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Economic and Social Consequences of Corruption in Transition Economies

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- Literature review of possible consequences of corruption.
- Analysis of the impact of corruption on socio-economic variables in selected group of Transition Economies.
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MEON, P. G., WEILL, L. Is corruption an efficient grease?. Helsinki: BOFIT Discussion Papers. 38(3), 2008. ISSN 1456-5889.
ROSE-ACKERMAN, S. International handbook on the economics of corruption. Edward Elgar Publishing, 2007. ISBN 978-1-84542-242-4.

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AUTHOR'S DECLARATION

I hereby declare:

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In Pardubice on April 30, 2019 Owusu Evans

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ANNOTATION

Corruption is one of the perturbing issues that has manifested itself in almost every part of the globe. Its impact through direct and indirect means does not only affect a person but the entire population which can further extend to generations. Many scholars in light of its undesirable effect have undertaken studies to create awareness of the degree of the impact corruption is causing or can cause, both socially and economically. However, countries with transition economies have been vulnerable to corruption due to factors like privatization and restitution during the transition process. As such, Czech Republic, Hungary, Slovakia and Poland which are European countries with transition economies where studied with regards to the socio-economic consequence of corruption. A quantitative research method was employed in the research design and the analyses of this thesis work. The analyses revealed that the level of corruption was significantly different among the countries for the selected period. The social and economic consequences were evident in their level of Foreign Direct Investment, Gross National Expenditure, GDP growth, Human Development Index and Rule of law. Also, the urgency to curb corruption was seen to be very low despite most of the countries performing poor in recent corruption ratings.

KEY WORDS

Corruption, transition economies, public officials, transmission channels, socio-economic, impact, private gains.

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LIST OF THE ABBREVIATIONS

TI – Transparency International

OECD – Organization of Economic Cooperation and Development

CPI – Corruption Perception Index

US – United States

GNE – Gross National Expenditure

WGI – Worldwide Governance Indicators

FDI – Foreign Direct Investment

GDP – Gross Domestic Product

ANOVA – Analysis of Variance

NFDI – Net Foreign Direct Investment

SPSS – Statistical Package for Social Science

CCI – Control of Corruption Index

ICRG – International Country Risk Guide

BEEPS – Business Environment and Enterprise Performance Survey

IMF – International Monetary Fund

UNDP – United Nations Development Program

WBG – World Bank Group

WGI – World Governance Indicators

INTRODUCTION

Corruption has become an ancient canker that continues to manifest in generations. According to Wells and Hymes (2012), corruption is not a new phenomenon to human life as primary evolutions and civilizations show records of corrupt activities. For example, Egwemi (2012) describes corruption in general context to have no regard for a particular race, ethnicity, creed or even geographical settings. Corruption assessment and ratings have found all countries guilty, though with under-developed and developing countries dominating. It does not suffice to consider corruption as a canker of only under developed or developing countries.

Corruption has become an uncompromised subject of nations and institutions since every country is prone to corruption. Globally, countries are in unanimous position that corruption to some extent is, and has been a constraint to their political, economic and social development for which optimum urgent attention is required. As such, there is almost no single country in the world where corruption is not discussed. Nonetheless, there are a body of arguments about the impact of corruption on socio-economic growth. That is, authors have reported both positive and negative effects of corruption in societies. For instance, Leff (1964), Huntington (1968) and Lui (1999) claim that corruption increases productivity and impact positively on economic growth by helping to skip unnecessary barriers and ineffective regulations.

However, more negative impacts have been highlighted by other authors. Shleifer and Vishny (1993) argue that empowering individuals with veto power over approval for projects will certainly increase corruption and slow economic growth. To enlighten this point, Myrdal (1968) reports that irrelevant barriers will be created by corrupt officials to take more bribes when offered arbitrary powers which would rather cause additional service delays and economic harm. Also, corruption introduces uncertainties into the economic environment that can affect private firms (Rose-Ackerman, 1997). The onus of most corruption usually falls on the poor in society since they cannot afford to recompense the necessary bribes for their ward's education, quality healthcare or other public services such as proper sanitation, potable water supply, electricity etc. Additionally, injustice, poor education systems are inevitable social consequences of corruption.

Economic transition has paved way for several cases of corruption in countries and institutions. Instances of corruption were reported during the economic transition of China with consequences on their social and economic growth felt. According to Scarlet and Scarlet (2007), the Soviet Union and its economic system collapsed with the revolutionary changes. This paved way for new level of economic management. The policy shift resulting from the economic transitions translated into a huge boost within many sectors and facets (Homlong and Springler, 2006). Nonetheless, the

emergence of new dimensions of economic management also came with its problems due to improper channeling of resources (Dana and Dana, 2003). That is, ideologies to describe the changes and further fix the challenges faced by the Soviet Union and Eastern European countries were lacking as scientists were unprepared for the windfall and corruption was an inevitable problem. Transition economies are more vulnerable to corruption due to privatization where state officials demand bribes and kickbacks from interested private agents for state-owned business (Holmes, 1999).

Emphatically, the Vise Grad Group made up of four (4) Central European regional countries have been in economic transition from the former Soviet Regime that was anchored on a centrally planned Economy to a Free Market Economy. In this regard, possible evolution or probable increase in corruption in these countries cannot be overlooked. The average Corruption Perceptions Index (CPI) scores indicated that, Vise grad countries trail far behind the Western European member states. Colson (2016) reports that the World Economic Forum ranked Poland 10th, Czech Republic 6th, Hungary 4th and Slovakia 2nd with indices of 3.7, 3.3, 3.1 and 2.7 respectively based on its annual corruption index where an index range of 1 (most corrupt) to 7 (least corrupt). Additionally, the Eurobarometer surveys (2017), conducted by the European Commission suggests that about 86% of Hungarians citizens, 84% of the citizens in the Czech Republic, 85% of Slovak citizens and 58% Polish citizens agree that corruption is a major problem which is widespread in their respective countries. This situation provides huge inequalities toward the less privileged and poor and poses greater challenge to the socio-economic growth of such countries. Thus, it looks undeniably that economic transitions are still a loop hole for corruption to manifest and its effects cannot be ignored.

Hence, the main aim of this thesis is to analyze the economic and social consequences of corruption in these selected transition economies. To achieve this objective, the first step of analysis will be based on scientific literature review. Subsequently, the impact of corruption on socio-economic variables in the selected group of countries will be verified.

This thesis is made up of six parts. The first part covers the introduction of corruption in transition economies. The second aspect covers the theoretical background on the issue of corruption and also reviews literature on corruption and its socio-economic impact. The third section discusses the research methods employed in this thesis. The fourth part analyzes the impact of corruption on socio-economic variables in selected group of Transition Economies. The fifth section summarizes, evaluates and discusses the findings. The final part of this thesis provides the conclusion.

1. THEORETICAL BACKGROUND

This chapter reviews theoretical and empirical literature on corruption. In order to achieve the goal of this thesis, some basic concepts of corruption are first defined. Subsequently, the forms that corruption take are outlined and discussed. Some methods used to quantify and provide corruption ratings among countries are also captured here. This chapter finally looks at the causes of corruption and extends it to how it manifests in transition economy.

1.1 The Concept of corruption

There are several perspectives from scholars and institutions concerning corruption in attempt to provide a unified definition for the phenomenon. These perspectives cover political, economic, bureaucratic, legal, social and even moral dimensions. These perspectives have generated narrow, broad and temporary definitions for the term corruption. According to Ochulor et al (2011), the source and direction in defining corruption is normally anchored on the disciplinary background of the author or scholar. As such, there is no universally unique and accepted definition by the academic discourse or general public for corruption. The struggle in embracing a single definition is also attributed to the different modes in which corruption manifest through time. Kwong (1997) is of the view that, under different moral values, standards and economic organizations, the barred actions and forms that corruption take in social and institutional systems of developed and developing societies are not identical.

Nye (1967) defined corruption as *an attitude that violates rules or deviates from the ethical public duties due to private-regard influence such as personal, private clique, close family or status gain*. Nye (1967) further elaborates that corruption covers behaviors of bribery (use of reward to pervert the judgment of a person in a position of trust), nepotism (bestowal of patronage by reason of ascriptive relationship rather than merit) and misappropriation (illegal appropriation of public resources for private-regarding uses). Voskanyan (2000) reported Montesquieu who describes corruption as the dysfunctional process by which a good political order is perverted into evil and monarchy into despotism. The World Bank (1997) definition of corruption focuses on basic grounds necessary for the execution of corruption. It accordingly defines corruption as the abuse of public office solely for private gains which embodies corrupt activities like bribery, embezzlement, trafficking as well as patronage. Agatiello (2010) regard definitions of corruption that restrict to only public sphere as narrow result of the universal nature of corruption. This claim contrasts the World Bank (1997) definition. According to Agatiello (2010), corruption pertains to omitting, committing an action or abusing an entrusted office which in the end modifies the core

mandate of ethics in executing public duties to the pursuit of personal objectives of economic, political or social benefits. Essentially, corruption involves two sides which are the donator and the receiver of the payment. The World Bank (1997) definition is therefore criticized for focusing on one side of the model which is the recipient of bribes; a weakness in its definition. Rose-Ackerman (1999) focuses the definition of corruption on the aspect of donation where payments are corrupt if illegally made to public agents with the aim of obtaining a benefit, favor or avoiding a cost (Rose-Ackerman, 1999). It therefore suggests that corruption should not only restrict to recipients in public offices but also donors and people within private offices. Corruption in the economic and social context "perversion or favor, the use or existence of corrupt practices, especially in a state, public corruption etc. (Macmillan English Dictionary, 2007). Friedrich (1966), however, posit that the use of public office for private gains might not necessarily be regarded as corruption depending on the societal viewpoint. That is, some societies see nothing wrong if a person abuses public office for personal gains so far as he or she contributes to the society.

Basically, corruption is not seen as a new phenomenon due to societal interaction and civilization. Wells and Hymes (2012) argue that the emergence of civilization that establishes the basis for modern-day democracy even has many authorities threatened by corruption. It is therefore very apparent that the concept of corruption is a worldwide phenomenon with historical relations (Agbiboa, 2012). According to Sadiq and Abdullahi (2013), corruption has become more obvious and an overwhelming issue in our modern-day societies which is evidenced by its increasing quantum and frequency. Corruption based on its use has been put into categories of modern and classical. Modern use treats corruption as behavior while the classical use treats corruption as a process. Modern discussion of corruption focuses on individual's will to participate in corruption. Today's corruption is unarguably behavioral which is centered on bribing. However, Taylor (2006) posits that there is no word for a corrupt gift in classical texts (Greece, Latin, Egyptian or Hebrew) and that the terms in those texts can be employed both for a lawful gift as well as for a corrupt gift.

Advanced definitions of the corruption are expected to evolve as complexity, sensitivity, contextual and concealment of the perpetuators remain dynamic and deepen with time (Roman and Miller, 2013). Considerably, these enormous definitions of the concept of corruption tends to converge to one central argument which is the manipulation of some sort for personal gains at the expense of others, being it the citizens, organization or the country.

Based on the severally proposed definitions by institutions, scholars and other authors, we conclude that corruption is the act of using either public or private office to manipulate legal procedures for certain favours and personal benefits. Corrupt individuals should involve both parties, that is, the giver and receiver of the bribes towards the execution of an illegal purpose. Though, certain definitions of corruption will remain narrow and temporary as new forms are discovered over time, but this thesis adopts the Agatiello (2010) definition of corruption.

1.2 Forms of corruption

Although, some countries have passed robust anti-corruption laws to draw clear lines between what a gift for goodwill is and those considered as bribes, yet corruption remains difficult to detect. This is attributed to its secret execution and in different modes it occurs. Generally, corruption can be classified into **small, middle** and **state capture** based on the quantum of personal or private gains.

Small corruption is characterized by petty bribing which does not have substantial effect on society. It is the basic and pronounced form of corruption which occurs among officials with entrusted power at low level positions. Corruption at this level usually occurs when ordinary citizens try to access basic goods or services at schools, health agencies, police departments and others. Although, these corruptions considered as petty and less insignificant tend to speed up things among parties. Therefore, it is not so dangerous according to scientist who are focused on the topic of corruption since it just *greases the wheels of the economy*.

Middle corruption are activities which affect the society in general such as the misuse of public funds. It often takes place through the use of high-level office power to benefit a few at the expense of many, which causes serious harm to individuals and societies. This includes stealing from public purse to construct schools, hospitals or dangerous facilities due to underfunding by corrupt actors. Middle corruption is usually seen as an abuse of human rights and distortion of justice as actors often go unpunished.

State capture is also a form of systemic political corruption where private interests significantly influence state decision-making processes to their own advantage. The concept of state capture was first used by the World Bank (2002) to describe the situation in Central Asian countries making transition from Soviet communism. This concept was specifically used to describe situations where small corrupt groups called oligarchs used their influence over government officials to appropriate government decision-making in other to strengthen their own economic positions (Crabtree and Durand, 2017). This form of corruption can be more harmful compared

to the others since instead of excluding all citizens outside the group from almost all parts of the political process in general, it goes beyond to exclude citizens outside the corrupt bargain from a certain political procedure (Stine, 2011). Privatization which is especially a dominant feature of transition economies provides avenue for state capture to easily be executed. According to Holmes (1999), the process of privatization which is ultimately implemented by the state provides new opportunities to state officials to operate. State capture usually alters basic laws and regulations at the stage they are formed. It has significant influence to transit corruption from illegal to legal sphere despite stakeholders perceiving such practices as corruption. Kaufmann and Vicente (2005) argue that state capture may not be illegal if it is determined by the captured state itself which might be attempted through private lobbying and influence. The influence may be through a range of state institutions including legislature, executives, ministries, judiciary and even corrupt electoral process. The state is captured through policy mechanisms dictated by and in favor of the private actors (firms, local elites) at a significant social cost. However, what remains under contention is where the line is drawn between it being a healthy democratic process or corruption. Other institutions and scholars have also classified corruption differently some of which overlap in meaning.

Transparency International classifies corruption into **petty**, **political** and **grand** based on the value incurred and the environment it takes place. P**etty corruption** involves the daily abuse of entrusted power either by low or mid-level public officials through their interaction with ordinary citizens who often try to access fundamental goods or services in places like schools, hospitals, police departments and other agencies (Transparency International, 2016a). Such practices of corruption are rare spoken of and expectations of bribes are rarely applicable to anyone not known to the locality. Without long-term presence and discrete research (e.g. Hartmann & Boyce 1990; Ray 1986), assured evidence of 'petty' corruption remains obscure.

Also, **political corruption** is the manipulation of policies, institutions and rules of procedures during financing and allocation of resources by political decisions makers in order to sustain power, status and wealth (Transparency International, 2016a).

Grand corruption consists of acts committed at high level government which distort policies or the central functioning of the state and enable leaders to benefit at the expense of the general public. Politicians and commercial operators, privately and corruptly, are known to have siphoned collectively enormous amounts of money, much of it from development funding, often from their own disaster-prone countries and very often into private bank accounts in the countries that were the origin of the aid (Ndikumana and Boyce, 2011).

Johnston (2005) from a political perspective proposed four corruption syndromes in analyzing the relationship between corruption and wealth, power and democracy as: **Influence Market, Elite Cartel, Oligarch and Clan** and **Official Moguls** which he explained as follow.

Influence market corruption behavior involves private gain through rent-seeking access by using discretionary powers to distort or impose influence within well-institutionalized policy processes. Senior officers with discretionary power in certain positions is a precondition for the act to be effective as they play the role of middlemen between different agents. This form effectively manifests during transitional process of societies and countries when policy processes is not well institutionalized.

Elite cartel involves the multiple direction and social networks of political, economic, military, bureaucratic, ethnic or communal elites who intertwine when they have same goal.

Oligarch and Clan occurs under risky and sometimes violent settings of rapidly expanding economies with weak institutions and political opportunities. This type of corruption is dominated by government officials or business entrepreneurs whose powers are personal and attract extensive followings (Johnston, 2005).

Official moguls involve government officials or their acolytes who plunder an economy with impunity. Institutions and political competitions are weakest in this category with economic opportunities often scarce and bitterly contested (Johnston, 2005).

Usually, transactions and patronages tend to provide the breeding grounds for corruption to manifest. Holmes (1993) additionally describes three major forms of patronage labelled as **nepotism**, **shared experience** and **shared interest**. Nepotism involves appointing officials for public offices based on family relationships. Moreover, shared experience relies on previous relationship or experience between the parties involved to offer promotion to the client while shared interest relies on common natural relationships (gender, ethnicity) or common interest on a course to offer promotion. Though, these forms as described by Holmes (1993) are not exactly corruption, as the mode of execution, the norms and laws of the society or the country, can only classify the act as illegal or corruption. For instance, people occupying high positions in government institutions prioritize and recruit their family members for job vacancies. Some societies may not consider this as corrupt acts especially when the recruited person possesses the minimum qualification or skills for the position. Others may buttress the example that since no gift or bribe was paid in the process and he or she qualifies, one should not regard that as corruption.

Langseth (2000) gives a general classification of corruption which normally includes bribery; embezzlement, theft and fraud; extortion, exploiting a conflict of interest/insider trading; offering or receiving unlawful gratuity, favor or illegal commission, favoritism, nepotism and clientelism. Thobaben (1991) reported two types corruption named as **kickbacks** and **influence peddling.** He explained kickbacks as when government officials offer public contracts to contractors in return for their share while influence peddling is when people with access to high ranking government officials trade on their influence during contract arrangement and timely intervention to secure favorable decisions or regulations. The assignment of government positions to political supporters as reward for their campaign contributions has long been a practice in politics. Though, there are regulations to check patronage jobs, yet politicians find way to create some by appointing legal executive officials.

Also, misusing public property and funds is not an exception of corruption. Other corrupt acts include petty theft of public goods most of such perpetrators usually being middle and lower officials who uses such media to compensate for insufficient salaries. Some government officials engage in corrupt forms like pocketing tax revenues, stealing from treasures, extending advances to themselves that are never repaid or draw pays using ghost names. Extortion is another form of corruption which involves the use of power as threat to illegally secure responses, money or other valuables.

1.3 Methods of quantification of corruption

Talks about corruption have become important due to international, economic and political relations between countries. However, to fight corruption, it will be necessary to know the extent it has manifested so as to put in appropriate measures. As such, substantial efforts and attempts has been made by scholars and particularly institutions to measure the degree of corruption. However, some of those attempts to quantifying corruption have generated endless and fierce debates due to contrasting societal perceptions and norms regarding the different techniques employed. Some of the debates on corruption have simply been based on the fact that bribery and other related forms of corruption are illegitimate in most countries. For instance, Transparency International (2005) reveals that, corruption comprises bribery acts like gifts and favors for which identifying and quantifying corrupt ones become extremely difficult. Nonetheless, the undying effort to develop convincing measures to inform corrupt acts prevails. Significantly, the level of corruption when known by governments and institutions can prompt them about the extent of harm so to develop or adopt appropriate measures to curtail it. Accordingly, there have been intense

global efforts by both governmental and non-governmental agencies to find acceptable ways to measure corruption (Méon and Weill, 2010; Lalountas et al, 2011; Torgler and Piatti, 2013). There have also been intensive efforts by individuals to come up with indicators suitable for measuring the levels of corruption across countries. (Reinikka and Svensson, 2005; Luo and Duan, 2016; Chabova, 2017). Some of these methods to quantify corruption include Corruption Perception Index, Control of Corruption Index, the Bribe Payers Index, the Global Corruption Barometer, Political Risk Index, Business Environment and Enterprise Performance Survey, Global Integrity Index, International Crime Victims Surveys.

1.3.1 Corruption Perception Index

This method was developed by Transparency International (TI) and it has been one of the world's most prominent and credible methods of measuring corruption. Transparency International since 1995 annually uses its CPI to ranks countries based on their perceived level of public sector corruption through their expert analysis, assessment and opinion surveys. It employs a standard definition of corruption which is the abuse of public power for private purposes such as kickbacks in public procurement processes, bribing public officials for favor and misappropriation of public funds. The use of public opinion and perceptions in their method of quantifying corruption can be attributed to the hidden execution of corrupt acts from the public eye. CPI therefore uses qualitative data instead of quantitative to provide numeric indices for corrupt acts. The CPI is a composite index based on independent surveys of business people and assessments of corruption in different countries. The surveys and assessments are provided by more than ten independent institutions around the world. The World Bank, World Economic Forum, International Institute of Management Development (based in Switzerland), African Development Bank (based in Ivory Coast), Bertelsmann Foundation (based in Germany), Economic Intelligence Unit (based in UK) and Global Insight (based in US) are some of the institutions. In 2012, Transparency International revised the methodology used to construct the index to allow for more comparison of scores from one year to the next. The CPI since 2012 uses a scale of 0 to 100 to rank the countries where 0 indicates highly corrupt and 100 is very clean. Before this revision, the CPI scores had a scale of zero (0) to ten (10) where zero indicates high levels of corruption and 10 low levels.

The 2018 Corruption Perception Index report; the most recent, draws on 13 surveys and expert assessments to measure and rate public sector corruption in 180 countries and territories. The report indicates that more than two-thirds of those countries and territories recorded an average

score of 43 which is below the benchmark score of 50. This provides a picture of the failure by most countries in their effort to significantly curb corruption.

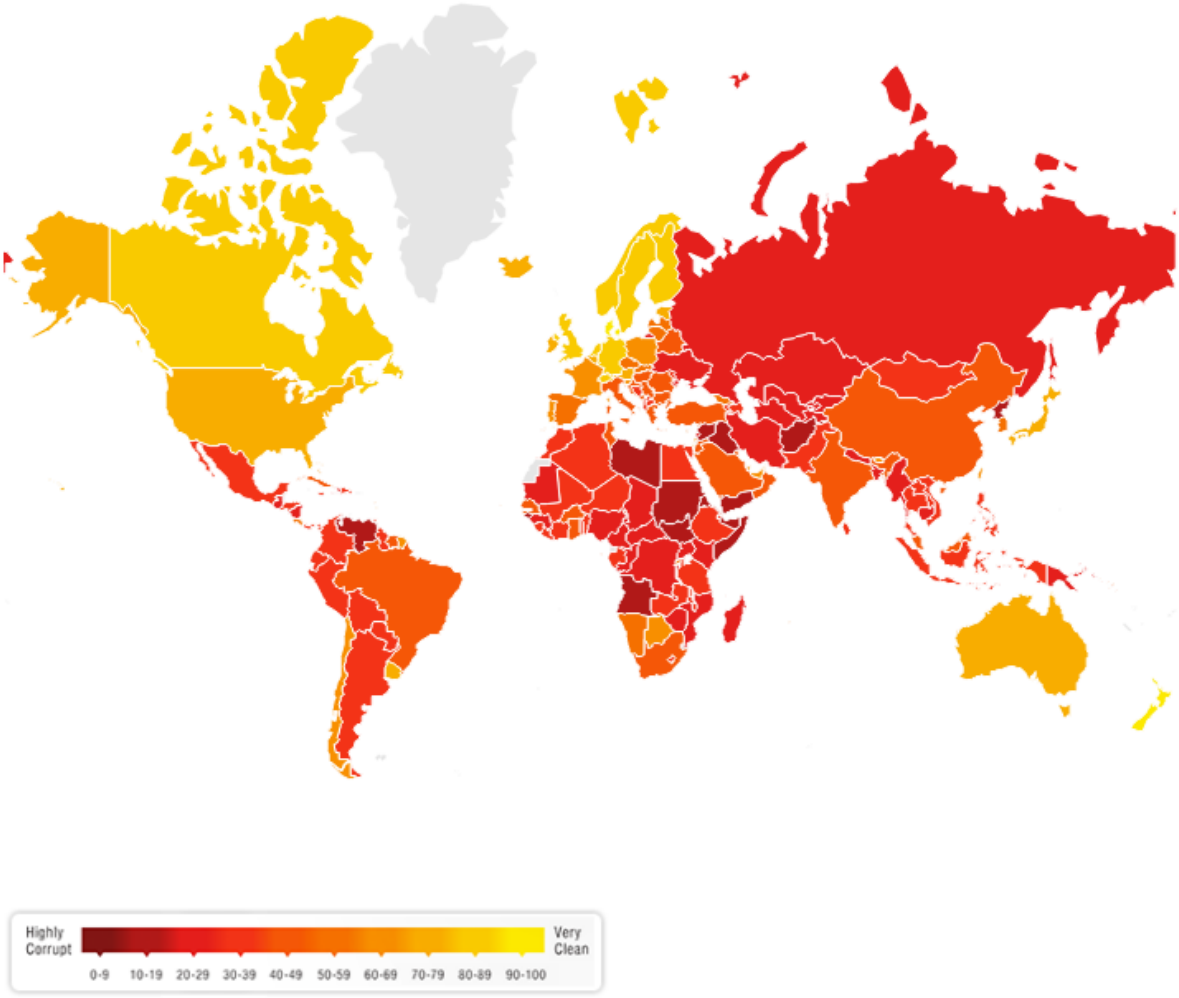

Figure 1: 2018 Corruption Perception Index and scale

Source: Transparency International, 2018

Figure 1 shows an extract of the 2018 CPI scores. Countries with top-scoring positions (yellow in the map below) are far lower in situations where the citizenry face direct impact of corruption on daily basis than those with orange and red color. There has been periodic inclusion of new countries for the CPI since its inception, but Transparency International reports indicate that there is no single country that gets so close to a perfect score in the assessment. This goes to buttress the point that no country in the world being it developed or under-developed is corruption free.

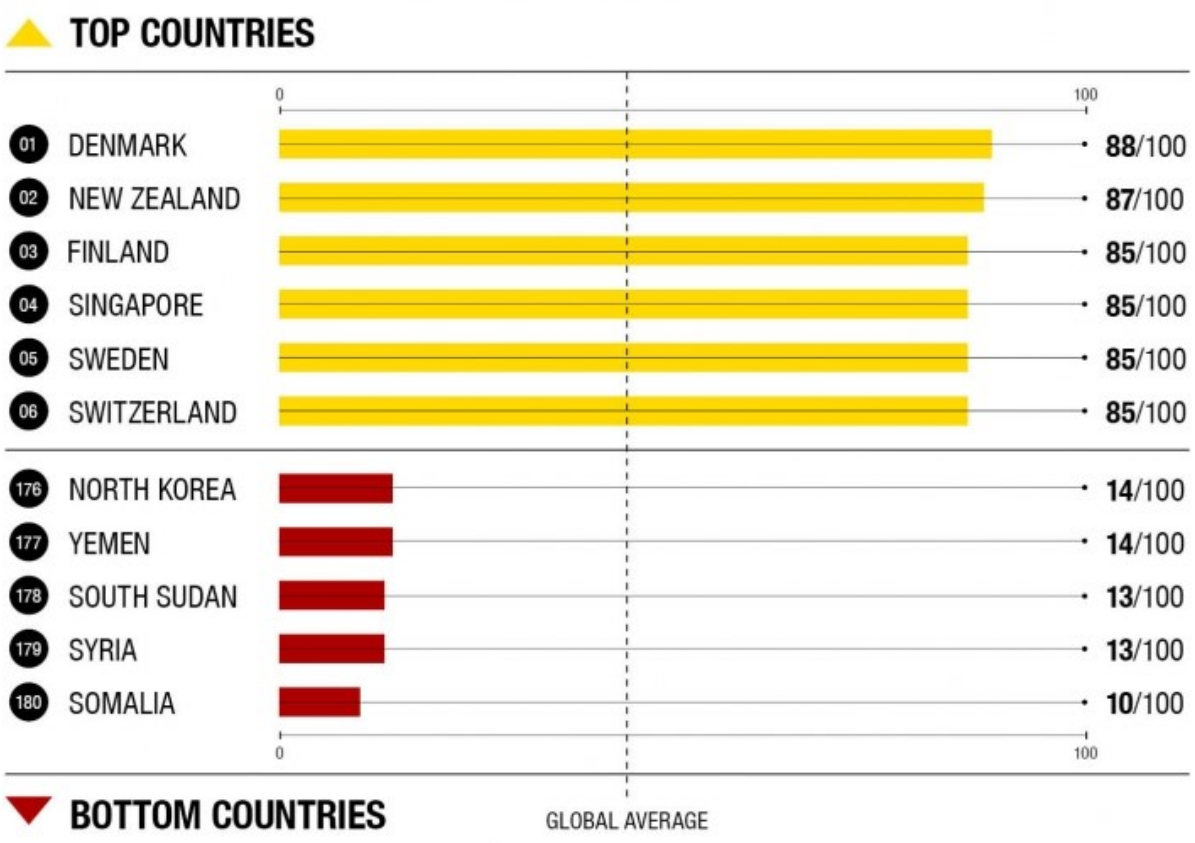

Figure 2: Top five and Bottom five Countries in the 2018 Corruption Perception Index

Source: Transparency International, 2018

Figure 2 also highlights a section of some countries which performed good and poor in the 2018 CPI ratings. Denmark, New Zealand and Finland were the first three countries that performed better in Corruption rating with scores of 88, 87 and 85 respectively. Compared to 2017 ratings, New Zealand which performed best with an index of 89 declined to second best whilst Denmark moved from second place to first place with the index. The last three bottom countries in order of the rank were South Sudan, Syria and Somalia with 13, 13 and 10 scores respectively. Comparing ratings of these countries also to the 2017 ratings reveal that only Sudan improved from 12 to 13 whilst Syria (from 14 to 13) and Somalia (from 10 to 9) both dropped by a unit. Generally, New Zealand, Denmark and Finland are the best ranked countries in CPI scores whilst most African countries usually rank worst every year in the ratings with Somalia, Syria and South Sudan as epitomes.

Despite some countries showing some improvement, most countries did not perform better compared to the previous ratings which signifies the considerable failure and less urgency on part of some countries to deal with corruption.

Nonetheless, CPI scores are generated for regions as well. These regions are West Europe and European Union, Sub-Saharan Africa, Pacific Asia, Eastern Europe and Central Asia. While Western Europe have been the best performing region, Sub-Saharan Africa on the other hand have been the worst performing region.

Czech Republic, Poland, Slovakia and Hungary which are the selected countries under focus belong to the Western Europe and European Union region where they respectively had CPI ratings of 59, 60, 50 and 46 in 2018 as compared to their respective ratings of 57, 60, 50 and 45 in 2017. Figure 3 below shows the regional rating since 2017.

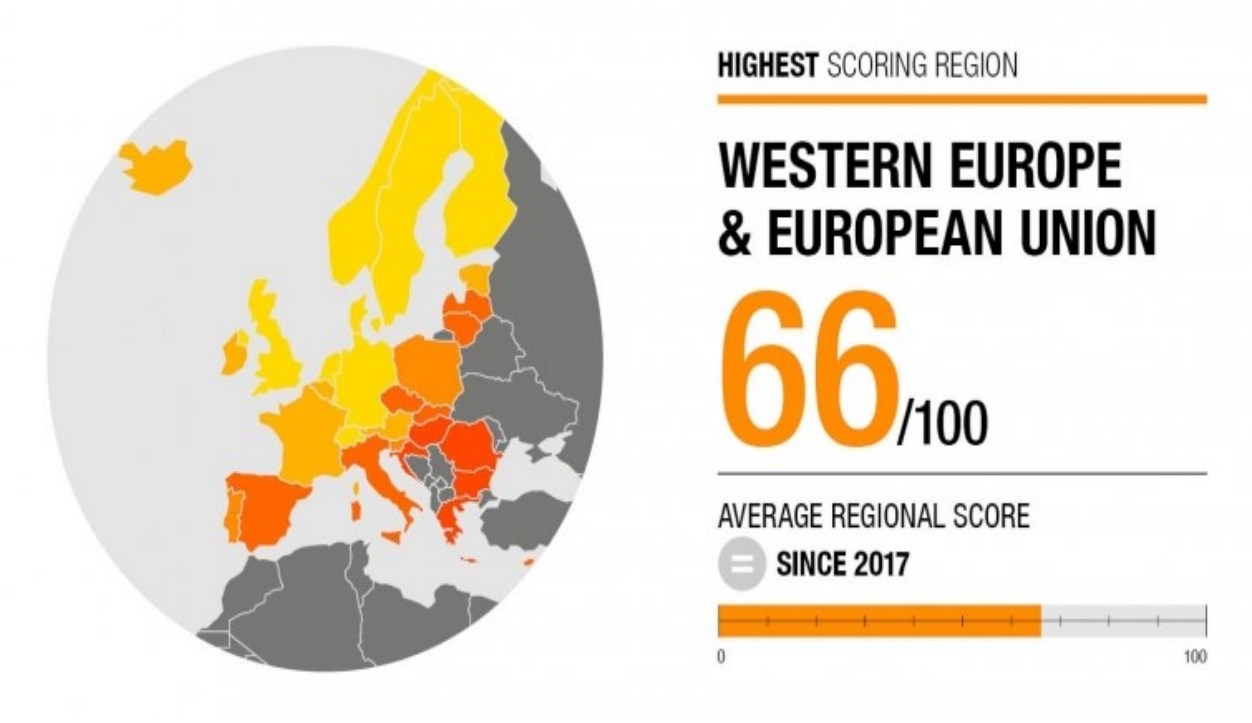

Figure 3: Snapshot of the Western Europe and European Union region

Source: Transparency International, 2018

Generally, the 2018 Corruption Perceptions Index paints a depressing picture of anti-corruption efforts in most countries as they attained below a benchmark score. This suggests the need for intensive and efficient efforts in combatting corruption in most countries.

1.3.2 Control of Corruption Index

The Worldwide Governance Indicators (WGI) has the Control of Corruption Index as part of its six key dimensions of governance (Political stability and lack of violence, Voice and Accountability, Regulatory Quality, Government effectiveness, Rule of Law and Control of Corruption). Since its inception in 1996, WGI measures and annually reports the quality of governance of over 200 countries based on close to 40 data sources produced by over 30 organizations worldwide. This method, developed and by published by the World Bank, is another prominent method of measuring corruption. The WGI indicators are compilation of the perceptions of a very diverse group of respondents collected through surveys and cross-country assessments. Views of firms, public officials and individuals, Non-Governmental Organizations and aid donors in countries are captured in addition to assessments of commercial risk-taking agencies.

The Control of Corruption Index uses perceptions of the degree public power exercised for private benefit of both petty and grand, as well as state capture by elites and private interests. It uses research data which summarizes opinions on the quality of governance delivered by a sizeable group of enterprise inhabitants through expert analysis. The data focuses on polling which covers questions like *is corruption a serious problem*? and *how would you describe the public access to information*? The CCI score ranges from -2.5 (most corrupt) for every performance to +2.5 (excellent performance). Despite the WGI's method facing criticisms like complexity, arbitrary, non-reproducible, hidden biases and absence of an underlying theory of good governance, the worldwide coverage of its dataset has a cause for its widespread adoption especially by the Millennium Challenge Corporation.

1.3.3 International Country Risk Guide

This International Country Risk Guide (ICRG) is one of the commercial sources that analyzes and provide risk ratings on countries. This model for forecasting economic, political and financial risk was created in 1980 by the editors of International Reports. However, in 1992, the editors and analyst of ICRG moved from international Reports to Political Risk Service (PRS). Now,

published by the Political Risk Service group, the ICRG provides financial, political and economic risk information and forecasts for its 140 developed, emerging and frontier markets of countries with monthly updates on their performances. They provide statistical tables that assign values to the 22 indicators underlying ICRG's business-oriented model for quantifying risk, examining such country specific elements as currency risk, political leadership, the military and religion in politics and corruption. It covers other components in its measurement which is presented in figure 4 below.

Table 1: Political risk components used in the ICRG

POLITICAL RISK COMPONENTS		
Sequence	**Component**	**Points (max.)**
*A	Government Stability	12
*B	Socioeconomic Conditions	12
*C	Investment Profile	12
*D	Internal Conflict	12
*E	External Conflict	12
F	Corruption	6
G	Military in Politics	6
H	Religious Tensions	6
I	Law and Order	6
J	Ethnic Tensions	6
K	Democratic Accountability	6
L	Bureaucracy Quality	4
Total		**100**

Source: Adapted from Simon Fraser University (SFU) library, 2018

With emphasis on corruption, the ICRG measures corruption using multiple risk evaluation components based on a 6-point scale as seen in table 1. That is, a score of zero (0) signifies a very high risk whilst a maximum score of (6) represents minimal risk posed by corruption. The higher the score, the lower the risk posed by corruption and vice versa.

It also measures factors of financial corruption through the request of some special payments and bribes aligned with police protection, import and export licenses, conflict of interest, tax extortions, exchange controls and others. Moreover, this index seeks to measure potential

corruption like secret party funding, favor exchanges by some political appointees, nepotism and suspiciously close relation between politics and business. However, grounding on certain government actions for evaluation in this measure is seen as a limitation which makes it a weak indicator of corruption.

1.3.4 Business Environment and Enterprise Performance Survey

The Business Environment and Enterprise Performance Survey as established in 2000 is a joint initiative of the European Bank for Reconstruction and Development and the World Bank which is conducted in the Eastern European and Central Asian countries. It surveys and measures corruption including other challenges faced by the business community in Europe. It is a survey that provides means for collecting firm-level data on wide range of issues relating to the business environment and performances of firms such as firm financing, labor, informal payments and corruption, innovations, taxations and business-government relations. The BEEPS data is being disseminated through number of knowledge and that provides different means for displaying and understanding the result (WBG, 2013).

This indicator poses wide range of specific questions to business people to solicit information for its assessment. This covers the business environment, public services, legal services, etc. in a specific survey. It emphasizes on economic interest and separation of powers of the state, which allows opinions of state-firms relations. Besides any possible limitation, this survey is considered useful due to its genuine data sources and easy to use because of its disaggregated indicators like the CPI and CCI.

Though, this section outlined and discussed four methods of quantifying corruption, but this thesis work will focus on the Corruption Perception Index developed by Transparency International and the Control of Corruption of the Worldwide Governance Indicators in its analyses and discussions. This selection was due to their prominent and reliable methods of quantifying corruption.

1.4 Basic Causes of Corruption

Studies on the causes of corruption in societies exist and continues to be undertaken in quest to combat it. This has generated rational theories regarding the causes of corruption. De Graaf (2003) outlines the six theories below through which the causes of corruption can be explained.

1. public choice theory
2. bad apple theories
3. organizational culture
4. clashing moral values theory
5. ethos of public administration theories
6. Correlation theories

Public choice theory intertwines with the rational theory where individual rational decision results to predetermined outcome. Central to this theory is where corrupt individuals try to maximize utility for personal gain. Usually, there is a comparison between the benefits and the cost during the acts. This group of causal theories gained attention when Rose-Ackerman (1978) claimed public officials are corrupt for the reasons that, the benefits they obtain from the acts outweighs the potential cost. *The benefits of corruption minus the probability of being caught times its penalties are greater than the benefits of not being caught, then an individual will rationally choose to be corrupt*. (Klitgaard, 1988; p.70). Corrupt individuals consider places where there is trust for cover ups in transaction processes. As such trust among close relationships becomes the breeding group for execution and running of corrupt services as the extent of accountability and being caught is minimal. These acts promote rent seeking and in transition economies where restitution and privatization is common, the extent of corruption increases.

Bad apple theory primarily looks corruption occurring through person considered as agent who possess less integrity and poor moral character. Defective human character such as freed becomes the weakness and an opportunity that facilitates corruption. Though, this theory is less popular, but well captured in Punch (2003) police corruption. *In the past, there was a tendency to think of corruption as a temporary, exceptional 'problem' to be removed by 'surgical' treatment, as if it was a malignant cancer, to restore an otherwise healthy agency (the 'bad apple' metaphor). Conventional wisdom has shifted recently to see corruption as near universal and as forming a permanent concern.* (Punch, 2000; p.317)

Organization culture theory focuses on the cultural background of corrupt officials in relation to the organization the agent is working for. This presupposes that certain group cultures form the central corrupt mind of many corrupt people. There could be possible contention to this theory in that, the individual's habit is already established before joining an organization. However, the individual's sense and environment collectively form their habit. As such, certain institution culture pave way for and nurture people towards corruption especially people with defective characters. That is, there is the contagious principle of within this theory. Once organizational

culture is corrupt, every person who comes into contact runs at the risk of becoming corruption (Klitgaard 1988; Caiden and Dwivedi 2001; Hulten 2002). *If we scan these activities, then it is plain that we are no longer dealing with individuals seeking solely personal gain but with group behavior rooted in established arrangements and/or extreme practices that have to be located within the structures and culture of police work and the police organization.* (Punch, 2000; p.317)

Clashing moral values theory covers the contradicting and conflicting cultural and moral values of people. People grew from different societies with different norms concerning similar or same acts. Despite sometimes the overlap due to the organizational theory, the act regarded positive in one society is eschewed in another which creates conflicts. The non-existence of general clear lines between certain acts as totally adjudged corrupt or bad, creates confusion and facilitates corruption. For instance, *in the private sector, gift giving is pervasive and highly valued, and it seems natural to provide jobs and contracts to one's friends and relations. No one sees any reason not to carry over such practices into the public realm. In fact, the very idea of a sharp distinction between private and public life seems alien to many people.* (Rose-Ackerman, 1999; p.91). According to Hoffling (2002), morality which relates to people in social circles like family and friends affects norms and values such that people portray strong moral standard to strangers but compromise on friend and families due to help reciprocity.

The **ethos of public administration theories** overlaps with the organization culture theory just that this theory emphasizes on culture with public management and the society in general. In this theory, political and economic structures are the fundamental trigger for corruption where there is societal pressure on public administrations at all levels. These pressures when exerted on a public official with less attention or value to integrity, easily becomes corrupt and compromise legal standards.

Correlation theories do not base much on theory as the others, but collection of research findings with certain common characteristics. The researches normally proceed by looking at specific factors in at all possible levels to common dimensions like social, political, organization and individuals. According to Schinkel (2004), if claimed variances of these factors in all researches are added and grouped, there is more likely to see a causal construction in which those variances can be explained.

Other scholars have also managed to categorize the causes of corruption differently. For example, Tanzi (1998), Mauro (1996), Kaufmann (1998) and World Bank (2002) classify the causes of corruption into categories of social, economic, political and institutional. Despite economic reasons being highlighted as the prime cause of most corruptions, psycho-social behaviors such as

greed, competition and selfish interest of people can be considered to motivate people towards the execution or engagement in corrupt activities.

In this perspective, this thesis also discusses the basic causes of corruption under two classes which are **economic** and **psycho-social** context.

1.4.1 Economic causes of corruption

From an economic perspective, every person has needs in life which should be legally met within one's capacity. That notwithstanding, economic principle clearly suggests that human wants are insatiable. As such, people sometimes use inappropriate means to meet their needs. According to Begovic (2005), people in all conceivable conditions behave economically rational and engage in rent-seeking process in order to accrue and maximize individual returns. As such, public officials tend to allocate resources and transactions based on where to accrue greatest personal returns at the expense of the general population. Begovic (2005) emphasizes that though rent can be created in few different ways, but government interventions always create the most significant rent like violating free market operations. He uses the scenario where importers use bribes or sometimes an agreed rent between the giver and the receiver to get additional licenses beyond the legally entitled number to operate on affordable import services. Discretionary powers tend to create room for civil servants and other public officers to capitalize, for bribery. As such, there will be less or no rent seeking if there are no regulations or restrictions by governments for movements of goods.

Corruption likely amplifies in countries with monopolistic economies where there is over-regulation of process, high taxes and trade restrictions. The role of monopoly play in encouraging corruption was captured by Klitgaard (1988) in his model. Klitgaard (1988) modeled from an institutional economic approach where familiar fundamental requirements for corruption formulation equals monopoly plus discretion minus accountability. The model demonstrates that illegal behavior flourishes when agents operate under discretion, possess monopoly power over clients and account weakly to authorities. Public to private level corruption are sometimes pronounced, due to high tariffs and taxes on certain business activities. These businesses or firms have to survive and that business owners use bribe to skip certain charges to make profit and remain on the market.

Jain (2001) also highlights another approach to the causes of corruption called the standard economic approach. The standard economic approach has three prerequisites necessary for the occurrence of corruption. First, officials have unrestricted power; secondly those powers are

associated with economic rents and finally punishment meted to deter people from corruption is adequately low. Economic rents in this case increase with abundance of natural resources and decrease with economic competition through trade openness. The first two preconditions of the standard economic approach determine the benefits of corruption whilst the last precondition influences the cost of corruption.

1.4.2 Psycho-social causes of corruption

Corruption through psychological behaviors has entered social environments to distort compliance and enforcement of certain legal, political and social precepts. Socially, culture has been a major factor that shadows recognition and uniqueness of corruption in many societies and countries. Traditional political culture places scales of recognition on corruption based on attitudes. In many developing countries that prioritize family ties, public offices extend special favors to family and friends and less likely escape demands (Tanzi, 1994). Also, Banfield (1958) describe historical tradition like religion and nepotism as stimulating factors of culture which affect perceived costs of corruption. Friedrich (1966) posits that the use of public office for private gains may necessarily not be corruption depending on societal viewpoint. That is, some societies see nothing wrong if a person abuses public office for personal gains so far as they contribute quota to the society. Corrupt officials are therefore praised by beneficiaries but criticized by those denied social or economic value.

Holmes (1993) reports that citizens of Asian state do not respect laws due to their former colonies and that they regard law as theirs. This weak recognition and compliance to laws and regulations are evident features in transition economies as they tend to solve problems through bribes and other irregular processes. As such, bribing tax collectors, law enforcement bodies like the police and judges are publicly perceived as a way of life of some societies.

Treisman (2000) also believes that ethnicity sometimes support and shield corrupt officials for political reasons. People try as much as possible to defend their own when caught in corruption. They create less room for appropriate actions to be taken regardless of the damage caused which empower such corrupt and potential corrupt people to continue operating in the act.
Nonetheless, corruption can also be attributed to and explained by psychological factors. Holmes (1993) posits that peer pressure and comparison are effective motivators for corrupt acts especially in environments where the best of people even takes bribes. This creates a perception that, it is only fools who do not take or pay bribes. These situations often induce co-workers to participate in bribery especially when job recruitments are based on extent of personal gains rather than

general value. People tend to also comply with corrupt rules and orders for the fear of victimization and loss of their job under corrupt superiors. Nepotism to an extent indirectly psyche people into corruption especially where one would desperately prioritize the need of a family member irrespective of the means to meet it. Besides, lack of self-control has been another challenge to corruption as some people find it very difficult to reject offers from people especially generous ones. However, despite individual differences, some people regardless of external issues are naturally evil and greedy and will find every means to accomplish their greedy wants.

1.5 Transition economy

Transition economy also known as transitional economy is an economy which has changed from a centrally planned economy to a free market economy (Feige, 1994). Transition economies undergo sets of structural transformations intended to develop its market-based institutions. Economic transition gives powers to market forces to set prices rather than the central planning organization. Besides the removal of trade barriers under transition economy, state-owned enterprises are pushed to privatize. As such, state-owned and partnership enterprises are collectively restructured and run as businesses, financial sector created to facilitate the macroeconomic stabilization and movement of private capital (Feige, 1994).

Transition economies as a term usually describes Central, Eastern Europe and the Former Soviet Union countries but it is now developing into wider context. There are countries outside Europe that are emerging or have emerged from a socialist-type command economy to a market-based economy. China for instance is one of such countries. The transition process is usually characterized by changes of institutions especially private enterprises and changes in role of state which creates different governmental institutions and the promotion of private-owned enterprises, markets and independent financial institutions. Their origin could be also in a post-colonial situation, in a heavily regulated Asian-style economy, in a Latin American post-dictatorship, or even in a somehow economically underdeveloped country in Africa.

Generally, transition economic countries attempt to alter their basic constitutional elements towards a market-style fundamental. However, some countries despite economic transitions still remain non-free states regarding human rights and political freedoms.

The International Monetary Fund (2000) and the World Bank (2002, 2009) report the following as countries with transition economies.

Table 2: Transition economies assessments

Europe		Other countries
In transition	***Transition complete (2019)***	***In transiton***
Albania ,Armenia, Belarus, Bosnia and Herzegovina[1] , Georgia, Kosovo[1], Macedonia, Moldova, Montenegro[1], Serbia[1], Ukraine	Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia	Russia, Asia, Kazakhstan, Kyrgyz Republic, Tajikistan, China, Laos, Turkmenistan, Uzbekistan, Cambodia, Vietnam, Botswana

[1] – World Bank assessment

Source: IMF (2000) and World Bank (2002, 2009) report

Table 2 indicates that the four countries (Hungary, Poland, Slovakia and Czech Republic) selected for this thesis work regarding corruption have or would have completed transition in 2019. This provides a need to analyze the socio-economic impact of their transition process as this research work is within their completion time.

1.6 Causes of corruption in transition economies

Economic transitions have had social and economic effects on countries which include non-compliance and inefficient enforcement of corruption laws. According to Nowak (2001), corruption may though occur in all countries in different forms but its effect on transition economies is more dramatic as these economies become vulnerable and inefficient to fall into the developing trap. Although the extent of corruption varies among countries but Rose (2000) reports that, corrupt acts is pervasive in transition economies. This has been obvious especially where post-soviet countries have ranked higher in corruption ratings. Transition economies can benefit remarkably from the best practices exercised by other countries while massive structural reformations in the transition process pave way for rent-seeking activities both legally and illegally (Goel and Budak, 2006). This thesis discusses the causes of corruption in transition economies based on Holmes (1993) outlines.

Lack of recognition for all acts regarded as corruption prevails. Societies tend to provide different meaning into corruption due to cultural dynamism. As such, a gift in one society will be regarded as a bribe in another society and vice versa. According to Friedrich (1966), the use of public office for private gains may necessarily not be corruption depending on societal viewpoint. That is, some societies see nothing wrong if a person abuses public office for personal gains so far as he or she contributes to that society. Corrupt officials are therefore praised by beneficiaries but criticized by

those denied social or economic benefits. Moreover, historical authoritarian regimes in most transition economies led to the ignorance of civil societies, where public officials are meant to serve citizens. This gives some public officials the advantage to rather extort and retain public resources due citizens for their personal gains especially where there is less accountability.

Weaker Political Competition and institutions that exist or existed in countries with transition economies have been a contributing factor of corruption. There is no total agreement on all policies by citizens of countries and societies. This is seen in the works of Manin, Prezeworski and Stokes (1990) where they reported that voters and public officials do not agree on all policies. Strong political competition offers competent officials with better and alternative ideas to serve in the public sector. Good political institutions like democratic governance help to control and monitor the government which reduces the degree of corruption. Democracy essentially decreases corruption since political competition may provide checks and audits on activities of government officials against corruption. Competitors for public office in democratic systems have incentives to discover and publicize the incumbent's misuse of office whenever an election beckon (Treisman, 2000). However, corruption continues to flourish in transition economies as most transition economies have informal political institutions anchored on political interest. Also, the ineffective means to hold politicians accountable in transition economies due to weak law formulations and enforcement make some politicians capitalize and execute corrupt activities frequently.

Dualism ensures the coexistence of state-owned and private businesses under one umbrella. According to Putterman (1992), transition economic systems possess a dichotomy between modern sectors which allow businesses to be owned by private parties and traditional sectors. In most transition economies, businesses are owned by government at early stage of free market. These state-owned enterprises enjoy privileges such as easy access to public provisions and loans that most private enterprises struggle to obtain. Public officials therefore capitalize on private business sustainability struggles, to demand personal returns from private investors with interest in state-owned businesses or support before approving them. This in one way or the other fuels corruption. Most transition economies in terms of industrial structure and economic development followed the Soviet model whose crash showed falsehood. Soviet model, first of all covered enterprises owned by government. Secondly, economic growth is driven by heavy manufacturing where government further determines products quota and prices.

Low level of information transparency is another contributing factor to corruption in transition economies. Lindstendt and Naurin (2010) defines information transparency as the release of information from institutions and administrative activities to allow for relevant evaluation. Reduction in information irregularities provides efficient delegation and less shrinking space (Holmstrom, 1979; Miller, 2005). Information transparency is vital for regulating bureaucrats toward corruption especially when it is mandated by law. The fear of being disclosed of corrupt acts due to information transparency makes it very difficult for corrupt people to operate. However, the media in some transition economies are mostly controlled by government who tactically influences which information to disclose especially those regarding questionable and corrupt acts. Greiling and Spraul (2005) report that governments block certain information or intentionally overload them with irrelevant ones. That is, there is either no access to relevant information, abundance of irrelevant information or they come in hidden volumes and contexts which are very difficult to trace or discern.

Authority decentralization and weak regulation is another cause of corruption in transition economies. According to Choi and Zhou (2001), authority decentralization is the delegation of authorities who implements policies to regions (provinces, states and cities) from central government. Centralized government offers local governments the rights to undertake decisions and transactions without permission from upper levels of government. A short gap is created between policy makers and entrepreneurs when local governments tend to make most policies. Amid lack or inefficient regulations, authority decentralization gives more room for power-money exchanges and empowers bureaucrats to intentionally stampede entrepreneurs and businesses for their personal gains. Conspiracy between bureaucrats and entrepreneurs become common at the local level which promotes resource misallocation and gradually harm economic growth.

Fixed Public Supplies is an avenue that provides room and intentions for corruption activities. The public service system can be considered as a demand-supply framework where governments provide services for taxpayers to enjoy (Shleifer and Vishny, 1999; Weingast, 1995). Just as most developing countries do, transition economies also have most public services like electricity supply, water supply, healthcare services including others managed either by government or by crony companies. Monopolizing public services strongly affects demand-supply relationship (Leff, 1964). This promotes rent-seeking and corruption especially when citizens are restricted to certain services and public officials, deliberately raise threshold for doing business.

Restitution and privatization processes contributes much to corruption. Restitution as an act to restoring, giving back or compensating for benefits derived from someone has spurs corruption. As such, activities like privileges for company employees and partial asset giveaways become pronounced. Also, privatization allow easy misallocation of resources and other illegal private benefit activities among parties. There were even voucher regimes of Hungary and Ukraine and where vouchers were primarily offered as compensation for property lost during the communist era. In Hungary, vouchers were not employed as a way to privatize large amounts of state property for the benefit of a large number of citizens, but rather as a substitute for the restitution of physical assets (OECD, 1995; p.113).

2. CORRUPTION AND ITS SOCIO-ECONOMIC IMPACTS

Literature provides varied perceptions about corruption and its socio-economic consequences. Abed and Davoodi (2000), in studying the structural reform of corruption and economic growth in transition economies argued that *once structural reforms are taken into account, the corruption variables will lose their explanatory power in the analysis of macroeconomic performance.* As such, many authors have highlighted both positive and negative socio-economic impact of corruption. Kaufmann (1997) sees corruption in public sector as the major obstacle to economic development. Mauro (1995) and World Bank (1997) also demonstrate with solid evidence of the pernicious effect's corruption has on things like investment, economic growth, environmental quality and social welfare. Moreover, interaction effect of corruption and investment with regard to economic growth led to the rejection of corruption as *grease in wheels* when tested hypothetically against *sand in wheels* (Méon and Sekkat, 2005). Conversely, Leff (1964) believes that corruption enhances economic growth by allowing individuals to pay bribes and skip inefficient rules and bureaucratic delays that affect productivity.

Although, Mauro (1995) opines that higher level of corruption significantly decreases both investment and economic growth, however, Svensson (2005) argue otherwise that the negative impacts of corruption on socio-economic growth are insignificant. In that regard, the consequences of corruption will be discussed under **social** and **economic** dimensions.

2.1 Economic impacts of corruption

Although, corruption as a term has negative connotation and implications yet some authors consider it as a necessary component under certain circumstances to yield significant positive economic effect. Lui (1999) argues that corruption can reduce the amount of time spent in queues during economic processes. Leff (1964) also believes that corruption is able to enhance growth by allowing individuals to pay bribes in order to evade inefficient rules and bureaucratic delays that retards productivity. This ensures resources are available at the appropriate place and time for smooth production processes. Leff (1964) further believes that governments generally become reluctant to actively support economic activity when focus on economic pursuits or innovation is missing. Huntington (1968) also points out that if corruption is reduced without corresponding changes to eliminate inefficient rules, business activities and economic growth may slow down. Moreover, corruption positively impacts economic growth where the existence of insufficient and ineffectiveness of institutions facilitate and nourishes the process. Efficiency in allocating

resources is maintained as corrupt officials give contracts to the highest bidder in bribes (Bardhan, 1997). Because payment of highest bribe is one of the major criteria for contract or resource allocation, the urge to collect revenue becomes prior under corruption. The above is empirical support of the positive impact corruption has on an economy.

Nonetheless, most researchers have highlighted many negative impacts of corruption on economic growth. For instance, one paper provided evidence that there was a significant relationship between the allocation of talent to unproductive activities and corruption, as well as higher levels of indirect taxation and corruption, thereby reducing growth rates (Tanzi and Davoodi, 2001). These negative economic impacts are as outlined and discussed below;

Bureaucratic Inefficiency is pronounced in countries with high level of corruption. Empirical evidences describe the relationship between the extent of bribery and the increasing time entrepreneurs or business people spend with public officials for favours. Dimant and Tosato (2017) posits from a game theory perspective that, corruption and bureaucratic inefficiency to be viscous cycle where beneficials of the inefficient system due to corruption, have no incentive to streamline it. This theory received some initial empirical support in a paper, found to firm that, paying bribes are more likely to spend more management time with bureaucrats (Kaufman and Wei, 1999). The theory received further support after 2006 in a paper that finds the presence of corrupt officials can leads to bureaucratic delay in allocating licenses to productive individuals (Ahlin and Bose, 2007). Further disputing that bribery improves production efficiency by escaping needless bureaucratic processes, Myrdal (1968) remarks that corruption could end up in greater delays and create more inefficient processes as corrupt officials will target to accumulate greater bribes or large sums of money. These personal and unlawful benefits on the part of corrupt officials, delay clearances form projects. As such, a work that could be completed within days may extend to months and years.

Low Foreign Direct Investment is another effect of corruption. Arguments on the effect of corruption on a country's economic growth through investment prevails. Dimant and Tosato (2017) report that such situation can result from inefficient public investment where though, investment levels may increase in absolute terms but inefficient allocation of funds may reduce absolute productivity. They again report that corruption can also lead to lower levels of infrastructure, thus deteriorating the investment climate of a nation. These claims had support from early empirical evidence found in a paper that uses data from 69 countries in the period 1980–1983 (Tanzi and Davoodi, 1998). Attempt to invest in a foreign country often requires some form of public permit where corrupt countries more likely require bribe to issue permits. Since such

processes may be cost intensive, it discourages potential investors who do not want to engage in corrupt practices and thus, reduces economic relation and foreign direct investment in the long run. Investors usually refrain from such countries with perceived heavy corruption and low development as they do not intend struggling to set up businesses with higher risks. An empirical study that used data from the World Bank in 1997 found evidence to support that higher levels of corruption were significantly associated with lower levels of investment, though this relationship was much weaker when the levels of corruption were considered to be very predictable (Campos et al., 1999). Corruption in general effect seems to do more harm than good to economies and that most authors eschew it.

Low International Trade and insecured business climate is evident in corrupt countries. Similar to foreign direct investment, international trade often requires legitimate issuance of license or permits. Countries where bribes must be paid to transact trade discourages most people especially when these bribes are high and frequently demanded. As such people and countries have less interest to pay bribes and take risks. The levels of corruption within institutions are likely to have associated impact on levels of trade. According to Bugel (2010), this claim is empirically reinforced by a study which found that increased perceived uncertainty of a country's institutions relevant to trade is negatively correlated with the level of international trade. Trade deficit becomes an evident feature of corrupt countries where ineffective control boards approve substandard products for sale. There is less purchase of such products which leads to significant import than export. This situation offsets the trade balance of countries with high level of corruption.

For the business climate, Rose-Ackerman (1997) sees unrest in the business environments through extortion and intimation by corrupt public officials especially in cases where some businesses operate through corrupt means. Due to the intense fear of loss of business operation rights or intermittent interference in their operations which affects productivity result in payment of exorbitant bribes in perpetuity. The prior bribes paid by firms put them into vulnerable positions and submissions for subsequent demands and extortion by those who processed the illegal documents or payments (Rose-Ackerman, 1997). This could lead to greater financial loss to the firms and possible termination of business operations when such illegalities are uncovered, and appropriate judicial decisions taken. Besides the unexpected and unbudgeted periodic expenses made to compensate corrupt officials for favours is the fear of lack of sustainability for such organizations when those corrupt officials leave office. As such, certain firms experience limited operation space, less profit and struggle to remain in competitive market in the absence of the

corrupt officials. Tanzi (1998) reports that firms which pay the highest bribes may not be the most economically efficient as they would also consider bribe as rate of return on investment.

High government spending leading to high fiscal deficit results. Theoretically, it has been argued that as corruption reduces public income (lower levels of growth, higher levels of inequality) and increases public expenditure (more inefficient spending), it thus follows that it will also increase fiscal deficits. Jain (2001) opines that corruption leads to resource misallocations when investment of public funds or approval of private investments are based on decisions that generates higher personal returns to public officials rather than general economic or social value. As a result, new projects are very often undertaken while existing infrastructures are abandoned to deteriorate. In extreme cases, certain infrastructures are rebuilt to invite and allow corrupt commissions to operate on new investment projects. Corruption contributes to low state revenues and budget deficits through tax evasions, high and accounted spending on state budgets. Corruption inflates transaction cost, hinders the development of a market economy, increases uncertainty level which weakens the system of free markets and reduces government revenues while raising expenditure (Rose-Ackerman, 1997; Tanzi, 1998). For instance, Depken and Lafountain (2006) report that after controlling for multiple variables, US states with higher corruption levels have lower bond ratings; thus taxpayers need to pay more to borrow, increasing the likelihood of fiscal deficit.

There is **low Gross Domestic Product growth rate** in countries with high corruption. Murphy et al. (1991) suggest that corruption can make people shift from productive to unproductive rent-seeking activity. This shift in attitude creates gaps in productive environment that reduces economic development. The frequency and magnitude of corruption leads to lower levels of investment, higher levels of indirect taxation, misallocation of resources due to distorted incentives, low consumption of local products due to approval of inferior products and high government spending affects the Gross Domestic Product (GDP) of a country. There is low economic growth rate as this depends on the GDP grow//th rate. There is significant relationship between the allocation of talent to unproductive activities and corruption, as well as higher levels of indirect taxation and corruption, thereby reducing growth rates (Tanzi and Davoodi, 2001). Also, Aidt (2009) reports from a paper that suggests that evidence for the "grease the wheel hypothesis" is very weak, and that there is a very strong negative correlation between wealth per capita and corruption, and that the effect of corruption on GDP per capita will lead to unsustainable development.

2.2 Social impacts of corruption

Corruption also impacts socially on lives and societies. Though, the social impact of corruption is sometimes considered more of a defaming condition than problematic. Corruption is tagged to provide easy access to better opportunities in social sectors. To buttress this point, corruption creates opportunities for people in institutions and societies to occupy reputable public and private positions. This is considered relevant and less problematic in cases where people possess the required qualification but uses corruption to escape competition for those opportunities or positions.

Arguably, corruption increases income inequality and poverty by lowering growth levels through biased tax system, poor quality social programs, education inequality and asset ownership bias (Gupta et al., 2002). With more emphasis on the negative impacts of corruption, below outlines and discusses first the negative social effects of corruption as reported by Gupta et. al. (2002). Other social effects highlighted by some authors in literature proceeds it.

Income Inequality or Poverty is one bad but obvious negative impact of corruption on socieities. Corruption is a cause of low development and exacerbates poverty where poverty prevails; corruption, therefore, needs to be included amongst causes of the consequences of poverty, such as debt, incapacity, mental despair and despondency (Zucman, 2015; Ray, 1986). Gupta's empirical study provides evidence that an increase in corruption results in both higher inequality and an increase in the percentage of poverty (Gupta et al., 2002). Corruption therefore deepens poverty and provides difficult conditions for the ordinary person with less income to survive.

Low human capital and increased brain drain is evident in highly corrupt countries. This is common in societies where corruption is condoned. Initial empirical evidence was found in support of this argument in a paper that, using a sample of 63 countries, found a statistically significant negative relationship between corruption indices and levels of human development (Akçay, 2006). Thus, unarguably, education refines human capital to solve life problems and make the best out of any given resources. Due to corruption, some educational institutions especially private ones which do not meet standard requirements are granted permit to operate. Amid this, there is less supervision, substandard assessments and evaluation that ensure effective proper training and skills and imparted to learners. Social support schemes like scholarships are offered to undeserved students through corruption and shared interest. In extreme cases, some people buy grades and obtain illegal certificates from institutions. These acts do not encourage the young generation to commit to intensive knowledge pursuits as corruption provides an option for them to get what they

want. This often produces ill-prepared graduates with less or no idea on particular roles and that, mismanages and produce substandard results when employed. Entrepreneurs therefore see less value in their training and hardly employs them which contributes to high unemployment rate. Higher unemployment rate inevitably results in several social vices.

Also, corruption could increase a country's brain drain problems. Corruption might act as push factors to potential migrants due to the adverse effect they experience. It has been argued that returns on education would be particularly affected (high levels of unemployment, lack of social advancement, slower economic growth e.t.c.), thus those particularly sensitive to such a push factor (highly skilled individuals) would be more likely to emigrate (Dimant et al., 2013).

Abundance of injustice is one of the basic social consequences of corruption. Theoretically, corruption is believed to affect institutions in such a way that the protection and promotion of human rights is reduced, one would thus expect a negative relationship between the two (Dimant and Tosato, 2017). When corruption exist in judicial systems, unfair judgements and injustice prevails. Though, judgements pronounced on cases are based on evidences but through corruption, cases are manipulated and sometimes evidences erased to rule cases unfairly. The worst case is when the innocent person is rather found guilty and prosecuted due to corruption. Corruption even makes police officers to free offenders, abort relevant investigations on crimes or intentionally prolong investigations for years that renders the findings insignificant. This situation in the long run empowers people to take the laws into their hands and vandalize people and institutions.

Poor quality of social programs and services will exist where there is corruption. Corruption tends to distort the quality of services rendered to people especially in terms of social services like electricity supply and potable drinking water. Corruption causes a reduction in quality of goods and services available to the public, as some companies could cut corners to increase profit margins (Urien, 2012). Also, poor road networks, poor health delivery systems, poor waste management and unequal distribution of relief funds in most societies are likely results of corruption. Often, when corrupt officials who consider their remunerations low find themselves in public offices that operate monopolistically, then there must always be money to entice or grease their palms in order to provide uninterrupted quality services. Corrupt contractors also offer substandard projects with less accountability in the name of saving money for personal use. Sometimes, wrong and ineffective drugs are administered to patients who cannot pay bribes for better treatments. When corruption become the order of the day in health sectors for instance, then many undeserved lives are lost when those who require critical medical services cannot pay bribes. A study based in the

Philippines which focused on the effects of corruption on health, also found corruption to negatively affect the health levels (Azfar and Gurgur, 2008).

Low political legitimacy and disregard for rules and authorities become common in corrupt societies. People determine and value political legitimacy through lack of corruption, lack of discrimination, and the quality of governance (Rothstein, 2008). Thus, corruption undermines such legitimacy. Individuals residing in more corrupt economies expressed more negative reviews on the performance of their political system (Anderson and Tverdova, 2003). Also, every society elects leaders to act as the voice and guide of the people. As such, followers must trust, respect and offer them their support to enable them deliver on their assignments. But when corruption is high in institutions, societies and even governments, people tend to disregard authorities and offer them less or no respect. This heightens when corruption is uncovered, and the culprits are publicly known. Citizens and people at lower ranks of such institutions begin to lose trust and doubt the honesty of their leaders. This notion influences the younger generation to disrespect them except for cases where they seem to benefit from their corrupt acts. Urien (2012) reports that corruption has even taught Nigeria a dangerous and wrong lesson that, it does not pay to be honest, hardworking and law-abiding. As such, factories are improperly sited and sometimes operated under uncertified and hazardous environment. Even vehicles which are not road worthy are seen running on roads driven by unlicensed drivers who pay bribes at check points to continue their journey. These activities endanger the health and lives of people and accidents become more pronounced.

There is **lack of patriotism toward social development** among individuals in corrupt societies and the countries. People no longer appreciate the virtues of good morale, conducts and practices (Urien, 2012). Sincere, honest and hardworking citizens begin to develop aversion for leadership or political position despite their competency to occupy and diligently deliver expected results. Unqualified, incompetent and corrupt people then occupy and manage social affairs which results in inefficient administration and high corruption since it is the habit. This psychological induction influences generations and retards social development.

2.3 Transmission Channels

Economic growth is one of the most discussed variables with regard to how corruption impact lives. Economic growth is affected by a mixture of components like investment, government

spending, consumption and net exports. Economic growth is usually measured through Gross Domestic Product where GDP is calculated by **Consumption** plus **Investment** plus **Government spending** plus **Net Exports**. Corruption can influence at least one of the above listed components of economic variables through direct and indirect means which in the long run, affects economic growth. In this regard, some authors through empirical studies have established the indirect impact of corruption on economic growth through certain variables or channels. These channels through which corruption indirectly influences economic growth are referred to as transmission channels.

Although, literature indicates that Mauro (1995) happens to be the first author to raise an issue about transmission channels but it was Mo (2001) who first provided empirical evidence on some transmission channels. Mo (2001) reported political instability, human capital and investments as transmission channels as these variables were significant in his study. Subsequently, other transmission channels have been established by other researchers. For instance, Pellegrini and Gerlagh (2004) employed the decomposition method just as used by Mo (2001) to study their selected variables on transmission channels of corruption. They reported investment and trade openness as other transmission channels.

Dridi (2013) also researched on transmission channels where he used the channel methodology and drew consistent conclusion with previous studies. He found investment, human capital, political instability, inflation and government expenditure as significant transmission channels. Linhartová and Zidova (2016) concluded that Investment, Government spending, Household consumption and Foreign trade balance were effective transmission channels in their study.

Dridi (2013) indicates that most of these authors employed decomposition and channel methodology. The prime difference between decomposition method and the channel methodology is that, the channel methodology exempts corruption in the growth regression while it covers a set of equations jointly estimated by the three-stage least squares. However, the decomposition method has been identified with a short fall of explicitly including independent variables that are theoretically and empirically consequences of corruption (Akai et. al, 2005). Hodge et. al, (2009) examined the effectiveness of some reported transmission channels by authors using cross section data. Their result showed consistency with previous study reports.

However, the transmission channels have a way of impacting on economic growth. Murphy et al. (1993) describes under the human capital channel that if return to production falls faster than return to corruption and rent-seeking activities then resources will flow from productive activities to corrupt activities over time. This will result in lower stock of producible inputs like human capital in corrupt countries and thus a negative impact on production.

According to Mauro (1995), studies on investment shows negative association corruption with and hence reduces that rate of economic growth. There is indirect dependency between Gross Domestic Product and corruption through investment. That is, GDP correlates with investment so as corruption affects investment, it indirectly extends to GDP.

Political instability also provides grounds for significant corruption. Corruption through political instability creates income inequality that affects economic growth in the long run. That is, political instability facilitates corruption by creating opportunities for lower productive activities and rent-seeking that increases inequality in income and resource allocation in societies. Income inequality emphatically becomes stronger incentives for people lower at the distribution channel to also involve in illegal activities for personal benefits.

Maloney (2002) describes the endemic political instability in Latin America as one of the main reasons countries in that region experience low human capital. Fosu (1992) further indicates that political instability can cause the abandonment of skills and substantial human capital migration. He further reports that revolutions and coups due to political instability interrupt production processes, creates inefficiency and directly reduce GDP. As such, political instability creates uncertainties over property protection rights, increases risk of doing business, possible absorption of investments, among others which reduces productivity, investment, job opportunities and subsequently growth rate (Murphy et. al., 1993).

For government spending, the ineffective accountability of financial activities and manipulation of financial reports due to corruption result in lower revenue generation. Moreover, misrepresentation and diversion of resources increases government spending as some resources do not reach their intended destination. These diversions create imbalance within government budgets and increase borrowing activities of governments for developmental projects.

3. RESEARCH METHODOLOGY

Corruption has been studied through direct and indirect means and also measured using qualitative and quantitative methods. Since corruption is secretly executed, most measurements models are qualitative reports which are based on perceptions. Major methods in quantifying corruption include Corruption Perception Index (CPI) and Control of Corruption Index (CCI). This chapter outlines both the main aims and specific objectives of the thesis. It further discusses in detail the research design, data sources, the selected variables and the analytical techniques used to achieve the set objectives of this thesis. Moreover, analyses of this thesis cover empirical results, reports and data to provide insight on the extent of impact of corruption on socio-economic development of the four selected countries with transition economies.

3.1 Aims and objectives

Czech Republic, Slovakia, Hungary and Poland exhibits substantial corruption ratings. This is suspected to impact the lives of many people both socially and economically especially the poor. The main aim of this thesis work is to analyze the economic and social consequences of corruption in Czech Republic, Slovakia, Hungary and Poland who exhibit transition economies. Based on the main aim and the theoretical review, this research is structured to achieve the following specific objectives:

1. To assess whether the level of corruption differs significantly among the four countries.
2. To ascertain the effect of corruption on socio-economic growth of the selected countries.
3. To assess the effort put in place to curb corruption by the selected countries.

To achieve the first specific objective will require the test of hypothesis. The statement of the null and alternative hypothesis respectively is;

H_0: the level of corruption is the same among the four country
H_1: the level of corruption is different for at least any two different countries.

3.2 Selected variables for the analyses

Literature shows that different authors have studied the consequence of corruption through many variables based on their set objectives. As such, variables for this thesis work will likewise be selected to achieve the set objectives. Since the main objective looks at both social and economic

consequences of corruption, variables will be chosen to explore the social effect and the economic effect. However, this categorization excludes the variable **CPI**.

The mode of measure and ratings for the CPI scores by Transparency International was discussed in section 1.31.

Variables for the economic dimension were Gross Domestic Product measured through **real GDP growth**, **Net Foreign Direct Investment** and **Government spending** also measured through **Gross National Expenditure**. These variables were selected due to their reported impact on economic growth. As highlighted in section 2.1, many authors have employed these variables in attempt to assess the economic impact of corruption in countries. Moreover, section 2.3 highlights GDP as one way of measuring economic growth of a country with consumption, net export, investment and government spending as its components. GDP provides a standard measure of a country's economic health and also an indicator for standard of living where its measure is uniform from country to country (Corporate Finance Institute, 2019). Analyses at the component level of GDP will provide more insight to the resultant effect of corruption on economic growth of the selected countries.

Firstly, Gross Domestic Product refers to the total economic output of a country. Simply put, GDP measures the amount of money a country makes within a given period. *Gross Domestic Product represents the total market value of all final goods and services produced within a given time period by factors of production located within a country. GDP does not include intermediate goods, but only "new" products and services; this is to avoid double counting.* (Landerfeld, Seskin & Fraumeni, 2008; p.195). Inflation influences changes in GDP when comparing GDP in one-time period with another. As such, total GDP of a country can be measured in real or nominal terms. Nominal GDP is GDP measured at current market levels. Real GDP also referred to as 'GDP at constant prices' is GDP for which changes are made to account for the influence of inflation. The standardization was done under the constant 2010 US$. Therefore, **real GDP growth** was used to analyze this variable.

Further, Foreign Direct Investment (FDI) is an investment made by a firm or individual or even a country in the form of controlling ownership in a business in another country (Chen, 2019). Foreign direct investments are distinguished forms of portfolios where an investor merely purchases equities of foreign based companies by a notion of direct control. Relatively, Foreign Direct Investment may be inflows or outflows. That is, when firms, individual or governments of a country make direct investment in another country, it becomes an outflow and it becomes inflow

when the same country receives direct investment from other foreign members or individuals. As such, the Net Foreign Direct Investment (NFDI) for the annual periods can be computed by subtracting each net annual foreign direct investment outflow from the net annual foreign direct investment inflows. Therefore, the **Net Foreign Direct Investment** expressed as a percentage of GDP was used to analyze this variable.

Moreover, Gross national expenditure refers to a country's total expenses both public and private but excluding export expenses. The annual gross national expenditure express as a percentage of GDP was used to measure the government spending or expenditure in this thesis.

The social dimension variables were **Human Development Index (HDI)**, and **Rule of Law**. These variables were also selected based on reported effect of corruption on them as highlighted in section 2.1 of this thesis by Akçay (2006) for HDI and Rothstein (2008), Anderson and Tverdova (2003) and Urien (2012) for Rule of law.

HDI is a statistic composite index of life expectancy, education and per capita income indicators use to measure and rank countries social and economic development. The social and economic dimensions of a country are based on the health of people, their level of education attainment and their standard of living. This index, as developed by the United Nations Development Program (UNDP) makes it possible to follow changes in development levels over time and to compare the development levels of different countries (Kenton, 2018). Countries where the level of poverty is relatively large tend also to exhibit low values of human development, thus lowering the mean values of development measures (Fosu, 2007). HDI is measured on a scale of 0 to 1. Scores are rated according to the ranges as show below;

Table 3: HDI rating scale

Score range	Rating
0.800 – 1.000	Very high
0.700 – 0.799	High
0.555 – 0.699	Medium
0.350 – 0.554	Low
0.000 – 0.349	Very low

Source: Adapted from UNDP, 2019

Finally, rule of law was considered since corruption can interfere to produce unfair judgment, disregard to rules of society and potential facilitator for crime and violence. If rule of law works, then the judicial system has all freedom to apply the laws of the land without fear, favor or influence of branches of governments, private or partisan interest. This variable was measured using the rule of law indicator of the World Governance Indicators (WGI) which is developed by the World Bank Group. It reflects perceptions of the extent to which officials have confidence in and comply to the rules of society and specifically, the quality of contract enforcement, property rights, the courts, and the police, as well as the likelihood of crime and violence (World Bank Group, 2019).

The WGI project reports aggregate and individual governance indicators for over 200 countries and territories over the period 1996–2017, for six dimensions of governance of Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption. These aggregate indicators combine the views of a large number of enterprises, citizen and expert survey respondents in industrial and developing countries. They are based on over 30 individual data sources produced by a variety of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms (World Bank Group, 2019). Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance). Standard error reflects variability around the point estimate of governance.

3.3 Research approach and design

Adams and Schvaneveldt (1991) describes research design as a plan or guide for data collection and interpretation consisting of set rules that enable the investigator to conceptualize the problem under study. There are three kinds of research methods to employ in a study which are: qualitative method, quantitative method or mixed method. According to Boateng (2014), researchers are free to choose between qualitative, quantitative and mixed method for their study. Qualitative researchers carefully examine every small happening in a situation that can assist them make careful decisions and generate inductive idea about the context (Tracy, 2012). Tracy is further of the view that qualitative research better suits contexts that the researcher is more inquisitive about but does not have a valid reason for stepping into that field and also qualitative research is capable of unfolding inherent issues that can further be studied using more structured methods. Qualitative research therefore provides the platform for researchers to interact directly with their units of study to obtain the necessary information for the problem of study. This method digs deep into a situation

especially where it has to do with behaviors and social acts. According to Creswell (2010), qualitative methods provides larger knowledge claims that generates theory or pattern based on diverse meanings and experiences of individuals, social, cultural and history. Case study, ethnography and action research are examples of qualitative research included. Also, data sources for qualitative research include observations, fieldwork, interviews, documents and texts, archives etc.

Quantitative research methods are methods that attempt to maximize objectivity, replicability and generalization of findings. It is usually employed when numerical estimation and prediction is the objective of the study. Fundamentally, researchers are to set aside their experiences, perceptions and biases to ensure objectivity in the conduct of study and conclusions. According to Lincoln and Guba (1985), quantitative methods are often characterized by the assumption of single "truth" independent of human perception.

Mixed methods use both qualitative and quantitative methods within different stages of the research process (Tashakkori and Teddlie, 2008). Johnson and Turner (2003) argue that, the fundamental principle of mixed methods is the use of multiple data types and methods in ways that reflect complementary strengths and non-overlapping weaknesses to provide insights that is not possible when only qualitative or quantitative methods is used.

Since the variables selected for the analyses all had quantitative values, it was appropriate to use quantitative methods. Thus, a quantitative method was adopted for this thesis work to achieve its objectives.

3.4 Data sources

Data sources are relevant as their contribution affect the findings of a study. It is of utmost importance to understand and appropriately use reliable data for studies. Data sources come in the form of primary or secondary. Primary data source involves direct and first hand collection of information from the units or respondents pertaining to a study whilst secondary data sources provide data that has already been collected by other people and stored. Wilson (2010) describes secondary data as data which has been gathered by other investigators and has experienced some form of analysis and available in the form of journals, articles, publications, newspaper reports, periodicals, available case reports and government printed sources.

Since this thesis covers four countries with transition economies, primary data collection seemed unrealistic within the scope of time and resources. However secondary data as appropriate, existed

which consisted of national level data published annually on certain socio-economic variables. As such, secondary data was used for this thesis work.

The World Development Indicators of the World Bank provide data for both the socio-economic indicators. Data on Corruption ratings were obtained from two data sources; the Corruption Perceptions Index from Transparency International and the Control of Corruption Index from World Bank (Worldwide Governance Indicators).

Data on economic performance on certain countries goes as far back as 1960. CPI data also exists since 1980 but covered different number of countries over time. For instance, 41, 54 and 52 countries were respectively covered for CPI in the year 1995, 1996 and 1997. Despite the continuous increase in country coverage for CPI ratings, for instance, from 1998 to 2001 where about 90 countries were covered, the CPI of some countries have not been continuously reported. Nonetheless, CPI data indicate consistency for 81 countries from the year 2000 to 2012. The number of countries covered for the year 2018 were 180.

To ensure consistency of time period for this thesis, the period was selected based on the common availability of data for all variables. For instance, Czech Republic was included in CPI rating in 2006 and that, all variables regardless of the time they have been collected for, cannot go below 2006. Moreover, the current time to consider could also not exceed the year 2018 since annual data was used. That is, the available period to select for the data is from 2006 to 2018. Though 2018 data for variables like CPI from Transparency International was available but that for variables like FDI, GNE and GDP growth from the World Bank data and 2018 HDI data from UNDP were not available at the time of this thesis. This situation limited the thesis to use the period 2008 to 2017 which is a ten-year period for all variables. That is, a sample size of 10 pairs were selected and this selection was also done in coherence to satisfy accuracy for multiple linear regression. Large sample size ensures normality of the sample which also increases accuracy when inferencing about the population.

3.5 Methods used in presentation and analysis of data

The data was analyzed using Statistical Package for Social Science (SPSS). Descriptive statistics mean, median, minimum and maximum value were used to provide summary measures of the data. Tables were used where appropriate to summarize results and data values.

Assessment of the normality of data is a prerequisite for many statistical tests especially for parametric statistical tests where normality of the data is an underlying assumption. The Shapiro-Wilk test was used to check for normal distribution of the data. It has high power to produce good results even with small observation size. Since the sample size was less than 50 for each variable

under study, it was used to check for the normality of the data especially for all the economic variables and that of CPI. The economic variables were all quantitative with parametric methods applicable and that, to check for the normality of their data were necessary, unlike those for the social variables which are perception based or categorical.

To achieve the first specific objective, that is, to assess whether the level of corruption differs significantly among the four countries, the Kruskal Wallis test was used to test for the hypothesis highlighted in section 3.1. The Kruskal-Wallis test which is the non-parametric version of Analysis of Variance (ANOVA). It tests whether the median CPI scores are significantly the same across the countries over the selected periods or not. The Kruskal-Wallis test is appropriate to test for equal means of several populations of a variable under study when assumptions underlying ANOVA, like the populations from which the samples are drawn are normally distributed with equal variances are unmet, or when the data for analysis consist only of ranks. The underlying assumptions of the Kruskal-Wallis test are;

- The samples are independent random samples from their respective populations.
- The measurement scale employed is at least ordinal.
- The distributions of the values in the sampled populations are identical except for the possibility that one or more of the populations are composed of values that tend to be larger than those of the other populations.

As such, the Kruskal-Wallis test was appropriate since the CPI scores used for this variable, which is measured based on perceptions, is expected to at most be at the ordinal scale of measurement.

Also, to achieve the second specific objective, the data for the socio-economic variables were visualized using descriptive graphs and then correlation and multiple linear regression were used. First, descriptive graphs like the line graph and bar chart visually reveal trend and performance of the variables over the study period. Correlation analyses were also used to assess the strength and direction of linear association CPI and the socio-economic variables. Test for association between sample pair of data can be done using the Pearson correlation coefficient, Spearman Rank correlation coefficient and Kendall coefficient. Generally, correlation coefficients fall within -1 and +1 inclusively. A negative value indicates a reverse relationship and vice versa. A correlation coefficient closer to +1 or -1 indicates strong positive or negative linear association respectively and it is considered moderate when it falls at or around -0.5 or +0.5. The appropriate test to use depends on the scale of measurement. Since CPI and the social variables were at most at the ordinal

scale, the Spearman Rank correlation was used for all correlation analyses that involved at least CPI or social variable.

The assumptions underlying correlation analysis also are;

- For each value of X there is a normally distributed subpopulation of Y values.
- For each value of Y there is a normally distributed subpopulation of X values.
- The joint distribution of X and Y is a normal distribution called the bivariate normal distribution.
- The subpopulations of Y values all have the same variance.
- The subpopulations of X values all have the same variance.

Finally, to check for how much effect can be explained in a variable by other variables required the use of regression analysis. A multiple linear regression was used to model the variables included. A multiple linear regression establishes a linear equation or relation between one variable called the response or dependent variable and two or more variables called predictor or independent variables, where the independent variables explain the variation in the response variable. A multiple linear regression model involves coefficients called regression parameters and the variables in the form of an equation.
The general form of a multiple linear regression model is

$\hat{Y} = B_0 + B_1x_1 + B_2x_2 + B_3x_3 + \cdots + B_nx_n + \varepsilon_i$ for $i = 1, 2, 3, \dots, n$ where
$\hat{Y}$ is the dependent variable,
B_i for $i = 0, 1, 2, 3, \dots, n$ is the regression parameters
x_i for $i = 1, 2, 3, \dots, n$ is the independent variables and
ε_i for $i = 1, 2, 3, \dots, n$ being the error term

The assumptions underlying the multiple linear regression is that;

- there must be a linear relationship between the dependent and independent variables.
- the residuals (ε_i) are normally distributed
- No multicollinearity; that is, the independent variables are not highly correlated with each other.
- Homoscedasticity: that is, the variance of the error terms is evenly distributed across all values of the independent variables.

Also, to achieve the third specific objective, the control of corruption which index was used to describe their effort in the quest to fight and curtail corruption among the selected countries. A line graph was used to visualize the data and provide insight of their performances.

3.6 Disposition of the study

The order of arrangement or organization of this thesis is considered relevant to give a clear guide on how the thesis work is structured as indicated in Figure 5 below.

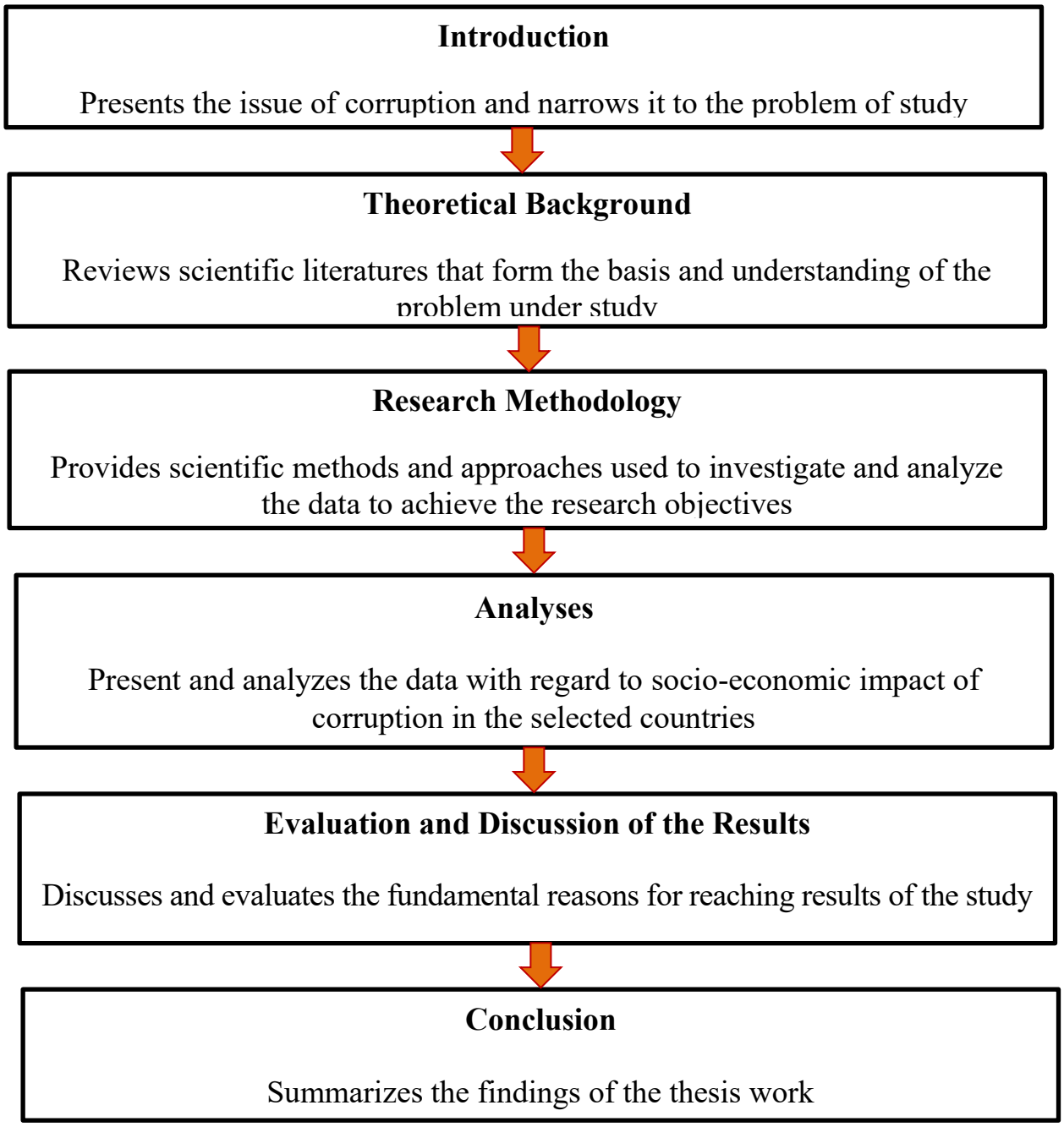

Figure 4: Disposition of the study

Source: Author's compilation

4. ANALYSES OF SOCIO-ECONOMIC IMPACT OF CORRUPTION ON SELECTED TRANSITION ECONOMIES

To provide insight of the socio-economic consequences of corruption of the selected countries, this thesis analyses data from variables that form components and measures socio-economic performance in relation to their corruption indices.

The corruption ratings of the countries are first explored to provide a foundation to dig into the impact such perceptions and ratings have had and is having on their socio-economic development. Since the period used for this thesis covered the two different scales (scale before 2012 and those from 2012), a transformation of CPI ratings before 2012 was done to correspond to that from 2012. The transformation was done by multiplying the CPI scores by a factor of 10 since the new scale (0 – 100) adopted is ten times that of the previous scale (0 – 10). The CPI scores of the countries over the selected period is presented in table 3 below.

Table 4: CPI scores of the countries from 2008 to 2017

Country	Poland		Czech Republic		Hungary		Slovakia	
Year	CPI score	Rank	CPI score	Rank	CPI score	Rank	CPI score	Rank
2008	**46**	58	**52**	45	**51**	47	**50**	52
2009	**50**	49	**49**	52	**51**	66	**45**	56
2010	**53**	41	**46**	53	**47**	50	**43**	59
2011	**55**	41	**44**	57	**47**	54	**40**	66
2012	**58**	41	**49**	54	**55**	56	**46**	62
2013	**60**	38	**48**	57	**54**	47	**47**	61
2014	**61**	36	**51**	53	**54**	48	**50**	54
2015	**63**	29	**56**	38	**51**	50	**51**	50
2016	**62**	29	**55**	47	**48**	57	**51**	54
2017	**60**	36	**57**	42	**45**	66	**50**	54

Source: Transparency International data, 2018

Table 5 shows that Poland on average rated as the least corrupt country over the selected period with a value of 56.8. Apart from 2008 and 2009, Poland performed better each year with regard to CPI scores as it can be seen in table 4. It is again apparent from table 5 that Poland's minimum CPI score since 2012 to 2017 which is 58, is the highest CPI score of the remaining countries from 2008 to 2017. Moreover, Poland recorded the highest rank of 29 both in 2015 and 2016. This tells a probable effort by Poland to consistently improve or maintain their ratings along the years.

From 2009 to 2014, Hungary rated better than both Czech Republic and Slovakia. However, Czech Republic whose ratings fell behind Hungary from the period 2009 to 2014 showed improvement from 2015 to overturn the trend between it and Hungary. Comparing the average CPI score over the study period shows that Czech Republic has performed better than Hungary with a value of 57.0 and 55.0 respectively. It can be seen that whilst countries have shown improvement from 2012 to 2017, Hungary on the other hand declined in ratings. Hungary failed to attain the global average of 50 in both 2017 and 2016. This signifies a current widespread of corruption in Hungary than the other selected countries.

Table 5: Descriptive statistics of CPI scores of the countries

	N	Minimum	Maximum	Mean	Std. Deviation
Poland	10	46.00	63.00	56.8000	5.63323
Czech Republic	10	44.00	57.00	50.7000	4.32178
Hungary	10	45.00	55.00	50.3000	3.43350
Slovakia	10	40.00	51.00	47.3000	3.77271

Source: Author's processing based TI data, 2019

Due to the periodic changes in CPI ratings among the countries, there was the need to check if the average CPI scores were significantly different among the four countries for the selected period. This check was done in order to achieve the first specific objective of this thesis work. The result for the check for normality of the CPI scores at 0.05 significance test is found in table 5 below. The result showed that, all CPI scores for all the countries were normally distributed as their p-values which were all more than 0.05.

The CPI scores as measured through perceptions will at most be at the ordinal measurement scale. As such, the Kruskal Wallis test which is the non-parametric version for ANOVA was used to test for the median scores of the countries at 0.05 significance level. With ties adjusted for in the ranks, the Kruskal Wallis test with 3 degrees of freedom produced a test statistic of 12.95. The test statistic had a p-value of 0.005 which was statistically significant at 0.05 significance level. That is, there was enough evidence at 0.05 significance level to conclude that the median CPI scores were different for at least any two different countries for the chosen period under consideration. This significant difference provides some grounds to further explore how these corruptions impact

on the socio-economic development of the countries. The analyses were done under two dimensions consisting of the economic impact and the social impact.

4.1 Analysis of Economic impact of corruption

The economic impact of corruption was explored using three variables which were **real GDP growth**, **Net Foreign Direct Investment** and **Gross National Expenditure**. These data were checked for normality as it forms part of the assumptions for the use of most parametric statistical tests. Shapiro-Wilk test performed at 0.01 significance level produced p-values for the three variables for each country as shown in table 6. Except the p-value of GDP growth of Slovakia which is approximately normal ($0.007 \approx 0.01$), the rest had p-values more than 0.01. This was enough evidence to conclude at 0.01 significance level that the data for the variables were normally distributed. The result of the normality test is as shown in table 6 below.

Table 6: Result of normality test for the economic variables and CPI scores

GDP growth data	Shapiro-Wilk test		
	Statistic	**df**	**Sig.**
Poland	.956	10	.739
Czech Republic	.904	10	.241
Hungary	.839	10	.042
Slovakia	.775	10	.007
NDFI data	Shapiro-Wilk test		
	Statistic	**df**	**Sig.**
Poland	.874	10	.112
Czech Republic	.897	10	.203
Hungary	.942	10	.573
Slovakia	.910	10	.279
GNE data	Shapiro-Wilk test		
	Statistic	**df**	**Sig.**
Poland	.942	10	.572
Czech Republic	.956	10	.741
Hungary	.939	10	.540
Slovakia	.840	10	.044
CPI scores	Shapiro-Wilk test		
	Statistic	**df**	**Sig.**
Poland	.909	10	.272
Czech Republic	.959	10	.775
Hungary	.925	10	.404
Slovakia	.881	10	.135

Source: Author's processing based TI and World Bank data, 2019

4.1.1 Real GDP growth

Though natural resources and economic management skills of countries vary, but the influence of corruption can make contribution to the outcomes. Corruption potentially affects productivity through rent-seeking, mismanagement and even bureaucratic inefficiency. Exploring the economic performances of the countries was necessary. As such, the real GDP growth which is an indicator for measuring the economic performances of countries was explored over the selected period. The real GDP growth was the annual values expressed as percentages. That is, the change in GDP at the end of the year divided by the base year and expressed as a percentage. Below shows the inherent pattern of the variable over the study period for the countries.

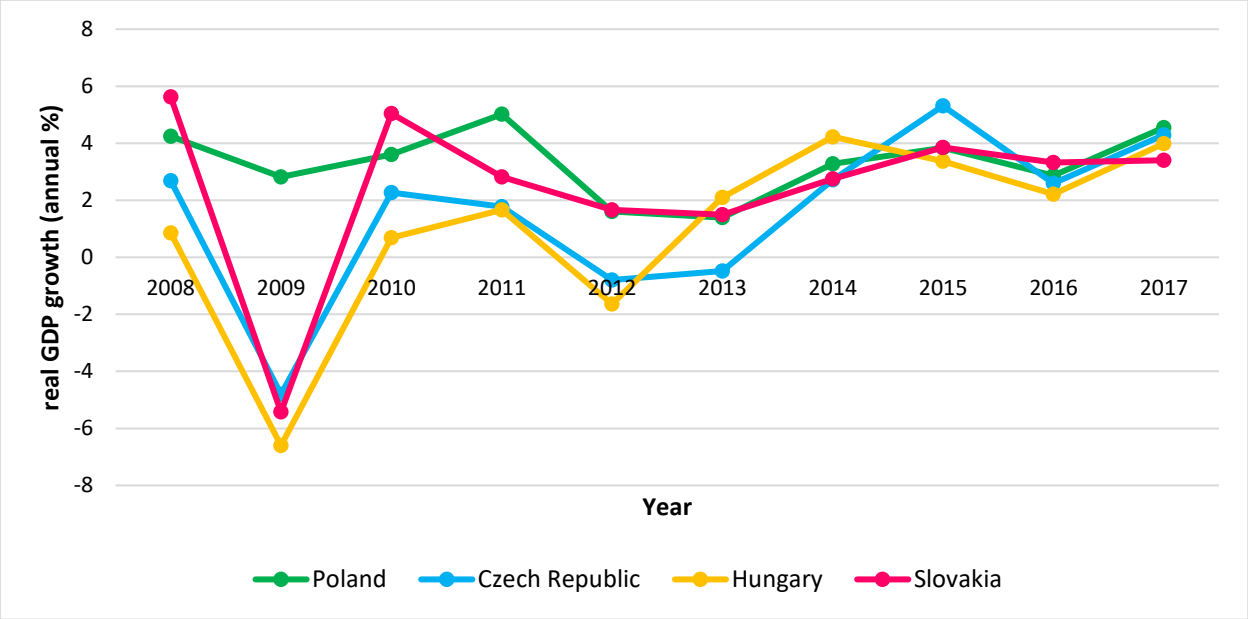

Figure 5: Line graph of real GDP growth (annual %)

Source: Author's processing based on World Bank data, 2019

As illustrated in Figure 5, only Poland recorded positive GDP growth across the study period. Czech Republic, Slovakia and Hungary recorded negative GDP growth in 2009 and with Hungary again recording negative GDP growth in 2012. Besides Poland, the GDP growth of the countries showed steep fall from 2008 to 2009, rose sharply to 2010 which then remained steady to 2011. This steep fall coincide with the world economic crisis which may have resulted to such behaviour. According to the United Nations Conference (2009), the world is confronted with the worst financial and economic crisis since the Great Depression where evolving crisis which began within the world's major financial centers has spread throughout the global economy, causing severe political, economic and social impacts. *"A series of deteriorations in the economic stability of the world can be seen, firstly*

in the 2007 subprime crisis in the USA, followed by "mild recessions" in advanced economies mid-year 2008, and finally with the "dramatic blowout" of the financial crisis that started in September 2008 and whose repercussions were felt across the globe." (World Economic Outlook, 2009, p.1-4).
For Slovakia, there was a gradual fall of GDP growth from 2012, rose gently from 2013 to 2015, further declined to 2016 and finally rose sharply to 2017. Czech Republic showed gentle rise in GDP growth from 2012 to 2013 and then rose sharply to 2015 from which it declined sharply in 2016 and rose again to 2017.
With a gentle fall from 2012 to 2013, Slovakia showed a gently rise in GDP growth from 2013 to 2015 from which it remained steady to 2017. Finally, for Hungary, its GDP growth rose steeply from 2012 to 2014 from which it declined sharply to 2016 and then rose sharply to 2017. Czech Republic which had the second lowest GDP growth in 2012 recorded the highest GDP growth among the countries for the selected which occurred in 2015. Also, Hungary recorded the lowest GDP growth across the study period in 2012 which was negative. However, the graph shows less difference in GDP growth among the four countries in both 2016 and 2017 as compared to the other periods.

4.1.2 Net Foreign Direct Investment

Investments being it local or foreign is key indicator in economic and social growth of societies and countries. Mauro (1995) is of the view that high level of corruption significantly decreases both investment and economic growth. Since corruption has been suspected and empirical proven by studies to negatively affect economic development, the foreign direct investment of the four countries over the study period was explored here. Available data on FDI from the World Bank data for the selected countries were net inflow and net outflow of FDI as percent of GDP. To get a clear insight of their Foreign Direct Investments, the net FDI values were computed by subtracting corresponding net annual outflow from the net annual inflow. The data is presented in the appendix. A bar graph was then used to visualize the trend and behavior of the NFDI for the countries as presented in figure 6.

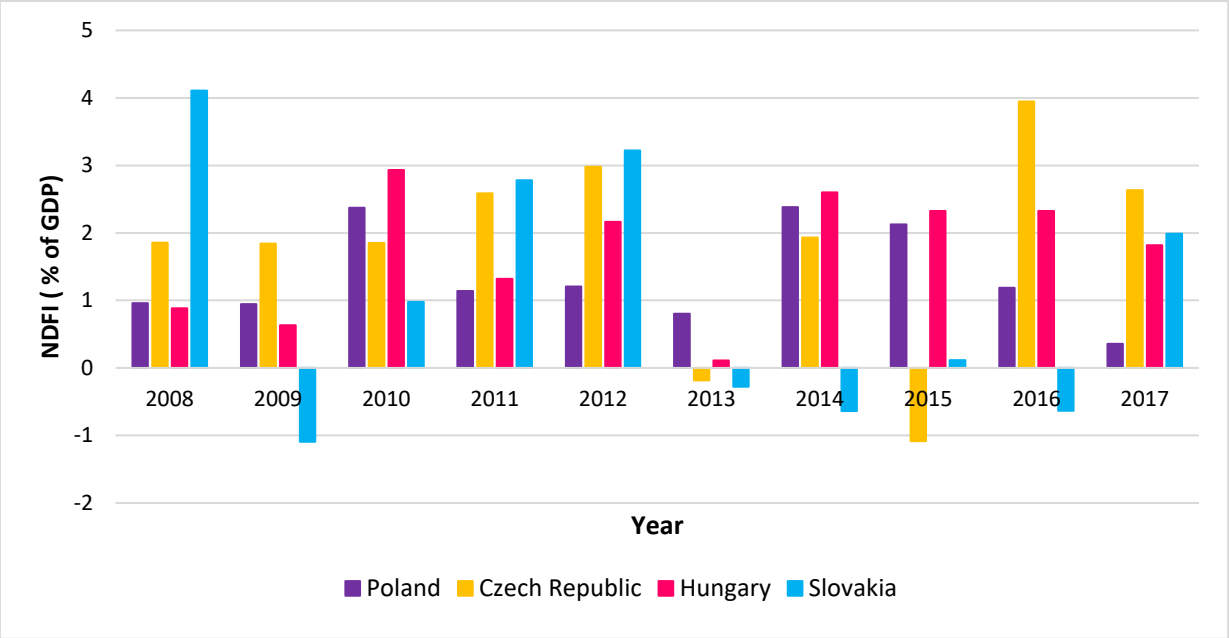

Figure 6: Bar chart of Net Foreign Direct Investment (% of GDP)

Source: Author's processing based on World Bank data, 2019

Figure 6 shows that Slovakia recorded the highest and lowest Net Foreign Direct Investment (NFDI) across the study period which occurred respectively in 2008 and 2009. Along the study period, at least one country recorded a negative NFDI in 2009 and from 2013 to 2016. Hungary and Poland however, recorded positive NFDI each year across the study period. A keen look at the figure shows that the least range of NFDI among the countries occurred in 2013.

Table 7: Descriptive statistics of NFDI (% of GDP) of the countries

	N	Minimum	Maximum	Mean	Std. Deviation
Poland	10	0.36	2.38	1.3470	0.69934
Czech Republic	10	-1.08	3.95	1.8360	1.47477
Hungary	10	0.11	2.93	1.7113	0.93143
Slovakia	10	-1.09	4.11	1.0555	1.85096

Source: Author's processing based on World Bank data, 2019

Table 7 depicts that Czech Republic and Slovakia recorded negative NFDI. Hungary and Slovakia recorded the highest and lowest average NFDI per GDP respectively for the selected years of study. The investment changes had less variation for Poland and Hungary as compared to Czech Republic and Slovakia. Though, it is inconclusive from the above trend as to whether corruption played a role in the irregularities in investments for the countries. However, it suffices to say that

greater variability in NFDI for Slovakia and Czech Republic are more likely to affect their socio-economic development as compared to the other two countries.

4.1.3 Gross National Expenditure

Every government spends to provide convenient livelihood for its people whilst promoting socio-economic development. As such, government spending of the four countries over the study period were explored. This was achieved through the variable Gross National Expenditure (GNE). Gross national expenditure refers to sum of household final consumption expenditure, general government final consumption expenditure and gross capital formation. These values were standard to account for changes in inflation by using the constant 2010 US$ to make it real GNE. Available data from the World Bank data was the real GNE expressed as a percentage of the corresponding country's GDP. The real GNE for a particular year is obtained by dividing the total GNE for the year by the total GDP of that year and multiplied by 100%. A line graph was used to provide visual behavior of the variable over the selected period. This is shown in figure 7 below.

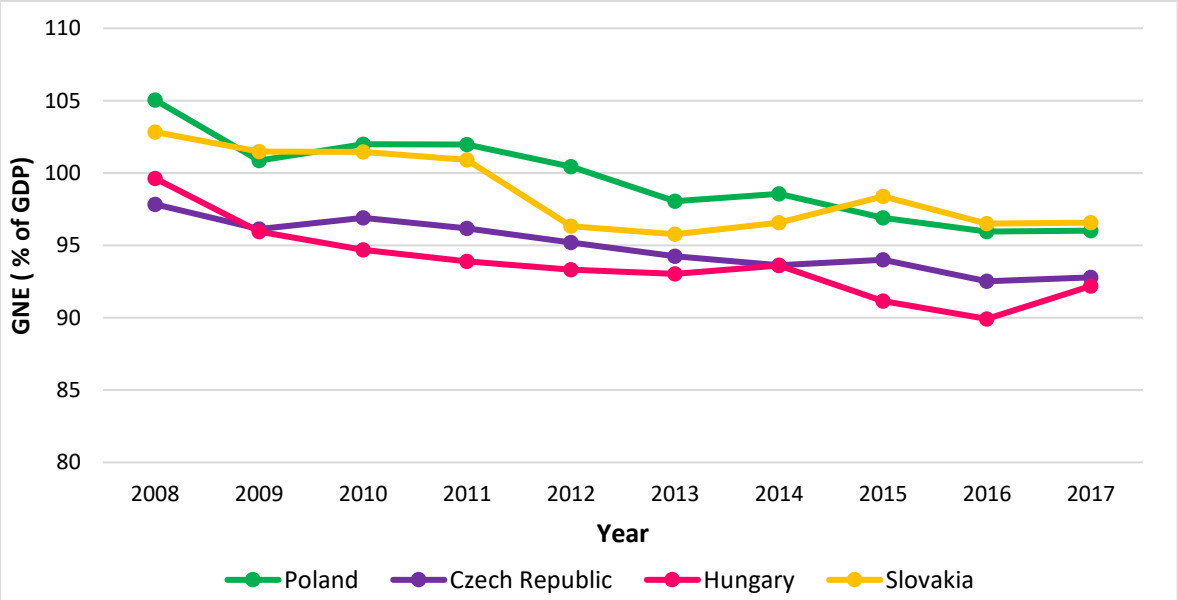

Figure 7: Line graph of Gross national expenditure (% of GDP)

Source: Author's processing based on World Bank data, 2019

Figure 7 depicts gradual rise and fall in GNE for all countries across the study period. Czech Republic showed steadier GNE which though declined more over time. With regard to maximum spending over the period, Poland spent the highest amount which occurred in 2008. Also, the least expenditure of the period was recorded by Hungary in the year 2016.

Table 8 shows that Poland spent the highest on average and this was followed by Slovakia. On the other hand, Hungary spent least on average. The spending amount was more varied for Poland which had a value of 2.98 while Slovakia also recorded the minimum variation of a value of 1.79.

Table 8: Descriptive statistics of GNE (% of GDP) of the countries

	N	Minimum	Maximum	Mean	Std. Deviation
Poland	10	95.95	105.04	99.5767	2.98416
Czech Republic	10	92.52	97.84	94.9413	1.78974
Hungary	10	89.92	99.63	93.7376	2.68831
Slovakia	10	95.77	102.83	98.6817	2.69720

Source: Author's processing based on the World Bank data, 2019

4.2 Correlation analysis of the economic variables and CPI scores of the countries

The linear relationship among the economic variables and that of their CPI scores over the chosen period were investigated within each country to see what level corruption associates with each other. For example, Mauro (1995) reports that studies on investment highly shows negative association with corruption and hence reduces that rate of economic growth. The direction, strength and significance of these associations are explored in this section. Spearman rank correlation coefficients were computed since the level of measurement of the CPI data was at most at the ordinal measurement scale. These correlations were then evaluated at 0.05 and 0.01 significance levels to check for any statistically significant correlation among the included variables. Values of correlation that showed statistical significance at 0.01 and 0.05 significance level were respectively flagged by (**) and (*). However, the result showed at both test levels that only the value of association (-0.869) between GNE and CPI of Poland was statistically significant at 0.01 significance level. The result of the correlation analysis is shown in Table 9 below;

Table 9: Result of the correlation analysis of CPI and economic variables

	CZECH REPUBLIC				
		CPI score	GNE	NFDI	GDP growth
CPI Scores	Correlation Coefficient	1.000			
	Sig. (2-tailed)	.			
GNE	Correlation Coefficient	-0.620	1.000		
	Sig. (2-tailed)	0.056	.		
NFDI	Correlation Coefficient	0.152	-0.333	1.000	
	Sig. (2-tailed)	0.675	0.347	.	
GDP growth	Correlation Coefficient	0.717*	-0.406	-0.030	1.000
	Sig. (2-tailed)	0.020	0.244	0.934	.
	SLOVAKIA				
		CPI score	GNE	NFDI	GDP growth
CPI Scores	Correlation Coefficient	1.000			
	Sig. (2-tailed)	.			
GNE	Correlation Coefficient	-0.258	1.000		
	Sig. (2-tailed)	0.471	.		
NFDI	Correlation Coefficient	-0.178	0.176	1.000	
	Sig. (2-tailed)	0.622	0.627	.	
GDP growth	Correlation Coefficient	0.314	0.467	0.515	1.000
	Sig. (2-tailed)	0.377	0.174	0.128	.
	POLAND				
		CPI score	GNE	NFDI	GDP growth
CPI Scores	Correlation Coefficient	1.000			
	Sig. (2-tailed)	.			
GNE	Correlation Coefficient	-0.869**	1.000		
	Sig. (2-tailed)	0.001	.		
NFDI	Correlation Coefficient	0.280	0.139	1.000	
	Sig. (2-tailed)	0.434	0.701	.	
GDP growth	Correlation Coefficient	-0.116	0.200	-0.030	1.000
	Sig. (2-tailed)	0.751	0.580	0.934	.
	HUNGARY				
		CPI score	GNE	NFDI	GDP growth
CPI Scores	Correlation Coefficient	1.000			
	Sig. (2-tailed)	.			
GNE	Correlation Coefficient	0.037	1.000		
	Sig. (2-tailed)	0.919	.		
NFDI	Correlation Coefficient	-0.167	-0.261	1.000	
	Sig. (2-tailed)	0.645	0.467	.	
GDP growth	Correlation Coefficient	-0.142	-0.612	0.321	1.000
	Sig. (2-tailed)	0.696	0.060	0.365	.

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Author's processing based on the World Bank data, 2019

For **Hungary**, there was a very weak positive linear relationship between CPI and GNE. This indicates a direct linear relationship where an increase in CPI increases GNE weakly and vice versa. Also, there was very weak negative correlation between CPI and both NFDI and GDP growth. This implies a very weak inverse linear relationship where both NFDI and GDP growth decrease with increase in CPI and vice versa. These correlations were not statistically significant at both 0.01 and 0.05 significance levels. That is, there was insufficient evidence at both 0.01 and 0.05 significance levels to conclude that there is mutual independence between CPI and the economic variables.

For **Poland**, there was a strong negative correlation between CPI and GNE where an increase or decrease in CPI respectively decreases or increases GNE. This situation looks contradictory at first thought, but it is likely that, higher corruption leaves less revenue to the country to make more expenses. Also, there was a very weak positive correlation between CPI and NFDI where high corruption tends to increase investments. CPI had a weak negative linear association with GDP growth for which GDP growth decreases with increasing level of rated corruption and vice versa. However, only the correlation between CPI and GNE showed statistical significance at 0.01 significance level.

For **Slovakia**, there was a weak negative linear relationship between CPI and both GNE and NFDI. That is, higher corruption reduces government spending and vice versa whilst NFDI also decreases with increasing CPI and vice versa. GDP growth tends to increase weakly with increasing CPI and vice versa. This could mean more as investment and consumption activities increase, the chances to undertake corruption become high and more. These correlations were, however, statistically insignificant both at 0.01 and 0.05 significance levels.

Finally, correlation results for **Czech Republic** show a moderate negative linear association between CPI and GNE, weak positive correlation between CPI and NFDI and strong positive correlation between CPI and GDP growth. Increase in investments and GDP growth increases corruption in Czech Republic and vice versa. Also, GNE decreases as CPI increases and vice versa. However, there was enough evidence at 0.05 significance level to conclude only that the mutual dependence between GDP growth and CPI were significant.

4.3 Regression analysis of corruption on economic variables

Multiple linear regression was employed to determine the extent at which selected independent variables affect and explain the changes in the selected dependent variable due to their interaction through the linear model. Since GDP growth is an indicator to measure economic growth, it was selected as the dependent variable. As such, CPI scores, NFDI and GNE were the independent variables. A fixed model which assumes that the independent variables are known and fixed was adopted for the multiple linear regression. The range of values for NFDI and GDP growth was negative for some countries. Since negative data cannot be used in the multiple linear regression, a linear transformation was done to these variables. Since these values are in percentages, 2% was added to the NFDI data for all countries whilst 7% was added to the GDP growth data which transformed all values into positive. Linear transformations only affect the values of the constant in the model. This was not problematic since the focus of this thesis was on how much corruption affects economic growth amid other economic variables. The transformed values as used for the multiple regression is presented in the appendix. However, the result of the multiple regression is shown in Table 10 below.

Table 10: Result of multiple regression analysis of CPI and the economic variables

POLAND	Dependent variable: GDP growth R-Sq = 7.0% N=10				
Model	**GDP growth = 23.4 - 0.096 CPI - 0.085 GNE + 0.233 NFDI**				
Predictor	**Coef**	**SE Coef**	**T**	**P**	**VIF**
Constant	23.44	52.86	0.44	0.673	
CPI	-0.0961	0.2274	-0.42	0.687	7.489
GNE	-0.0847	0.4222	-0.2	0.848	7.246
NFDI	0.2326	0.7999	0.29	0.781	1.428
CZECH REPUBLIC	Dependent variable: GDP growth R-Sq = 28.1% N=10				
Model	**GDP growth = - 6.0 + 0.341 CPI - 0.021 GNE - 0.201 NFDI**				
Predictor	**Coef**	**Predictor**	**Coef**	**Predictor**	**Coef**
Constant	-6.01	79.85	-0.08	0.942	
CPI	0.3412	0.3006	1.14	0.3	1.669
GNE	-0.0207	0.7262	-0.03	0.978	1.672
NFDI	-0.2005	0.6877	-0.29	0.78	1.018

HUNGARY	Dependent variable: GDP growth R-Sq = 24.3% N=10				
Model	**GDP growth = 46.6 - 0.101 CPI - 0.387 GNE + 0.75 NFDI**				
Predictor	**Coef**	**Predictor**	**Coef**	**Predictor**	**Coef**
Constant	46.61	48.56	0.96	0.374	
CPI	-0.1006	0.3409	-0.3	0.778	1.052
GNE	-0.3867	0.4683	-0.83	0.441	1.217
NFDI	0.75	1.368	0.55	0.603	1.247
SLOVAKIA	Dependent variable: GDP growth R-Sq = 35.6% N=10				
Model	**GDP growth = - 1.6 + 0.283 CPI - 0.053 GNE + 0.932 NFDI**				
Predictor	**Coef**	**Predictor**	**Coef**	**Predictor**	**Coef**
Constant	-1.55	49.27	-0.03	0.976	
CPI	0.2828	0.2964	0.95	0.377	1.245
GNE	-0.0529	0.4287	-0.12	0.906	1.33
NFDI	0.9318	0.5747	1.62	0.156	1.126

Source: Author's processing based T.I and World Bank data, 2019

Table 10 indicates no multicollinearity among the variables as the Variance Inflation Factor (VIF) were all less than 10. That is, there is insignificant correlation among the predictor variables in the regression models.

With emphasis on the effect of CPI on the GDP growth, the result shows that CPI have negative effect on GDP growth in Poland and Hungary whilst it has positive effect on GDP growth in Slovakia and Czech Republic. For Poland, GDP growth changes by 0.096 (9.6%) on average for a unit change in CPI when GNE and NFDI are held constant. Also, for Hungary, GDP growth changes on average by 0.101 (10.1%) for a unit change in CPI when GNE and NFDI are held constant. Czech Republic had an average change of 0.341 (34.1%) in GDP growth for a unit change in CPI when GNE and NFDI are held constant. Finally, there is an average change of 0.283 (28.3%) in GDP for Slovakia for a unit change in CPI when GNE and NFDI are held constant. However, all these effects proved statistically insignificant at 0.05 significance level since the p-values of the parameters were all more than 0.05.

Also, the variation in GDP growth as explained by the independent variables (R-square) for Poland, Czech Republic, Hungary and Slovakia were respectively 7.0%, 28.1%, 24.3% and 35.6%. Corruption though affects GDP growth in the countries but statistically considered as insignificant at the chosen test level.

4.4 Analysis of Social impact of corruption

Studies indicate the extent of impact of corruption on social development, some of which are presented in section 2.2 of this thesis. The onus of most corruption usually falls deeply on the poor in the society. They are often deprived of certain social benefits they deserve, and this is due to their inability to recompense necessary bribes especially for their wards' education, to access quality healthcare, fair judgment or justice including other public services such as sanitation, potable water supply, electricity etc.

This section explores the social impact of corruption on the four countries through the variables HDI and rule of law.

4.4.1 Human Development Index

Arguably, besides corruption causing poverty, it has also heightened poverty conditions and contributed to low development among societies for which this claim is supported by Zucman (2015) and Ray (1986). Also, corruption has the tendency to affect human capital in a country as established in literature by authors like Dridi (2013). As corruption increases poverty, the support, passion and interest to develop one's skills through education and other forms of training go missing. It may be added that, there is a close relationship between HDI and economic growth where more economic growth provides more resources to sustain and improve human development. To assess the human capital of the countries, HDI was employed with data presented in table 11 below.

Table 11: Reported estimates of Human Development Index of the countries

Year	Poland	Czech Republic	Hungary	Slovakia
2008	0.824	0.854	0.818	0.822
2009	0.828	0.857	0.818	0.824
2010	0.835	0.862	0.823	0.829
2011	0.839	0.865	0.827	0.837
2012	0.836	0.865	0.830	0.842
2013	0.850	0.874	0.835	0.844
2014	0.842	0.879	0.833	0.845
2015	0.855	0.882	0.834	0.851
2016	0.860	0.885	0.835	0.853
2017	0.865	0.888	0.838	0.855

Source: UNDP data, 2019

Table 11 shows that, the HDI of the countries ranged from 0.818 to 0.888. These values indicate very high HDI among the countries. From table 12 which provides descriptive statistics of table

11, shows that Czech Republic had the maximum HDI among the countries with a value of 0.888. This was followed by Poland with a value of 0.865, Slovakia with 0.855 and lastly Hungary with 0.838. These maximum HDI values of the countries when traced from table 11 all occurred in 2017. On the other hand, the minimum HDI was recorded by Hungary, followed by Slovakia, Poland and then Czech Republic with respective values of 0.818, 0.822, 0.824 and 0.854. On average, Czech Republic recorded the highest HDI (0.871) over the selected period followed by Poland with 0.843, Slovakia with 0.840 and then Hungary with value of 0.829.

Table 12: Descriptive statistics of Human Development Index of the countries

	N	Minimum	Maximum	Mean	Std. Deviation
Poland	10	0.824	0.865	0.84340	0.013664
Czech Republic	10	0.854	0.888	0.87110	0.012096
Hungary	10	0.818	0.838	0.82910	0.007279
Slovakia	10	0.822	0.855	0.84020	0.011877

Source: Author's processing based on UNDP data, 2019

4.4.2 Rule of law

Though, rule of law is thoroughly described in section 3.2 of this thesis but it may be considered as the abidance of rules by people and enforcement of rules by institutions equally on all people regardless of social, financial, political or any status of a person. The extend people abide by rule and regulation promotes peace and stability which can contribute to socio-economic development. Table 13 shows the values for the countries over the selected study period.

Table 13: Reported estimate of Rule of Law of the countries

	Poland		Czech Republic		Hungary		Slovakia	
Year	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error
2008	**0.55**	0.13	**0.91**	0.13	**0.93**	0.13	**0.59**	0.14
2009	**0.63**	0.13	**0.96**	0.14	**0.80**	0.13	**0.54**	0.14
2010	**0.68**	0.13	**0.95**	0.13	**0.78**	0.13	**0.57**	0.13
2011	**0.77**	0.12	**1.04**	0.13	**0.76**	0.13	**0.61**	0.13
2012	**0.78**	0.12	**1.04**	0.13	**0.62**	0.13	**0.49**	0.13
2013	**0.82**	0.12	**1.04**	0.13	**0.58**	0.13	**0.48**	0.14
2014	**0.84**	0.13	**1.15**	0.14	**0.50**	0.14	**0.50**	0.14
2015	**0.80**	0.13	**1.15**	0.14	**0.40**	0.14	**0.50**	0.14
2016	**0.64**	0.15	**1.04**	0.16	**0.42**	0.16	**0.65**	0.17
2017	**0.47**	0.14	**1.12**	0.15	**0.32**	0.15	**0.57**	0.16

Source: World Bank Group data, 2019

Table 14 shows that the HDI of the countries ranged from 0.32 to 1.15. Whilst Czech Republic recorded the highest value of 0.91, Hungary also recorded the least value of 0.32 over the period. Looking at the average values, shows that none of the countries scored above midway on the scale. As such, the rule of law can be described as low among the countries. Czech Republic performed better by recording the highest average value for the study period. Poland had the second-best average value followed by Hungary. Finally, Slovakia on average recorded the least value for rule of law across the study period. This reveal that people of these countries more likely disregard rules. This situation may possibly be facilitated by people using corrupt means to disregard rules and also escape possible punishment.

Table 14: Descriptive statistics of Rule of law of the countries

	N	Minimum	Maximum	Mean	Std. Deviation
Poland	10	0.47	0.84	0.6980	0.12453
Czech Republic	10	0.91	1.15	1.0400	0.08300
Hungary	10	0.32	0.93	0.6110	0.20201
Slovakia	10	0.48	0.65	0.5500	0.05735

Source: Author's processing based on World Bank Group data, 2019

4.5 Correlation analysis of CPI scores and the social variables

The result presented in table 15 shows that there was strong direct correlation of 0.848 between CPI and HDI in Poland which was statistically significant at 0.01 significance level. Again, CPI was weak positively correlated with rule of law with a value of 0.425 but statistically insignificant at both test levels. This implies that the direction in control of corruption will accordingly reflects changes in HDI and rule of law.

For Slovakia, there was moderate positive correlation between CPI and HDI whilst CPI was negatively weak correlated with rule of law. As such, higher CPI reduces compliance and abidance to rules and laws and vice versa. Also, human development changes hand in hand with the direction of corruption in Slovakia.

For Czech Republic, the was moderate positive correlation between CPI and both HDI and rule of law. As such, corruption increases with increasing HDI and rule of law and vice versa. That is, as people develop their human skills through means like education, they take advantage to indulge and facilitate corrupt processes and vice versa. However, only the correlation between CPI and HDI was statistically significant at 0.05 significance level.

Finally, Hungary showed a very weak negative correlation between HDI and CPI. That is, an increase in CPI reduces HDI and versa. There was also very weak positive correlation between CPI and rule of law whereas rule of law increases, and CPI also increases.

Emphatically, since corruption goes hand in hand with HDI and rule of law in both Czech Republic and Poland, a substantial fight to reduce or curtail it will correspondingly change and improvement lives for this variable in the countries. Also, as corruption goes hand in hand with HDI and rule of law respectively in Slovakia and Hungary, there should be an urge to impact positive change on these variables by fighting corruption.

Moreover, there should be considerate efforts from these selected countries to fight corruption as it goes hand in hand with at least one of the studied variables.

Table 15: Result of the correlation analysis of CPI and social variables

POLAND		CPI score	HDI	Rule of Law
CPI Scores	Correlation Coefficient	1.000		
	Sig. (2-tailed)	.		
HDI	Correlation Coefficient	0.848**	1.000	
	Sig. (2-tailed)	0.002	.	
Rule of Law	Correlation Coefficient	0.425	-0.062	1.000
	Sig. (2-tailed)	0.220	0.865	.
CZECH REPUBLIC		CPI score	HDI	Rule of Law
CPI Scores	Correlation Coefficient	1.000		
	Sig. (2-tailed)	.		
HDI	Correlation Coefficient	0.668*	1.000	
	Sig. (2-tailed)	0.035	.	
Rule of Law	Correlation Coefficient	0.468	0.840**	1.000
	Sig. (2-tailed)	0.173	0.002	.
HUNGARY		CPI score	HDI	Rule of Law
CPI Scores	Correlation Coefficient	1.000		
	Sig. (2-tailed)	.		
HDI	Correlation Coefficient	-0.024	1.000	
	Sig. (2-tailed)	0.948	.	
Rule of Law	Correlation Coefficient	0.105	-0.932**	1.000
	Sig. (2-tailed)	0.772	0.000	.
SLOVAKIA		CPI score	HDI	Rule of Law
CPI Scores	Correlation Coefficient	1.000		
	Sig. (2-tailed)	.		
HDI	Correlation Coefficient	0.487	1.000	
	Sig. (2-tailed)	0.153	.	
Rule of Law	Correlation Coefficient	-0.098	-0.091	1.000
	Sig. (2-tailed)	0.789	0.802	.

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author's processing based TI, UNDP and WBG data, 2019

4.6 Control of corruption

With major awareness and anti-corruption campaign efforts globally, it is expected that institutions and countries will intensify their effort correspondingly. Control of corruption Index as established by Worldwide Governance Indicators (WGI) attempt to measure the control of Corruption by countries. It measures the strength and effectiveness of a country's policy and institutional framework to prevent and combat corruption. In view of this, estimates of control of corruption by countries were available to provide insight of their efforts across a chosen period.

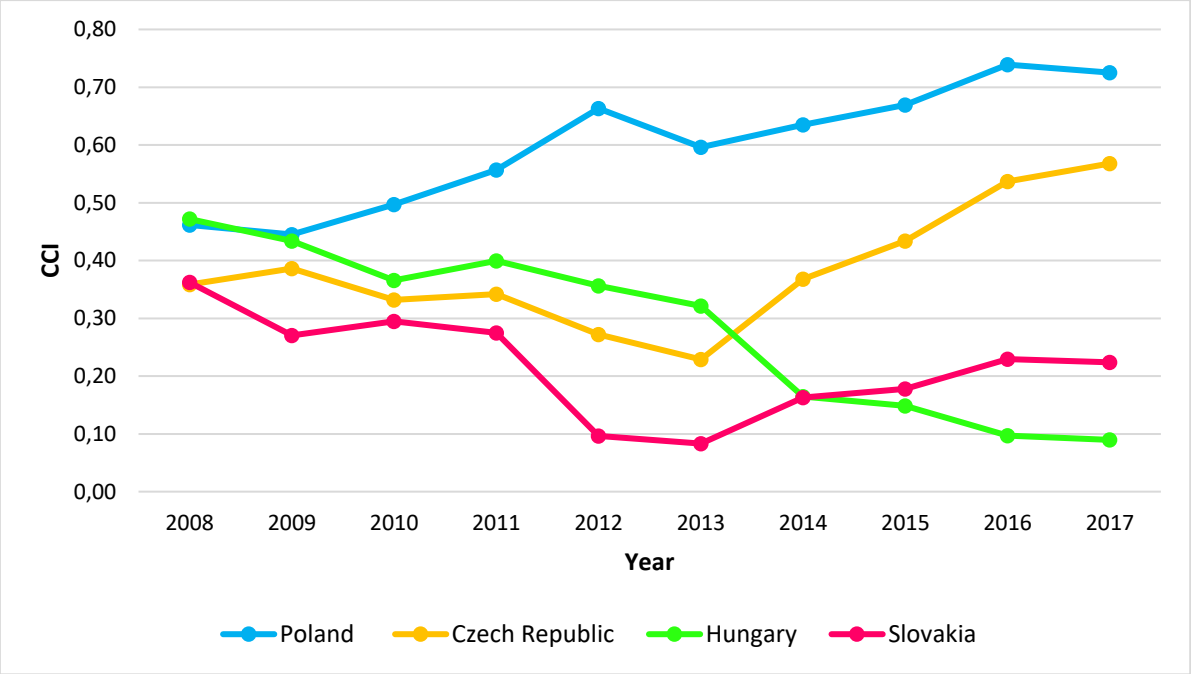

Figure 8: Line graph of Control of corruption of the countries

Source: Author's processing based on WBG data, 2019

The figure shows positive efforts by the countries to combat corruption despite their scores falling below +1. Poland showed continuous improvement in their fight against corruption and this looks appreciable due to their poor CPI rank in corruption ratings especially in 2017 and 2018. Czech Republic and Slovakia also show gradual improvement in their efforts over the last four years despite their initial continuous decline. Clearly, Hungary recorded a continuous decline in CCI scores to 2017 except between 2010 to 2011 which is suspicious. This correlates with their poor CPI scores and rating over the recent years of the study period.

5. EVALUATION AND DISCUSSION OF RESULT

Corruption has become a challenge and one of the undesirable phenomena for societies to curb. Many scholars have studied and reported the impact corruption poses not only on economically but also socially.

Šumah et. al. (2018) discovered through their analysis of countries, that, taking into account their ranking on the Corruption Perception Index and other contributing factors to the level of corruption, corruption is linked to the level of GDP (the higher the GDP, the lower the rate of corruption). Also, a study of the effects of corruption on economic growth in the United States indicated that, states with higher levels of corruption had lower levels of economic development (Glaeser and Saks, 2006). Again, Swaleheen and Stansel (2007) report that a study that used data from 60 countries and accounted for a country's level of economic freedom found different results where corruption reduces and increases economic growth in countries with high and low economic freedom respectively

The analyses of this thesis proved that low corruption resulted in high GDP in Hungary and Poland. This situation was otherwise for Slovakia and Czech Republic where high corruption result into high GDP growth. Subsequently, corruption had negative effect on GDP growth in Poland and Hungary whilst it had positive effect on GDP growth in Slovakia and Czech Republic. For Poland, GDP growth changes by 0.096 (9.6%) on average for a unit change in CPI when GNE and NFDI are held constant. Also, for Hungary, GDP growth changes on average by 0.101 (10.1%) for a unit change in CPI when GNE and NFDI are held constant. Czech Republic had an average change of 0.341 (34.1%) in GDP growth for a unit change in CPI when GNE and NFDI are held constant. Finally, there is an average change of 0.283 (28.3%) in GDP for Slovakia for a unit change in CPI when GNE and NFDI are held constant. However, these coefficients indicating effects proved statistically insignificant at the test level. Monies accrued from the activities of corruption and other underhand means cannot be accorded legitimacy with respect to the source. It illegally exempts itself from the tax net, investing such monies is also rare and most often does not happen in the host country since its source is dubitable and suspicious. Simply, in the words of Yousaf (2018): such tainted monies do not add value to the GDP, and it is utilized in non-economical transactions such as; purchasing precious items that are easily transferable with a high possibility of being kept in personal possession. (Yousaf, 2018) Further posited that the situation is even sadly dire in developing countries where there exist laxities in the taxation system coupled with weak law enforcement bodies, the money is easily transferred to other countries. The impacts of such

unpalatable circumstances have a direct bearing on the growth of the countries' GDP, since it reduces the amount of money circulating in the economy, lowers investment levels drastically, by threatening contemplating investors, has negative fallout on the welfare of the county, rises poverty, upsurges the rate of unemployment. All these factors possess in them the propensities to shrink or stifle the growth of GDP. When the monetary dividends of goods and services produced in the country does not reach the treasury of the government but diverted into individual hands, considering the importance of GDP as a reliable reserve for creating more goods and services, the government can hardly live up to its mandate of creating jobs and services for the betterment of the social and economic being of the country. To put it into in simple terms, the higher the GDP the higher the tendency for goods and services to be created, with the dividend raked back onto the GDP, and so if the estimated monies do not reach the government's reserve, then evidently, more goods and services cannot be created and if more goods and services are not created the GDP, either stagnates, stunts or plummets and it goes on in such a cyclical orbit.

Šumah et. al. (2018) report from a study that, corruption affects public finances and increases public expenditure. Corruption redirects the composition of public expenditure from the expenditure necessary for basic functioning and maintenance to expenditure on new equipment. According to Linhartová and Zidova (2016), there is higher additional costs on maintaining secrecy of corrupt activities which increases government spending. An empirical study showed that corruption leads to deviations from the optimal public expenditure structure, reducing growth and thus public income (De la Croix and Delavallade, 2009). More evidence provided in a later study which uses data from Italian public works during the period 2000–2005, shows that public contracts execution is more inefficient in areas with higher corruption, thus increasing government expenditure (Castro et. al., 2014).

The analyses found that corruption goes hand in hand with government expenditure in Hungary and Czech Republic. It was however a contrasting result in Poland and Slovakia where high corruption goes with low government expenditure and vice versa. The latter can be explained that, as corruption becomes high, the government likely reduces spending to reduce the possible execution of corruption among the countries. However, the correlations of CPI and GNE was statistically significant for only Poland.

More recent studies have confirmed the negative relationship between high corruption and FDI (Busse and Hefeker, 2007; Al-Sadig, 2009; Mathur and Singh, 2013). Egger and Winner (2005) found contrasting result to the negative effect of corruption on investment. They used data for a

sample of 73 developed and less developed countries for the time period of 1995–1999 where their results support a clear positive relationship between corruption and FDI.

This analysis also found both result depending on the countries. Corruption tends to increase NFDI in Czech Republic and Poland but reduces NFDI in Slovakia and Hungary. *Investment can also be described as a transmission channel through which corruption negatively affects economic growth. A negative relationship between corruption and investment exists because of the uncertainty and heightened risk of failure because corruption agreements are unenforceable. It is possible however to find positive effects of corruption on investment* (Linhartová and Zidova, 2016; p.779). This situation could simply be established under the fact that, since monies that are illegally diverted from the public kitty to private pockets in the form of kickbacks and unofficial gratuities from prospective foreign direct investors are unaccounted for and could not possibly be factored in the calculation of the GDP of the country. Given the magnitude of monies unaccounted for by government, lead to the slow pace of the economic and social development and therefore the markets of the country directly, impact hugely on wealth accumulation (Deepika, 2005). Also, the analyses show irregular investment patterns across the study periods. Though, corruption as a notorious phenomenon deters foreign direct investment, however, foreign investors are often motivated by the galore of natural resources which make them take risk to maximize returns. As such, the statistical relation between corruption and direct investment based on the analysis is unclear.

Akçay (2006) reports that empirical evidence from a study that used a sample of 63 countries found a statistically significant negative relationship between corruption indices and levels of human development. Also, Absalyamova et. al (2016) found from their study that an increase in corruption of any country on the socio-economic system by 1 % translate to a reduction of Human Capital Sustainable Development Index by more than 1 %.

Results from the analyses of this thesis showed that high corruption corruption reduces HDI in Hungary but otherwise in Czech Republic, Slovakia and Poland. HDI can reduce when resources which are meant to provide basic facilities, training and other necessary and efficent social services to enhance skill development are diverted for personal gain through corruption. These corruptions which deny deserving people opportunities and even employment then lead to brain drain. It has been argued that returns on education would be particularly affected (high levels of unemployment, lack of social advancement, slower economic growth e.t.c.), thus those particularly sensitive to such a push factor (highly skilled individuals) would be more likely to emigrate (Dimant et al., 2013).

On the other hand, HDI will likely increase with increasing corruption due to the investment traning or educations to acquire higher positions where corrupt people can have advantage to execute corrupt acts.

Dimant and Tosato (2017) report that corruption is believed to affect institutions in such a way that protection and promotion of human rights is reduced and that one would expect a negative relationship between them. Rule of law of the countries amid corruptions from the analyses showed that corruption negatively correlates with rule of law in Slovakia but positively in Czech Republic, Hungary and Poland. Corruption usually introduces unfairness in judicial systems. Influences from certain institutions and arms of government for favor distorts the rules to be applied accordingly.

6. CONCLUSION

Corruption is one of the perturbing issues which manifest itself in almost every part of the globe. The impact it poses does not affect just a person but a population which can extend to generations. Many scholars in light of the undesirable effect of corruption have undertaken studies, reported findings and suggest recommendations to create awareness of the degree of harm corruption is causing or can cause. That notwithstanding, corruption has been proven to manifest stronger in countries with economic transitions. In that context, some countries in the Vise grad group which have undergone transition or are still going through transition are suspected to face possible cases of corruption. This suggested the need to investigate the effect and possible kind of corruption which may have manifested itself in Slovakia, Poland, Hungary and Czech Republic who possess transition economies.

Hence, the main aim of this thesis work was to analyze the social and economic consequences of corruption in selected transition economies.

To achieve the main aim, the theoretical background of corruption in literature and other kind of research studies were explored, presented and discussed in relation to the problem under study. Furthermore, the social and economic impact of corruption both theoretical and empirical in literature was studied and presented under two sections of economic and social dimension. Quantitative research method was employed to achieve the main and specific objectives through the variable's CPI, NFDI, GNE, GDP growth, HDI and Rule of law. Time and resource constraint subjected this thesis work to employ secondary data from reliable sources like the World Bank, UNDP, WGI and Transparency International. The selected period used was from 2008 to 2017.

The following were the main results obtained from the analyses:

It was ascertained that the CPI scores were significantly different for at least any two selected countries for any given period. This indicated that the level of corruption within the countries are different which manifest itself in various secretive ways.

It was also observed that high corruption resulted in low GDP growth in Hungary and Poland. This situation was otherwise for Slovakia and Czech Republic where high corruption led to high GDP growth. The impact of the level of corruption on GDP growth was higher in Czech Republic (34.1%), followed by Slovakia (28.3%), Hungary (10.1%) and lastly by Poland (9.6%).

Corruption was found to go hand in hand with expenditure in Hungary and Czech Republic but inversely related to expenditure in Poland and Slovakia. Over the study period, Poland spent the highest value on average and this was followed by Slovakia. The least expenditure on average was recorded by Hungary. However, the spending amount was more varied for Poland and least varied for Slovakia.

It was also found that investment patterns among the countries were irregular. The impact of corruption took different directions and magnitude depending on the time and the country. Corruption related directly with NFDI in Czech Republic and Poland but inversely in Slovakia and Hungary.

Again, corruption was found to negatively correlate with rule of law in Slovakia but positively in Czech Republic, Hungary and Poland. The social effect regarding HDI goes hand in hand with corruption in Hungary but inversely in Czech Republic, Slovakia and Poland.

Finally, the urgency and effort to curtail corruption was responded ineffectively. For instance, Hungary who used to perform better regarding CPI ratings rated poor over the last four CPI ratings with a continuous decline in CCI over the study period.

As clearly highlighted in the findings in corroboration with the popular view of the numerous literatures reviewed, corruption has a tremendous devastating effect on socio-economic fortunes of a countries. Arguably, it can reasonably be concluded that the level of developments of certain countries both socially and economically could have been much better if corruption was reduced or non-existing.

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APPENDICES

World Bank data on Foreign Direct Investment

Foreign direct investment, net inflows (% of GDP)				
Year	Poland	Czech Republic	Hungary	Slovakia
2008	2.730155287	3.739795465	47.47705642	4.62687859
2009	3.188977363	2.5568019	-2.272043822	1.707853803
2010	3.837716755	4.900684091	-15.98921955	2.365847361
2011	3.495437777	1.837581407	7.462726101	5.527148518
2012	1.47053881	4.548829363	8.305308382	1.90202119
2013	0.151649742	3.513606851	-2.789708086	1.019320811
2014	3.627428567	3.892179242	9.196772796	-0.359042208
2015	3.155928086	0.909872696	-4.003136315	1.736896452
2016	3.554940658	5.555724426	55.48993078	3.952910865
2017	1.195021104	4.26935063	-10.66187777	6.183239827

Foreign direct investment, net outflows (% of GDP)				
Year	Poland	Czech Republic	Hungary	Slovakia
2008	0.874084299	2.78202842	46.59145044	0.520805551
2009	1.348579304	1.61028747	-2.903955356	2.800319256
2010	1.985306477	2.530086101	-18.92187468	1.386115196
2011	0.910496776	0.700239904	6.141891704	2.744980044
2012	0.265208617	1.568439302	6.143062549	-1.3197833
2013	-0.650663235	3.695065766	-2.901930498	1.296152224
2014	1.247111996	1.96047576	6.595023812	0.27741134
2015	1.029211728	1.994406666	-6.327810297	1.619965525
2016	2.369536171	1.60733256	53.16512567	4.585418081
2017	0.837734961	1.638117723	-12.47830132	4.196742807

Foreign direct investment, net (% of GDP)				
Year	Poland	Czech Republic	Hungary	Slovakia
2008	0.957767045	1.856070988	0.88560598	4.106073039
2009	0.94651443	1.840398059	0.631911535	-1.092465453
2010	2.370597989	1.852410278	2.932655131	0.979732165
2011	1.137341503	2.584941002	1.320834397	2.782168474
2012	1.205330193	2.980390061	2.162245833	3.221804491
2013	0.802312977	-0.181458916	0.112222412	-0.276831413
2014	2.380316572	1.931703482	2.601748984	-0.636453548
2015	2.126716358	-1.08453397	2.324673983	0.116930927
2016	1.185404487	3.948391866	2.324805106	-0.632507216
2017	0.357286144	2.631232908	1.816423548	1.98649702

Transformed data used for the Multiple linear regression

Poland				
Year	CPI	GNE	NFDI	GDP growth
2008	46	105.0404761	0.957767045	4.24971147
2009	50	100.8570129	0.94651443	2.820259759
2010	53	101.9980655	2.370597989	3.606928261
2011	55	101.956378	1.137341503	5.0172352
2012	58	100.440278	1.205330193	1.607906645
2013	60	98.05220005	0.802312977	1.391892321
2014	61	98.55852734	2.380316572	3.283146264
2015	63	96.90556588	2.126716358	3.844593971
2016	62	95.9526793	1.185404487	2.864328679
2017	60	96.0054059	0.357286144	4.550386923

Czech Republic				
Year	CPI	GNE	NFDI	GDP growth
2008	52	97.83609671	1.856070988	2.682282724
2009	49	96.12416927	1.840398059	-4.802572091
2010	46	96.908035	1.852410278	2.273420052
2011	44	96.1706648	2.584941002	1.777833187
2012	49	95.1973097	2.980390061	-0.799844281
2013	48	94.2362708	-0.181458916	-0.483671041
2014	51	93.63557188	1.931703482	2.715116132
2015	56	94.00126159	-1.08453397	5.309238519
2016	55	92.5165506	3.948391866	2.59332602
2017	57	92.78732437	2.631232908	4.289078941

Hungary				
Year	CPI	GNE	NFDI	GDP growth
2008	51	99.62903077	0.88560598	0.855513037
2009	51	95.96059415	0.631911535	-6.59997406
2010	47	94.69381716	2.932655131	0.682378151
2011	47	93.89796932	1.320834397	1.661916737
2012	55	93.31501782	2.162245833	-1.643779899
2013	54	93.02492932	0.112222412	2.096216708
2014	54	93.61507632	2.601748984	4.227733353
2015	51	91.14070547	2.324673983	3.367145175
2016	48	89.91897871	2.324805106	2.21318749
2017	45	92.18027572	1.816423548	3.98871037

Slovakia				
Year	CPI	GNE	NFDI	GDP growth
2008	50	102.8302571	4.106073039	5.629779025
2009	45	101.483025	-1.092465453	-5.422542313
2010	43	101.4525442	0.979732165	5.041716665
2011	40	100.9138051	2.782168474	2.819099518
2012	46	96.33363109	3.221804491	1.657148687
2013	47	95.76646167	-0.276831413	1.490646438
2014	50	96.57289161	-0.636453548	2.750335017
2015	51	98.39272982	0.116930927	3.850100604
2016	51	96.49788896	-0.632507216	3.324695296
2017	50	96.57352424	1.98649702	3.400166311