International Journal of Policy Sciences and Law

Volume 1, Issue 4

Corruption and Economic Growth: A Correlation Study for India

Nirikta Mukherjee[1] and Rajsi Sah[2]

[1] *B.A. Hons. Economics, Shri Ram College of Commerce, University of Delhi, India*
[2] *B.A. Hons. Economics, Shri Ram College of Commerce, University of Delhi, India*

Abstract

Economic growth is an essential phenomenon for a nation as the economic growth level determines the standard of living of the people of that country and is considered a fair proxy for the human development indicators. One of the ideologies known to affect the degree of economic growth in a nation is corruption. The paper analyses the link between corruption and economic growth and reviews academic literature focusing on different effects of corruption on economic performance. Following this, we have taken India's example as a case study. To support the arguments regarding the negative impact of corruption on economic growth, we have conducted empirical research by implementing a correlation study. We have employed the statistics of the Corruption Perception Index (CPI), Gross Domestic Product (GDP), GDP Growth Rate and Foreign Direct Investments (FDI) for the investigation. Hence, the paper is an attempt to examine the empirical relation between corruption and economic growth.

Keywords: *Corruption, Corruption Perception Index, Economic growth, India*

1.0 Introduction

For decades, corruption has been popularly known to damage the integrity of democracy. It acts as a hindrance to economic development in developing countries and dismantles the social fabric. The World Bank defines corruption as "the abuse of public office for private gains", and on a similar note, Transparency International states, "corruption is the abuse of entrusted power for private gain." According to Zakiuddin and Haque (2002), corruption cannot be regarded as a separate and independent entity that can be destroyed in isolation. They argue that "corruption is a complex set of processes involving human behaviour and many other variables, some of which are difficult to recognise or measure."

Due to focus on International business by international initiatives like Organisation for Economic Co-operation and Development (OECD) Anti-Bribery Convention, United Nations Convention for Anti-Corruption (UNCAC), Inter-American Convention Against Corruption (IACAC), Organisation of American States (OAS) and Council of Europe (CE), 'corruption' may be treated simply as 'bribery'. However, bribery is merely an example of corruption, which is a broader terminology than bribery (Otusanya, O. 2011). It is important to note that corruption goes beyond being merely recognised as a financial exchange or an under-the-table transaction. It adversely affects the culture, politics, and economy, including the state's public, private and individual lives (Akindele, 2005; Kunicova', 2006; Sikka, 2008).

Corruption can be of various forms other than bribery. Figure 1 summarises the variants of corruption prevalent in society. This shows that corruption lies in the intersection of public and private sectors.

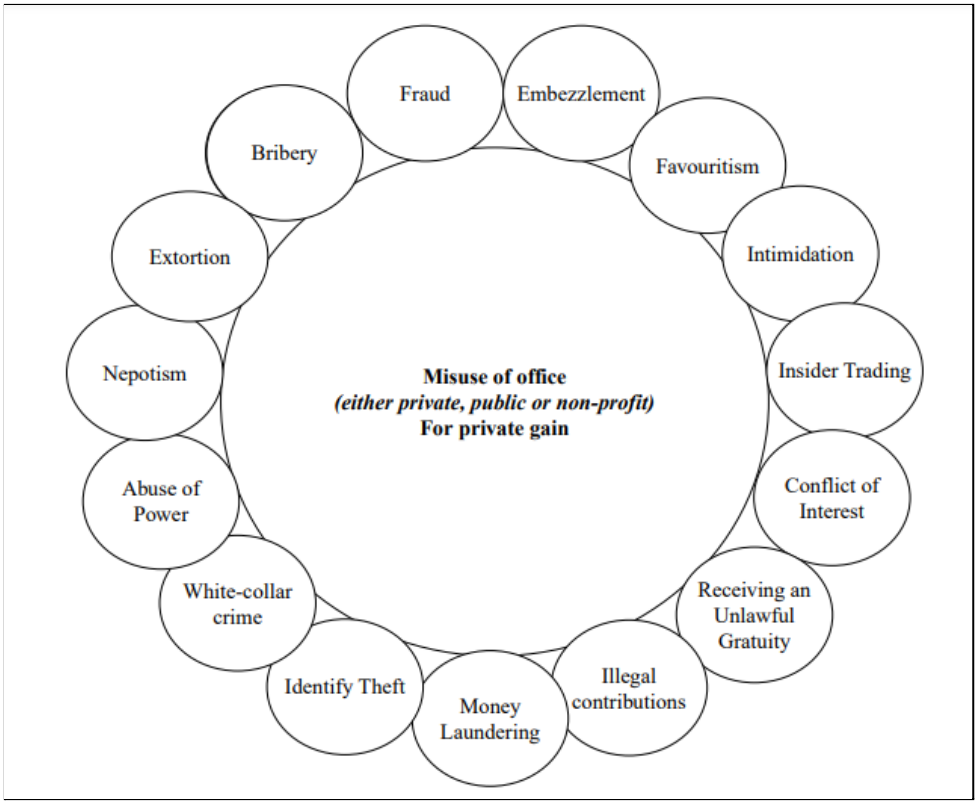

Figure 1: Forms of Corruption

Source: Julius Otusanya, O. (2011)

1.1 Why Economic Growth

Among the various consequences of corruption, we have chosen to study its relationship with economic growth in India. Economic growth is a rise in the production of economic goods and services, in comparison of one period from another. It is measured in real (adjusted for inflation) or nominal terms and represented by the Gross Domestic Product (GDP) of a nation.

Such emphasis on the impact of corruption on economic growth arises from the fact that corruption causes considerable losses to government revenue. As a result of this, investment in the economy falls, expenditure spent on development sectors like education and healthcare shrink, causing damage to both economic growth and development. On the other hand, it has a detrimental impact on the economy to the degree where it is ascertained that corruption causes more distortion than taxation (Rose-Ackerman 1996).

Views regarding corruption are split into two, which we elaborate upon in Section 2. While some scholars state that corruption harms economic growth, others believe that corruption is a positive phenomenon. The section summarises our study of secondary sources regarding corruption and economic growth. Section 3 focuses exclusively on the state of the problem in India, along with a detailed sectoral analysis. In Section 4, we try to devise an empirical relationship between corruption and economic growth in India through a correlation study**.** In the final section, we derive conclusions and state the scope for further research in the field.

2.0 Literature Review

The nature of the influence of corruption on economic growth and development has been a matter of debate in the past. Meon & Sekkat (2005) discuss both sides of the coin, in effect, the 'grease the wheels' hypothesis and the 'sand the wheels' hypothesis. While the former hypothesis supports that corruption has a positive effect on economic performance, the latter argues in favour of the contrary.

The "grease the wheels" hypothesis put forward by Leff (1964), Huntington (1968) and Leys (1965) suggest that corruption may be beneficial in a world where optimality conditions are not fulfilled because of the distortions caused by ill-functioning institutions. The argument is that an inefficient bureaucracy constitutes an impediment to investment that some "speed" or "grease" money may help circumvent. Since corruption works out only for the most efficient players in the market, scholars believe that it may lead to the compulsory exit of inefficient firms, resulting in a more efficient economy. On the other hand, the "sand the wheels" hypothesis refers to the negative impact of corruption on economic growth and development. Meon & Sekkat also examine whether growth and investment increase or decrease with corruption when the quality of governance is low. They state that factors like ‘a weak rule of law, an inefficient government and political violence’ lead to worsening of the negative effect of corruption on investment. Moreover, it is observed that even when one controls investment, in nations with a weak rule of law and an inefficient government, corruption slows down economic growth.

To enhance the understanding of corruption, it is necessary to study its causes. Mauro (1997) discusses corrupt public practices and analyses the various causes of corruption using empirical studies. He has argued that most public corruption incidents can be traced to

government intervention in the economy. Trade restrictions, government subsidies, price controls, multiple exchange rate practices and foreign exchange allocation schemes, low wages in the civil service, natural resource endowments, and sociological factors are the primary policy-related sources of corruption mentioned by Mauro. He further discusses the consequences of corruption such as lowering investment and retarding growth to a significant extent; misallocation of talent; reduced effectiveness of aid flows through fund diversion; loss of tax revenue; adverse budgetary consequences; lower quality of infrastructure and public services; and distorting the composition of government expenditure.

Such adverse ramifications of corruption have led us to focus on the obstructive nature of corruption for an economy. This argument is supported by Mauro (1995) as he specifies that corruption is negatively and significantly associated with an investment, consistent with the line of thought that corruption lowers the private marginal product of capital. He finds that a one-standard-deviation improvement in the bureaucratic efficiency (corruption) index is significantly associated with an increase in the 1960-85 average investment rate by 4.1 per cent of GDP, and the annual growth rate of GDP increases by a total of over a half percentage point. On a similar note, Blackburn et al. (2006) also predict the relationship between corruption and development to be negative. Others such as Shleifer and Vishny (1993) and Drury et al. (2006) also argue in favour of the view that corruption is detrimental to economic growth.

Shleifer and Vishny (1993) state two reasons as to why corruption is detrimental to economic development. The first reason is the weakness of the central government, which allows various governmental agencies and bureaucracies to impose independent bribes on private agents seeking complementary permits from these agents. When the entry of these agencies into regulation is free, the cumulative burden of bribes on private agents goes up to infinity. This point is illustrated using the foreign investment scenario in post-communist Russia. Due to the presence of multiple agencies at multiple levels, a foreigner has to pay a bribe at every step. The apparent result was a deficient level of foreign investment in Russia. Drury et al. (2006) have put forth the same case as they explain the negative effect of corruption on economic growth both as a tax on productivity and a market distortion employing the example of the systematic corruption in post-Communist Russia and the loss of investment.

The second reason relates to the necessary secrecy of corruption. The demands of secrecy tend to shift a country's investments away from productive projects, into potentially useless projects, in case the latter project offers easier and better secret corruption opportunities. Further, this demand for secrecy may also cause leaders of a country to maintain monopolies, prevent entry, and discourage innovation. These types of distortions are what make corruption harmful to economic development.

To better understand the challenge of corruption, Shleifer and Vishny (1993) devised a model to elaborate on the two corruption cases in society. It is the simplest model of one government-produced good. It is assumed that the good is homogenous, and there is a demand curve D(p) from the private agents. The government sells this good via an official, who has the opportunity to restrict the quantity of the government-produced good. The official can restrict supply without any risk of detection or punishment from above (a monopolist). The economists further develop the model by defining the official government price for this good as 'p' and the cost of producing a good as immaterial. There are two different cases concerning the marginal cost to the official: 'Corruption with theft' and 'Corruption without theft'.

In the case of 'Corruption without theft', the official turns over the official price of the goods to the government; therefore, the marginal cost is 'p' to the official. The total price along with the bribe is consistently more than the government price. Whereas in the case of 'Corruption with theft', the official does not turn over anything to the government, therefore the marginal cost to the official is zero. The total price might be below the government price as well. The analysis suggests that the spread of corruption is owed to the competition both between the officials and between the consumers.

Besides the arguments mentioned above presented, the Issues Paper on Corruption and Economic Growth (2013) by the World Bank acts as a foundation for this study as it makes use of the correlation between the control of corruption (CC) indicator and per capita GDP at PPP to understand the link between the two. It finds that the correlation between the two indicators is high (correlation coefficient: 0.77), and the inter-country variation in CC "explains" some 64 per cent of the per capita GDP variation. An improvement in the CC indicator by one standard deviation is associated with an increase of some 11000 $ in GDP pc (in 2011 prices). On the other hand, the correlation between the CC indicator and the medium-term growth rates of output is found to be weak, which may be attributed to the fact that poorer countries (higher levels of perceived corruption) on average experience higher growth rates of output than the more prosperous countries, as per the convergence hypothesis.

3.0 Corruption in India

India is the world's fifth-largest economy by nominal GDP and the third-largest economy in terms of Purchasing Power Parity (PPP). Even as it continues to make strides on the growth front, it continues to be plagued by the persistent problem of corruption. These acts of corruption vary from petty bribes to grand scams, often in the news. As per the latest Corruption Perception Index (2019), India is ranked 80 out of 180 countries. India scored 41 out of 100. Though an improvement over the years, these numbers are still a cause of worry for the Indian economy.

Corruption in India can be attributed to several factors such as excessive regulations, elaborate tax and licensing systems, opaque bureaucracy, monopoly of government-controlled institutions, people with discretionary powers and more. In recent times, several significant scams involving high-level public officials have been reported. For instance, one of the most significant scams in India was the Coal Allotment Scam (Cost–186000 Crores), wherein the Government of India was accused of inefficiently allocating the coal blocks during 2004-09. Another major scam in the nation was the Commonwealth Games (CWG) Scam (Cost–70000 Crores). In this case, it was reported that only half the amount allotted was spent as expenditure on Indian sportspersons and Suresh Kalmadi was accused of offering Swiss Timings a contract at inflated rates (Rs. 141 Crore), which was unnecessarily high by Rs. 95 Crore. Other incidents are the 2 G Spectrum Scam, Mega black money laundering Scam, Adarsh Housing Scam, Stamp Paper Scam, Bofors Scam, Fodder Scam, Hawala Scam, Satyam Scam, Stock Market Scam and Madhu Koda Scam.

In India, every year, a significant portion of the population resorts to tax evasion. This, in turn, leads to a massive loss of revenue for the government**.** The State of Tax Justice (2020) report stated that India showed a loss of $10.3 billion in taxes due to global tax abuse, which is 0.41% of the three trillion dollar GDP. Of this, over $10 billion is lost to tax abuse by multinational corporations (MNCs) and $200 million to tax evasion by private individuals. Consequently, the amount lost is equivalent to 44.70 per cent of the health expenditure and 10.68 per cent of the spending on education. The exact amount can also be used in paying salaries of 4,230,656 nurses annually. India accounts for 0.1% of global offshore wealth, which is $11.3 billion or 0.4% of GDP. The report further states that India is most vulnerable to illegal financial flows in the form of outward foreign direct investments and mentions

Mauritius (23.6%), Singapore (17.2%), and Netherlands (11.2%) as the countries most responsible for this vulnerability. In the light of this report, corruption seems to be inflicting severe harm to the Indian economy. We further discuss the sectors that report the maximum incidents of this menace.

3.1 Sectoral Analysis of Corruption in India

Transparency International India (TII) conducts The India Corruption Survey annually. In 2019, 190,000 responses were recorded from over 81,000 citizens in 20 states. According to the survey, 51% of people paid bribes, directly or indirectly, which is a reduced percentage compared to 2018 (56%). Delhi, West Bengal, Goa, Gujarat, Kerala, Haryana, and Odisha were the states where citizens reported low instances of corruption. On the other hand, the states Uttar Pradesh, Telangana, Rajasthan, Karnataka, Bihar, Jharkhand, Tamil Nadu and Punjab reported higher instances of corruption.

In an analysis of corruption in various authorities/departments, property registration & land issues became the most significant authority where citizens had to pay a bribe, with 26% citizens voting for it. Among the other departments, 19% said police, 13% said Municipal Corporation, 3% said electricity board, 13% said transport office, 8% said tax department, 5% said water department, whereas 13% said they paid a bribe to other authorities.

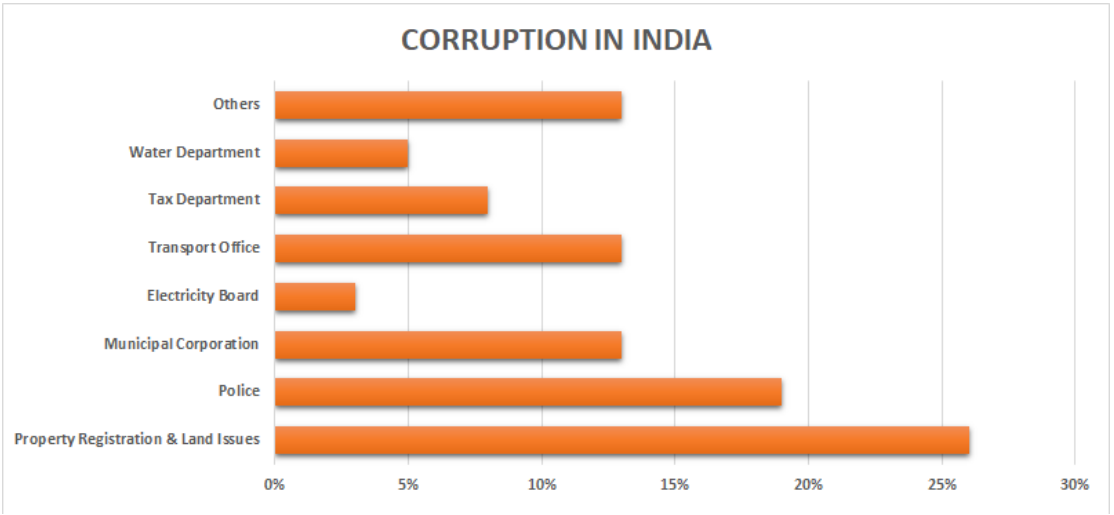

Figure 2:- Corruption in India

Source:- India corruption Survey (2019)

The report further provides a detailed analysis of the corruption scenarios within these sectors, which can be summarised in the chart below:-

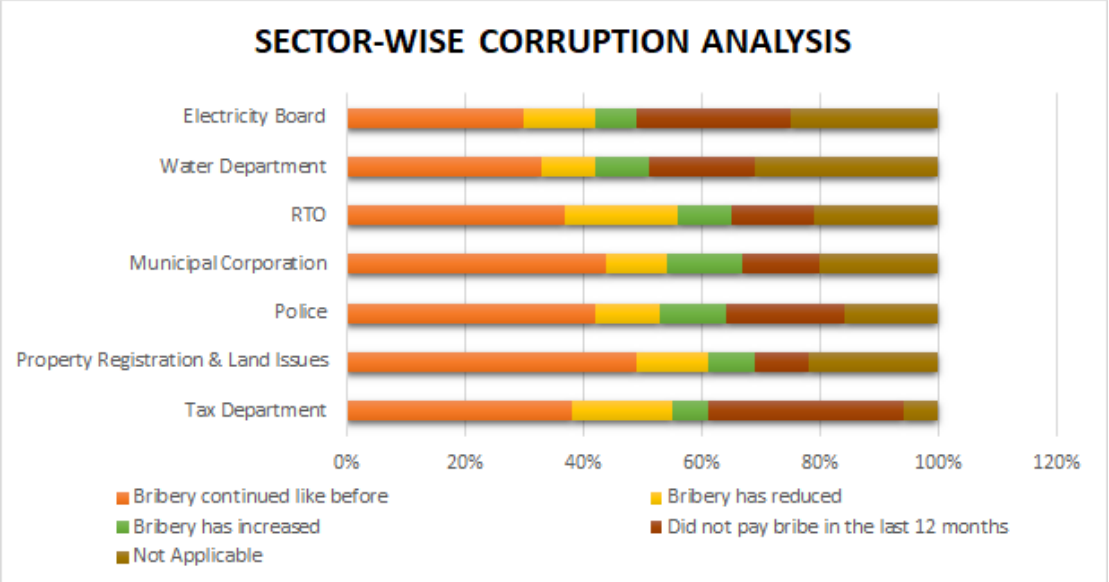

Figure 3:- Sector-Wise Corruption Analysis

Source:- India corruption Survey (2019)

Even in the judicial system, there exists rampant corruption, especially at the lower court levels. These involve the payment of bribes in exchange for favourable court decisions. Widespread corruption along with an already existing problem of resource shortages affect the efficiency of the judiciary adversely. While the current backlog of cases runs into millions, enforcing a contract takes way longer (1420 days) than it should as per the regional average. The factor that destroys the business environment is that the court system is not considered a barrier by businesses as settling disputes efficiently and challenging laws and regulations is considered run of the mill.

4.0 Research Data and Methodology

Given the literature backdrop, we aim at analysing the link between corruption and economic growth in the case of India. We have employed the tools of scatterplots and correlation for this purpose. While scatter plots are used to observe relationships between variables, Correlation is a statistic that measures the degree to which two variables move with each other. If the relationship turns out to be linear, it will be reflected in the correlation coefficient values. Even if there exists a non-linear relationship, a scatterplot is a helpful tool to capture the relationship. We have used STATA, statistical software, for our empirical analysis.

In our analysis, we have used the data of the Corruption Perception Index (CPI), Gross Domestic Product (GDP), the growth rate of Gross Domestic Product (GDP GROWTH) and Foreign Direct Investment (FDI in billion dollars) for the period 1995-2019 for India (see Appendix). The Corruption Perception Index (CPI) is an annual index published by Transparency International since 1995. The index ranks countries by their discerned levels of public sector corruption, determined by expert assessments and opinion surveys. The data for GDP (at constant 2010 US$), GDP Growth Rate (annual %) and FDI (in billion $) is compiled from the World Bank Database. The following are the scatterplots depicting the relationship between the variables.

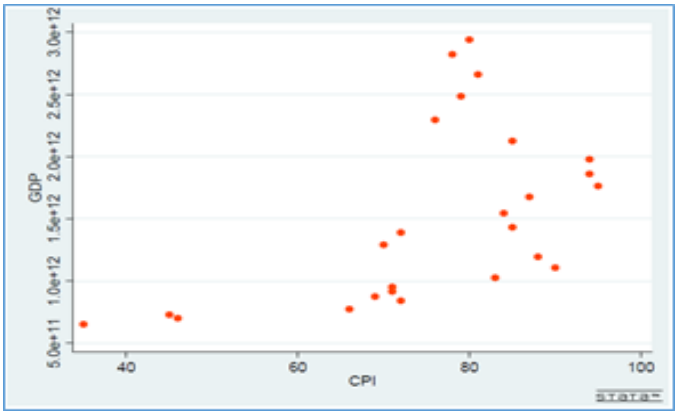

Figure 4: Scatter plot of GDP (at constant 2010 US$) and CPI

Source: World Bank for GDP (at constant 2010 US$) and Transparency International for CPI India

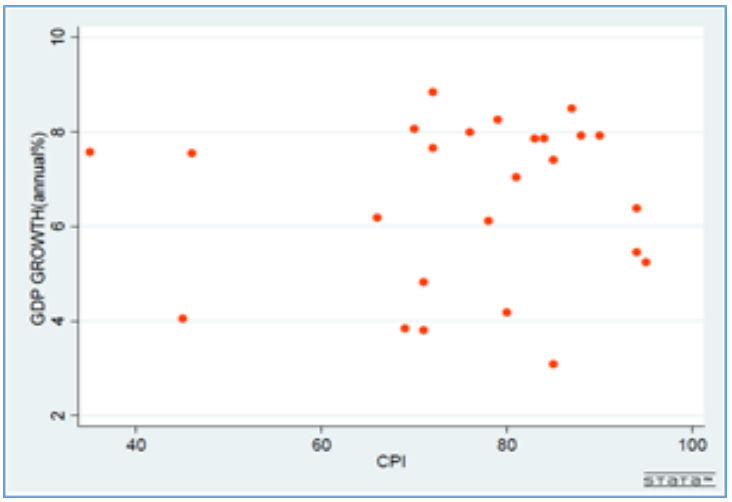

Figure 5: Scatter plot of GDP growth rate (annual %) and CPI

Source: World Bank for GDP growth rate (annual %) and Transparency International for CPI India

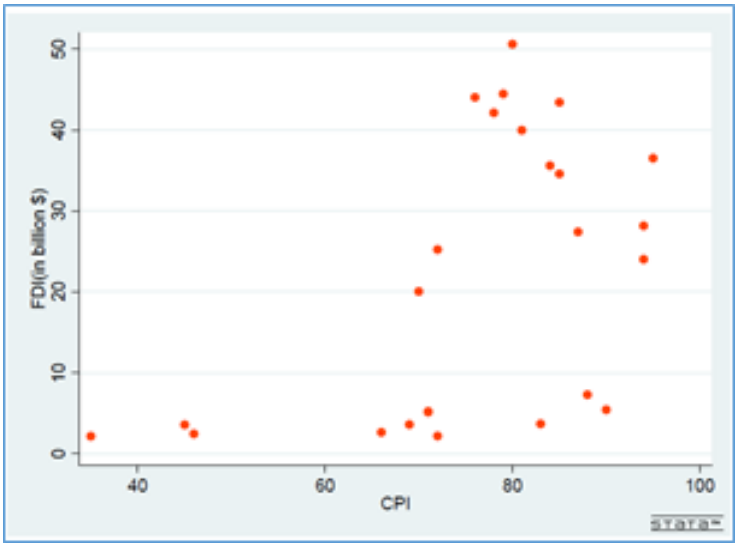

Figure 6: Scatter plot of FDI (in billion $) and CPI

Source: World Bank for FDI (in billion $) and Transparency International for CPI India

Using data from Table A in the Appendix, the correlation coefficients of CPI with the GDP, GDP Growth Rate, and FDI have been calculated as shown in Table 1.

Variables	***Correlation Coefficient***
GDP (at constant 2010 US$)	*0.5243*
GDP Growth Rate(annual %)	*0.0484*
FDI	*0.5038*

Table 1: Correlation Coefficient of CPI with the given variables for the period 1995-2019

Source: Authors' estimates

5.0 Analysis

The scatterplots of CPI with GDP *(at constant 2010 US$)* and that of CPI with FDI (FDI in billion dollars) for India revealed that there seems to exist a positive relationship between the two measures, respectively. CPI is moderately correlated with both GDP (0.5243) and FDI (0.5038). On the other hand, the correlation study between CPI and GDP growth rate

in India denotes no appreciable linear correlation. The 'positive' relationship signifies that an upward movement in the Corruption Perception Index leads to a movement in the same direction by the GDP and FDI. It must be noted that a rise in the CPI means a decline in the level of corruption in the country. Thus, according to the Indian data, an improvement in India's CPI would translate into a positive change in its GDP and FDI.

6.0 Conclusion

As per the previous section, it can be concluded that corruption has a negative impact on economic growth. This can be supported by our findings of the correlation study conducted for India, wherein:

- CPI is positively and moderately correlated with GDP.
- CPI is positively and moderately correlated with FDI.
- There exists no appreciable linear correlation between CPI and the growth rate of GDP.

In this paper, we have analysed the impact of corruption on India's economic growth, complemented by the review of previous studies and surveys in this sphere of research.

7.0 Scope for Further Research

A limitation faced during this study is the lack of availability of CPI data in the long run, as it was first published in 1995. Along with this, the scatter plots suggest a non-linear relationship between CPI and other variables. These shortcomings make room for improvement by further research. Our research findings can be further refined by using econometric techniques, like running a time series regression across a dataset (Table A, Appendix).

Appendix

Table A: Corruption Perception Index (CPI), Gross Domestic Product (GDP), the growth rate of Gross Domestic Product (GDP GROWTH) and Foreign Direct Investment (FDI) in India for the period 1995-2019.

Year	**CPI**	**GDP (constant 2010 US$)**	**GDP GROWTH (annual %)**	**FDI(in billion $)**
1995	35	6.50281E+11	7.57449184	2.14362811
1996	46	6.99374E+11	7.549522249	2.426057022
1997	45	7.27698E+11	4.049820849	3.577330042
1998	66	7.72701E+11	6.184415821	2.634651658
1999	72	8.41053E+11	8.845755561	2.168591054
2000	69	8.73357E+11	3.840991157	3.584217307
2001	71	9.15488E+11	4.823966264	5.128093562
2002	71	9.50313E+11	3.803975321	5.208967106
2003	83	1.02501E+12	7.860381476	3.681984671
2004	90	1.10622E+12	7.922936613	5.42925099
2005	88	1.19387E+12	7.923430621	7.269407226
2006	70	1.29011E+12	8.060732573	20.02911927

2007	72	1.38894E+12	7.660815065	25.22774089
2008	85	1.43181E+12	3.08669806	43.40627708
2009	84	1.54438E+12	7.861888833	35.58137293
2010	87	1.67562E+12	8.497584702	27.39688503
2011	95	1.76344E+12	5.241344743	36.4986546
2012	94	1.85966E+12	5.456358951	23.99568501
2013	94	1.97842E+12	6.386106401	28.15303127
2014	85	2.12502E+12	7.410227605	34.57664369
2015	76	2.29495E+12	7.996253444	44.00949213
2016	79	2.48443E+12	8.256305844	44.45857155
2017	81	2.65942E+12	7.043820855	39.96609136
2018	78	2.82217E+12	6.119586841	42.11745074
2019	80	2.94016E+12	4.180727625	50.60532735

References

Blackburn, Keith, Niloy Bose, and M. Emranul Haque. 2006. "The incidence and persistence of corruption in economic development." Journal of Economic Dynamics and Control 30, no. 12 (December): 2447-2467.

Drury, A. Cooper, Jonathan Krieckhaus, and Michael Lusztig. "Corruption, Democracy, and Economic Growth." International Political Science Review / Revue Internationale De Science Politique 27, no. 2 (2006): 121-36. Accessed January 21, 2021. http://www.jstor.org/stable/20445044.

Mauro, Paolo. 1997. "Why Worry About Corruption?" ECONOMIC ISSUES, no. 6 (February). https://www.imf.org/external/pubs/ft/issues6/.

Mauro, Paolo. "Corruption and Growth." The Quarterly Journal of Economics 110, no. 3 (1995): 681-712. Accessed January 19, 2021. http://www.jstor.org/stable/2946696.

MEON, PIERRE G., and KHALID SEKKAT. 2005. "Does corruption grease or sand the wheels of growth?" Public Choice 122 (1): 69-97. https://projects.iq.harvard.edu/gov2126/files/meonsekkat_2006.pdf.

OECD. 2013. "ISSUES PAPER ON CORRUPTION AND ECONOMIC GROWTH." https://star.worldbank.org/sites/star/files/oecd_issues_paper_on_corruption_and_economic_growth_2013.pdf.

Otusanya, Olatunde J. 2011. "Corruption as an obstacle to development in developing countries: a review of literature." Journal of Money Laundering Control 14 (4): 387 - 422.

Risk and Compliance Portal. 2020. "India Corruption Report." Accessed December 12, 2020. https://www.ganintegrity.com/portal/country-profiles/india/.

Rout, Rajaram, and Prasad R. Satapaty. 2017. "Impact of Corruption and its Impact in Indian Society: Causes and Remedies." International Journal of Research and Development - A Management Review (IJRDMR) 6 (3): 85-89. http://www.irdindia.in/journal_ijrdmr/pdf/vol6_iss3/18.pdf.

Shleifer, Andrei, and Robert W. Vishny. "Corruption." The Quarterly Journal of Economics 108, no. 3 (1993): 599-617. Accessed January 17, 2021. http://www.jstor.org/stable/2118402.

Tax Justice Network. 2020. "The State of Tax Justice 2020: Tax Justice in the time of COVID-19." https://taxjustice.net/wp-content/uploads/2020/11/The_State_of_Tax_Justice_2020_ENGLISH.pdf.

Transparency International. "Corruption Perceptions Index" Accessed December 5, 2020. https://www.transparency.org/en/cpi/2019/index/ind

Transparency International India (TII). 2019. "India Corruption Survey 2019." https://transparencyindia.org/wp-content/uploads/2019/11/India-Corruption-Survey-2019.pdf.

Wei, S. (1999). Corruption in economic development: Beneficial grease, minor annoyance, or major obstacle? *Policy Research Working Papers*. https://documents.worldbank.org/curated/en/175291468765621959/pdf/multi-page.pdf

World Bank. "Foreign direct investment, net inflows (BoP, current US$) - India" The World Bank Group. December 5, 2020. https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD?locations=IN

World Bank. "GDP (constant 2010 US$) - India" The World Bank Group. December 5, 2020. https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?locations=IN.

World Bank. "GDP Growth (annual %) - India" The World Bank Group. December 5, 2020. https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=IN