



RESEARCH PAPER

Impact of Corruption on Economic Growth in Pakistan: An Analysis

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ABSTRACT

The main objective of the study is to examine the effect of corruption on economic development over the period of 1996-2021. The time series analysis of data is taken from transparency international and world development indicator (WDI). The dependent variable utilized in the study is gross domestic product (GDP) Corruption, Inflation and Trade openness has been used as independent variable. The first applied the unit root test and the result shows that all variables are integrated at the first difference. Johansen cointegration test technique is applied for cointegration and vector error correction model (VECM) applied for long run and short run analysis in the case of Pakistan. There exist long run relationship among the variables and short run relationship is not exist. Empirically outcomes show that trade-openness has a positive effect on growth. Inflation and the corruption has the negative effect on growth rate of GDP.

KEYWORDS Corruption, Economic Growth, Johansen Cointegration Test, Pakistan

Introduction

Pakistan is a developing country it faces many problems from the day of independence. In all over the world corruption is the main cause of poverty. It spread rapidly day by day in all societies. Corruption mostly affects poor class people as compare to rich class. Bribery and theft are included in corruption. Corruption arises when a government employee uses his official capabilities for his personal gain. Corruption arises in every department like public or private sector or even NGOs. The problem of corruption has acute significance all over the earth. Corruption is malediction for the entire world yet it is the significant danger for underdeveloping countries. With the progress of persons consciousness. Corruption is the major cause of obstruct the economic growth. Numerous theoretical as well as empirical studies lead to causes of corruption in the development of economic growth of the countries (Dawood, et. al. 2019)

Corruption is not consider as independent and separate body that can be pull down in separation. They state that corruption is a compound set of processes include human behavior and other variables, some of which were difficult to measure (Yaseen, & Muzaffar, 2018; Nirikta et. al. 2020 & Mushtaq, et. al, 2017).

Corruption is consider as one of the major hurdle challenge developing countries faces it separately obstruct economic growth and the welfare of nation. As a whole corruption show to the expropriation of government funds, political instability and mismanagement (Zubair, et. al. 2021)

The notable impact of the corruption on economic development be made an important in theoretically and policy study of developing nations in the last few years. The relationship between corruption and economic development have various consequences. Number of scholars think corruption slow down the economic development which may destroy the growth way of any nation. Some more believe the method throughout and hardly any quiet inconclusive regarding affair. If look at the circumstances of Bangladesh it divulge few different modes in different stages (Palash, et. al. 2018; Muzaffar, & Choudhary. 2017)

Corruption is a worldwide problem our country is ranked 139th in most corrupt ratio. This never agreeable.

Table 1

Transparency International (TI) Corruption Perception Index (CPI) country range

Years	Range	Pakistan Corruption range	Number Of Countries Range
2012	137/24	27	178
2011	134/24	33	178
2010	143/23	34	178
2009	139/24	42	180
2008	134/25	47	180
2007	138/24	42	179
2006	142/22	20	163
2005	144/21	16	151
2004	129/21	19	147
2003	92/25	42	133
2002	77/26	26	122
2001	79/23	13	91

Source:<http://www.TI.org.pk/.../CPI2012/> (CPI) I22 October/ 2012.com

The purpose of the study is to check that relation between GDP growth rate and corruption in Pakistan over that time span 1996 to 2021. Deep debates most mid foreign and domestic investors and economist concerning the issue of corruption in the country have prompted me to this study. Most of earlier studies about growth and corruption perception experienced feeble connection among empirical method and theoretical model adjusted.

Literature Review

Shrabani, et. al. (2021) the study used data from 1984-2016. The study utilized panel data for 32 years. The main aim of study is analyzed the corruption and growth relation. Real GDP per used as the dependent variable and independent variables are the money supply to GDP, education acquirement, capital formation, development and research expenditure. The data sources are world development indicator. This study used ordinary least-square estimation technique. The study estimated the relation between variables corruption and development growth rate used different technique of panel data estimation include dynamic panel-system, generalized method of moments uses the different ways of the democracy and corruption. The impact of corruption on development is positive.

Pluskota et. al. (2020) this paper utilized panel data from 1996 to 2017. The research objective is examine the actual side of the effect of corruption on variables of macro-economic. this paper uses dependent variable economic growth and the innovation, Corruption, Investment, and Population growth are independent variables. the outcome of the test shows that the relation among measure of innovation and corruption, corruption and economic development is not linear. This means that the impact of corruption on economic growth or innovation is no more same all the level of that corruption. the relation among economic development along with corruption is specified shows a very lower level of corruption economically justify.

Abdikarim.B et. al. (2021) investigates the they used data from 2013 to 2017. Thy utilized panel data 5 years of the period. The study examine the impact of corruption as well as other variables on the economic development of East African states. The data sources world development indicators (WDI). Economic growth is dependent variable which is used as the proxy of gross domestic product so the corruption and more over independent variables are as foreign direct investment, the regulatory quality and trade openness and

the as a percentage of GDP collected from wdi. Result shows that negative affect of corruption on economic development.

Dawood et al. (2019), the study used data from 1995-2019. The purpose of that paper is to examine the importance of natural resources and energy to enhance the economic development of a nation. The study take data for 25 years of the period. The study used cross section dependency test and apply konya granger causality tests and ARDL bounds test used for analysis economic growth is dependent variable and natural resources depletion, energy depletion, and mineral depletion are independent variables and other per capita income, population growth are used as the control variable. The result shows that mineral depletion and natural resource damages the economic development of many nations.

Borlea et. al. (2017) investigate the study used data over the period 2005-2014. They used cross-section data for 9 years of the period. The objective of this paper explains how the shadow economy and the corruption effect countries growth for the objective of the study OLS regression analysis conducted along with correlation coefficient and ANOVA. The study used variables like shadow economy economic development and corruption. The outcomes of the study is corruption and shadow economy having a high significant negative effect on economic growth and shows the positive relationship among the shadow economy as well as with corruption. Due to effect of shadow economy or corruption on economic growth a high and the negative relation is find.

Amin et. al. (2019) determined the study take data from 2009-2017. They used cross-sectional data for 9 years of the period. The main purpose of that article is to investigate relation between the corruption and the firms productivity how can this relation varies with the business regulation level. Dependent variable, productivity, refers to labor productivity and independent variables are corruption and business regulations. The results found that there is significant and negative relation between firm's productivity and corruption when the regulation is high and an insignificant relation when it is low.

John Levendis, et. al. (2019) evaluated the study used data from 2002-2013. The objective of the research is to see the impacts of corruption hypothesis and the dynamics between corruption freedom and national income. The three endogenous variables are income, corruption, economic freedom. The study used panel data framework. The data sources of the study is World Bank and economic freedom and the fraser institute. The results shows that absence of economic freedom having negative impacts on national income.

Rajsi Sah et. al. (2020) determined the study used panel data from 1995-2019.this study determine the relation between corruption and economic development and the academic literature review emphasis on various impacts of corruption on economic development. The time series data has been used from 1995 to 2019. In analysis the variables used are corruption perception index, GDP growth rate, GDP, and foreign direct investment. Corruption having the effected negatively on countries development. CPI is positively or moderately correlated with GDP.

Marro et. al. (2021) determined the study used data for the period 1998-2018. They utilized time series data for 21 years of the period. The major focus of that study were to explain that effect of corruption on the economic growth. Economic growth rate is dependent variable and independent variables are tradeopenness and political stability. The study used the time series data was collected from the World Bank the accurate data for the corruption control. The results obtained in the ARDL model that corruption has been a significant and negatively impact on states development.

Miriam (2019), evaluated study for the time period 2000-2017 .the paper used Panel data for 17 years of the period. The main focus of the study is to look at the relation of states development as well as corruption in Africa. Growth rate of the gdp per capita used as the dependent variabl and corruption, absence of violence , per capita gdp, political stability or terrorism, and export rate are independent variables (Nawab, et. al. 2021). The control variables used in the study are natural resource, population size, life expectancy, and education. The outcomes gives that there is negative relation among corruption with economic development. The nations that are more corrupt are tends to grow slow than the nations which are less corrupt.

D'Amico (2015), that research utilized the time series data from 1998-2003 years. The study has analyzed the impact of corruption on economic growth in china at the provincial level. To examine the impacts of corruption on the economic development in China a regression model has been used. The variables are used in study maintenance of rule of law, illiteracy rate, life expectancy, population growth rate and total provincial exports. The suggestions of this paper corruption has a strong effect on economic growth, the provinces can take benefit from cracking down on corruption.

Zubair Mumtaz et. al. (2021) analyzed the study used data from 1996-2018. The aim of study is examined corruption affects on economic growth or not. The variables utilized in this paper are GDP, capita growth, private investment, government investment, military spending government consumption percentage of GDP. This paper used panel data. The OLS estimates are utilized for the estimate results. They take data from world bank. The study conclude the finding of economic development and corruption determined a high level corruption in Asian countries.

Gamberoni, et. al. (2016) the aim of study to examined the part of corruption in the environment of business to explained the efficiency in production factor allocation of firms in nine central and eastern European states. The dependent variable change the dispersion of MRPL and independent variables are capital misallocation, labor misallocation changes in corruption and TFP growth. The study finds the relationship between corruption and input-misallocation. Anti corruption measures shows more efficiency when implement in small. Politically unstable or more autocratic economy.

Boussalham, (2018) the study investigate the effect of corruption on states development in Mediterranean countries from 1998-2007. They utilized panel data for 10 years of the period to test the impact. Economic growth proxy is GDP per capita used dependent variable the corruption perception index used as independent variable. The data source for this paper world bank data base. Foreign direct investment, corruption perception index, human capital, inflation, human capital, public investment, merchandise trade, and total population.

Miah, et. al. (2021) shows 1 percent increase in corruption decrease GDP 0.07 unit and shows the negative relationship with economic growth.

Veronika Linhartová et. al. (2022) the objective of this paper to examined the determinants which are the more affected and focus on the visegrad countries when government creating the anti corruption policies. The study utilized panel data from 1996 to 2019 and data sources are world bank and corruption data source is transparency international. The variables used in the paper are corruption, economic, political, and social cultural. The results of this study analysis the panel data which shows the determinants of corruption are economic , political and social cultural of visegard countries.

Salman et. al. (2020) the study objective is to determined the impacts of corruption on economy over the 51 years of period from 1968 to 2019. Corruption, economic growth are used as variables. the study used two estimation techniques. Corruption has significant

and negative impacts on economic growth and development. Corruption is main cause of slower the development and growth of developing states.

SHABBIR, et. al. (2016) the study investigates the role of political stability two competing hypotheses in developing Muslim countries. The study used panel data of eight countries. The dependent variable is the growth rate of GDP per capita as well as corruption, political stability are used as independent variables. government exp, investment output ratio, population growth, and education used as control variables to examined the impact of corruption on economic development. The results shows that some solid policy implication should take into account for economic development.

Washim Palash, et. al. (2018) the objective of the research paper is to determined the recent trend of economic growth and corruption in the Bangladesh. The study used data from 2001-2017. Economic growth and corruption are variables used in this study. This study find relationship among corruption and economic development is not simple and straight. The study conclusion shows that corruption is getting more social acceptance which will challenge to achieve sustainable growth.

Hassaballa (2017) the main focus of the research study is examined the effect of corruption on income per capita of the developing nations. The study utilized panel data from 1996-2013. The gdp used as the dependent variable and explanatory variables are consumer price index, corruption. the study used panel data to examined the impact of corruption, fixed capital, population growth, human capital, and trade openness in developing nations. They used 2 stage least square is the chosen estimation technique. The results shows the corruption level is significant determinant of income per capita level there exist negative relation among income per capita and corruption.

Material and Methods

The objective of the research study is to obstruction corruption perception index effects on GDP per capita and also checks whether the effect is a short run or long run with reference to Pakistan.

Table 2
Variable Description

Variables	Description	Definition	Source
GDP	GDP growth (annual%)	The growth rate annual percentage% of the gdp market price Dependent on local currency. The sum of gross values added by all economy producers plus taxes minus the subsidies.	WDI
Corruption	Corruption perception index	The corruption perceptions index defined as an illegal use of power for private benefits.	Transparency international
Inflation	Inflation rate is measure on the consumer price index (CPI) basis.	The overall rise in the price level in the economy over the accounting period is inflation.	WDI
Trade openness	Value of exports + value of imports	Trade openness is the annual value of exports plus the value of imports based on the constant local currency.	WDI

Econometric model:

$$Y = \beta_0 + \beta_1CO + \beta_2IN + \beta_3TO + \varepsilon$$

Where

β_0 = is constant

β_1 = is coefficient of (CO)

β_2 = is coefficient of (INF)

β_3 = is coefficient of (TO)

GDP and corruption perception index are direct variables. Inflation and trade openness are control variables. To check the effect of corruption on economic growth.

This research paper takes data from 1996 to 2021. The corruption perception index (CPI) computed by transparency international organization. GDP per capita and trade openness computed by world development indicator WDI which is used by many researchers such as Abdikarim et. al. (2021) used the dependent variable GDP per capita and corruption perception index, trade openness as independent variables. The study follows Hassaballa (2017) uses inflation and trade openness as independent variables computed data from world development indicator. Boussalham (2018) used inflation computed by WDI and corruption perception index computed by transparency international.

Results and Discussion

Unit root

Shows the outcome of ADF test of unit root. ADF test all the variables including GDP growth rate, Corruption, inflation, and trade openness are stationary at first difference when both intercept and trend were added as their T statistics of -5.012298, -8.018597, -5.739706 and -5.029565 are greater than their critical values at 5% so we can reject the null hypothesis of non-stationary series.

After testing for unit root all the variables utilized in the study integrated at same order this means at first difference I(1) so the study uses Johansen cointegration test and the error correction model to check short and long run impacts of the model.

Table 3
Results of ADF unit root test

Series	Augmented Dickey-Fuller Unit Root Test				Results
	level		1 st difference		
	T state	P value	T state	P value	
GDP growth rate	-3.432411	0.0696	-5.012298	0.0026	I(1)
CORR	-4.187651	0.0183	-8.018597	0.0000	I(1)
INF	-2.362411	0.3884	-5.739706	0.0005	I(1)
TO	-2.374055	0.3828	-5.029565	0.0025	I(1)

Based on above discussion variables to the study have following econometric model.

$$GDP_t = \alpha_0 + \beta_1CO_t + \beta_2INF_t + \beta_3TO_t + \varepsilon_t$$

Results of Johansen Cointegration Test

All variables are stationary at the 1st difference of integration that's why Johansen cointegration test has been utilized to check the long and short run relationship among the variables.

Table 4
Johansen co-integration test

Hypothesized		Trace	0.05		Max-Eigen	0.05	
No of CEs	Eigen value	Statistics	Critical value	P value	Statistics	Critical value	Prob*
None *	0.72	50.817	47.85	0.025	31.24	27.58	0.016
At most 1	0.43	19.576	29.79	0.452	13.56	21.13	0.401
At most 2	0.15	6.012	15.49	0.694	4.113	14.26	0.847
At most 3	0.07	1.899	3.841	0.168	1.899	3.841	0.168

Note: * indicates rejection of the null hypothesis at level 5%

Max eigen test indicates 1 cointegration at level 5%

To determine the number of cointegrating vector r study used trace Statistics and max eigen value test. The null hypothesis of the trace test is existence of r vector cointegrating against the alternative hypothesis of no cointegration vector.

Null hypothesis is rejected because trace statistics of 50.81798 is greater then the critical value of 47.85613 at 5%, so there exist one cointegration vector. On the other hand, The null hypothesis of the maximum eigen value test is the existence of no cointegration vector and the alternative hypothesis of r+ 1 cointegrating vector.

Null hypothesis No cointegration is rejected of 31.24102 is greater than critical value of 27.58434 so there exist one cointegrating between the variables. So, we can conclude that there is existence of long run relationship between the variables.

Table 5
Long run estimates of Johansen co-integration model

Long Run Estimates of Johansen Co-integration Model	
planatory variables	Co-efficient
Corruption	1.5679
Inflation	-0.3266
Tradeopenness	0.4658

The normalized co-integration equation in the long run is;

$$GDP_t = -1.5679CO_t - 0.3266INF_t + 0.4658TO_t + \epsilon_t$$

The above co-integration equation shows that CO and INF have a significant and negative effect on GDP. TO have significant and positive effect on GDP in the long run period.

$$\Delta GDP_t = ECT_{t-1} + \gamma_1 \Delta GDP_{t-1} + \gamma_2 \Delta CO_t + \gamma_3 \Delta CO_{t-1} + \gamma_4 \Delta INF_t + \gamma_5 \Delta INF_{t-1} + \gamma_6 \Delta TO_t + \gamma_7 \Delta TO_{t-1} + \epsilon$$

In oder to check short run association of the study. the value of ECT must be containing the negavtive sign which indicate the divergence and convergence of the variables. The value how mush is closer to -1 indicate the speed of convergence in the short run period. the result of Vector Error Correction Model is as.

Error Correction Model

Table 6
Error correction model(ECM)

Variables	Coefficients	Standard error	T statistics	P value
ECT(-1)	0.01	0.17	0.05	0.95

GDP (-1)	-0.32	0.38	-0.85	0.40
CORR (-1)	-2.80	2.98	-0.93	0.06
INF (-1)	-0.11	0.25	-0.43	0.36
TO (-1)	-0.02	0.27	-0.07	0.51
C	0.161	.043	0.431	-0.339
R. square	0.34	Durbin Watson	1.85	
Adj. R square	-0.11	F statistics	0.66	

The findings of the ECM indicate that the coefficient of ECT is positive value which lies between 0 and 1 which indicates divergence of the variables and there is no short run relation exist between the variables.

Conclusion

Corruption has been uncontrollably in every region of life in Pakistan. The country is scheduled as a more corrupt country in the earth a variety of ranking of corruption. It is broadly debated the corruption is throbbing economic improvement of the country to a large scale. Pakistan has been ranked as 139 out of 174 on transparency Internationals (TI) 2012. The corruption and the corruption perception index is measured a common complication in many states. As stated by the world development indicator wdi Pakistan GDP in 2011 were 211.1 which made the mislaying of 61 million of the day alike the 10 percent of the total GDP.

The focus of that research study is to empirically analyze the corruption impacts on development of Pakistan uses time series data for the phase of 1996-2021. In this study johansen cointegration test technique is employed to check the nature and magnitude of the relationship among running variables. The results of cointegration test presents that there is long-run relation between corruption and gross domestic product GDP and other variables of the study. The long run calculation points out that corruption has negative impacts on GDP economic growth of Pakistan. It shows the 1% increases in the level of corruption during the period has resulted about 90% decrease in growth of Pakistan adversely. Pakistan could achieve faster economic growth if it could curb widespread.

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