Corruption – Can Brazil win this war?

by
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Thesis
Submitted to the Department of Geography
in Partial Fulfillment of the Requirements for the Degree of
Master of Philosophy in System Dynamics

System Dynamics Group
Department of Geography
University of Bergen

May 2015

2015

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TO

Luca

The present thesis is dedicated to my newly born grandson Luca wishing that wherever his journey takes him that he fights for good causes and stands for his principles and convictions.

Foreword

Corruption has always intrigued and annoyed me. It has been going on for so long and has become so much part of the everyday life in Brazil that most people don't realize its immense dimensions, damages and consequences, such as poverty and inequality. It is the predatory and Darwinian aspects of man's nature taken to their most extremes, and worse than that is the fact that the grand corrupt benefit from a system where impunity prevails.

Brazil is a country where many of the socially included feel that those who are excluded are plain lazy and should just go get a job, an attitude that fosters the creation of a divided society of the haves and have-nots with the emergence of hate, violence, crime, drugs, and social fragmentation and distress. Brazilians abominate corruption but feel that it is more or less a disease that is part of the system. The general feeling is that these are issues to which there are no remedies, leaving a powerlessness and hopelessness sensation. The fact is that issues related to corruption are of such gravity that they should be a compulsory part of the curriculum of the primary, secondary, and higher education.

Nonetheless, the dramatic levels of inequality caused by corruption that have evolved in the U.S. and Europe during the last few decades shed light on this problematic behavior that is now also affecting developed countries, which is something quite positive for Brazil to the extent that more people are involved in the solution. It has attracted the attention of the academia and of prominent economists such as Piketty, Stiglitz, Krugman, Krueger, Raj Chetty, Raghuram Rajan, Acemoglu, and many others. It has sent shock waves from Washington to all major centers around the world. It has also drawn the attention of numerous multilateral organizations, which have allocated their top economists and social scientists to work on the issue. The proportion that the research and debates has taken is indeed overwhelming. Only a *tsunami* of such magnitude would be capable to draw such immense concerted effort to diagnose and find remedies to these problems that originate to a large extent on corruption.

I have had contact with poverty and inequality for several years in several countries, mainly Brazil, Latin America, and the U.S., places where from one generation to another the poor are marginal human beings with no rights who struggle to meet their most basic needs. Some people say that the "poor are happy" … no, they are absolutely not,

they are mere survivors since the day they were born. Across Brazil I have seen the poor take more than three hour trips in each direction to/from work starting at four in the morning with two to four switch overs in mass transit, in total fatigue compensating their lack of sleep inside buses, metros and trains … I have seen life in the favelas and in low income neighborhoods, homeless men and women, homeless and abandoned children, child prostitution, drugs, life in *cracolandia*[1] in Sao Paulo, highly crowded inhuman jails, poor school and healthcare installations, poor quality public education, inadequate healthcare, ill-functioning sanitation and lack of infrastructure.

Since circa 1975 I could increasingly fight inequality, poverty, and corruption in Brazil more intensively in the way I felt I could cause more impact, and that was through creating and preserving jobs. Following a cycle with Fortune 500 multinationals, I decided to work directly in solving large-scale corporate and banking problems and crises in Brazil – which increased substantially in 1990 due to the recession experienced by Brazil (-4.3% GDP) – reinvigorating and saving companies, which I referred to as "social cells" in one of my books, and combating different types of business and financial crimes, public and private. In late 1990's I enhanced my engagement in the fight against corruption and fraud.

The capital, Brasilia, is a case apart – there were several occasions in which I had to go to Brasilia on work and could closely see the dynamics of the three powers at the federal level, more frequently during Brazil's Constitutional Reform in 1987/8 and the Reform of the Insolvency Law in 2004/5. However, the most unique episode in Brasilia happened during the short seven-month period in 1997 in which I worked in solving a major crisis that involved corruption and power games at the heart of the country.

Corruption in Brazil also sweeps through the executive and legislative powers and is extensive to the judiciary – with widespread corruption it could not be otherwise. I saw numerous corruption schemes and abuse of power involving the government, congress, and the judiciary, and a lot of what happens behind the scenes, away from the public eye. It included but was not limited to state owned banks, large pension funds of state owned companies, state companies, regulatory agencies, etc. – at federal and state levels.

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[1] *Cracolandia* is the land of crack which exists in different cities in Brazil. I visited *Cracolandia* in the old center of Sao Paulo a few times, ironically near Sao Paulo Supreme Court, and was totally shocked to see all those people and children with their crack stones smoking themselves to death. I could see the presence of the police but they were not there to protect the people – not too far from the police I could also see the drug dealers selling their crack very naturally and showing no concern with the officers. *Cracolandia* and Brazil's prisons are true horror stories.

Corruption in the private sector involved, among others, kickback payments to giant natural resources public companies, large state companies' pension funds, tax and financial schemes, bribing of tax authorities, bribing of government officials, illicit money transfers, trade misinvoicing, and shell companies. The crisis projects on which I worked were a result of mismanagement and illicit practices, including shell banks and fraudulent activities. I was somewhat surprised by the fact that the Fortune 500 companies I worked and, which I had as a symbol of excellence in performance and ethics, were involved in corruption. I could see the difference between the hypocrisy of the discourses, value statements, the rule of law, and the facts. I could see the difference between the law and justice. I could also see the promiscuous relationship between the public and the private.

These experiences had a great significance to my better understanding of the causes and consequences of corruption in Brazil and elsewhere. Over and above what corruption crimes represent, the fact is that Brazil and other countries today suffer from a severe moral crisis that corrodes all institutions and their credibility. We read and watch the news and see almost daily, rules being bent, prevarication, twisted information, plain lies, false propaganda, tax evasions, frauds, money laundering, and corruption scandals, all involving high ranking officials from government, politics, judiciary, public entities, corporations and financial institutions. Brazil's largest company and 30th in Fortune 500 Global in 2014, state controlled Petrobras, is in the center of a scandal, with the ruling political party being investigated in Brazil and U.S. since 2014 for corruption crimes committed since 2002. There are just no limits to the greed of a few to the detriment of the less advantaged.

Since founding the Brazilian Crisis Management Institute – Instituto Brasileiro de Gestao e Turnaround – in 2002 I have increasingly dedicated more time to research, writing and teaching. Corruption, injustice, poverty, and inequality in Brazil have always caused me annoyance and are what motivated me to choose this theme for my research. I was also motivated by the fact that many researchers and the general public have only a vague idea of corruption in Brazil, and of the widespread damage it causes. Ever since always I was asked, "how can such a rich country have so much poverty?" and "why is there so much corruption in Brazil?"

In Brazilian politics I knew only one man who fiercely fought grand corruption, an honorable and incorruptible political leader, a true statesman and greatest orator I have seen in Brazil called Carlos Lacerda (1914-1977).

In the investigation process of the thesis I found good and inspiring scientific literature and economic analysis on corruption, poverty, inequality, socioeconomic mobility, and a host of related variables, but nothing specifically related to the corruption syndrome in Brazil which has peculiarities not found in any other country.

This and the empirical findings of my own odyssey of discovery are the contributions that I aim to provide with the present thesis.

Jorge Queiroz

Acknowledgements

I would like to express my deepest gratitude to my supervisor Professor Erling Moxnes for providing me with crucial advice and feedback. I would like to thank Dr. Thomas Pogge, Leitner Professor of Philosophy and International Affairs, Yale University, Dr. Dev Kar, Chief Economist, Global Financial Integrity and Dr. Erling Vårdal, Professor, Department of Economics, University of Bergen for their valuable feedback and suggestions. I wish to extend my gratitude to Dr. Birgit Kopainsky, Dr. Matteo Pedercini, Stian Hackett and Andreas Gerber who graciously gave me important insights and feedbacks. My special thanks also go to Christopher Jarvinen who discussed some interesting aspects of the U.S. criminal law and the current institutional crisis in Brazil and for kindly proofreading my thesis. Last but not least I wish to thank Melissa Varela for her feedback on the layout. I wish to thank the staff of UiB Social Sciences Library for always helping me find the research material I needed and clarifying some rules regarding citations. I also wish to express my appreciation to the Instituto Brasileiro de Gestao e Turnaround for its assistance in collecting my research data on Brazil.

Jorge Queiroz
Bergen, May 2015

Acronyms and Abbreviations

BNDES – Brazilian Development Bank

BRICS – Brazil, Russia, India, China and South Africa

GDP – Gross Domestic Product

CLD – Control Loop Diagram

COE – Council of Europe

GRECO – Group of States against Corruption

IBGE – Instituto Brasileiro de Geografia e Estatistica

IBGT – Instituto Brasileiro de Gestao e Turnaround

IBOPE – Instituto Brasileiro Opiniao e Pesquisa

IBRD – International Bank for Reconstruction and Development

ICRG – International Country Risk Guide

IMD – International Institute for Management Development

IPEA – Instituto Brasileiro de Pesquisa Economica e Aplicada

OECD – Organization for Economic Co-operation and Development

PISA – Program for International Student Assessment

PRSCR – Political Risk Services Country Reports

SFD – Stock and Flow Diagram

UN – United Nations

UNCAC – United Nations Convention Against Corruption

UNTOC – United Nations Convention against Transnational Organized Crime

WGI – Worldwide Governance Indicators (World Bank)

Abstract

Corruption in Brazil is endemic and has increased since the end of the military transition regime in 1985, a year marked by an indirect presidential election, which was followed by the 1988 Constitutional Reform. The present thesis answers the research question of "how corruption affects well-being in Brazil" by investigating the existing cause-effect relationships and complex dynamics and logic between corruption and related variables in Brazil, with each of the twenty-seven causal diagrams being analyzed individually. Among the key findings are that (i) a center role is played by the level of quality of institutions, (ii) high corruption is a symptom of a fundamental problem with the independence, quality and effectiveness of the judiciary, and that (iii) corruption is dominated by fast destructive reinforcing loops that can deteriorate quite rapidly if left unwatched, and improvement to lower corruption levels is characterized by feedback loops with long delays. The present thesis also recommends anti-corruption policies that can result in lower levels of corruption and in improved well-being. Among the several policies recommended are: stop impunity of the corrupt, close the loophole on the penal procedure code that allows corrupt criminals to escape serving jail time, introduce severe jail sentences to the corrupt, strengthen control of corruption, strengthen the procedure for nomination of Supreme Court Judges and to ensure the independence of the judiciary, introduce the study of corruption at all levels of the school curricula, introduce a political reform to stop reelection and to strengthen the electoral system to promote the election of non-corrupt representatives, introduce policies to strengthen the control of the black market for currencies and illicit financial flows, including money laundering, trade misinvoicing, anonymous companies, tax havens, bank secrecy and others – ultimately, allow Brazil to win the war against corruption.

Keywords: corruption in Brazil, corruption, anti-corruption, anti-corruption policies, system dynamics, causal loop diagram, CLD, stock and flow, SFD.

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1. Introduction

> "The President abused one his most important powers … he offered it up [the presidential pardon] to wealthy fugitives whose money had already enabled them to permanently escape American justice. Few other abuses could so thoroughly undermine public trust in government."[2]

Most people have only a vague idea of what corruption in Brazil is and how much damage it causes, much less about the complex dynamics and logic involved, and the respective solutions. This is precisely where the present thesis aims to provide an original contribution to researchers, policy makers, practitioners, NGOs, donor agencies, and supra-national organizations, employing a system dynamics thinking approach.

The socio-economic impact of corruption in Brazil is astounding – over 2.5% of GDP, US$35 to 50 billion[3] stolen every year from poverty stricken Brazilians (in addition to 13% of GDP tax evasion). The present research is supported by several years of intense field experience "battling these [corruption and mismanagement] problems", along the line advocated by Forrester (Forrester, 2013).

In order to achieve this objective the present thesis investigates the causality between corruption's key variables in Brazil, and recommends the policies that can be implemented to reduce corruption from its persisting high level. Hence the thesis hypothesis is:

Corruption in Brazil negatively affects well-being of its society.

There is much scientific work and economic analysis on corruption and related variables, an area that has attracted a great deal of interest from scholars, NGOs and multilateral organizations especially since the 1990s. Nonetheless, considering how long corruption has existed in human society and how long it has affected crucial

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[2] United States Congressional Serial Set, No. 14778, House Report No. 454, Justice Undone – Clemency Decisions in Clinton White House, p. 107 – caused by the fact that Clinton granted a presidential pardon to billionaire fraudster and active fugitive from justice for nearly two decades, Marc Rich (and partner Pincus Green), founder of mining giant Glencore, largest Swiss company and 10th in Fortune 500 list, on his last day and hours before leaving the office, January 20, 2001, just as lights went out.

[3] Federation of Industries of Sao Paulo State.

socioeconomic variables, I believe that understanding of corruption and the various causalities is still embryonic.

Part of the answers to Brazil's high corruption is found in history. Brazil is a relatively young democracy that started out as a highly extractive and corrupt colony of Portugal, which lasted three centuries until 1822, before stabilizing at today's level. Brazil has been stranded in a trap of a persistent and endemic corruption with a fixed wide gap with the more developed countries. Poor education performance (PISA)[4], high levels of poverty and inequality, and prevailing impunity are perfect ingredients to foster increase in the number of corrupt representatives in government, congress and judiciary, at federal, state and municipal spheres.

Corruption involves highly complex dynamics with long delays and inertia caused by an accumulation phenomenon, and is a serious obstacle to well-being and development. It exists only where and when there is a weak political and legal institutional structure, building quite a devastating vicious circle.[5]

A wealth of literature demonstrates the relationships between corruption, growth, governance, inequality, poverty, human capital, infrastructure, politics, rule of law, informality, illicit activities, violence/drugs, and wars and it provides great detail of the amounts involved in the illicit transactions that on a world scale add up to over one trillion dollars each year, 3% of world GDP [6].

Among important findings of this thesis is the fact that corruption in Brazil is dominated by fast destructive reinforcing loops and can deteriorate fast if left unwatched, and also that amelioration to lower level of corruption is characterized by feedback loops with long delays.

Research has shown that system dynamicists have not ventured much in the study of corruption. Following a thorough investigation that included insights from (Sterman, 2000) and (Haraldsson & Sverdrup, 2005), and keeping in mind the intended

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[4] Below average scoring in PISA tests and ranked 58th among 65 countries in 2012.

[5] (Abed & Davoodi, 2000; Barro, 2013; Eicher, Garcia-Penalosa, & van Ypersele, 2009; Kaufmann, Kraay, & Mastruzzi, 2014; Kaufmann, Kraay, & Zoido-Lobaton, 1999; Lederman, Loayza, & Soares, 2001; Mauro, 1995).

[6] (Hameed, Magpile, & Runde, 2014; Kar & LeBlanc, 2013; McNair et al., 2014)

value and usefulness the thesis wishes provide to policy makers, donor agencies and NGOs, I found that the most significant contribution that system dynamics can provide at this first stage, dully aligned with the thesis objective, is through the construction of a comprehensive and logical framework of corruption in Brazil that captures all major causal links and dynamics involved. Fulfillment of this first phase is conceived in program management and strategic planning as a critical and vital step that has to be consolidated before well-founded computer modeling can be pursued in a second stage, in continuation to the present research.

The thesis starts with the analysis of the problematic behavior and methodology used as laid out in chapters 1 and 2. It continues by describing the hypothesis and analysis of the cause of the problems in chapters 3 and 4. Recommended policies and implementation are outlined in chapter 5 with the conclusion presented in chapter 6.

2. Problematic Behavior

2.1 Description

Commencing during the mid-1990s, several organizations have developed a perception based corruption index across a wide range of countries to quantitatively assess the pervasiveness of corruption. Given the importance of corruption on the policy agenda, literature has dedicated increasing attention to the issue. These indices contain a high degree of abstraction, which is justified because the actual level of corruption in a country is difficult to observe, and also due to the high level of secrecy and complexity employed in the legal and financial structures of grand corruption. They have been widely used by researchers in econometric studies as a dependent variable when exploring the causes of corruption or as an explanatory variable when investigating its consequences. Among the organizations that have developed corruption indices are the World Bank/Worldwide Governance Indicators (WGI), Transparency International, and Political Risk Services Inc. that produces a variety of reports including the International Country Risk Guide (ICRG) and the Political Risk Services Country Reports (PRSCR).

Analyzing the WGI (Kaufmann et al., 2014) we can clearly see that rich, developing, and poor countries' corruption perception levels fluctuate in bands or

intervals at certain plateaus of low, high and very high corruption – Brazil for instance has been trapped in the range between 4.8 and 5.2 in a scale of 1 to 10 with no worsening or improvement trend (see fig. 1) since 1995.

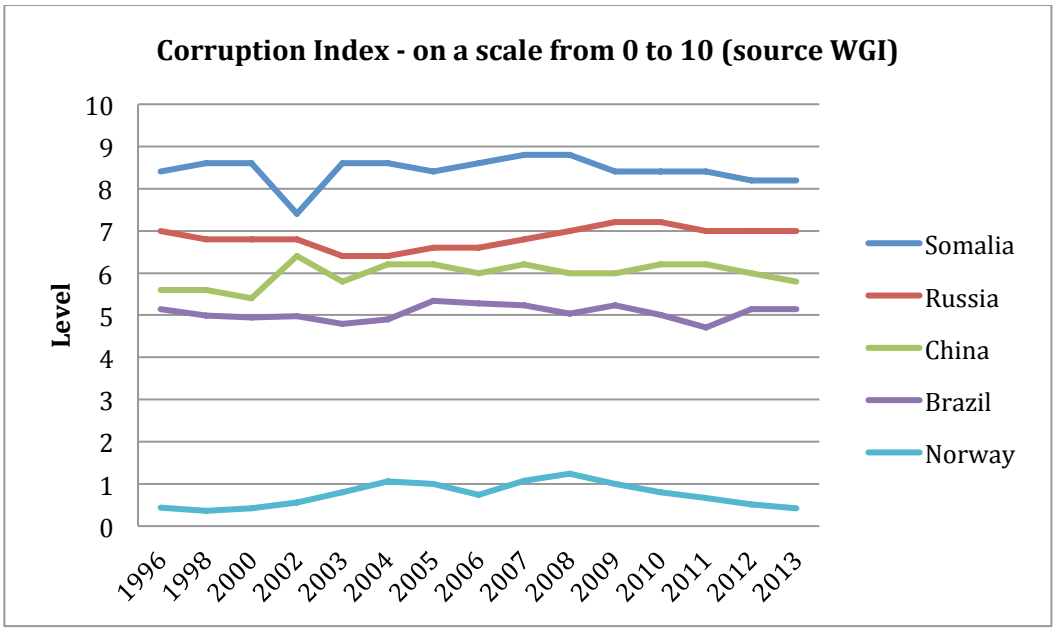

Figure 1[7] (0 min. – 10 max. corruption)

Nevertheless, this rather flat behavior of WGI's corruption index for Brazil strongly suggests that it did not capture the dramatic worsening in corruption with the accompanying scandals that occurred in Brazil starting in 2002. In fact, recent research has challenged the goodness of perception based indicators, arguing they might not be good indicators of actual corruption.[8] In this same direction, a structural equation model was employed by (Dreher et al., 2007) using data from the mid-1970s to late 1990s of measurable variables that indicate and cause corruption to verify whether corruption increased or decreased – on a scale where minimum corruption was set at minus one (-1) and a maximum at plus one half (+0.5), showing Switzerland as the least corrupt country with an index of -0.91 in the period 1991-1997, Brazil's corruption index was shown to have increased from 0.0601 in the period 1976-1980, to 0.1271 in 1981-1985, to 0.1271 1986-1990, to 0.225 in 1991-1997. However, it did not show how corruption evolved post-1997. Nevertheless, the corruption events which evolved in Brazil from 1976 to

[7] The original index has been rescaled so that the higher values represent higher levels of corruption.

[8] (Abramo, 2005; Andvig, Fjeldstad, Amundsen, Sissener, & Søreide, 2000; Dreher, Kotsogiannis, & McCorriston, 2007; Mocan, 2004; Søreide, 2005; Svensson, 2005).

1997 corroborate with the behavior compiled by (Dreher et al., 2007), with a sharper increase in post-2002 years. These aspects will need to be considered when entering the computer modeling and simulation stage in further research.

It is worth noting that the existing literature seems to presume that corruption increased long ago from some point in time before it started being measured in the 1990s. However, history shows us precisely the opposite, despite not being yet measured from the 16th to 19th centuries and earlier. The history of Europe, for instance, shows that corruption was higher and a major problem, and that it actually went down to the present levels before it started being measured. European nations worked their way out of centralized monarchical aristocracies to stronger, more participative and egalitarian, politico-economic institutions. Corruption was certainly higher in Brazil's colonial (1530-1822) and imperial times (1822-1889) – how it arrived and stabilized at current levels is not recorded.

Historical events suggest that the larger scale immigration waves from different European countries which took place in Brazil in the late nineteenth and early twentieth centuries contributed to the gradual strengthening of Brazil's politico-economic institutions, notwithstanding the fact that grand corruption continued to haunt Brazil throughout the twentieth century until present. This leads to the research question, which will be expanded in the hypothesis in the next sections.

Research question: "How does corruption affect well-being in Brazil?"

As indicated, Brazil's corruption history suffered a major blow in the beginning of this century with a strong retrogression, starting in 2002. From what was an already high, more or less stable level of corruption, corruption worsened in an unprecedented way, getting totally out of control by early 2015, taking Brazil to last place among the 61 countries included in the International Institute for Management Development (IMD) rank for bribery and corruption in 2015 World Competitiveness Yearbook (WCY). The increase in corruption was followed by the worsening in Brazil's overall competitiveness where it fell to 56th place in 2015, from the 38th position in 2009, and in government effectiveness where it fell to 60th place from 52nd in 2009. (IMD, 2015)

A government led, politically and ideologically motivated, grand corruption scheme was promoted under the leadership of a newly elected (2002) labor union leader, Luiz Inacio Lula da Silva (Lula), who was reelected for the 2006-2010 period, making his successor, former left-activist in 1960s, Dilma Rousseff for the two subsequent periods 2010-2014 and 2014-2018. Together, they orchestrated the largest, and first and only corruption scheme in Brazil's history involving amounts without parallel to ensure their permanent domination project[9] funneling several $billions to their political party (Workers Party) and to the personal enrichment of several of their relatives and contributors, and even if indirectly, their own. Ironically Lula's campaign speech in 2002 election was one of eradication of corruption in Brazil.

These grand corruption schemes involved major state controlled companies including oil giant monopoly Petrobras (*Petrolao[10] and Lava Jato[11]*), Brazil Mail ("Correios"), Brazilian Development Bank (BNDES), Public Pension Funds, questionable and non-transparent financing to Cuba, Venezuela and other Latin American and African nations. Lula's government also led a major scheme (*Mensalao*) to bribe congress representatives to approve their proposals. Furthermore, the former Chief of Staff of the President is among the suspects in a gigantic corruption scheme involving the Brazilian Tax Revenue Service.[12] Petrobras fell from 30th (5th in 2008) largest company in the world to 416th. Its market value fell from US$ 87 billion to US$ 44 billion from 2014 to 2015.[13]

The presidencies of Lula and Rousseff turned it into a typical "bread and circus" populist system. Indirectly, they managed to control congress and the judiciary violating Brazil's rule of law principle.

Corruption reached a threshold that caused a large scale institutional crisis – a 'perfect storm' that lead to the largest mass demonstration in Brazil's history with over two million people demanding the ousting of Rousseff on March 15 and April 12, 2015,

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9 Programa Roda Viva, March 23, 2015.

10 Petrolao refers to the Petrobras' corruption trials at Brazil's Supreme Court

11 Operação Lava Jato (Operation Car Wash) is an investigation related to the Petrobras' multi-billion corruption scandal that is being carried out by a Federal Judge in the city of Curitiba since March 17, 2014.

12 Called Operação Zelotes

13 Forbes Magazine.

in addition to countrywide pots and pans protests (*panelaco*[14]). Furthermore former president Lula is being investigated by the Center of Combat of Corruption of the Office of the Prosecutor General for the crime of national and international traffic of influence perpetrated following the end of his second presidential mandate between 2011 and 2014 along the Brazilian Development Bank (BNDES) that granted at least US$ 4.1 billion in financing to different countries such as Cuba, Dominican Republic, Ghana and Venezuela to benefit Brazil's largest construction company Odebrecht – over US$ 30 billion/year in revenues, which received almost US$ 847 million in international lines of preferential credit from BNDES [15].

Over and above the reversal imposed on their populist power plan by the turmoil originated in their government's grand corruption scandals, their plan was also hurt by Brazil's economic downturn as a consequence of the end of the commodities boom.

2.2. Methodology

Conceptual analysis is the starting point of the modeling process and the causal loop diagram (CLD) method was found to best illustrate and communicate the structure of the corruption problem in Brazil to policy makers, donor agencies and NGOs at the first stage, dully supported by extensive research of existing literature in a way to provide for empirical validation of the major relationships. It is based on the understanding that the exploration of the corruption problem applying the system dynamics methodology needs to follow an organized, careful and logical pattern to be successful.

Although model building is an iterative process, to deal with such a complex problem that corruption in Brazil represents, the thesis rationale is aligned with the prescribed by (Haraldsson & Sverdrup, 2005), whereby well-founded qualitative models such as CLD, precedes the step of constructing a simulation in a computer. CLD is also seen as a good tool for mental model communication between persons with different ethnic, cultural and academic background. (Sterman, 2000) supports this line of thought to the extent that he believes CLD is a good tool for conceptualization. CLD and SFD

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[14] Panelaco are major social protests made by beating on pots and pans and other metal utensils.
[15] Revista Epoca, Brazil, May 1, 2015.

can be developed simultaneously but considering the high complexity involved in the research and analysis of corruption, and the fact that system dynamicists have not ventured much in the study of corruption (Ullah, 2012), it was found that a better approach would be to start by first concentrating attention and immersing in a detailed investigation of the literature, empirical data and in a CLD analysis, and secondly pursue SFD and computer modeling in a continuing research, in order not to put at risk the quality of the thesis results.

The thesis employs a research intensive approach consisting of: (a) *construction of a clear vision* – following a thorough research and critical review of the existing literature and empirical data and system dynamics concepts and applications (Sterman, 2000), the vision of the approach and structure of the thesis became more crystalline and consolidated; (b) *development of conceptualization and substance* – in sequence it was seen as vital that the thesis developed a good content and foundation, creating a solid understanding of the dynamics of corruption together with the delays and accumulations involved; and (c) *harmonize the different disciplines in one language* – system dynamics, economics, political science, sociology, politics, law, taxes, illicit transactions, fraud, and history among others.

3. Hypothesis overview

There is a strong negative association between income levels and corruption. Many economic experts view grand corruption as one of the most threatening and pervasive obstacles to alleviating global poverty, and as a major detriment to development particularly in low-income countries. The hypothesis for the causes and consequences of the corruption problem was developed using the methodology described above.

The causal diagram snapshot structure shown in figure 2 summarizes the key hypothesized cause and effect relationships involved in the corruption process in Brazil. Its causal links are corroborated by the findings of renowned researchers together with empirical findings and will be discussed in detail together with each of the 27 loops in the next chapter.

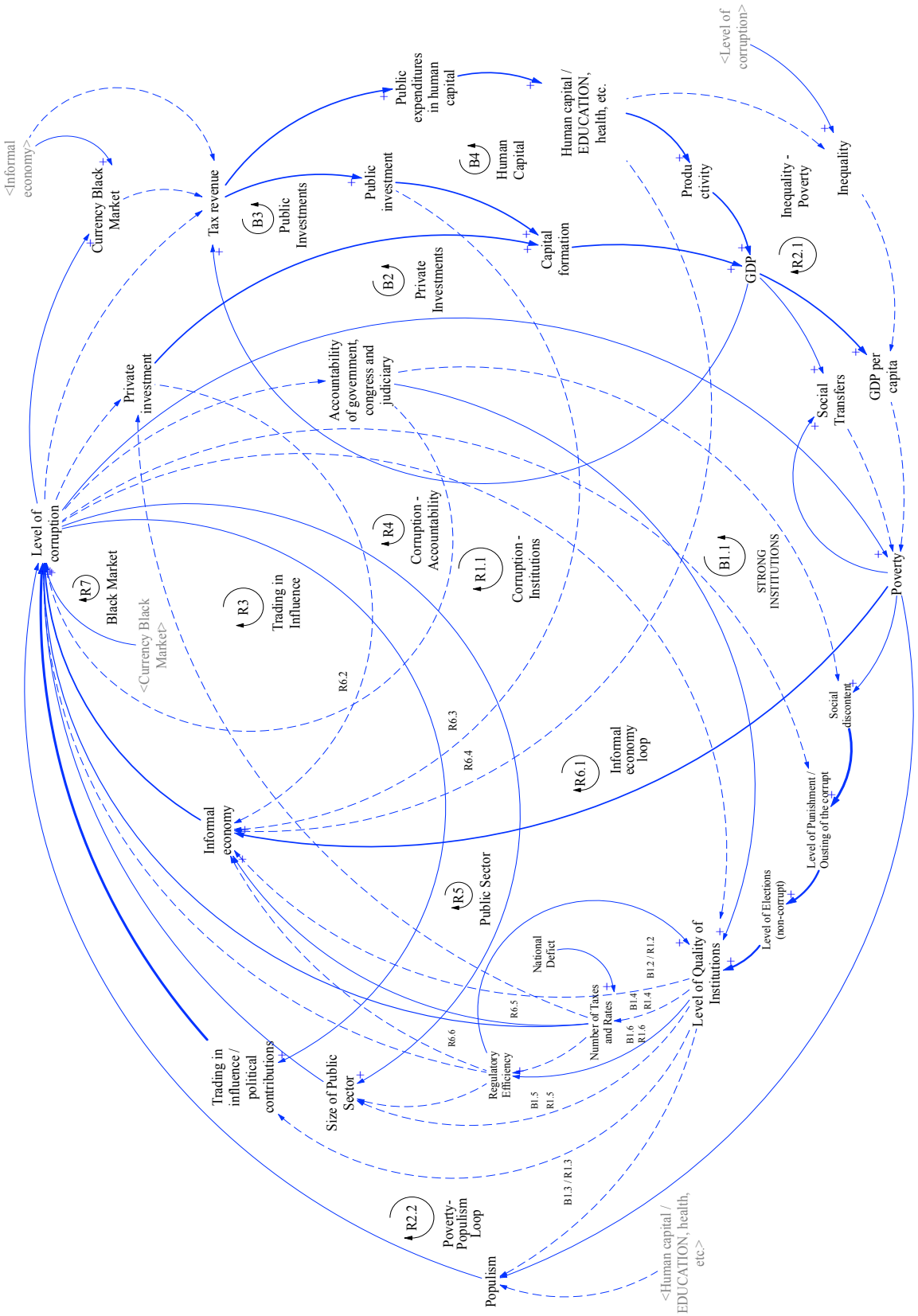

Figure 2 – Corruption Causal Loop Diagram Structure (Snapshot)

_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

The corruption dynamics is strongly impacted by seven dominating loops of a reinforcing nature: (i) R1 – Corruption-Institutions loop; (ii) R2 – R2.1 – Inequality-Poverty loop and R2.2 – Poverty-Populism loop; (iii) R3 – Trading in influence loop; (iv) R4 – Corruption-Accountability loop; (v) R5 – Public Sector loop; (vi) R6 – Informal economy loop; and (vii) R7 – Black Market loop. These 7 loops break into 18 reinforcing loops.

The existing balancing forces are represented by four major balancing loops: (i) B1 – Strong institutions loop; and three growth related loops: (ii) B2 – Private investments loop; (iii) B3 – Public investments loop; and (iv) B4 – Human capital loop. These 4 loops expand into 9 balancing loops.

The corruption dynamics in Brazil is characterized by reinforcing loops that turn rather fast and by long and slow balancing feedback loops, a fact that aggravates the corruption problem in Brazil. Thus far, the balancing loops have not been sufficiently strong to override the force of the seven dominating destructive loops and explain why corruption in Brazil persists at a high level, between the rich and less developed countries.

4. Analysis of Hypothesis

The major cause and effect relationships that drive the corruption process are represented in the causal loop diagram structures described in this chapter and were extensively analyzed and supported by existing literature – research of the relationship between corruption and major variables such as trading in influence, populism, investment, income per capita, institutions/governance, informal/underground economy, poverty, education, taxes, illegal transactions, and judiciary.

The analysis herein will describe each of the 18 reinforcing and 9 balancing loops contained in the causal diagram snapshot of figure 2 together with the respective variables and causal links. It is worthy noting that in the dynamic structures represented in this thesis it is common for variables to be part of one or more loops. It is also important to bear in mind that there are feedbacks, delays (responses are not instantaneous) and accumulations (and inertia) involved in these dynamics that are many

times unseen by policy makers, practitioners and researchers; this thesis provides this understanding, which is needed to avoid frequent policy errors and short-termism. These dynamics will generate resulting behaviors in accordance to the forces of the positive and negative loops and the effectiveness of the existing and recommended policies. Causal diagram is an extraordinary tool to aid in the analysis and design of strategies to reduce corruption before computer modeling can be experimented for projections and simulations.

The 'corruption-level of quality of institutions' is the single most destructive causal link in the corruption dynamics. Level of institutional accountability and quality of the electoral system are seen among of the strongest variables that can reduce and control corruption as identified in the literature investigated, which corroborates with how corruption has been evolving in Brazil since 2002. These two streams of variables converge and meet at the quality of institutions variable with reinforcing and balancing opposing forces characterized by R1 and B1 and discussed in section 4.2 and 4.7 respectively. (See Figures 5 and 6)

4.1. Direct causes and consequences of corruption

John Sterman (2000, pp. 189-190) highlighted that causes are usually found in the structure and policies of the system, reason why prior to proceeding with the analysis of each individual loop herein it is important to show two partial diagrams containing the key variables that (i) directly cause increases and decreases in the level of corruption and (ii) those key variables that are direct consequences of corruption, as illustrated in figures 3 and 4.

These two graphical representations breaking down the direct interdependencies of corruption variable in Brazil facilitate the visualization of the structure and forces of the variables involved, and consequently provide a better understanding when each loop is discussed from section 4.2 onwards.

(i) Direct Drivers of Corruption

As can be seen in figure 3 there are eight variables that, together and directly, drive the changes in the level of corruption in Brazil: (i) populism, (ii) trading in influence, (iii) size of the public sector, (iv) regulatory efficiency, (v) number of taxes

and rates, (vi) informal economy, (vii) institutional accountability, and (viii) black market for currency. Level of quality of institutions is a key variable that will influence and help determine the levels of these eight different causal variables. The levels of human capital/education and poverty will help determine the levels of populism and informal economy.

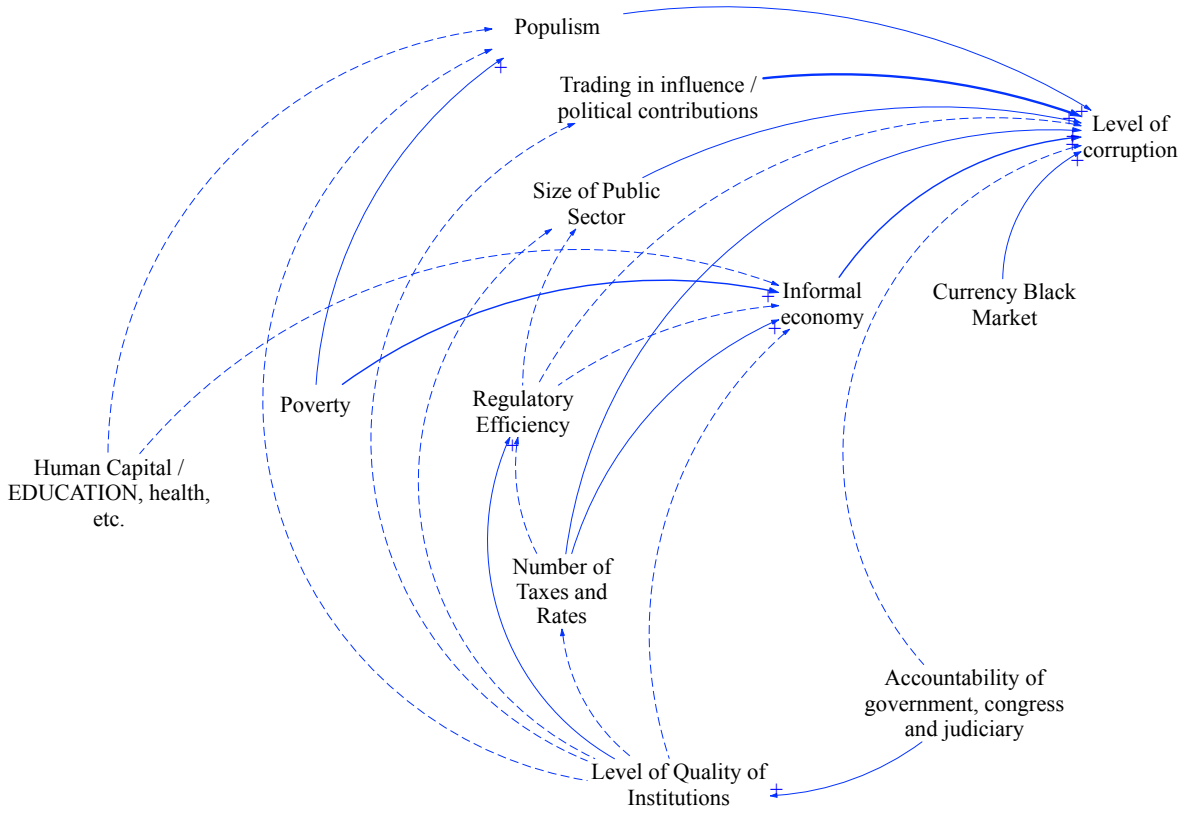

Figure 3 – Direct Drivers of Corruption
_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

(ii) Direct Effects of Corruption

As shown in figure 4 there are ten variables that are partially a consequence of the levels of corruption in Brazil: (i) black market for currency, (ii) government tax revenue / public investment / public expenditures in human capital, (iii) private investment, (iv) inequality / GDP per capita, (v) poverty, (vi) level of punishment / ousting of the corrupt / level of elections (non-corrupt), (vii) institutional accountability,

(viii) level of quality of institutions, (ix) size of public sector, and (x) level of trading in influence.

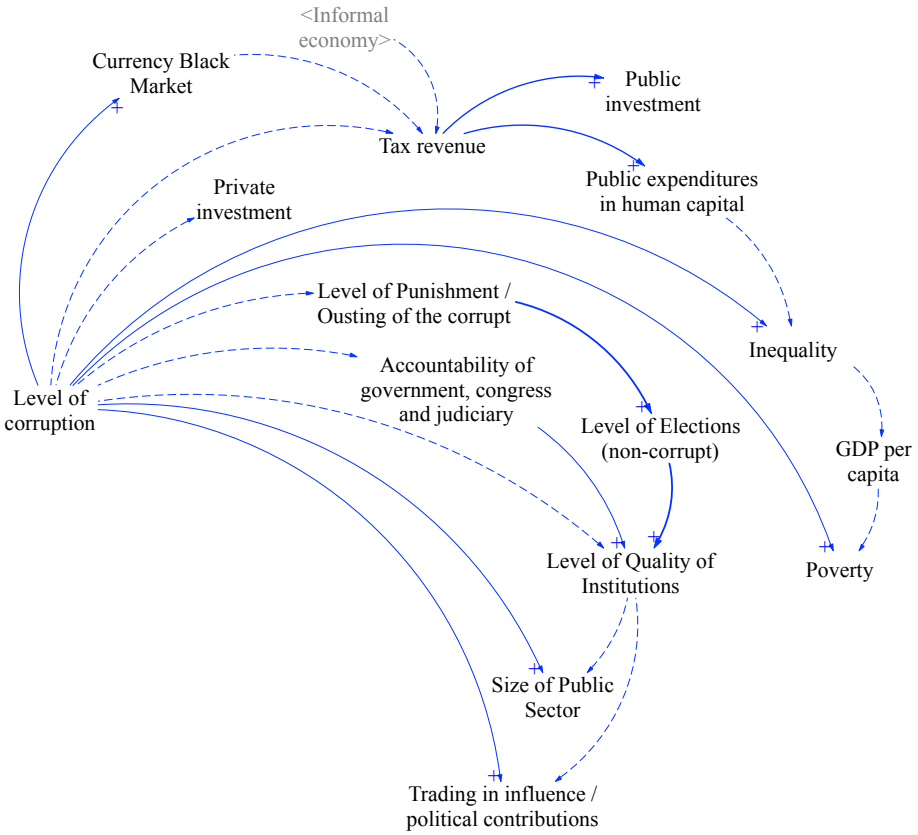

Figure 4 – Direct Effects of Corruption
_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

4.2. Corruption-[Quality of] Institutions/Governance reinforcing loops – R1 group of loops

The R1 group of loops consists of six loops, R1.1 to R1.6:

Loop R1.1 – Corruption-institutions fast reinforcing and dominating loop

Trading in influence is among the major direct causes of corruption, and is a consequence of weak institutions/governance. Corruption is a deep-rooted variable that has always been present in Brazil, acting directly to undermine the quality of its institutions, its central nervous system, and spreading over its complete governing

structure, contaminating its rule of law and welfare state. The dynamics of these three variables reinforce one another creating a revolving effect that form the R1.1 loop.

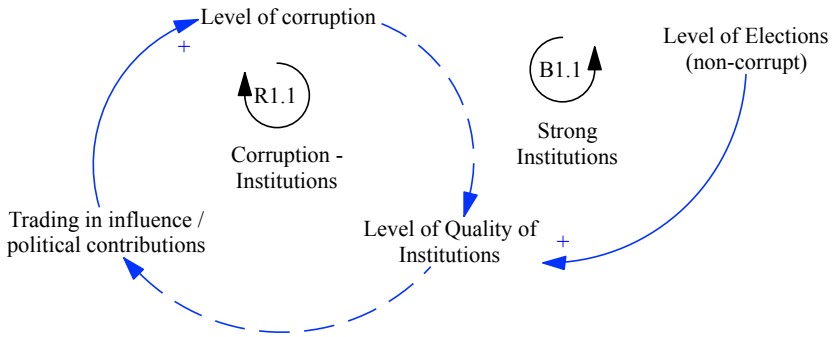

Figure 5 – Loops R1.1 and B1.1
_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

It is important to note that reinforcing and balancing forces meet at the quality of institutions/governance variable. The archetype of the reinforcing loop R1.1 is its fast-turning nature, stimulating the increase of corruption due the existing direct endogenous relation between corruption-quality of institutions, quality of institutions-trading in influence and trading in influence-corruption. The balancing loop B1.1 in turn is characterized by its slow-turning nature and is discussed in section 4.7.

This is very visible in the case of Brazil with corruption starting with the government and expanding to congress and the judiciary, spreading through 26 states and over 5.000 municipalities throughout the whole country.

The determining variable in this loop is the trading in influence variable – it is where a good part of grand political corruption originates, and as such is individually explored in section 4.4 where the trading in influence reinforcing loop R3 is discussed in greater detail.

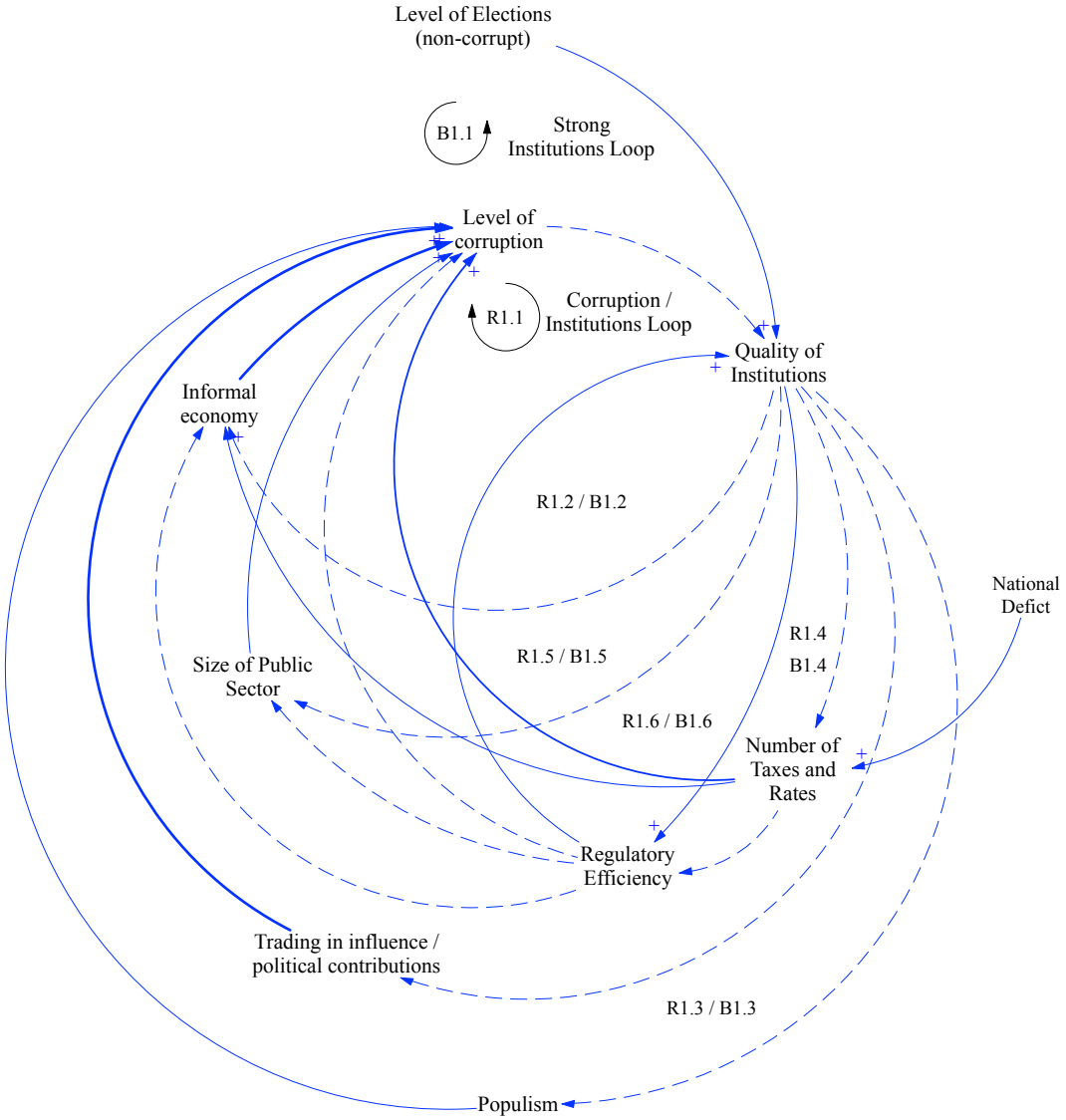

Figure 6 – Converging dominating loops R1 and B1
_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

Loop R1.2 – <u>Corruption</u>-institutions-informal and underground economy reinforcing loop

Numerous research papers link corruption to the size of the informal economy through corruption weakened institutions.[16] Informality is an economic phenomenon that in its higher levels, such as seen in Brazil, where the informal economy corresponds to

[16] (Dreher et al., 2007; Dreher & Schneider, 2006; Friedman, Johnson, Kaufmann, & Zoido-Lobaton, 2000; Hibbs & Piculescu, 2005; Hindriks, Keen, & Muthoo, 1999; Johnson, Kaufmann, & Zoido-Lobaton, 1999).

40% of GDP (Arvate, Lucinda, & Schneider, 2004), is also associated with poverty and tax evasion.

The essence of the informal and underground economy in Brazil are activities that aimed at not paying taxes and circumventing the law, and as a result corruption is intrinsic to the nature of this grey or unofficial area of the economy. This area includes illicit cross-border transactions, money laundering, all sorts of smuggling, stolen merchandize, narcotraffic, among others. Informality and underground economy will be analyzed further in section 4.9 where the informal economy and tax loops are addressed (R6.1 to R6.6).

Loop R1.3 – Corruption-institutions-populism reinforcing loop

Populist governments in Latin America are known for their efforts in the direction of a totalitarian regime. Brazil is a relatively young and still fragile democracy that since 2002 has been governed by a populist regime with a communist ideology, despite being democratically elected, and corruption has gotten totally out of control, spreading throughout the executive and legislative with the government having managed to indirectly control part of the judiciary as discussed in section 4.3 under poverty-populism loop R2.2.

Loop R1.4 – Corruption-institutions-number of taxes and rates loop

Corruption in Brazil also fosters the increase in the number of taxes and rates in its effort to cover government inefficiencies and oversize, and costs of corruption. Brazil is known for having one of the greatest numbers of taxes in the world and one of the highest overall effective tax rates. Over 36.3% of all wealth Brazil generated in 2012[17] (up from 22.5% in 1987 in the beginning of the re-democratization period and 30% in 2002)[18] was transferred from the productive to the unproductive sector (the government) without the corresponding return in services and infrastructure. An excessive number of taxes and rates also causes an increase in the informal economy, with several

[17] OECD and Veja Jan 2014. http://veja.abril.com.br/noticia/economia/carga-tributaria-brasileira-cresce-933-em-dois-anos/.

[18] Instituto Brasileiro de Planejamento Tributario (IBPT) and http://veja.abril.com.br/idade/exclusivo/impostos-carga-tributaria/contexto2_g1.html.

consequences that will be further analyzed in loops R6.1 to R6.6 in section 4.9, among them a high tax evasion of 13% of Brazil's GDP.[19]

Loop R1.5 – Corruption-institutions-size of public sector loop

The start of the re-democratization period in 1986 marked the use of bigger government in Brazil with ministries used as a bargaining tool in exchange of political support – one of the prices that Brazil, as a young democracy, is paying. This is elaborated further in section 4.6 Public Sector loop R5.

Loop R1.6 – Corruption-institutions-regulatory efficiency loop

Researchers observe a positive association between corruption and excessive government regulation.[20] Brazil has always been a country with a high regulatory burden in all areas starting with a large number of tax regulations related to its many taxes and duties, company registries, notaries all over to certify even a simple photocopy or a signature.[21] In addition to causing corruption, this excessive number of regulations pushes several people and companies to the informal and underground economy, and put pressure to increase corruption further.

The destructive forces of these aforementioned loops (R1.1 to R1.6) can be outweighed by the balancing forces of good governance and of checks and balances of a democratic system, which will be explored in section 4.7 elaborating about strong institutions balancing loop.

4.3. Corruption-Inequality-Poverty-Populism dominating reinforcing loops – R2.1 and R2.2

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[19] Valor Economico November 9, 2013. http://www.valor.com.br/brasil/3333552/no-mundo-brasil-so-perde-para-russia-em-sonegacao-fiscal-diz-estudo.

[20] (Ades & Di Tella, 1997, 1999; Djankov, La Porta, & Shleifer, 2002; Goel & Nelson, 2005; Svensson, 2005; Treisman, 2000).

[21] The number of notaries in Brazil and the large number of people involved in this bureaucratic rubberstamping activity is overwhelming.

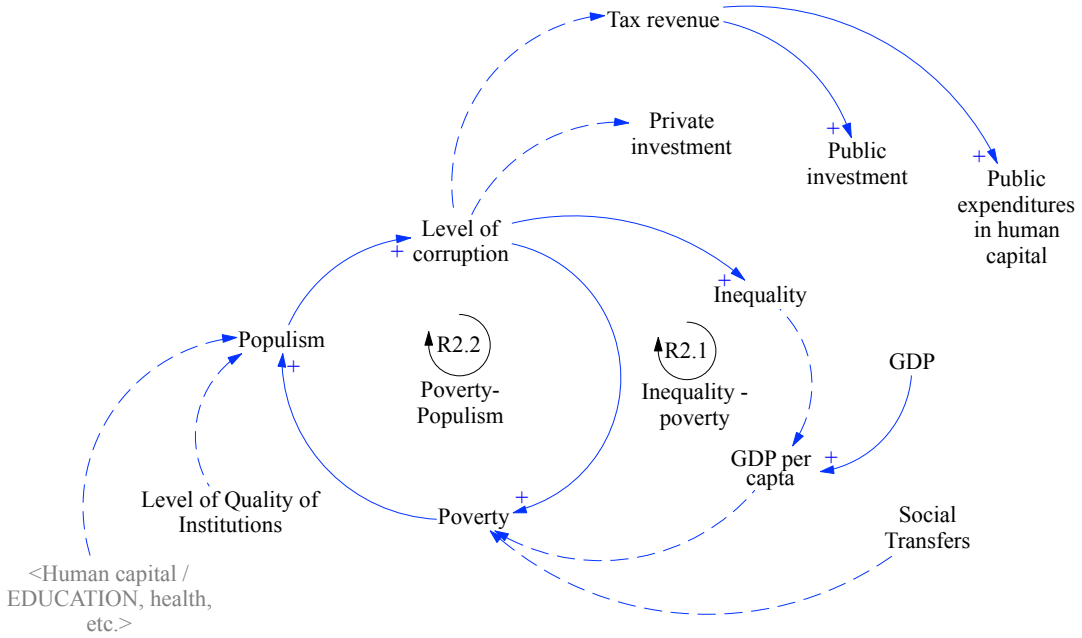

Figure 7 – R2.1 Inequality-Poverty loop / R2.2 Poverty-Populism loop
_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

Loop R2.1 – Inequality-Poverty loop

a) <u>Corruption</u>-Growth/GDP per capita

International organizations such as the World Bank have identified corruption as 'the single greatest obstacle to economic and social development' and estimated that corruption would reach conservatively US$ 1 trillion each year – which corresponds to the size of the GDP of Norway and Sweden together. Furthermore, the World Bank has estimated that with such levels of corruption countries that tackle corruption, improve governance and the rule of law could increase per capita incomes by a staggering 400 percent (Dreher et al., 2007). Empirical results show that corruption lowers investment and, as a result economic growth (Gupta, Davoodi, & Terme, 1998; Mauro, 1995).

(Li, Xu, & Zou, 2000) found that even after correcting for measurement errors, corruption still retards economic growth. (Mo, 2001) also analyzes the effect of corruption on economic growth noting that the most important channel through which corruption affects economic development is political instability. Literature has shown that, through a growth related chain going through investments, that corruption reduces growth and that the causality is unidirectional from corruption to growth.

b) Corruption-Inequality causality

Researchers including (Gupta et al., 1998) have shown that corruption is one of the major causes of inequality through its impact on human capital formation, and unequal access to education. Tests show that a worsening of the corruption index by one standard deviation (2.52 points on a scale of 0 to 10) is associated with an increase in the Gini coefficient of about 4.4 points, which is considered quite representative (fig. 8). (Tanzi, 1995) argued that the benefits from corruption are likely to be accumulated by the better-connected who belong mostly to high-income groups. (Li et al., 2000) found that corruption alone also explains a large proportion of the Gini differential across developing and rich countries.

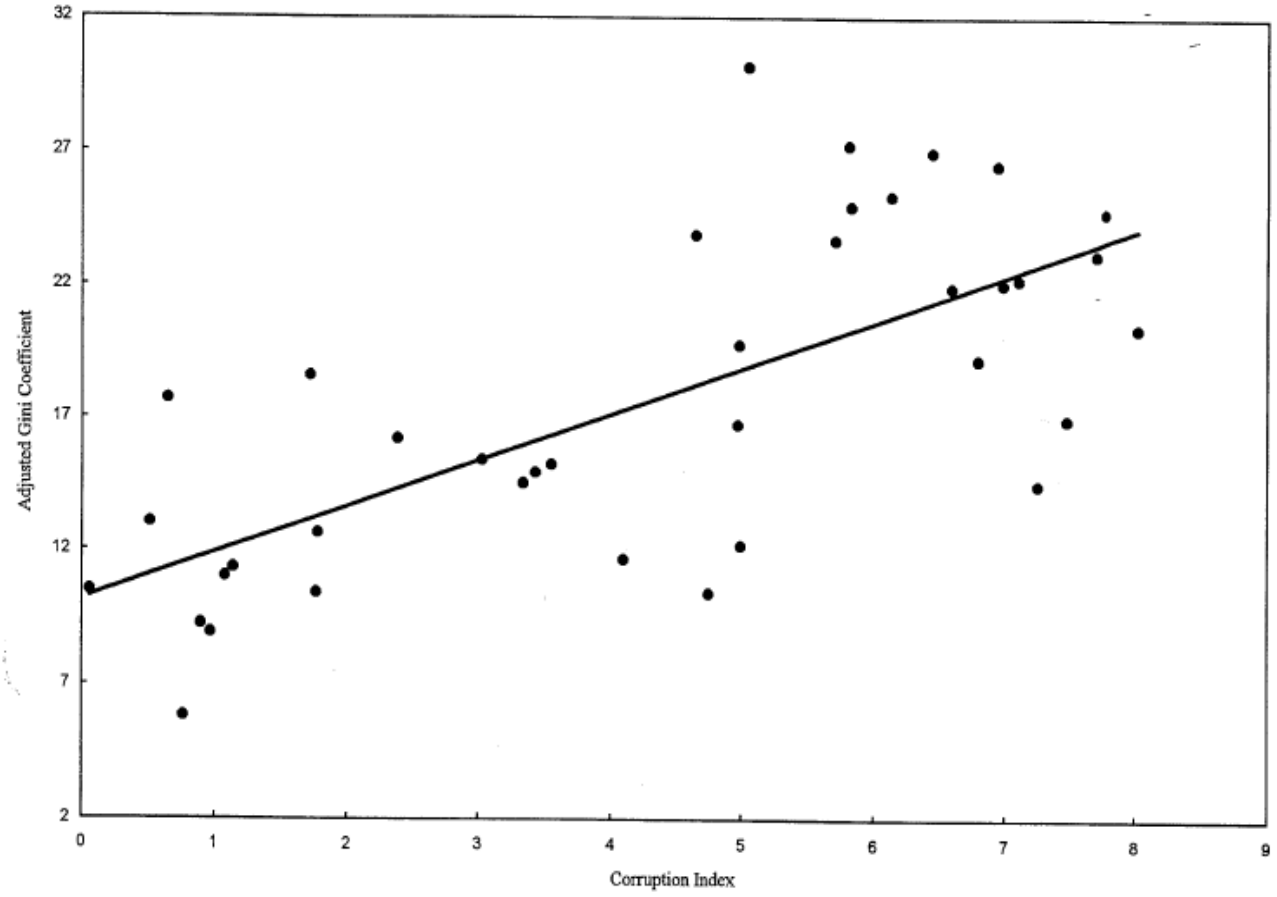

Figure 8 – Vertical axis – Adjusted Gini Coefficient[22] versus
Horizontal axis – Corruption Index (0 to 10)
(Gupta et al., 1998)[23]

[22] Gini coefficient is adjusted using regression results.

Loop R2.2 – Poverty-Populism loop

a) Corruption-poverty causality

Corruption is Brazil's number one cause of poverty. It is attested by history and endorsed by different organizations such as the World Bank and the signatories of the New Haven Declaration on Human Rights and Financial Integrity[24]. It is the worst and most irreparable crime committed against people in Brazil causing insurmountable socio-economic destruction – destruction of the social tissue, starvation, poverty, inequality, unemployment, social exclusion, violence, social unrest, drug/weapons trafficking, lack of infrastructure, adequate education, health, sanitation and water. It usurps the right to life and dignity of millions of children, women, men, and the elderly. Incommensurable and irreparable damages, wide and deep are caused.

Corruption negatively affects poverty, unemployment and sub-employment through various channels, including growth, biased tax systems, and poor targeting of social programs (Gupta et al., 1998). Tests showed that a one-standard deviation in the growth rate of corruption (a deterioration of 0.78 percentage points) is associated with a decline in income growth of the bottom 20% of the population of 1.6 percentage points per year (fig.9).

(Gupta et al., 1998) also claim that corruption's impact on poverty is considerable for two important reasons: (i) since corruption reduces growth it also decreases the rate of poverty reduction; and (ii) since corruption increases income inequality, it will also reduce growth and consequently limit poverty reduction. They also show that corruption not only reduces the income growth of the poor directly, but also indirectly through lower social spending. They conclude that policies that reduce corruption will also reduce income inequality and poverty.

Poverty and inequality, in turn, generate violence, crime, and social and political instability (Crutchfield & Wadsworth, 2003; Muggah, 2012), which create uncertainty thus negatively affecting private investments and development.

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[23] The income inequality regression is estimated using OLS on cross-country data for 1980-1987.

[24] http://www.gfintegrity.org/press-release/gfi-releases-new-haven-declaration-step-forward-fight-human-rights/

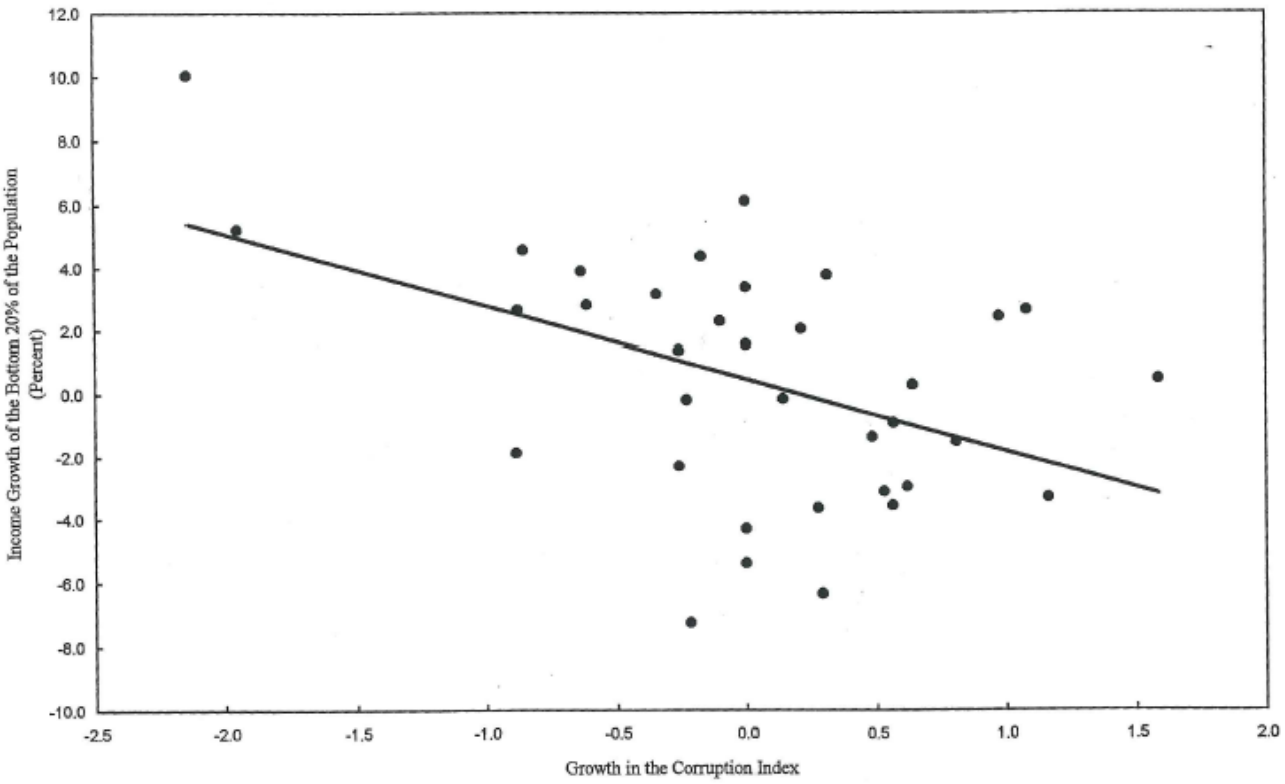

Figure 9 – Vertical axis – Income Growth of Bottom 20% Population versus Horizontal axis – Growth in the Corruption Index (-2.5 to +2.0) (Gupta et al., 1998)[25]

b) <u>Corruption</u>-poverty-populism causalities

Populist style governments have a direct causal nexus with corruption. Populism is an enduring feature of Latin American politics. In fact, there has recently been a resurgence of ‘‘populist’’ politicians in several developing countries, particularly in Latin America. The label populist is often used to emphasize that these politicians use a rhetoric that aggressively defends the interests of the common man against the privileged elite (Acemoglu, Egorov, & Konstantin, 2013).[26]

The recurrent pattern of the paternalistic leader – the “savior of the country” – who plays upon the masses is embedded in the Latin American public culture and still fragile democracies. Cultural values favor the development of unscrupulous leader who

[25] Ibid. 23.

[26] The American Heritage Dictionary defines populism as ‘‘a political philosophy supporting the rights and power of the people in their struggle against the privileged elite.’’ See http://ahdictionary.com/word/search.html?q=populism.

claims to represent the workers and poor, the "common people", the "ordinary people" or simply "our people". Populism in Latin America has structural, as well as cultural roots – populism with ideological underpinnings (Armony, 2005).

In Latin America, the populist politicians quest to power is based on segregation and totalitarianism – to achieve their goal they resort to a hate speech in order to promote the division the society, "people" and "anti-people" – the [less advantaged] "people" are good, honest, hardworking and the "anti-people" are the elite that explore the "people" (Alvarez, 2014). Populism usurps the individual rights of people. Alvarez states that the issue is not left versus right as emphasized by populist leaders in Latin America, but rather populism versus [democratic] republic since the [democratic] republic is what guarantees the institutions, the rule of law. She quotes Mariano Grondona[27] who wrote: "Populism loves so much the poor that it multiplies them", in other words, populism promotes the culture of social transfers also known as "bread and circus".

Notwithstanding the above, outside the public eye populist leaders in Brazil for instance establish close ties with the dominant economic elite often involving rather secretive deals as seen in case of former president Lula.

Literature also demonstrates (Glaeser, 2012) that there is a strong causal nexus between populism and corruption. Corruption exists under any political ideology but is enhanced under any sort of totalitarian regime. Populism is power driven and utilizes any means, both licit and illicit, to secure the fulfillment of its permanent power project – the experience of the last 12 years under populist regime in Brazil has made this very crystalline with the outrageous and unprecedented levels of widespread political corruption it articulated.

Populist political leaders are charismatic, personalistic, and paternalistic and use these characteristics to gather support from a large numbers of followers (Weyland, 2001). Elections, mass demonstrations, and opinion polls are the crucial instruments with which populist leaders mobilize and demonstrate their distinctive capacity.

[27] Argentinean sociologist, political scientist and journalist.

Populism is depicted by a combination of political demagoguery, organizational instability, economic irresponsibility, and excessive distributive generosity.

The high levels of poverty and inequality in Brazil are breeding grounds to populist political platforms. But populist rhetoric and policies are frequently to the left of the median voter's preferences, and such policies may arguably harm rather than help the majority of the population (Acemoglu et al., 2013).

Brazil's former president, Luiz Inacio Lula da Silva of the Workers Party, Hugo Chavez and Maduro of Venezuela, and other Latin American presidents fall into this category. Lula who always used Brazil's unions as a base for mass mobilization, created the "Fome Zero" (zero hunger) and "Bolsa Familia" (family allowance) following his election in 2002. The "bread and circus" programs that worked well during the commodities' boom of Lula's first and second term in office from 2002 to 2010, did not work so well for his successor of the Workers Party, Dilma Rousseff, after the end of the commodity boom, more so, following her reelection in 2014, due to the adverse economic environment because lower growth leads to lower tax revenues/company contributions and less money to fund the government's populist initiatives. This episode in Brazil has shown that in order for populism to work, in addition to fragile institutions, economic conditions also have to be favorable – the pressure on corrupt activities is exacerbated when the economy is not performing so well.

Brazil's presidencies since 2002, more than preceding ones, use the constitutional and voluntary transfers of money to municipalities to exert pressure over the mayors, which are characterized as a form of institutional corruption, so that they support the federal government programs – "friendlier" mayors get more money. In addition they use major advertising by state controlled companies as a means to control the freedom of the press of television and other media in what regards the government – including government propaganda broadly speaking.

c) Corruption- Poverty-Social Transfers causality

According to (Schneider & Enste, 2000) and others corruption directly impacts social transfer programs, more so in lower growth periods such as Brazil is undergoing in the past few years and enhanced in 2015 with budget for social programs being forcedly

cut, and negatively impacting what represents former and current president's most favorite populist tools among poverty stricken Brazilians. During recessions the causality between corruption and social transfers is aggravated.

Former President Lula's major policy in 2002, which was also adopted by his successor Rousseff enhanced social assistance,[28] considered a major force in election campaigns. Despite high level of corruption, this policy worked quite well during the commodity boom spearheaded by China. Brazil's social assistance programs represented a disincentive to those receiving the family allowance payments to search for work and also led these families to disregard the corruption scandals such as *Mensalao.*[29]

4.4. Trading in Influence dominating reinforcing loop – R3

Corruption and Lobbying, Trading in Influence, and Campaign Contributions causality

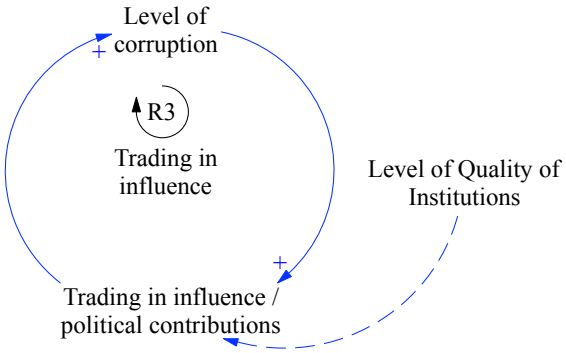

Figure 10 – R3 Trading in influence dominating reinforcing loop
_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

'Corruption-trading in influence' reinforcing loop has a two-way causality. (Campos & Giovannoni, 2006) state that much literature claim that lobbying is just a special form of corruption focused on legislative bodies or rule-making bodies.[30] In their

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[28] *Fome Zero* (Zero Hunger) and *Bolsa Familia* (Family Allowance).

[29] Monthly "payments" made by former President Lula's government to representatives of congress to support the government proposals.

[30] Professor Juan Cole has written about major forms of trading in influence in the U.S. and the numbers are astronomical http://www.juancole.com/2013/12/corrupt-country-world.html

empirical research they found there is substantial evidence that lobbying and corruption are in fact substitutes in transition economies such as Brazil.

Lobbying, trading in influence including campaign contribution activities, political nominations to key positions in state controlled corporations, nepotism, etc. in Brazil are among the key vehicles through which grand corruption is perpetrated – together with bribing of politicians, government officials, members of the judiciary and regulatory agents, they generate a phenomenon that in economics is called the race to the bottom and that makes reinforcing loops a strong dominating force in the model. The interrelations of these activities with corruption have been studied by several scholars including (Campos & Giovannoni, 2006; Coate & Morris, 1999; Dahm & Porteiro, 2004; Damania, Fredricksson, & Mani, 2004; Grossman & Helpman, 2001; Harstad & Svensson, 2005; Yalcin & Damania, 2005). These activities are home for a host of illicit financial transactions in Brazil, both on and offshore.

One empirical example is the colossal government corruption scandal involving Brazil's largest state controlled mixed capital oil giant monopoly Petrobras, which has shares listed on the Sao Paulo and New York Stock Exchanges. It was orchestrated since 2002 and revealed starting in 2014.

It essentially worked with the government nominating Petrobras' officials to key positions of board of directors and management who in turn coordinated the grand corruption scheme along contractors. The money defrauded from Petrobras went to the self-enrichment of many and to the Workers Party to fund their power perpetuating campaigns. All the costs of over-invoicing and inefficiencies where borne by society through price increases. The disclosure of the corruption scheme generated a wide array of consequences: high risk of impeachment of the president; heavy criminal charges and arrests of a long list of suspects – included among the 49 politicians in the *lava jato*[31] judicial investigations are the leaders of the Senate and of the Chamber of Representatives, and former president who was impeached in 1992 for corruption and

[31] Ibid. 11.

now senator Fernando Collor de Mello[32]; a chain of losses are imposed on Petrobras, workers, suppliers, investors including large pension funds of state owned companies due to the collapse of the share price; legal claims filed against Petrobras, among others[33] – this corruption scheme is represented by the causal diagram of figure 11.

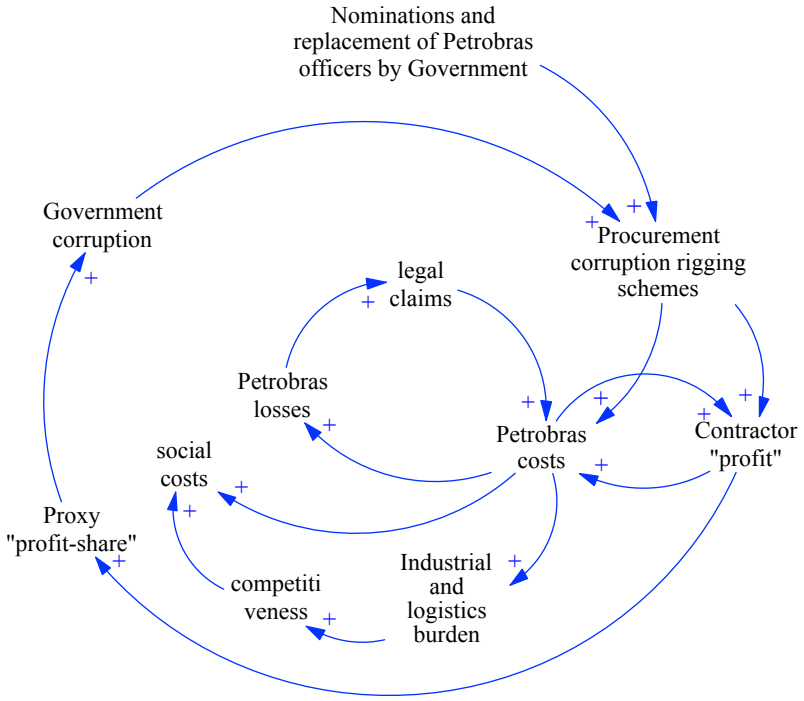

Figure 11 – CLD – Petrobras corruption scheme

In the realm of lobbying, special interests and contributions also lies rent-seeking activity including those of financial markets – private financial institutions such as banks and investors (Khwaja & Mian, 2011) – and natural resources. Research shows that corruption and rent-seeking are typically consequences of weak institutions. It includes the politically connected firms that obtain rents from government banks in the form of preferential lending in terms of greater access to giant credit at a lower price, at times involving mega defaults – they are also more likely to be bailed out by the state. (Dinc, 2005; Sapienza, 2004) demonstrate that government bank lending in developing

[32] Revista Veja and O Estado de São Paulo March 6, 2015. http://veja.abril.com.br/noticia/brasil/lista-do-petrolao-reune-cupula-do-congresso-e-partidos/, http://politica.estadao.com.br/blogs/fausto-macedo/veja-a-lista-dos-deputados-e-senadores-sob-suspeita-da-lava-jato/ .

[33] The Betrayal of Brazil, Bloomberg, May 8, 2015. http://www.bloomberg.com/news/features/2015-05-08/brazil-s-massive-corruption-scandal-has-bitterness-replacing-hope.

countries is significantly impacted by political considerations. (Claessens, Feijen, & Laeven, 2008) show that Brazilian firms with campaign contributions to winning candidates experience higher returns and subsequently receive greater credit from banks. They estimate an economy-wide cost of capital misallocation that alone equals 0.2% of GDP per year – these contributions are limited to publicly listed firms that represent only 14% of total corporate campaign contributions.[34] The web of implications and financial considerations and related complexities is quite representative as shown by (Khwaja & Mian, 2011).

Several cases illustrate the above. Among Brazil's well-connected who obtained preferential credits from BNDES is the now bankrupt Group EBX owned by Eike Batista, son of former president and founder of Brazil's largest mining company Vale, and JBS Friboi, the world's largest meat processing company with outstanding loans of US$ 4 billion and US$ 3 billion respectively. A Congressional Special Committee has been created to investigate giant credits provided by the Brazilian Development Bank (BNDES) in Brazil and abroad.[35]

Through trading in influence corruption also branches into the multi-trillion dollar war business that includes the United Nations (Miniter, 2011), and where architects of war and the true interests and corruption behind them are deleted from media accounts and replaced with stories about soldiers, weapons, and territory. (Nordstrom, 2004)

4.5. Accountability Reinforcing Loop – R4

***Corruption* and Accountability/Trust of Government, Congress and Judiciary**

In the process of development of their democratic institutions or any other political system societies build a natural threshold or scale related to their level of tolerance to wrongdoings of their governments and political representatives that are

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[34] Mauro found the effect to be considerable: a one-standard-deviation (2.38-point) improvement in the corruption index is associated with over a 4-percentage-point increase in a country's investment rate and over ½-percentage-point increase in the per capita growth rate. This means that if a given country were to improve its corruption grade from 6 out of 10 to 8 out of 10, its investment-GDP ratio would rise by almost 4 percentage points and its annual growth of GDP per capita would rise by almost half a percentage point.

[35] Bloomberg/Info Money Dec 15, 2014 and Globo G1 May 2015.

determined in accordance to their stage of institutional evolution. These illicit practices inflict a collateral damage upon institutions – it reduces public trust in government institutions (Chetwynd, Chetwynd, & Spector, 2003). Public revolt in turn can lead to political instability, considered to be one of the most important channel through which corruption affects economic development (Mo, 2001). Less developed countries tend to have a long history of abuses perpetrated by the respective governing elite, nonetheless they also have a limit of tolerance. This limit of tolerance also regulates the level of quality of institutions.

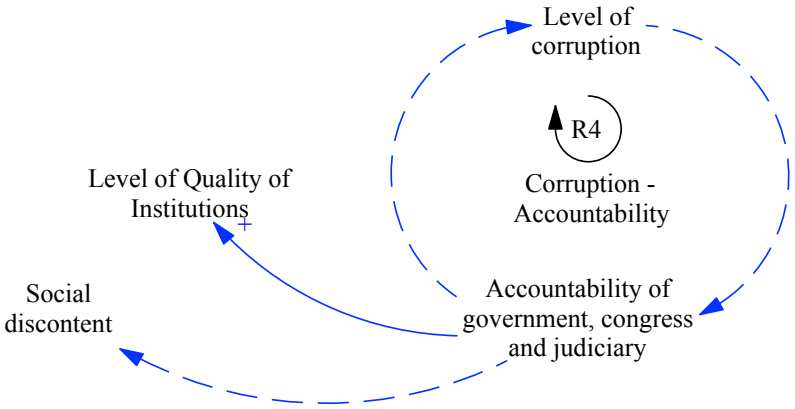

Figure 12 – R4 – Corruption-Accountability Loop

_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

The Brazilian society has recently demonstrated that its limit of tolerance has been reached and demands the ousting and punishment of corrupt representatives.

Rousseff's approval rate fell to a historic low level of 13% in March 2015[36]. The Brazilian congress and judiciary also have very low approval rates. The astronomical corruption scandals that have been disclosed placed Brazil on a critical juncture to strengthen its institutions and should potentially lead to less corruption in the future, nonetheless.

4.6. Public Sector Reinforcing Loop – R5

Corruption and the Size of public sector causality

[36] Datafolha

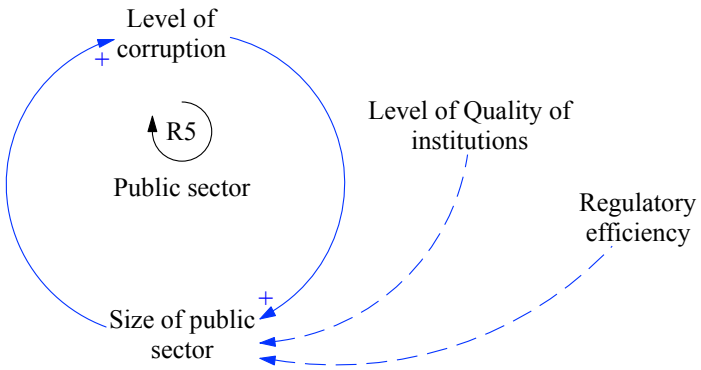

Figure 13 – R5 – Public Sector Loop
Positive Polarity Negative Polarity

The relationship between the size of the government and its inefficiency, including corruption, has been an important topic in economics. An increase in government size provides more opportunity for political rent-seeking, leading the politicians and bureaucrats to become more corrupt (Rose-Ackerman, 1978, 1999) – bigger governments increase the expected payoff of illegal activities and, as a result, give an incentive for more illegal activities, such as corruption. In the same direction, (Alesina & Angeletos, 2005) propose a theoretical model in which bigger governments increase the possibility for corruption. (Goel & Nelson, 1998) illustrate that the size of the state and local governments in the United States has a strong positive influence on corruption. In young democratic or transitional countries, an increase in government size can aggravate corruption, since monitoring on the government is weak. In contrast, when a democracy is sufficiently consolidated, larger government size leads to a reduction in corruption, because the monitoring mechanisms function well and can restrain corruption conducted by the politicians and bureaucrats.(Kotera, Keisuke, & Samreth, 2012)

Brazil represents a good empirical case of these findings where the evolution of size of government more or less follows the increase in grand political corruption. There is a recurrent anomaly in Brazilian politics since the end of the military regime in 1985 and the start of the re-democratization period whereby it is common for elected presidents to negotiate concessions of ministries with their supporting parties in each presidential four-year term mandate. At the end of the military transition regime in 1985, Brazil had 16 ministries; with the re-democratization, it increased to 30 from 1986-1993,

to 34 from 1994-2001, to 38 from 2002-2015. This increase in number of ministries is associated with the increase in grand corruption since each of these ministries is responsible for a sizeable budget giving room to the enhancement of corruption.

In order to increase their political influence, successive Brazilian governments extend their tentacles beyond the realms of public administration, to the management of state controlled companies, such as public banks, utilities, oil monopoly, and public pension funds. Oil giant Petrobras, which is at the center of the latest multi-billion corruption scandal, is a good example of where the government distorted its role, and instead of restricting its action to controlling its interests as principal and controlling shareholder, it also makes political appointments of top executives who lack the necessary experience in the oil industry. As such, the government assumes a dual role of supervisor and supervised, which is a major violation of the most basic management principle of segregation of functions and leaves the door wide open to corruption.

4.7. Strong Institutions

4.7.1. Governance indicators

The research of the causes of corruption showed in quite a robust fashion that the most important variables that determine the level of corruption of any given country are those related to the quality of institutions/governance – the high quality and effectiveness of the institutions of the more developed countries are the key elements that safeguard their low levels of corruption. Conversely, high corruption countries are characterized by having lower quality institutions.

Institutional quality/governance is probably the single most important variable that regulates the level of corruption in a country. In a seminal research working paper, (Kaufmann et al., 1999) provides empirical evidence of a strong causal relationship from better governance to better development outcomes such as higher per capita incomes (fig. 14) and that quality of governance has significant explanatory power for the future economic outcomes. (Keefer & Knack, 2007) report that the ability of the poor countries to catch up to the developed world is determined in large part by the institutional environment in which the economic activity in these countries take place.

Institutional quality/governance is broadly defined as the traditions and institutions by which authority in a country is exercised. This is separated in 3 areas (Kaufmann, Kraay, & Mastruzzi, 2010)[37]:

A) The process by which representatives of government, congress and judiciary are selected, monitored and replaced.

B) The capacity of government and congress to effectively formulate and implement sound policies.

C) The respect of society and the State for the institutions that govern economic and social interactions among them. Weak institutions are explored by self-serving, trading in influence groups which promote corruption and which again weakens institutions.

The analysis carried out by (Kaufmann et al., 1999) is based on a database containing more than 300 governance indicators compiled from a variety of sources permitting cross-country comparisons of between 155 and 173 countries.

Six aggregate indicators corresponding to the quality level of six basic governance concepts are constructed on a scale of a low -2.5 to 2.5 (Kaufmann et al., 2014):

Area A – the process by which governments are selected, monitored and replaced is composed of

a1. Voice and accountability, which measures the extent to which citizens of a country are able to participate in the selection of governments including independence of media, and

a2. Political instability and violence, measures perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means;

Area B – the capacity of the government to effectively formulate and implement sound policies is composed of

[37] See Brazil Governance Indicators, Appendix 1.

b1. Government effectiveness, which combines perceptions of the quality of public service, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies, and

b2. Quality of regulatory burden, includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development;

Area C – the respect of citizens and the state for the institutions that govern economic and social interactions among them

c1. Rule of law, measure the extent to which agents have confidence in and abide by the rules of society, effectiveness of the judiciary, and

c2. Control of corruption.

The choice of units for governance ensures that the estimates of governance have a mean of zero, a standard deviation of one, and range from around -2.5 to around 2.5. These aggregate indicators are oriented in such a way that higher values correspond to better outcomes.

(Kaufmann et al., 2014; Kaufmann et al., 1999) conclude with new empirical evidence that governance matters, in the sense that there is a strong causal relationship from good governance to better development outcomes such as higher per capita incomes, higher adult literacy (figs. 14 and 15) and lower infant mortality.

Despite not yet published, it can be envisioned that WGI's 2014 and 2015 indices for institutional quality/governance in Brazil will probably reflect the increase in corruption that was inflicted upon the country in these two years.

Widespread corruption promoted by the government and its party (the Workers Party) for 12 years sparked a public outcry with over two million people demanding the ousting of the president throughout the streets of Brazil.

Brazil's continental size, large population and decentralized system of governance with 26 states and more than 5000 municipalities pose an additional problem

to Brazil. Brazil is one of the most decentralized countries in the world, with local municipal governments receiving about US$35 billion per year from the federal government to provide public services. The local government mayors and the local legislators are relatively free to decide how to spend these resources, allowing a great deal of room for corruption. The three most common ways in which local politicians can engage in corruption are fraud in the procurement in public services, diversion of funds, and over invoicing of public services. These findings suggest that electoral rules that enhance political accountability play a crucial role in constraining politician's corrupt behavior. (Ferraz & Finan, 2011)

4.7.2. Rule of Law

Empirical evidence shows that a high quality judiciary acts as a deterrent to corruption. Brazil's high level of corruption generates a negative evaluation of the quality and effectiveness of its judiciary. It also raises questions regarding the independence of the judiciary.

It was found that the majority of people perceive their countries' judiciary as corrupt including Brazilians (74%)[38], Latin Americans (70-80%) and Americans (over 50%).[39] The success of any anticorruption policies passes mandatorily through having a highly moral and respected judiciary in whose magistrates the society deposits a great level of trust, a characteristic of countries with low level of corruption.

Analysis of the level of corruption for Brazil in 2013 by specialized entities is directly associated with the quality of the judiciary. It shows a high corruption perception index of 83% and 75% by the Institute for Management and Development (IMD) and the Economist Intelligence Unit (EIU) respectively. (Kaufmann et al., 2014)

The quality of a democracy requires a good system of checks and balances, which involves good governance, and good governance demands institutional accountability. Furthermore, one of the pillars of a democratic system is the separation

[38] Datafolha
[39] (TransparencyInternational, 2007)

and independence of institutions – government, congress and the judiciary, and research has shown that judicial independence directly affects economic growth (Feld, 2003).

The judiciary as guardian of the rule of law has a key role in the fight against corruption and its quality is directly related to the level of corruption in any country. Research of (Lambsdorff, 2007) shows there is a strong correlation between corruption and the quality of the judicial system.

Higher courts are the Achilles-heel of the rule of law in Brazil in what concerns the fight against corruption. The lenient positions taken by the Brazilian Supreme Court in the decisions involving the "soft" sentencing and handling of the political representatives involved in the recent grand corruption scandals such as the *mensalao*[40] and the *pertrolao/lavajato*[41] have been causing great controversy and popular discontent, which are aggravated by various episodes, including: (i) the fact that judge Toffoli, one of the Supreme Court judges nominated by former president Lula, had been legal council of the former president's party (Workers Party), attorney on his presidential campaigns of 1998, 2002 and 2006, and other polemic issues; (ii) by the controversial nomination of judge Fachin to the Supreme Court by President Rousseff in May 2015 in the midst of an unprecedented institutional crisis, like judge Toffoli, seen as being too close and biased towards the Workers Party; and (iii) by the release of eight suspects involved in the Petrobras corruption scheme who had been incarcerated by a federal judge following investigations by the federal prosecutors and federal police. It is not uncommon to see magistrates in Brazil involved in corruption schemes and retired magistrates lobbying in in the judiciary favor of their clients. Independence implies that judges' careers do not depend on pleasing those with political and economic power.(Rose-Ackerman, 2007)

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[40] *Mensalao* means monthly payment – a major former president Lula's government led corruption scheme to bribe congress representatives to approve its proposals.

[41] Ibid. 10 and 11

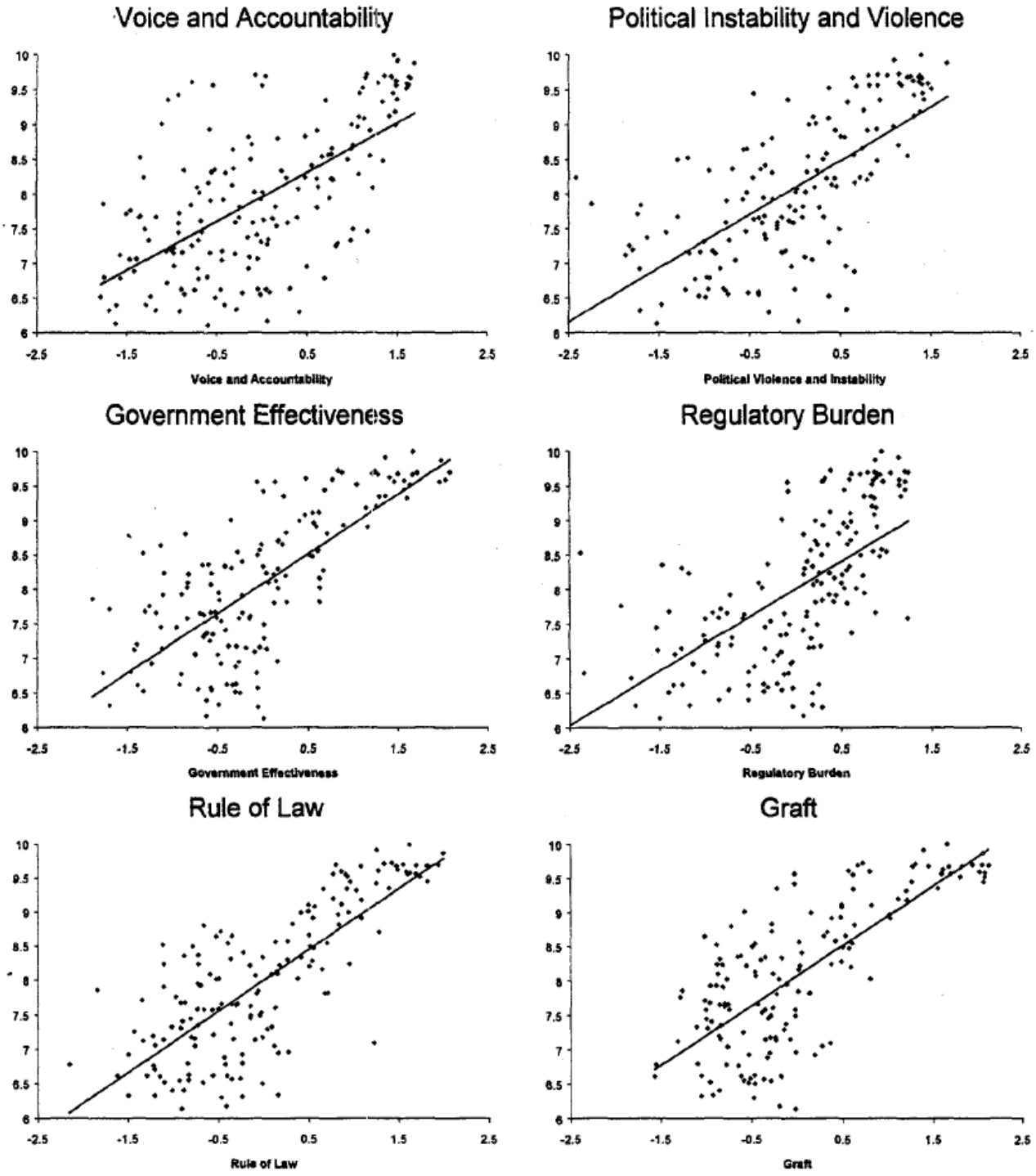

Figure 14 - Six Governance Indicators vs. Per Capita Incomes. Horizontal axis: Quality of Governance index aggregates from worst level of quality -2.5 to best level of quality 2.5; higher values mean better outcome. Vertical axis: Logarithm of per capita GDP at PPP x 1000. Results show that the better the quality of governance indicator, the higher the per capita income. Note that in the cases of Political Instability, Regulatory Burden and Corruption, the higher quality of governance means less. (Kaufmann et al., 1999)

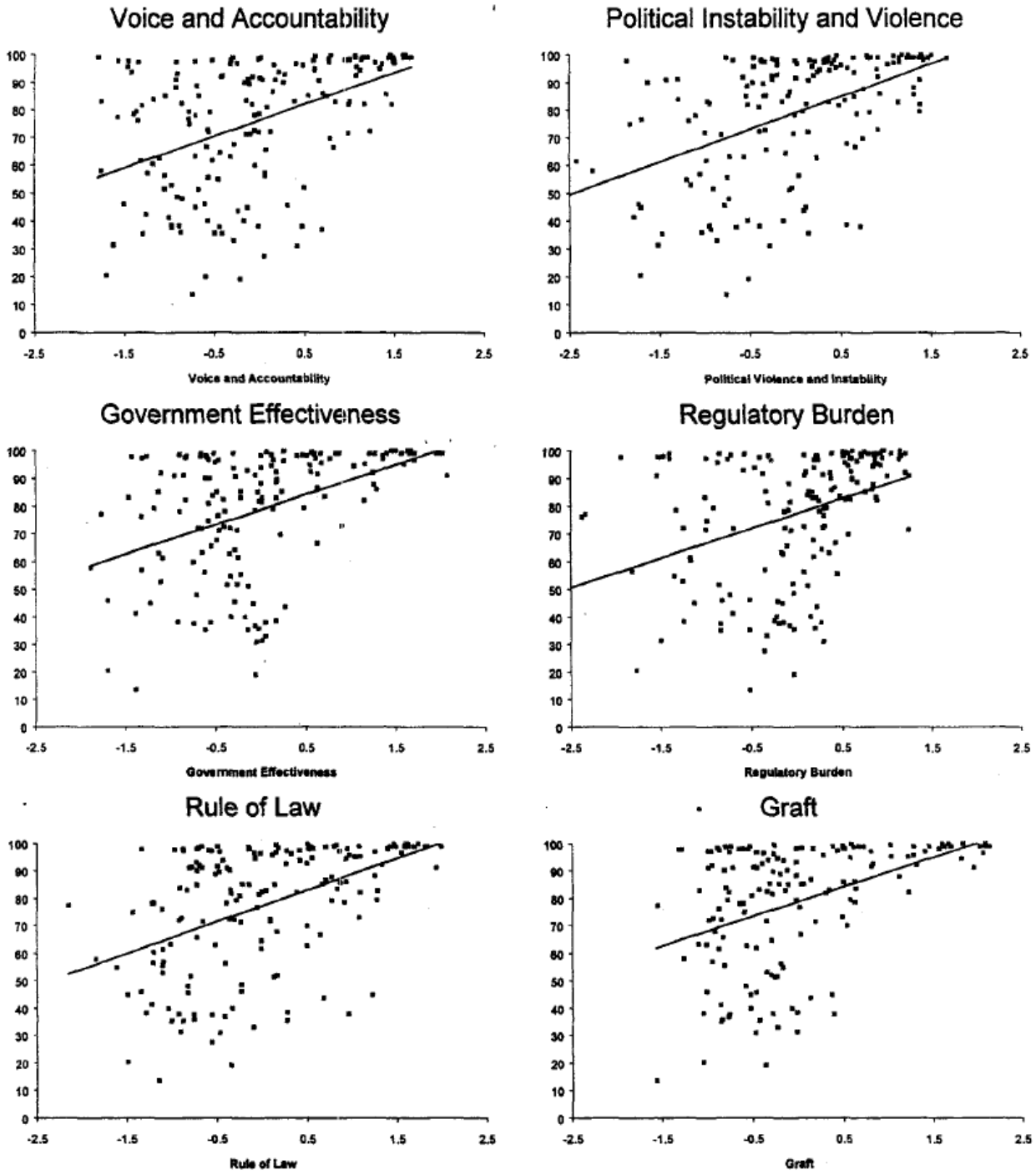

Figure 15 - Six Governance Indicators vs. Adult Literacy Rate. Horizontal axis: Quality of Governance index aggregates from low -2.5 to high 2.5; higher values mean better outcome. Vertical axis: Adult literacy rate in percent. Results show that the higher the Quality of Governance Indicator the higher the Adult Literacy Rate. Note that in the cases of Political Instability, Regulatory Burden and Corruption, the higher quality of governance means less. (Kaufmann et al., 1999)

In fact, there is a major flaw in the Brazilian penal code that gives room to corruption and impunity of the grand corrupt and fraudsters. The penal code stipulates a time limit throughout the criminal procedure for the prosecutor and defendant with the exception of higher court judges who act in a discretionary manner. A typical example is where a federal judge sentences corruption suspects to jail, and the appeals or supreme court readily releases them, and puts the case in a "drawer/freezer" for several years while the suspects are free, a rather common practice in high profile cases involving large sums of money. Other times the sentenced white-collar criminal serves most of the sentence at home. As a result justice is never delivered.

A competent, independent, and incorruptible judiciary is a basic pillar of a democratic and just nation – corruption in the judiciary undermines the dictates prescribed by the rule of law consequently perpetuating impunity, and favoring those parties in interest and self-serving magistrates to the detriment of the whole society.

4.7.3. Strong institutions dominating balancing loop – B1 group of loops

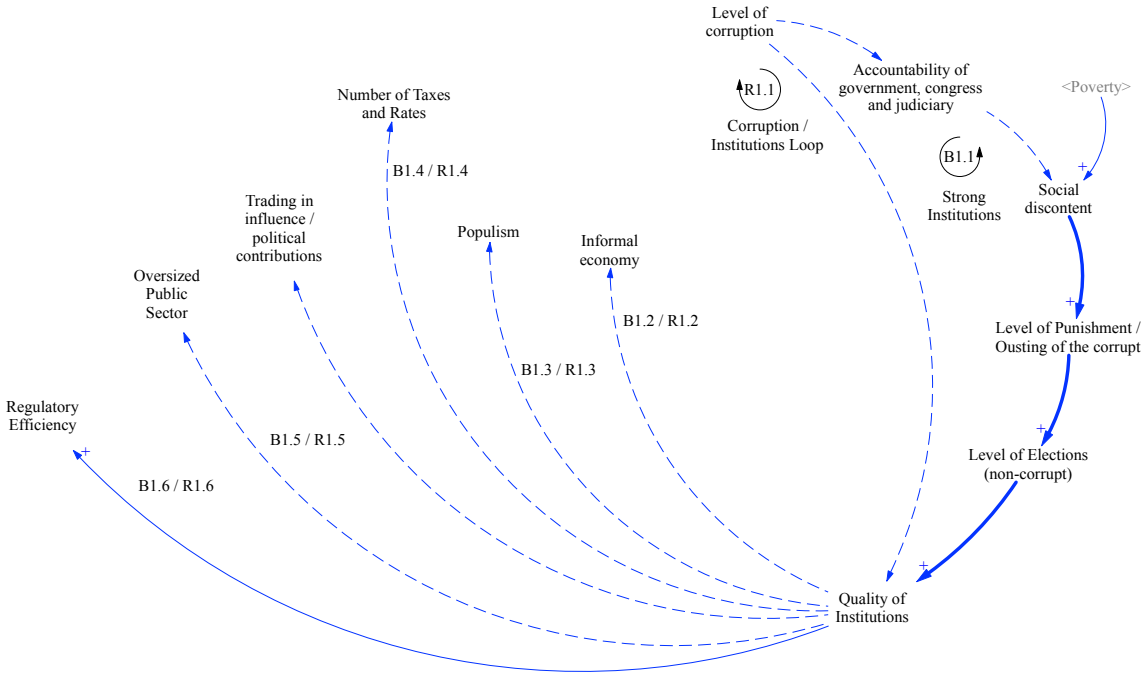

Figure 16 – Strong Institutions balancing variables
_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

Two key variables/sequence of variables converge at the level of quality of institutions variable as shown in figure 16. One is level of corruption, which triggers a set of reinforcing loops R1.1 to R1.6 (discussed in section 4.2), and the other is the sequence starting with the accountability of government, congress and judiciary, which triggers a group of strong institutions balancing loops B1.1 to B1.6 discussed herein. As seen, starting at the level of quality of institutions, these two groups of loops share the same variables and the behavior will be dictated by the characteristics of the destructive variable (level of corruption) and by those of a set of virtuous variables (starting with institutional accountability).

The strong institutions feedback loops (B1 group of balancing loops – B1.1 to B1.6) have a powerful balancing dominating force that well structured, and meeting the most fundamental prerequisites and policies, has the strength to override the destructive power of corruption (Fig. 17). When it comes to grand political corruption the balancing power of institutions initiates in these variables: level of accountability in government, congress, and the judiciary; social discontent; punishment/ousting of the corrupt, and better election process (non-corrupt).

The process in Brazil works as follows: it originates with corruption's powerful and fast driving forces and variables (R1 group of loops) overpowering the balancing forces that retain corruption, which leads to a gradual lowering of accountability and loss of trust in government, and/or in congress, and/or in the judiciary until the accumulation of corruption activities reach the society's limit of tolerance to corruption, which will generate a balancing domino effect by triggering higher social discontent and mass demonstrations, demanding the ousting and conviction/punishment of the corrupt politicians and officials as observed in Brazil in the mass movements of March 2015. This in turn results in increased social awareness and, potentially, election of non-corrupt politicians – in an effort to reduce the "stock" of corrupt political representatives in government, congress and judiciary; a democratic process that is expected to result in stronger institutions/governance.

Loop B1.1 – Quality of Institutions-Trading in influence

The strong institutions loops (B1.1 to B1.6) act to reduce the force of the variables that cause corruption including trading in influence vehicles such as lobbying,

campaign contributions, rent-seeking and high profile corruption schemes hidden in contracts with the various areas and levels of government, agencies, state controlled companies, banks, pension funds, and insurance companies.

The remaining five key variables are the same as those that exert a pressure to cause the increase of corruption and discussed in section 4.2 with the difference that they are subject the counterbalancing forces coming from the virtuous constructive variables:

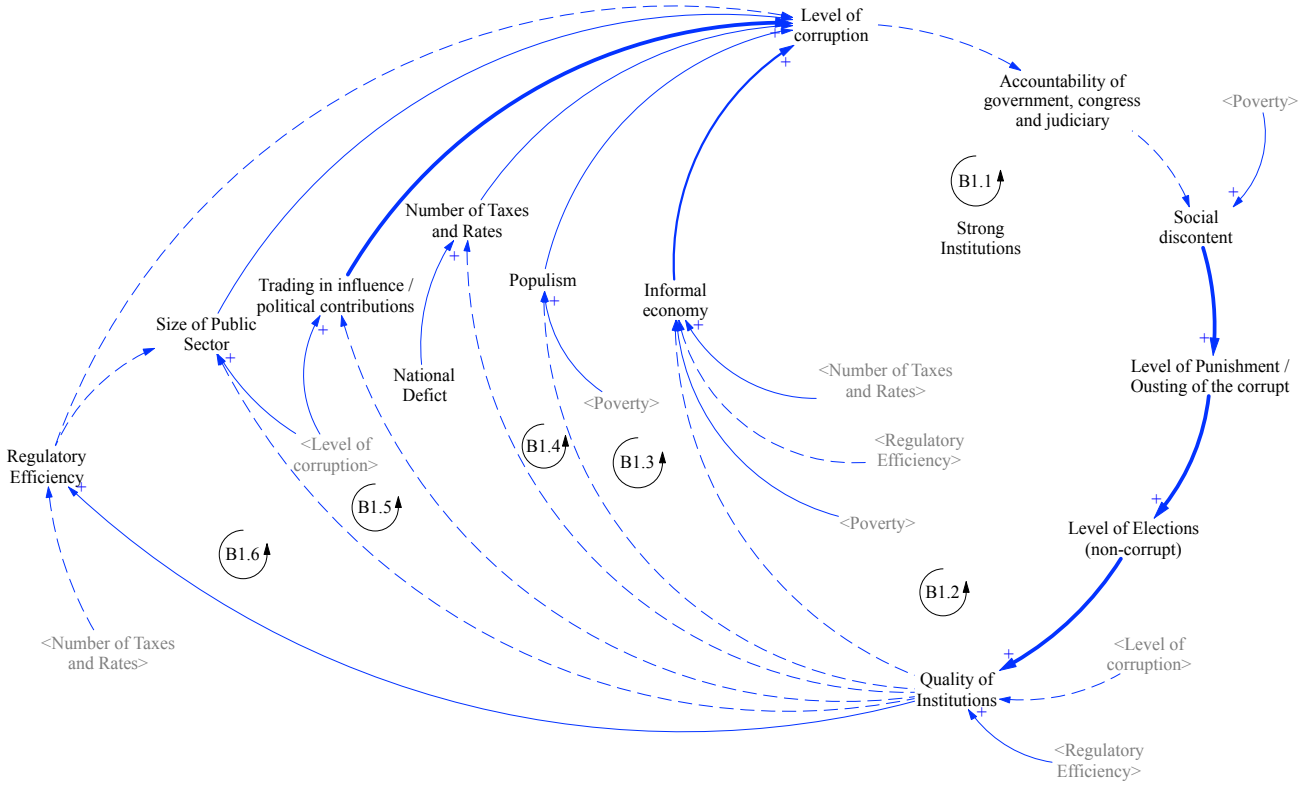

Figure 17 - B1 – Strong Institutions dominating balancing loop
_____ Positive Polarity _ _ _ _ _ _ _ Negative Polarity

Loop B1.2 – Quality of Institutions-Informal and underground economy

The good quality institutions exercise a balancing force over the informal and underground economy – it is discussed in section 4.1 and in more detail in section 4.9.

Loop B1.3 – Quality of Institutions-Populism

Good democratic institutions have solid "checks and balances" and rule of law to avoid the installation of populist governments as discussed in section 4.3 – and also covered in section 4.2.

Loop B1.4 – Quality of Institutions-Number of taxes and rates

Corruption also fosters the increase in the number of taxes and rates in an effort to cover for the deficits generated by corruption and poor administration of public finances. Excessive number of taxes and rates also causes an increase in the informal economy with several consequences, among them a high tax evasion of 13% of Brazil's GDP.[42] Good quality institutions exert the counterbalancing force to avoid and reduce excesses. It is discussed in section 4.2 and in more detail in section 4.9

Loop B1.5 – Quality of Institutions-Size of the public sector

As seen in section 4.6, the start of the re-democratization period in 1986 marked the use of bigger government with ministries used as a bargaining tool in exchange of political support – a characteristic of young democracies.

Loop B1.6 – Quality of Institutions-Regulatory efficiency

Researchers observe a positive association between corruption and excessive government regulation with the implications covered in section 4.2. (Ades & Di Tella, 1997, 1999; Djankov et al., 2002; Goel & Nelson, 2005; Svensson, 2005; Treisman, 2000). Good quality institutions are what minimize excess red-tape.

4.8. Public, Private Investments and Human Capital balancing [Growth related] loops – B2, B3 and B4

Loops B2, B3, and B4 are growth related loops. (Li et al., 2000) found that even after correcting for measurement errors, corruption still retards economic growth.

(Tanzi & Davoodi, 1997) report that political corruption is driven by weak governance, and show that higher corruption is associated with: (i) higher public investment; (ii) lower government revenues; (iii) lower expenditures on operations and

[42] Valor Economico November 9, 2013. http://www.valor.com.br/brasil/3333552/no-mundo-brasil-so-perde-para-russia-em-sonegacao-fiscal-diz-estudo.

management; (iv) lower quality of public infrastructure; and (v) lower productivity of public investment – five channels through which corruption lowers growth.

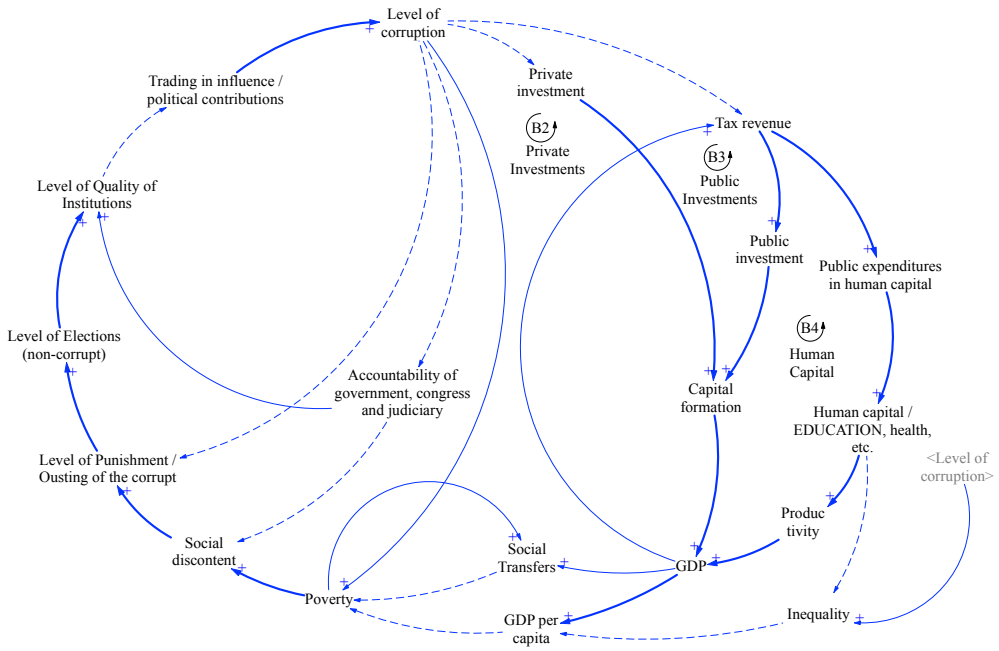

Figure 18 – B2, B3 and B4

Public, Private Investments and Human Capital balancing loops

_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

Analyses of existing data on GDP and corruption (Transparency International, Worldwide Governance Index (Kaufmann et al., 2014) and others) demonstrate that there is a much higher incidence of corruption in poor and developing countries than in developed countries – the less developed the country, the higher the level of corruption. In fact, the relationship between corruption and development is the most extensively researched aspect in the empirical literature on corruption. (Lambsdorff, 2007) reinforces several scientific findings and confirms that corruption reduces productivity of capital (fig. 19).

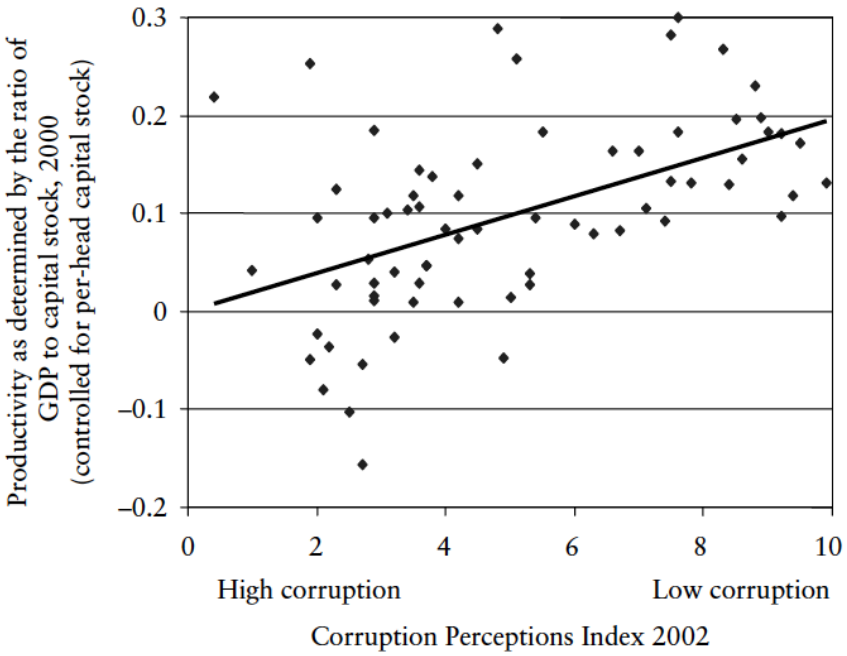

Figure 19 - Corruption and Productivity of Capital (Lambsdorff, 2007)

Loop B2 – Private investments [and Growth]

In his pioneering study (Mauro, 1995) followed by (Mauro, 1997) found that corruption lowers private investment, thereby reducing economic growth. Many other studies including (Tanzi & Davoodi, 2000) report a similar effect. Further, (Mo, 2001) noted that corruption reduces the level of human capital and the share of private investment. It also generates uncertainty which increases the risk premium of investment decisions (Gupta et al., 1998). (Lambsdorff, 2007) further analyzed the impact of corruption on total net capital (fig.20) – in a cross section of 64 countries, corruption is shown to decrease capital inflows at a high confidence level, controlling for various explanatory variables such as GDP per head, domestic savings rates, and raw material exports.

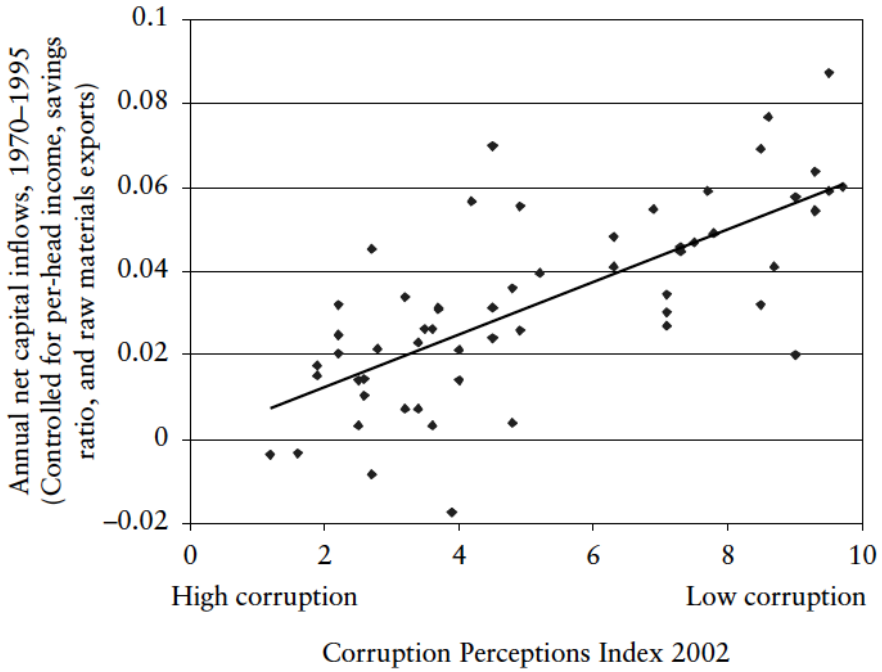

Figure 20 – Corruption and Net Capital Inflows (Lambsdorff, 2007)

Loop B3 – Public investments [and Growth]

An extensive study by (Tanzi & Davoodi, 1997) provides evidence of the many channels through which corruption corrodes public investment and reduces growth. Corruption distorts the entire decision-making process related to public investments. Corruption reduces growth by reducing the quality of the existing infrastructure. A deteriorating infrastructure increases the cost of doing business for both the public and private sector, for instance: congestions, delays, accidents, floods, power outages, etc., thus leading to lower output and growth. Corruption also reduces growth by lowering government revenue needed to finance productive spending.

Loop B4 – Human Capital [and Growth]

Research also demonstrates that corruption reduces average income and education, while better education generates growth and a more informed electorate, that, in turn, produces greater effectiveness in political participation and better monitoring of actions of representatives of government, congress and judiciary, identifying and punishing corrupt behavior (more so with grand political corruption). Better education

may put sufficient pressure on governments to pass institutional reforms aimed at dramatically reducing future corruption.

Higher corruption is associated with lower quality and spending in education and health (Mauro, 1997; Tanzi & Davoodi, 1997). A higher education endowment will reduce inequality (Tinbergen, 1975). Tests carried out by (Gupta et al., 1998) also show that a worsening in the corruption level by one standard deviation (2.52 on a scale of 0 to 10) is associated with the same increase in the Gini coefficient as a reduction in average secondary schooling of 2.3 years.

Corruption negatively affects education levels since it reduces disposable incomes and the ability to invest in education just as education affects corruption through a host of variables. Countries with intermediate levels of education are most likely to remain in a poverty trap since the intermediate levels of education allow for some basic initiatives against corruption but not good enough monitoring, a fact that is detrimental to poverty reduction. Low education levels in Brazil are significantly affected by poor quality of education and high dropout rates, which in turn determine the quality of institutions (Eicher et al., 2009; Gupta et al., 1998; Treisman, 2000).

4.9. Corruption, informal economy, currency black market and tax revenue

Loops R6.1 to R6.6 – Informal economy

Research has shown that corruption is related to the unofficial or underground economy via the following six main reinforcing loops: (i) informal economy – loop R6.1; (ii) private investment-informal economy – loop R6.2; (iii) public investments-informal economy – loop R6.3, (iv) public expenditures-informal economy – loop R6.4, (v) number of taxes and rates-informal economy – loop R6.5, and (vi) regulatory efficiency-informal economy – loop R6.6. Most variables have been individually discussed in other sections and are now analyzed in their interrelations with tax revenues and the informal economy.

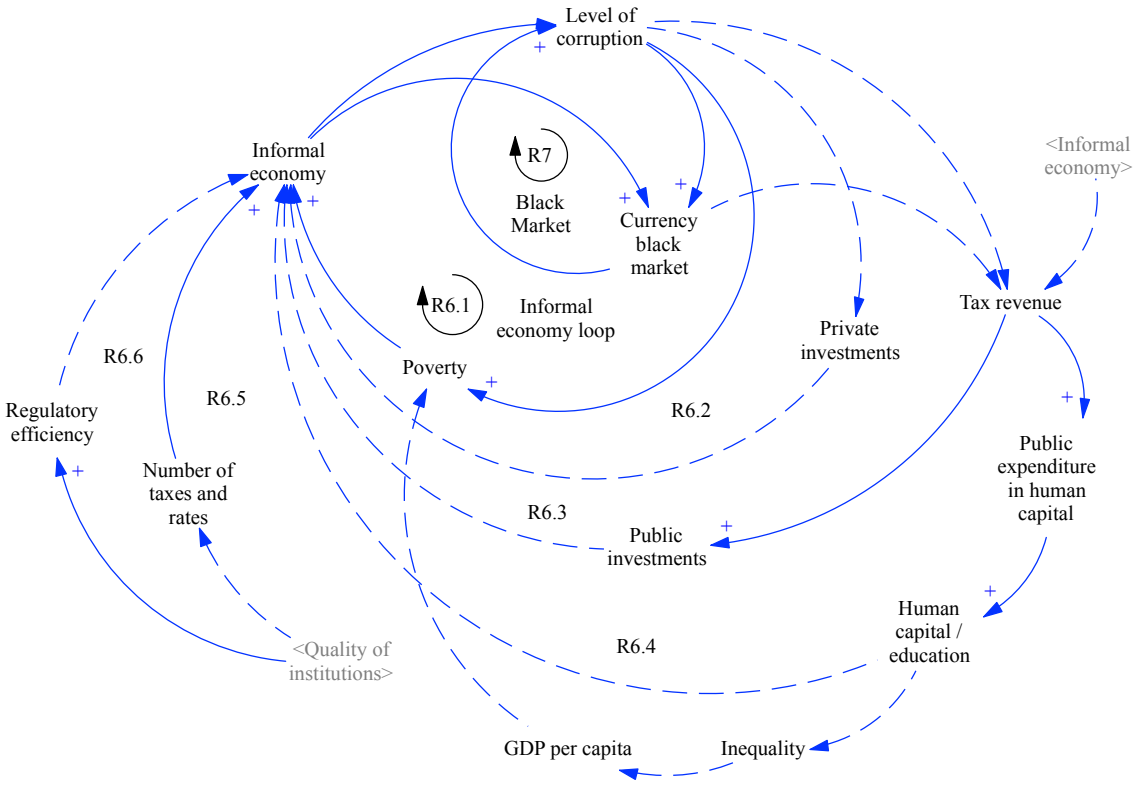

Figure 21 – Informal Economy / Tax Loops

_____ Positive Polarity _ _ _ _ _ _ Negative Polarity

Informality has a direct causality with tax revenue and with the currency black market. (Friedman et al., 2000) and (Johnson et al., 1999) demonstrated that countries with a larger unofficial or underground economy tend to have higher levels of corruption as shown in figure 22. Technical papers written by (Dreher et al., 2007), (Dreher & Schneider, 2006) and (Hibbs & Piculescu, 2005) corroborate with these findings.

The unofficial or underground economy, the so called informality, happens everywhere and consists of all economic activities that would generally be taxable were they reported – it is characterized by unreported income from the production of goods and services, either from monetary or barter transactions. It is an economic phenomenon that in its higher levels that characterize low income countries is a complement to corruption, such as seen in Brazil where the informal economy corresponds to 40% of GDP (Arvate et al., 2004). In high income countries informal economy activities and corruption are substitutes. (Dreher & Schneider, 2006)

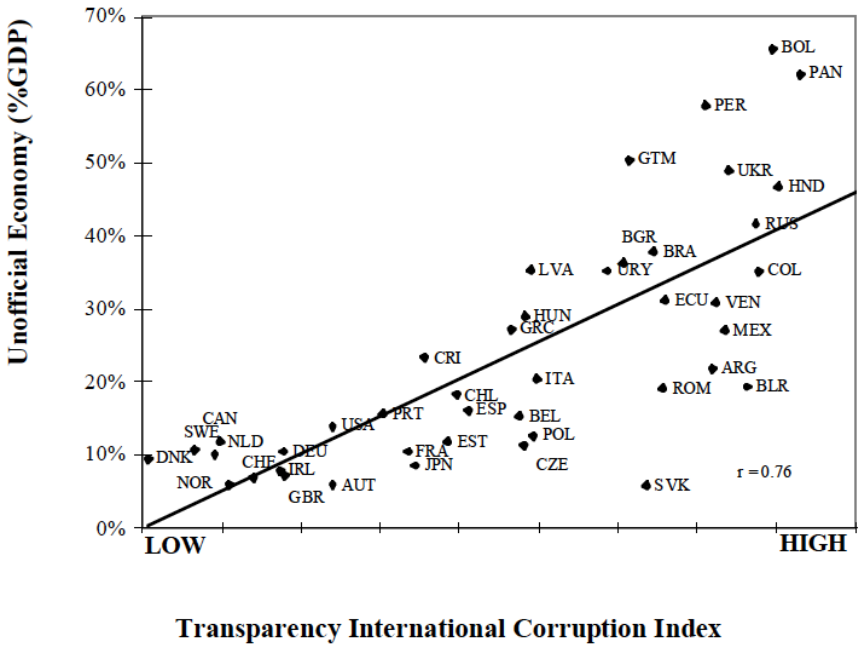

Figure 22 – Corruption vs. Unofficial Economy

Informality is strongly associated with corruption, poverty, inequality, tax evasion, and illicit transactions. It comprises illegal practices such as hiring workers without registration, atypical work contracts, false labor cooperatives, house workers, street commerce, and autonomous workers without social security registration as defined by the World Labor Organization. Furthermore the underground economy includes all sorts of illegal and criminal activities such as organized crime and narcotrafficking.

Activities carried out in the informal economy are generally concealed from public authorities to avoid:

- paying income tax, value added and other taxes, as well as payment of social security contributions, many times as a matter of survival since tax burden can make certain activities unviable,
- having to meet certain legal labor market standards, such as minimum wages, maximum working hours, safety standards, etc., and
- complying with cumbersome regulations and bureaucratic procedures.

A World Bank study (Johnson et al., 1999) found that the unofficial economy accounts for a larger share of GDP where there is great bureaucratic inefficiency and

discretion, and where firms experience a greater tax and regulatory burden, as well as more bribery and corruption. Furthermore, the unofficial economy was found to be much larger where there is less state revenue and where the rule of law is weak. The study also found that countries with a larger unofficial economy tend to grow more slowly.

The vast majority of workers in the underground economy are less privileged, less educated, less qualified and poor who do not manage to participate in the formal economy. They are many times subjected to discrimination and perform work that is degrading. They are also characterized by low pay and are totally excluded from the employment-related benefits provided by the Brazilian law, such as unemployment benefits, one additional month's salary every year, children's benefits, maternity leave, dismissal and vacation related benefits, social security and retirement, access to credit and many more. About one-half of the Brazilian labor force is in the unofficial/underground economy, affecting more than 100 million people who struggle to survive in a shadow economy and experience a high level of insecurity, in addition to not being reached by social justice; a dual society of the haves and have-nots, the included and the excluded.

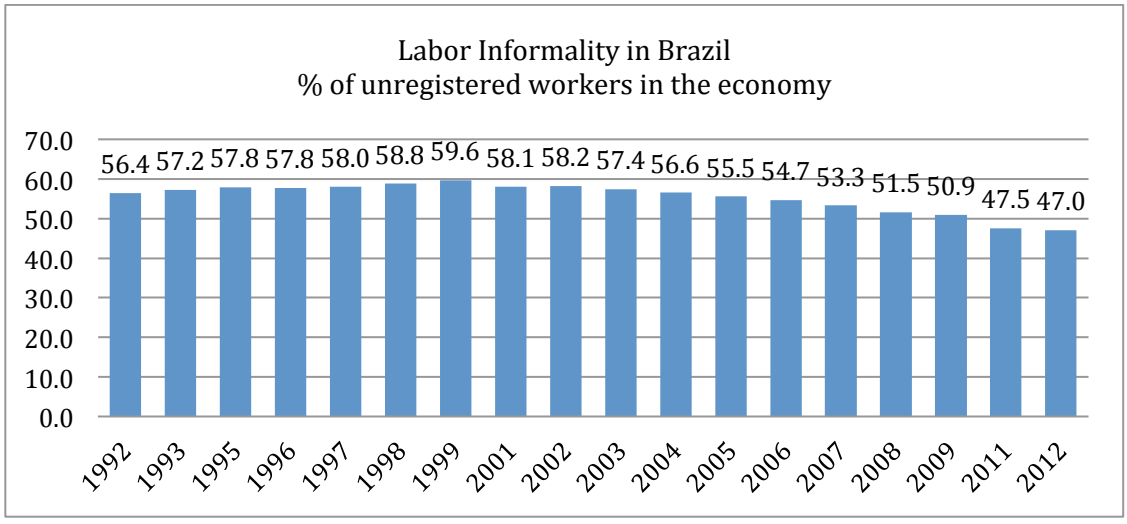

Figure 23 (official data - source Ipea Brazil)

(Friedman et al., 2000), (Johnson et al., 1999) and (Tanzi & Davoodi, 1997) found the unofficial economy to negatively impact government revenues as shown in figure 24.

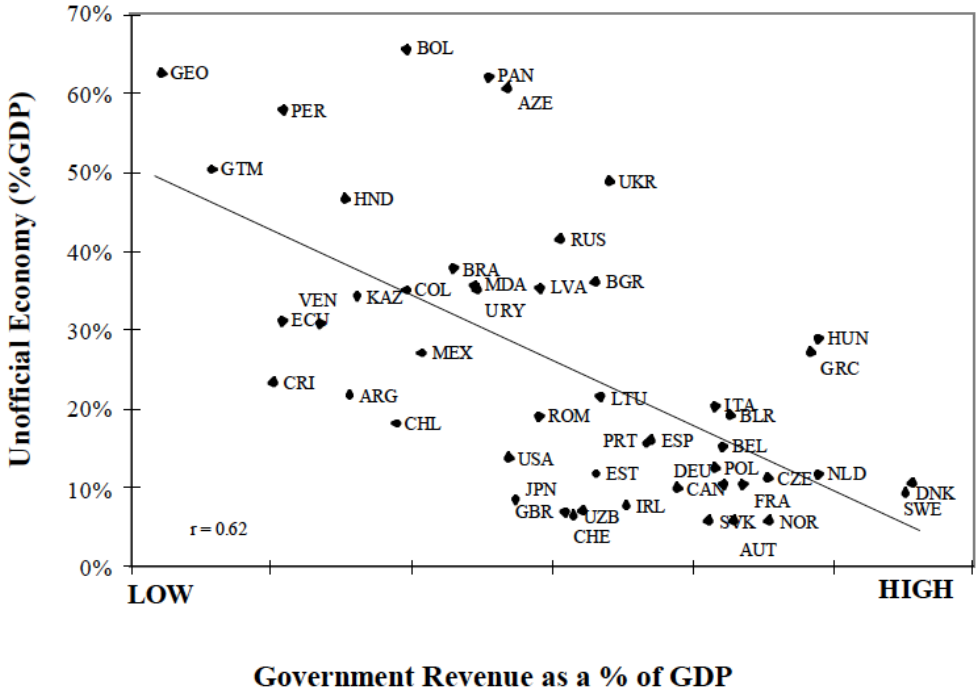

Figure 24 – Government Revenue (%GDP) vs. Unofficial Economy (%GDP)

(Tanzi & Davoodi, 2000) concluded that a 1 point increase in corruption is associated with a 1.5 percentage point decline in total revenue relative to GDP and a 2.7 percentage point decline in the ratio of taxes to GDP. Corruption was found to generate a higher impact on direct taxes than on indirect taxes, indicating that countries with higher corruption rely more on indirect taxes than on direct taxes. Tax evasion in Brazil reaches 13% of GDP.[43]

An interesting analysis of a unique dataset on corruption and informal sector employment in 476 Brazilian municipalities (Bologna, 2014) to estimate whether corruption impacts GDP or income levels once variation in informal economic activity is taken into account and found that higher levels of corruption and a larger informal economy are generally associated with poor economic outcomes. However, only the size of the informal economy (not corruption) showed a robust and statistically significant effect. It concluded that (i) one standard deviation increase (0.186) in the share of total workers in the underground economy explains a decrease in GDP per-capita of about 18

[43] Valor Economico November 9, 2013. http://www.valor.com.br/brasil/3333552/no-mundo-brasil-so-perde-para-russia-em-sonegacao-fiscal-diz-estudo.

percent and (b) a one standard deviation increase in the size of the informal sector is associated with a decrease in income (both formal and informal) per-worker of about 8 percent. Considering that the size of the informal economy varies from 13 to 98 percent across municipalities in Brazil, these effects can be extremely large. Thus, the results indicate that the size of the informal economy in Brazil's municipalities may be more important for economic outcomes than corruption.

Over and above what has been described herein, there is a circulation of billions through the domestic financial and foreign exchange black market.

Loop R7 – Black Market

Corruption, informality, tax evasion and domestic and offshore illicit financial transactions are overwhelming and intimately related. (Johnson et al., 1999) There is extensive literature on the different types of grand corrupt/criminal/illegal schemes adopted by all types of individuals and organizations including corporations and banks both locally and through cross-border transactions internationally. Illicit transfers represent 2.5% of Brazil's GDP annually (Kar, 2014) and tax evasion reaches over 13% of GDP every year.[44]

It is estimated that US$20 trillion dollars are deposited in financial heavens (McNair et al., 2014; Sood, 2014) – more than the United States GDP and almost 30% of the world's total GDP. Illicit financial outflows from the developing countries reached US$1 trillion dollars in 2011 – it increased by an average of more than 10 percent per year over the decade and continues to grow (Kar & LeBlanc, 2013).

Rank	Country	US dollars
1	China	1.1 tn
2	Russia	881 bn
3	Mexico	462 bn
4	Malaysia	370 bn
5	India	343 bn
6	Saudi Arabia	266 bn
7	Brazil	193 bn

Figure 25 – Illicit Outflows – 10-year period – 2003-2012

[44] Ibid. 43.

Major international anti-corruption efforts are promoted by Transparency International, Global Financial Integrity, OECD, among others, in a fight that will take many years to produce more representative results. There are two major caveats that stand in the way of the solutions. The first is that grand corruption and illicit activities involve powerful people who are beneficiaries of these schemes, the same ones it is relied upon to enforce strong sanctions to curtail corruption, as seen in Brazil. The second is that countries where these moneys are deposited and/or assets are held, such as valuable properties and real estate, are not willing to change the status quo. The examples include Switzerland, Luxembourg, U.S., UK/London, and France/Paris.

4.10. Discussion

One important finding of the present thesis is the identification of fast and slow overlapping loops, and can be seen quite clearly in the analysis herein. The fast loops are ones of a destructive nature and directly contaminate the quality of institutions, spreading throughout other important variables such as trading in influence, size of the public sector, regulatory efficiency, and number of taxes and rates with devastating consequences in Brazil. The forces that counterbalance the corruption enhancement ones are of a long and slow nature, making the reduction of corruption a more difficult task.

Because of this phenomenon, corruption in Brazil increased significantly since 2002, reaching a high level of political instability, despite the fact that the level of education has been consistently increasing throughout the re-democratization period that started in 1986. This shows that education alone will not solve the grave and longstanding problem of corruption in Brazil.

Taking into account all correlations and cross-reference analysis in light of behavior curves of corruption perception shown in figure 1, and adding Chile and Italy, we arrive at a few important considerations that led to the behavior demonstrated in figure 26 and need to be observed in future research:

i. China has one of the highest levels of corruption among all countries despite having the fastest growing economy and scoring the highest on Pisa test which makes it a point out of the curve in what concerns the findings on the correlations between development and education, and corruption;

ii. Italy is one of the most developed and educated countries in the world and birth to strong institutions but has a persistent high level of corruption which has been increasing since year 2000, also making it a point out of the curve;

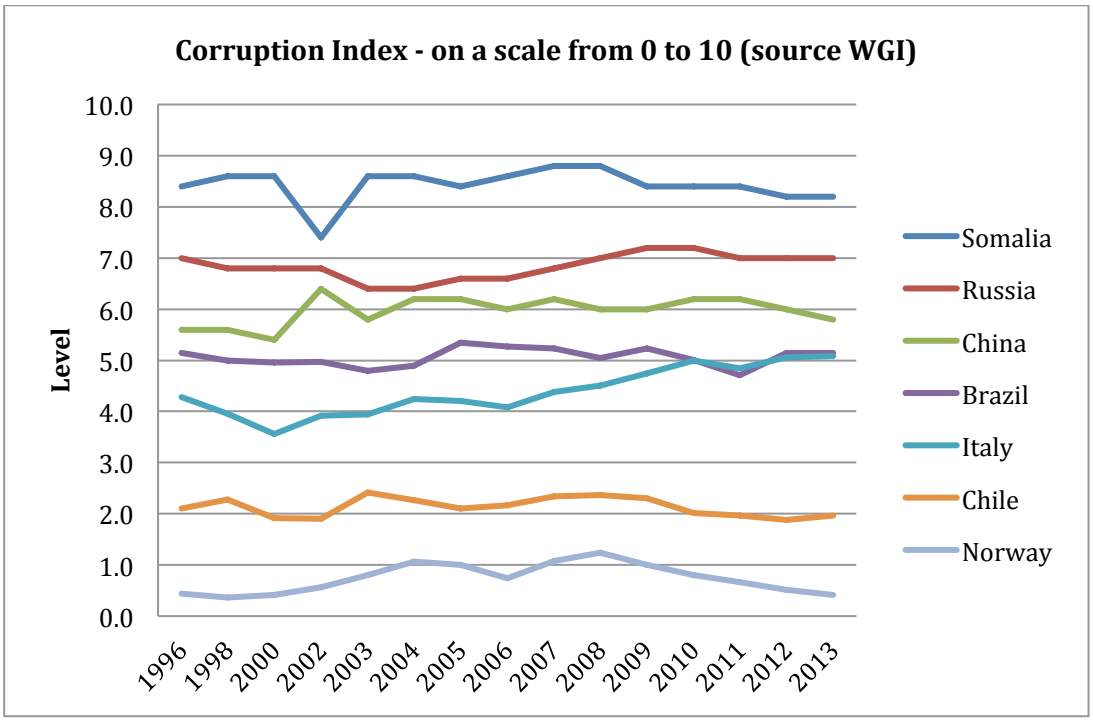

Figure 26

iii. Chile has shown that corruption can be controlled if a country has strong institutions and determination despite being in a region conceived by many to be corrupt by nature[45];

iv. The greatest corruptors are among the world's richest countries that extract wealth from corrupt-prone less developed corruptee-countries, a phenomenon that also happens in Brazil[46];

v. The more developed nations have lower corruption domestically due to their stronger institutions but promote corruption in countries that have weaker institutions nonetheless[47];

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[45] Costa Rica is another good example in Latin America.
[46] (TransparencyInternational, 2007)

vi. Brazil has been victim to the largest corruption scheme in its history, orchestrated from 2002 to 2015 by populist political leaders, and involving amounts without parallel to secure their power project of permanent domination and it appears that WGI's corruption perception index did not capture such unprecedented phenomenon;

vii. Brazil is a continent-size country with 26 states, over 5000 municipalities all equipped with respective executive, legislative and judiciary, and this gives room to corrupt practices – Brazil is seen as having one of the best *de jure* judicial systems in existence but also one of the worst *de facto* judicial systems;

viii. Geographic dimension, population and inequality are common characteristics of high corruption countries, with China, Russia, Mexico and India being the first, second, third and fifth countries with the highest volume of illicit transfers of money with Brazil being the seventh after Saudi Arabia.

Empirical evidence shows that corruption is a global pandemic with destructive proportions that societies and most academics still do not realize, and that all the efforts that are being undertaken are still small in relation to its astronomic proportions. The findings and conceptual framework of the thesis represent, to the best of my knowledge, a new contribution to the academic world.

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[47] Ibid. 46.

5. Policy Recommendations

Brazil has extensive legislation covering corruption related activities and has recently passed a new anticorruption law on August 2013. It is signatory of the United Nations Convention Against Corruption (UNCAC), the Inter-American Convention against Corruption, the OECD Anti-Bribery Convention and the United Nations Convention against Transnational Organized Crime (UNTOC). These can be seen as some of the reasons why corruption in Brazil is not larger.

The UNCAC entered into effect in 2005 having been signed by 172 countries including Brazil and is the most recent of a long series of developments in which experts and politicians have recognized the far-reaching impact of corruption, an economic crime that undermines the value of democracy, sustainable development, and rule of law. The UNCAC deals with forms of corruption that had not been covered by many of the earlier international instruments, such as trading in influence, abuse of function, recovery of stolen assets and various types of corruption in the private sector. The anti-corruption programs employed to date have been highly important and on the right direction but have had little impact thus far.

Policy design and implementation of institutional reforms consisting of twenty key directives is recommended and seen as the most effective to weaken the corruption related reinforcing loops and strengthen the institutional oversight/governance related balancing loops in Brazil. Each of these policy recommendations demand time to be detailed and well implemented by different committees in congress in an open and transparent fashion – they are distributed among different committees in congress consisting of: criminal procedure, constitution and justice, political reform, regulatory, administrative reform, finance, tax and customs.

Committee: Criminal Procedure – Loop B1.1

(i) One of the gravest and pressing corruption related problem in Brazil has a name – impunity. Despite all the negative media corruption scandals receive, there is no punishment. It is not a case that demands a new policy or law but rather that the judiciary dully fulfills its duty in observation to the existing laws and in accordance with the spirit

of the laws – it must execute the existing laws. It is also vital to give maximum visibility to the all the corrupt, including accomplices and collaborators, as well as those who enforce the law, the good-doers, and those who look away, procrastinate, and don't deliver justice, such as members of the judiciary, congress and government. Without punishment, the grand corrupt cannot be deterred and a message is sent to society that corruption is a rewarding criminal offence. This is the starting point in the fight against corruption and has a shorter time delay to produce results.

(ii) Improve the criminal procedure code to ensure the implementation of a speedy criminal procedure for white collar-criminals and incarceration as of the judicial indictment. As it stands today, the criminal procedure is too lenient on the grand corrupt and fraudsters – totally disproportionate with the damage they cause. Today's criminal procedure code provides that defendants of white-collar crimes who exploited their position of privilege and power can avoid being incarcerated until all appellate rights are exhausted. In other words, a white-collar criminal defendant remains free from jail so long as an appeal of his or her sentence remains pending. In fact, there is many ways that white-collar criminal appeals can remain pending "forever", which materially aids in incentivizing corruption and fraud in Brazil because these criminals know that they can use this legal loophole as a way to avoid serving one day of jail time.

(iii) Develop and implement widespread and strong policies to strengthen Brazil's anti-corruption institutions, together with more severe and effective legal sanctions, including but not limited to much longer prison terms, to significantly increase the risks and costs of corruption to both corruptors and corruptees, in addition to different ways to stimulate whistleblowing.

Committee: Constitution and Justice – Loop B1.1

(iv) Create a special committee to revise and strengthen the procedure for the nomination of Supreme Court judges in order to eliminate the political influence upon them, and guarantee their absolute independence. Strengthen the governance over the judiciary. There are many flaws that surround the judiciary and demand a detailed analysis and reform.

(v) End the prevailing political immunity system.

Committee: Regulatory – Loop R1.6 / B1.6

(vi) Introduce a nationwide dissemination campaign of the large sums involved in corruption and the immense physical and mental harm corruptors and fraudsters inflict on the wellbeing of Society as a whole, more so on the enhancement of poverty and inequality, usurping the rights and lives of millions of hungry children, women, men and elderly, in order to achieve higher levels of transparency and engagement of the civil society.

(vii) Introduce the study of corruption at all levels of the school curricula.

(viii) Strengthen the regulations and transparency related to procurement by federal, state and municipal governments and state controlled companies.

(ix) Strengthen the regulations related to government financing of projects in other countries together imposing greater transparency on all government financing.

Committee: Political Reform – Loop B1.1

(x) Change the election system at the federal, state and municipal levels in order eliminate the possibility of reelection of executive offices such as president, governors and mayors, which will promote the alternation of power and help reduce corruption. Election process in Brazil was interrupted as a result of an institutional crisis/national security motivated by a communist threat with the establishment of a military transition regime that lasted from 1964 to 1986.

(xi) Introduce a political reform in order to improve the electoral process of congress representatives extensive to states and municipalities as well as the quality of those running for office. Reduce the number of political parties, many of which are used as a "rental" party and also drain resources from the electoral funding program. Introduce the district voting system.

(xii) Introduce a recall system similar to the one existing in the U.S. whereby voters can remove an elected official from office through a direct vote before his or her term has ended.

(xiii) Impose severe restrictions of governmental use of public money for electoral and propaganda purposes.

Committee: Administrative – Loop R1.5 / B1.5

(xiv) Impose a limit to the size of governments at all levels. Perform a complete reorganization overhaul of all levels of government including allowances for expenses. Curtail the overwhelming abuses committed with the public money.

(xv) Forbid all politicians of occupying any office in state controlled companies. Impose a policy that determines that all state controlled companies are professionalized.

(xvi) Forbid the widespread practice of nepotism in government, congress and the judiciary.

Committee: Tax and Customs – Loop 7

(xvii) Impose strict controls and sanctions over mispricing in trade.

(xviii) Increase controls on customs, borders, narcotrafficking, and organized crime.

Committee: Finance – Loop R7

(xix) Impose stringent controls and sanctions over the giant parallel/black market for both Brazilian currency ($ Real) and foreign exchange. This is one of the key avenues whereby money from corruption flows.

(xx) Strengthen the efforts along the international community to demand transparency from banks that hide stolen money, and to demand an end to anonymous corporations in tax heavens. Enhance policies to include reverse tracing procedure whereby it demands the proof of origination of the money being spent by suspects. Strengthen the cooperation with law enforcement agents of other jurisdictions.

This set of policies combined with the current initiatives in progress both nationally and internationally will exert the required downward force to potentially reduce corruption in Brazil in the long run. Our research indicates that this is a slow process due to the high resilience of corruption in Brazil and to its enduring and systemic

nature. The unprecedented institutional critical juncture Brazil is now undergoing has the ingredients to make the level of corruption go down, initially to a pre-2002 level in about 20 years and further down in a 50 years time. It is no easy task since corruption is so deep-rooted in Brazil's institutions. Once more information on corruption related variables are available, computer modeling of projections and simulations should be pursued in future research.

Brazil is at a crossroad – it suffered a retrogression in the process of firming itself as a true and corrupt-free democracy, and in the breaking away from its cultural vocation to totalitarianism. A deterioration process started in 2002 imposed by a populist government, together with a very consenting congress where several representatives have been involved in government corruption scandals, and a lenient judiciary.

Brazil has to make a decision – whether it wants to drastically reduce corruption permanently or continue to be tolerant with political white-collar crimes. The policies recommended herein will only work if Brazil says no to corruption, no to any form of totalitarianism, yes to the separation of powers, yes to the rule of law, and yes to the universal human right of its people to a dignifying life.

6. Conclusion

The thesis analyzed herein builds a strong foundation and content regarding the highly complex dynamics of corruption in Brazil providing a better picture and understanding of how corruption works. It details and analyzes its causes and consequences, and lays the ground for the development of computer modeling of projections and simulations. In addition, it discloses the fast destructive forces of the reinforcing loops and the virtual forces of the slow balancing loops and their relevance in the dynamics of increase and decrease in corruption.

The thesis addresses the research question of "how corruption affects the well-being in Brazil" weakening the quality of institutions, causing inequality and poverty, and reducing investment and growth. It also demonstrates that the implementation of the recommended anti-corruption policies in Brazil such as (i) stronger enforcement of current criminal laws to stop prevailing impunity among corrupt criminals, (ii) improvement of the electoral system, (iii) strengthening of the judiciary, (iv) political and administrative reform, (v) financial, tax and customs reform, among others, should result in an improvement of several variables such as governance, education and income together with a greater well-being via a lower inequality/Gini index.

The introduction of a better and more effective electoral system together with greater transparency will result in alternation of power followed by better preventative controls, better independent governance, stricter and more effective sanctions, ousting of the corrupt representatives and officials, non-inflated government, lower regulatory burden, greater public awareness and involvement, public exposure of corrupt officials, significantly higher risks to corrupt officials, lower potential gains to corrupt officials, better judiciary, and ultimately in lower levels of grand corruption and in the winning of the long war against corruption.

Having achieved the objectives laid out for the thesis, I hope it can give good contributions to the academic world, policy makers, anti-corruption fighters, NGOs, donor agencies and supra-national organizations by taking the understanding of corruption in Brazil as well as solutions to a new level, which should also aid in the further research in the area in an array of different disciplines and initiatives such as: (i)

computer modeling of projections and simulations converting the causal diagrams of the present thesis in stock and flow diagrams; (ii) detail each of the policy recommendations of the present thesis; (iii) enhance anti-corruption programs along NGOs, donor agencies and supra-national organizations; (iv) development of a diversity of anti-corruption training programs; (v) further explore the impacts of corruption on poverty and inequality; (vi) enhance the curricula of different disciplines in higher level education: law, finance, economics, public administration, political science, social sciences, and others.

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Appendix I – Brazil Governance Indicators[48]

Corruption exists because there are not enough monitoring and incentives to eliminate it (A. Banerjee et al., 2012). Governance indicators corroborate with the fact that corruption in Brazil is endemic remaining consistently high independent of the economic cycle it is in. Governance is defined as "the traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them." (Kaufmann et al., 2014) There are two measures of governance corresponding to each of these three areas, resulting in a total of six dimensions of governance. Corruption has to do with the fragility of these six interrelated dimensions of governance.

(a) The process by which governments are selected, monitored, and replaced:

- Voice and Accountability – perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
- Political Stability and Absence of Violence – perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.

(b) The capacity of the government to effectively formulate and implement sound policies:

- Government Effectiveness – perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
- Regulatory Quality – perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

(c) The respect of citizens and the state for the institutions that govern economic and social interactions among them:

[48] (Kaufmann et al., 2010) (Kaufmann et al., 2014)

- Rule of Law – perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
- Control of Corruption – perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

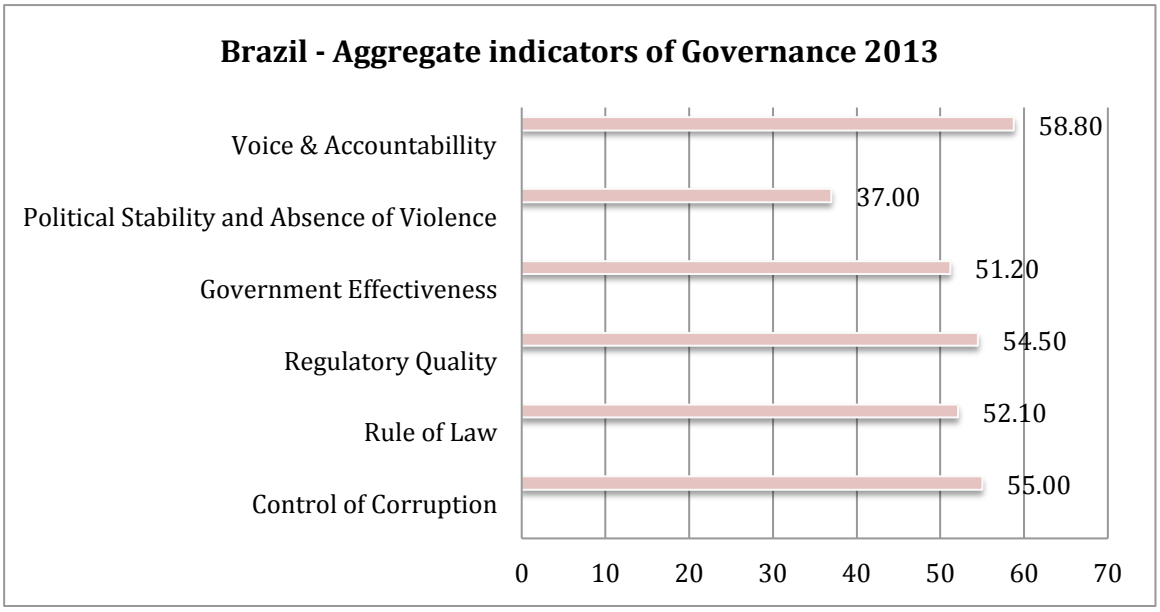

Figure 27 – Worldwide Governance Indicators[49] (Kaufmann et al., 2014)

[49] Worldwide Governance Indicators (WGI) 2013, Country Data Report for Brazil, 1996-2013. WGI are a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from a number of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms. The WGI do not reflect the official views of the World Bank, its Executive Directors, or the countries they represent.
Percentile rank among all 215 countries ranges from 0 (lowest control of corruption) to100 (highest control of corruption) rank. A key feature of the WGI is that all country scores are accompanied by standard errors. These standard errors reflect the number of sources available for a country and the extent to which these sources agree with each other (with more sources and more agreement leading to smaller standard errors). In our graphical presentation of the data we transform these standard errors into 90 percent confidence intervals or "margins of error".

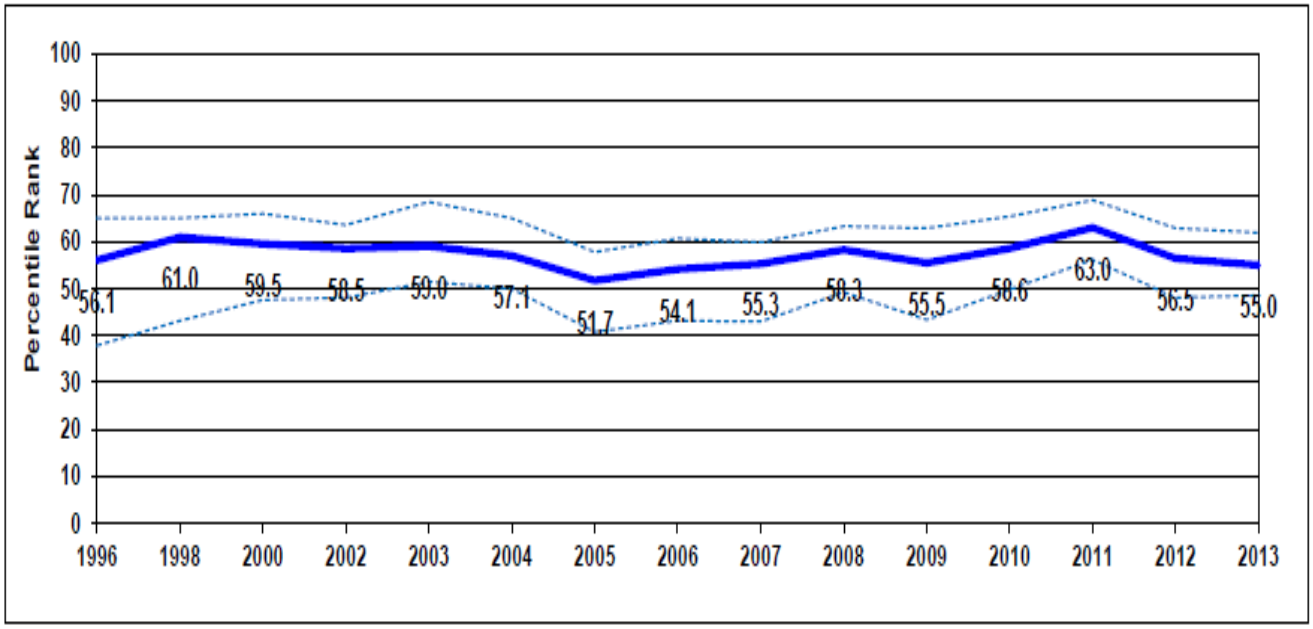

Figure 28 – Control of Corruption Brazil 1996-2013 (Kaufmann et al., 2014)

	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BTI					0.60	0.60	0.65	0.65	0.75	0.75	0.70	0.70	0.70	0.70	0.70
CCR											0.52	0.53	0.53	0.53	0.53
EIU	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
TI						0.56	0.56	0.56				0.68	0.68	0.68	0.68
WEF	0.46	0.52	0.49	0.52	0.48	0.56	0.46	0.49	0.36	0.41	0.36	0.44	0.42	0.42	0.37
GII								0.68	0.68	0.68	0.65	0.65	0.65		
Gallup								0.28	0.34	0.32	0.31	0.40	0.40	0.37	0.31
IFD						0.59	0.59	0.59	0.58	0.60	0.70	0.70	0.73	0.73	0.73
IPD								0.50	0.50	0.50	0.44	0.44	0.44	0.17	0.17
LBO			0.30	0.38	0.44	0.46	0.26	0.31	0.34	0.47	0.66	0.73	0.68	0.68	0.83
PRS	0.50	0.50	0.50	0.67	0.67	0.33	0.25	0.33	0.33	0.50	0.50	0.50	0.50	0.42	0.42
VAB								0.26	0.26	0.30	0.30	0.33	0.33	0.26	0.26
IMD	0.28	0.28	0.26	0.29	0.26	0.25	0.27	0.15	0.13	0.13	0.17	0.11	0.17	0.12	0.17
WJP													0.67	0.52	0.50
WMO	0.63	0.63	0.63	0.63	0.63	0.60	0.50	0.50	0.50	0.50	0.50	0.50	0.63	0.63	0.63

Figure 29 – Brazil Individual Indicators used to construct Control of Corruption (Kaufmann et al., 2014)

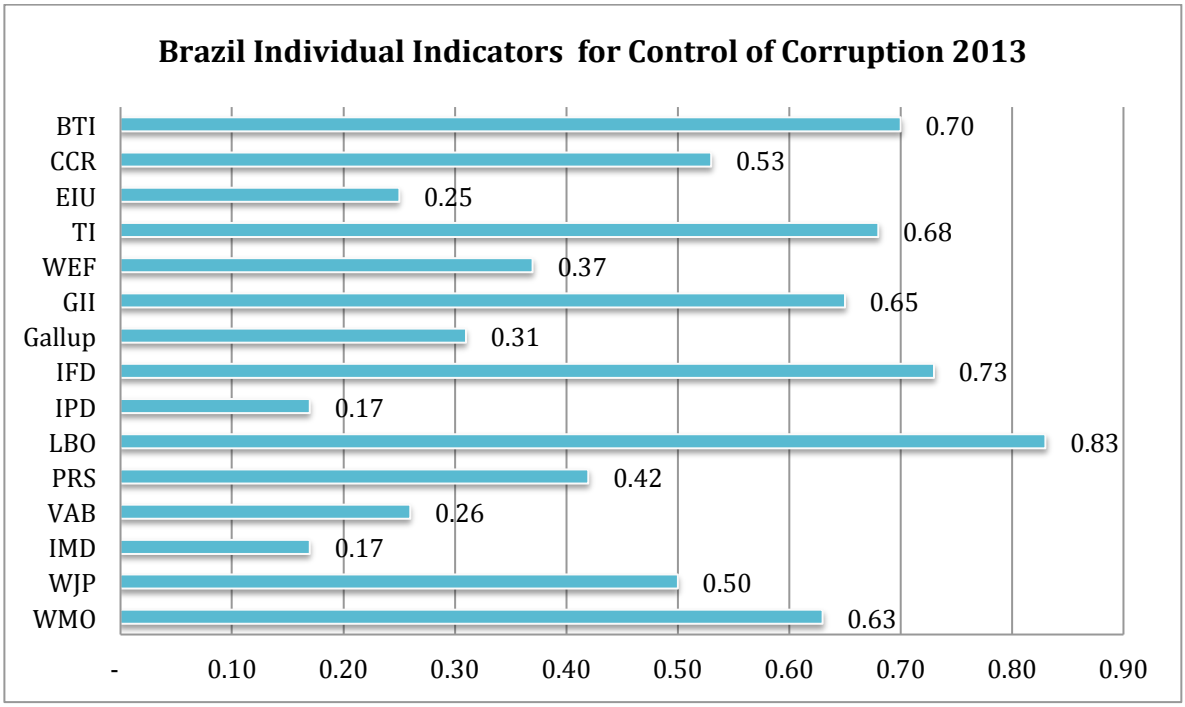

Figure 30 (Kaufmann et al., 2014)

BTI	Bertelsmann Transformation Index
CCR	Freedom House Countries at the Crossroads
EIU	Economist Intelligence Unit
TI	Transparency International Global Corruption Barometer Survey
WEF	World Economic Forum Global Competitiveness Survey
GII	Global Integrity Index
Gallup	Gallup World Poll
IFD	IFAD Rural Sector Performance Assessments
IPD	Institutional Profiles Database
LBO	Latinobarometro
PRS	Political Risk Services International Country Risk Guide
VAB	Vanderbilt University Americas Barometer Survey
IMD	Institute for Management & Development World Competitiveness Yearbook
WJP	World Justice Project
WMO	Global Insight Business Conditions and Risk Indicators

Figure 31 – Acronyms (Kaufmann et al., 2014)