



Master's Thesis of Public Administration

The Effect of Corruption on Human Development in South Asia and Southeast Asia

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Abstract

The Effect of Corruption on Human Development in South Asia and Southeast Asia

This paper is concerned with how corruption affects human development in South Asia and Southeast using panel data from 19 countries over a period of 20 years from 2002 to 2021. The corruption Perception Index (CPI) and Human Development Index (HDI) have been used as the independent and dependent variables respectively. The overall results indicate that corruption hampers the growth of human development relating to the theory of "sand in the wheel" of corruption in the study. Comparative analysis also revealed that a negative relationship persists between corruption and human development in South Asia and Southeast Asia. South Asia accounts for a lower mean HDI and a high corruption rate compared to Southeast Asia despite being neighbors. Overall and regional study findings support corruption being a sanding instrument in the regions.

Keywords: Corruption, HDI, South Asia, Southeast Asia, Sanding **Student Number:** 2021–22553

Table of Contents

Chapter 1. Introduction	•••	1
1.1 Background of the study		1
1.2 Statement of the problem		6
1.3 Research question		7
1.4 Objectives of the study		7
1.5 Importance of the study	•••	7
Chapter 2. Literature Review	•••	9
2.1 Corruption	•••	9
2.2 Types of corruption	1	0
2.3 Causes of corruption	1	1
2.4 Corruption and economic growth	1	2
2.5 Corruption and human development	1	4
2.6 Corruption in South Asia	1	9
2.7 Corruption in Southeast Asia	2	0
Chapter 3. Methodology	2	3
3.1 Introduction	2	3
3.2 Data and empirical model	2	3
3.2.1 Variable description	2	3
3.2.2 Conceptual framework	2	7
3.2.3 Proposed method	2	7
3.2.4 Empirical model	2	8
3.2.5 Operationalization	3	1
Chapter 4. Data Analysis and Interpretation	3	2
4.1 Descriptive statistics	3	2
4.2 Correlation matrix	3	8
4.3 T-tests	4	1
4.4 Hypothesis and regression analysis	4	2
4.4.1 Panel data regression for whole	4	2
4.4.2 Panel data regression regionally	4	4
Chapter 5. Conclusion	4	8
5.1 Discussion	4	8
5.2 Recommendations	5	2
5.3 Limitations of the study	5	3
Bibliography	5	5

List of Figures and Tables

Figure 1: HDI over the years	3	2
Figure 2: CPI over the years	3	3
Figure 3: HDI in South Asia	3	4
Figure 4: CPI in South Asia	3	5
Figure 5: HDI in Southeast Asia	3	5
Figure 6: CPI in Southeast Asia	3	6

Table 1: Statistical values of the sample	. 3	7
Table 2: Statistical values regionally	. 3	8
Table 3: Correlation matrix	. 4	0
Table 4: T-tests by regions	. 4	1
Table 5: Panel data regression	. 4	2
Table 6: Panel data regression in South Asia	. 4	5
Table 7: Panel data regression in Southeast Asia	. 4	6

Chapter 1. Introduction

1.1 Background of the study

Corruption is a worldwide issue that misuses the public delegated power to achieve private goals in an unfair and illegal manner in the form of money or authority. It can be defined as "an abuse of public power for private gain," which may be a profoundly ingrained phenomenon, especially within the South Asian and Southeast Asian regions, which have incapacitated administrations, frail political education, and weak rule of law. The existing literature on corruption has contradicting perspectives on how corruption affects a nation's social and financial functioning (Alamgir & Amin, 2018). The World Bank has also recognized corruption as one of the biggest hindrances to social and economic advancement. Since the dawn of civilization, corruption has existed in a variety of forms including bribery, extortion, cronyism, nepotism, and embezzlement (Kumar Jha, 2015).

The role of corruption may cause negative complications for a countrys economic growth and development. Corruption is particularly problematic in fields that are most vulnerable such as security, army forces, police, fire protection, construction, nursing, etc., particularly at the national level. Corruption not only produces false preconceptions of people's behavior, but it establishes false economic relationships that violate the fundamental rules of economic development (Popova & Podolyakina, 2014). Corruption levels in countries around the world, particularly in Asia, surged in a negative way at the start of the reform, increasing in scale and diversification. The basis of the problem is thought to be low levels of democracy, limited economic freedom, and poor institutional quality. Furthermore, the imposition of political authority and the influence of civil workers on socioeconomic activities are significant. Therefore, money is unavoidably utilized as a lubricant. We can

further examine this issue in the regions of South Asia and Southeast Asia. Depending on the similarities and the dissimilarities among the countries which belong to each of these regions, we can have some idea about corruption and its impact on human development in the regions.

The majority of the people who live in the South Asian and Southeast Asian regions are suffering from poverty. The economic slowdown and increased poverty can be brought on by nepotism, bribery, and fraud. These corrupt tactics divert funds meant for public services, which frequently strikes the poorest people the hardest because they need social safety nets the most. According to a report, non-transparent public institutions, a lack of security for anti-corruption actors, and extensive government influence in the work of anti-corruption watchdogs are all contributing factors to the corruption epidemic in South Asia (transparency International, 2014).

Since the early days, South Asia and Southeast Asia have been connected to each other. Hinduism and Buddhism are two of the famous religions/philosophies that come from South Asia and both philosophies were embraced by Southeast Asia at various points throughout its history and as a result both regions share similar cultural and religious backgrounds. As India separates Southeast Asia from South Asia and it also acts as a bridge between the two regions since they are separated by land and sea. India is one of the biggest economies in the region and there are free trade agreements with the Association of Southeast Asian Nations. According to the World Bank over the last 20 years, trade links between the two regions have increased ninefold, from \$38 billion in 2000 to \$349 billion in 2018 (The World Bank).

Corruption increases social and economic inequalities in societies. In certain local governments, the public is required to give bribes to obtain certain government services that are legally and constitutionally theirs and which are meant to be free. Burke (2011) mentioned a small-scale fried chicken business owner in New Delhi who had to pay one-third of the earnings on bribes every month in terms of free food for police officers and money for senior police officers, traffic officers, health officials and etc. to keep doing business without trouble. In developing nations like South Asia, the exploitation of those who try to make days end and small business owners is widespread (Khatri, 2013).

The two most commonly used corruption indexes are Corruption Perception Index and Control of Corruption Index. The Corruption Perceptions Index (CPI) shows how much is corrupt in each country's public sector, while the Control of Corruption Index (CCI) is the technique used to assess the extent of corruption worldwide (Kurbonov, B, 2021). Among these two indices, CPI is the world's most extensively used corruption index. As a result, here we chose CPI for this study because viewing true corruption firsthand is nearly hard because corrupt parties do not report their misdeeds. (Olken MIT, 2009).

The CPI takes values between 0 and 100 and a higher score indicates less corruption. According to findings, not only one country in the globe is completely devoid of corruption. While a huge number of countries have very low scores on these indexes, no country has a perfect score (Kumar Jha, 2015). Understanding the bond between socioeconomic position with the corruption perceptions is crucial for two reasons. First, scientists typically utilize some measurements as proxies to determine perceptionbased metrics for real corruption in the absence of reliable crossnational indicators. Second, determining who perceives more corruption or less in a community is important because perceptions, regardless of their reality, inspire conduct (Gerber & Huber, 2009; Maeda & Ziegfeld, 2015).

Human capital has emerged as a critical component of the post-

industrial economy, which largely determines a nation's standing in the post-industrial world of inventiveness. As a result, it can be used as a determinant as well as a pre-determinant of the social system and its measurement is a tough, complex, and confusing procedure. The Human Development Index (HDI) is one of the highly used measurements of human capital development throughout the world (Popova & Podolyakina, 2014). The HDI was first introduced by M. ul Haq in 1990 with the support and guidance of A. K. Sen, who established the fundamental presumptions of the extensive measurement of HDI (Anand & Sen, 1994). Comparing the levels of human development in two countries with equal GNI per capita allows one to utilize the HDI to evaluate the efficacy of national policies.

The Human Development Index (HDI) evaluates social and economic development of nations in the world (Reports, 2020). To measure these notions, three indicators have been chosen: long and healthy life, education, and standard of living. As HDI covers 3 aspects of like, it is a good indicator to represent human development. Here, healthy life can be calculated by the ratio of the average life expectancy at birth, while income or the reasonable living standard can be evaluated based on Gross National Income per capita. Finally, being knowledgeable can be measured by two indicators; literacy and average years of schooling. By calculating the above measures separately, next the geometric mean of the three indicators is calculated and, the result gives the HDI values which give values between 0 (the lowest) to 1 (the highest) (Aguna, C.G.,2010).

In this study, we mainly focus on the South Asian and Southeast Asian regions due to the high corruption and low human development that exists in these countries and their potential to reduce corruption and achieve high human development. Furthermore, these two regions are interconnected by land, where India acts as the land border between the regions. According to the Transparency International report in 2020, it can be noted that among the South Asian countries, Bhutan has the lowest corruption with a CPI value of 68, while Maldives, India, Sri Lanka, Nepal, Pakistan, Bangladesh, and Afghanistan show the CPI values of 43, 40, 38, 33, 31, 26 and 19 respectively.

On the other hand, in the Southeast Asian region, Singapore records the lowest corruption value of 85 while the highest is recorded by Cambodia with a value of 21. The remaining countries, Brunei, Malaysia, Timor, Indonesia, Vietnam, Thailand, Philippines, Laos, and Myanmar have values of 60, 51, 40, 37, 36, 36, 34, 29, and 28 respectively. So, with this data, we can conclude that most South Asian and Southeast Asian countries are highly corrupt. The majority of the people who live in the South Asian and Southeast Asian regions are suffering from poverty.

According to the World Bank data on life expectancy at birth in 2020, the average life expectancy at birth in Europe and North America was 79 to 80 and in South Asia and Southeast Asia, it was 70 to 72 years. Furthermore, in 2020 number of infant deaths in South Asia, which has a high corruption rate was recorded at over 1.1 million, while in North America was less than 24,000, and European Union less than 14,000. The huge number of infant deaths are caused by mal nutritional factors of mothers, not having necessary medical facilities and not having enough economic situation to enter a hospital in many developing and least developed countries. Hence, South Asia and Southeast Asia face no overall development when it comes to corruption, and if it is not addressed, efforts to equally distribute this progress will be put at risk. Despite the average economic growth rate of 6% during the last 20 years, South Asia is still home to more than 33% of the world's poor (The World Bank).

Both regions consist of many developing countries in the world and the majority of the people are poor. Hence, there are many similarities as well as differences that can be caught within the South Asian and Southeast Asian countries depending on their political, geographical, economic, climatic, population density as well as cultural behavioral patterns. These changes and similarities may affect the socio and economic development of each country in the two regions in a different manner. In this manner, the main goal of this study is to explore the effect of corruption on social advancement within the regions of South Asia and Southeast Asia. Furthermore, the usage of two sub-regions within a region will enable us to find similarities but also differences between them while focusing on the both regions as one since they both are parts of Asia. In particular, this study will enable us to explain special characteristics of the South Asian region in contrast to Southeast Asia, when it comes to corruption and human development.

1.2 Statement of the problem

The issue of corruption has been extensively researched in the literature in terms of its causes, ramifications, and attempts to control it not only at national levels but also at international levels. However, it has not been given attention at the local level. According to UNODC Chief, Yury Fedotov, "Corruption is the thief of economic and social development; stealing the opportunities of ordinary people to progress and to prosper". Estimates from the World Bank revealed that corruption and bribery cost developing nations between \$20 and \$40 billion annually. The ecosystem is harmed as well: Corruption drives up water infrastructure costs as high as 40%, which translates to another supplementary US\$12 billion annually needed to ensure safe drinking water and sanitary facilities for everyone. Hence, corruption and its different shapes and results have been adversely influencing the advancement of society (Corruption is the thief of economic and Social Development).

Another way of emphasizing how corruption is linked with the socio

and economic development of a society is the low-quality infrastructure and public services which are allocated by public procurement contracts through a fraudulent system. Therefore, corruption has an impact on the social advancement of the affected community. Economists and policymakers have remained mostly unsure about the true influence of corruption on human development and still, there are several questions that need to be answered clearly regarding the relationship between corruption and human development. Hence, the purpose of this study is to fulfill the gap in the literature by deeply understanding and exploring the impact of corruption on human growth and development in South Asia and Southeast Asia (United Nations Office on Drugs and Crime, n.d.).

1.3 Research question

"How does corruption influence the human development of countries within the regions of South Asia and Southeast Asia?"

1.4 Objectives of the study

With the aim of finding a proper answer to the research question, the main objective of this study is to analyze corruption and its impact on social development in South Asia and Southeast Asia. The specific objectives are as shown below;

- I. Modeling the corruption and human development in South Asia and Southeast Asia.
- II. Identifying the relationship between corruption and human advancement in South Asia and Southeast Asia.
- III. Identifying the similarities and differences between the two regions in corruption and human development.

1.5 Importance of the study

Due to the fact that corruption is detrimental to both a country's

economic performance and its social growth, research on the relationship between corruption and socioeconomic development has lately attracted a lot of interest. This study will expand the knowledge of corruption in the region and its effect on human development. By doing so, we will be able to comprehend the social, economic, and political factors that contribute to corrupt behavior, as well as strategies to eliminate these aspects. The major share of Asian nations stands out as corrupt, and extreme corruption encompasses a negative influence on the region's economy and human development in its entirety. This study which noticed corruption and its effect on human development can be used as a reference by future researchers and find the impact that corruption has on these two regions.

Chapter 2. Literature Review

2.1 Corruption

In the past, different definitions have been proposed in various publications, but the context of corruption remains the same. Corruption is described as "the abuse of public power, office, or authority for private gain through bribery, extortion, influence peddling, nepotism, fraud, speed money, or embezzlement," according to the United Nations Development Program (UNDP). Corruption has been mentioned in the Report of the Commonwealth Expert Group on Good Governance and the Elimination of Corruption as "the abuse of public office for private gain".

Victor. B. E Abia (2003) claimed corruption is "unethical behavior that goes against accepted societal norms and moral standards". According to David (2012), corruption is like a culture that is wellpracticed around the world with most of the people actively participating, and is even ingrained practically all over the community. The paper also stated corruption as a worldwide monster that has swallowed human understanding in its social setting. It deliberates unjustified profits on a few persons in violation of societal legal and moral norms. It obstructs the government's attempts to develop prosperity for all communities since the funds necessary to do so are concentrated in the hands of a small number of people (O., 2012).

Gardiner (2017), described corruption as "greedy conduct that sacrifices a person's right for the sake of another person's interests " (Heywood, 2014). According to Transparency International (2019), corruption is the "misuse of power for personal benefit". As per Parveen et al. (2017), It is the cornerstone of the biggest worries confronting nations, non-state actors, and corporate organizations globally (Parveen et al., 2017). According to Otite (2000), corruption is the "perversion of integrity or state of affairs through bribery, favor or moral depravity" (Lynch et al., 2021).

2.2 Types of corruption

According to Transparency International (2019), there are many different types of corruption, from small favors to corruption that has a significant negative influence on a nation. Scholars distinguish three categories of corruption: petty, grand, and systematic. This section will go into more detail on how each of these types of corruption manifests itself in more detail.

The most common kind of corruption, according to Dominik & Christina (2017), is when public officials accept bribes from private firms and people. Corruption can be further classified into three categories such as institutional, corporate, and political. In the civil service, institutional corruption takes 10 top-down and 10 bottomup forms. Bottom-up corruption occurs when junior employees collect payments and share them with their leaders to avoid being fired (Enste 2017).

Fraud, nepotism, insider trading, conflict of interest, misuse of power, embezzlement, and bribery are among the types of corruption identified by the Namibian anti-corruption commission in 2012. Bribery refers to offers of money or goods in exchange for changing a choice, corrupting conduct, or influencing decisionmaking. Embezzlement refers to the misappropriation of funds by a public official who has been provided with the authority and responsibility over those funds. Fraud is defined as an act or series of activities including sins such as making false statements, evading taxes, manipulating data, and other criminal acts characterized by deliberate deception.

Having a desire for an approach that is contradictory to one's official obligations for the goal of illegal profit is referred to as a

conflict of interest. Granting a contract to a business in which you have financial interests without declaring them and not withholding from the governing and directing is an example. The improper use of one's conferred authority to benefit another entity or person is referred to as misuse of power. Favoritism and nepotism refer to the practice of allocating positions, services, or resources based on personal relationships, tribal, religious, and other partisan associations as well as political party membership (Ihalua, 2012).

2.3 Causes of corruption

There are several sources of corruption, according to a general understanding. As a result of numerous circumstances such as culture, beliefs, or conditions, this varies from one country to the next. Sumah (2018) identifies a number of factors that contribute to corruption, including economics, ethical behavior, and moral norms, among others (Cohan, 1984). Giving new jobs to family members, friends, or acquaintances with little experience, using one's position of power or relationships to influence another person's judgment, and accepting illegal and unauthorized payments to be eligible for employment or to win a contract to provide services to the government (RWANDA BRIBERY INDEX, 2019).

The main causes of corruption, according to Nikolous (n.d.), are weak transparency and accountability of government institutions, and having a lesser number of effective laws, rules, regulations, and procedures (Ihalua, 2012). As shown in a variety of sources, "corruption practices in government institutions are aided by government regulatory measures" (Choice, 2017). This is consistent with the findings of the Department of International Development (2015), which found that decreasing legitimacy was both a cause and a result of corruption in public institutions.

2.4 Corruption and economic growth

Meon and Weil (2010) examined the "sand the wheels" and "grease the wheels" theories, which supported earlier research on the greasing impact of corruption. Utilizing aggregate efficiency, they discovered unequivocal proof that nations are less negatively affected by corruption, those with dormant institutional systems. Utilizing three nations with varying degrees of regulatory structure, they came to the conclusion that a rise in the one unit of standard deviation caused by the World Bank's Corruption index elevated the inefficiency score by 16 percent in Syria and 32 percent in South Africa (Syria, Nepal, and South Africa). They do caution that higher aggregate efficiency does not necessarily translate into higher production and that corruption may still cause a negative impact on economic development (Méon & Weill, 2010).

Nathaniel Leff in 2014, suggested that corruption has more advantages than disadvantages and that bribery often creates rivalry and competition among businesses that would create the most efficient ones. The least expensive enterprises would be the ones to pay the greatest bribes. Therefore, corruption would increase productivity. Additionally, he said reducing corruption would promote investment and destroy long-standing customs that are harmful to progress (Nye,J.S, 2014).

Méon and Sekkat in 2005 emphasized that graft money or bribery may serve as a deceitful tactic that permits an increase in productivity, financial investment, and ultimately economic growth. Furthermore, asserted that the most well-known inefficiency that corruption may lubricate is a dysfunctional bureaucracy. (Méon and Sekkat), 2005)

Bakhodir Kurbonov in 2021 investigated the impact of corruption on economic development between 2003 and 2018 using panel data from eight post-Soviet nations. The results of a series of panel data regressions supported prior studies on the "grease in the wheel" theory of the relationship between corruption and economic development by showing that corruption plays a significant role as a lubricant for economic progress. The overall effect of corruption on economic growth is a reduction in per capita GDP of 1.052 percent for every unit increase in the CPI (towards less corruption). This effect is reduced (by -0.808%) in countries with more effective governments and increased in those with less effective governments (Kurubonove, 2021).

Jain A.K. (2001), discovered that corruption and economic growth are negatively associated, measured using real the GDP per capita in the study. Concurring to his investigation, corruption brings down the rate of return of businesses by expanding their costs, with the impact being more negative to little businesses than huge businesses. Investment is also a path via which corruption impacts growth: their discoveries indicate that corruption decreases the size as well as the quality of investment. Furthermore, talent allocation shows an indirect impact on development, because corruption allocates talent in a growth-detrimental way. At last, the study demonstrates that corruption has an impact on tax structure (Jain, 2011).

Ghazi (2014) used both direct and indirect methodologies to examine the link between corruption and economic advancement. The effect of transmission channels such as the rate of investment in Gross Domestic Production, FDI, and openness in the indirect influence of corruption on economic growth is highlighted. Also, the level of corruption has a significant influence on growth (Mauro, 1995).

An investigation by Pacific et al. (2017) shows the impact of corruption control on economic development in Botswana. It was determined that reducing corruption enhances economic growth and that, for long-term economic success, battling corruption must remain a key government priority (Yapatake Kossele Thales Pacific et al., 2017). Akcay (2006) conducted a study on the effect of corruption on human growth and identified that the connection between these two is negative but significant. They inspected that a positive link can be found between corruption and other variables such as the effect of urbanization, financial opportunity, and democracy, as well as a negative association between human advancement and corruption (Akçay, 2006).

Abed and Davoodi (2002) found comparative results when they utilized typical multivariate regression analysis on cross-sectional information from 25 nations to investigate the influence of corruption in moving economies. The primary discoveries showed that corruption had a negative effect on development, but when they included their structural reform index for government disappointment within the relapse demonstrate, the impact got to be immaterial (Abed & Davoodi, 2000). In contrast, under particular circumstances, certain studies have examined a positive affiliation between corruption and economic development. For instance, Podobnik et al. (2008) discovered a positive relationship between corruption and economic growth with the use of panel data analysis covering the whole world from 1999 to 2004 (Podobnik et al., 2008).

2.5 Corruption and human development

According to World Bank reports, "the single greatest obstacle to social and economic development" is corruption. By denying the nation's citizens, especially economically disadvantaged, access to healthcare and education, corruption directly damages the populace. Moreover, the reports revealed that the higher infant death rates and lower literacy rates are related to increased corruption. This is because corruption skews the amount and make-up of government expenditure and diverts money towards rent-seeking enterprises from socially beneficial ones. Corrupt politicians seem to be more interested in investing money in things that offer them profitable possibilities and make it simple to extort significant sums. Therefore, it is simpler to obtain expensive bribes for goods made by companies that operate in marketplaces with little to no competition. According to Parveen, Jelili, and Hassan, corruption is at the root of the most pressing issues confronting states, nonstate actors, and corporations around the world (Parveen et al., 2017).

Farzana Alamgir1 and Sakib B. Amin (2018) examined the effect of corruption on socio-economic growth in South Asia for the period 1995-2015. Mainly, they selected Bangladesh, India, Pakistan, and Sri Lanka by considering a test, and with the use of the Vector Error Correction (VEC) model and panel co-integration technique. It has been concluded that corruption and socio-economic growth show a negative impact in the South Asian region. Also, it revealed that corruption decreases economic development by abating down the whole improvement. In addition, the thriving of corruption features a negative effect on the education system. It will inevitably hurt low-income students' future conceivable outcomes and plan inadequate youthful experts. Further, corruption defines peoples' ability to fundamental healthcare, raises the cost of therapeutic treatment, and produces clumsy healthcare suppliers, all of which lead to sick well-being and hopelessness. Finally, they have mentioned that it is high time to take strong anti-corruption measures, especially in the domains of health and education, since these two are basic to accomplishing the Millennium Development Goals of low mortality and morbidity, and high proficiency rates, which can inevitably lead to higher economic development and advancement (Alamgir & Amin, 2018).

Ignace H. Kabano and Godwin Shema (2020) conducted a study on corruption and its impact on socio-economic security in the Musanze region. This study was descriptive and as well as connected the mixed methods approach to gathering, analyzing, and deciphering information with the utilization of 51 respondents as the test estimate. It was determined that numerous forms of corruption existed at a high level in public institutions in the Musanze district, with varying causes and effects that impacted socio-economic security. The study's implications include that it provides policymakers with information on the current state, causes, and impacts of corruption. It was suggested that, in addition to existing in theory, the available legislative remedies against corruption be put into effect (Management et al., 2020).

Reinikka and Svensson (2004) in their research have found that between 1991 and 1995, on average schools, have only received 13 percent of the grants and some none, which was allocated by the public expenditure in Uganda. Furthermore, they argued that those missing funds were not allocated to other sectors by the local officials due to priorities and most schools and parents haven' t had any knowledge that they were entitled to grants in the first place. Anecdotal evidence had found that those funds have been spent on political activities and allowances of the officials (Reinikka and Svensson, 2004).

Lewis, (2006) reviewed that both government and private health care systems exhibit corruption on a regular basis. Corruption in the health sector leads to an increase in the expense of patient treatment, limits the poor people's exposure to basic medical care, spreads dangerous and contagious diseases, creates inept medical staff, a huge scale of employee absence, a lack of essential health infrastructure, the weak performance of health services and require patients to pay unlawful fees too. All of these have a negative impact on how well healthcare services are provided, promote poor health and human suffering, and increase the risk of patient deaths due to subpar care or a lack of access to crucial medical facilities. Corrupt health and education sectors will undoubtedly have a catastrophic influence on the performance of the country as a whole given the significant roles that education and health play in shaping an economy's human capital. The returns on investments in health also tend to be poorer under poor governance. Therefore, effective governance is necessary to guarantee the quality of health services, and good governance can only be achieved by eliminating corruption (Lewis, 2006).

Knox (2009) conducted a sectoral analysis of how corruption affects the health and education sectors in Bangladesh and looks at the effects of anti-corruption initiatives by Transparency International Bangladesh (TIB). According to his research, patients who require prescriptions from doctors and patients who want additional medical testing are most at risk of encountering corruption in the healthcare industry. The point of admittance to various educational institutions is where corruption is most common in the education industry. The poor are most impacted by corruption in both areas. This indicates that corruption affects the incidence of economic inequality by acting as a regressive tax. It is comparatively difficult to pay bribes for textbooks or teacher wages because the education sector has a sizably high number of providers. Because of this, fraudulent officials are motivated to siphon money from education. Therefore, corruption undermines the public's trust in higher education, lowers educational standards, produces untrained specialists, and lessens the incentives for young people to put in additional effort. (Knox, 2009).

Wei (1998) claimed that nations with high levels of corruption have less robust economic growth. He also came to the conclusion that corruption has an impact on the economic development of the corresponding society through a number of different channels, including decreased investment, excessive government spending, and a distorted composition of government spending that diverts funds from areas like health, education, and infrastructure maintenance (Wei, 1998). According to Heyneman (2004), the accreditation, licensing, and certification processes are likewise rife with corruption, and the selection processes for higher education are corrupt owing to a lack of contemporary structures and technology. When there is corruption in the educational system, young people may not obtain a quality or effective education. Additionally, inadequate management will come from professors abusing their power, accepting payments from pupils in exchange for favors, and using tuition and fees for their own gain. This often slows socioeconomic growth. (\tilde{A} , 2004).

According to Popovaa and Podolyakina (2013) correlation and regression studies are used with the application of HDI pointer to investigate socioeconomic improvement within the European Union Nations. Though there are some changes in the effect of corruption in various social models, the most recognized one is that it has a detrimental impact on development. The regression analysis tool has been used to demonstrate the detrimental nature of corruption for economic indices, displaying the development of the local economy in a post-industrial economic context. In order to indicate the correlation of corruption with economic development elements, as well as the negative tendencies of these correlations, scatter plots have been used. These findings describe that corruption is harmful to economies that are not very dependent on the social model selected within the country (Popova & Podolyakina, 2014).

Kentaro Maedal and Adam Ziegfeld (2015) examined socioeconomic conditions and corruption discernments in the world and the study argues that those who are most harmed by corruption corruption should assume that among those who are socioeconomically disadvantaged is more prevalent. They found that the destitute and uneducated see huge levels of corruption than the affluent and well-taught, based on rehashed cross-national considerations. This association, however, only exists in countries with advanced economies. The statistical association is substantially weak in poorer countries, and sometimes it goes conversely (Maeda& Ziegfeld, 2015)



2.6 Corruption in South Asia

South Asia is one of the most populated regions in Asia with a population of over 1.99 billion people (The World Bank). Countries in the region stand highly corrupt when it comes to Corruption Perception Index. The average mean CPI of the South Asia region is approximately 31 out of 100 (least corrupt) for the past 2 decades. It has become something regular for South Asians to hear about bribery and corruption in the news and social media. Corruption ranges from multi-million bribes collected by politicians and civil servants to petty bribes collected by traffic officers.

The regulatory functioning and the protection of property rights are two crucial state tasks that have been substantially undermined by bureaucratic corruption in many countries of South Asia among many state tasks. A good example is the judicial systems in the countries. Judicial systems are manipulated by those who have money and it was reported that regular bribes could delay a case for years or even suspend it (H. Khan, 2006).

According to India Times, at some point in their life, more than 62% of Indians have bribed a public official according to research done in 2005 (Katyal.S,2022). This is more than half of the population of a

country. It is unfortunate that even to enjoy some rights given by the constitution or obtain services that are offered by the government people have to pay bribes.

According to Ghosh (2009), India has the worst issue with labor trafficking in the world, with millions of bound workers, including forced child laborers, and hundreds of thousands of victims of sex trafficking. The main causes for the high trafficking in the region are due to corruption, poverty, and low education. Furthermore, demand for inexpensive labor and rapid population growth provide the cause for migration that may be legal or illegal. Poor people from Nepal and Bangladesh are trafficked to India, and in the traffic process politicians, businessmen, officials, and police are involved. Since the perpetrators are often linked with high officials, escape from being punished and persecuted (Uddin, M.B, 2014))

Over the years, the executive branch of governments in Bangladesh, India, and Pakistan have been formally charged with corruption and the executive branches in Nepal and Sri Lanka are constantly accused by opposition parties and the media (H. Khan, 2006). Recently 2022, the president of Sri Lanka had to resign his position due to the protests against the corruption of the president and his family.

Therefore, it is evident that corruption is a serious issue in South Asia, that plays an important role in the day today lives of the people and the governments, which needed to be examined to identify its impact on development of a society.

2.7 Corruption in Southeast Asia

According to World Bank data, there are over 685 million people in Southeast Asia, which accounts for approximately 8.6 of the world's population (The World Bank). Approximately the average CPI of the region is 37.4 out of 100 for the past 20 years. The Southeast region is highly corrupt but stands slightly better than South Asia when considering the CPI score.

Southeast Asia also accounts for a high corruption rate, especially when it comes to bureaucratic corruption. Najib Razark, the previous prime minister of Malaysia, was recently sentenced to prison for over a decade regarding the issue of mishandling 1MDB government fund, and corruption. As mentioned by the Daily Inquirer of the Philippines in 2003, \$204 billion had been lost due to corruption between 1965 and 2001. In Indonesia according to an expert from the Asian Development Bank, 40% of the loans granted for 72 development initiatives were lost in 3 regions due to corruption between 1998 and 2003 which almost accounts for \$400 million (Quah, J. S, 2003).

In 2001, the executives of the Philippines, Thailand, and Indonesia were confronted by the public against corruption. The Philippine president Joseph Estrada was forced to resign by the populous moment of people in January. The prime minister of Thailand Shinawatra was charged with corruption by the Thailand corruption commission. However, he was ultimately cleared by a contentious ruling. In July President Wahid in Indonesia was ousted from office by its parliament against suspicion of corruption (Bhargava, 2004).

Corruption can be viewed differently according to cultures. In Vietnam some people view informal payments or "envelope payments" as a way to show their thanks for the services they have received. During the economic crisis that followed the war, gave the pathway to envelope payments. Especially in the healthcare sector envelope payment are used to get better and timely (surgeries and organ transplants without waiting in the list) treatments (Zúñiga, 2018).

Therefore, corruption is an ingrained phenomena in Southeast Asia, which is viewed differently according to cultural backgrounds. Since it plays an important role in the lives of the people and the future of a society, analyzing its role and dominance over the human development is important.

Chapter 3. Methodology

3.1 Introduction

In this chapter, we discuss the methodology that we will use for this study to achieve the study's objectives. Further, it is dedicated that the source of data used for this study, variables of interest, empirical results, and the developed hypothesis based on the empirical results. Moreover, we illustrate the suggested model and the assumptions, and the conceptual framework of the study.

3.2 Data and empirical model

For this study, the population of interest is defined as regions of South Asia and Southeast Asia. The collected data can be arranged into a two-dimensional array. One dimension is the countries with included 19 levels and the next dimension is the years which is starting from 2002 to 2021 economics years. Countries in South Asia, India, Pakistan, Sri Lanka, Nepal, Bangladesh, Maldives, Bhutan and Afghanistan and in Southeast Asia Indonesia, Philippines, Thailand, Vietnam, Cambodia, Malaysia, Myanmar, Loas, Brunei, Timor-Leste and Singapore have been used. The required data has been collected from secondary data sources of The World Bank data, Transparency International, and the United Nations Development Program.

3.2.1 Variable description

Dependent variable

The Human Development Index (HDI) is referred to as the dependent variable since the research focuses on human development in South Asia and Southeast Asian nations. The Human Development Index (HDI) is a gauge of average success in key areas of human development, such as having a longer, healthier life, receiving an education, and having a higher quality of living. The geometric mean of normalized indices for each of these three dimensions makes up the HDI. The life expectancy at birth determines the health component, while the education dimension is computed using the typical number of years spent in school for those 25 and older as well as the anticipated number of years spent in school for youngsters. The standard of living is measured using gross national product per capita.

From the beginning of the year 2010, the United Nation Development Program (UNDP) introduced a new method of finding this HDI. The method is as follows,

Life Expectancy Index (LEI) = $\frac{LE-20}{85-20}$

LEI is equal to 1 indicates life expectancy at birth is 85 years, and when the value is 0 it shows life expectancy at birth is 20 years.

 $Education Index (EI) = \frac{MYSI + EYSI}{2}$

Mean Years of Schooling Index (MYSI) = $\frac{MYS}{15}$

Fifteen is the projected maximum of this indicator for 2025.

Expected Years of Schooling Index (EYSI) = $\frac{EYS}{18}$

Eighteen is equivalent to achieving a master's degree in most countries.

$Income \ Index \ (II) = \frac{ln(GNIpc) - ln(100)}{ln(75,000) - ln(100)}$

II is 1 when GNI per capita is \$75,000 and 0 when GNI per capita is \$100.

Finally, the HDI is the geometric mean of the previous three normalized indices:

 $HDI = \sqrt[3]{LEI \cdot EI \cdot II}$

HDI ranges between 0 and 1.0 with higher HDI indicating high

human development.

LE – Life Expectancy at birth

MYS - Mean years of schooling (i.e. years that a person aged 25 or older has spent in formal education)

EYS - Expected years of schooling (i.e. total expected years of schooling for children under 18 years of age)

GNIpc - Gross National Income at purchasing power parity per capita

Independent variable

CPI (Corruption Perception Index) is most commonly used as an index that measures the corruption of countries. Depending on the perceived level of the public sector, CPI can be used as a method of ranking countries according to their corresponding values based on assessments by experts and various surveys. Since 1995, CPI has been published by "Transparency International". The CPI index lies between 0 and 100, where a higher CPI value denotes least corrupt and a lower CPI can be described as highly corrupt. Therefore, in this study, we chose CPI as the main explanatory variable.

Control variables

Population Growth Rate (PGR)

The rise in the number of people in a population, for a given country or specific area, during a certain time frame is referred to as population growth. Normally, population growth is measured in the mid of every year. It can be calculated by dividing the annual increment in the population size by the total population for that corresponding year, and multiplying the whole by 100. Annual population growth is calculated using the difference between births and deaths, as well as the distinction between immigrants and emigrants, in a given nation or region at a given year (The World Bank).

Trade Balance (TBL)

The trade balance, which is the difference between an economy's exports and imports during a certain time period, is what makes up a country's balance of payments. This is used to gauge how robust the associated country's economy is. When a nation buys more goods and services than it exports in terms of value, the trade balance is negative. On the other side, a nation with a positive trade balance exports more products and services than it imports. The budget and spending of a country's government are significantly impacted by its trade balance. The World Bank data reports provided the TBL information for this study, which is presented in U.S. dollars.

Inflation or Deflation rate (INF)

Inflation is a term that is used to describe the total effect of price fluctuations on a variety of products and services. It is described as the rate at which a currency's value declines, raising the overall level of prices for goods and services. In contrast, deflation happens when such prices drop. The most widely employed are The Consumer Price Index and the Whole Sale Price Index. Depending on the viewpoint and rate of change, one may see inflation favorably or negatively (The World Bank).

Foreign Direct Investment (FDI)

The World Bank defines as the entire amount of incoming overseas direct investments made by foreign firms, including non-resident investors, is known as foreign direct investment net inflow. Consequently, it is a financial contribution to the reporting country's economy. This sum consists of all equity capital, reinvested profits, and other capital. Direct investment is when a citizen of one economy exercises significant control over the direction of a company that is situated in another. An essential factor in a country's overall growth is foreign direct investment. Definition and the data on FDI is obtained from the Work Bank data reports (The World Bank).

3.2.2 Conceptual framework

The proposed association between the dependent variable and the independent variables is as follows.



The collected data can be expressed in a two-dimensional array. Therefore, the ordinary regression is no longer valid. There can be a variation over the time index and the countries. Therefore, the proposed modeling procedure is based on panel (longitudinal) data.

The panel data is a kind of combination of the cross-sectional and the time series data. It allows for a better level of statistical validity in policy research and program evaluation than cross-sectional data-based statistical techniques. A panel dataset is made up of a number of time-series measurements of a set of variables on observed units like people, houses, businesses, regions, and states. A time-series data set contains observations on a single variable or numerous variables over multiple periods, as opposed to a crosssectional data collection, which only includes observations on a small number of variables at one moment in time. In a panel dataset, there may be as few as two instances of the same variables being measured again on the same population or sample.

3.2.4 Empirical model

The empirical model that is going to be used for this study is based on the previous literature that was done by Bakhodire Kurubonove in 2021 (Kurubonove, 2021). But for this study, we will use the HDI as our dependent variable. Therefore, the empirical panel data model can be represented as follows

 $HDI_{i,t} = \beta_0 + \beta_1 CPI_{i,t} + \beta_2 Reg_{i,t} + \beta_3 PGR_{i,t} + \beta_4 TBL_{i,t} + \beta_5 INF_{i,t} + \beta_6 FDI_{i,t} + \gamma_{i,t}$

Where *i* represents the ith country $(1 \le i \le 19)$ and the t represents the period which is starting from the year 2002 to 2021 $(1 \le t \le 20)$. *HDI*_{*i*,*t*} represents the Human Development Index for the *i*th country at the *t*th time point. The CPI is the corruption index that is going to be treated as the independent variable. *Reg* will be used as the dummy variable, which will indicate the two regions ("1" South Asia and "2" Southeast Asia). While PGR, TBL, INF and FDI will be used as the control variables in the model. Where the error term, $\gamma_{i,t}$, in the above model equation can be decomposed into two components: a cross-sectional unit-specific error, α_i , and an idiosyncratic error, u_{it} .

$$\gamma_{i,t} = \alpha_i + u_{i,t}$$

Cross-sectional unit-specific error (Country fixed effects - α_i)

capture the unobserved but time-invariant country characteristics and $u_{i,t}$ is the random disturbance component which is assumed to be white noise.

Where,

 β_0 is the intercept parameter

 β_k is the coefficient parameters of each explanatory and control variable (for k = 1,2,3,4,5,6)

Further, the assumptions for the above model can be redefined based on the Fixed effect (FE) or Random effect (RE) model. Some common assumptions are listed as follows

- the linear model is appropriate for these data
- Covariates are Exogenous: $E(u_{it}|x_{1t}, x_{2t}, ..., x_{kt}, \alpha_i) = 0$
- Uncorrelated errors: $cor(u_{it}, u_{ij}|x_{1t}, x_{2t}, ..., x_{kt}, \alpha_i) = 0$
- Homoscedastic errors: $Var(u_{it}|x_{1t},...,x_{kt}) = \sigma^2$

Where σ^2 is a constant variance.

The estimation of the model parameters can be illustrated as follows.

1. Pooled (Constant Effect) Model

Pooling the data and using OLS to estimate the panel data model equation is one of the most fundamental and straightforward approaches. The composite error term must be assumed not to be associated with the explanatory variable in order to estimate the equation using pooled OLS. In other words, if there are no cross-sectional or temporal effects, we can merely pool the data and run OLS regression models. In a pooled OLS form, the equation may be written as follows (Miller, p. 583).

 $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + \gamma$

2. Fixed Effects Model (FEM)

The fixed-effects model, also known as unobserved heterogeneity or fixed effects, ai, is used to account for missing variables that are constant over time and vary among units. It is expected that the unobserved heterogeneity (a_i) is associated with the explanatory variable when the Equation is estimated using the fixed effects model (x_{itk}) . Another crucial premise is that the explanatory variable has no bearing on the idiosyncratic error (u_{it}) (Miller, p. 584).

3. Random Effects Model (REM)

When analyzing panel data, we employ the fixed effects model to decrease unobserved heterogeneity (a_i) as it is thought to be related to any of the explanatory factors (x_{itj}) . On the other hand, when ai is independent of each explanatory variable, the fixed effects method to eliminating ai results in inefficient estimators. Unobserved heterogeneity (a_i) is viewed by the random–effects model, sometimes referred to as the variance components model, as random variables as opposed to fixed ones. Therefore, when the cross–sectional units are randomly chosen from a large population, the random–effects model is applicable. (Miller, p. 588).

Hausman test can be used to determine whether to use fixed or random effects. The null hypothesis is that the preferred model is random effects, while the alternative is fixed effects. The null hypothesis is that the unique mistakes (u_i) are not linked with the regressors. To execute the test, first, run a fixed-effects model and save the estimates, then run a random model and save the estimates. Use fixed effects if the p-value is significant (for example, 0.05), else use random effects. This is the relevant method for choosing the best model between the above three mentioned models.

Hypotheses Development

 $H_{1a:}\ensuremath{\text{There}}$ is a significant relationship between CPI and the HDI

3.2.5 Operationalization

Firstly, the collected data need to be cleaned and there is a chance to deal with the imbalanced data set. Further, the data analysis that contained the descriptive statistics with the proposed panel data regression will be run with the help of Stata software. Finally, the model adequacy checking and the validation will be done to accomplish the research objectives.

Chapter 4. Data Analysis and Interpretation

4.1 Descriptive statistics

In this section, I outlined broad statistics and trends for significant factors in both regions of South Asia and Southeast Asia. Here, I displayed a series of charts and tables demonstrating changes in dependent and independent variables over time between 2002 and 2021.

Figure 1 illustrates the mean of HDI over the years in the two regions and can see a gradual increase in the HDI with some fluctuations over the years. At the same time, a considerable drop can be seen in Southeast Asia from 2002 to 2006 while maintaining a higher HDI than South Asia all over the period. The highest score achieved in the graph is 0.75 by Southeast Asia and the lowest 0.54 by South Asia.



Figure 1: HDI over the years

Source: United Nations Development Program

Figure 2 portrays the changes in CPI over the years, where both South Asia and Southeast Asia show a gradual increase with fluctuations. As seen in the HDI graph, a drop in the CPI can be seen from 2002 to 2007 in Southeast Asia while it maintained the highest among the two regions all over the period. From 2008, both regions show a similar pattern in the gradual rise with overall fluctuations. In the beginning, the mean CPI difference between the regions was 20, which had drastically reduced by 2020 by achieving a difference of 3.3651.

Figure 2: CPI over the years



Source: Transparency International

Figure 3 shows the HDI of the countries in South Asia, and Sri Lanka scored first place in the region while Afghanistan the lowest. All the countries in the region show a gradual increase in HDI with modest fluctuations over the period.

Figure 3: HDI in South Asia



Source: United Nations Development Program

Figure 4 indicates the CPI score of the countries in South Asia, where Bhutan scored first place and the lowest Afghanistan indicating, Bhutan has the lowest corruption rate while Afghanistan has the highest, as the greater the value of CPI, the lower the corruption rate. Overall countries in the region show a slight increase over the years but do not show significant changes over the years. In terms of corruption, Bhutan is at another sphere compared to other countries in South Asia.

Figure 4: CPI in South Asia



Source: Transparency International

Figure 5 displays the HDI score of the countries in Southeast Asia, where Singapore accounts for the highest while Myanmar is the lowest in the region. Same as in South Asia, countries in Southeast Asia show a gradual increase in the HDI with modest fluctuations, Timor-Leste being exceptional.

Figure 5: HDI in Southeast Asia



Figure 6 presents the CPI score of the countries in Southeast Asia, where Singapore accounts for the highest, same as in HDI while Myanmar is the lowest. Myanmar has dropped from its lowest in the region since 2013 surpassing Cambodia. Overall, the CPI score does not change much but fluctuates over the years.

Figure 6: CPI in Southeast Asia



Source: Transparency International

Table 1 illustrates the statistical values of the two regions as a whole from 2002 to 2021. The minimum and the maximum of the HDI score had been recorded at 0.43 and 0.94 and while the mean value was 0.64756 and the standard deviation was 0.11583. During the same period, the mean CPI value had been recorded as 34.88, where the minimum and maximum had been at 8 and 94 while the standard deviation was 17.92. Surprisingly, the difference between the minimum and maximum values is huge in CPI as a whole.

Mean	StDev	Minimum	Maximum
0.64756	0.11583	0.43	0.94
34.88	17.92	8	94
5.437	5.062	-1.47	36.59
1.4224	0.7724	-1.4745	5.3215
355,753,921	27,639,079,215	-136,063,000,000	109,475,000,000
7,734,329,109	14,952,885,877	-4,845,358,538	99,210,311,929
	Mean 0.64756 34.88 5.437 1.4224 355,753,921 7,734,329,109	Mean StDev 0.64756 0.11583 34.88 17.92 5.437 5.062 1.4224 0.7724 355,753,921 27,639,079,215 7,734,329,109 14,952,885,877	MeanStDevMinimum0.647560.115830.4334.8817.9285.4375.062-1.471.42240.7724-1.4745355.753,92127,639,079,215-136,063,000,0007,734,329,10914,952,885,877-4,845,358,538

Table 1: Statistical values of the sample

Source: Author's estimate

Table 2 displays the statistical values of the two regions South Asia and Southeast Asia separately from 2002 to 2021. The maximum and minimum HDI values in the South Asian region were 0.78 and 0.43 respectively. The mean value was 0.59402 and the standard deviation was 0.09286. On the other hand, the maximum and the minimum HDI values of Southeast Asia had been recorded at 0.94 and 0.44 while the mean was at 0.68374 and the standard deviation was 0.116.

During the same period, the maximum and the minimum CPI values of South Asia were 68 and 8 respectively, while the mean was 31.16 and the standard deviation was 12.76. In the Southeast Asian region, the maximum and the minimum CPI were 94 and 13, while the mean was 37.4 and the standard deviation was 20.34.

The statistical values of the control variables are also illustrated below. In the control variables, it is noteworthy to see that the mean trade balance of South Asia is negative, while Southeast Asia is positive. Furthermore, the gap in trade balance is huge in South Asia, which has a direct impact on the net expenditure of a country, which could have direct impact on the social services. Negative trade balance indicates that, countries in South Asia consumes more imported goods and services than they export.

Variables	Regions	Mean	StDev	Minimum	Maximum
HDI	South Asia	0.59402	0.09286	0.43	0.78
	Southeast Asia	0.68374	0.116	0.44	0.94
CPI	South Asia	31.16	12.76	8	68
	Southeast Asia	37.4	20.34	13	94
INF	South Asia	6.816	4.079	-1.37	26.419
	Southeast Asia	4.504	5.446	-1.47	36.59
PGR	South Asia	1.571	0.8895	-0.2685	4.4269
	Southeast Asia	1.322	0.666	-1.4745	5.3215
TB	South Asia	-15,213,200,000	24,666,369,834	-136,063,000,000	314,232,524
	Southeast Asia	10,875,344,883	24,432,021,026	-39,364,400,000	109,475,000,000
FDI	South Asia	5,366,574,807	12,554,103,603	-16,553,760	64,362,364,994
	Southeast Asia	9,334,163,097	16,213,851,023	-4,845,358,538	99,210,311,929

Table 2: Statistical values regionally

Source: Author's estimate

4.2 Correlation matrix

Table 3 displays the correlation between all the variables used in the study. The correlation matrix shows that there is a strong correlation between the independent variable CPI and the dependent variable HDI. The correlation between the HDI and CPI is r = 0.778 under p<0.001 is strongly correlated and supports the empirical literature that low corruption increases human development, as the higher the CPI score the lower the corruption rate.

Region-wise REG, a weak negative correlation can be seen with HDI and a weak positive correlation with INF under p<0.001 moving from region 2 (Southeast Asia) to region 1 (South Asia). At the same time, TB balance shows a moderate negative relationship under p<0.001. Moreover, CPI and PGR show very weak relationships in the matrix under p<0.01. These results indicate that

Southeast Asia has higher human development, trade balance, foreign direct investment and low corruption level, inflation rate and population growth compared to South Asia.

In the control variables, mixed results can be seen. INF and have a negative moderate correlation with HDI and a weak negative relationship with CPI under P<0.001. This illustrates that higher inflation decreases human development in the study and increases corruption (low CPI, high corruption rate). On the other hand, TB and FDI have a moderate positive relationship with HDI, and CPI, and a weak negative relationship with INF meaning that greater trade balance and foreign direct investment increase human development, and reduce the corruption rate and inflation rate. At the same time, FDI has a weak positive relationship with TB in the study. Conducting a variable inflation factors test, it was identified the multicollinearity issue of TB in the regional studies. Therefore, TB will be dropped from the study from this step onward.

		ţ			Ę		
	HDI	CPI	INF	PGR	1'B	FDI	KEG
IDH	1						
CPI	0.778***	1					
INF	-0.436***	-0.346***	1				
PGR	-0.136^{*}	-0.039	-0.0557	1			
TB	0.544***	0.485***	-0.263***	-0.0379	1		
FDI	0.473***	0.567***	-0.157^{**}	-0.0919	0.265***	1	
REG	-0.381***	-0.171^{**}	0.224***	0.158^{**}	-0.464^{***}	-0.130^{*}	1
* <i>p</i> < 0.05, ** <i>p</i>	o < 0.01, *** p < 0.001						



4.3 T-tests

As a primary objective of the study, a comparison of the two regions (South Asia and East Asia) was done in terms of their observed characteristics using T-tests. There have been several hypotheses built under this and two independent sample t-tests have been applied to see the significant differences between the two Asian regions. The results are shown in the below table.

Null Hypothesis	$\overline{x}_{S,A}$	$\overline{x}_{SE.A}$	T-value	P-value
H_{01} : $\mu_{HDI}^{S.A} = \mu_{HDI}^{SE.A}$	0.594	0.684	-7.54	0.000
H_{02} : $\mu CPI = \mu CPI CPI$	31.2	37.4	-3.32	0.001
H_{03} : $\mu \frac{S.A}{INF} = \mu \frac{SE.A}{INF}$	6.82	4.50	4.27	0.000
H_{04} : $\mu \frac{S.A}{PGR} = \mu \frac{SE.A}{PGR}$	1.571	1.322	2.67	0.008
$\mathrm{H_{05}:}\;\mu_{\mathrm{FDI}}^{\mathrm{S.A}}=\;\mu_{\mathrm{FDI}}^{\mathrm{SE.A}}$	5,366,574,807	9,334,163,097	-2.42	0.016

Table 4: T-tests by regions

Source: Author's estimate

By considering the above T-tests, the average HDI and CPI for Southeast Asian countries over the past 20 years are higher than the average HDI and CPI for South Asian countries during the same period since the P values are less than the significant value of 0.05% and reject the null hypothesis of the equivalence over the two regions at a 5% significance level.

In terms of control variables, the mean FDI in Southeast Asia is higher than in South Asia in the study period and rejects the null hypothesis at a 5% significance level. On the other hand, INF and PGR are higher in South Asia than in Southeast Asia and reject the null hypothesis at a 5% level. Therefore, region-wise, Southeast Asia accounts for higher human development and foreign direct investment and a low corruption rate compared to South Asia. On the other hand, South Asia accounts for higher inflation and population growth rates compared to Southeast Asia, while having low human development, foreign direct investment, and high corruption rate.

4.4 Hypothesis and regression analysis

4.4.1 Panel data regression for whole

As per the research methodology, to find the impact on the HDI due to the CPI over the past 20 years for both South Asia and East Asia as one region we applied regression analysis. Initially, we applied both the fixed and random effect models with the help of STATA statistics software and used Hausman test to choose the best suitable model depending on the p-value. The null hypothesis was that the random effects model is preferred to the fixed effects model and the alternative hypothesis was that the fixed effects model is preferred to the random effects model. Therefore, table 5 depicts the regression analysis done using all 19 countries as one region connecting South Asia and Southeast Asia using 310 observations with the most suitable model.

Variable	Estimate	Standard Error
CPI	0.00385***	(0.000325)
INF	-0.00130***	(0.000342)
PGR	-0.00217	(0.00316)
FDI	0.00153 ***	(0.000185)
REG	-0.0557	(0.031)
_Cons	0.590***	(0.0488)

Table 5: Panel data regression

R2 within	0.4953
Between	0.6663
Overall	0.6658

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Author's Estimate

 $HDI_{it} = 0.590^{***} + (0.00385^{***} * CPI_{it}) - (0.00130^{***} * INF_{it}) + (0.00153^{***} * FDI_{it}) - (0.557 * REG_t)$

The overall R square of the model is 0.6658, which explained 66.58% of the total variance of HDI over the past 20 years of these countries. On average, the HDI is 0.590 for all the countries and for all the years that have been considered under the study when all other independent and control variables are set to zero. On the other hand, when we increase one unit of CPI while keeping all others constant for any country, there are on average 0.00385 units of increment of HDI was there. HDI and CPI have a positive relationship. The greater the CPI, the greater the HDI. However, we need to remember that a higher CPI indicates the lower the corruption in the countries. It proves our hypothesis of the positive relationship between the CPI and HDI as a whole using both regions' data as one.

H1_a: There is a significant relationship between CPI and HDI

Thereby corruption is on a negative impact on the human development of a country in these two rejoins. Therefore, these findings from Asia, supports the theory "sand in the wheel" over "grease in the wheel", since corruption hampers human development in the sample used.

The coefficient of the inflation rate (INF) is -0.00130 indicating the negative relationship between INF and the HDI. The increasing behavior of the general level of price changes in a given country hurts human development. Food security plays an important role when it comes to human growth. Both South Asia and Southeast Asia have high inflation rates and many countries are struggling with debt and depleting foreign reserves especially due to corruption, mismanagement of resources and pandemics.

FDI has a positive relationship with HDI under P<0.001. Most of the studies done with foreign direct investment are done focusing on the economic development. However, it was found that there is a positive effect on human development also especially in countries with weak institutions. As found in many empirical studies about the relationship between foreign direct investment and the growth of a nation, the results found here also support that foreign direct investment helps the human development of nations in these two regions as a whole and it is consistent with the findings by Cervantes in 2022.

The dummy variable, REG that is used to represent the two rejoins was not statistically significant at the 5% level, but it is significant at the 10% significance level. It indicates the decrease in the average HDI by 0.0557 when it comes to South Asia from Southeast Asia while keeping the rest of the variables constant. This proves that Southeast Asia has a higher average mean HDI than South Asia as tested in the T-tests also.

4.4.2 Panel data regression regionally

As a secondary objective of the research, we will compare the two regions used in the study. Therefore, to find the impact on the HDI due to the CPI over the past 20 years for both South Asia and Southeast Asia, similar methods had been used to find the best suitable method. The regression results of each region are shown below according to the fitting model.

South Asia

Variable	Estimate	Standard Error
CPI	0.00563***	(0.000621)
INF	-0.001	(0.000599)
PGR	0.00337	(0.00583)
FDI	0.00128***	(0.000374)
_Cons	0.412***	(0.0472)
R2 within	0.5892	
Between	0.2054	
Overall	0.2385	

Table 6: Panel data regression in South Asia

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Author's Estimate

$HDI_{it} = 0.412^{***} + (0.00563^{***} * CPI_{it}) + (0.00128^{***} * FDI_{it})$

The overall R square of the model is 0.2385, which explained the 23.85 % of the total variance of HDI over the past 20 years of the South Asian region. On average, the HDI is 0.412 for all the countries in the region and for all the years that have been considered under the study when all other independent and control variables are set to zero. On the other hand, an increase of one unit of CPI while keeping all others constant, there is on average 0.00563 units of rise of HDI was there. HDI and CPI have a positive relationship, proving that less corruption, increases human development, since the higher the CPI value the lower the corruption. It proves our hypothesis of the positive relationship between the CPI and HDI. Thereby corruption is on a negative impact on the human development of a country in the region

providing evidence for the theory "sand in the wheel" from South Asia as in the whole model.

The coefficient of the foreign direct investment (FDI) is 0.00128 under P \leq 0.001, indicating the positive relationship between FDI and HDI. On that account, an increase in foreign direct investment in South Asia helps the growth of human development, which also provides evidence tested by many researchers about the positive relationship that lasts between foreign direct investment and the growth of a country. In the South Asian region, the inflation rate and the population growth rate do not show significance with human development, regardless of mean INF and PGR are higher than in Southeast Asia.

Southeast Asia

Variable	Estimate	Standard Error
CPI	0.00339***	(0.000364)
INF	-0.00138**	(0.000423)
PGR	-0.00298	(0.00385)
FDI	0.00149***	(0.000215)
_Cons	0.554***	(0.0194)
R2 within	0.4544	
Between	0.8118	
Overall	0.7831	

Table 7: Panel data regression in Southeast Asia

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Author's Estimate

 $HDI_{it} = 0.554^{***} + (0.00339^{***} * CPI_{it}) - (0.00138^{**} * INF_{it}) + (0.00149^{***} * FDI_{it})$

The overall R square of the model is 0.7831, which explained 78.31% of the total variance of HDI over the past 20 years in Southeast Asia. When all other independent and control variables are set to zero, the HDI average for the Southeast region and years are taken into consideration by the study is 0.554. On the other hand, the average rise in HDI was 0.00339 units when CPI was raised by one unit while holding all other variables constant, which proves that low corruption (high CPI value) helps human development, providing evidence to the theory of "sand in the wheel", when it comes to corruption and human development from Southeast Asia. Thereby we can confirm our hypothesis, that there is a significant relationship between CPI and HDI in the Southeast Asian region also.

In terms of control variables in Southeast Asia, inflation (INF) shows a negative relationship with values of -0.00138 of HDI under p < 0.01, indicating that rise in the inflation rate decrease human development in the countries in the region. In contrast, foreign direct investment (FDI) is positively associated with HDI (0.00149) under p < 0.001, depicting that foreign direct investment significantly helps the growth of human development, as researched by many researchers regarding the relationship between foreign direct investment and overall growth.

Chapter 5. Conclusion

5.1 Discussion

Corruption is something that has persisted since the beginning of civilization in many forms. It is not certain that humans will be ever able to remove corruption 100 percent from the world until human greed exists. Many scholars see corruption as a hindrance to growth, while some argue that there are more advantages than disadvantages to having corruption. Therefore, we can see corruption as sand in the wheel and grease in the wheel when it comes to growth. Sand act as a shackle while grease helps to move fast.

Scholars who see corruption as grease has highlighted in their research that corruption helps growth in nations and places where there are weak and ineffective organizations and administrative bodies. Businesses and people can benefit through corruption from long bureaucratic processes and licensing. Furthermore, corruption creates competition in the market so that the most cost-effective competitor can play the main role.

On the other hand, scholars who see corruption as sand emphasized the dangers it causes to economic and social growth. Corruption causes resource misallocation, reduction in the inflow of FDI and trade, damages moral concepts, and weakens safety nets, especially for the economically disadvantaged groups in a society.

This study was conducted using 19 countries (South Asia and Southeast Asia) for 20 years (2002-2021). As a whole using all 19 countries as one region, a unit increase in the CPI has increased the HDI value by 0.00385, depicting that less corruption improves human development (CPI index, the higher the CPI, the lower the corruption). Therefore, corruption has a negative impact on human development. The results are consistent with the findings of the studies done by Alamgir Farzana and Aimin B. Sakib in 2018 using South Asia and the studies done by Becherair Amrane, and Mourad Tahtane in 2017 using Mena countries. On that account, in terms of corruption and human development as a whole in the regions of South Asia and Southeast Asia, corruption acts as a sanding instrument. The effect of corruption on growth acts differently according to regional and country levels as found by researchers. For example, Kurbonov (2021) found in CIS countries, that corruption acts as a greasing instrument to help economic growth.

In the regional studies conducted, a similar connection was visible as same as in the whole model. In South Asia, an increase of one unit of CPI while keeping all others constant, there is an average of 0.00563 units of increment of HDI was there. Similarly, in Southeast Asia, a positive relationship between CPI and HDI was seen, where a unit increase in the CPI has increased the HDI value by 0.00339 keeping others constant. Hence proves that in South Asia and Southeast Asia, corruption has a negative relationship with human development and acts as "sand in the wheel" when it comes to the development of human growth, and these results are consistent with the previous empirical studies done by Alamgir Farzana and Aimin B. Sakib in 2018 using Bangladesh, India, Pakistan, and Sri Lanka from 1995 to 2005.

As found in the t-tests, Southeast Asia owns a higher mean HDI and a low corruption rate than South Asia. The impact of corruption on human development between the two regions is different according to the regional regression analysis. A unit rise in the CPI accounts for a rise in HDI with a value of 0.00563 in South Asia and 0.00339 in Southeast Asia respectively. These results outline that the impact of corruption on human development in South Asia is higher than in Southeast Asia and illustrates that the impact is not the same in all regions. Accordingly, South Asia has a higher opportunity to improve human development at a faster phase by reducing corruption level than Southeast Asia, with other variables being constant. Furthermore, it is surprising to see that the gap between HDI and CPI between the regions is high despite both regions sharing centuries-old cultural and religious backgrounds while being neighbors. Assuming Singapore dominates the data, being a developed country in the Southeast Asian region, separate analysis was conducted for the Southeast Asia without Singapore also. However, it did not make drastic changes region wise.

It is important to note that the original HDI scale has been used in this study which is 0.0 to 1.0. Hence the impact mentioned above is momentous, in spite of being small. As overall the negative relationship found in this study about corruption and human development in South Asia and Southeast Asia contributes to the existing literature on the theory of "sand in the wheel" over "grease in the wheel".

As discussed in the literature part, some scholars state that corruption is beneficial in places where there are less effective governments. However, in Asia, as found in the regional studies, and the example cases, corruption acts negatively on the growth of social development. Therefore, we can believe that corruption could be beneficial at extreme countries where the governments' effectiveness is too low. It is possible for corruption to act as a mechanism to run the process. However, personally I think in the long run using corruption as a mechanism would only worsen the government framework further and would not improve the livelihoods of the people but would also lead to high inequalities in the society.

When we consider the people who engage with businesses in the presence of corruption have often mentioned an advance bribe is needed before launching a business, and corrupt authorities may eventually siphon off a share of the investment's revenues as well. Therefore, business people see corruption as a type of tax that lowers their desire to invest, and experimental findings also have shown that corruption sharply lowers investment and sluggishly accelerates economic progress. Additionally, when rent-seeking proves to be more beneficial and profit making than hard work, abilities will be hijacked. These kinds of monetary benefits could encourage those who are experts in the field to pursue rentseeking rather than hard work, which will damage the growth of a nation. For poor countries, in particular, the risk that corruption might reduce the effectiveness of help by diverting money that is crucial. Aid has the potential to be utilized to finance wasteful and inefficient government spending since it is convertible. Additionally, as a result, a lot of donor countries have focused on issues related to good governance, and some donors have scaled down their contributions in cases where governance is thought to be especially frail.

Ferraz 2012, presented evidence from Brazil, where municipalities with high corruption rates had lower test results in the national standardized exam and the dropout rates were higher than other municipalities. Furthermore, there had been weaker infrastructure and trained teachers in those municipalities with higher corruption (Ferraz, 2012). Opportunities of those who are economically challenged often lose the chance to grow and develop due to bribery and often replace the most suitable person against the person who can afford the highest bribe.

Health systems are especially vulnerable to budget leakages and widespread corruption in nations with weak institutions, which has significant reverberations on public opinion. A highly corruptible health sector is also indicated by undocumented payments, "ghost" worker wages, the use of regular work time for private practice outside hospitals, and the privatization of public goods and services (Cockcroft et al. 2008). Additionally, government health spending is ineffective at eradicating diseases and promoting the public health of poor people. In some nations children pass away from small illnesses that could have been cured with a small amount of money or completely avoided with basic hygiene measures (Deaton, 2013). In many countries in Asia, governments provide free education until the end of the undergraduate level with the support of government schools and universities. Public hospitals with staff made up of doctors who were expensively trained at taxpayer money mostly consume the public budget for health and use the skills to cater to the elite in society. Therefore, a good government framework is required to enhance human development and to tackle corruption growth in a country in order to achieve an overall development.

5.2 Recommendations

According to the findings of the study, the Human development index and the corruption perception index have a positive correlation as a whole and region-wise. Therefore, we can conclude that corruption has a negative impact on human development according to the results found in the study in these two regions. The literature also indicates, that corruption not only slows down economic and human progress but also takes resources away from the general population in a variety of different ways. This poses a substantial barrier to the development of a nation. It is expected that this chapter would provide some recommendations for the countries on how to address the problem of corruption and go forward with human development. At the same time, it is important to emphasize the importance of corruption when it comes to less effective governments and administrations looking back at the previous literature.

South Asia and Southeast Asia account for 33.5% (2.6 billion people) of the total population in the world. In Asia as a whole more than 230 million people live in extreme poverty and enjoy a low living standard compared to developed countries (UNU, 2020). As identified the significance between corruption and human development by this study, it is recommended for nations to give attention to control corruption to help the growth of human and

overall development of the countries.

Therefore, sectoral change, transparent communication channels, and improvements in the institutions and policies could be helpful to improve the healthcare, education, and other public services in a country which would lead to higher human development and a reduction in corruption.

According to literature conducted on corruption, in spite of the many efforts that have been made, there has not been much of an improvement in the control of corruption in many developing and least developed nations. The fact is that the existing anticorruption efforts and resources are spent by the government, and its capacity building and legislation do not bring the expected results. Participation of the general public is weak and they are not given sufficient resources and education, in order for them to take part in the battle. Therefore, awareness about corruption and its impact on society and overall development needed to be promoted. Additionally, adding lessons about corruption and its consequences to moral education could benefit the society from young age.

5.3 Limitations of the study

First of all, secondary data are used in this study that is retried from the World Bank data bank, Transparency International, and United Nations Development Program and there could be discrepancies with data that are collected by national institutions. Moreover, in 2012 CPI scale was rescaled, which could make inconsistencies with the data and analysis.

Secondly, due to the novelty of the study, using different instruments for analysis could find minor differences in the results and recommended to use of a bigger population with clusters that could help find changes within regions and among regions to make better observations. As this study was conducted at regional level, there could be differences at country level. Therefore, deep analysis at the regional including individual country levels is recommended to find the behavior of corruption and human development depending on country profiles.

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