Do IMF Programs Benefit or Hurt Economic Growth in Pakistan?

Submitted By

Ameet Kumar

PIDE2017MPHILEAF16

Supervised By

Dr. Naseem Faraz

A Dissertation submitted to Department of Economics and Finance, Pakistan Institute of Development Economics Islamabad, in partial fulfillment of the requirements for the degree of Master of Philosophy in Economics and Finance

2020

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS, ISLAMABAD

CERTIFICATE

This is to certify that this thesis entitled **"Do IMF Programs Benefit or Hurt Economic Growth in Pakistan?"** submitted by **Mr. Ameet Kumar** is accepted in its present form by the Department of Business Studies, Pakistan Institute of Development Economics (PIDE) Islamabad as satisfying the requirements for partial fulfillment of the Degree of Master of Philosophy in Economics and Finance.

Supervisor:

Dr. Naseem Faraz
Senior Research Economist,
PIDE, Islamabad

External Examiner:

Dr. Eatzaz Ahmad
Professor,
QAU, Islamabad

Head, Department of Business Studies:

Dr. Nadeem Ahmed Khan
Assistant Professor,
PIDE, Islamabad.

October 12, 2020

AUTHORSHIP STATEMENT

I, **Ameet Kumar** solemnly declare and affirm on oath that I myself have authored this M. Phil Thesis with my own work and means, and I have not used any further means except those I have explicitly mentioned in this report. All items copied from internet or other written sources have been properly mentioned in quotation marks and with a reference to the source of citation.

<div align="right">

Ameet Kumar

</div>

DEDICATION

This research work is dedicated to

My Beloved Parents

For their prayers, moral support and encouragement that enlightened my way and

made it possible for me to reach at this stage.

Acknowledgement

First of all, I am thankful to God Almighty for his utmost blessings upon me and for giving me the ability to complete this piece of work. A major research work like this would not have been possible without the support of several people. I would like to express my gratitude to my supervisor Dr. Naseem Faraz whose consistent guidance made the task of this thesis possible for me. I thank him for his support and guidance throughout this process. I am thankful to External Examiner Dr. Eatzaz Ahmad for his cooperation throughout this research. I am obliged a lot to Dr. Arshad Hassan as I learned a lot from him during my coursework. I am also thankful to Dr. Ahmad Fraz, Dr. Farhat Mehmood and Dr. Javed Iqbal who helped me throughout my coursework. Special thanks to my parents as I owe a lot to them. Without their support and prayers, it would not have been possible for me to accomplish such research work. I am also grateful to my siblings, my friends especially Ayesha Khan, Malik Adeel-Ur-Rahman, Omar Farooq, Soban, Shahbaz-ul Hassan, Asad Tahir and Mian Hassan Ali for their love and moral support. Lastly, I am glad to thank my Institution which provided me the ability to learn and excel.

Ameet kumar

LIST OF ACRONYMS

IMF	International Monetary Fund
SAF	Structural Adjustment Facility
SBA	Stand-by Arrangement
EFF	Extended Fund Facility
ESAF	Enhanced structural Adjustment Facility
PGRF	Poverty Reduction Growth Facility
CCFF	Contingency and Compensatory Financing Facility
GDP	Gross Domestic Product
UNEMP	Unemployment
INF	Inflation
BDGDP	Budget deficit as percentage to GDP
TRGDP	Total Revenue as percentage to GDP
TEGDP	Total Expenditure as percentage of GDP
REX	Real exchange rate

Table of Contents

List of Tables

Abstract

This study aims to provide the empirical evidence of effects of International Monetary Fund (IMF) programs on Pakistan's. The study uses a time series data for analyzing the IMF program impact on the budget deficit, government revenue, expenditure and economic growth in Pakistan over the time period of 1980 to 2019. For this purpose, the time series techniques are implied. Firstly, the study checked the stationarity of the variables through unit root tests by Augmented Dicky Fuller (ADF) and Phillips Perron (PP). The bound test and ARDL methodologies are also used in this study. The findings of the study further explore the long run relation among the budget deficit, growth of total revenue, growth of total expenditure on IMF dummy. The results show that IMF programs are negatively affected by GDP growth.

Chapter 1

Introduction

During the economic crisis period, almost all developing countries have received IMF finance support at least once since 1980s. For instance, its role in Latin American crises in early 1980s in response of the aftershock of the oil prices shocks in late 1970s (Conway 1994, Ozturk 2008). The use of IMF funds to stabilize the currencies of countries affected by the financial crises in East Asia in 1997. Or the participation of largest developing country India in 1991, and the youngest democracy Pakistan since 1989. Given the broad reach of IMF loan programs, it is important to know the consequences of these programs for economic growth in developing countries. Do countries benefit from access to IMF loan programs or would countries be better off if these programs did not exist?

While look at literature, a large set of studies have investigated the impact of the IMF programs on economic outcomes in developing countries. They have presented positive, negative and some cases ambiguous impact of the IMF program Rozwadowski *et.al.* (1993); Schadler & Bredenkamp, (1999); Mecagni *et.al.* (2000); Ghosh *et.al*. (2005); Hajro and Joyce, (2009); Botchwey *et.al*. (1998); Gupta *et.al.* (2002); and Bird & Mosley (2005). For instance, the stabilizing effect acquired from the money supply is not sufficient to accelerate the economic growth, as according to Prezworski and Vreeland (2000). On the contrary, Barro and lee (2002) stated that growth has been lowered directly and indirectly as results of IMF program participation in a large set of countries. Although, Bird argues that concessional programs are found to have positive effect on economic growth for up to two years after agreements were signed. Dicks-Mireaux *et.al*. (2000) highlighted that IMF programs have positive effect on the macroeconomic variables and economic growth

but results fail conventional tests of statistical significance. Bird and Mosley (2005) find evidence that suggests that the poverty reduction and growth facility (PRGF) and the enhanced structural adjustment facility (ESAF) have helped recipient countries to increase their rate of economic growth, and also to redirect government expenditure in a pro-poor way and increase social capacity. Similarly, Bal-Gnduz, *et.al.* (2013) supports the argument that long-running involvement by developing countries with the IMF, as well as short-run engagement associated with shock-related drawings, have a beneficial effect on economic growth.

The International Monetary Fund strives towards its objectives using a multitude of channels; First, approval of IMF program which is associated with particular amount of funds that attracts investors, enhance country's credibility for financial policies and development and enable economies to acquire private and public loans .Second, the provision of money can be viewed as an immediate, short-term solution aimed at stabilizing the economic development. Third, policy conditions attached with IMF loan Program; IMF imposes conditions that reassure the commitment to particular set of economic policies to achieve sustainable growth and solve financial crises. Fourth, IMF's policy advices to member countries, providing information through surveillance by monitoring the international monetary system, forecasting instabilities and changes in economic policies can spur economic growth. lastly, The IMF provides training and technical assistance through the IMF Institute to member countries on matters such as the operation of central banks, Finance Ministries, tax regulation etc.

Pakistan has had a long association with the IMF It joined the IMF on July 11, 1950. The first time when the Government of Pakistan asked for a loan was 1958. As the IMF's funding amount and pattern changed after the 1970's, right after a couple of

shocks of oil price and debt crises of 1980's, Pakistan, like many other LDCs faced a large fiscal deficit, rapid monetary expansion accelerating inflation, an unsustainable current account deficit, deterioration in the terms of trade, and a large stock of external debt . Since 1980s, Pakistan has participated in twelve different fund supported adjustment programs. In cross-country studies, Barro and Lee (2002) reported that Pakistan was among the five developing countries which had the highest number of professional staff at the IMF in 1999. Kemal (1994) has shown the employment situation further worsened due to privatization, and structural adjustment (IMF funds) has been accompanied with rising inequalities and poverty. Bengali and Ahmad (2001) criticized on Structural adjustment program, that stabilization targets were achieved by reducing developing expenditure. Pakistan has been unable to sustain high economic growth with equally impressive reductions in poverty (Khan, 2002). Gardezi (2004) argues that SAP loans have caused the state assets privatization, devaluation of currency, increase in prices of petroleum and electricity. Further, increased General sales tax was imposed, and import duties were further reduced. (Bengali and Ahmed, 2001) argued that Pakistan pursued stabilization in expense of growth. Real output declined, the inflation rate increased, and the exports of goods remained insignificant during the adjustment period 1988 to 1991 but the findings show that adjustment lending enhanced investment and increased the government's current consumption Iqbal (1999).

While a set of studies have investigated the IMF program consequences in cross countries studies, a limited literature available that discusses the IMF funding effects on economic growth in individual participants. Since the economic crises situations occurs for diverse reasons in individual country, the use IMF program may have differential effects on the economic growth in a developing country like

Pakistan. Secondly, few studies have investigated the impact of IMF in case of Pakistan, yet literature did comprehensively address the concerns over IMF program and its consequences for economic growth. This thesis attempts to analyze the effect of IMF participation programs on the economic growth in Pakistan. We look at whether the country has been successful in achieving the desired aims and objectives of achieving economic growth. The examination is based on Pakistan during 1980-2019. We use ARDL, cointegration analysis and find out long run relationship to assess the impact of IMF programs on fiscal area and economic growth. The participation in IMF program is not random, for instance, government deliberately delays, or IMF responds non-randomly for curtain. To provide consistent estimates, we estimate determinants that significantly impact the participation in to program to rule out the selectivity of the IMF program.

1.1 Problem Statement

IMF programs has helped many developing countries in achieving economic growth and sustainable development by promoting international trade, managing balance of payment crises, encouraging high employment. Pakistan is regular client of IMF and received various short term and long-term loans. Since 1980s, IMF has lent Pakistan twelve times and further requested this year for the loan. Apparently, it is important to analyze the macroeconomic outcomes of the IMF in the context of Pakistan. Thus, this study aims to assess the Impact of IMF programs on disciplining budget balance and achieve sustainable economic growth in Pakistan.

1.2 Research Question

The research questions of the study are:

How IMF programs affect the economic growth in Pakistan?

Does IMF restraint budget balance in case of Pakistan?

What is the new estimates on IMF effect on mobilizing government revenue, cutting expenditure and achieve economic growth in case of Pakistan?

1.3 Significance of Study

Recently, in the wake of recent economic crisis, there is discussion on the adoption of IMF program to stabilize the economy of Pakistan. There is extremely limited literature that provides the estimates on the consequences of previous IMF programs in Pakistan. This study attempts to look at this issue by using the data on last twelve programs (1980-2019) and attempts to provide comprehensive estimates whether IMF participation have achieved their objectives. Policy variables negatively impacts growth and that IMF programs are not the only factor that lowers Pakistan's economy's growth rate. Growth is restricted by supply-side shocks, including increasing energy gaps.

1.4 Objectives

This study pursues the following specific objectives to investigate the above-mentioned problem statement:

To assess the impact of IMF programs on economic growth of Pakistan used the growth variables and find out the results and their impact.

To investigate the effects of IMF programs on disciplining budget deficit of Pakistan and for this purpose used the budget deficit variable as dependent and show the impact of IMF.

To provide new estimates on IMF effect on mobilizing government revenue, and cutting expenditure and economic growth by adding different growth variables in the study.

1.5 Expected Contribution

This is most important study that analyzes the impact of IMF programs on

economic growth in Pakistan based on the data from the period 1980 to 2019. This data covers twelve loan program agreements with IMF. This study make two contributions; first, this estimates the effectiveness of IMF program on disciplining fiscal deficit and economic growth Second, it provides new estimates on IMF effect and control nonrandom selectivity by using ARDL and cointegration procedures.

1.6 Organization of the study

The study is organized as follows:

After the Introduction in chapter one, Chapter two presents the historical background of Pakistan participation in IMF program, IMF lending instruments and overview of fiscal adjustment under IMF lending programs and relates to the existing empirical literature about the effectiveness of IMF program on macroeconomic variables. Further, Chapter three discusses the data, methodology and techniques used to empirically analyze our study. Chapter four shows the findings and discusses the empirical results. Finally, chapter five presents conclusion and policy recommendation.

Chapter 2

Literature Review

Since the late 1970s, Economic growth has become the key objective for directors and policy makers of the IMF Fund for sustainable development. Since then, economist emphasized their interest to explore the role of the IMF program on macroeconomic development and growth in low income countries. Furthermore, since last three decades, Pakistan had signed much IMF agreement because it faced various economic challenges such as high budget deficit, large current account deficit, Balance of payment problems and low economic growth. A wide amount of research is found which illustrates the different effectiveness of IMF lending on economic growth. Moreover, this study begins from cross country to country specific analysis. Lastly, it discusses the studies that analyzed the effectives on IMF program on macroeconomic performance of Pakistan.

Historical background of Pakistan loan agreements with the IMF

Pakistan and IMF engaged for first loan agreement in 1958, under Ayub khan's government. Figure 01 shows total number of IMF loan agreement with Pakistan since its independence. The first loan value SDR 25 million was Standby Agreement (SBA). Though, the amount of loan was not withdrawn, and agreement was cancelled. During his regime in 1965 and 1968 two Standby arrangements (SBA) were signed of worth SDR 75 million. IMF lending to Pakistan increased from 1970s and onwards. Dynamics of politics and policies changed after the separation of Bangladesh in 1971. From (1971-1977) under the leadership of Zulfiqar Ali Bhutto, the government of Pakistan People's Party (PPP) ruled the country. Bhutto drastically changed the economic policies, increased government role and introduced nationalization program. Bhutto's government signed four Standby agreement of worth SDR 330

Million. However, According to Zaidi (2015) IMF standby programs in 1970s did not play significant role in stabilizing the economy of developing countries. Pakistan implemented IMF conditionality by devaluing rupee, Pakistani currency was pegged on dollar, banned luxury items, policies related to import and customs were changed, import duties were decreased. However, the reason to engage with IMF again and again was due to export-import gap and fiscal deficit due to which country faced serious macroeconomic challenges. Pakistani goods lost their competitiveness in international market due to rise in domestic prices, floods, and pest attacks on cotton crops which decreased the overall export of country. Import bills increased due to surge in oil prices. Extended fund facility (EFF) signed in 1980 under the military dictatorship of General Zia of worth SDR worth 1.3 Billion. Under his regime, Pakistan experienced increase in growth rates on average to 6 and 7 percent, moderate inflation rates and no debt crises but found large external imbalances and fiscal gaps. According to Annual Report of State Bank of Pakistan, country delayed the necessary fiscal and monetary reforms. Another, Structural Adjustment Facility program was signed in November 1988, after five year gap of IMF support (1983-1998) of worth US $516 Million. This program was also known for soft loan and hard adjustment because the amount of loan was biggest under this program with low interest rate but the conditionality of the program were rigid i.e. devaluing exchange rate, decrease in external debt, decrease in inflation, increase of foreign reserves, cut in public expenditure, reducing subsidies, decrease in budget deficit. Continuing again in 1994, Pakistan reached to IMF for loan and agreement was signed under very harsh and challenging conditionality which included Privatization of Public enterprises, decrease in import duties, and removal of non-tariff barriers, and increase in indirect taxes such as Sales Tax, raise in taxes on Utilities, removal of multiple exchange rates

and rationalization of tariff. Benazir's government was not able to meet the periodic disbursement which caused in suspension loan agreement.

During the period 1990-1993, Pakistan Muslim league Nawaz under the leadership of Nawaz Sharif approached the IMF for new loan agreement worth $6.1 Billion and grants of $1.4 were received. Likewise, during the second term of PPP under new leadership of Benazir Bhutto a total of $8.1 billion financial assistance were received which include grants valued $804 million and loans of $7.3 billion. Political instability and poor governance in 1990s damaged the economic conditions of Pakistan.

Pakistan experienced another military coup in October 1999. The Martial Law was imposed on country by Musharraf. This further damaged the economic conditions by decrease in remittances and investment, increase in oil prices surged inflation and import bills. These conditions made Musharraf to request IMF for loan, Pakistan signed one short-term Standby agreement worth USD 590 Million and another loan for three years under Poverty Reduction and Growth Facility (PRGF) of worth USD 1.1 billion. Musharraf government initiated key reforms i.e. institutional and economic reforms, cut down of subsidies, autonomy to State Bank of Pakistan, Privatization of banking sector and state owned enterprises (SOEs), initiation of tax reforms to increase tax collection custom duty was rationalized, Import duties were reduced, financial liberalization in the foreign exchange control, financial reforms which brought back the investors' confidence that resulted in significant raise in both private and public investment. To attract the foreign capital inflow, country softens its rules regarding capital profit, dividend and royalties etc. In 2008, the PPP was elected under the leadership Asif Ali Zardari saw serious economic crises i.e. current account deficit reached at 8 percentage of GDP, Global financial crises caused shrink in credit,

drying liquidity and adverse effect on real state, , Fiscal deficit around 9 percent of GDP ,consumer market and investment in Production. Moreover, during the period of 2011-2013, average GDP growth rate remained 3 percent, inflation rate was rising to 8 percent, domestic private investment remained 14 percent of GDP, and reserves were declined to USD 6 Billion due to slippages in revenue and expenditure.

In 2013, Nawaz Sharif government was elected in center with all economic challenges and soon Nawaz decided to meet IMF for lending agreement. Pakistan received long-term financing under Extended Fund Facility (EFF) worth USD 6.64 Billion. The program was meant to reduce economic imbalances, improve balance of payment, improve employment opportunities and overall strengthen the economy and growth. The economic indicators showed positive trends i.e. Real GDP growth improved to 5.3 percent in FY2016/17, foreign direct investment increased which depicts investor confidence, installed 11,000 MWs of power-generation capacity, and build 1,700 kilometers of motorways inflation was managed by using monetary policy carefully, stock market went from 19,000 points to over 54,000 points On the other hand, government could manage public sector enterprises such as PIA and electric generation or distribution companies, SBP reserves were $10 billion. To look a little more into the fiscal deficit widened, dramatic increase in current account deficit, exports of $23 billion plus remittances worth $20 billion give us around $43 billion and add another $2 billion from foreign direct investment. But our imports are north of $58 billion. This leaves a gap of $13 billion which is unsustainable for Pakistan's economy. Due to these factors, social security of Pakistani citizen were seriously damaged i.e. forty percent of Pakistan's population live under poverty line, low Job opportunities due to raise in unemployment and negligible share of Pakistan in global trade. It can be noted from Figure 2.2 that Pakistan has remained the largest recipients

of IMF loans in South Asia.

The large budgetary deficit is among the most serious issue confronting the economy of Pakistan. Since last three decades, Pakistan has experienced large fiscal deficits and current budgetary imbalance which is one of the most serious macro problems that needs bold structural policy with long lasting effects on financial and economic stability. However, the repeated attempts of various governments advised by the IMF have only achieved partial success.

In late 1970s, Pakistan experienced considerable decline in tax receipts that widened fiscal imbalance. The reason of decline in tax receipts was collapse of cotton prices, extending global recession and immense inflow of Afghan refugees. The government launched development programs and policy of Public Finance Management which did not yield desirable outcomes. Over the decade, the imbalance further widened due to increase in development expenditure that was financed by external debt and raised current expenditure caused by increase in military expenditures. Furthermore, the inability of political and administrative efforts to raise revenue and reduce expenditure accelerated deficit on average of 8.0 percentage of GNP.

In 1980's, IMF bailout packages was approved to facilitate Pakistan due to facing economic difficulties. These IMF programs comes up with fiscal objectives that encourage country to initiate structural reforms and inclusive economic adjustment i.e. fiscal adjustments, improving tax structure to achieve sustained economic growth. However, despite the conditionality attached the fiscal imbalance (annually) on average remained at 7.1 percent of GDP during the period of 1980-1990. Similarly, decade of 1990's is known for various IMF lending programs and fiscal adjustments that was to raise government revenue by increasing aggregate taxes

as the percentage of GDP by aiming to create a greater share of direct taxes, raise in sales tax and reduction in import duties. The assumption to discourage smuggling by reducing custom duties did not bear out as it appeared. Governments not only introduced tariff and tax reforms but also significantly cut total expenditure. The aim of IMF conditionality of fiscal adjustment was to reduce fiscal deficit. The decrease in total expenditure was particularly met by cutting the cost of development expenditure that reduced social sector spending from 6.5 percentage of GDP to 3.4 percentage of GDP. Despite these bold reforms the inquiry establishes that the effort of raise in aggregate tax-to-GDP ratio were not much effective. Moreover, it is also evident that the impact of several types of taxes to total tax collection remains stagnant. While, import duties significantly decreased but share of share of sales tax and share of direct taxes increase significantly. During the period of 1990-2001, the aggregate tax-to-GDP decreased from 11.82 percent to 11.71 percent in 2001. It is also evident that overall tax –to-GDP fluctuated between 10.48 to 12.26 percent during this period.

The decade of 1990s turned successive government to adopt non-tax revenue, significant raise of direct have doubled the share of direct taxes from 16.6 percent of GDP in FY1991 to 32.9 percent of GDP in FY2001, doubled the share of General Sales Tax form 16.6 percent to 32.3 percentage of GDP but experienced dip in share of import duties in total taxes from 40.8 percent in 1991 to 15.9 percent of GDP in 2001.These measures adversely affected national manufacturers as most domestic producers were not prepared with imported finished goods while decline in domestic production had negative impact on increase in direct and sales tax. The second government of Benazir resisted the IMF in import duty reduction soon found herself out of office. So, the overall tax-to-GDP ratio did not increase appreciably, the budgetary deficits fad to be kept contained by decreasing in government expenditure.

This was required more also because of increasing pressure of debt-servicing. The table 2.3 shows the decline in development expenditure over the decade to decrease fiscal deficit which is not sustainable policy.

In early 2000s, Pakistan reached signed another IMF program that includes conditionality for government to induce effective expenditure management policy which resulted to decrease the average fiscal deficit from 7 percent of GDP in 1999 to 3.3 percent of GDP. However, in FY2006 and FY2007 budget deficit increased to 4.3 percent of GDP due to earthquake damages. The total expenditure during this period remained stagnant to 18 percent of GDP while the development has shown increase trend. It was due to shift of current expenditure in to development expenditure due to lower interest rates hence improved fiscal position of country. On the other hand, improvement in tax collection was not visible so government prioritized to modernize tax structure and improve tax administration system. Major tax revenue was opted from custom and excise duties in 1990s and steadily direct tax and sales taxes became the major part of tax revenue.

Since 2008, each government has assured the IMF program is necessary for economic landscape of country and promised to implement structural changes to fiscal system of the country. On the expenditure side, government has launched austerity such as cut down subsidies, privatizes SOE's, and improves profit or decreased loss generated by PSEs through structural reforms. It is evident that fiscal deficit has fallen from 8.2 Tax-to-GDP in 2013 to 5.8 Tax-to-GDP in 2017 and growth in total expenditure has fallen from 25.5 percent in 2012 to 17.3 percentage of GDP in 2017. Moreover, on the revenue side, through formulating effective tax system, the aggregate tax as percentage to GDP increased to 12.6 percent in 2016 from 9.8 percent in 2013. The fiscal adjustments over the time have shown significant reduction in government

liability. Therefore, the study addresses the results the effectiveness of the IMF on government revenue and expenditure, Budget deficit and economic growth of Pakistan.

2.1 Empirical Evidence on Developing Countries

The existing empirical literature on macroeconomic effect of IMF programs on developing countries finds positive, negative and even neutral result is mentioned as following.

2.2 The Positive Impact IMF Programs on Economic Growth

Manuel poster (1987) addresses the effectiveness on IMF programs on macroeconomic conditions of eighteen Latin American Countries for the period of 1965-1981. The study employed before and after approach to check the macroeconomic effectiveness of IMF programs on interest rates, growth rates and balance of payments. The result found to have a long run positive effect on balance of Payments

Similarly, Khan *et.al*. (1990) focused on the macroeconomic impact on IMF program in sixty-eight developing countries for the period of 1973-1988.The study employs three method to address this issue such as Before and after Approach, General Evaluation Estimator (GEE), and the method of controlling for selection bias. The study concludes by showing the significant positive relationship on balance of payment and current account. Likewise, Killick *et.al.* (1992) further extended the discussion on effectiveness of Standby Agreements (SBA) and Extended Fund Facility (EFF) by employing before and after approach. In long-run positive effect between IMF programs and Balance of Payments is found in his study. Likewise, Dicks-Mireaux *et.al*. (2000) evaluated the effectiveness of IMF program (ESAF) on macroeconomic conditions of low-income countries during 1986-1991.According to

finding the impact of ESAF is positive on macroeconomic variables such as inflation, output growth and external debt service ratio.

Mireaux *et.al.* (2000) also study the effectiveness of IMF program participation on economic growth of developing countries for the period of 1986-1991. To examine it employs modified control group method which shows have positive relationship between IMF program and economic growth.

Everensel (2002) access IMF programs effectiveness in developing countries. The study argues that the short run effect of IMF program is found to be improving balance of payments and current account and fiscal deficit but the in long run all the improvements in economic indicators are disappeared. The study concludes that the core objective of IMF is hardly achieved because this analysis shows many countries worsen their macroeconomic conditions after participating in IMF program.

According to Boockmann and Dreher (2003) and Fischer (2005), IMF program could have positive affect on economic growth by advisory or technical assistance about policy implementation. Moreover, the institution insists the countries for the policy reforms. Thus, the specific way of economic policy making have long run positive effect on economic conditions and growth.

Atoyan and Conway (2006) examined the effect of IMF programs on economic growth of ninety-five low income countries and transition economies for the period of 1993-2002. The findings are opted by using three methods which are matching, censored-sample and instrumental-variable. The results of study conclude that IMF support programs have positive impact on fiscal balance and economic growth which means that per capita income growth increased. Ghosh *et.al.* (2005) evaluates the effect of specific lending of IMF program i.e. Poverty Reduction Growth Facility (PRGF) on economic development of developing countries for the

period of 1995-2003. The study concludes that subsidized IMF assistance helped to reduce inflation and increased economic growth. Mumssen *et.al.,* (2013) investigates the long-term relationship of economic growth and IMF lending programs. The finding suggests the IMF contributes in achieving stable economic conditions and sustainable economic growth. However, the benefit of programs is higher for the countries with severe imbalances and experiencing tough economic conditions. In his recent study, Bird and Rowlands (2017) used the Propensity Score Match (PSM) method to evaluate the effect of IMF lending programs on economic growth in low income countries (LICs). The study is observed for up to two years of signing the program. The finding suggests that short-term and long-term effect of IMF lending is positive on economic growth especially in LICs. During the period of 1986-1995, many countries participated in structural Adjustment Facility and Enhanced Structural Adjustment Facility. These facilities helped the countries to improve economic conditions and enhanced economic growth Schadler and Bredenkamp (1999).

2.3 The Negative Impact of IMF Programs on Economic Growth

IMF lending programs impacts the country's economic policy adversely for before the lending amount is allotted. For instance, Vaubel (1983); Dreher (2006); Stone (2004) emphasized the IMF lending may verse the economic conditions if these funds are taken as subsidized income insurance against shocks, popularly known as the Moral Hazard hypothesis. This insurance may create the incentive for the borrower countries to stay on unsound economic plans for political benefit (Kim, 2006). Therefore, due to moral hazard countries would be dependent upon IMF program until sound policies are adopted. Several studies exist which state that the balance of payment problems which arise in borrower countries arise due to their own accord. The evidence suggests with the increase inter-program years fiscal deficits,

inflation rates and domestic credit and inflation rates have raised Evrensel (2002). Similarly, Conway (1994) argues that those countries which have previously been borrowers of IMF funds are most expected to take loans in future, too. Dreher and Vaubel, (2004) have explored that the availability of loans from the IMF make economic policies more expensive once it is linked with the undrawn fund's quota of the country. Dreher (2006) argues that economic growth may certainly reduce if the countries indulge in moral hazarding and bad economic policies. The IMF is not only known for the allocating of funds through structured loans, but also heavy economic conditionality. These conditions are tools by which IMF spurs economic growth and solves crises.

Furthermore, Easterly (2005) found that impact of IMF lending on economic growth and policy is not significantly positive. Barro and lee (2003) have discussed the adverse impact of IMF lending programs on growth is due to low investment, low trade openness & law and order (Feldstein, 1998) have criticized IMF conditionality and inapt approach which is "one size fit all" would reduce economic growth. Dreher (2006) argues that repeated government involvement and non-compliance with conditionality may certainly not have any influence on the performance of the economy. Marchesi and Sirtori (2011) also support the argument and further argues that IMF involvement in monetary and fiscal subjects don't necessarily set the structurally characterized problems that are faced by some of the poorer countries. Stabilizing money is not enough to push economic growth Przeworski and Vreeland (2000).

2.4 The Mixed Effect of IMF Programs on Economic Growth

According to Boockmann and Dreher (2003), approval of IMF program could create the false speculation that economic problems are solved. Moreover, funds

received may reduce reason to reform and increase the time duration for governments to come up with concrete solutions for managing crises. In fact, studies show that governments carry inappropriate policies for longer period of time than otherwise Bandow (1994).Further, Aisen and Veiga (2005) argues that IMF programs not only decreases the probability of stabilization but also the effect of loan payments on credit allocations is found unclear during high inflation period.

2.5 The Impact of IMF on other Economic Variables

IMF lending programs have direct and indirect effect on multiple economic variables. Thus, the positive impact on other economic variables is helpful to enhance economic growth. IMF-supported programs have been shown to have beneficial impacts on other macroeconomic variables that are conducive to economic growth. The catalytic effect of IMF support programs impact the investment decision and external capital flow. Al-sadiq (2015) evaluates the effect of IMF support program on Foreign Direct Investment (FDI). The finding suggests the country's under IMF program attracts more FDI than those without programs. Further, Gündüz and Crystallin (2014) evaluate the catalytic effect of IMF-supported programs. According to finding, there significant catalytic effect of IMF programs for the countries with high propensity scores and not significant for low propensity. Accordingly, Oberdabernig (2013) examines the effect of IMF programs on poverty and inequality on eighty-six low- and middle-income countries for the period of 1982-2009. The result indicates the adverse impact of IMF supported programs on poverty and inequality in sum, the main objective of IMF loan programs has been to provide funds to support economic crises in a country. In Theory, these funds are supposed to increase financial stability and help to fix the economy and enhance economic growth.

2.6 Empirical Evidences on Individual Countries

The country specific empirical literature on effectiveness on IMF programs is as: Yeldan (2001) evaluates the performance of IMF programs on economy of Turkey. The study discusses the evidence that turkey achieved its fiscal and monetary targets but failed on controlling the inflation rate. The study further discusses that due to participation in program financial and external balance weakened and further destabilized Turkey's economy.

Likewise, Zaki (2001) investigated the effectiveness IMF program on economic performance of Egypt during 1990's. The appropriate conclusion was that participation in IMF program did not increase the economic growth of country. However, due to fullest implementation of program decreased government deficit sharply.

Hutchison and Noy (2003) examined the effect of IMF lending program and relatively low program completion rates in Latin America. The study employed General Evaluation Estimators (GEE) methodology to assess the impact of IMF supported programs over the period 1975-1997. The finding of the study shows that IMF program in Latin America has usually seen to be unsuccessful because these programs did not only worsen the balance of payment problem but it also increased the real short run cost of economy.

Kaplan and Rodrik (2001) compared the economic performance between the countries participated in IMF program such as Thailand and Korea with Malaysia that did not participate after facing Asian financial crises. The study employed time-shifted difference-in- difference methodology and showed that Malaysian economy was better-off with its own policy of capital control. These policies brought economic recovery from crises with slight increase in unemployment

Katogogo *et.al.* (2011) investigates the effect of structural adjustment programmes on health care, education spending, external debt and economic growth in four countries- Cote d'Ivoire, Senegal, Uganda, Zimbabwe. The study concludes that IMF programs have surged inflation, unemployment, poverty and created economic polarization thereby impeding sustainable development.

Ahmad and Mohammed (2012) accessed the effect of IMF supported program on the macroeconomic of Bangladesh during 1980's. It is evident that macroeconomic conditions of country during the period are discouraging. The adjustment program had adverse impact on Investment, public expenditure, inflation and investment.

Kushirsky (2014) investigates the effect of IMF financing on the Ukraine's economic growth. The study has used modified production function to measure the growth for the period of 2008-2014. The study uses quarterly data and result rejects that IMF credit has positive effect on Ukraine's economy growth and urges that IMF conditionality has drastically reduced standard of living, worsening budget deficit and cutting of subsidies.

Similarly, Kean *et.al.* (2015) explores the impact of IMF program conditionality on economic conditions of Indonesia during and after Asian Financial crisis. The study concludes that IMF programs did not have any effect on growth indicators in the country.

2.7 Empirical Evidence on Pakistan's Economy

Since last three decades, the frequent IMF adjustment programs with Pakistan have raised the debate about the effect of adjustment programs on macroeconomic performance in Pakistan. Most of empirical studies on Pakistan before-follow and with-without approach. As, Bilquees (1987) examines the three-year structural adjustment program under EFF agreement for the duration of 1980-83. It was found

that rather than improving, the adjustment program created the structural problems of Pakistan's economy. On the other hand, McCleary (1991) and M.S. khan (1991) evaluated the impact of IMF program from 1960-2000 and claims that adjustment program by enhancing the complicity in financial and economic change of Pakistan's economy improved economic conditions. According to Nicholas (1988) and Balassa (1989a) the change in drifts of macroeconomic indicators are due to adjustment process. This structural adjustment process in Pakistan is dependent on the environment and shocks caused by externalities, significance of international flows and reaction on country's own variables Naqvi and Sarmad (1993). While, Jansen (1993) relates the policy hurdles linked with external financing which harmed required outcomes of Pakistan, Tanzania, Philippines, and Thailand.

According to Haroon Jamal (2003) adjustment programs decreased economic growth, raised inequality, and raised poverty especially in rural areas. The study compared household income and expenditure survey to analysis the effect on poverty and inequality. The study of Kemal (2003) evaluates the impact of Structural programs on macroeconomic performance of Pakistan during 1990s. According to study short run IMF's lending facility have ambiguous result on performance, outcomes, employment, poverty and growth. Similar to this, Kemal, 1994; Noman, 1995; Naseem 1994 claims that structural adjustment program increased inequality, raised poverty and surged unemployment due to privatization during the program. Moreover, the result of the paper also notices severe decline in income distribution during the adjustment process. Vos (1994) evaluated the effect of additional foreign assistance and adjustment program in Pakistan using general equilibrium (CGE) model. The studies show that exchange-rate depreciation caused inflationary pressures, contraction of real disposable income, and decrease in aggregate demand.

Where decrease in public expenditure would stimulate the traded-goods sectors, lower the price level and encourage private investment in Pakistan. Accordingly, James and Pyatt (1994) investigated the impact of International financial institutions on macroeconomic performance i.e. Gross Domestic Product (GDP), exports, imports, saving, capital stock, and consumption during 1970-1993. The study concludes that contractionary monetary policy is applied used to control economic distress in country. The purpose of increasing the real interest rate to achieve key targets decrease in consumption and increase in domestic saving. While the purpose of devaluing the real exchange rate to improve balance of payment position as devaluation makes domestic products cheap and have positive impact on export while negative impact on imports.

Jagan and Paramjit (2017) investigate the economic performance of Bangladesh, Pakistan and Sri Lanka under IMF lending facilities or program during 1990-2015. The study examine gross domestic product, Consumption to GDP ratio , Investment to GDP ratio, gross national saving as percentage of GDP, exports as per cent of GDP, imports as per cent of GDP, current account balance as per cent of GDP, fiscal balance and inflation have been analyzed. The average 3 years performance before, during and after the programs has been calculated for given variables. The study has employed the difference means and total number program method for three years and after data. The study has found that Bangladesh and Sri Lanka have performed well after the program implementation, whereas the performance of Pakistan is not satisfactory.

Moreover, Gera (2007) has evaluated the effectiveness of Structural Adjustment Program (SAP) on social welfare in Pakistan for the duration of 1988-199. The study is based on household survey that shows increase in both poverty and

inequality. It also finds overall increase in unemployment huge fall in labor wages. Iqbal and Bilquees (1994) accessed the effect of IMF structural program on the economy of Pakistan. According to findings, that there is unexpected increase in inflation, increase in current account deficit and decrease in overall growth rates. The findings also show the surge in government consumption during program year. Amjad (2015) evaluates the effect of structural program on economic performance of Pakistan during 1999-2013. The result of the study argues during the governments of Pakistan People Party (P.P.P) and Musharraf, we saw sharp cuts in development expenditure. Bengali *et.al*. (2001) finds that structural adjustment program have adverse effect on macroeconomic performance of Pakistan. It suggests that the main motive of IMF should be increase in economic growth while stabilization should be secondary objective. Isran (2016) examined the role of structural adjustment programs of IMF in Pakistan over the period of 1988 to 2000. He argues that basic objective of IMF programs is accelerate the key macro-economic variables and stabilize the economy. However, the evidence suggests IMF programs have worsened the economy of Pakistan and had negative impact of Politics of Pakistan. The paper in detail discusses the reason of IMF negative impacts on economy i.e. cutting of subsidies, decrease in government expenditure on unproductive sector, raising interest rate, privatization, closure of industry that raise unemployment, inflationary nature of policies, control on demand by devaluation and decreasing expenditures of government on unproductive sectors of economy. (IEO, 2002) evaluate the detailed reviews during and after the competition of the IMF program. According to the study, Pakistan since 1971 has limited success and effectiveness of IMF programs. The report concludes that IMF programs have overoptimistic assumptions and unrealistic objectives and found flaws in design and implementation of program.

Hussain (2002) studied the effects of IMF program on economy of Pakistan during the period 1988-2002. The finding of the study is discussed by comparing the two phases. Firstly, during the period 1988-1999 due to nine changes in government, Pakistan faced enormous political instability. So, not a single government was able to implement tough economic measures and reforms that IMF proposed, only short terms goal were given importance at the cost of long-term economic costs. Further, IMF refused to accept recommendation proposed by Pakistan economic managers that understood the dynamics environment and economy of Pakistan. After 1999, the country was in the hand of military regime which had strong will to reform the government and take some tough economic measures and implement the IMF recommended reforms

Hakro (2006) accessed the effect of the IMF participation on macroeconomic performance of country for the period 1973-2000. The study claims that current accounts worsen along with rise in unemployment and increase in inflation and very narrow progress was seen in budget balance.

Uddin (2008) has discussed on the relationship of IMF and Pakistan and its variations. Mainly, he has criticized the conditionality of programs i.e. decreasing development expenditure and budget cuts that have negative affect on the social structure of country, limiting the government borrow form bank which raises public debt, raising sales and agriculture taxes and cutting subsidies that increase poverty. The book further argues that due to political instability and lack of government ownership of programs the government failed to implement reforms and strong economic measures. According to Zaidi (2015) the primary objective of Structural Adjustment Programs (SAP) is to foster economic growth. But evidence find increase in inflation and overall decline in investment and growth. The study criticizes the role

of corrupt ruling elites that take benefit from easily available aid. Ahmad and Mohammed (2017) talks about the insider role of member countries in influencing the IMF. The association of IMF and Pakistan is subjective to changing interests of United States in geopolitical matters of Pakistan. The paper argues that due to short term interest of United States, IMF and ruling elites the economy of Pakistan is left vulnerable to external stocks and polarized the economy. China has recently signed China Pakistan Economic Corridor (CPEC) in 2015 with Pakistan and has become major stakeholder in Pakistan's economy. However, Pakistan would likely take advantage of this opportunity due to lack of resource mobilization, public services and investment in infrastructure

IEO, 2002 evaluate the detailed reviews during and after the competition of the IMF program. According to the study, Pakistan since 1971 have limited success and effectiveness of IMF programs. The report concludes that IMF programs have overoptimistic assumptions and unrealistic objectives and found flaws in design and implementation of program.

The new government of 2008 was weak as it depended on support from minority parties to stay in power. In quest of approval, this government could not enforce single-handed decisions to reform the economy and lacked the strength to challenge special privileges plaguing the tax code. The limping economy remained barely buoyant with a large influx of foreign remittances, IMF borrowing (a loan that required pay back in two years) and hopes of aid from US. With an absence of fundamental structural reforms however, Pakistan remained steeped in a dismal prospect of economic recovery (Ahmad and Mohammad, 2012). Amjad & Burki (2013) states that to regain macroeconomic stability in country, the new PPP government implemented strong stabilization measures as part Stand-by agreement of

2008. But due to poor economic management of current PPP government in addition to mismanagement of last government, results were even worse than expected. Growth fell steeply to 1.7 percent and inflation rose to 25 percent (a highest in country history). This economic situation further deteriorated by global financial meltdown.

Chapter 3

Methodology and Data

The chapter describes the research methodology, analytical framework of study and develops the time series models that are employed in this study. This chapter also discussed the construction of variables and how the data is analyzed. The data used in this study is secondary and collected from different resources mention below.

This chapter has been divided into different sections. Section 1, is all about the analytical framework of Growth and IMF with other determinants. Furthermore, section 2, represents the econometric models of the study. This section briefly emphasized the empirical models and variables used in the study. Lastly, section 3, explains about econometric techniques applied in the study.

3.1 Analytical Framework

IMF immediate goals are to help the member's countries in the grounds of sustainability in order to facilitate economic development. Mostly, IMF loans are provided under certain IMF supported programs that are attached to numbers of policy conditionality. Moreover, the objective of IMF conditionality is to attain vivid macroeconomic outcomes and economic growth. This conditionality follows a mechanism consist of complex and multiple policy measures such as an increase in domestic interest rates, fiscal atrocity driven by government, spur investment, and trade liberalization. Hence, understanding thoroughly the impacts of IMF conditionality, this study analyzing the effectiveness of IMF supported programs on the macroeconomic outcome of Pakistan.

The study explore the impact of IMF programs on whether IMF support programs effectively reduce the budget deficit, government revenue, and expenditure and increase the

economic growth of Pakistan. Nine models have been assimilated into this study. The models explore the impact of IMF, unemployment, trade, government expenditures, inflation and foreign direct investment on the budget deficit, growth of total expenditures, growth of total revenue and economic growth.

3.2 Model Construction

Model	Dependent Variables	Independent Variables
Model 1	Budget Deficit	IMF, the balance of payment, trade, domestic credit to the private sector, inflation, unemployment, real effective exchange rate, and general government final consumption expenditures.
Model 2	Budget Deficit	IMF, the balance of payment, FDI, domestic credit to the private sector, inflation, unemployment, real effective exchange rate, and general government final consumption expenditures.
Model 3	Total Revenue	IMF, the balance of payment, trade, domestic credit to the private sector, inflation, unemployment, real effective exchange rate, and general government final consumption expenditures.
Model 4	Total Revenue	IMF, the balance of payment, FDI, domestic credit to the private sector, inflation, unemployment, real effective exchange rate, and general government final consumption expenditures.
Model 5	Total Expenditures	IMF, the balance of payment, trade, domestic credit to the private sector, inflation, unemployment, real effective exchange rate, and general government final consumption expenditures.
Model 6	Total Expenditures	IMF, the balance of payment, FDI, domestic credit to the private sector, inflation, unemployment, real effective exchange rate, and general government final consumption expenditures.
Model 7	GDP	IMF, balance of payment, trade, inflation, real effective exchange rate.
Model 8	GDP	IMF, Balance of payment, real effective exchange rate, unemployment, domestic credit, general government final consumption expenditures.
Model 9	GDP	IMF, balance of payment, trade, inflation, domestic credit.

A budget deficit shows the health of the economy, and it occurs when expenditures exceed revenue. Due to budget deficit economic growth decline because the government does not meet their expenses due to a shortage of resources. In model 1 the dependent variable is the budget deficit, Aslam (2016) also discussed the budget deficit in their study and used GDP as a dependent variable and independent variables were exchange rate and inflation. In another study, Abd Rahman (2012) also analyzes the impact of budget deficit on economic growth. In this study in the 1st model, independent variables are IMF dummy variable Iqbal *et.al.* (2000) also used IMF, the con troll variable are balance of payment, trade, domestic credit to the private sector, inflation, unemployment, real effective exchange rate, and general government final consumption expenditures.

Economies with large public sectors develop slowly because of large tax sections but a lack of growth-enhancing government enterprises may standoff growth in countries with very small governments. Governments want to perform numerous tasks in the field of political, social, and economic activities to maximize social and economic wellbeing. In this regard, the dependent variable in model 2 is total revenue and the independent variables are the same. Jones *et.al.* (2015) taken total revenue and economic growth in their study and analyze for Kenya. Government spending and expenditures include consumption, investment, and transfer payments and it will affect economic growth both positively or negatively. In our third model, the dependent variable is total expenditures, and independent are the same. Dandan (2011) analyzes the relationship between economic growth and total expenditures for Jordan and it shows the positive impact of total expenditures on economic growth.

Epstein and Macchiarelli (2010) discussed the production function in their study for Poland, and develop a methodology based on the production function. The

Cobb-Douglas production functions with a constant return to scale. The variables used were GDP, labor, and capital. Unit root, Johansen's (1991) co-integration tests were used for checking of long-run relationships. The production-function methodology helps to recognize improved the most recent boom-bust turning points. The results show that during the pre-crisis period, Poland's output was rising above its prospective. This is also confirmed by the behavior of employment relative to its equilibrium measure.

The aim of this study is to find the relation between economic growth and IMF, how the IMF affects the economy. Kemal (2003) studies the effect of IMF programs on Pakistan macroeconomic policies during 1990s and finds that in short run they have undefined effect on growth. The study adopts the Solow growth model, based on the study of Sabir and Shamshir (2018) to find out this we used the Solow growth model and follow from the study of Sabir and Shamshir (2018) in their study. They opted the Mankiw *et.al*. (1992) augmented Solow growth model. The model is based on assumption that output is produced with labor, capital, technology and infrastructure. The effect of IMF on economic growth of Pakistan is check by follow this model. The output function is as follows:

$$Y_t = F(AL_t, K_t, H_t)$$

Where Y is output, K is capital, L is the hours of labor, AL represents units of \ effective labor and H is for infrastructure or human capital and t for time. This function is converted into Cobb-Douglas production function:

$$Y = K^\alpha H^\beta (AL)^{1-\alpha-\beta}$$

Where α shows the proportion of capital, β show the proportion for human capital and $1-\alpha-\beta$ show the units of effective labor and assumed that $0<\alpha<1$, $0<\beta<1$. Then the function represented in per capita form:

$$Y=k^{\alpha} h^{\beta}$$

It is converted into per unit form where y=Y/A/L, k=K/AL and h=H/AL. Now finds out the steady state level:

$$k=s_k k^{\alpha} h^{\beta} -(n+\delta+g)k$$

$$h=s_h k^{\alpha} h^{\beta} -(n+\delta+g)h$$

Where "s" used for saving, at steady state level k=h=0. By solving the equation become as fellow:

$$-\alpha+\beta/1- \alpha-\beta \ (\ln(n+\delta+g))$$

The production function shifts upward due to the increased infrastructure and due to this capital rises and then production function shifts upward. The steady state equation will become:

$$-\alpha+\beta/1- \alpha-\beta \ (\ln(n+\delta+g))+u$$

$$Ln \ (Y_t/L_t)=\alpha_0+\beta \ln(K_{pt}/L_t)+\gamma \ln(K_{et}/L_t)+\theta \ln(K_{st}/L_t)+U$$

Above equation is the final equation for empirical analysis and by using ARDL method and the variable used are GDP, capital, labor and human capital index. In this study we are analyzing the impact of the IMF program are beneficial for the growth of the country. The key objective of IMF programs to support countries facing macroeconomic challenges and promote economic growth. The strong fiscal side of the country is an important objective in attaining stability in the economy and critical for sustainable economic growth. Therefore, The IMF approach to fiscal adjustment emphasizes that sound government finances that mobilize domestic savings, increase the efficiency of resource allocation, help to meet development goals, and promote growth. So, achieving and maintaining such a financial position not only requires adjustments in fiscal policy but also strengthening fiscal institutions but also involves either tightening or loosening the fiscal stance depending on the country's

circumstances.

3.3 Econometric Model

Model 1

$$TBDG_t = \alpha_0 + \sum_{i=3}^{p} \alpha_1 IMF_{t-i} + \sum_{i=3}^{p} \alpha_2 BOP_{t-i} + \sum_{i=3}^{p} \alpha_3 \Delta TRADE_{t-i} + \sum_{i=3}^{p} \alpha_4 \Delta DCREDIT_{t-i} + $$
$$\sum_{i=3}^{p} \alpha_5 INF_{t-i} + \sum_{i=3}^{p} \alpha_6 \Delta UNE_{t-i} + \sum_{i=3}^{p} \alpha_7 \Delta REX_{t-i} + \sum_{i=3}^{p} \alpha_8 \Delta GFCEX_{t-i} + \varepsilon_t$$

TBDG= Growth of a budget deficit (% of GDP).

IMF= Dummy (Year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us dollars (millions)

Trade= Trade (% of GDP)

Dcredit= Domestic credit to the private sector (% of GDP)

Inf= Inflation, consumer prices (annual %)

Une= Unemployment, total (% of total labor force) (National estimate)

Rex= Real effective exchange rate index (divide by 100 to convert into percentage)

GFCEXP= General government final consumption expenditure (% of GDP)

The budget deficit is the economic task of numerous countries in the current decades. This problem is more broadly perceived in developing countries, as they are deprived of a well-organized private sector. In the above model budget deficit is taken as the dependent variable, Arjumand *et.al.* (2016) also used budget deficit as the dependent variable in their study in which they analyze the growth, productivity, and role of the budget deficit. Fiscal and monetary variables are key to determine economic stability in the foreign sector. The main variable is IMF in the model. Mireaux *et.al.* (2000) also studies the effectiveness of IMF program participation on economic growth of developing countries for the period of 1986-1991. The other control variables are a balance of payment, inflation, domestic credit. The variables added in

the model are directly or indirectly related to the budget deficit. Chaudhary and Shabbir (2005) investigate the macroeconomic impact of budget deficit by using money supply, the balance of payment, price level, and private credit ratio. Makochekanwa (2008) used inflation as a dependent variable and show that the significant inflationary effects are found for increases in the budget deficit. Beetsma *et.al.* (2008) used budget deficit and trade balance in their study, Kim and Roubini (2008) used in their study the budget deficit, exchange rate and suggest that in the US an expansionary fiscal policy shock and government budget deficit shock, expand the current account and devalue the real exchange rate.

Model 2

$$TBDG_t = \alpha_0 + \sum_{i=3}^{p} \alpha_1 IMF_{t-i} + \sum_{i=3}^{p} \alpha_2 BOP_{t-i} + \sum_{i=3}^{p} \alpha_3 \Delta FDI_{t-i} + \sum_{i=3}^{p} \alpha_4 \Delta DCREDIT_{t-i} + \sum_{i=3}^{p} \alpha_5 INF_{t-i} + \sum_{i=3}^{p} \alpha_6 \Delta UNE_{t-i} + \sum_{i=3}^{p} \alpha_7 \Delta REX_{t-i} + \sum_{i=3}^{p} \alpha_8 \Delta GFCEX_{t-i} + \varepsilon_t$$

TBDG= Growth of a budget deficit (% of GDP).

IMF= Dummy (Year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us dollars (millions)

FDI= Foreign Direct Investment (net inflows % of GDP)

Dcredit= Domestic credit to the private sector (% of GDP)

Inf= Inflation, consumer prices (annual %)

Une= Unemployment, total (% of total labor force) (National estimate)

Rex= Real effective exchange rate index (divide by 100 to convert into percentage)

GFCEXP= General government final consumption expenditure (% of GDP)

The dependent variable is budget deficit and on independent side main variable is IMF which is used as dummy. Boockmann and Dreher (2003) used IMF as main variable in their study. The other variables are used as control variables these are

inflation, real effective exchange rate, and general government expenditures, unemployment and foreign direct investment.

Model 3:

$$TRR_t = \alpha_0 + \sum_{i=3}^{p} \alpha_1 IMF_{t-i} + \sum_{i=3}^{p} \alpha_2 BOP_{t-i} + \sum_{i=3}^{p} \alpha_3 \Delta TRADE_{t-i} + \sum_{i=3}^{p} \alpha_4 \Delta DCREDIT_{t-i} +$$
$$\sum_{i=3}^{p} \alpha_5 INF_{t-i} + \sum_{i=3}^{p} \alpha_6 \Delta UNE_{t-i} + \sum_{i=3}^{p} \alpha_7 \Delta REX_{t-i} + \sum_{i=3}^{p} \alpha_8 \Delta GFCEX_{t-i} + \varepsilon_t$$

TRR= Total revenue

IMF= Dummy (year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us dollars (millions)

Trade= Trade (% of GDP)

Dcredit= Domestic credit to the private sector (% of GDP)

Inf= Inflation, consumer prices (annual %)

Une= Unemployment, total (% of total labor force) (national estimate)

Rex= Real effective exchange rate index (divide by 100 to convert into percentage)

GFCEXP= General government final consumption expenditure (% of GDP)

Total revenue is earned by selling goods and services. In this model total revenue is used as the dependent variable and on the other side, the main variable is IMF, and control variables included inflation, government consumption expenditures, the balance of payment, and domestic credit. All these variables have some impact on total revenue; we will find the relation in this study. The Ojong *et.al.* (2016) used the revenue in their study and check their relationship with economic growth. Jin and Zou (2005) also used revenue and expenditure in their study. Agbeyegbe *et.al.* (2006) used to trade and revenue in their study and results show that trade and revenue are not strongly linked. The inflation rate is higher than the revenue-maximizing rate, as discussed by Friedman (1971) in their study. In another study, Koitsiwe and Adachi

(2015) investigate the relationship between revenue, government consumption, exchange rate, and economic growth in Botswana.

Model 4

$$TRR_t = \alpha_0 + \sum_{i=3}^{p} \alpha_1 IMF_{t-i} + \sum_{i=3}^{p} \alpha_2 BOP_{t-i} + \sum_{i=3}^{p} \alpha_3 \Delta FDI_{t-i} + \sum_{i=3}^{p} \alpha_4 \Delta DCREDIT_{t-i} + \sum_{i=3}^{p} \alpha_5 INF_{t-i} + \sum_{i=3}^{p} \alpha_6 \Delta UNE_{t-i} + \sum_{i=3}^{p} \alpha_7 \Delta REX_{t-i} + \sum_{i=3}^{p} \alpha_8 \Delta GFCEXP_{t-i} + \varepsilon_t$$

TRR= Total revenue

IMF= Dummy (year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us dollars (millions)

FDI= Foreign Direct Investment (net inflows % GDP)

Dcredit= Domestic credit to the private sector (% of GDP)

Inf= Inflation, consumer prices (annual %)

Une= Unemployment, total (% of total labor force) (national estimate)

Rex= Real effective exchange rate index (divide by 100 to convert into percentage)

GFCEXP= General government final consumption expenditure (% of GDP)

In model 4 the dependent variable is total revenue and on independent side main variable is IMF and other variables balance of payment, foreign direct investment, credit ratio, inflation, unemployment, exchange rate and government consumption expenditures are control variables.

Model 5

$$TEG_t = \alpha_0 + \sum_{i=3}^{p} \alpha_1 IMF_{t-i} + \sum_{i=3}^{p} \alpha_2 BOP_{t-i} + \sum_{i=3}^{p} \alpha_3 \Delta TRADE_{t-i} + \sum_{i=3}^{p} \alpha_4 \Delta DCREDIT_{t-i} + \sum_{i=3}^{p} \alpha_5 INF_{t-i} + \sum_{i=3}^{p} \alpha_6 \Delta UNE_{t-i} + \sum_{i=3}^{p} \alpha_7 \Delta REX_{t-i} + \sum_{i=3}^{p} \alpha_8 \Delta GFCEXP_{t-i} + \varepsilon_t$$

TEG= Total expenditures (% of GDP).

IMF= Dummy (year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us

dollars (millions)

Trade= Trade (% of GDP)

Dcredit= Domestic credit to the private sector (% of GDP)

Inf= Inflation, consumer prices (annual %)

Une= Unemployment, total (% of total labor force) (National estimate)

Rex= Real effective exchange rate index (divide by 100 to convert into percentage)

GFCEXP= General government final consumption expenditure (% of GDP)

The resources collected and shared by public actions including all the revenue modalities. In 5th model, the total expenditures are the dependent variable and analyze the impact of inflation, the balance of payment, IMF, and exchange rate on it. The main variable is IMF which is used as a dummy variable and the control variables are a balance of payment, inflation, government consumption, real effective exchange rate trade, and domestic credit to the private sector. Greytak *et.al.* (1974) used inflation and total expenditures in their study and showed that inflation effect the total expenditures in New York. The exchange rate also affects expenditures, Galstyan and Lane (2009) discussed the exchange rate spending in their study, government total consumption, and government spending have distinction effects on the real exchange rate and the relative price of non-tradable goods.

Model 6

$$TEG_t = \alpha_0 + \sum_{i=3}^{p} \alpha_1 IMF_{t-i} + \sum_{i=3}^{p} \alpha_2 BOP_{t-i} + \sum_{i=3}^{p} \alpha_3 \Delta FDI_{t-i} + \sum_{i=3}^{p} \alpha_4 \Delta DCREDIT_{t-i} + \sum_{i=3}^{p} \alpha_5 INF_{t-i} + \sum_{i=3}^{p} \alpha_6 \Delta UNE_{t-i} + \sum_{i=3}^{p} \alpha_7 \Delta REX_{t-i} + \sum_{i=3}^{p} \alpha_8 \Delta GFCEXP_{t-i} + \varepsilon_t$$

TEG= Total expenditures (%of GDP).

IMF= Dummy (year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us dollars (millions)

FDI= Foreign Direct Investment (net inflows % of GDP)

Dcredit= Domestic credit to the private sector (% of GDP)

Inf= Inflation, consumer prices (annual %)

Une= Unemployment, total (% of total labor force) (National estimate)

Rex= Real effective exchange rate index (divide by 100 to convert into percentage)

GFCEXP= General government final consumption expenditure (% of GDP)

In model 6 total expenditures is used independent variable. IMF is used as dummy variable which is main variable and all other variables are control variables.

Model 7

$$GDP_t = \alpha_0 + \sum_{i=3}^{p} \alpha_{IMF} IMF_{t-i} + \sum_{i=3}^{p} \alpha_{BOP} BOP_{t-i} + \sum_{i=3}^{p} \alpha_{TRADE} \Delta TRADE_{t-i} + \sum_{i=3}^{p} \alpha_{DCREDIT} \Delta DCREDIT_{t-i} + \sum_{i=3}^{p} \alpha_{INF} INF_{t-i} + \sum_{i=3}^{p} \alpha_{REX} \Delta REX_{t-i} + \varepsilon_t$$

GDP= Gross per capita (% growth)

IMF= Dummy (year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us dollars (millions)

Trade= Trade (% of GDP)

Dcredit= Domestic credit to the private sector (% of GDP)

Inf= Inflation, consumer prices (annual %)

Rex= Real effective exchange rate index (divide by 100 to convert into percentage)

Model 7 represent the growth equation, in which GDP used as dependent variable which is in per capita form. The independent variables are IMF, balance of payment, trade, domestic credit, inflation and exchange rate.

Model 8

$$GDP_t = \alpha_0 + \sum_{i=3}^{p} \alpha_{IMF} IMF_{t-i} + \sum_{i=3}^{p} \alpha_{BOP} BOP_{t-i} + \sum_{i=3}^{p} \alpha_{REX} \Delta REX_{t-i} + \sum_{i=3}^{p} \alpha_{UNE} \Delta UNE_{t-i} + \sum_{i=3}^{p} \alpha_{DCREDIT} DCREDIT_{t-i} + \sum_{i=3}^{p} \alpha_{GFCEXP} \Delta GFCEXP_{t-i} + \varepsilon_t$$

GDP=GDP per capita (% annual Growth)

IMF= Dummy (year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us dollars (millions)

Rex= Real effective exchange rate index (divide by 100 to convert into percentage)

Une= Unemployment, total (% of total labor force) (National estimate)

Dcredit= Domestic credit to the private sector (% of GDP)

GFCEXP= General government final consumption expenditure (% of GDP)

The above model also shows the growth model equation. Where GDP is used as dependent variable in per capita form and independent variables are IMF, balance of payment, real effective exchange rate, unemployment, domestic credit and government consumption expenditures.

Model 9

$$GDP_t = \alpha_0 + \sum_{i=3}^{p} \alpha_{IMF} IMF_{t-i} + \sum_{i=3}^{p} \alpha_{BOP} BOP_{t-i} + \sum_{i=3}^{p} \alpha_{TRADE} \Delta TRADE_{t-i} +$$
$$\sum_{i=3}^{p} \alpha_{DCREDIT} \Delta DCREDIT_{t-i} + \sum_{i=3}^{p} \alpha_{INF} INF_{t-i} + \varepsilon_t$$

GDP= GDP per capita (% annual growth)

IMF= Dummy (year arrangement)

BOP= Balance of payments, current account, goods and services, goods, net, us dollars (millions)

Trade= Trade (% of GDP)

Dcredit= Domestic credit to the private sector (% of GDP)

Inf= Inflation, consumer prices (annual %)

The last model of study also represent as growth model. GDP used as dependent (per capita form) and independent variables are IMF, balance of payment, trade, domestic credit, inflation.

3.4 Econometric Technique

This study is going to deal with time-series data. The study aims to check the co-integration among variables. First, the study implies Engle and Granger (1987) co-integration test. They applied simple OLS. The precondition to applying Engle and Granger is that all variables should be stationary at the 1st difference. If any of the variables are integrated of order 2 we can't apply Engle and Granger. Furthermore, Johansen (1988) test for co-integration can also be applied to check the relationship among variables. This test is subjected to asymptotic properties. When samples will be large then results of the Johansen test will be more reliable. Moreover, if the sample is small than its results are meaningless. Keep in view the flaws of the above-mentioned techniques ARDL bounds testing approach is best and appropriate estimations technique for this study. This chapter will chronologically explain the tests used in this study's first unit root test. Secondly, ARDL bounds testing approach in detail land discusses lag length criterion for the study. Furthermore, this study deals with the bound test. Then this study incorporates error correction model or short-run results and also discusses long-run results or elasticity. Finally, in this study we discuss the stability test.

3.5 Unit Root Test

The stationary of variables is important because it will give us efficient results. If variables will not be stationary, we can say the regression or results are spurious. Dickey and Fuller (1979) introduced a test for stationarity of data for the first time. Phillips and Perron (1988) introduced another test for stationarity of variables. This the study has used augmented dickey fuller (ADF) and Phillip Peron (PP) test for checking the stationarity of variables

Consider equation: $y_t = \rho y_{(t-1)} + x_t' \delta + \varepsilon_t$

x_t is exogenous, ρ and δ are parameters, ε_t error term.

$|P|\geq1$ (y is non-stationary)

$|P|<1$(y is stationary)

Unit root test applied and the hypothesis will be $H_0 : \rho=1$ $H_1 : \rho<1$

3.6 Autoregressive Distributive Lag (ARDL)

After reading the literature ARDL bound testing approach is being opted in this study. Firstly, this approach was used by Pesaran et.al. (2001). this technique can be used for both time series and panel data. However, in the case of time series data, ARDL the bound testing approach has more interesting features as compared to other techniques like Engle and Granger and Johansen. First, the ARDL approach works better as compared to other techniques in case of a small sample size. Secondly, ARDL gives us enough lags to catch data generating a process in general to specific modeling. Thirdly, this technique is not bound to either series is integrated I (1) or I (0). ARDL approach can be applied for I (1) and I (0) effectively but it is not flexible for series integrated of I (2). Fourthly, Danish *et.al.* (2017) tell that this approach helps us to derive ECM with the help of a simple linear transmission technique. Fifthly, Banerjee *et.al.* (1998) is in the view that this approach helps us to avoid problems caused due to the non-stationary time-series. In nutshell, it can be said that the ARDL bound testing approach is the best technique among all other techniques for small-time series data analysis. ARDL technique has the ability to estimation error term, short-run, and long-run coefficients directly. Few assumptions of the ARDL technique are:

We can't run ARDL when there is any variable iterated of order 2. Lags must be appropriate. Errors must be serially independent this means there should be no autocorrelation. The model must be stable. If variables are stationary at the level, we can apply ARDL. Similarly, if variables are stationary at the 1st difference, we can apply ARDL. Furthermore, if we have a mixture of variables stationary at the level and the 1st the difference we can apply ARDL. The equation for ARDL model:

$$Y_{t=}\alpha_0 + \sum_{i=1}^{p} \beta_j \, L_j X_t + \sum_{i=1}^{p} \gamma_i \, L_i Y_t + \varepsilon_t$$

Here L represents the lag operator.

3.7 Lag Selection Criteria

The lag length criterion in this study is the Akaike Information Criterion (AIC) and the Schwarz Criterion (SC). AIC and SC are used in the study as the study have a smaller number of observations.

3.8 Bound Test

The bound test is very important as it is the first step to know about the association of variables. If bound results show that there exists co-integration between variables. If no co-integration exists, we can't further apply short-run and long-run co-integration tests. The bound test tells us about the long-run association among variables. If the F statistic value will be greater than the values of upper bond values I (1) at 5% of significance level, we can say that there exists co-integration or relationship between variables. IF the F-stats value is less than the lower bound value I (0) then we can say that there exists no co-integration among the variables. Lastly when the F-stats value is in between I (1) and I (0) then we can say that the association in the long run between variables are inconclusive.

3.9 Error Correction Model

For short-run results, we look at the value of the error correction model. Its value should be negative and significant. ECM value tells us about the speed of adjustment of any disequilibrium towards the equilibrium. In most studies ECM it has been discussed that ECM value lies in between 0-1 but few studies are in the view that its value can be between 0-2 as well. Narayan and Smyth (2006) state that an error correction term between -1 and -2. However, ECM greater than 1 show that there

might be some problem with autocorrelation.

3.10 Long Run Results

The study looks at two things before interpreting the long-run results of ARDL. First, probability value and secondly sign of coefficients. Probability value tells us about the significance of variables. Here again, we set the critical value at 5%. Furthermore, the sign of coefficients tells us about the positive and negative relationship between variables.

3.11 CUSUM and CUSUMSQ Tests for Stability

Cusum and Cusum of square tests tell about the stability of variables. It also states us about whether there are structural breaks in the data or not. The calculated line should be in between the lower and upper bound line at 5% of the significance level. This will show that there exists no structural break. If the blue line crosses the red line at any the point, then we can say that there exists any structural break in the data for variables.

Chapter 4

Data and Variable Construction

Introduction

Since the last three decades, Pakistan had signed many IMF agreements because it faced various economic challenges such as the high budget deficit, large current account deficit, balance of payment problems, and low economic growth. A wide amount of research is found which illustrates the different effects of IMF lending on economic growth. Moreover, this study begins from cross country to country-specific analysis.

Pakistan is one of the developing countries also facing the problem of the budget deficit. Time series data for Pakistan has been taken for the years 1980-2019 from different sources. The main source of data extraction is world development indicators, Pakistan economic survey, and the International Monetary Fund.

4.1 Description of Variables

Several studies have explored the economic variables that influence IMF program participation such as Przeworski and Veerland (2000), Barro and Lee (2005), Knight and Santaella (1997), and Cho (2009) Al Sadiq (2015), Bal gunduz (2016) and Bird and Rownland (2017). These variables GDP per capita, Growth of Total revenue, Growth of total expenditures, Growth of budget deficit, Imf, Balance of payment, Domestic credit to private sector, Trade, General Government final consumption expenditures, Inflation, Unemployment, and Real effective exchange rate.

4.2 Dependent Variables:

The study focuses on the analysis of how IMF lending programs affect the most important economic benchmarks- fiscal balance, government revenue, expenditure, and economic growth. Therefore, the dependent variables of the study are Budget balance, government expenditure, revenue, and real GDP growth. Moreover, our study aims to

estimate the effectiveness of the IMF program to change the country's fiscal situation and economic growth.

The annual percentage growth rate of GDP per capita is based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.

4.3 IMF program participation:

The main independent variable in the study is the selection of IMF programs. 1 for year conditioned IMF agreement, 0 otherwise is used as a dummy variable. The study does not differentiate with other lending programs offered by the IMF because each of these programs has the same fiscal objective.

4.4 Independent Variables:

There are several other variables on the regressor side that may affect the budget deficit; revenue, expenditure, and economic growth are included.

Inflation Rate:

Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used. A country has a higher probability of seeking IMF assistance which has a higher cost of living. It is the inflation rate that destroys wealth, undermines growth, and destabilizes the country.

Balance of Payments:

A country is likely to go IMF for financial assistance if it faces Balance of Payment difficulties. The variable uses the balance of Payment as a percentage of GDP. The excess amount in balance of payment is a good sign for the country because it can improve budget balance and the country can have higher international reserves and spend the money on the development of the economy. On the other hand, a country that faces a balance of payment crises is the cause of the depletion of international reserves and devaluation and lower economic growth. Investment plays an important role in the economic well-being of the country. Countries with low investment are likely to seek IMF assistance because the low investment is directly proportional to government revenue.

Trade

According to the definition of WDI "Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product". Trade may benefit the country through different channels, i.e. technology transfers, economies of scale, and comparative advantage. Coe and Helpman (1995) say that trade is the main source of international technology spillover. This variable trade openness (as a percentage of GDP) is included because trade taxes are relatively easy to collect (Clist and Morrissey 2011) is suggested by the economic growth theory of Mankiw, Romer, & Ball, (1992), and Barro, (2003) that explain economic growth. Trade openness in a non-fiscal variable that is measured by summing up export and imports and dividing it with GDP at a constant price.

$$TR = \frac{imports + export}{GDP}$$

The trade ratio is defined as the ratio of imports plus exports to that of GDP. This ratio is also used to measure trade openness. Arif *et. al.* (2017) used the trade ratio of GDP as a proxy for trade. Therefore, this study has taken time series data of trade to % of GDP

for the years 1980 to 2016 form world development indicators.

Unemployment

Unemployment refers to the share of the labor force that is without work but available for and seeking employment. Definitions of the labor force and unemployment differ by country.

Real effective exchange rate

The real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.

Foreign direct investment

Foreign direct investment is the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors and is divided by GDP.

Domestic credit to the private sector

Domestic credit to the private sector by banks refers to financial resources provided to the private sector by other depository corporations (deposit-taking corporations except for central banks), such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries, these claims include credit to public enterprises.

Government Expenditures

According to the definition of WDI "General government, final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditure on national defense and security but excludes government military expenditures that are part of government capital formation". Glomm and Ravikumar (1997) explored the relationship between productive government expenditures and long-run economic growth. In another study, Bader and Qarn (2010) have checked causality for government expenditures, military expenditures, and economic growth. Olulu *et. al.* (2014) explores the impact of government expenditures on economic growth. General government final consumption expenditure is used as a proxy for Government expenditures. Wu *et. al.* (2017) used this proxy in his study to explain the relationship between government expenditures, corruption, and factor productivity. Therefore, this study has taken time series data of general government final expenditures for the years 1980 to 2016 from world development indicators.

Table 4-1: Summary of Previous Studies

Variable	Definition	Source
Unemployment, total (% of the total labor force) (national estimate) (UNEMP)	Unemployment refers to the share of the labor force that is without work but available for and seeking employment. Definitions of the labor force and unemployment differ by country.	International Labour Organization, ILOSTAT database. Data retrieved in March 2017.
GDP per capita growth (annual %)	The annual percentage growth rate of GDP per capita is based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.	World Bank national accounts data, and OECD National Accounts data files.
Inflation, consumer prices (annual %) (INF)	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.	International Monetary Fund, International Financial Statistics, and data files.
Current account balance (% of GDP)	The current account balance is the sum of net exports of goods and services, net primary income, and net secondary income.	International Monetary Fund, Balance of Payments Statistics Yearbook and data files, and World Bank and OECD GDP estimates.
Real effective exchange rate index (2010 = 100) (REX)	The real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.	International Monetary Fund, International Financial Statistics.
Total expenditure as a percentage of GDP (TEGDP)	TEGDP includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security but excludes government military expenditures that are part of government capital formation. Data are in constant local currency.	Economic Survey of Pakistan, Various issues
Trade (% of GDP)	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	World Bank national accounts data, and OECD National Accounts data files.
Domestic credit to the private sector by banks (% of GDP)	Domestic credit to the private sector by banks refers to financial resources provided to the private sector by other depository corporations (deposit-taking corporations except for central banks), such as through loans,	International Monetary Fund, International Financial

	purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries, these claims include credit to public enterprises.	Statistics, and World Bank and OECD GDP estimate.
Foreign direct investment, net inflows (% of GDP)	Foreign direct investment is the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors and is divided by GDP.	International Monetary Fund, International Financial Statistics and Balance of Payments databases, World Bank, International Debt Statistics, and World Bank and OECD GDP estimates.

4.5 Data Sources

To access the impact of IMF programs on disciplining budget deficit, government revenue, expenditure, and economic growth. The dataset of dependent variables fiscal variables such as the budget deficit, government revenue, and expenditure and economic growth are extracted from various Pakistan Economic Survey, Handbook of Statistics 2015, and World Development Index (WDI). The data for the analysis is from 1980 to 2019.

4.6 Descriptive Statistics

Table 4-2: Descriptive statistics of the variables used in this study.

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP per capita	40	2.1086	1.8858	-1.8437	6.6951
Growth of Total revenue	40	14.1825	6.0117	3.1812	32.1701
Growth of total expenditures	40	13.965	7.08871	1.2411	35.8762
Growth of budget deficit	40	15.7847	25.407	-24.273	105.872
IMF	40	.25	0.4385	0	1
Balance of payment	40	-107.073	2791.746	-8937.5	7137
Domestic credit to private sector	40	22.8968	3.9472	15.3861	29.7861
Trade	40	32.5896	3.4817	25.3062	38.4993
Gen. Govt. final consumption expenditures	40	11.1737	2.1165	7.3467	16.7849
Inflation	40	8.1237	3.8024	2.5293	20.2861
Unemployment	40	3.9078	2.0988	0.3977	7.83
Real effective exchange rate	40	1.2614	0.3832	0.9523	2.3141
Foreign Direct Investment	40	0.9001	0.7922	0.1027	3.668323

The importance of descriptive statistics is that the study enabled us to find the mean of variables. Furthermore, we enable us to know about the maximum and minimum value of our variables. Another important aspect of descriptive stats is to check the normality of data. This section will discuss the general characteristics of the variables used in the study. The descriptive statistic includes mean value, standard deviation, minimum and maximum values of all variables. The above table has mentioned the values of variables used in the study.

Table 5.1 is a summary of the descriptive statistics of the variables that are used in

this study. The table shows the mean, median, maximum, minimum, standard deviation, skewness, and kurtosis, and probability value. The table below is easy to understand. It contains the mean of variables which describe the average of values of variables. Likewise, the median tells about the central observation after arranging the data. The column of maximum and minimum values shows the highest and lowest observations of the data set. However, the deviation from the mean in data is described by the standard deviation. To know the normality of the series, further, look forward to kurtosis and skewness. Positive skewness reflects that the series lies at the right of its mean value, while negative means series lies on the left of the mean value. Moreover, the Preakness of series is represented by kurtosis.

The results show the minimum value of GDP per capita is -1.8437 and the maximum value is 6.6951, while the mean value is 2.1086 and the standard deviation is 1.8858. The minimum growth of total revenue is 3.1812 with a maximum value of 32.1701, while the mean is 14.1825 and the standard deviation is 6.0117. The mean growth of total expenditure is 13.965, the standard deviation is 7.0887, its minimum is 1.2411 and the maximum is 6.6951. The standard deviation of growth of budget deficit is 25.407, while minimum and the maximum value is -24.273 and 105.872 respectively. The minimum and maximum value of Domestic credit to the private sector mean value is 15.3861, 29.7861, the mean value is 22.8968, and the standard deviation is 3.9472. The mean value of trade is32.5896, the standard deviation is 3.4817, with a minimum value of 25.3062 and a maximum value of 38.4993. Results show that the average General Government final consumption expenditures 11.1737 and a minimum of7.3467 with a maximum of 16.7849 where the standard deviation shows that there is 2.1165 variation from the mean value. The descriptive summary statistics of inflation show that on average remained 8.1237, the standard deviation is 3.8024, while the minimum and maximum value are 2.5293 and

20.2861 respectively. The mean value of unemployment is 3.9078, the standard deviation is 2.0988, its minimum is 0.3977 and the maximum is 7.83. The minimum real effective exchange rate is 0.9523 with a maximum value of 2.3141, while the mean is 1.2614 and the standard deviation is 0.3832. The standard deviation and mean value of Foreign direct investment is 0.7922 and 0.9000889, while its minimum and maximum value are 0.1027 and   3.668

This table is going to represent the correlation matrix among the variables used in this study

Table 4-3: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
GDP per capita	1.0000												
Growth of Total revenue	0.2943	1.0000											
Growth of total expenditure	-0.2121	0.8564	1.0000										
Growth of budget deficit	0.0469	-0.0146	-0.0097	1.0000									
IMF	0.2222	-0.3549	-0.4896	-0.2512	1.0000								
Balance of payment	0.1582	0.3237	0.2398	0.1028	-0.2338	1.0000							
Domestic credit to private sector	0.3329	0.3840	0.2281	0.3239	-0.0740	0.5206	1.0000						
Trade	0.0726	0.0971	0.0491	0.0415	-0.0130	0.1992	0.4739	1.0000					
Gen. Govt. final consumption expenditure	0.2197	0.4446	0.3845	0.4586	-0.1957	0.2109	0.6235	0.1251	1.0000				
Inflation	-0.2987	-0.3470	-0.2345	0.0231	-0.0531	-0.0137	-0.2382	-0.3503	-0.4136	1.0000			
Unemployment	0.2100	0.0855	-0.0423	0.1164	-0.0265	0.3181	0.2235	0.2249	-0.0779	-0.0103	1.0000		
Real effective exchange rate	0.3408	0.0629	-0.1340	-0.0723	0.0037	0.1117	-0.1151	-0.0315	-0.2587	0.1010	0.4243	1.0000	
Foreign direct Investment	0.1737	0.4371	0.4006	0.0077	-0.0810	0.3053	0.1622	-0.2426	0.3686	-0.3701	-0.4540	-0.1499	1.0000

CHAPTER 5

RESULTS

Introduction

This chapter reports and explains the results of our models used in this study. First, the results of a unit root will be discussed in section 5.2. The stationary level of variables will be checked in this section. After that, in section 5.3, we will move towards the bound test results. In this section, the selection criteria for AIC and SC lags shall be used to choose the lag period for the models used in the analysis. Furthermore, section 5.4 discusses the result of the bound test. This section will enlighten us to check whether there is a long-run relationship among variables or not. Besides, Section 5.5 discusses the effects of the cointegration for the models used in this study. Moreover, this segment has parts for reviewing short-run results, long-run results, and reliability tests.

5.1 Unit Root Test

This section would discuss the result of the unit root test. This study has applied Augmented Dicky Fuller (ADF) and Phillips Perron (PP) to check for the variable's stationarity. The unit root test results are shown in Table 5.1 and Table 5.2.

Table 5-1: Unit Root Test Results

Variable	ADF		P.P		Integrated Order
	Level	1st difference	Level	1st difference	Decision
TBDG	0.0000	0.0000	0.0000	0.0000	I(0)
TRR	0.0000	0.0000	0.0000	0.0000	I(0)
TEG	0.0003	0.0001	0.0003	0.0000	I(0)
IMF	0.0001	0.0007	0.0001	0.0000	I(0)
BOPCF	0.0005	0.0001	0.0000	0.000	I(0)
TRADE	0.2753	0.0000	0.2552	0.0000	I(1)
DCREDIT	0.1074	0.0008	0.2919	0.0008	I(1)
INF	0.0096	0.0000	0.1338	0.0000	I(0)
UNE	0.4484	0.0000	0.4067	0.0000	I(1)
REX	0.5786	0.0230	0.8557	0.0000	I(1)
GFCEXP	0.5801	0.0016	0.6459	0.0015	I(1)

GDPPCG	0.0084	0.0004	0.0085	0.0000	I(0)
FDI	0.1069	0.0137	0.6355	0.0272	I(1)
5% and 10% significance level, respectively.					

Table 5-2: Unit Root Test Results (SIC)

Variable	ADF		P.P		Integrated Order
	Level	1st difference	Level	1st difference	Decision
TBDG	0.0000	0.0000	0.0000	0.0000	I(0)
TRR	0.0000	0.0000	0.0000	0.0000	I(0)
TEG	0.0003	0.0000	0.0003	0.0000	I(0)
IMF	0.0001	0.0000	0.0001	0.0000	I(0)
BOPCF	0.0001	0.0001	0.000	0.000	I(0)
TRADE	0.2753	0.0000	0.2552	0.0000	I(1)
DCREDIT	0.2243	0.0008	0.2919	0.0008	I(1)
INF	0.1707	0.0000	0.1338	0.0000	I(0)
UNE	0.4484	0.0000	0.4067	0.0000	I(1)
REX	0.127	0.0000	0.8557	0.0000	I(1)
GFCEXP	0.7588	0.0016	0.6459	0.0015	I(1)
GDPPCG	0.0084	0.0004	0.0085	0.0000	I(0)
FDI	0.1069	0.0137	0.6355	0.0272	I(1)
5% and 10% significance level, respectively.					

First, the stationary of the data was tested using Stationary tests from Augmented Dicky Fuller (ADF) and Phillip Perron (PP). The variables trade, domestic credit, unemployment, real effective exchange rate, and government final expenditure are investigated above the table of unit root tests are not stationary at trend level and intercept at a significance level of 5 percent. Thus, it can be assumed that there is a unit root or that variables are not stationary on the ground. Only total budget growth, overall spending growth, overall revenue growth, IMF dummy, the balance of payments, and inflation are stationary on the ground.

However, the ADF and PP tests were applied to verify the stationarity of variables at the first difference with trend and intercept. At first-order difference, all variables were stationary at a 5% level of significance. If either of the element of order 2 was included in the above table then we may not have performed the ARDL test. The first ADF test has been applied to the trade. P-value equals 0.2753. As the p-

value is greater than 5% it can be said that there exists unit root at the level. This means that the data is not stationary at level.

After taking 1st difference with the trend and intercept the p-value is 0.0000 and it is less than 5 percent hence this variable is stationary to integrated order 1. Furthermore, domestic credit to the private sector, unemployment, real exchange rate, and government final consumption expenditure are integrated of order 1.

5.2 Lag Length Criterion

Table 5-3: Lag Length Criteria

Lag Length	Model 1		Model 2		Model 3	
	AIC	SIC	AIC	SIC	AIC	SIC
0	43.09939	43.79601	43.45595	44.15256	43.09003	43.78664
1	36.10703	39.59009*	36.63768	40.12074	36.33483	39.8179
2	35.51391	41.78343	36.05708	42.3266	35.76407	42.03359
3	30.91559*	39.97156	31.00764*	40.06361*	30.32291*	39.37888*

Initial measurements are the criteria of knowledge or lag duration if the selection of lags is made in the time-series study. Furthermore, the length of the lag depends on the number of observations. Where measurements are less than 60 AIC and SC are more appropriate. In the table above this analysis, the AIC and SC details were used to select a suitable lag time for the models used in the analysis.

For each variable to pick the best lag length. The ARDL technique estimates how many regressions there are. With the help of the Schwartz-Bayesian Criteria and the Information Criteria of Akaike, the model can choose. According to the table above, AIC suggests 3 lag lengths and SIC suggests 1 lag for model 1, respectively. In addition, the lag length suggested for Models 2 and 3 according to AIC, and SC is 3.

5.3 Bound Test

Model 1 tells us about the impact of balance of payment, trade, domestic

credit, inflation, unemployment, real exchange rate, and government final consumption on-budget deficit. Besides, Model 2 explores the impact of the variables mentioned on total revenue. Moreover, Model 3 looks at the impact of the variables cited on total expenditure. The Bonded test results are shown in Table 8 below

Table 5-4: Bound Test Result

	Model 1	**Model 2**	**Model 3**
F-statistics	9.551	7.759	4.160
Lower bound I (0)	2.22	2.22	2.22
Upper bound I (1)	3.39	3.39	3.39
Cointegration	Yes	Yes	Yes
5% and 10% significance level			

Model 1, represents the effect on the budget deficit of independent variables. Since the value of upper bound 3.39 is lower than the value of f-statistics 9.551. This means that the variables are bound between them. While the effect of exogenous variables on total revenue is reflected in Model 2 the F-statistic value 5.709 is higher than the upper limit value 3.39. In addition, Model 3 sightseeing on total expenditure. Since the upper limit value is 3.39 which is less than the F-statistics value of 4.160 at 5 percent and the sensed amount at 10 percent, it reflects that there is a bound between variables, respectively. So, a co-integration exists between the variables.

5.4 Cointegration Results

Following section 5.5.1 will discuss cointegration results for the budget deficit.

5.5 Cointegration Results for Budget Deficit

This section explores the cointegration results in on-budget deficit. Section 5.5.1.1 explores the long-run elasticities. Furthermore, 5.5.1.2 discusses the error correction model. Finally, 5.5.2 discusses the stability test.

5.5.1 Log Run Results
Following table 5.5 is representing long-run elasticities.

Table 5-5: Long run Results for TBDG

Variable	Coefficient	T-statistics	Prob.	Coefficient	T-statistics	Prob.
IMF	-20.6222	-4.1482	0.0006	-33.9383	-28.1204	0.0001
BOPCF	-0.0048	-5.2018	0.0001	-0.00282	-6.01747	0.0092
TRADE	1.5515	2.4962	0.0225	----	----	----
DCREDIT	1.1132	1.8020	0.0883	-1.08123	-2.87221	0.0639
INF	0.21403	0.2891	0.7758	3.277321	13.18034	0.0009
UNE	-4.7344	-3.7672	0.0014	3.373962	3.729255	0.0336
REX	-0.2515	-0.0550	0.9567	16.92714	6.175727	0.0085
GFCEXP	-2.2915	-3.0643	0.0067	2.42141	6.309661	0.008
FDI	----	----	----	19.47075	10.09299	0.0021
C	-10.6149	-0.8747	0.3932	-59.0594	-8.86693	0.003
At 5% (**) and 10% (*) significance level						

The first model discusses the long-term impact on the budget deficit of various variables for the period 1980 to 2019. The value of the coefficient IMF dummy is -20.622 and t-statistics is -4.148 and P-value is 0.0006. It implies that there is an inverse relationship between the IMF program and the Budget deficit as the sign of the coefficient is negative, but it is significant. However, the negative association between budget deficit and IMF programs implies overall deficit may fall due to participation in IMF programs because the objective of the program is to create fiscal discipline through fiscal consolidation. The value of the coefficient balance of payment is -0.0048 and P-value is 0.0001 implies that there exists a negative relationship between BOP and Budget deficit. The negative association is because, in the case of Pakistan, imports are less than exports which mean governments pay less than it receives and falls into surplus and vice versa. While the variable trade value is 1.5551 having a P-value of 0.0225 implies that there exists a positive relationship between them. The positive association of trade is because in case of Pakistan, imports are greater than exports which means governments pays more than it receives and falls into deficit.

If the value of trade is increased by one percent, then the dependent variable budget deficit increases by 1.55 percent. The value of domestic credit is 1.1132 having a P-value 0.0883. It means that is there is a positive relationship as the sign of

the coefficient is positive and significant. It means that the credit provided domestically increases will lead to increase the budget deficit. The variable inflation plays a key role in determining the budget deficit. Inflation has an insignificant impact on budget deficit depicted by a positive sign. Periods of high inflation have coincided with low growth spells, while high growth episodes tend to be associated with a low inflation environment. Inflation makes domestic goods expensive and gives rise to demand of imports, making a way to bad balance of payments account.

The value of unemployment is -4.73441 and P-value is 0.0014. It means that it has a significant effect on the budget deficit depicted by the negative sign. It incorporates that if the unemployment increases by one percent the budget deficit will decrease by 4.73 percent. The increases in unemployment will lead to decrease the consumption of good and services and decline the goods import from abroad and result in decreases in imports and rise in exports which lead to decrease the budget deficit. The value of the exchange rate is -0.2515 and P-value is 0.956. The exchange rate calculates the price of the currency of a nation in terms of one unit of the currency of another country. It indicates that it has an insignificant effect on TBDG. Moreover, the shortfall in the budget is adversely linked to the exchange rate. There is a need to balance the domestic currency to reduce the budget deficit. Finally, the government's final consumption expenditure value is -2.2915 having a P-value of 0.0067. It means that it has a significant and negative effect on-budget deficit. The greater shortfall in the budget is followed by higher interest rates, large rises in money supply inflation and higher costs. A 1% change in government final consumption expenditure will decrease the budget deficit by 2.29%.

5.5.1.2 Error Correction Model
Following table 5.6 is showing the error correction models' table.

Table 5-6: Error Correction Model for TBDG

Variable	Coefficient	T-Statistics	Prob.
CointEq(-1)	-1.9503	-8.6038	0.0000
At 5% (**) and 10% (*) significance level			

Firstly, we look at the value of the error correction coefficient to explain the effects of short-run cointegration. This coefficient should be negative and meaningful, so we can assume that our independent and dependent variables are related for a long time. It means that there exists a long-run association between our independent and dependent variables.

The ECM value shows us the speed of the adjustment to the equilibrium change. In the view of a few studies, the ECM value should be between 0-2 but most studies suggest its value 0-1. The EC value should also be significant. Additionally, the error correction model should be negative. The EC value of the above model is negative and significant at 5%. Its probability value is 0.0000. Form the above table we can interpret our result as the rate of change from the previous year of disequilibrium to the equilibrium of the current year is 195% percent and it is significant at the level of 5%.

5.5.2 Stability Test
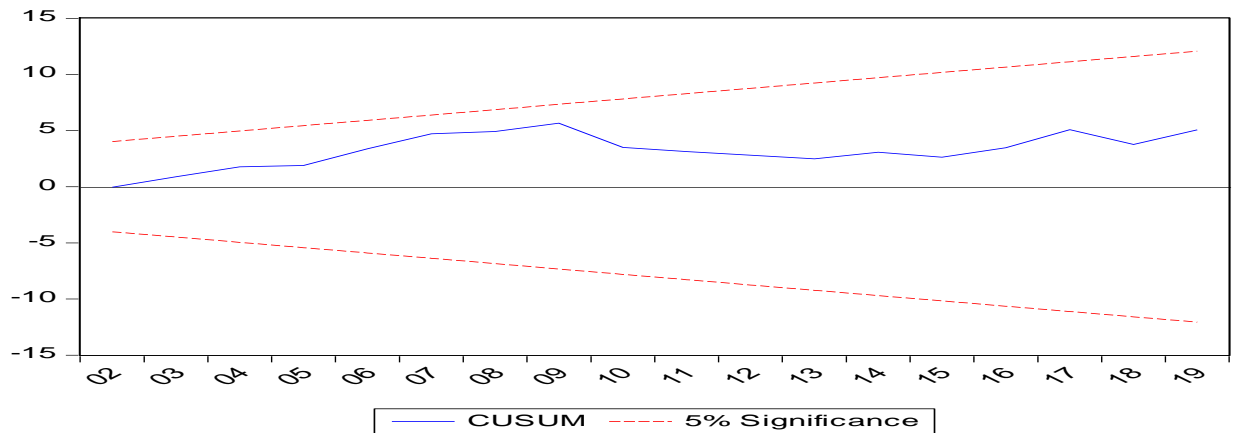For stability CUSUM and CUSUMSQ tests have been applied in the study.

5.5.2.1 CUSUM and CUSUMSQ TESTS
Following figures 2 and 3 show the results of CUSUM and CUSUMSQ tests.

Figure 1 CUSUM Result for Budget Deficit

Figure 2 CUSUMQ Result for Budget Deficit
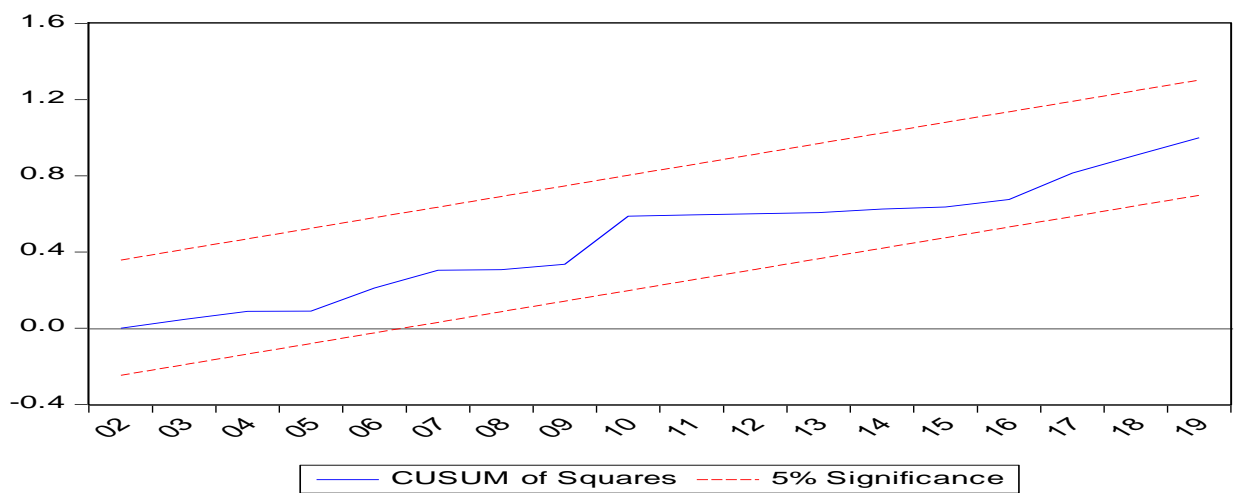
Brown et al first familiarized the CUSUM AND CUSUMSQ tests for stability parameters in econometric works. Al. (2007). First, we set the regression model's hypothesis for the correct specification. Test CUSUM and CUSUMSQ tell us about variables stability. It also tells us about whether there are structural breaks in the data or not. The findings suggest that the CUSUM and CUSUMSQ lie within the critical bound range of % significance level.

5.6 Cointegration Results for Growth of Total Revenue

This section explores the cointegration results for the growth of total revenue. Section 5.5.2.1 discusses long-run elasticities. Furthermore, 5.5.2.2 discusses the error correction model. Lastly, 5.5.2.3 elaborates on the stability test for the model.

5.6.1 Log Run Results

Following table 5.7 is representing long-run elasticities.

Table 5-7: Long run Results for TRR

Variable	Coefficient	T-statistics	Prob.	Coefficient	T-statistics	Prob.
IMF	3.8516	6.7676	0.0211	3.528034	2.381737	0.0268
BOPCF	0.0008	19.8509	0.0025	0.000536	3.39694	0.0027
TRADE	-1.6622	-10.833	0.0084	----	----	----
DCREDIT	1.5648	15.6497	0.0041	0.486418	2.372663	0.0273
INF	0.6370	6.0423	0.0263	-0.17743	-0.85363	0.4029
UNE	-1.3984	-12.6471	0.0062	-1.49126	-3.59733	0.0017
REX	0.4091	1.3828	0.3009	1.535372	0.826807	0.4176
GFCEXP	1.0863	9.1745	0.0117	-0.20596	-0.87308	0.3925
FDI	----	----	----	0.756791	0.689132	0.4983
C	21.403	13.2642	0.0056	9.630981	2.42398	0.0245
At 5% (**) and 10% (*) significance level						

The second model discusses the long-term impact on the growth of the total revenue of various variables for the period 1980 to 2019. The value of the coefficient IMF dummy is 3.8516 and the t-statistics is 6.7676 and P-value is 0.0211. It implies that there is a positive relationship between the IMF program and total revenue as the sign of the coefficient is positive and significant. The value of the coefficient balance of payment is 0.0008 and P-value is 0.0035 implies that there exists a positive relationship between BOP and growth of total revenue. It implies that when the BOP is favorable and exports are greater than imports, the country revenue will increase because of higher exports. While the variable trade value is -1.6622 having a P-value of 0.0084 implies that there exists a negative relationship between them. If the value of trade is increased by one percent, then the dependent variable growth of total revenue decreased by 1.56 percent. The negative effect is because often trade is not beneficial to the economy, there is already a trade imbalance due to high income elasticity of import demand. If imports are higher than exports, gross sales would decrease as a result. The value of domestic credit is 1.564 having a P-value 0.0041. It

means that is there is a positive relationship as the sign of the coefficient is positive and significant. If the credit provided at domestically increases at lower interest rate it will lead to increase different investment opportunities, starting of different new projects will result in generating employment opportunities and better living standards and thus result in increased in government revenue. The variable inflation plays a key role in determining the growth of total revenue. Inflation has a significant impact on the growth of total revenue depicted by the positive sign. The value of unemployment is -1.3984 and P-value is 0.0062. It means that it has a significant effect on the growth of total revenue depicted by the negative sign. It incorporates that if the unemployment increases by one percent the growth of total revenue will decrease by 1.39 percent. This implies that the increase in unemployment will lead to a decrease in demand for the quantity of goods consumed, thereby reducing total government revenue. The value of the real effective exchange rate is 0.4091 and P-value is 0.30009. It indicates that it has an insignificant effect on the growth of total revenue. Finally, the government's final consumption expenditure value is 1.0863 having a P-value of 0.0117. It means that it has a significant and positive effect on the growth of total revenue. A 1% change in government final consumption expenditure will increase the total revenue by 1.08%. The increase in final expenditure by the government would result in multiplier effect , as government spending generates extra money to families, contributing to higher consumer spending. That in turn leads to increased business revenues, production, capital expenditures and employment opportunities which stimulate the economy and thus increased the GDP.

5.7 Error Correction Model

Following table 5.8 is showing the error correction models' table.

Table 5-8: Error Correction Model for TRR

Variable	Coefficient	T-Statistics	Prob.
CointEq(-1)	-1.9835	-6.7399	0.0000
At 5% (**) and 10% (*) significance level			

In the above results, the rate of change from the previous year of disequilibrium to the equilibrium of the current year is 198% percent and it is significant at the level of 5%.

The EC value of the above model is negative and the probability value is 0.0000.

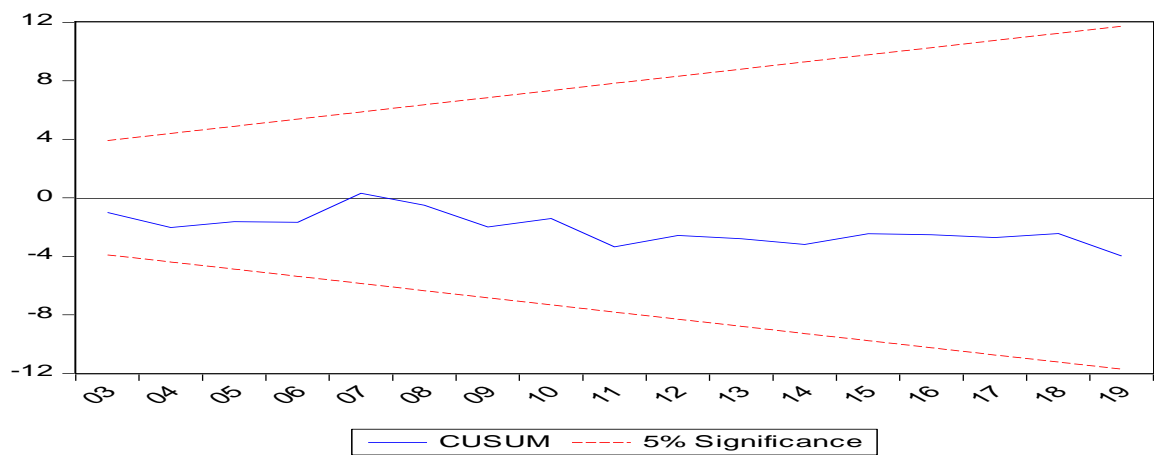### 5.7.1 Stability Test
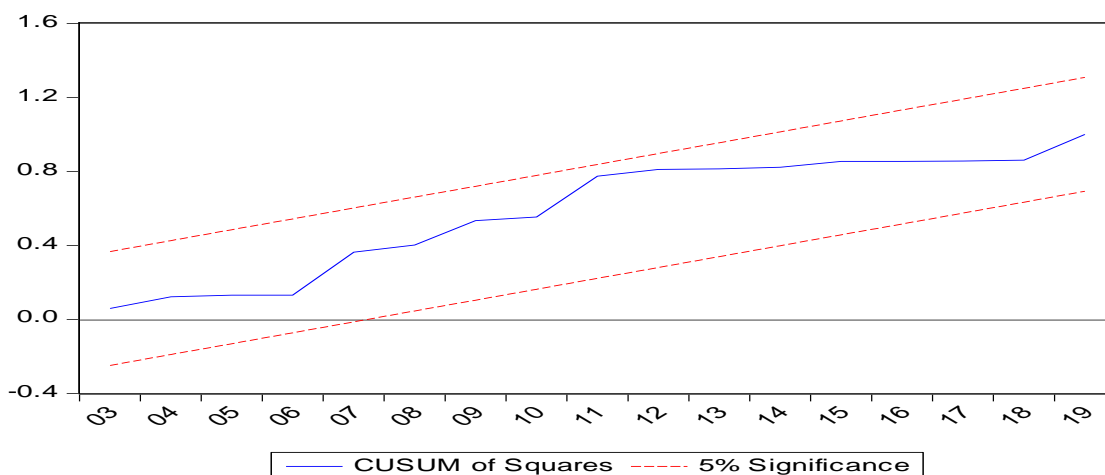For stability CUSUM and CUSUMSQ tests have been applied in the study.

5.7.2 CUSUM and CUSUMSQ TESTS
Following figures 3 and 4 show the results of CUSUM and CUSUMSQ tests.

Figure 3 CUSUM Results for Growth of Total Revenue

Figure 4 CUSUMQ Results for Growth of Total Revenue

Tests CUSUM and CUSUMSQ are used to check the model's stability. Also, it helps one to check if the model has any structural break or not. If we look at the above disequilibrium to the equilibrium curves, all plots remain at a 5% significance level in critical boundaries. Hence, we can say whether the model is stable structurally or not.

5.8 Cointegration Results for TEG

This section explores the cointegration results for the Growth of total expenditure. Section 5.5.3.1 discusses long-run elasticities. Furthermore, 5.5.3.2 discusses the error correction model. Lastly, 5.5.3.3 elaborates on the stability test.

5.8.1 Log Run Results
Following table 5.9 is representing long-run elasticities.

Table 5-9: Long run Results for TEG

Variable	Coefficient	T-statistics	Prob.	Coefficient	T-statistics	Prob.
IMF	-3.4144	-2.7871	0.0495	-9.11492	-5.66196	0.0000
BOPCF	-0.0004	-1.8676	0.1352	-0.00077	-4.26635	0.0005
TRADE	1.8489	5.4088	0.0057	----	----	----
DCREDIT	-0.4427	-3.7663	0.0197	-0.421	-2.1113	0.0499
INF	-0.5287	-1.6397	0.1764	1.454585	7.388498	0.0000
UNE	-2.1913	-6.5863	0.0028	0.423801	1.116628	0.2797
REX	2.5746	3.3326	0.029	7.936763	3.616058	0.0021
GFCEXP	-1.9606	-6.2375	0.0034	-0.32475	-1.083	0.2939
FDI	----	----	----	3.273797	2.101408	0.0508
C	-4.6383	-1.2706	0.2727	2.317263	0.469937	0.6444
At 5% (**) and 10% (*) significance level						

In the third model, the long-term impact on the growth of total expenditure of various variables for the period 1980 to 2019 was discussed. The value of the coefficient IMF dummy is -3.84144 and t-statistics is 2.7871 and P-value is 0.0495. It implies that there is an inverse relationship between the IMF program and the Growth of total expenditure as the sign of the coefficient is negative and significant. The value of the coefficient balance of payment is insignificant. While the variable trade value is 1.8489 having a P-value of 0.0057 implies that there exists a positive relationship between them. If the value of trade is increased by one percent then the dependent variable growth of total expenditure increased by 1.84 percent. The value of domestic credit is -0.4427 and its P-value is 0.0197. It depicts that is there is a negative relationship as the sign of the coefficient is negative and significant. Inflation has a significant impact on the growth of total expenditure depicted by a negative sign. The value of unemployment is -2.1913, its P-value is 0.0028 indicates that it has a significant effect on the growth of total expenditure. It means that if unemployment increases by one percent the growth of total expenditure will decrease by 2.19 percent. The increases in unemployment will lead to decrease the consumption of good and services and decline the goods import from abroad and result in decreases in imports and rise in exports which lead to decrease the expenditure. The value of the real effective exchange rate indicates that it has a significant effect on the growth of total expenditure. Finally, the government's final consumption expenditure value is negative employ that it have a significant and negative effect on the growth of total expenditure.

5.9 Error Correction Model
Following table 5.10 is showing the error correction models' table.

Table 5-10: Error Correction Model for TEG

Variable	Coefficient	T-Statistics	Prob.
CointEq(-1)	-1.7296	-9.5790	0.0024

At 5% (**) and 10% (*) significance level

The result indicated that the rate of change from the previous year of disequilibrium to the equilibrium of the current year is 172% percent and it is significant at the level of 5%. The EC value of the above model is negative and having probability value is 0.0024
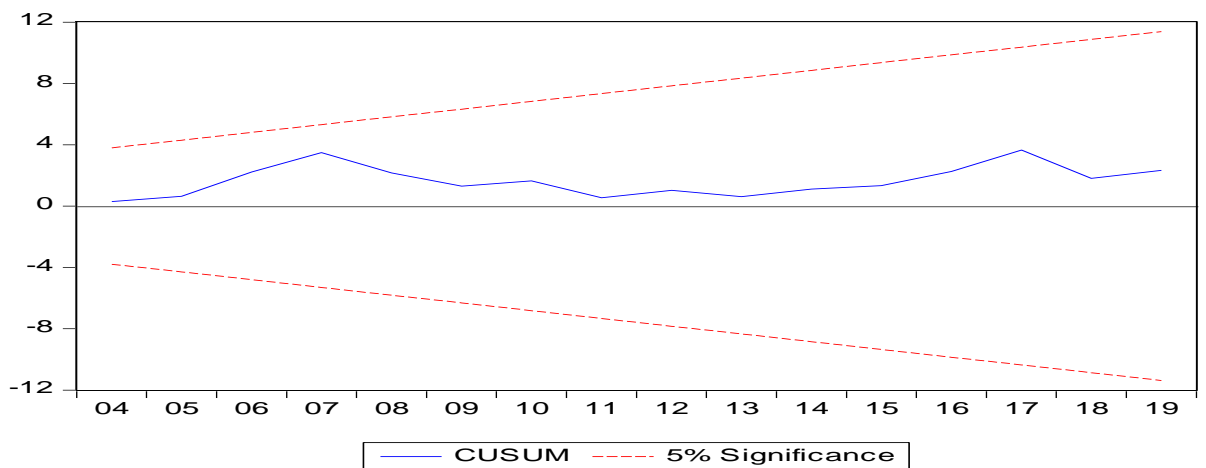
5.8.1 Stability Test
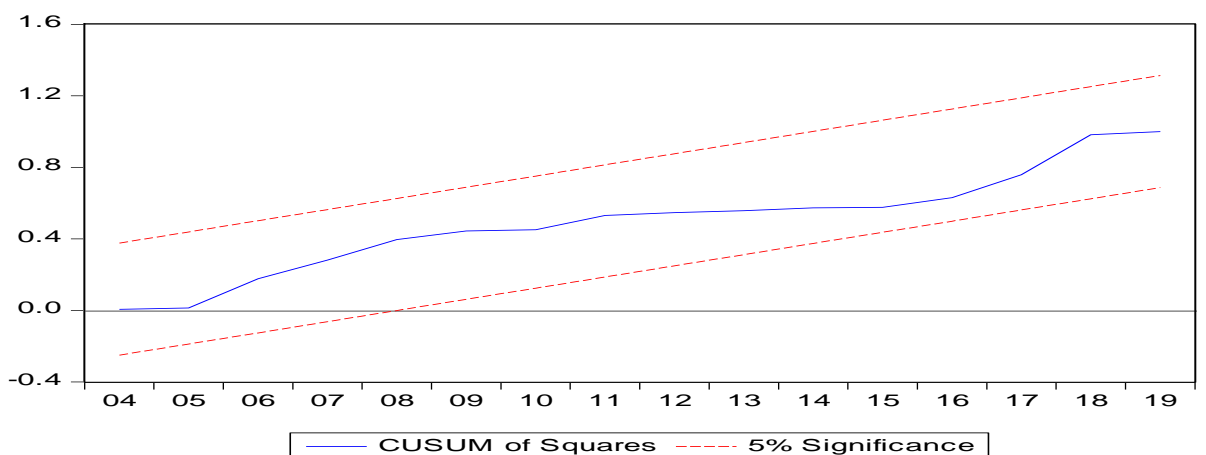For stability CUSUM and CUSUMSQ tests have been applied in the study.

5.8.2 CUSUM and CUSUMSQ TESTS
Following figures 2 and 3 show the results of CUSUM and CUSUMSQ tests.

Figure 5 CUSUM Results for Growth of Total Revenue

Figure 6 CUSUMQ Results for Growth of Total Revenue

5.9 Summary of ARDL Result

This section explores the cointegration results of IMF on GDP per capita. The impact of the IMF program on GDP per capita growth is discussed in this section. Through the ARDL model. The Bound test result is as follows.

Table 5-11: Bound Test Result

	Model 1	Model 2	Model 3
F-statistics	9.551	7.759	4.160
Lower bound I (0)	2.22	2.22	2.22
Upper bound I (1)	3.39	3.39	3.39
Cointegration	Yes	Yes	Yes
5% and 10% significance level			

5.9.1 Log Run Results
Following table 5.12 is representing long-run elasticities

Table 5-12: Long Run Results

Independent Variables	Dependent Variable: GDPPC		
	Model 1	Model 2	Model 3
IMF	-1.4683	-1.1540	-7.6279
	0.0146	0.0381	0.0030
BOPCF	0.0006	0.000896	0.0012
	0.0001	0.0025	0.0006
TRADE	0.0619		0.2519
	0.2162		0.0050
INF	-0.1757		0.0041
	0.0037		0.9477
REX	0.9265	2.3710	
	0.0878	0.0060	
UNE		0.1185	
		0.2070	
DCREDIT		-0.1215	0.1468
		0.0200	0.0274
GFCEXP		-0.0458	
		0.6079	
C	0.6097	1.8931	0.4037
	0.6120	0.6079	0.6230

Table 5.11 depicts the empirical result of the impact of IMF programs on GDP per capita growth in Pakistan from 1980 to 2019. The value of the coefficient IMF dummy in all the model is negative and statistically significant. The value of the coefficient of the IMF dummy in model 1 is -1.468 and P-value is 0.014. This means that there is an inverse relationship between the IMF program and GDP per capita growth as the sign of the coefficient is negative and significant. Our findings are in line with the Conway (1994), Barro and Lee (2005), Hardoy (2003), Hakro & Ahmad (2006), Ozturk (2008), Binder, and Bluhm (2010). The coefficient of inflation is statistically significant and harms GDP per capita growth as depicted by a negative sign. Further the policy variable, the real exchange rate also contributed positively to GDP and it is statistically significant. Based on these analytical observations, the net impact of the IMF policy on Pakistan's economy is a decline in growth rate, indicating that Pakistan may have had a higher growth rate in the absence of the IMF. Explanation of this negative relationship can also be related to conditionalities linked to IMF policies that have a detrimental effect on economic development. While in model three the effect of inflation on GDP is insignificant.

This means that other policy variables negatively impacts growth and that IMF programs are not the only factor that lowers Pakistan's economy's growth rate. Pakistan faces extreme shortages of electricity. Growth is restricted by supply-side shocks, including increasing energy gaps; as Amjad, Din, & Qayyum (2011) pointed out, which has shaved-off big Pakistan growth.

5.10 Comparison of Results Obtained from ARDL

This section is going to compare the results of all models used in this study. First, if look at the international monetary fund (IMF) dummy variable, it is statistically significant in all three models under ARDL. Furthermore, it also has a

statistically significant and negative influence on Budget deficit see Hye Jee Cho (2009). The results tell that the IMF is significantly and negatively affects the growth of the budget deficit and the growth of total expenditure.

Secondly when the variable of trade is examined. It has a significant and positive influence on the growth of the budget deficit and growth of total expenditure while it has a significant and negative effect on the growth of total revenue. While in all the three models the unemployment is statistically significant and harms the growth of the total budget deficit, growth of total revenue, and growth of total expenditure. The variable FDI is statistically significant and has a positive effect on the growth of the budget deficit and growth of total revenue.

Chapter 6

Conclusion

The study uses a time series data for analyzing the IMF program impact on the budget deficit, government revenue, expenditure and economic growth in Pakistan over the time period of 1980 to 2019. For this purpose the time series techniques are implied. Firstly, the study checked the stationarity of the variables through unit root tests by Augmented Dicky Fuller (ADF) and Phillips Perron (PP). The results of unit root indicates mixed results some variable are stationary at level while few at 1st difference. The results obtained from unit root test sooth the way towards ARDL test because none of the variables are at 2nd difference. Secondly, the selection of lag length the study used the AIC and SC.

Thirdly, the bound test is used to check the cointegrations among the variables. The results of bound test show that variables are cointegrated in all the three models. Accordingly, the findings the study further explore the long run relation among the budget deficit, growth of total revenue, growth of total expenditure on IMF dummy. The results obtained are significant in the three models where the sign of coefficients are different. There is an inverse relationship exist between budget deficit and IMF program. Where growth of total revenue is positively effect by IMF program. While in third model the dependent variable growth of total expenditure is negatively affected by IMF program.

This study also checks the speed of the adjustment to the equilibrium change through error correction model. The rate of change from the disequilibrium to the equilibrium is -1.9503, -1.9835, and -1.7296 and is significant for all the three models respectively. The study also conclude the stability of the all the models by CUSUM and CUSUMSQ stability test indicate all the models lie in the boundaries and are

significant.

The study also implies the ARDL approach to explore the cointegration results of IMF on GDP per capita. There are also the three model have been taken in account to find the long-run elasticities but the dependent variables is not changing while the independent side differs in term of control variables. The results obtained from ARDL depicts that the value of the coefficient of IMF dummy in the entire model is negative and statistically significant. Based on these analytical observations, the net impact of the IMF policy on Pakistan's economy is a decline in growth rate, indicating that Pakistan may have had a higher growth rate in the absence of the IMF. Explanation of this negative relationship can also be related to conditionalities linked to IMF policies that have a detrimental effect on economic development. While in model three the effect of inflation on GDP is insignificant.

This means that other policy variables negatively impacts growth and that IMF programs are not the only factor that lowers Pakistan's economy's growth rate. Growth is restricted by supply-side shocks, including increasing energy gaps; as Amjad, Din, & Qayyum (2011) pointed out, which has decline Pakistan growth.

To promote economic development, the IMF stabilization policy has a primary goal. These programs, however, allow for a connexion of production against lower government budget deficits. By reducing production costs, stability goals are met. Pakistan has therefore been unable to sustain increased economic growth. In the case of Pakistan with negative connections, projected economic growth outcomes are negligible, which means IMF programmes are negatively affected by GDP growth.

In Pakistan, in desperate economic conditions the country turns to the IMF. This adds to a poor negotiating position. In the face of the enormous danger of default during a balance of payments crisis, the Government has always been hurrying to take

the first loan tranche as soon as possible, while avoiding the role of the negotiation team in terms of terms and conditions and coming up with unrealistic expectations. It is therefore concluded that the government ought to own the agreed Program (Ahmed, 2012). Furthermore, whether or not under the IMF, the country requires a strict program for stabilization, because of the negligence of government which does not take decisions at the correct time.

The IMF argues that currencies are over-valued in most developed countries. Although it is important to adjust the exchange rate to the degree of its overvaluation since the cost of the highly devalued economy in Pakistan is particularly high. Devaluation of the currency leads to import costs, in particular, oil products and many other raw materials in our domestic manufacturing sector, which raise inflation and decrease competitiveness.

References

Ahmad , E., & Mohammed , A. (2012, December). Pakistan, the United States and the IMF: Great game or curious case of Dutch Disease without the oil? *LSE Asia Research Center Working Paper, 57*.

Ahmad, K., Khalid, A., & Noor , Z. (2016). The role of IMF in Pakistan's economy. *Bulletin of Business and Economics, 5*(3), 126-134.

Ahmad, K., Khalid, A., & Zoya Noor. (2016). The role of IMF in Pakistan's economy. *Bulletin of Business and Economics, 5*(3), 126-134.

Ahmed, M. A. (2012). *The IMF and Pakistan (A Road to Nowhere).* Pakistan Institute of Devleopment Economics.

Al-Sadiq, A. J. (2015). The Impact of IMF-Supported Programs on FDI in Low-income Countries. *IMF Working Paper, WP/15/157*.

Amjad, R., Din , M. u., & Qayyum , A. (2011, Septemeber). Pakistan: Breaking Out of Stagflation into Sustained Growth. *The Lahore Journal of Economics, 16*, 13-30.

Anton , S. G. (2016). Foriegn Direct Investment Flows and IMF Lending Programs. New Empirical Evidence from CESEE Countries. *Scientific Annals of Economics and Busines, 63*(3). doi:10.1515/saeb-2016-0124

Anwar, M. (2006). The Political economy of International Financial Institutions' lending to Pakistan. *Pakistan Economic and Social Review, 44*(2), 155-180.

Anwar, M. (2006). The Political Economy of International Financial Institutions' lending to Pakistan. *Pakistan Economic and Social Review , 44*(2), 155-180.

Arjomand, M., Emami , K., & Salimi, F. (2016). Growth and Productivity; The Role of Budget Deficit in the MENA Selected Countries. *Procedia Economics and Finance, 36*, 345-352.

Arpac, O., Bird, G., & Mandilaras, A. (2008). Stop Interrupting: An Empirical Analysis of the Implemenatation of IMF Programs. *World Development, 36*(9), 1493-1513. doi:10.1016/j.worlddev.2007.09.001

Aslam , A. M. (2016). Budget Deficit and Economic Growth in Sri Lanka: An Econometric Dynamic Analysis. *World Scientific News*, 176-188.

Atoyan, R., & Conway, P. (2006). Evaluating the impact of IMF programs: A comparison of matching and instrumental-variable estimators. *Rev Int Org, 1*, 99-124. doi:10.1007/s11558-006-6612-2

Atoyan, R., & Conway, P. (2006). Evaluating the impact of IMF programs: A comparison of matching and instrumental-variable estimators. *Rev Int Org, 1*, 99-124. doi:DOI 10.1007/s11558-006-6612-2

Atoyan, R., & Conwey, P. (2006, June). Evaluating the Impact of IMF Programs: A Comparison of Matching and Instrumental-Variable Estimators. *Review of International Organization*. doi:10.1007/s11558-006-6612-2

Axel , D., & Walter, S. (2010). Does the IMF Help or Hurt? The Effect of IMF Programs on the Likelihood and outcome of Currency Crises. *World Development, 38*(1), 1-18.

Barro, R. J., & Lee, J.-W. (2005). IMF programs:Who is chosen and what are the effects? *Journal of Monetary Economics, 52*, 1245-1269.

Bas, M. A., & Stone, R. W. (2014). Rev Int Organ. *Adverse selection and growth undrr IMF programs, 9*, 1-28. doi:10.1007/s11558-013-9173-1

Beazer, Q. H., & Woo, B. (2016, April). IMF Conditionality, Government Partisanship, and the Progress of Economic Reforms. *American Journal of Political Science, 60*(2), 304-321. doi: 10.1111/ajps.12200

Beetsma , R., Giuliodori , M., & Klaassen , F. (2008, May 1). Trade Balances and Budget Deficits in the European Union. *Journal of the European Economic Association, 6*(2-3). doi:https://doi.org/10.1162/JEEA.2008.6.2-3.414

Bellos, S. K. (2016). IMF programs and policies assessment in the transition economics during the transition and the post-transition period. *Journal of Heterodox Economics, 3*(2). doi:10.1515/JHEEC-2016-0006

Bengali, K. B., & Ahmed , Q. M. (2011). Stabilisation Policy vs. Growth-oriented Policy: Implication for the Paksitan Economy . *The Pakistan Development Review, 40*, 453-466.

Benhabib, J. (2000, December). The Role of Financial Development in Growth and Investment. *Journal of Economic Growth, 5*, 341-360.

Biglasier, G., Lee, H., & Staats, J. L. (2015). The effects of the IMF on expropriation of foreign firms. *Rev Int Organ*. doi:10.1007/s11558-015-9226-8

Bilquees, F. (1987). The IMF Stablization Package and Pakistan's Stablization Experience. *The Pakistan Development Review, XXVI*(4).

BIrd , G., & Rowlands, D. (2002). Do IMF Programmes Have a Catalytic Effect on other International Capital Flows? *Oxford Development Studies, 30*(3).

Bird, G. (2001). IMF Programs: Do They Work? Can They be Made to Work Better?

World Development, 29(11), 1849-1865.

Bird, G. (n.d.). The IMF: A Bird's Eye view of its role and operations. *Journal of Economic Surveys, 21*(4), 683-745. doi:10.1111/j.1467-6419.2007.00517.x

Bird, G., & Rowlands, D. (2008, Feburary 14). The IMF's role in mobilizing private capital flows: are there grounds for catalytic conversion? *Applied Economics Letters, 16*, 1705-1708.

Bird, G., & Rowlands, D. (2017, June). IMF lending: how is it affected by economic,political and institutional factors? *The Journal of Policy Reforms, 4*(3), 243-270.

Bird, G., & Rowlands, D. (2017, Feburary 2). The Effect of IMF Programmes on Economic Growth in Low Income Countries: An Empirical Analysis. doi:10.1080/00220388.2017.1279734

Blanton, R. G., Early, B., & Peksen, D. (2018). Out of the shadows or into the dark? Economic openness, IMF programs, and the growth of shadow economies. *Rev Int Organ*. doi:10.1007/s11558-018-9298-3

Boockmann, B., & Dreher, A. (2003). The contribution of the IMF and the World Bank to economic freedom. *European Journal of Political Economy, 19*, 633-649.

Butkiewicz, J. L., & Yanikkaya, H. (2005). The Effect of IMF and World Bank Lending on Long-Run Economic Growth: An Empirical Analysis. *World Development, 33*(3), 371-391. doi:10.1016/j.worlddev.2004.09.006

Butkiewicz, J. L., & Yanikkaya, H. (2005). The Effects of IMF and World Bank Lending on Long-Run Economic Growth: An Empirical Analysis. *World Development* , 371-391. doi:10.1016/j.worlddev.2004.09.006

Butkiewicz, J. L., & Yanikkaya, H. (2005). The Effects of IMF and World Bank Lending on Long-Run Economic Growth: An Emprical Analysis. *World Development, 33*(3), 371-391. doi:10.1016/j.worlddev.2004.09.006

Chapman , T., Fang, S., Li , X., & Stone , R. W. (2017, July 28). Mixed Signals: IMF Lending and Capital Markets. *B.J. Pol.S., 47*, 329-349.

Chapman, T., Fang , S., LI, X., & Stone, R. W. (2015, July 28). Mixed Signals: IMF Lending and Capital Markets. *B.J.Pol.S. , 47*, 329-349. doi:10.1017/S0007123415000216

Christina, K., Godspower, I., Victory, D., & Gogo, K. K. (2011). The Impacts of the World Bank and IMF Structural Adjustment Programmes on Africa: The Case

Study of Cote D'ivoire, Senegal, Uganda, and Zimbabwe. *Sacha Journal of Policy and Strategic Studies, 1*(2), 110-130.

Chuadhary , M. A., & Shabbir , G. (2005). Macroeconomic Impacts Of Budget Deficit on Pakistan's Foreign Sector. *Pakistan Economic and Social Review, XLIII*(2), 185-198.

Conway, P. (1994). IMF lending programs: Participation and impact. *Journal of Development Economics, 45*, 365-391.

Dandhan , D. M. (2011). Government Expenditures and Economic Growth in Jordan. *International Conference on Economics and Finance Research, 4*.

Dicks-Mireaux, L., Mecagni, M., & Schadler, S. (2000). Evaluating the effect of IMF lending to low-income countries. *Jouranal of Development Economics, 61*, 495-526.

Dreher, A. (2006). IMF and Economic Growth: The Effects of Programs,Loans, and Comliance with Conditionality. *World Development, 34*(5), 769-788. doi:10.1016/j.worlddev.2005.11.002

Dreher, A., & Vaubel, R. (2004, May-June). The Causes and Consequences of IMF Conditionality. *Emerging Markets Finance and Trade, 40*(3), 26-54.

Edwards, M. S. (2006). Signalling credibility? The IMF and catalytic finance. *Journal of International Relations and Development, 9*, 27–52. doi:10.1057/palgrave.jird.1800079

Engle , R. F., & Granger , C. (n.d.). Co-Integration and Error Correction: Representation, Estimation, and Testing. *The Econometric Society, 55*(2), 251-276. doi:https://doi.org/10.2307/1913236

Epstein , N. P., & Macchiarelli, C. (2010, January 1). Estimating Poland's Potential Output : A Production Function Approach. *IMF Working Papers, Working Paper No. 10/15*.

Evrensel, A. Y. (2002). Effectiveness of IMF-supported stabilization programs in developing countries. *Journal of International Money and Finance, 21*, 565-587.

(2016). *Fledgling Economy, Rising Debt; More of IMF Ahead?* Research and Development Cell, Karachi Chambber of Commerce and Industry.

Fuller, W. A., & Dickey, D. A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association, 74*(366a), 427-431.

doi:https://doi.org/10.1080/01621459.1979.10482531

Galystan, V., & Lane, P. (2009). The Composition of Government Spending and the Real Exchange Rate. *Journal of Money, Credit and Banking, 41*(6), 1233-1249.

Greytak, D., & Jump, B. (1977, July 1). Inflation and Local Government Expenditures and Reveues: Method and Case Studies. *Public Finance Review*. doi:https://doi.org/10.1177/109114217700500301

Guimaraes, B., & Oz , I. (2015). IMF conditionalities, liquidity provision, and incentives for fiscal adjustment. *Int Tax Public Finance, 22*, 705-722. doi:10.1007/s10797-014-9329-9

Gunduz, Y. B. (2016). The Economic Impact of Short-term IMF Engagment in Low-Income Countries. *World Development, 87*, 30-49. doi:http://dx.doi.org/10.1016/j.worlddev.2016.04.012

Gunduz, Y. B., & Crystallin, M. (2018). Do IMF programs catalyze donor assistance to low-income countries? *Rev Int Organ, 13*, 359-393. doi:10.1007/s11558-017-9280-5

Hakro, N. A., & Ahmed , W. W. (2006). IMF Stabilization Programs, Policy Conduct and Macroeconomic Outcomes: A Case Study of Pakistan. *The Lahore Journal of Economics, 11*(1), 35-62.

Haque, N. U., & Khan , M. S. (1998, December). IMF Working Paper. *Do IMF-supported Programs Work? A Survey of the Cross-Country Empirical Evidence, WP/98/169*.

Harris , G., & Kusi , N. (1992). The Impact of the IMF on Government Expenditures: A study of African LDCs. *Journal of International Development, 4*(1), 73-85.

Hartzell, C. A., Hoddie , M., & Bauer, M. (2010, April 19). Economic Liberalization via IMF Structural Adjustment: Sowing the Seeds of Civil War? *International Organization, 64*(1), 339-356. doi:10.1017/S0020818310000068

Hutchison, M. M., & Noy, I. (2003). Macroeconomic effects of IMF-sponsored programs in Latin America: output costs, program recidivism and the vicious cycle of failed stablizaions. *Journal of International Money and Finance, 22*, 991-1014.

Hutchison, M. M., & Noy, I. (2003). Macroeconomic effects of IMF-sponsored programs in Latin America: output costs, program recidivism and the vicious cycle of failed stablizations. *Journal of International Money and Finance, 22*,

991-1014.

Hyder, S. N. (2012). IMF Stand-By Agreement for Pakistan and its Inconclusive End-What Went Wrong? *Sustainable Development Program Institute Working Paper, 126*.

Iqbal , Z., & Bilquees, F. (1994, April 2-5). Macroeconomic Effects of Adjustment Lending in Pakistan. *The Pakistan Development Review, 33*(4), 1011-1031.

Iqbal , Z., James , J., & Pyatt, G. (2000). Three-Gap Analysis of Structural Adjustment in Pakistan. *Journal of Policy Modeling, 22*(1), 117-138.

Jensen , N. M. (2004). Crises, Condition, and Capital the effect of International Monetary Fund agreements on Forign Direct Investment Inflows. *Journal of Conflict Resolution, 48*(2), 195-210.

Jensen, N. M. (2004, April). Crisis, Conditions, and Capital: The Effect of International Monetary Fund Agreements on Foreign Direct Investment Inflows. *The Journal of Conflict Resolution, 48*(2), 194-210.

Jin , J., & Zou, H.-l. (2005, Dec). Fiscal decentralization, revenue and expenditure assignments, and growth in China. *Journal of Asian Economics, 16*(6), 1047-1064. doi:10.1016/j.asieco.2005.10.006

Jones, E., lhendinihu, J., & Nwaiwu, J. (2015). Total revenue and economic growth in Nigeria : empirical evidence. *Journal of Emerging Trends in Economics and Management Sciences*.

Joyce , J. P. (2003, Dec). The Adoption, Implementation and Impact of IMF programs: A Review of the Issues and Evidence. *Wellesley college Working Papers*.

Kanioura, A., & Turner, P. M. (2003, April). The Error Correction Model as a Test for Cointegration. *Sheffield Economic Research Paper Series, 2003001*.

Kemal, A., & Naseem, S. (1994, April 2-5). Structural Adjustment, Employment, Income Distribution and Poverty. *The Pakistan Development Review, 33*(4), 901-914.

Khan , M. H. (2002, May). When is economic growth pro-poor? Experience in Malaysia and Pakistan. *IMF Working Paper, WP/02/85*.

Khan , M. H., Chaudhry , M. G., & Mahmood, M. (1994, April 2-5). The Structural Adjustment Process and Agricultural Change in Pakistan in the 1980s and 1990s. *Pakistan Development Review, 33*(4), 533-591.

Khan , R. A., Nawaz, M. A., & Hussain , A. (2011). Impact Evaluation of Structural

Adjustment Program: A Case of Pakistan. *European Journal of Economics, Finance and Administrative Sciences*(29).

Khan, M. H., Chaudry , G. M., & Mahmood, M. (1994, April 2-5). The Structural Adjustment Process and Agricultural Change in Pakistan in the 1980s and 1990s. *The Pakistan Development Review*, 533-591.

Khan, M. S., Montiel, P., & Haque, N. U. (1990). ADJUSTMENT WITH GROWTH Relating the anlytical approaches of the IMF and the World bank. *Journal of Development Economics, 32*, 155-179.

Killick, T., Malik, M., & Manuel, M. (1990, September). *ODI Working Paper, 47.*

Killick, T., Malik, M., & Manuel, M. (1992). What Can We Know About the Effects of IMF Programmes? *Overseas Development Institute* , 575-597.

Kim , S., & Nouriel , R. (2008). Twin deficit or twin divergence? Fiscal policy, current account, and real exchange rate in the U.S. *Journal of International Economics, 74*(2), 362-383.

Koitsiwe, K., & Adachi, T. (2015). Relationship between mining revenue, government consumption, exchange rate and economic growth in Botswana. *Contaduría y Administración, 60*(1), 133-148. doi:10.1016/j.cya.2015.08.002

Kushnirsky, F. I. (2014, July). Ukraine and the IMF: An Uneasy Cooperation. *International Journal of Business and Social Research, 4*(7).

Mahate, A. (2018). Reforming the IMF to Increase FDI Led Economic Growth: The Case of Latin American and Caribbean Countries. *Management and Economics Research Journal, 4*(1), 81-93.

Makochekanwa, A. (n.d.). MPRA Paper. *The Impact Of Budget Deficit On Inflation In Zimbabwe, 24227*, 2010.

Mankiw, G. N., Romer, D., & Weil, D. (1992, May). A Contribution to the empirics of economic growth. *The Quaterly Journal of Economics*.

Marchesi, S., & Sirtori, E. (2011). Is two better than one? The effects of IMF and World Bank interaction on growth. *Rev Int Organ, 6*, 287-306. doi:10.1007/s11558-011-9107-8

Milton , F. (1971, July-Aug). Government Revenue from Inflation. *The Journal of Political Economy, 79*(4), 846-856.

Naqvi, H. A., Masood , M. T., & Naeem, R. A. (2012). Impact of Structural Adjustment Programme on Household Welfare and Inequality- Pakistan A Case-in-Point for the Developing Countries. (13, Ed.) *Journal of Management*

Research, 4(1).

Narayan , P. K., & Smyth, R. (2006, April). What Determines Migration Flows from Low-Income to High-Income Countries? An Empirical Investigation of Fiji-U.S. Migration 1972-2001. *Contemporary Economic Policy , 24*(2), 332-342. doi:10.1093/cep/byj019

Newiak, M., & Willems, T. (2017, May). Evaluating the Impact of Non-Financial IMF Programs Unsing the synthetic Control Method. *IMF Working Paper*.

Ojong , C. M., Anthony, O., & Arikpo, O. F. (2016, Jan-Feb). The Impact of Tax Revenue on Economic Growth: Evidence from. *IOSR Journal of Economics and Finance (IOSR-JEF), 7*(1), 32-38.

Orastean, R. (2014). The IMF Lending Activity-A Survey. *21st International Economic Conference 2014, IECS 2014, 16-17 May 2014, Sibiu, Romania* (pp. 410-416). Procedia Economics and Finance.

Orastean, R., Marginean, S., & Opreana, C. (2016, May 13). IMF lending arrangements in emerging and developing countries- participation and prediction. *29*(1), 446-458. doi:10.1080/1331677X.2016.1174389

Perron , P., & Phillips, P. (1988, June). Testing for a Unit Root in Time Series Regression. *Oxford University Press, 75*(2), 335-346. doi:https://doi.org/10.2307/2336182

Persaran, M., & Smith , R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics, 16*(3), 289-326. Retrieved from http://www.jstor.org/stable/2678547.

Pesaran, H. M., Shin , Y., & Smith , R. J. (2001, June 22). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3). doi:https://doi.org/10.1002/jae.616

Przeworski, A., & Veerland , J. R. (2000). The effect of IMF programs on economic growth. *Journal of Development Economics, 63*, 385-421.

Rehman , H. (1992, June-September). Structural Adjustment and Macroeconomic Performance in Bangladesh in the 1980s. *The Bangladesh Development Studies, 20*(2/3), 89-125. Retrieved from https://www.jstor.org/stable/40795440

Rehman, N. (2012). The Relationship between Budget Deficit and Economic Growth from. *International Conference on Economics, Business Innovation, 38*.

Reichmann , T. M., & Stillson , R. T. (1978, June). Experience with Programsof

Balance of Payments Adjustment: Stand-By Agreements in the Higher Tranches, 1963-72. *International Monetary Fund Staff Fund, 25*(2), 293-309.

Rickard, S. J., & Caraway, T. L. (2019). International demands for austerity: Examining the impact of the IMF on the public sector. *Rev Int Org, 14*(35). doi:https://doi.org/10.1007/s11558-017-9295-y

Rizvi, S. A., & Nishat, M. (2009). The Impact of Foreign Direct Investment on Employment Opportunities: Panel Data Analysis: Empirical Evidence from Pakistan, India and China. *Paksitan Development Review*, 842-851.

Rizvi, S. A., & Nishat, M. (2009). The Impact of Foreign Direct Investment on Employment Opportunties: Panel Data Analysis: Empirical Evidence from Pakistan, India and China. *Pakistan Development Review, 48*(4), 841-851.

Sabir , S., & Shamshir, M. (2020). Impact of economic and social infrastructure on the long-run economic growth of Pakistan. *Sustainable Water Resources Management, 1*.

Stotsky, J., & WoldeMariam, A. (2006). Trade liberalization, exchange rate changes, and tax revenue in Sub-Saharan Africa. *Journal of Asian Economics, 17*(2), 261-284.

Umer , K., Madiha, L., & Faheem, M. (2015, January). The International Monetary Fund A curse of Blessing for Pakistan Economy? *Journal of Business and Social Sciences, 3*(1).

Veerland, J. R. (2002). The Effect of IMF Programs on Labor. *World Development, 30*(1), 121-139.

Woo, B. (2013). Conditional on Conditionality: IMF Program Design and Foreign Direct Investment. *International Interactions, 39*, 292-315. doi:10.1080/03050629.2013.782303

Zaidi, S. A. (1994). The Structural Adjustment Programme and Pakistan: External Influence or Internal Acquiescence? *Pakistan Journal of Applied Economics, X*(1,2), 21-46.

Zaki, M. Y. (2001). IMF-Supported Stablization Programs and their Critics: Evidence from the Recent Exprerience of Egypt. *World Development, 29*(11), 1867-1883.

Zaman , A. (1995). The Government's present agreement with the IMF: Misgovernment or Folly? *Pakistan Journal of Applied Economics, XI*(1,2), 77-94.