the macro-structure that has emerged by simple interaction among individuals with particular properties at the micro level.

4.1.1 Role of Government and Citizen

The role of government can be seen in the section of the model which deals with the constructs of government expenditure and public service delivery. According to Tanzi and Davoovdi (1997), bureaucratic malpractice is manifested in the diversion of public funds to where bribes are easiest to collect, implying a bias in the composition of public spending towards low-productivity projects at the expense of value enhancing investments. Thus the abuse of public office may not only reduce the volume of public funds available to the government (e.g., through corrupt practices in tax collection), but may also engender a misallocation of those funds and further lower quality services provided by government (see Figure 7).

The literature suggests that highly corrupt countries have high levels of income inequality and poverty. Poverty and income inequality do not just provide a greater supply of potential labour for criminal activities, but they also create a favourable environment for criminals to exploit the social fabric of countries as a foundation for organised crime (Lambsdorff 1999a, Ali et al. 2002, and Kaufmann et al. 1998).

Feedback Loop B: In Figure 7, the level of corruption decreases public spending on development and non-development projects. On the other hand, increase in public spending will help in improving service delivery. Social exclusion limits citizens' access to political and economic decision-making which is inconsistent with anti-corruption efforts meant to help the poor. Social exclusion adversely affects the culture and value systems in the society.

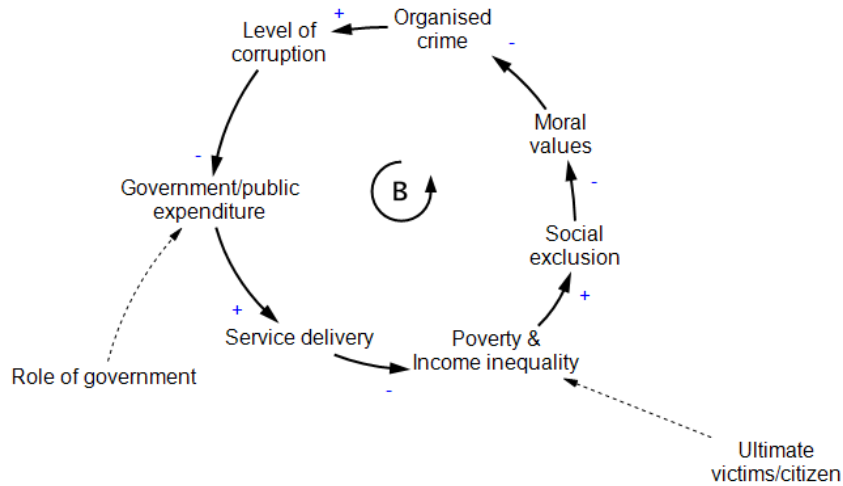


Figure 7: Role of Government and Citizens

4.1.2 Role of Donor Agencies

The role of donor agencies can be seen in Figure 8 of the model which deals with the constructs of international funding and transparency in international agreements.

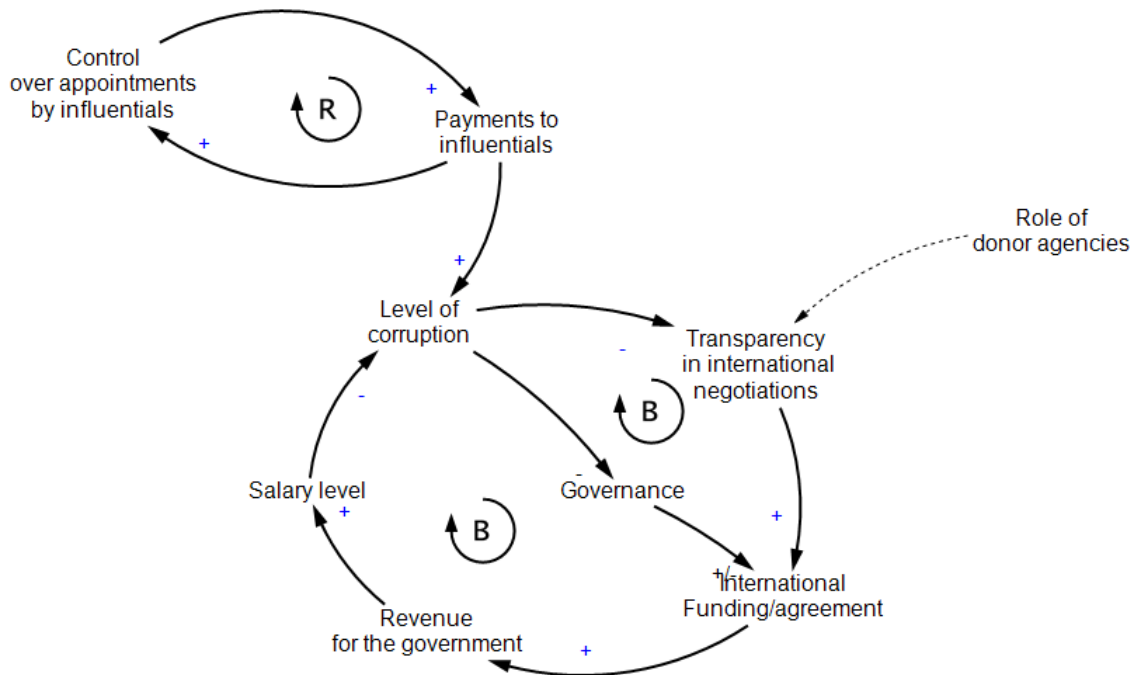


Figure 8: Role of International Donor Agencies

Developing countries often incur some cost in negotiations with multinational funding agencies, and in bilateral negotiations with more powerful nations. Whenever the negotiations are carried out without transparency, corruption becomes a likely factor in this poor performance. If there is a closed-door negotiation between funding agency and government organisation, it offers broad prospects for secret side-agreements between participants. The effect of these agreements is that more of the economic benefits of the agreement go abroad, and fewer remain at home. This further decreases the benefits for the country, and, either directly or indirectly, diminishes the income of the government (Dudley 2000, and Cobb et al. 2007). It will ultimately decrease total funds for government salaries, and further increase the corruption in the government sector. It will cause a decrease in transparency in future international negotiations, and so the feedback loop continues as shown in Figure 8 (Feedback Loop R).

Feedback Loop B: In Figure 8, in developing countries, badly needed development funding is often quite small. Projects funded by international development agencies appear to provide easy targets for corruption possibly because these funds are believed to be coming ‘from external sources’ and are monitored at a relatively low level (Vogl 1998, and Lambsdorff 1997).

4.1.3 Role of NGO’s and Judiciary

When the judicial system of a country becomes ineffective, compromised by corruption and incompetence, then the effects are quite serious for all levels and sectors of society. In particular, an ineffective judiciary allows for an increase in organised crime. Among the first signs to appear are favouritism, increased sales of illegal drugs, embezzlement, extortion, kidnapping for ransom, and gambling. As shown in Figure 9 (Feedback Loop B), an effective, independent and fairly administered judiciary can execute its role as institutional guarantor of the rule of law, assuring that wrongdoers are punished with a high degree of predictability (Silverman et al. 2009, Buscaglia et al. 2003, and Cobb et al. 2007).

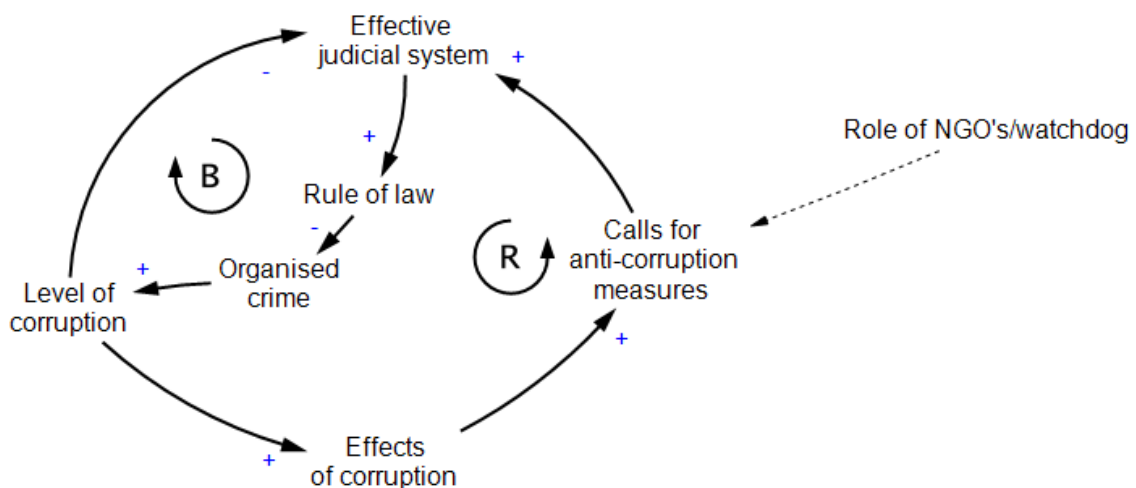


Figure 9: Role of NGO’s and Judiciary

Feedback Loop R: In Figure 9, as corruption increases, adverse effects of corruption on economic and social development are felt, this includes erosion of trust, suboptimal use of resources, insecurity and deterioration of the legal system (Stulhofer et al. 2007, 2008). Negative effects of corruption increase calls for anti-corruption measures and a

strengthening of the legal system. In particular, an effective judiciary can fulfil its role as institutional guarantor of the rule of law; the criminal justice system of course deals most effectively with crimes committed in countries with low levels of organised crime.

4.1.4 High Level Diagram of SD Corruption Model

The primary task in identifying our systems approach to modelling corruption is to define the key system features and to construct a high level causal loop diagram that captures the key elements of the system in question, including the major feedback loops. In Figure 10, there are a whole range of potentially significant joint dependencies (and feedback dynamics) that capture the overall system behaviour and performance over time rather than one ‘dependent variable’, which is different from traditional social sciences. It is therefore essentially a systemic framework of analysis that provides a useful mechanism for understanding the incidence of corruption in different systems — the complex nature of change in the context of a continuing crisis of accumulation, and the impact of that change on regulated legal, economic and social institutions.

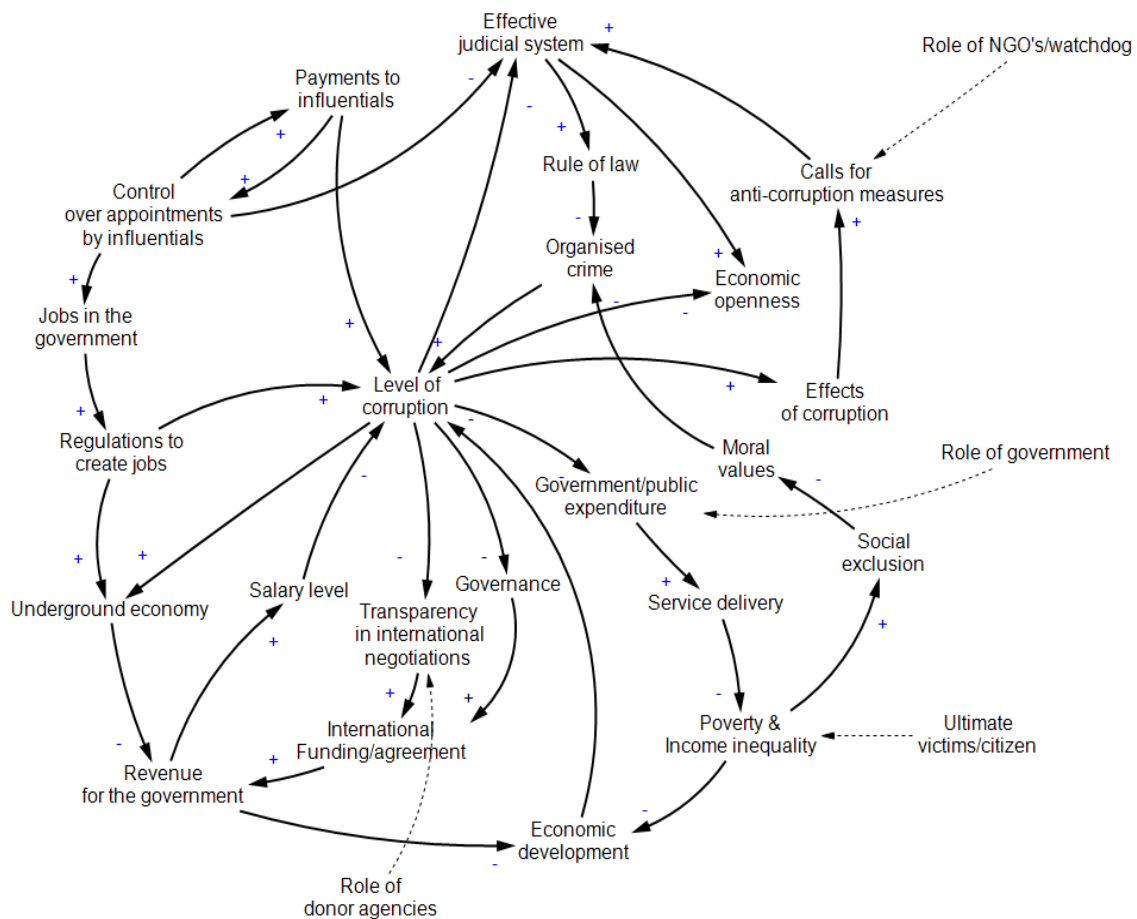


Figure 10: A system dynamics model of corruption⁴

⁴ The arrows show causal relationships between variables. A plus sign (+) indicates that a change in the first variable (at the tail of the arrow) causes a change in the second variable (at the head of the arrow) in the same directions. A minus sign (-) indicates that a change in the first variable causes a change in the second variable in the opposite directions. A path that begins at any variable and traces from arrow to arrow to returns to the original variable forms a feedback loop (Sterman 2000).

A social system occupied by increasingly complex and bureaucratic organisational structures, and market-based capitalism (possibly a more accurate description would be the institutions and organisations that consist of the marketplace) requires gradually complex regulation and socio-political interference, not only to ensure increased accountability, transparency and control but, more importantly, to ensure market efficiency. Such demands, whether a product of government interference and/or market-based principles, nonetheless promote a greater dependency on systems – a trust in systems – in order that: governments ensure that sufficient regulatory control of an increasingly complex marketplace is maintained, and market regulators ensure that the right levels of market confidence are maintained in extant regulatory procedures (Situngkir et al. 2004). Table 4.2 gives a list of causal relationships between variables included in the system dynamics model and the source where the variable is defined and described, with a brief picture of the variables included in the system dynamics model and the source of the variables.

The most devastating consequences of bribery are usually not the cost of the bribes themselves, but the distortions they unleash within social, political and economic systems. For example, bribes compromise efficiency in the allocation of state resources. Examples of this arise in awarding of government contracts or privatising state industries, as corruption favours those with connections over efficiency. Other inefficiencies can arise if officials increase regulations, delays and unnecessary requirements as a means of inducing additional payoffs. High levels of bribery increase the costs, risks and unpredictability of doing business. Lower levels of investment result and consequently slowed growth and development, which also increases poverty levels and distorts income distribution. The principle enabling factors for bribery in many countries can be traced to weak institutional systems and inappropriate government policies. These are problems which can be addressed technically, through straightforward changes in government policy to reduce both the opportunity and incentive for government officials to seek or accept bribes (Morgan 1998). There is a common belief by most of the people that accountability and transparency of government will help to reduce corruption. Figure 10 presents the high-level diagram of an overall model of corruption (includes social, cultural, political, and economic variables).

Relationships	Sign	Source
Role of Government and Citizen		
Level of corruption → Government expenditure	-	Treisman 2000
Government expenditure → Service delivery	+	Tanzi and Davoodi 1997
Service delivery → Poverty & Income Inequality	-	Johnston 2000
Poverty & Income Inequality → Social exclusion	+	Davoodi et al. 1998
Social exclusion → Moral values	-	Alam 1989
Moral values → Organised crime	-	TI's Global Corruption Report 2004
Organised crime → Level of corruption	+	Buscaglia and Dijk 2003
Economic development → Level of corruption	-	Treisman 2000
Role of Donor Agencies		
Level of corruption → Transparency in international negotiations	-	Budak 2006
Transparency in international negotiations → International funding	+	Dudley 2000
International funding → Revenue for the government	+	Marcus et al. 2007
Revenue for the government → Salary level	+	Tanzi and Davoodi 1997
Salary level → Level of corruption	-	Dudley 2000
Role of NGO		
Level of corruption → Effects of corruption	+	Stulhofer et al. 2008
Effects of corruption → Calls for anti-corruption measures	+	Silverman 2009
Calls for anti-corruption measures → Effective judicial system	+	Cobb & Gonzalez 2005
Effective judicial system → Rule of law	+	Kaufmann et al. 1998
Rule of law → Organised crime	-	Buscaglia and Dijk 2003
Organised crime → Level of corruption	+	Sundquist 2008
Role of Judiciary		
Level of corruption → Effective judicial system	-	Lambsdorff 1999
Effective judicial system → Rule of law	+	Kaufmann et al. 1998
Rule of law → Organised crime	-	Buscaglia and Dijk 2003
Organised crime → Level of corruption	+	Sundquist 2008

Table 4.2 – Variables and Sources

5. Conclusion

These three preliminary system dynamic views of corruption appear to capture key elements of the behaviour of corrupt systems which are described in the literature and occur in the real world. It seems likely that a continued effort, including the merging of these models, could assist in clarifying the way in which corruption works and ways in

which it can be limited. While significant amounts of corruption modeling have been carried out in the past using various mathematical approaches, the technical knowledge needed to understand and comment on those approaches tends to limit their usefulness except among interested experts.

On the basis of literature and social theory we have developed three preliminary CLD models of corruption. Because corruption belongs to a class of complex social problems, we expect useful insights from this study will be applicable in new areas. Applying a qualitative system dynamics approach, we endeavour to find out perceptions, interpretations and understandings of those practices that the interviewees categorise as corrupt, and the underlying meanings of corruption that they imply. The paper reports a work in progress.

In summary, in recent years and especially in the 1990s, a phenomenon broadly referred to as corruption has attracted a great deal of attention. In countries developed and developing, large or small, market-oriented or otherwise, governments have fallen because of accusations of corruption, prominent politicians (including presidents and prime ministers) have lost their official positions, and, in some cases, whole political classes have been replaced (Johnston 1997). According to Tanzi (1997), if any government wants to root out corruption then their leadership must show zero tolerance and honest and visible commitment. Moreover, the level of corruption can be reduced by increasing public sector salaries, increasing incentives toward honest behaviour, and instituting effective checks and balances on public officials.

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APPENDIX I

Variables	Description and/or Source
Corruption	Misuse of public power for private gain. (Treisman 2000)
Effective judicial system	Delivery of justice without delay. (Lambsdorff 1999)
Rule of law	A system that attempts to protect the rights of citizens from arbitrary and abusive use of government power. (Kaufmann et al. 1998)
Organised crime	Criminal activity undertaken for the purpose of gaining profit, power or influence. (Buscaglia and Dijk 2003)
Government expenditure/Public funds	Public expenditure includes both current and capital expenditures. (Tanzi and Davoodi 1997)
Service Delivery	Effective delivery of service to the citizen by government. (Johnston 2000)
Poverty	A state or condition in which a person or community lacks the financial resources and essentials to enjoy a minimum standard of life and well-being that's considered acceptable in society. (Tanzi and Davoodi 1997)
Income inequality	The unequal distribution of household or individual income across the various participants in an economy. (Ullah et al. 2006)
Social exclusion	A broader concept than poverty, encompassing not only low material means but the inability to participate effectively in economic, social, political and cultural life and, in some characterisations, alienation and distance from mainstream society. (TI's Global Corruption Report 2004)
Moral values	Moral values are the standards of good and evil, which govern an individual's behavior and choices. Individual's morals may derive from society and government, religion, or self. (Silverman 2009)
Economic openness	The sum of exports and imports as a share of GDP to capture the degree of openness of the economy. (Ullah et al. 2006)
Effects of corruption	Dudley (2000)
Economic development	Johnston (2000),
Calls for anti-corruption measures	Stulhofer et al. (2008)

Transparency in international negotiations	Cobb & Gonzalez (2005)
International funding/agreement	Cobb & Gonzalez (2005)
Salary level	Cartier-Bresson (1999)
Lower revenue for the government	Lambsdorff (1999a)
Businesses remain in the informal economy	Sundquist (2008)
Regulations to create jobs	Cartier-Bresson (1999)
Jobs in the government	Cobb & Gonzalez (2005)
Control over appointments by influentials	Budak (2006)
Payments to influentials	Dudley (2000)

Table 2.3 – Variables and Sources



APPENDIX II

DEPARTMENT OF INFORMATION SYSTEMS AND OPERATIONS MANAGEMENT

Owen G Glenn Building
12 Grafton Road
Auckland, New Zealand
Telephone 64 9 373 7599
Facsimile 64 9 3737430

Interview Schedule

Introduction:

I am M Aman Ullah an interviewer. The study is part of a Ph.D research at the University of Auckland Business School and financed by New Zealand Postgraduate Study Abroad Awards (NZPSAA). I am conducting a survey among Government Officials, Donor Agencies, Non-governmental Organisations and Citizens in order to understand their perspective on the understanding of corruption. I would like to assure you that we are only interested in your opinion regarding the issue of corruption and your answers will be confidential. May I have a few minutes of your time now to ask you some questions?

1. Yes, continue
2. No, new appointment, refused etc

Section I: Indicative Corruption Questions

I would like to speak to you about corruption in general.

Q1. What do you understand by the word "corruption"? What does it mean to a person like yourself?

Q2. Can you give me a few examples of corruption?

Q3. Is the present government more, just as or less corrupt than previous governments?

Q3.1. You mentioned that corruption increased. Why do you say so?

Q3.2. You mentioned that corruption decreased. Why do you say so?

Q4. What about the next few years? Do you expect levels of corruption to increase, stay about the same, or decrease?

Q4.1. You mentioned that corruption will increase. Why do you say so?

Q4.2. You mentioned that corruption will decrease. Why do you say so?

Q5. What do you think is the MAIN cause of corruption in Pakistani society in general?

Q6. What do you think is the MAIN cause of corruption in government (Institutions run by government) in Pakistan?

Q7. How well would you say the government is handling the matter of fighting corruption?

Q8. How committed do you think the government is to fight corruption?

Q9. Does the government have sufficient resources to fight corruption?

- Q10.** What is government doing RIGHT in the fight against corruption?
- Q11.** What is government doing WRONG in the fight against corruption?
- Q12.** During the past year, has any government official, for instance a government officer, police/traffic officer asked you or expected you or anyone you know to pay a bribe for his or her service?
- Q13.** Besides government, is corruption a serious problem in any other areas of Pakistani society?
- Q14.** Are corruption and fraud more prominent in the public or the private sector or is it about the same in both?
- Q15.** What is your interpretation of the seriousness of corruption in Pakistan?
- Q16.** What mechanism is required to actively involve non-governmental organisations and/or citizens in the fight against corruption?
- Q17.** What institution is mainly responsible to counter problems of corruption in Pakistan?
- Q18.** Do you think that religious and social values can be used to fight corruption?

Section II: Specific Corruption Questions

I am now going to read out a list of institutions and offices. Please give me your opinion on whether you think they could be involved in corruption or not. Please use the following scale.

1. All/almost all
2. Most
3. A few/some
4. Almost none/none
5. Haven't had a chance to hear enough about it

Q19. How many officials in the Office of the President/Prime Minister do you think are involved in corruption?

How many cabinet ministers do you think are involved in corruption?

How many senior government officials in legal system (judiciary and police) do you think are involved in corruption?

How many members of parliament do you think are involved in corruption?

How many civil servants, or those who work in government offices and ministries do you think are involved in corruption?

Q20. Can you rate the integrity of the following Government Departments on a score of 1-4, where 1=least corrupt, 2=less corrupt, 3=most corrupt, while 4=don't have an opinion.

- 1) Police,
- 2) Power,
- 3) Judiciary,
- 4) Land,
- 5) Taxation,
- 6) Custom,
- 7) Health,

- 8) Education,
- 9) Railway,
- 10) Banks,
- 11) Civil Secretariat,
- 12) Others (SPECIFY)

Q21. With which ONE of the following statements do you agree most?

- 1. Pakistan has a lot of corruption and it is one of the most serious problems the country is confronted with
- 2. Pakistan has a lot of corruption, but this country is confronted with other, more serious problems
- 3. Pakistan does not experience a lot of corruption, but it is still one of the most serious problems the country is confronted with
- 4. Pakistan does not experience a lot of corruption and it is not among the serious problems the country faces

Q22. In general, which of the following statements would you think best describes the majority of cases where an official has to be bribed in exchange for a service or for solving a problem?

- 1. The public official requests or hints payment
- 2. The offer is made by the citizen
- 3. It is known beforehand to both sides how it is done and how much to pay

Q23. I would like to read you a list of statements concerning corruption in government. For each, please tell me whether you 1) strongly agree, 2) agree, 3) neither agree nor disagree, 4) disagree, or 5) strongly disagree.

- 1. Government officials are so poorly paid that they have no choice but to ask people for extra payments
- 2. Paying bribes to government officials or doing favours for them helps overcome the red tape of bureaucracy and makes it easier to get things done
- 3. Democratic systems of government increase the amount of corruption in a country
- 4. Process of selling government factories and businesses to private citizens (privatisation), the potential for corruption in government increases
- 5. Government officials have excessive autonomy in decision making
- 6. Judicial system is not effective in fight against corruption
- 7. Weak democratic system causes corruption
- 8. Corruption is a legacy of colonial system
- 9. Lack of education is one of the causes of corruption in Pakistan
- 10. Lack of religious practice / knowledge and ethical values increase level of corruption in society.

Q24. Elected politicians found guilty of serious corruption and fraud could face a

number of situations: which one of the following do you think is the most appropriate?

1. Lose their position and go to prison
2. Lose their position and have to pay a fine
3. Lose their status as elected politician
4. It depends on the nature of the corruption
5. There should be no penalty for this
6. Don't know

Q25. Civil servants found guilty of serious corruption and fraud could face a number of situations: which one of the following do you think is the most appropriate?

1. Lose their jobs and go to prison
2. Lose their jobs and have to pay a fine
3. Lose their jobs only
4. Transfer/demotion/fine
5. It depends on the nature of the corruption
6. There should be no penalty for this
7. Don't know

Q26. There are numerous agencies that exist to fight corruption in Pakistan. For each, please tell me whether you think they are 1) very effective, 2) effective, 3) not very effective, 4) or not at all effective in fighting corruption in government. If you have not yet had a chance to read or hear about the institution, please feel free to tell me.

1. Anti-Corruption Department
2. National Accountability Bureau (NAB)
3. Federal Investigation Agency (FIA)
4. Office of the Auditor General
5. Office of the *Wafaqi Mohtasib* (Ombudsman) of Pakistan
6. Accountability Court
7. Civil Courts

Thank you for the time and input provided during this interview.

Grounded the Model — Thematic Analysis Grid

APPENDIX III

No	Themes	Sub-Themes	Codes				
			Code 1	Code 2	Code 3	Code 4	Code 5
1.	Corruption	a. Aspects of corruption	Lack of transparency	Kickbacks	Immoral or unethical	Need based and greed based	Misuse of authority
		b. Level of corruption	High corruption level	Low level is tolerable	Acceptable level of corruption	Increase of corruption in government with size	smaller government reduces corruption
		c. Money matter	Bribe	Greasing the palms	Personal gains	Focal point	Speed money
		d. Causes of corruption	Lust for economic gains	Extremism	Organised crime	Class distinction	Selection process
2.	Governance	a. Aspects of governance	Bad governance	Lack of governance	Corporate governance standards	Good governance	
		b. Lack of political stability	Political will	Martial laws	Democratic government	Top leadership	Checks and balances
3.	Effective Judiciary	a. Aspects of effective judiciary	Lack of judicial dispensation	Absence of transparency	Pay the bribe and buy justice	Strong judicial system	Process of judicial reforms
		b. Lack of accountability	Process of developing a checks and balances	Lack of action against influential's	Political victimization	Mechanism to rectify corruption	
		c. Rule of law	Advocacy and awareness raising	No serious resolve	Selective in enforcing law	Interested in making new laws	

No	Themes	Sub-Themes	Codes				
			Code 1	Code 2	Code 3	Code 4	Code 5
4.	Values	a. Ethical and moral values	Attitudinal change is needed	Low moral values	Moral lapse	Corruption is way of life	Motivation towards honesty
		b. Religiosity	Religious practices	Non-practicing of religion	Religious values	Religious education	Religion is not the reference point
5.	Poverty	a. Aspects of poverty	Financial intervention is needed	Direct relationship with corruption	Corruption is epidemic	Poverty is a by-product of corruption	Gap between poor and rich increases
		b. Income distribution	Unequal distribution of wealth	Capitalism motivates people to raise their income level	Increasing wage rate	Big family size and low income level	Lack of monetary compensation
6.	Social aspects		Family social fabric is weakened	Taking it as a social norm	Greed for social status	Deep rooted	Lack of education
7.	Transparency in international negotiations and funding		Third party involvement	Anti corruption clauses, Proper monitoring system is needed	Motivation to get capital gain	Indigenous agenda, Asking for share in the project	strengthening the capacity of the government to fight against corruption
8.	Regulations to create job		Limited employment opportunities	Merit-based selection	No job available without <i>Sifarish</i> and bribe		
9.	Size of the Government		Big government size harmful	Insufficient resources	Small size reduces corruption	Informal economy	
10.	Economic health of a country		Privatisation	Inflation causes corruption	Government is poor	Global financial crisis	

Table 4.1 – Grounded the Model — Thematic Analysis Grid