

An Empirical Analysis of Economic Policies, Institutions, and Investment Nexus in Pakistan

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Abstract

This study empirically analyzes the nexus/link between economic policies and investment in Pakistan. It is observed that over the years the country has been confronted with multiple policy changes such as nationalization, denationalization, privatization, etc. coupled with political instability. It is noted that these frequent policy changes have a significant bearing on investment in Pakistan. The findings reveal that increase in GDP, denationalization and financial development are beneficial for investment flows while a higher cost of capital negatively affects the investment level in Pakistan.

Keywords: *Public Investment, Private Domestic Investment, Foreign Direct Investment, Investment Policy, Nationalization, Privatization, Pakistan*

1. Introduction

Investment, the essential factor in the determination of economic growth, is generally made in the sectors enjoying comparative advantage with favorable public policies (Ajaz and Nazima, 2012). Investment creates economies of scale and results in a rise in overall productivity in an economy (Ajaz and Nazima, 2012; Ghani and Din, 2006). Multitude observable and unobservable factors namely output and costs, cash flows, real interest rate, depreciation, prices, taxes, macroeconomic uncertainty, political instability, government policies, institutional quality, and social conditions determine investment behavior in any economy (Le, 2004; Serven and Solimano, 1993).

The key reasons behind the fluctuations in the investment level can be associated with international (geopolitical and economic) conditions, natural disasters, the country's political situation, inconsistent policies, and prevailing economic conditions characterized by uncertainty and unpredictability. Pertinently, the political climate, macroeconomic environment of a country, and economic policies determine the overall investors' confidence and, hence, affect the local and foreign investment activity especially in investment depressed developing economies like Pakistan.

The economic situation in Pakistan has endured many fluctuations since independence in 1947. In addition to that, the country has been confronted with multiple crises. The key reasons behind the fluctuations in investment level and economic progress can be associated with

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international scenarios, natural disasters, the country's political history, inconsistent and frequently changing policies as well as prevailing economic conditions characterized by uncertainty and unpredictability. In this regard, economic policies have played a key role in determining the investment behavior in Pakistan

No study, so far, has attempted to empirically explore the impact of economic policies on investment behavior in Pakistan. Thus, it becomes important to precisely look at the investment trends and patterns in the context of the economic policy framework in Pakistan to evaluate the robustness of these policy measures. Based on this argument, in this paper, comprehensive descriptive and econometric analyses of economic policies and investment behavior are carried out for the case of Pakistan's economy during 1959-60 to 2018-2019.

The role of investment behavior holds critical importance in determining the performance of financial markets. Three factors were considered in investment behavior: risk perception, satisfaction, and rate of profitability (Nguyen et al.,2020). The moderating variable that was taken in this research is the uncertainty of Covid-19 and how it impacts the financial market. Global perception recorded regarding the investment behavior and the risk perception made by the various investors in the financial market was done based on current situations and circumstances (Ainia &Lutfi,2019). Risk perception arises in the decisions that were taken to increase the financial health and condition of investors.

Moreover, the general risk of tolerance changes over the period. The tendency to take measures for the reduction of risk can be determined by general risk to tolerance. For the sake of simplicity, the risk perception changes from individual to individual, and every investor perceives risk based on their tolerance of risk (Nguyen et al.,2020). Meanwhile, behavioral finance also reflects the attitude that is directly embedded in the investment system. Different theorists make arguments that investors sometimes behave irrationally along with the production of inefficient markets and securities mispriced for not mentioning the opportunities regarding making money (Asamoah et al.,2021).

This may be true to some extent, but every time to cover these inefficiencies would have increased a challenge. Moreover, most of the time, investors make decisions based on some irrelevant figures and stats, for example, investors should invest in the stock, which would have witnessed some considerable fall after some continuation growth in their recent past (Harari,2020). These make investors believe that price has decreased, which is by the short-term market movements, creating an opportunity to buy the cheap. Stocks are meant to do quite often decline in some values because of changes in underlying fundamentals (Chang & Andreoni,2020).

The main discussion in this study is categorized into three sections. These include (i) trends of public investment (PUB), private domestic investment (PDI), and foreign direct investment (FDI) as well as trends of total investment and GDP growth; distribution of aggregate investment; and sector-wise composition of private investment and public investment including general government investment. The discussion is concluded by analyzing the investment policy framework in Pakistan and the prospects of investment and growth for the period under consideration.

2. Economic Policy Framework and Investments Trends in Pakistan:

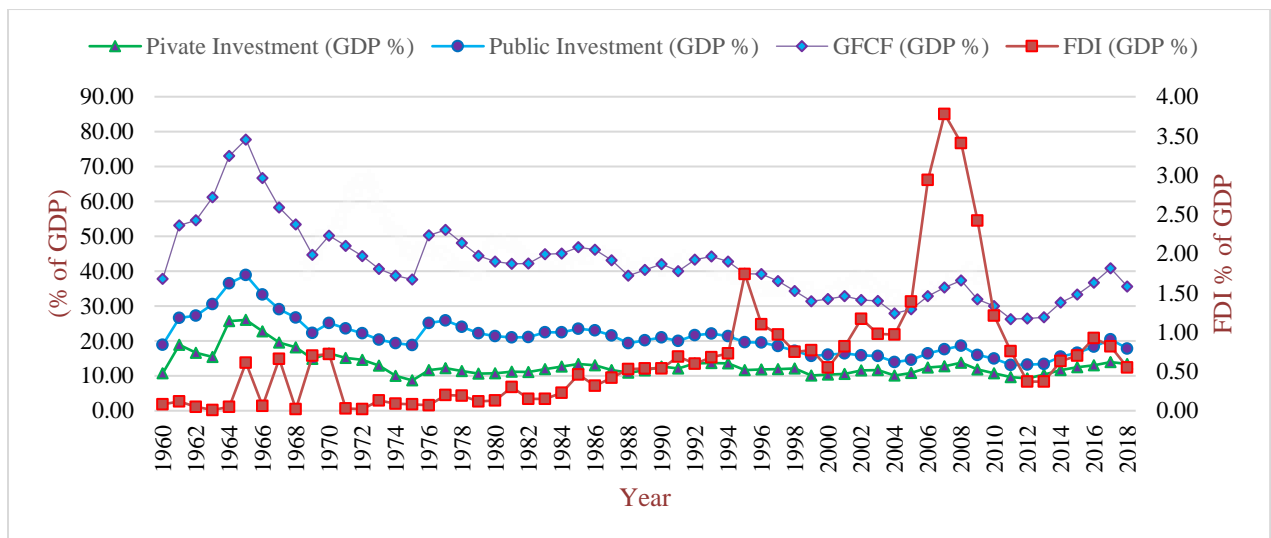
In the initial period, right after independence, Pakistan's economy witnessed such economic and political events that played a vital role in the economic progress of the country. During the 1950's Pakistan's exports were mainly constituted of raw materials. Korean War took place and raw material prices experienced a boom during 1950-53. As a result, Pakistan's foreign exchange reserves were enhanced due to an increase in export earnings which enabled the economy to grow reasonably well. Many institutions were also set up to industrialize the economy and enhance economic and business activities to accelerate economic growth and uplift the economy. The prevailed events coupled with policy measures, huge foreign assistance influx, and availability of foreign exchange reserves supported the Pakistan economy in the initial years. Fixed investment in private and public sectors showed rising trends from the fiscal year 1949-50 to 1959-60.⁵

In October 1958, General Ayub Khan took over the control of the country with, the imposition of Martial Law, and a new phase of Pakistan's economy started. Growth rates remained high during the Ayub era (1958-1969). All economic activities exhibited improved performance. The growth rates of both private and aggregate investments were impressive during this era. Notably, during the 1960s period, the liberalized and investment-friendly policies supported private economic activities in the country and resulted in boosts in investment and economic growth (Khan et al, 2016).

Figure 1 shows the trends of aggregate investment (GFCF), private investment (PI), public investment (PUB), and foreign direct investment (FDI) as a percentage of gross domestic product (GDP). As evident from the figure, in the initial years of the 1960s, both private domestic and public investments are showing rising trends, while foreign direct investment is negligible. Private investment was mainly driven by the industrial sector investment while public investment was restricted to the production of arms and ammunition, generation of hydropower, and development of public infrastructures like the development of railways, roads, transmission, and telephone lines, etc. The economy was subjugated by the private sector whereas in the banking and commerce sectors foreign investors were not allowed to invest (Zakaria, 2008).

Figure 1: Investment Trends (% of GDP)

⁵ The corresponding trends (as percentage of GDP) can be seen from <http://faculty.lahoreschool.edu.pk/Academics/Lectures/ayeshaa/PH%201%20HO.pdf>.



Source: *Handbook of Pakistan Economy, 2015 & Pakistan Economic Survey, 2018-19*

However, the increasing trend of private domestic investment took a downward turn in 1965. The aggregate investment was historically low. Both private domestic and public investments decreased by huge margins. During 1966-70, the economy was facing challenges on many fronts like reduction in aid flows and increased defense expenditures because of war with India. The prime reason behind this pattern was the 1965 Pak-India war and huge non-development expenditure left a few very resources for investment and development purposes. Both public and private investments were reduced, and the downfall continued until 1970. The climatic and political shocks namely bad weather, the 1965 war with India, political instability, and unrest in the following years exacerbate the economic situation in the country. These factors are reflected in investment trends and patterns of the economy. The aftermath of this political condition and dejected economic performance on the economy was also reflected in the investment trends and pattern of the economy.

In sum, the Ayub regime was the decade of reforms. Import substitution policy was adopted to promote industrialization, especially in large-scale manufacturing, which showed remarkable growth because of concerted efforts by the government (Ahmad and Qayyum, 2009). The focus, during the Ayub era, was on rapid industrialization through expansionary macroeconomic policies including the provision of tax holidays, tax rebates, and availability of credit. Along-with favorable policies adopted by the government, foreign economic aid also supported achieving an impressive economic growth rate during the 1960s. In 1970, the private domestic, public, foreign direct, and total investments were higher than the previous year.

But unfortunately, this trend could not be carried through. The initial years of the 1970s period were difficult for Pakistan. The country faced political unrest and a civil war was started in East Pakistan. The country lost its eastern wing, which emerged as Bangladesh in 1971. Zulfikar Ali (Z.A) Bhutto's rule started in 1971. The 1971 war was one of the major causes of deteriorating economic performance and investment activity during these years. The period from 1970 to 1977 witnessed several variations in government policies that had a huge impact on the economy of Pakistan. Bhutto's regime is largely criticized because of the nationalization policy that changed the dynamics of the economy. Banks, financial institutions, insurance companies, the engineering, and steel industry along with eight other major industries were nationalized.

The role of the public sector, in small-scale to large-scale industries increased sharply and public investment accounted for about two-thirds of total investment. The public sector was heavily involved in all spheres of economic activities, through public sector enterprises. A rise in public investment caused a major decline in domestic investment activity (Ahmad and Qayyum, 2009). Foreign investment was freed from nationalization, but it followed the same low trend as in the 1960s (see Figure 1). Banks continued to lend to monopoly houses on political influence (Haque, 2007).⁶ Private sector investment showed declining trends from 1971-75 as depicted in Figure 1.

During 1970-77, the responsible factors behind the dwindling trends in investment include nationalization policy, political instability, the civil war, and diversion of resources because of recovery from the war and partition of East Pakistan as well as the world oil price shock. Notably, government nationalization and the abolition of tax holidays policies caused discouragements to private investors and resulted in major changes in investment patterns. The financial sector underdevelopment mainly because of state-owned enterprises' dominance as well as rise in non-development expenditure especially due to increased defense spending with unmatched tax revenues was also responsible for the depressed investment and economic activities. The momentum of the previous decade, therefore, could not be maintained.

In 1977, Zia's military rule came into reign. Nationalization policy was revised gradually. Many investment incentives such as tax holidays are put in place again. However, in the initial years, private investment was slightly lower than public investment because of the policies of the Bhutto government and this trend continued till 1980. Notably, the 'macroeconomic turmoil' from 1978-80 caused a fall in total investment in many developing economies including Pakistan. The aggregate investment did not show reasonable growth.

Zia's government took various steps and several policy measures were taken to improve the business climate and attract foreign investment in Pakistan through liberal foreign investment policy measures such as exchange rate liberalization. Moreover, an export processing zone (EPZ) was established in Karachi to encourage export-oriented industries. Several concessions were offered to businesses opening in the EPZ, which included duty-free imports and exports of goods, tax exemptions, and a one-window facility. Though certain policy measures were taken, and certain incentives were given to foreign investors, foreign investment remained at low levels during the Zia regime. This could be attributed to certain factors including strict licensing and price controls policies, underdeveloped and inefficient financial sector, significant public ownership, high tariffs, and non-competitive trade regime, etc.

In the nutshell, due to the revision of the nationalization policy, the confidence of private investors regained, and private domestic investment started to grow gradually during this period (Figure 1). It kept up the momentum in subsequent years and eventually exceeded the public investment. Pertinently, the recovery in private investment in industry was attributable to various government initiatives such as fiscal and commercial measures including five-year tax holidays, import duty reduction on raw material, reduction in the interest rate, and denationalization of agro-based industries. Furthermore, fewer resources devoted to public

⁶ According to Haque (2007), nine 'houses' controlled the fifty percent (half) of the total textile production in 1959, sixty-five percent (around two-third) of total loans (by public sector financial institution) were distributed to thirty-seven (37) 'houses' during 1958-70, 60s policies were in favor of these houses, political and economic powers were concentrated to only these families even in Bhutto era.

investment and denationalization of many industrial units could be considered as some of the major reasons behind the improved private investment activities.

Pakistan pursued a more open and liberalized investment policy regime since the end of the 1980s. After General Zia-ul-Haq's demise in 1988, elections were held, and the new (democratic) government assumed office. In the late 1980s government faced various issues such as high budget deficit and worsening balance of payments position and resultantly led the government to seek foreign assistance. Government borrowed from International Monetary Fund (IMF) and started the Structural Adjustment Program (SAP) of IMF in the country (Ahmad and Qayyum, 2008).

Pakistan began the implementation of a comprehensive program of economic reforms, under the policy-based lending regimes of the World Bank and International Monetary Fund (IMF). The Privatization program was started and institutionalized under the Protection of Economic Reforms Act 1992. The fundamental aim was to achieve sustained increases in real economic growth through reforming financial markets and deregulating prices liberalizing foreign trade, and investment in agricultural and industrial sectors (Zaidi, 1994).

Historically, this period was considered to be shaky because of the prevalent deteriorating political situation in Pakistan. The Gulf crisis originated and many migrants working in the Middle East were sent back home causing a sharp decline in remittances. The crisis affected Pakistan not only through the huge decline in workers' remittances but also soaring oil prices and the resultant growth in consumer prices. These events caused a setback to Pakistan's economy. The prevailed situation accompanied by political disturbance led to another election in the country and the newly elected government assumed office in November 1990. From 1990 onward, the government took various initiatives to promote investment in the economy specifically in October 1990, the Government of Pakistan established Pakistan Investment Board (PIB). Later in 1994, it was renamed as Board of Investment (BOI) to objectively formulate policy guidelines for industrialization and to evaluate expeditiously investment proposals.

The period from 1993 to 1998, like the previous five years of the economy, was also subject to political uncertainty and frequent changes in regimes. In 1993, a new government came into power after general elections in the country. But another change in government occurred in the last year of this period. After the dismissal of the incumbent government in November 1996, the caretaker government took charge of the government. However, the reins of power were handed over to the elected government in February 1997. In March 1997, to encourage private investment prime minister's economic revival program was initiated and a Policy of Independent Power Plants (IPPs) was announced in 1998 to meet the power demand (Ahmad and Qayyum, 2008).

Other investment-friendly policies that were instituted during this period included easy visa policy and application of similar rules and regulations to foreign investors as applicable to domestic investors. The condition of prior government approval for foreign investment was removed, except for a few industries (security printing, arms and ammunition, currency and mint, radioactive substances, high explosives, and alcoholic beverages). In addition, several fiscal incentives were offered to investors which include tax holidays, exemption of customs duty and sales tax, removal of many tariff and non-tariff barriers, and the reduction of the prohibited list of imports. Furthermore, privatization policy was started in the country.

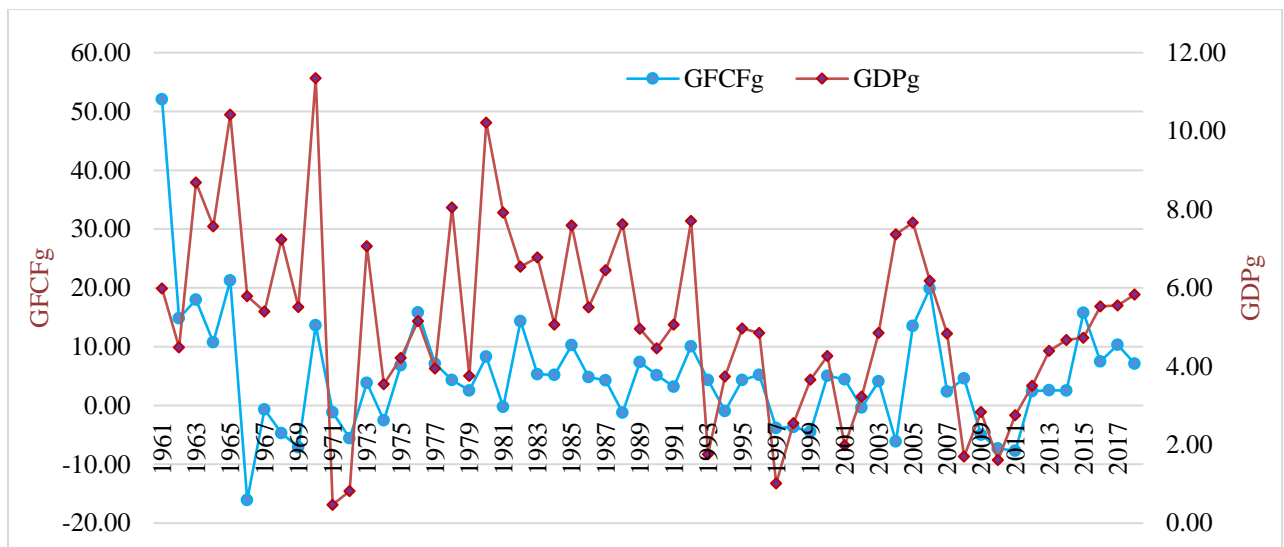
To encourage investment specially to attract foreign investment in export-oriented industries special industrial zones (SIZs) was established. The BOI prepared the first Investment Policy of Pakistan in 1997, which opened the services, social, infrastructure, and agriculture sectors for foreign and local investors. In October 1998 a new body named Small and Medium Enterprises Development Authority (SMEDA) was established to promote small and medium enterprises (SMEs) and entrepreneurship in Pakistan (Ahmad and Qayyum, 2008). This phase has deep imprints on Pakistan's economy. Both the total investment and economic growth in Pakistan showed a downturn trend in the wave of the Asian financial crisis in 1997, quite similar trends observed in many other Asian countries (Saglam and Yalta, 2011; Ang, 2009).

In sum, the period of the 1990s can be viewed as one of the most difficult periods in the history of Pakistan's economy due to geopolitical and climatic conditions, worsened the political situation, economic sanctions, and climatic situations i.e. floods. The initiation of the privatization and deregulation of public concerns across a range of sectors, including telecommunications, banking, and manufacturing was an achievement of this period. The privatization program also played a pivotal role in mobilizing FDI and broadening and deepening the Pakistan capital markets. Private and total investments as a percent of GDP marginally grew during the era (Rahman et al., 2009).

In the wake of nuclear tests in May 1998, economic sanctions were imposed on Pakistan. The economy witnessed contraction and resulted in slower investment and economic growth in subsequent years. In 1999 the government was toppled, and General Pervez Musharraf took over the charge. The new government launched an economic reforms program in the year 2000. This program was started under the IMF Poverty Reduction Program and Growth Fund Framework. In these programs, several initiatives were taken such as reforms in banking and trade sectors, privatization of power projects, fiscal policy adjustments, development of the telecommunication sector, etc. The objective of these incentives was to promote investment in export-oriented and high technology industries with a focus on private investment, and financial sector development.

In September 2001, the incident of World Trade Centre (9/11) occurred, and it changed the entire scenario of the world and the region as well. In wake of a policy shift, Pakistan joined the international alliance against terrorism. As a result, Pakistan received funds to finance the war against terrorism. Some of Pakistan's debt was also rescheduled. It helped the economy to raise foreign exchange reserves improve the public debt situation and, hence, boosted the confidence of foreign investors. The investment in telecommunication and real estate increased considerably. The government paid special attention to developing the financial sector. The credit availability and bank leasing programs enhanced investment in the services sector and increased the demand for household durables, particularly automobiles and real estate. Consequently, both private domestic investment and foreign direct investment experienced a positive upward trend (Figure 1). A similar positive pattern was witnessed in aggregate investment and GDP growth (Figure 2). However, public investment followed a downward trend during the period.

Figure 1: Investment and GDP growth



Source: *Handbook of Pakistan Economy, 2015 & Pakistan Economic Survey, 2018-19*

During the first decade of the new millennium, the investment regime was further liberalized. The cornerstone of government policies during this period were privatization, deregulation, provision of fiscal incentives, and liberal remittance of profits and capital. The policy was geared towards encouraging investment in sophisticated, high-tech, and export-oriented industries. The Investment Policy, unveiled in 2013, builds on the earlier 1997 policy consolidating existing policies promulgated by the relevant line ministries and introduces further liberalized policy measures along with futuristic strategic programs to implement the Policy. The Policy focuses on developing linkages of trade, industrial and monetary policies for greater convergence. Further, the provincial autonomy after the 18th amendment opened new avenues to explore and exploit the locally available resources.

In 2008, democracy was restored in the country. The new government faced the inherited global financial crisis of 2007-08, acute energy shortfall, circular debt problem, and a wave of terrorism. The hike in international oil prices, soaring inflation, poor law, and order situation, and a massive and prolonged wave of terrorism contributed to raising the cost of doing business and resultantly hampered economic activities and investment levels in the country. Accordingly, foreign direct investment started declining (as evident in Figure 1). Also, both public and private domestic investment remained at low levels.

Government handed over the power in a peaceful manner to the new government of the Pakistan Muslim League (N) in 2013. The new government took very effective steps such as Zarb-e-Azb and other combing operations against terrorists, initiated the China Pakistan Economic Corridor (CPEC) project to improve security and economic situation through mainly addressing the energy and infrastructure sectors in the country. In recent times special attention is given to improving the security situation of Karachi, the financial hub of Pakistan. During the Nawaz regime (2013-2018) a comprehensive economic revival program is implemented which resulted in significant economic improvement. Due to the reforms made by the government, the economy again has reverted to the track.

The growth-oriented economic policies namely National Doing Business Reform Strategy, Domestic Resource Mobilization Strategy, National Power Policy, Textile Policy, Automotive Policy, Kissan Package, etc. have supported the economy in accelerating the pace of economic

growth in the country. To improve the investment climate in Pakistan, the government has underpinned the National Doing Business Reform Strategy (NDBRS), so that greater inflows of investment could be attracted. As a result of main reform measures taken in this regard the position of Pakistan, according to Doing Business Report, was improved by 4 points (144/190 economies) in ease of doing business index of World Bank in 2017.

Special attention was paid to the key issues faced by small and medium enterprises (SMEs) in their business operations. One of the important investment strategies mainly in developing countries is to promote special economic zones (SEZs) to industrialize the economy, enhance investment and accelerate economic growth. To achieve this objective, BOI has provided the policy framework for SEZs Act 2012 which has been amended in 2016. The SEZs Act 2012 aims to encourage the development process in SEZs and accordingly make it business and investment-friendly. The Public-Private Partnership (PPP) mode of financing is encouraged. For this purpose, the requisite measures are being taken for the provision of energy and infrastructure both by the federal and provincial governments.

The purpose of all these rules and laws is to reduce the cost of doing business in the economy, attract more investment and relocate industries from abroad. In sum, the policies are quite liberalized and support private and foreign investments. The rules and regulations are promoting the deregulation and privatization process in the country.

3. Model and Data Description

Investment behavior in an economy is conventionally determined by GDP growth returns on investment, cash flows, and business expectations⁷. Additionally, the investment analysis also incorporates the manifold factors and variables like effects of macroeconomic policies, political instability, macro-economic uncertainty, infrastructure, financial development, openness, and exchange rate, etc. on investment. To investigate and empirically analyze the investment policies and investment nexus, controlling for other determinants, the devised econometric model is given as follows.

The econometric model is in the log-log form to estimate the relationship between investment and its determinants. However, the log is not applied to GDP growth, the user cost of capital, or political score.

$$I = \alpha_0 + \alpha_1 G + \alpha_2 UC + \alpha_3 FD + \alpha_4 PI + \alpha_5 OP + \alpha_6 ND + \alpha_7 PD + \alpha_8 ID + \mu \quad (3.1)$$

Where I is a real aggregate gross fixed investment, G represents the real GDP growth rate, UC is the user cost of capital, FD represents the financial development, PI is the physical infrastructure, OP represents the trade openness, ND is the nationalization dummy, PD is the privatization dummy, ID used for institutional dummy and μ is the error term.

4. Data Description

⁷ This phenomenon indicates the inertia and sluggishness in macroeconomic variables such as investment.

In this study the impact nationalization and privatization coupled with institutions on the aggregate investment, for the case of the Pakistan economy, is captured. The study covers the period 1960-2018. All the variables are extracted from *World Development Indicators (WDI)*, *International Financial Statistics (IFS)*, *Pakistan Economic Survey (PES)*, and *Penn World Table*. Real gross fixed capital formation i.e. aggregate fixed investment (I) is dependent variable while real GDP (G), user cost of capital (UC), financial development (FD) [proxied by real domestic credit availability as a percentage of GDP], physical infrastructure (PI) [length of roads (total) in kilometers⁸ per total (country's) area] and trade openness (OP), is the major explanatory variables used in the study.

To capture the effect of privatization, a dummy variable (PD) is used. The value of it is one for the different years when the government adopted a privatization policy and zero otherwise. Similarly, to capture the effect of nationalization, a dummy variable (ND) is used. The value of it is one for the years 1972-1974 and zero otherwise. Further, the effect of an institution like a board of investment (BOI) is also captured by using an institutional dummy. The value of institutional dummy is one from the establishment of a specific institute i.e., board of investment established in 1992, so the value of dummy variable will be 1 from 1992 to onward and zero otherwise.

4. Construction of Variables

The data used in the analysis are taken at constant prices. Physical infrastructure (PI) variable is proxied by road length. Trade openness (OP) is calculated by dividing exports (X) plus imports (M) of goods and services by GDP.

Hall and Jorgenson (1969) argue that decision of investment relies upon cost and benefit analysis. The benefit side largely depends upon demand while cost relies on the price of capital (the implicit investment deflator)⁹, interest rate, depreciation rate, and inflation rate. According to Jorgenson user cost (UC) of capital is determined by the following formula:

$$UC = P_k \left(i - \pi + \delta - \frac{\Delta P_k}{P_k} \right) \quad (3.2)$$

where P_k (price of capital) is proxied by investment deflator¹⁰, i is average of three different interest rates (call money rate, government bond yield and discount rate), π is the growth rate of GDP deflator (inflation), δ is the depreciation rate (series taken from *Penn World Table*), and the last term shows the capital price inflation.

4.1. Estimation Technique

The majority of the macroeconomic variables, road length, real gross fixed capital formation, and exchange rate are non-stationary, while some other variable series are stationary¹¹ so this study employs the Auto-Regressive Distributed Lag (ARDL) technique outlined by Pesaran, *et al.* (2001). ARDL techniques take care of nonstationary, endogeneity, and serial correlation

⁸ Total length of roads includes high type and low type (in kilometers)

⁹ (See Akkina and Celebi, 2002).

¹⁰ Investment deflator = nominal investment/real investment.

¹¹ The stationarity properties of different variable are examined by using ADF and PP tests.

issues (for details see Pesaran and Shin, 1999; Alam and Quazi, 2003; Siddiki, 2000); Rehman, *et al.* (2009).

Using the standard ARDL framework, Equation (3.1) is generalized as follows,

$$\begin{aligned} \Delta I_t = & \beta_1 + \sum_{i=1}^p \beta_i \Delta I_{t-i} + \sum_{i=0}^q \beta_j \Delta G_{t-i} + \sum_{i=0}^r \beta_k \Delta OP_{t-i} + \sum_{i=0}^s \beta_l \Delta PI_{t-i} + \sum_{i=0}^t \beta_m \Delta UC_{t-i} \\ & + \sum_{i=0}^u \beta_n \Delta FD_{t-i} + \sum_{i=0}^v \beta_o \Delta ID_{t-i} + \sum_{i=0}^w \beta_p \Delta PD_{t-i} + \sum_{i=0}^x \beta_q \Delta ND_{t-i} + \gamma_1 I_{t-1} + \gamma_2 G_{t-1} \\ & + \gamma_3 OP_{t-1} + \gamma_4 PI_{t-1} + \gamma_5 UC_{t-1} + \gamma_6 FD_{t-1} + \gamma_7 ID_{t-1} + \gamma_8 PD_{t-1} + \gamma_9 ND_{t-1} + \varepsilon_t \end{aligned} \quad (3.3)$$

Where, Δ is the difference operator and ε is error term, β_i to β_q in equation 3.3 refers to short run dynamics of the variables while, γ_1 to γ_9 are long run dynamics of the variables. From equation 3.3, the null hypotheses ($H_0: \gamma_1=\gamma_2=\gamma_3=\gamma_4=\gamma_5=\gamma_6=\gamma_7=\gamma_8=\gamma_9=0$), of no long run relationship between the variables is tested against the alternative hypotheses ($H_1: \gamma_1=\gamma_2=\gamma_3=\gamma_4=\gamma_5=\gamma_6=\gamma_7=\gamma_8 = \gamma_9 \neq 0$), there exist long run relationship. F statistic is applied to check the long run relationship. The rejection of H_0 is based on the critical value of F statistics. Lag length of the variables determined by the conventional well-known criteria recognized by Akaike (1998); Hannan and Quinn (1979) and Schwarz (1978). Finally, ε_t is the residual term and it is assumed as white noise process. Estimation Results and discussion.

5. Results and discussion

Table 1: Results of ADF and PP Unit Root Tests:

Variable	ADF		PP		Conclusion
	Level	Δ	Level	Δ	
I	-2.25	-7.21*	-2.01	-7.26*	I(1)
G	-2.24	-6.96*	-2.28	-7.05	I(1)
Op	-2.39	-7.66*	-2.42	-8.15	I(1)
PI			-0.93	-7.85*	I(1)
UC	-3.68*	-10.52	-3.54**	-13.08	I(0)
FD	-3.50**	-6.17	-2.63***	-5.92	I(0)

Note: *, ** and *** denotes the significance levels of 1%, 5% and 10% respectively and Δ denotes first difference.

Table 2: Correlation Matrix:

	I	G	OP	PI	UC	FD	ID	PD	ND
I	1								
G	0.986	1							
OP	0.325	0.266	1						
PI	0.972	0.972	0.332	1					
UC	0.586	0.554	0.539	0.585	1				
FD	0.135	0.052	0.141	0.024	0.070	1			
ID	0.849	0.864	0.169	0.903	0.567	-0.078	1		
PD	0.390	0.388	0.138	0.402	0.248	0.320	0.344	1	
ND	-0.518	-0.454	-0.210	-0.467	-0.224	-0.151	-0.339	-0.179	1

Table 3: Bound test results:

Test Statistics	Calculated	Significance		
	Value	Level	Lower bounds	Upper bounds
F-statistic	8.562	1 %	2.62	3.77
		2.5%	2.33	3.42
		5%	2.11	3.15
		10%	1.85	2.85

* Critical values of upper and lower bounds are from Pesaran (2001) with unrestricted intercept and no trend.

Table 4: Long run Results

Variables	Coefficient	Std. Error	t-Statistics	Prob.*
C	2.15	0.43	5.02	0.000
G	0.64	0.09	7.27	0.000
OP	0.00	0.00	1.94	0.060
PI	0.16	0.15	1.05	0.299
UC	-0.01	0.00	-2.22	0.033
FD	0.00	0.00	2.63	0.012
ID	0.00	0.03	-0.13	0.898
PD	0.03	0.02	1.26	0.215
ND	-0.08	0.03	-2.79	0.008

Table 5: ECM regression Results

Variables	Coefficient	Std. Error	t-Statistics	Prob.*
D(UC)	0.01	0.01	2.41	0.021
D(UC(-1))	0.01	0.01	5.22	0.000
D(PD)	-0.01	0.01	-0.81	0.423
D(PD(-1))	-0.02	0.01	-2.84	0.007
D(ND)	-0.07	0.01	-5.55	0.000
D(ND(-1))	-0.03	0.01	-2.32	0.026
CointEq(-1)*	-0.51	0.05	-10.35	0.000
R-Squared	0.68	Akaike info criterion		-5.28
Adjusted R-Squared	0.64	Schwarz criterion		-5.01
S.E. of Regression	0.016	Hannan-Quinn criteria		-5.18

Results of table 1 revealed that financial development and user cost of capital to be stationary at a level while investment, real GDP growth, physical infrastructure, and trade openness stationery at 1st difference.

Table 2 explain the correlation among different variables. There exist strong and positive correlation between total investment and Real GDP growth. Physical infrastructure also strongly correlated with investment. Its means that by improving physical infrastructure, investment increase while rise in investment beneficial for infrastructure development. Except from nationalization policy, all others variables are positively correlated with investment.

Results of table 3 show that the calculated value of F statistic (8.562) is greater than the upper bound critical value (3.77), which indicates the existence of long run relationship among I, G, OP, UC, FD, PI, ID, PD, and ND in Pakistan.

Table 4 explain the long run effect of different variables on total investment in Pakistan. Coefficient of real GDP has positive sign which indicates that increase in GDP surge the level of investment. The reason is that when income increase then it enhance individuals' capacity to save. So increase in savings enhance investment in Pakistan. Cost of capital also play very important role to investment decision. Coefficient for User cost of capital has negative sign which indicates that increase in user cost resist decision to invest in Pakistan. The reason is that by increasing cost of capital, enhance the risk of loss so it insist the investor to keep the capital in banks instead of investment. So User cost of capital significantly affect total investment in Pakistan. Financial development is beneficial while Nationalization policy diminish investment level. Its means that development in financial sector and switch to privatization improve the efficiency of firms which in turn increase investment in Pakistan.

Table 5 explain the short run determinants of investment in Pakistan. The coefficient of error-correction term (ECM) also confirms the short-run relationship among the variables. The estimated value of ECM coefficient is (-0.51) which indicates that 51% of disequilibrium is adjusts towards equilibrium within a year.

The results of other diagnostic test like LM test for Autocorrelation, Ramsey RESET test for model specification, Jarque-Bera (JB) test for normality, CUSUM and CUSUMSQ given in the appendix, demonstrate that the coefficients/parameters are stable.

4. Conclusion and Policy Implications

It is evident that the investment behavior in Pakistan has been quite volatile and one of the factors contributing to this behavior has been frequent changes economic policies in general and investment policies in particular throughout the history of Pakistan. Noneconomic factors along-with economic variables have also played a decisive role in determining investment climate in Pakistan. Evidently the investment and growth processes move side by side. The structural issues in Pakistan have also been impeding investment activity.

The study concludes that for investment activity to improve on sustainable basis, it is essential to rise the income level. On supply side, increase in income incentivize the people to save which in turn rise investment. On the other hand, increase in GDP surge the demand for goods which attract the people to invest in the economy with higher demand. Financial development also play an important to attract people to investment. When an economy improve its financial sectors then it facilitate individuals to start new projects which increase capital flow and enhance investment. The main factors which are detrimental for investment flow in Pakistan are higher user cost and Nationalization of private firms.

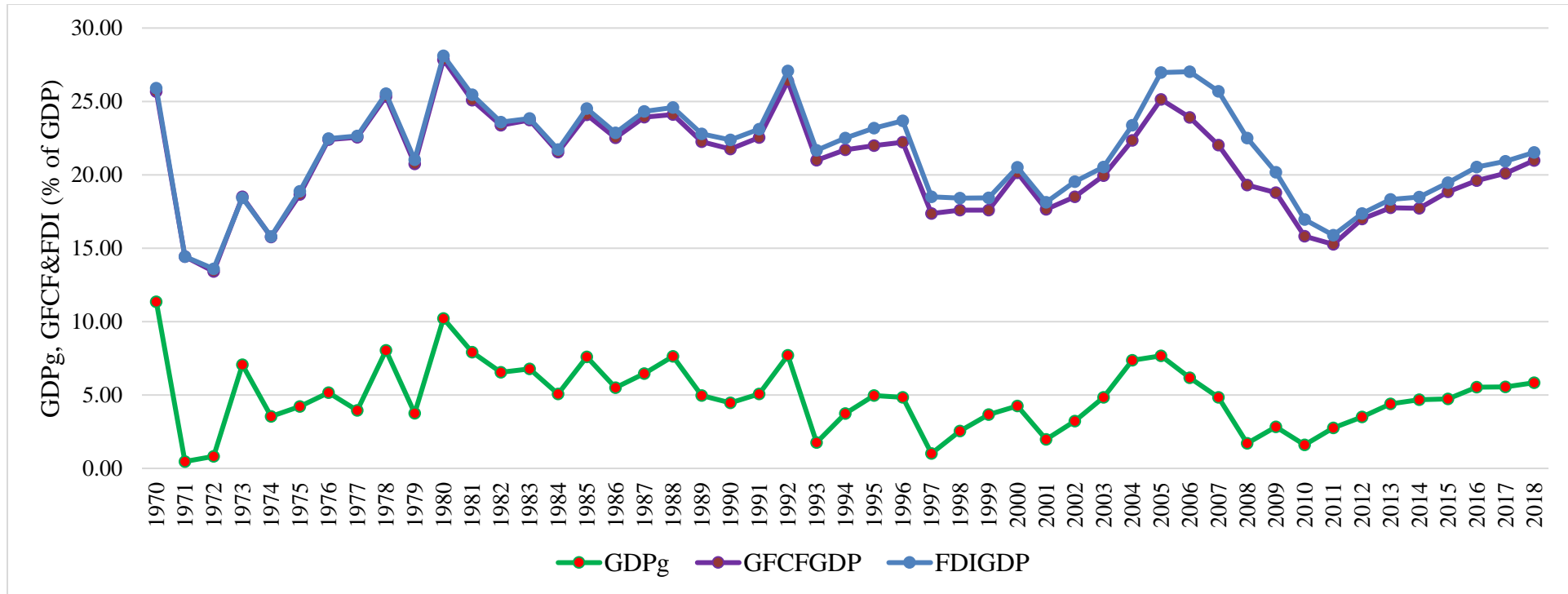
It has been recommended that to increase the flow of investment in Pakistan, policy makers should be focus on financial sector development and denationalization of firms. These measures improve the efficiency of organizations which in turn switch firms' decision to invest in Pakistan. By reducing the cost of capital and increase in the level of income brings positive change in investment flow in Pakistan. Officials focus on those policies which reduce interest rate and increasing GDP to achieve higher investment. The institutional reforms to transform the BOI as a professional investment promotion agency under corporate structure

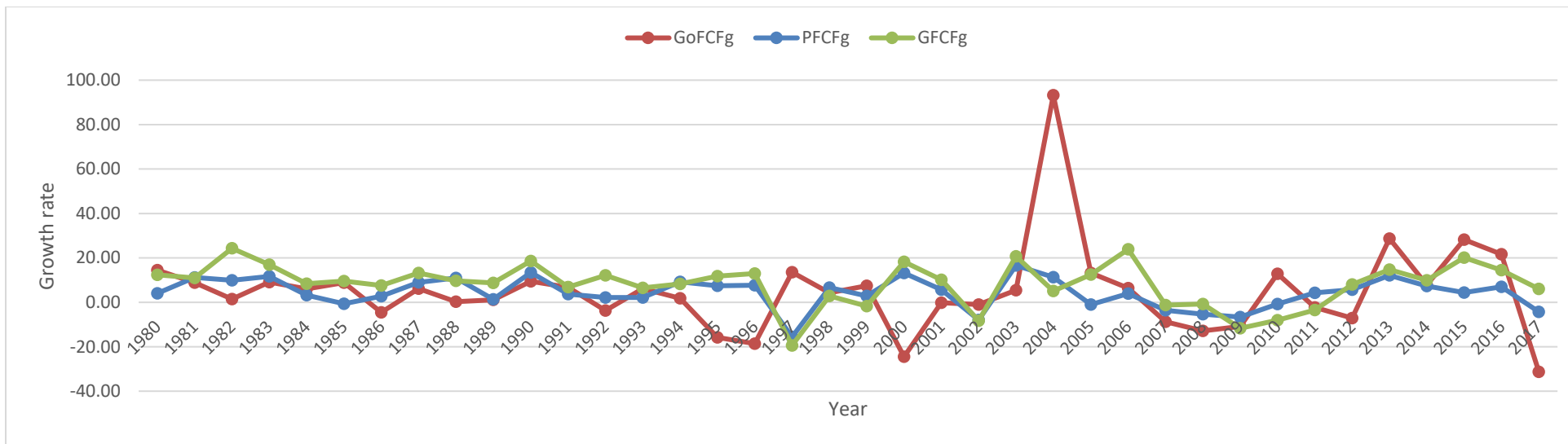
can develop its capacity to deliver efficient and effective tasks pertaining to ease of doing business.

References

- Abid, M., & Ashfaq, A. (2015). CPEC: Challenges and Opportunities for Pakistan. *Journal of Pakistan Vision*, 16(2), 142-169.
- Ahmad, I., & Qayyum, A. (2008). Effect of Government Spending and Macroeconomic Uncertainty on Private Investment in Services Sector: Evidence from Pakistan. *European Journal of Economics, Finance and Administrative Sciences*, 11, 84-96.
- Ahmad, I., & Qayyum, A. (2009). Role of Public Expenditures and Macroeconomic Uncertainty in Determining Private Investment in Large Scale Manufacturing Sector in Pakistan. *International Research Journal of Finance and Economics*, 26, 34-40.
- Ainia, N. S. N., & Lutfi, L. (2019). The influence of risk perception, risk tolerance, overconfidence, and loss aversion towards investment decision making. *Journal of Economics, Business, & Accountancy Ventura*, 21(3), 401-413.
- Ajaz, M. B. & Nazima, E. (2012). Public-Private Investment and Economic Growth in Pakistan: An Empirical Analysis. *The Pakistan Development Review* 51(4), 61–78.
- Ang, J. B. (2009). Do Public Investment and FDI Crowd in or Crowd out Private Domestic Investment in Malaysia? *Applied Economics*, 41(7), 913-919.
- Asamoah, G., Baah-Adade, A. K., Ayikpah, Y. A., & Ayikpah, Y. A. A. (2021). Effects of emotional intelligence variables on investor behavior in Ghana. *Journal of Technology, Engineering, Management & Computational Sciences*, 1(1), 130–240.
- Chang, H. J., & Andreoni, A. (2020). Industrial policy in the 21st century. *Development and Change*, 51(2), 324-351.
- Ghani, E., & Din, M. U. (2006). The Impact of Public Investment on Economic Growth in Pakistan. *The Pakistan Development Review*, 87-98.
- Government of Pakistan (2015). *Handbook of Statistics*, State Bank of Pakistan (SBP), Karachi.
- Government of Pakistan (Various Issues). *Economic Survey*, Ministry of Finance, Economic Advisor's Wing, Islamabad.
- Haque, N. (2007). Entrepreneurship in Pakistan. Pakistan Institute of Development Economics. Working paper 2007: 29, Islamabad. Available at: <http://www.pide.org.pk/pdf/Working%20Paper/WorkingPaper-29.PDF>.
- Harari, Y. N. (2020). The world after coronavirus. *Financial Times*, 20(03), 2020.
- Khan, A., Ahmad, M., & Waheed, A. *Pakistan's Journey to Civilian Rule (1958-70): An Analysis of Ayub Era*.

- Khan, K., & Anwar, S. (2016). Special Economic Zones (SEZs) and CPEC: Background, Challenges and Strategies, Available at: <http://www.pide.org.pk/psde/pdf/AGM32/papers/Special%20Economic%20Zones.pdf>.
- Naseem, A. (2015). Impact of China Pak Economic Corridor - A Bird's Eye View. [online] Islamabad: BMA Capital. Available at: <http://investorguide360.com/>.
- Nguyen, A. T., Parker, L., Brennan, L., & Lockrey, S. (2020). A consumer definition of eco-friendly packaging. *Journal of Cleaner Production*, 252, 119792.
- Pesaran, M. H., Y. Shin, and R. J. Smith (2001) Bounds Testing Approaches to the Analysis of Long-run Relationships. *Journal of Applied Econometrics* 16, 289–326.
- Ramay, S. A. (2016), "China Pakistan Economic Corridor: A Chinese Dream Being Materialized Through Pakistan," *Sustainable Development Policy Institute*, Available at: <http://hdl.handle.net/11540/6694>.
- Rehman, H. U., Khan, S., & Khan, M. A. (2009). What Determines Private Investment? The Case of Pakistan. *South Asian Studies A Research Journal of South Asian Studies*, 24(1), 52-68.
- Saglam, B. B., & Yalta, A. Y. (2011). Dynamic Linkages Among Foreign Direct Investment, Public Investment and Private Investment: Evidence from Turkey. *Applied Econometrics and International Development*, 11(2), 71-82.
- Tang, S., Selvanathan, E. A., & Selvanathan, S. (2008). Foreign Direct Investment, Domestic Investment and Economic Growth in China: A Time Series Analysis. *The World Economy*, 31(10), 1292-1309.
- Zaidi, S. A. (1994). *Issues in Pakistan Economy*. Oxford University Press, Karachi.
- Zakaria, M. (2008). Investment in Pakistan: A Critical Review, *MPRA Paper*, No. 11543.





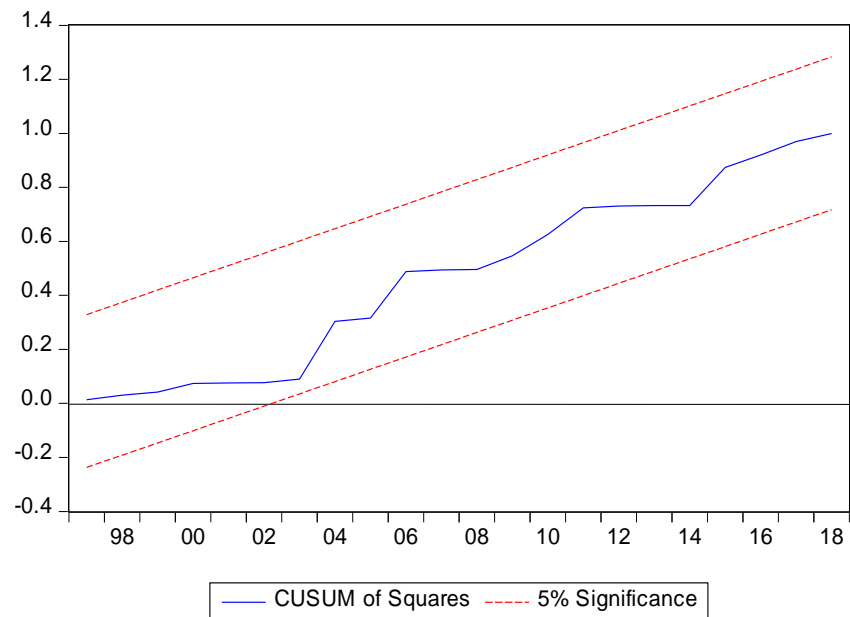
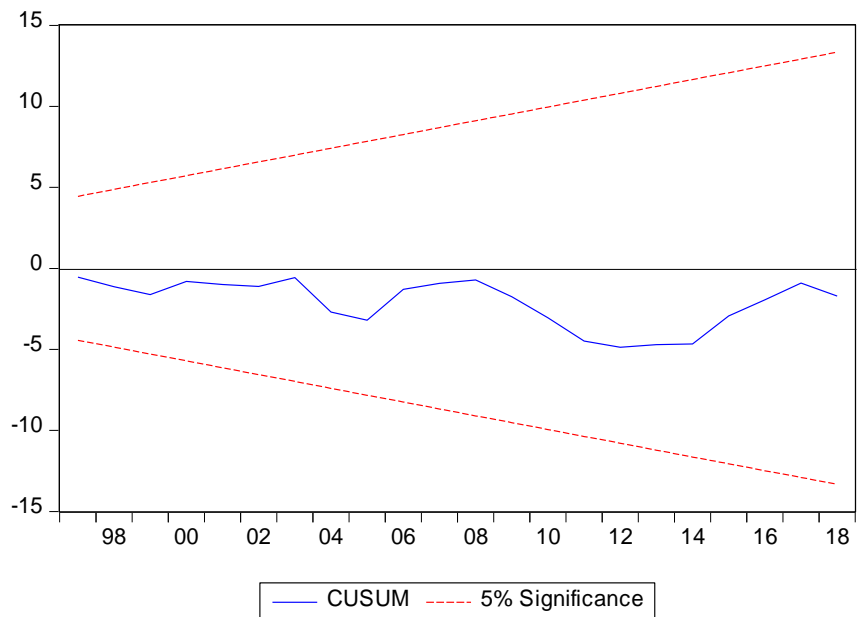


Table 1: Diagnostic test of ARDL Model

<i>LM test</i>	<i>F-statistic</i> =	0.133	<i>Prob. F (2,34)</i>	0.8752
	<i>Obs*R-squared</i> =	0.406	<i>Prob. Chi-Square (2)</i>	0.8162
<i>Jarque-Bera</i>		0.091	<i>Probability</i>	0.9552
<i>Rasey RESET test</i>	<i>t-stat</i> =	0.122	<i>Probability</i>	0.9033
	<i>f-stat</i> =	0.014	<i>Probability</i>	0.9033

Summary Statistics:

	I	G	OP	PI	UC	FD	ID	PD	ND
<i>Mean</i>	10.17	10.91	32.02	5.21	7.41	48.38	0.52	0.23	0.10
<i>Median</i>	10.26	10.96	32.97	5.29	6.86	48.97	1.00	0.00	0.00
<i>Maximum</i>	10.57	11.41	38.91	5.47	14.96	57.90	1.00	1.00	1.00
<i>Minimum</i>	9.76	10.34	19.93	4.85	-14.21	36.85	0.00	0.00	0.00
<i>Std. Dev.</i>	0.24	0.32	4.36	0.22	4.48	5.34	0.50	0.43	0.30
<i>Skewness</i>	-0.38	-0.21	-0.78	-0.42	-1.90	-0.52	-0.08	1.28	2.74
<i>Kurtosis</i>	1.89	1.81	3.16	1.51	11.66	2.80	1.01	2.63	8.51
<i>Jarque-Bera</i>	3.90	3.48	5.35	6.34	193.80	2.47	8.67	14.45	130.75
<i>Probability</i>	0.14	0.18	0.07	0.04	0.00	0.29	0.01	0.00	0.00
<i>Sum</i>	529.02	567.06	1665.19	270.71	385.09	2515.77	27.00	12.00	5.00
<i>Sum Sq. Dev.</i>	2.87	5.09	971.68	2.50	1021.32	1453.96	12.98	9.23	4.52
<i>Observations</i>	52	52	52	52	52	52	52	52	52