

# **FISCAL CONSOLIDATION AND ECONOMIC GROWTH IN PAKISTAN**



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## DEDICATION

This research work is wholeheartedly dedicated to

*My beloved Parents and teachers*

I dedicate my dissertation work to my loving parents, Abdul Majid and Sajida Parveen whose words of encouragement and prayers gave me strength to work hard; To my brother Muhammad Asad Shaikh , sister Maryam Jameela, (A.K) who always shared their words of wisdom with me. I am thankful for their prayers, moral support and encouragement that enlightened my way and

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## ACRONYM

<b>PFM</b>	Public Financial Management
<b>PSEs</b>	Public Sector Enterprises
<b>OECD</b>	Organization for Economic Corporation and Development
<b>FRBM</b>	Fiscal Responsibility and Budget Management
<b>FRDLL</b>	Fiscal Responsibility and Debt Limitations Law
<b>GDP</b>	Gross Domestic Product
<b>ADF</b>	Augmented Dicky-Fuller
<b>GMM</b>	Generalized Method of Moment
<b>FMOLS</b>	Fully Modified Ordinary Least Square

## **ABSTRACT**

The aim of this thesis is to find the relation between consolidation episodes and economic growth. The consolidation is considered for comparative analysis between expenditure based consolidations, revenue based consolidation and mix strategies. Fiscal consolidation periods for mixed strategies are identified by using dummy variable created/developed from primary fiscal deficit. To find the impact of fiscal consolidation, the data of fiscal and non-fiscal variables from 1973 to 2018 are used in this study. The empirical results suggest that fiscal consolidation based on different measures (mixed strategies), has a negative effect on economic growth in case of Pakistan, which stresses the need to focus on the composition of measures of fiscal consolidation. The positive association of expenditure shows that at this level, the expenditure will be growth enhancing. Whereas contrary to standard theory due to positive association of tax revenues as well as indirect tax, fiscal consolidation may appear to be as pro-growth in case of Pakistan as well. Therefore, government should consolidate while clearly evaluating the economic costs and benefits of fiscal consolidation. Which in our case seems to be the consolidation through taxation.

## **Chapter 1: Introduction**

Public Financial Management (PFM) is a fundamental part of the growth process and requires a prudent policy making to achieve its broad objectives such as, fiscal discipline, allocation of resources and efficient delivery of public services. An efficiently managed and well-designed PFM can play a vital role in maintaining and achieving fiscal sustainability. However, when government badly spend money, the fiscal deficit become unsustainable due to which government has less opportunity to achieve fiscal sustainability and face difficulties in providing efficient public services. So, particularly in developing countries a good PFM system is necessary for getting good development outcomes.

Fiscal discipline, which is one of the objective of PFM is the main agenda of policy makers all over the world and it is also important to achieve Fiscal sustainability. Since late 1980's the rising fiscal deficit has got considerable attention for many countries. However, the debate of Fiscal imbalance was further accelerated after onset of economic and financial crises in 2007-2008 that involved the government to finance debt (through support packages) that stimulated Banking system (John F. Cogan, 2013). These expansionary measures along with expenditure hikes gave sharp rise to deficits. However, to bring rising deficit to sustainable level, subsequent fiscal consolidation is required to ensure fiscal sustainability. Fiscal consolidation refers to as policies and strategies that are aimed at reducing government debt and restraining the accumulation of more debt (OECD, 2011). This brings the question whether such retrenchment should be conducted by reducing public expenditures or an increasing revenue and or by mixed strategy.

Fiscal consolidation affects the economy differently in short run. It may result in a sharp decline in overall aggregate demand and private consumption reducing the speed of economic growth as stated by Keynesian theory. Conversely, literature also emphasize another possibility and argues that fiscal consolidation will boost the economic growth in short run by fostering the confidence of financial markets and by implementing fiscal adjustments through forceful increase in private consumption, strong economic expansions and by massive reduction in interest rate. Giavazi and Pagano (1990) investigate this type of uncertainty concerning the final effect of fiscal contraction on private spending and found that cuts in government spending associated with increases in consumption (referred to as expansionary fiscal contraction) According to the study, if cut in government spending is proceeded as a signal of permanent change in income then it has expansionary effects on current consumption. If this is perceived as temporary, then current consumption will not change.

Furthermore, the Neo-classical effect of fiscal consolidation can take place through different types of consolidation. First, the expenditure based consolidation which is commonly based upon operating measures, programme measures and other initiatives, while second is revenue based consolidation which includes direct and indirect taxes. Most of the countries have embarked on both expenditures based and revenue based consolidation to secure fiscal consolidation targets. However, as regards the macroeconomic impacts derived from literature, successful consolidations, especially expenditure based; improves the overall economic performance, by falling interest rate, providing employment opportunities, creating fiscal space and by fostering economic

growth (Zaghini, 1999). When we come to the tax-based consolidation to increase revenue and investment cut, is unsuccessful and in most of the cases, and Keynesian effect prevailed: rising unemployment, decline in consumption and investment growth that reduce overall growth rate (Perotti 1998 and Afonso, et al. 2006). For that reason, as literature suggests tax based consolidation programs mostly are used for fiscal adjustments to ensure fiscal sustainability.

Sustainability of economic growth has always been a crucial objective for economic managers around the world. To achieve sustainable growth, the policymakers analyze different factors affecting growth. Policy makers of Pakistan have emphasized the importance of fiscal sustainability as pre-requisite for sustainable growth. Unfortunately, Pakistan's economic growth has not been sustainable. Further, Pakistan's fiscal sustainability also faces enormous challenges. Particularly tax evasion or slow pace of tax collection, untargeted subsidies, depletion of fiscal resource through public sector enterprises (PSEs), high and persistent fiscal deficit combined with low tax to GDP ratio has put the resource envelop in tight position (Pakistan economic survey 2016-17). These issues coupled with delays in the implementation of key structural reforms for revenue mobilization and fiscal impedance created an irregular fiscal capacity and haphazard growth. It is argued that, to achieve sustainable economic growth, Pakistan's economy must achieve fiscal soundness, and for this purpose government should take some steps to correct the fiscal imbalances by implementing harsh fiscal adjustments through consolidation process.

Moreover the literature on fiscal consolidation stresses the idea that fiscal consolidation will promote economic growth and many countries have also practiced the

different programs of consolidation. Although Pakistan has experienced the similar action in the past, but the haphazard growth of Pakistan has left a question about the effectiveness of fiscal consolidation. Kemal et al., (2017) have considered this motivation and investigated the impact of fiscal consolidation on growth, and found that current expenditure and primary deficit are negatively related to growth while development expenditure is positively related. Another important finding is that, the positive association of both direct tax and indirect tax with growth is insignificant, as the tax structure is not helpful in enhancing the economic growth. Thus, the tax based consolidation and its effectiveness is still questionable which let the whole fiscal consolidation process remain open for discussion. So in this study we try to fill some of these gaps using different measures of consolidation and bifurcated data of these measures.

## **1.1 Problem Statement**

Public Financial Management requires a prudent policy making considering the objectives, tools and outcomes. A sound PFM would result in sustainable public affairs with financial stability. In developing countries like Pakistan due to excessive spending fiscal affairs become unsustainable. This situation has emerged in late 80s but have become more serious concern after the first decade of 21<sup>th</sup> century. The unsustainable deficit effects the ability of government to sustain its spending, tax and other policies. This require the government to cut down the expenditure or enhance its revenue through fiscal consolidation to preserve fiscal sustainability. The current economic situation of Pakistan uncovers the worse condition of fiscal sustainability. This condition of sustainability makes the effectiveness of consolidation process more prominent. However

before moving to a suitable option there must be analysis for each scenario. There has been very less work on this area; i.e. to explore the effect of different forms of consolidation on economic growth for more accurate measure of fiscal consolidation in case of Pakistan.

## **1.2 Research questions**

The possible consolidations which are experienced by many countries are expenditure based consolidation, revenue based consolidation and the combination of both revenue and expenditure based consolidations called as mixed strategy. So, the research questions of my study are:

- Historically speaking when was expenditure-based consolidation done, which were revenue-based consolidation based periods and when was mixed consolidation done?
- To explore whether expenditure based-consolidation is more effective or tax-based consolidation?
- To analyzed whether mixed consolidation is better or more effective?

The framework of this exploration would be to see how successful adjustment induced expansionary effect have been rather than contractionary effects. Therefore, in this study we assess the effect of fiscal consolidation on economic growth through different measures of consolidation. There are several consolidation measures, practiced by many countries when they engage in consolidation process but in this work we move one step ahead and also focus on components of expenditures (current expenditure), and component of revenues (tax revenues).



### **1.3 Objectives**

Pakistan has experienced both expenditure as well as revenue-based consolidation and these consolidations effect the economy differently. Many studies show that expenditure side consolidation is more beneficial as compare to revenue side in raising growth of the economy. An increase in taxes to raise revenue, slowdowns the economic activity. Another argument is that, countries which have large fiscal adjustments needs expenditure-base plans with substantial revenue measures because spending cut alone is not enough to stabilize their public finances. Hence, this study pursues the following objectives:

1. Identification of fiscal consolidation periods for comparative analysis of the following definitions of fiscal consolidation:
  - Expenditure based fiscal consolidation
  - Revenue based fiscal consolidation
  - Mixed strategy
2. Impact of fiscal consolidation by instruments on economic growth of Pakistan.

### **1.4 Significance:**

Most of the developing countries face financial imbalances due to high expenditures and low revenue, so that government raise funds through borrowing to fill this gap. This refers to as fiscal deficit, so we can say that, fiscal deficit is the outcome of high expenditures and low revenue. It also indicates the amount of government borrowing. When borrowing increases government lose its control over the budget and public finances has worsen considerably. Moreover, dire fiscal situation produces adverse effects by increasing interest rate, inflation and eventually interest payment burden.

Higher interest rate and debt beyond particular levels might reduce the economic growth and can have negative effect on economic activity.

This background proposed that large fiscal deficit is the key problem that make the economy vulnerable. To curb this problem government should formulate the policies aimed to reduce fiscal deficit by generating economic activity leading to less expenditure and more revenues. This often means that government formulate such procedures that help to eliminate unnecessary expenditure as well as increase revenue by promoting private consumption of the goods and services. This process of enhancing policies to get fiscal sustainability is called fiscal consolidation.

Furthermore, many countries especially OECD countries and European countries successfully reduce fiscal deficit through consolidation process, and it has increased the overall economic growth. For example, Zaghini (1999) explored that successful fiscal consolidation reduces significant government liabilities. The important conclusion of the paper that successful consolidation has an expansionary effect and improve economic performance as a whole. Greece was supposed to reduce its deficit by 5 percent of GDP by 2013, largely through expenditure cut. According to Fiscal Responsibility and Budget Management (FRBM) Act(2003), Indian government should reduce fiscal deficit to 3 percent of GDP by 2008-2009 and eliminate revenue deficit through different consolidation measures such as, reduce tax evasion or increase tax revenue realization, enhancing tax to GDP ratio by increasing tax and lessening tax concession and better targeting subsidies. Similarly for Pakistan the amended Fiscal Responsibility and Debt Limitation Law (FRDLL-2017) states that “Limit the Federal Fiscal Deficit excluding

foreign grants to four percent of GDP during the three years beginning from financial year 2017-18 and maintaining it to three and a half percent of the GDP thereafter”.

Pakistan is suffering from same problem, due to unsustainable debt, and high fiscal deficits; therefore, fiscal consolidation is necessary for Pakistan. There are different routes to successful consolidation. Several studies show that large adjustments need the balanced combination of revenue based and expenditure-based consolidation. Thus, the objective of my thesis is to explore the fiscal consolidation periods and their impact on economic growth in case of Pakistan.

## **1.5 Organization of the Study**

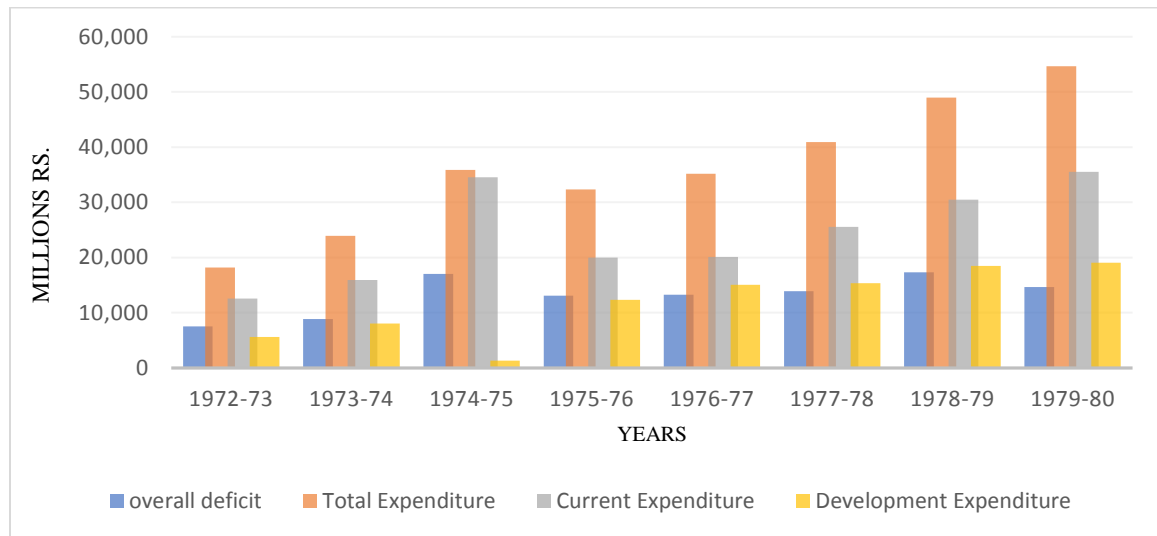
The rest of the study is organized as follows. Chapter two describe trend analysis of fiscal variables of Pakistan. Chapter three reviews the literature for our analysis. Chapter four describes the data and methodology. In chapter five we discuss our empirical results and chapter six summarizes and concludes along with suggesting some policy recommendation.

## **Chapter 2: Trend Analysis**

In the economic history of Pakistan where mismatch between government revenue and government expenditure was a norm, a sound fiscal position for achieving fiscal sustainability will remain a challenging task. Episode of consolidation in Pakistan emphasized that Pakistan has experienced expenditure as well as revenue-based consolidation through appropriate changes in government expenditure and resource mobilization. However, well intended reforms, rationalization of expenditure and efficient revenue mobilization provide assistance to improve fiscal position.

Pakistan has witnessed several fiscal consolidation policies or fiscal adjustments over the time. Respectively, in late 1970's some exogenous developments particularly collapse in cotton prices, massive inflow of Afghan refugees and the deepening world recession, badly hit the economy. These upshots decrease the tax receipts, below budget provisions as well as had a significant impact on fiscal imbalance. To settle these effects government focuses on development programs and introduce the policy of prudent financial management which had not yielded the fruitful results. Pattern of fiscal indicators are shown in figure 2.1.

**Figure 2.1 Expenditure Indicators**



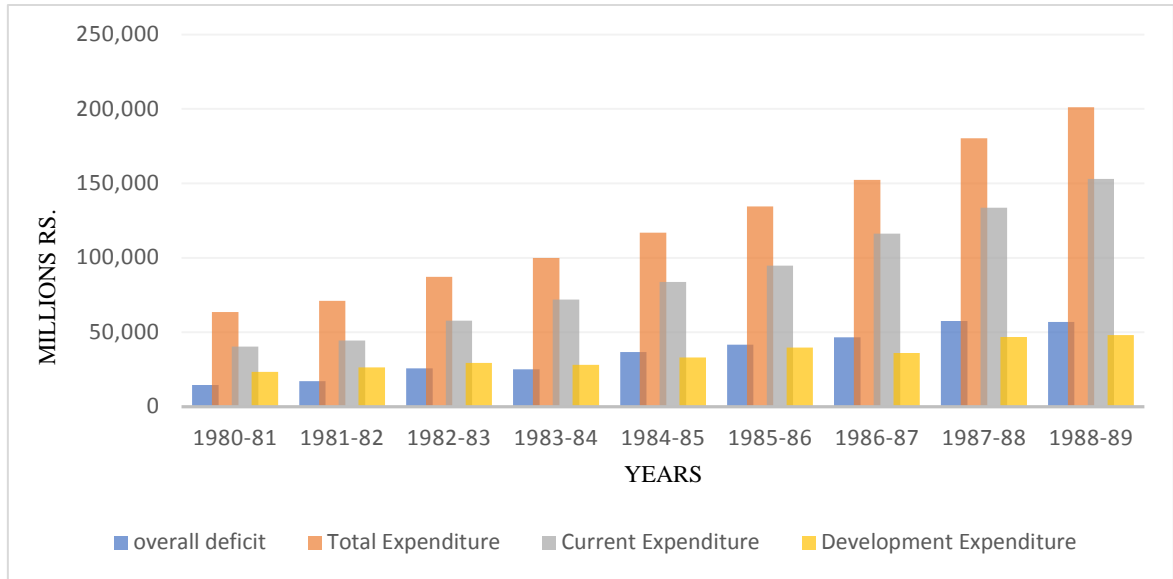
*Pakistan Economic survey (various issues)*

The figure shows that there was the permanent jump in development expenditure and it was financed by external borrowing while at the same time the current expenditure also become more intensive caused by military expenditures that was not confined due to successive regional conflict. Additionally, due to political and administrative inability to raise revenue or reduce expenditures, the deficit remains high and it was on average of 8.0 percent to GNP.

In 1980's the government was conscious of the long term repercussions of the mounting debt burden and had initiated actions for structural reforms and comprehensive economic adjustments with aimed at sustained economic growth. These actions together with privatization policies and annual development programs started during 1980's did not produce productive results. Therefore, the fiscal deficit was not decreased considerably and was remained on average of 7.1 percent of GDP. The pattern of absolute values of fiscal indicators in Figure 2.2 also shows the rising trend in fiscal deficit.



**Figure 2.2 Expenditure Indicators**



*Various issues of the Pakistan Economic survey*

In 1990's the attempts to achieve fiscal consolidation were not very successful. The Burden of new taxes and cutting down the expenditure did not provide pillars to the activity of fiscal consolidation. Considering the basic aim of reducing fiscal deficit, government decreased its total expenditure throughout the segment but this decrease was primarily at the cost of development expenditure. The main fiscal indicator since 1990 to 1999 are given in table 2.1.

**Table 2.1 Expenditure indicators**

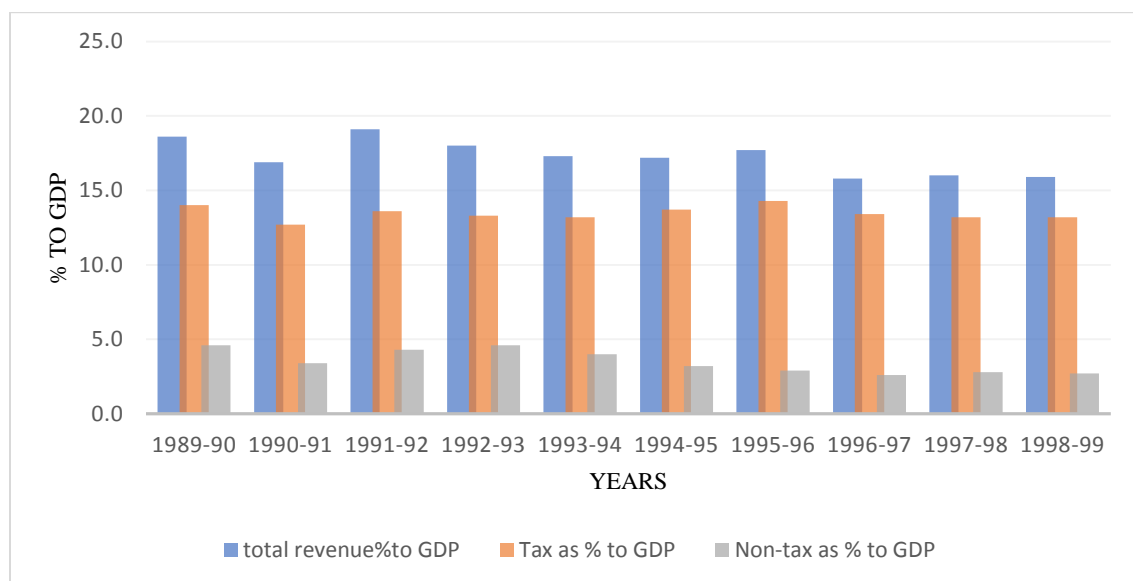
Years	Overall deficit (Rs Millions)	Overall deficit (As % of GDP)	Total Expenditure (Rs Million)	Total Expenditure (As %of GDP)	Current Expenditure (Rs Million)	Current Expenditure (As %of GDP)	Development Expenditure (Rs Million)	Development Expenditure (As %of GDP)
1989-90	56,060	6.5	221,645	25.9	165,595	19.3	56,050	6.5
1990-91	89,193	8.7	260,970	25.6	195,676	19.2	65,294	6.4
1991-92	89,971	7.4	321,474	26.5	230,120	19.0	91,354	7.5
1992-93	107,525	8.0	348,653	26.0	272,457	20.3	76,196	5.7
1993-94	92,179	5.9	364,913	23.2	293,460	18.7	71,453	4.5
1994-95	105,352	5.6	428,284	22.8	345,941	18.4	82,343	4.4
1995-96	137,839	6.4	518,099	24.2	423,866	19.8	94,233	4.4
1996-97	156,589	6.4	540,919	22.3	455,411	18.8	85,508	3.5
1997-98	204,560	7.7	634,014	23.7	529,919	19.8	104,095	3.9
1998-99	179,177	6.1	647,778	22.0	547,279	18.6	98,286	3.4

*Pakistan Economic survey (various issues)*

The above information highlights the development in fiscal indicator accommodated during 1990's. It showed that the current expenditure remained inflexible so the decrease in total expenditure was mainly due to decrease in development expenditure. Hence, throughout the tight fiscal policy the decline in development expenditure from 6.5 percent of GDP in 1990 to 3.4 percent of GDP in 1999 had restrained the growth potential of the economy.

Similarly, the tariff and tax reforms, were not much productive in order to broaden the tax base. The major reason behind that failure was the weak tax administration along with the over-reliance on import related tax. These weaknesses resulted in stagnant tax-to-GDP ratio, in the neighborhood of 12 to 14 percent which turned the intent of successive governments toward non-tax revenues. Consequently, the total revenue remained between 15 to 19 percent of GDP over the decade. The figure 2.3 and 2.4 as given below showing the tax behavior in the era of 1990's.

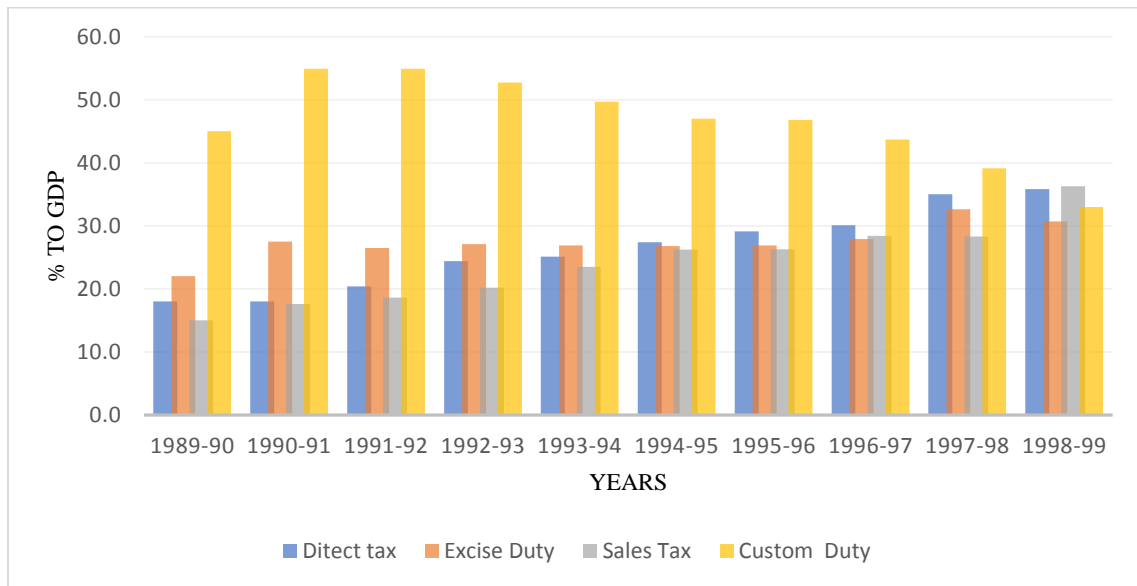
**Figure 2.3 Indicators of Tax and Non-tax Revenue**



*Pakistan Economic survey (various issues)*



**Figure 2.4 Segregation of Taxes**



*Pakistan Economic survey (various issues)*

The fiscal transparency and better expenditure management is always the priority of the government. In 2000's government has improved its fiscal position by falling-off the fiscal deficit that averaged 7.0 percent of GDP in 1990's to 3.3 percent of GDP in FY2005 and 4.2 percent in FY2006 and 4.3 percent to GDP in 2007. This uplift in overall fiscal deficit in FY2006 and FY2007 is primarily due to earthquake related expenditures. Table 2.2 discloses a change in pattern of fiscal indicators over the years 1999- 2008.

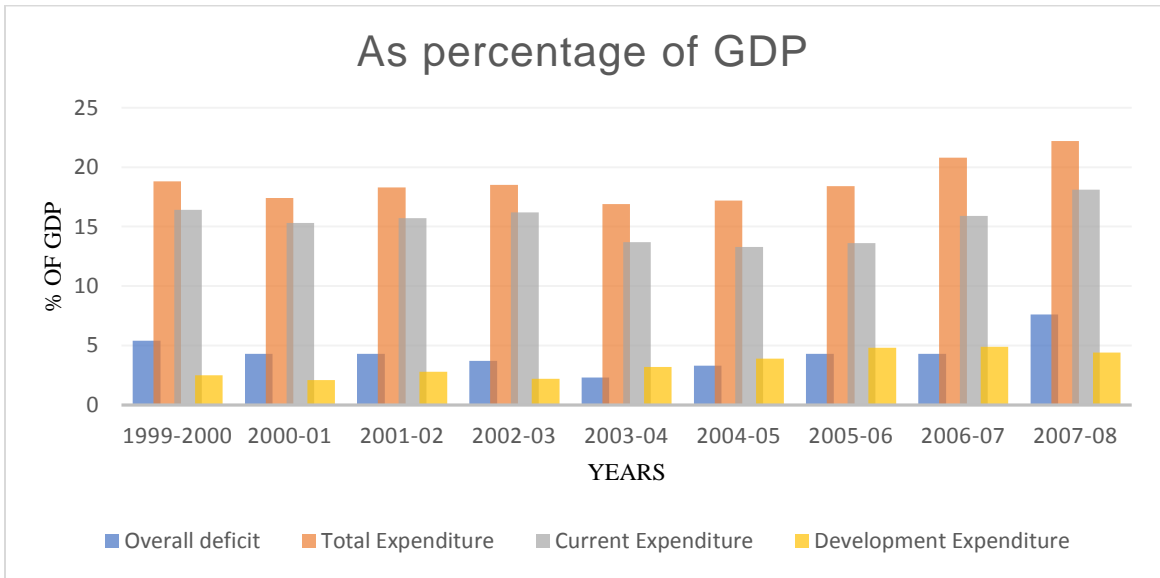
**Table 2.2 Statistics of Expenditure**

Years	Overall deficit (Rs Millions)	Overall deficit (As % of GDP)	Total Expenditure (Rs Million)	Total Expenditure (As %of GDP)	Current Expenditure (Rs Million)	Current Expenditure (As %of GDP)	Development Expenditure (Rs Million)	Development Expenditure (As %of GDP)
1999-00	206,300	5.4	709,100	18.8	626,400	16.4	95,600	2.5
2000-01	179,700	4.3	717,900	17.4	645,700	15.3	89,800	2.1
2001-02	190,450	4.3	826,250	18.3	700,200	15.7	126,250	2.8
2002-03	180,600	3.7	898,200	18.5	791,700	16.2	129,200	2.2
2003-04	130,000	2.3	956,000	16.9	775,000	13.7	161,000	3.2
2004-05	216,967	3.3	1,116,981	17.2	864,500	13.3	227,718	3.9
2005-06	325,300	4.3	1,401,900	18.4	1,034,700	13.6	365,100	4.8
2006-07	377,501	4.3	1,799,968	20.8	1,375,345	15.9	433,658	4.9
2007-08	777,169	7.6	2,276,549	22.2	1,853,147	18.1	451,896	4.4

*Economic Survey of Pakistan (2007-08)*

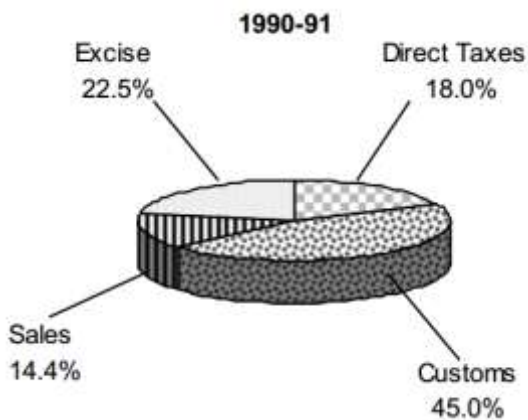
In the beginning of 20<sup>th</sup> century the development expenditure has shown an increasing trend, even though the total expenditure showing the similar pattern as in 1990's. It was due to shifting the current expenditure into development expenditure while total expenditure was almost stagnant at around 18 percent of GDP. The declining trend in the overall deficit in this period, was more due to the revision of expenditure and substantial decline in interest payments. These developments provide more fiscal space for the government to put their expenditures towards development side and human infrastructure, that helped greatly to improve the fiscal position of the country (Economic survey of Pakistan 2007-08). figure 2.5 as given below also shows these revision of expenditures.

**Figure 2.5 Expenditure Indicators**

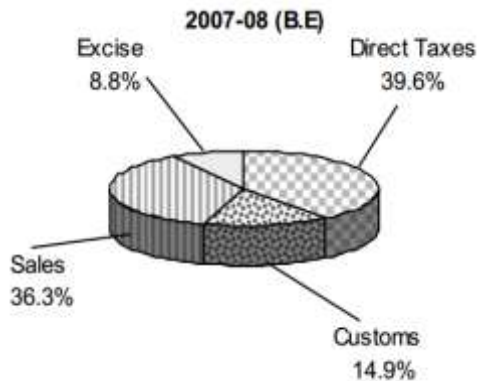


*Economic Survey of Pakistan (2007-08)*

On the other hand, the taxation system of Pakistan did not help in achieving the desired improvements. So, successive government have introduced many tax reforms since 1990's, specifically to bring more taxpayers into the net. Moreover, the government streamline the tax laws or improve the tax administration system. These reforms change the structure of taxation and modernized the composition of tax collection.



**Structure of taxation**



In 1990's the tax revenue based upon customs and excise duties, which covers major part of revenue i.e. 67.5 percent of GDP. Since 1990's the dependency on customs (foreign trade tax) and excise duties gradually decreases and in 2007-08 direct tax and sales tax (GST) become the major part of tax revenue.

Furthermore, in 2010 and onward government adopted austerity measures such as: cut down the subsidies and improve profit generated by PSEs or decrease losses created by PSEs through structural reforms for successful containment of fiscal deficit (Economic survey of Pakistan 2016-17). After that, a considerable decline in fiscal deficit has been seen since 2013, as it is 5.8 percent of GDP in 2017 against 8.2 percent in 2013. However, due to expenditure-based consolidation the growth in total expenditure decreases from 25.5 percent in 2012 to 7.6 percent in 2016 and 17.3 percent in 2017. Current expenditure is an epic part of total expenditure and the growth in current expenditure also witnessed a sharp decline during last few years, as it is 6.1 percent of GDP in 2016 and 10.7 percent in 2017 against 16.4 percent in 2013. The increase in total expenditure particularly since FY2013 was due to a significant rise in development expenditure. The government's adherence to prudent expenditure management paved the

way towards increasing expenditures on development and social security. The overtime values of fiscal indicators are shown in table 2.3.

**Table 2.3 Expenditure Indicators**

Years	Overall deficit (Rs Millions)	Overall deficit (As % of GDP)	Total Expenditure (Rs Million)	Total Expenditure (% Growth)	Total Expenditure (As %of GDP)	Current Expenditure (Rs Million)	Current Expenditure (As %Growth)	Current Expenditure (As %of GDP)
2010-11	1,194,409	6.5	3,447,264	14.6	18.9	2,900,784	21.6	15.9
2011-12	1,760,671	8.8	4,327,185	25.5	21.6	3,468,487	19.6	17.3
2012-13	1,833,864	8.2	4,816,300	11.3	21.5	3,660,434	5.5	16.4
2013-14	1,388,719	5.5	5,026,016	4.4	20.0	4,004,582	9.4	15.9
2014-15	1,456,725	5.3	5,387,767	7.2	19.6	4,424,747	10.5	16.1
2015-16	1,349,323	4.6	5,796,302	7.6	19.9	4,694,294	6.1	16.1
2016-17	1,863,797	5.8	6,800,520	17.3	21.3	5,197,854	10.7	16.3
2017-18	796,298	2.3	3,181,004	10.1	21.3	2,545,232	12.6	15.0

*Economic Survey of Pakistan*

Similarly, mark-up payments reduced and stood at 4.3 percent of GDP which had been continuously rushing from last few years i.e. 4.4 percent of GDP in 2013, 4.6 percent in 2014 and 4.8 percent of GDP in 2015. In the same way, current subsidies also reduced from Rs.241.6 billion in 2015 to Rs.153.7 billion in 2017 owing to structural reforms in power sector and PSEs. (Economic survey of Pakistan 2018-19). The overtime values of these variables are shown in table 2.4.

**Table 2.4 Components of Current Expenditure**

Years	Current subsides (Rs Million)	Current Subsidies (As % of total expenditures)	Mark-up Payments (Rs Million)	Mark-up Payments (As % of total expenditure)	Mark-up Payments
2010-11	380,590	11.0	716,603	20.8	3.8

<b>2011-12</b>	<b>512,961</b>	<b>11.9</b>	<b>901,919</b>	<b>20.5</b>	<b>4.4</b>
<b>2012-13</b>	<b>357,991</b>	<b>7.4</b>	<b>1,005,798</b>	<b>20.6</b>	<b>4.4</b>
<b>2013-14</b>	<b>305,748</b>	<b>6.1</b>	<b>1,161,876</b>	<b>22.8</b>	<b>4.6</b>
<b>2014-15</b>	<b>241,593</b>	<b>4.5</b>	<b>1,316,697</b>	<b>24.2</b>	<b>4.8</b>
<b>2015-16</b>	<b>207,161</b>	<b>3.6</b>	<b>1,273,121</b>	<b>21.8</b>	<b>4.3</b>
<b>2016-17</b>	<b>153,717</b>	<b>2.3</b>	<b>1,362,031</b>	<b>19.8</b>	<b>4.2</b>
<b>2017-18</b>	<b>53,491</b>	<b>1.5</b>	<b>758,459</b>	<b>20.0</b>	<b>4.2</b>

*Economic Survey of Pakistan (2018-19).*

On the other hand, strategies of revenue mobilization through formulating effective tax system, the tax to GDP ratio increases from 9.8 percent in 2013 to 12.6 percent in 2016. FBR tax collection have seen a remarkable growth of 60 percent between 2013 and 2016. (Economic survey of Pakistan 2016-17).

These fiscal indicators encouraged a significant reduction in government liability (fiscal deficit) and fostering sustainable growth. But tax structure in Pakistan is not much beneficial for growth process has left a question about the effectiveness of tax-based consolidation and expenditure-based consolidation. There has been very less work on the empirical sides of these consolidations measures. Therefore, our objective is to identify fiscal consolidation periods and its impact by instrument on economy in order to propose more refined measure of fiscal consolidation.

## **Chapter 3: Theory and Literature Review**

The debate on fiscal consolidation and its impact on economic growth start with (Giavazzi & Pagano 1990). They show that fiscal contraction has expansionary effect. The effect emerges due to private consumption. The research on fiscal consolidation based on the theory of neo classical. They find that public expenditure is a perfect substitute of private consumption. Private consumption increased through fiscal consolidation. Fiscal consolidation can be expenditure based and revenue based.

### **3.1 Expenditure Based Consolidation**

The government expenditure as percent to GDP indicate government size. The historical decision of government reflects its role in redistributing income and proving services. However, a large variation in expenditure reflects the different approaches of consolidation plans. Government generally spent their resources on social protection, defense, education, health, general public services, economic affairs and interest payments. The share of resources devoted to different activities has shifted over the past decade. For example, today in Pakistan a large proportion of resources spent on interest payments. So, based on dissemination of resources as mention above, the fiscal consolidation on the expenditure side is according to three categories:

- Operating measures
- Programme measures
- Other initiatives

Where operating measures refers to the government running cost which includes, staff and wage reduction, government reorganization (reforms of their administrative

structure) and across the board efficiency reduction. Programme measures refers to the expenditure by functional classification. This classification includes capital infrastructure, health, old-age pensions, change to social benefit system and official development assistance. Other initiative, the third category mostly include freeze on public consumption or overall spending cut (OECD, 2011).

### **3.2 Revenue Based Consolidation**

Most of the countries fiscal consolidation plans have strategies to enhance revenue. Factors such as composition of revenue, revenue needed for fiscal adjustment and government revenue size are important in deciding which strategy to design to increase revenue. There is a considerable variation between countries on reliance of tax sources. This variation suggests that, some countries involve revenue measures in their consolidation plans for fiscal adjustment to secure fiscal consolidation target but countries with largest public imbalance like Greece, Estonia, Hungary and Ireland involve extensive revenue measures because only expenditure cut might be not enough to reduce public imbalance. Generally, government tax revenue shares are as follows:

- Corporate income tax and personal income tax
- Payroll tax
- Value added tax such as tax on goods and services and excise duties.

Similarly, there are three major revenue measures

- Consumption tax
- Income tax
- Social security taxes and taxes on financial sector



Mostly policy makers announced consumption tax followed by increasing income tax, reducing tax expenditures and increasing property tax, because they think that the negative impact of consumption tax on economic growth is less and it is a source through which government collect significant revenue in short term (OECD, 2011).

There are different techniques through which the impact of fiscal consolidation can be measured.

### **3.3 Definition 1**

Fiscal gap measures the difference between government spending and total revenues. Fiscal gap includes not only the budget deficit but also interest payments. Budget deficit is the sum of the structural and cyclical deficit. Cyclical budget deficit is the additional borrowing required at the low level of the business cycle. While structural deficit is the borrowing that is required across the business cycle because the general level of government spending is more than prevailing tax level. Many studies considered structural as well as cyclical budget deficit to measure the impact of fiscal consolidation. If these budget deficits i.e. structural or cyclical, are more than preceding years then it is a period of loose fiscal policy, and if deficit improves then it means it is a period of tight policy (Giavazzi and Pagano (1996), (Zaghini, 1999), Alesina and Perotti (1995, 1997a) and Alesina and Ardagna (1998)).

### **3.4 Definition 2**

Basically fiscal consolidation can be revenue based and expenditure based. So, there is an option that we have to calculate the real per capita change in major expenditure measures and major revenue measures, to find out the impact of fiscal

consolidation on economic growth. Major expenditure measures involve operating measures, programme measures and other initiatives, but in this study we consider programme measures. On the other hand, major revenue involves direct and indirect taxes. (Hagen & Strauch (2001), Gupta et al., (2005), Gupta et al., (2017), Alesina & Ardagna (2013) and Kemal et al., (2017)).

### **3.5 Definition 3**

Output gap measures the difference between the actual output and potential output of an economy. Potential output is the maximum amount of goods and services an economy can produce when it is at full capacity. We measure the impact of fiscal consolidation through the sign of first difference of output gap. A minus indicate that the gap between actual and potential GDP is decreasing and a plus denotes the opposite (John F. Cogan, 2013).

### **3.6 Theoretical Background for the study**

Different theories try to explain the impact of fiscal consolidation on economic growth. These could be considered as the transmission mechanism as well. We have reported some of them below:

#### **3.6.1 Wagner's law**

A German economist Adolph Wagner deeply studied the rise in government expenditure and gave the relationship between public expenditure and economic growth. He states that an increase in state activities will increase economic growth because when output increases, the public sector grows as a proportion of economic activity (Wikipedia).

### **3.6.2 Keynesian Theory**

The Keynesians emphasized that the role of government spending is important to influence the aggregate demand. According to Keynesian view point, the increase in government spending have expansionary effect, such as the increase in output level of an economy. The argument behind is that government investment or consumption have multiplier effect due to unemployed resources. Similarly, on the tax side the Keynesian believe that increase in tax has adverse effect in short run. Higher tax decreases the disposable income of consumers and the consumer will spend less so aggregate demand decreases and therefore total output decreases<sup>1</sup>es (Zaghini (1999), Gupta et al., (2005), Gupta et al., (2017), Javid & Arif (2009) and Kemal et al., (2017)).

### **3.6.3 Neo-classical view point:**

Neo-classical point of view is that; private consumption is the perfect substitute of public expenditure. When government decrease its expenditure, the private consumption rises due to increase in after-tax income. Another argument of them is that, borrowing money to meet expenses create inflation and increase the interest rate on government bonds. However, due to increase in interest rate private investor is crowded out. So, most of the economist agree that these upshots or consequences highly damaging in the current economic situation or environment (Zaghini (1999), Gupta et al., (2005), Gupta et al., (2017), Javid & Arif (2009) and Kemal et al., (2017)).

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<sup>1</sup> The decrease in government spending also leads to lower the interest rate, because when government reduce its expenditures then its demand for loanable funds also decreases and thus causing a fall in interest rate, which encourage the private consumers for greater spending and investments.

### **3.6.4 Ricardian Equivalence:**

Another view point of Ricardian Equivalence hypothesis which argues that effect of fiscal policy is neutral. The justification behind this argument is that, consumers are forward looking, when government increase its expenditure then consumer anticipate that future taxes will rise, and they save its excess money to pay that tax. Therefore, consumer spending remains unchanged. The debate on fiscal deficit and its real effect has been unable to attain any consensus. (Zaghini, 1999) and (Javid & Arif 2009).

### **3.6.5 Summary:**

The above set of theories have been proceeded to explain the impact of government expenditure (increase or decrease) on economic activity and how these impacts are transmitted. These studies implying different and opposing results. Consumption behavior of consumers is the main reason of disparity among the theories. Thus, with respect to private consumption and wages, the finding of Keynesian framework is different from neoclassical framework. Another reason of contrary results might be the method of financing (borrowing from abroad or domestically, approaches of tax etc.) also determine the final outcome of government fiscal policy.

### **3.7 Empirical Evidence of Developed countries**

Feldstein (1980) probably the first who find evidence against the Keynesian theory of fiscal policy. He argued that, if consumer proceeds, reduction in government expenses, as a signal of future tax cut then fiscal contraction may have expansionary effect. But the research on fiscal consolidation started when Giavazzi & Pagano (1990) examine that fiscal contraction has expansionary effect, which is against the Keynesian view point. They take the case of Ireland and Sweden and show that cyclically-adjusted

deficit has strong positive impact on economic growth. This positive effect came into sight due to increase in private consumption and investment. Since then empirical literature and many other works concentrate on the relevant channels of fiscal tightening with different frame work. Giavazzi (1995) also proposed that positive wealth's effect on investment and consumption is the substitute of public spending. The justification of this finding is that when government reduce its expenditure then the disposable income of consumers increases, and they set their consumption level accordingly.

Alesina et al., (1995), Alberto Alesina (1996) and Buti and Sapir (1998) focused on the composition of government outlays and its effect on economy. Their main findings were that fiscal consolidation particularly through government transfers, wages, consumption and social securities are more suitable for success than consolidation depends upon the reduction in public investment and increase in tax. We also note the finding of Giavazzi (1995) who investigate the non-Keynesian effect of fiscal policy changes. They argued that most of the successful cases are associated with an increase in private investment and such effects also resulted to some extent from change in tax and government transfer. Here, Success means the significant decrease in debt or debt-to-GDP ratio.

McDermott & Wescott (1996) draw attention towards credibility argument on interest rate, composition and magnitude of consolidation. They argued that fiscal policy is necessary to keep the government solvency in good condition. Consequently, the better financial condition of government can reduce inflation and default risk premium on government bonds which keep the interest rate at low level. However, the decrease in interest rate can boost investment spending. Additionally, they also second the Alesina

and Perotti view that, the expenditure side fiscal consolidation is more successful. In this framework, they explore that magnitude and composition of consolidation are important factor that determine failure and success of fiscal consolidation. Alesina et al., (1998) reexamine the effect of fiscal adjustments and extend evidences. They explore that fiscal consolidation start mostly in fiscal crisis or in bad time, and achieve expansionary effect on growth through trimming in spending cut, whereas raising tax in most of the cases are contractionary.

Zaghini (1999) further extended the discussion on fiscal consolidation and investigate the relation between fiscal successes, improvement in public finances and short run economic performance. He also explores a more refined and accurate measure of fiscal success. The analysis in this paper suggest that successful adjustment improve economic performance of the country and find a positive correlation between length of the fiscal episode and success of tightening programs. He also finds that expenditure-based consolidation is more sustained by reducing public liabilities than revenue-based consolidation. This finding supports the view of Alesina & Perotti (1997a) that, the success of adjustment plans depends upon how to cut a deficit. Another finding regarding expenditure cut, by Hagen & Strauch (2001) was that the consolidation episode feature through expenditure cut especially through current expenditure like government wages, transfers and subsidies is more successful. In that paper they also look into the importance of economic condition and argue that the condition of the economy determines the government choice between expenditure and revenue based consolidation.

The literature on the effect of fiscal policy, mostly focused on consumption side. However, Blanchard & Perotti (2002) analyze the dynamic effect of government

spending and taxes. These authors found that when government spending and taxes increase at the same time it implies a strong negative impact on private investment which is consistent with neoclassical model. So, they argue that lower government spending with lower taxes may higher the private investment and possibly higher the output which accumulate the economic growth. In a similar vein Ardagna (2004) studies the channels of fiscal contraction through which it influence the GDP growth and debt-to-GDP ratio. The evidence suggests that stabilizations practiced through cut in public spending is more successful and leads to increase GDP growth and less successful through its composition. Finally, the paper shows that the expansionary fiscal contraction are not result of devaluation of exchange rate or of expansionary monetary policy.

Mulas-granados (2005) assess that different fiscal adjustment strategies have different economic consequences and found that, expenditure based consolidation through cutting in least productive expenditures have expansionary effect but this outcome take place at the cost of high income inequality likewise, the credibility effect and strong wealth effect also spit out the same results. while tax based consolidation yielded opposite results. In this respect, or being aware of the trade-off between equality and growth future strategies of consolidation will depend upon the government policy objectives.

Cournede & Gonand (2006) also studies fiscal consolidation with population ageing for European countries. The appropriate conclusion was that large adjustments to achieve fiscal sustainability by raising taxes were more costly for growth. While the spending cut on low priority items would surprisingly lift the economic growth. In addition, reveals that tax-based consolidation had more distortionary effect on multi-

factor productivity as compared to spending cut on low priority items. Relatedly, Feldstein (2006) investigates the adverse effect on high marginal tax rate on investment income and on labor income. The author finds that the combination of taxes on personal income, capital income, capital gain and corporate profits reduced not only labor supply but also produce deadweight losses, further efficiency cost and reduce tax revenue through many ways.

Ahrend et al., (2006) assess the circumstances in which monetary policy effect the fiscal consolidation. They suggest that the indirect reaction of financial market and the monetary policy has helped out fiscal consolidation in a number of episodes, and also make the fiscal retrenchment plans successful. Moreover, they also argue that institutional circumstances also important, because circumstances in which monetary stance can conciliate fiscal consolidation would highly depend upon it. Correspondingly, Angelopoulos & Philippopoulos (2007) introduce new debate into the literature of fiscal consolidation, by showing the importance of composition and quality of infrastructure. They found that the reallocation of funds, smaller the share of government and an improvement in the efficiency of government can become the engine of long term growth. Along with these findings they also point out possible limitations and extensions. First, we only focused on growth but there are also other indicators of macroeconomic performance like equality, stability, etc. that is beneficial during the process of examining the implication of fiscal tax policy. Secondly transmission channels through which these policies affect the macroeconomic indicators like growth are also important. Finally, the investigation of the determinants of large and inefficient government size are equally important.



Fiscal consolidation program is more likely to start, when public finances and economic condition prevail at that time is weak. Perotti, (1999); Alesina et al., (1995); Hagen & Strauch, (2001); Barrios et al., (2010). Similarly, Ahrend et al., (2006) also be with the same point of view and suggest that fiscal consolidation generally occur when sustainability threaten by large budget deficits and when macroeconomic indicators such as exchange rate, unemployment and inflation suggest a crisis situation, commonly known as bad time.

Illera & Granados (2008) explore the political and economic determinant of the duration of fiscal consolidation episodes in Europe. They found evidence that, economic determinants such as magnitude of adjustment, initial level of debt, number of ministers in cabinet and the contribution of spending cut had helped in explaining the duration of fiscal consolidation. Most importantly political determinant for instance election year and coalition size also play an important role in predicting the fiscal consolidation duration. In a similar vein, Castro & Sousa (2012) evaluate the determinants of length of the episode of fiscal consolidation. The important finding is that, higher budget deficit needs fiscal consolidation for longer time period, good economic condition has significant role in making consolidation process successful and shorter and crises (financial, economic and fiscal) may end the adjustment process sooner than expected.

Bergman & Hutchison (2010) examined, hypothesis that, under certain circumstances large fiscal consolidation leads to economic expansion and inferred the nonlinear behavior of economy resulted from small and large changes in fiscal policy. Their main findings were that, small changes in fiscal policy i.e. change in expenditure and taxes deteriorates the budget balance and Keynesian effect prevails in term of in term

of consumption and output. On the other hand, large fiscal consolidation credibly shifts the regime and together with that, they find evidence in the support of hypothesis that economy expands in term of increased in output and private consumption as a result of large fiscal consolidation. In a same manner, Alesina & Ardagna (2010) examines the effect of large change in fiscal policy in case of fiscal adjustments and in fiscal stimuli. They explore that spending cut is more suitable than tax increase for fiscal adjustment in order to reduce deficit or debt-to-GDP ratio whereas fiscal stimulus based on tax cut potentially increase growth than those based spending cut.

However, Romer & Romer (2010) put their attention toward tax policy and investigates that, how all major tax policy actions or different levels of taxation based on narrative record effects the economic activity. The narrative approach was used to separate these policy actions into legislated changes taken due to economic conditions (countercyclical actions etc.), revenue changes ensuing from legislation and more exogenous reasons (reduction in inherited budget deficit). However, in this study they focused on the causes of exogenous legislated changes. Their findings suggest that, the contractionary effect of exogenous tax increase were very large than other measures of tax and the reason behind these large effect was a sharp decline in investment. They also find that, legislated tax increase appear to have smaller cost in term of output than other approaches of tax increase and it was designed to reduce budget deficit. Whereas, Barrios et al., (2010) further extended the discussion about the fiscal consolidation and relate it to economic recovery. Regarding this, they point out some questions like, trade-off between consolidation and stabilization, importance of exchange rate for fiscal adjustment and the fiscal consolidation in the background of distressed banking system. Their main findings

considering these questions were that, successful fiscal consolidation is the pre-requisite of systematic financial crisis or weak economic condition or it is pre-condition to be successful in reducing debt level, even after the recovery of banking system fiscal consolidation will remain successful but this time its pace became slow and finally they did not have any evidence which support the importance of exchange rate for successful fiscal consolidation.

Eggertsson (2010) study the effect of government spending and tax cut in the economic circumstances develop after the financial crisis of 2008. The author builds his analyses on a recent literature on policy at the zero bound on the nominal interest rates. The main finding of the study were that, the tax cut on capital and labor in that circumstances was contractionary, similar some other form of tax cut was extremely effective. Meanwhile spending cut had large effect than normal circumstances. On the other hand, Acconcia et al., (2014) deals with non-negligible short-run output effect of public spending emerges due to mafia infiltration and combat political corruption. Episodes of unanticipated, large and temporary contraction of public spending were used to estimate output multiplier of cut in spending at provincial level. The estimated multiplier to be 1.5, and when dynamic effect include it would be 1.9. These results shows that adjustment based on local spending may consequential for economic activity.

Christiano et al., (2009) also discussed government spending multiplier and assert that, at constant nominal interest rate government spending multiplier turns positive. They observe that, a significant fall in consumption and investment, resulted a large reduction in output. The channel behind this collapse in output is the expectation of future deflation. This raises the real rate of interest including consumers to postpone

consumption. While Callegari et al., (2012) extended the discussion and examine the impact of fiscal adjustments for fiscal multiplier that fluctuate particularly throughout the period of boom and recession, in case of Japan, United states and Europe. They also analyze different possibilities of recession, associated with different size of expenditure and tax based consolidation shocks in order to understand which type of consolidation plans or design was more effective in reducing debt to GDP ratio of the country. Their most consistent findings were that, gradual fiscal consolidation along with well-adjusted composition of tax hikes and cut in expenditure successfully and rapidly reduce tax to GDP ratio.

Alesina & Ardagna (2013) deeply observe the recent controversies on two critical questions regarding fiscal adjustments. 1) how much costly these adjustments are in terms of output and employment losses. 2) which fiscal adjustment i.e. spending cut or tax increase is more successful, in permanent reductions in debt-to-GDP ratio. They summarized three results, First, adjustment based on expenditure leads to either a permanent decrease in debt-to-GDP ratio or have low tendency to be reversed. Second, spending based adjustments were less recessionary in terms of output than tax based adjustments. Finally, pro-growth policies eliminate the output loss associated with spending based fiscal adjustments and even made these adjustments expansionary. In the same way, Holden & Midthjell (2013) finds the effect of austerity on growth and debt and also check that whether the choice of fiscal instrument matters or not. They measure the actual change of fiscal policy more precisely and finds that irrespective of the choice of spending cut or revenue increase, the successful fiscal adjustment depends upon size of fiscal adjustment i.e. whether the fiscal adjustment was large enough to wipe out budget

deficit. Here successful adjustment means a significant decrease in debt-to-GDP ratio or increase in growth. Another finding was that, they did not find much evidence that spending based fiscal consolidation had more expansionary effect than tax based.

Erceg & Lindé (2013) focused on the effect of particularly two types of fiscal consolidation, commonly known as expenditure based and tax based fiscal consolidation. There are three key implication of the paper, First, monetary policy was equally important in designing the composition of fiscal policy. Second, in short run, tax based have less costly in term of output losses, on the other hand, in long run spending based consolidation have less adverse effect on output. Finally, mixed strategy reduce output losses or adverse effect of fiscal consolidation. Contrarily, Perotti (2013) analyze the expansionary effect of large fiscal consolidation specially based on spending cut. Their results reveals that, the supply side policies help to wipe out the output losses arises due to spending cut or even budget consolidation is the pre-condition for the expansion of output. Alesina (2012) also write in favor of expenditure-based fiscal consolidation.

Eyraud & Weber (2013) examines fiscal consolidation effect on debt ratio. They first assess the nexus between growth, debt reduction and fiscal consolidation. Their results suggest that, in short run, fiscal contraction may increase debt ratio, because decrease in output exhausted gain triggered from fiscal contraction. Although in long term these negative effects eliminate and debt declines eventually, it could be an issue if countries repeatedly engage in tightening programs to achieve official target. Though, Margit (2013) drawing lessons from previous episodes of consolidation and investigate policy measures, economic environment and political settings that is beneficial for fiscal consolidation and stabilization of debt. Their results confirm that, multiple instrument

required for large and successful consolidation, at the same time it also reveals that revenue and spending based fiscal adjustment have more tendency to stabilize debt.

Erba et al., (2014) estimating the consequences of fiscal consolidation on employment, unemployment and output for 17 OECD countries during prolonged or protracted recession. They find that cumulative fiscal multiplier of these three components during such a longer period of recession were more than one. These results imply that, during prolonged economic contraction fiscal adjustments plans to reduce debt burden should be gradually proceeding. Subsequently, Agnello & Sousa (2014) assess whether the impact of fiscal consolidation on income inequality is progressive and regressive. They explore that fiscal policy based on spending cut are overall regressive during the phase of fiscal adjustments as it raises income inequality, such as tax hikes seems to be equalizer and play important role in falling inequality. It is identical to the concept that, top-level-taxation leads to a fall in inequality. They also show the effect of fiscal consolidation for the period start after banking crises, during this period fiscal consolidation programs along with inflation badly increases inequality, however the pace of the effect of stabilizing policies are relatively low.

Furceri et al., (2015) used alternative measures of both inequality and fiscal consolidation to analyze the robustness of distributional effect of fiscal consolidation. They find that, typically fiscal consolidation tends to raise income inequality but their results are robust to the use of alternative measures of fiscal consolidation that suggest that, more work is needed on the design of fiscal adjustments. These findings imply that, revenue increase is important component for equality objective however, better targeted spending also help in achieving such objectives. Alike, Alesina et al., (2015) also

captured the intra-temporal correlation of spending cut with tax hikes by evaluating the effect of fiscal adjustment is the simulation of multi-year fiscal plan. For this purpose, these exogenous fiscal plans were classified according to their relative importance in each plan. Their results show that consolidation plans based on spending cut were very less costly in term of output losses and lived in recession for shorter time period as compared to tax-based consolidations that were very costly and followed by prolonged recessions.

Vtyurina & Leal (2016) study that what type of fiscal policies boost economic growth in case of Peru. Their econometric analysis reveals that, effect of tax cut and spending related multipliers have much smaller than the effect of public investment stimulus in medium run as well as short run. Another argument was that its low debt provides fiscal space for investment spending which also encourage private investment, however only increase in investment was not sufficient for more output gain, so efficiency in investment process were also need to improve. Another study of Lemoine & Linde (2016) scrutinize the effect of fiscal consolidation in the environment of imperfect credibility that is whether the spending cut will be long-lasting or not. They find that if monetary policy provide appropriate help then output losses caused by imperfect credibility may reduce largely. Their results show that undesirable impact of limited credibility was relatively less when monetary policy is independent or provide suitable help, and the output cost of reducing government debt was considerably low than output cost in case of lack of monetary accommodation.

Riera-Crichton et al., (2016) study the issues in identifying and measuring tax shocks and argued that, identification problem is totally separated from measurement problems. Their results regarding identification issues supports narrative approach of

Romer & Romer (2010) while the results regarding measurement problems strongly favors that, tax rate is used as the true measurement of tax policy instead of revenue based measurement. In the same way, Hernández & Benito (2016) finds that, spending based fiscal adjustments can be predicted from past investment growth, consumer confidence and output growth. They also illustrate that, this predictability may turn out to be beneficial in estimated multiplier for fiscal adjustments based on spending cut.

House & Tesar (2017) examines, difference in economic performance ascribed by fiscal austerity. Counterfactual experiments show that, eliminating austerity was a sizeable drag on GDP in term of output losses and placed strong contractionary effect. In particular debt-to-GDP ratio increased as a result of reduction in tax revenue and GDP in European countries. Though, Gupta et al., (2017) scrutinize the consequences of promise gaps refers to distance between actual consolidation and planned fiscal adjustments. They find that, both political and economic factors had greater role in explaining these gaps. In particular, stronger starting position, smaller initial debt level, improvement in output gap, higher accountability (to improve capacity to deliver) and greater electoral proximity all were associated with narrow promise gaps. Finally, they find that, government performance based on fiscal consolidation plans were rewarded by financial markets but not penalized by electorate.

Auerbach & Gorodnichenko (2017) estimate, capacity of fiscal policy to stimulate economic activity through multiplier of government purchases for japan, and find evidence of multiplier instability particularly during period of recession. Their main finding was that the role of government purchases is less in stimulating economic activity



and the rationale behind this finding was that, estimations based on most recent observation were less stable.

Alesina et al., (2017) find the macroeconomic effect of fiscal consolidation and to attain these objectives, they spread the narrative dataset of over 3500 exogenous shifts in fiscal variables. Their findings were that, effect of transfers cut and cut in spending had contractionary effect but such effects were far less harmful as compared to tax hikes. In the same manner, Gil et al., (2017) investigates the impact of variation in tax policies on output in case of Spain and make two contributions. First, they introduce newly created narrative dataset of legislated tax changes. Second, so as to measure the GDP impact of tax changes, the motivation of tax measures was not offset the shocks. Their important finding shows that, increase in indirect tax leads the greater fall in output. As in the wake of these tax hikes the down turn reaction of investment was greater than consumption. They also argue that, overall impact of tax increases point toward negative output effect and this negative effect die away over time.

Beetsma et al., (2018) comparing fiscal consolidation plans with previous data and offers new explanation of systematically-weaker follow-up of consolidation plans specially based on spending cut. They used newly developed data and confirms that follow-up in actual spending was substantially less effective and had relatively more negative effect on economy than follow-up in actual revenue. Furthermore, Ramey & Zubairy (2018) inspect multipliers of government spending considering two important features of the state of the economy: interest rate were close to zero or held constant and the amount of slack. They provide numerous evidence concerning these questions and analyze that, the multiplier of government spending was not substantially different when

economy suffered by meaningful amount of slack. As in case of zero lower bound, they did not find strong evidence that evaluated that multiplier near or greater to zero, some points suggest higher multiplier after the exclusion of world war (II) but these are robust to simple generalization. Thus the conclusion of the study was that, during Great Recession, multipliers of government spending were not essentially higher than average.

Gunter et al., (2018) study the effect of three different dimensions of fiscal consolidation i.e. composition, state of business cycle and response of monetary policy and find “how” and “when” it matters. In this study they mainly put their attentions on first two dimensions and suggest that adjustments mostly based upon spending cut were much less damaging than adjustments through tax hikes. As they focused on the composition of fiscal consolidation but they also find little evidence that monetary policy particularly through interest rate reduce the recessionary effect. By keeping in mind the above discussion, Huidrom et al., (2019) check the dependence of fiscal policy on the fiscal position of the country. They said that, fiscal multipliers affected by fiscal position through two theoretical channels. Specifically, through Ricardian channel where households decrease consumption by keeping in mind the future fiscal adjustments during weak fiscal position, and through the channel of interest rate, where weak fiscal position raises the cost of borrowing and decrease private domestic demand. They find that, during weak fiscal position the fiscal multiplier will be smaller as compared to strong fiscal position.

Heimberger (2018) contribute in the empirical literature by analyzing the inequality effect of fiscal consolidation episodes in both medium and short term. By estimated impulse response function, they find that, fiscal consolidation typically give

rise to income inequality and these inequality effects were more prominent; when adjustment duration is long, when fiscal consolidation size is large, when fiscal consolidation largely based on spending cut instead of tax increase, when fiscal adjustment falls during low economic growth than in high economic growth and when fiscal consolidation started after financial crisis than in non-crisis episode. Alike with that view, Ciminelli et al., (2019) fretted about the effect of fiscal consolidation on income inequality and toward that end they shed light on the effect of tax-based consolidation on labor market variables, output and income inequality. Their results suggest that, tax-based consolidation decreases income inequality at high cost of output loses. More specifically, indirect taxes had largely reduced income inequality with relatively less cost in the form of output loses or economic activity than direct taxes. The rationale at the back of this result was the positive labor supply channel i.e. higher VAT or indirect tax raises the price of consumption basket that induced producers to increase labor supply. Lastly they argue that such incentives of labor market participation may smaller the trade-off between efficiency and equality.

### **3.8 Empirical literature of Developing countries**

Baldacci et al., (2004), recognize different transmission channels of fiscal policy, that program under expansionary fiscal contraction in low-income countries. They reported contrary to high income or developed countries where primary channel that link fiscal policy to growth is investment, in low income countries, factor productively was more effective than investment and it was probably the principle transmission channel of fiscal policy for increased growth. These results support that the governance-related explanation introduce a route through channel of factor productivity, for expansionary

fiscal contraction in low-income countries. In the same year, Gupta et al., (2003) determined the factors effecting the duration and persistence of fiscal consolidation spell and they also captured the pace of deficit reduction. The results imply that, the ending of fiscal adjustment process depends upon the sustainability over time especially for economies with high initial debt. Its size also effected by previous behavior of fiscal adjustments, exchange rate, unemployment rate, total revenue and composition of spending.

Gupta et al., (2005) give analysis for low income countries and draw a picture on the relationship of economic growth with expenditure composition and fiscal adjustment in low income countries. The evidence in the study shows that, fiscal consolidation programs based on cutting in selected current expenditure like protecting capital expenditure etc. tend to have high economic growth. Along with that result, economic growth also associated with strong budgetary conditions. While Alesina & Tabellini (2005) explained that, many developing countries adopt procyclical fiscal policies and the political distortion leads to such procyclical policies i.e. spending goes up and taxes goes down in boom and opposite in case of recession. Moreover, they suggest that procyclicality was usually driven by a distorted policy reaction to booms, rather than to recessions.

Branch & Adderley (2007) discussed that from last two decades the rising debt deteriorates the fiscal position of the Bahamian economy which in turn harm the macroeconomic performance. Therefore, they examine the relationship between debt sustainability, government spending and growth relative to GDP in case of Bahamian. Their consistent findings were that, with some lag effects, the relationship between

growth and composition of government expenditure was strongly positive, whereas, debt accumulation and growth were negatively related. These results imply that prudent fiscal policy was a central tenet for better macroeconomic performance and economic growth. In a similar vein, Branch & Adderley (2009) discussed that, the plagued Bahamian economy deteriorate the overall fiscal balance and subsequently, increased the national debt. Therefore, they estimate fiscal sustainability and debt sustainability ratio. The important results of the study were that, due to expansionary fiscal policy of government, throughout the four year, the primary fiscal balance turned to deficit from surplus.

Gollwitzer, et al., (2010) introduce multi-dimensional indices of the quality of budget institutions in low-income countries, to evaluate the proposition that strong budget institutions are supportive for desirable outcomes. They explore that, strong budget institutions help to improve fiscal discipline and provide better scope avoid procyclical policies.

Topalova & Nyberg (2010) discussed different approaches to find out suitable level of public debt and suggest conceivable medium-term debt targets for India, which could be 60-65 percent of GDP. It is still above average but this range of debt provides substantial space to avoid procyclical policies and also send strong signal of government seriousness toward fiscal consolidation to achieve such ceiling level of debt. For this particular purpose substantial efforts such as subsidy reforms and improvement in tax administration to raise revenue are required. Analogously, Mundle et al., (2011) presented programs of fiscal consolidation based on policy simulation model for India. Then, they use model to measure the results initiated from possible fiscal consolidation strategies. The implementations of such fiscal consolidation policies, together with

maintaining high growth of GDP i.e. 8 percent or more, gradually reduced the revenue deficit as well as allowing combined fiscal deficit of about 6 percent of GDP. This provides space for public investment programs, which leads to high private investment that triggers the GDP growth. They also test the robustness of these consolidation strategies under different scenarios of lower and higher advanced countries, and their basic results will be sustained.

Tapsoba (2013) analyzed fiscal consolidation strategies and options that floored Debt-to-GDP, while conserving growth potential and mollify (calm down) the adverse impact on household as much as possible. In this study, they proposed three scenarios of fiscal consolidation; benchmarking (reducing unproductive expenditure and firming consumption tax revenue), growth friendly (enhance public investment and refining consumption tax revenue) and social-friendly (increasing transfers and improving efficiency of consumption tax). Their overall finding shows that, the multiplier effect widely fluctuate in both short and long run for example, in long run, lowering transfers had a significant gain whereas decrease in public investment was costly, however, in short run, government investments were costlier than general transfers. There was also a trade-off between long term gain and short run cost or minimizing negative effect on household and maximizing economic efficiency. Finally, they show that the structural reforms for healthier global condition and to increase productivity can improve fiscal consolidation outcomes.

Moreno & Hector (2014) estimate multiplier of government spending in case of developing countries using the dataset of loans lending to government of developing countries by official creditors. The precise estimation of one year spending multiplier of

the large sample of developing countries (i.e. 102 countries) would be around 0.4. This smaller value of fiscal multiplier suggests that, in developing countries during economic recession, the countercyclical response of government spending has limited effect on output, but such empirical results find evidence concerning the average short term effect of government spending. By the same token, Jha et al., (2014) examine empirically that, how unexpected fiscal shocks in developing Asia effect the output. To attain this goal, they measure the relative effectiveness of both spending cut and cut in tax. Their most consistent finding is that, cut in taxes become entrenched (deep rooted) which may serve to achieve fiscal sustainability during the crisis. These finding also represents that, countercyclical impact of tax cut on output was larger than spending cut. This implies that, design of countercyclical spending need to be improve.

David (2017) estimates fiscal shocks or fiscal multipliers by using different identification approaches and econometric techniques in Paraguay. The results point out that, multiplier of current expenditure considerably less than multiplier of capital expenditure. One implication of the result was that, during conventional identification approach tax multipliers were approaches to zero, on the other hand in case of narrative approach multiplier of tax was much larger. While in the same year, Furceri & Li (2017) trace the response of unanticipated shocks of public investment in developing countries. They find that in developing countries public investment has potential to increase output in both medium run and short run, principally in medium run the effect of public investment on output was more than government consumption that may leads to lessen the income inequality. In addition, they also highlight the conditions e.g. economies with fixed exchange rate, more closed economies, periods of slack, countries with higher

investment efficiency and economies with lower public debt, in which the effect of public investment was enormous. In spite of this, Jaimovich & Rebelo (2017) study the nonlinear effect of taxation on growth. Their model proposed that, low taxes have a very small effect on long run growth, however when tax rate increases then its effect is highly negative on growth rate. This nonlinearity is due to heterogeneity in entrepreneurial ability.

Francisco et al., (2017) examines the effect of fiscal consolidation based upon public expenditure and revenue on output in sub-Saharan Africa and suggest that it has a contractionary effect. Their main findings were that effect of different packages of fiscal consolidation on output depends on composition i.e. cutting public investment are more harmful than cutting public consumption and revenue mobilization. These findings reveal that design of fiscal adjustments can mitigate the negative impact. Based on new narrative dataset of fiscal actions, Swallow et al., (2018) estimate the effect of fiscal consolidation in short run and conclude that, fiscal consolidation has typically contractionary effect on GDP and leads to considerable increase in twin deficit, in case of emerging economies. They also find that, during consolidation episode investment, private consumption and unemployment rate have declining trend and finally they also assess difference in multipliers of composition of consolidation based on tax or spending side measures and confirm that tax-based consolidation are more contractionary than spending-based consolidation.

Gunter et al., (2018) estimates, multipliers of taxes for the countries that follow narrative approach. They identify 96 changes take place in taxes and categorized into exogenous and endogenous to current economic condition. The results show that, under



low tax rate, multiplier of tax is essentially zero and highly negative when change in tax rate or initial tax rate increases. Likewise, Gunter et al., (2019) evaluate specifically the effect of tax changes on output, based upon a novel dataset of 51 countries. In general, multiplier of tax is negative, which indicates that, economic activity reduces when tax increases while output increase in response of tax cut. However, in this paper they found that, relationship between tax changes and output is highly non-linear. In particular, if initial tax rate is moderate then tax multiplier is approximately zero, whereas under high initial tax rate multiplier of tax will be more negative. These findings have strong policy implication that, potential output highly depend upon variation in tax rate.

### **3.9 Pakistan Specific Empirical literature**

Pakistan has been witnessed several fiscal consolidation policies since 1988 for the endorsement of IMF stabilization programs. These policies have not seemed as much successful, when we take a look at fiscal deficit. The improvement in budget deficit is achieved at high cost because it has been done mainly through bargaining the component of development expenditure (Social Policy and Development Centre 2001).

Javid & Arif (2009) evaluate the effect of fiscal spending expansion on economic activity for the period 1970-2008 in case of Pakistan. The dynamic analysis of this study recommended that innovation of government spending is negatively related to private consumption and output and standard neoclassical theory prevails. The rate of interest increases, when government debt increases the inflation risk and risk of default. Therefore, interest rate reinforces the crowding out effect. There are many studies that tests the crowding out hypothesis in Pakistan, by analyzing the impact of budget deficit on interest rates. Some studies like Ahmad (1994), Khan and Iqbal (1991) does not

support the crowding out phenomena based on a negative relationship between budget deficit and interest rate and some studies support the crowding out hypothesis by providing the evidence of a positive association between budget deficit and interest rate (Haque & Montiel, 1991, 1993).

In a similar vein, Hyder (2015) examine crowding-out hypothesis and test whether the statement: policy of fiscal consolidation is only defensible if neoclassical belief is correct, is true or not in case of Pakistan. The results of this paper supports complementary relationship between private and public investment and the rejection of crowding out hypothesis implies that, an increase in public investment uplift both private investment and economic growth in Pakistan. Mehmood & Sadiq (2010) examines the relationship between poverty and fiscal deficit in long and short run. As fiscal deficit comprises when government expenditure is more than revenue collection, so the real matter of business, is the relationship of government expenditure and poverty together with remittances and private investment. The result of this study suggests that government expenditure has inverse relation with poverty, it can be increase private investment but generally fiscal deficit produced by innovation in government expenditure distort economy.

Ahmad & Qayyum (2008) deeply analyze, how private fixed investment is affected by government spending and macroeconomic instability. The analysis provides the evidence that increase in non-development expenditure discourage the private investment. So, there is a need to economize the non-development expenditure and enhancing public development expenditure to encourage private investment. Moreover, macroeconomic instability and interest rate have negatively relationship with private

investment. Similarly, Fatima et al., (2011) focuses on Pakistan's fiscal deficit and test its impact on investment and GDP growth, by using the time series data from 1980 to 2009. This paper concludes that the adverse situation of fiscal deficit badly affects the country's economic growth. The authors also point out that, composition of government expenditure and poor tax collection are the major reasons of this adverse situation of fiscal deficit.

Kemal et al., (2017) evaluate the impact of fiscal consolidation on economic growth. This study checks the dependence of growth on fiscal variables. The most consistent results of the study suggest that, tax structure is not helpful in enhancing the economic growth and high level of current expenditure has negative impact on growth and development spending has positive impact but not at the cost of crowding out of private investment. Additionally, interest payments and primary debt is negatively correlated with growth. Hence, shortness of both primary deficit and interest payments is extremely important.

### **3.10 Research Gap**

The preceding section of literature review led us to a conclusion that there is no consensus on the effect of fiscal consolidation on economic growth. In case of Pakistan Kemal et al., (2017) highlighted many factors of fiscal consolidation by analyzing its impact on economic growth. They focus on the expenditure, specially, current expenditure and revenues i.e. tax revenues and non-tax revenues and suggested that, high level of current expenditure has negative impact on growth and the tax structure is not helpful in enhancing the economic growth. However, many studies argue that, large fiscal imbalances need the balanced combination of revenue based and expenditure-based

consolidation, but the tax structure in Pakistan is not supportive for growth process. Therefore, the overall impact of fiscal consolidation is not clear so far. Thus, the purpose of my study is to do a comparative analysis for the definitions of fiscal consolidations and to explore the impact of fiscal consolidation on economic growth through different measures of consolidation. By counting these measures, it is possible to provide a more accurate information about the areas on which the policy makers of Pakistan need to be focusing when reduce expenditure or enhance revenue.

## **Chapter 4: Data and Methodology**

There are various studies that describe the impact of fiscal consolidation using different variables that capture the nexus between growth and fiscal consolidation. In this chapter, firstly, we describe methodology secondly model is described thirdly we explain variables and construction of variables that we are going to be used in this study and lastly, we describe the data source.

### **4.1 Methodology**

#### **4.1.1 Theoretical Frame Work**

Fiscal gap measures the difference between government spending and total revenues. Fiscal gap includes not only the primary budget deficit but also interest payments. Furthermore, Budget deficit is the sum of the structural and cyclical deficit. Cyclical budget deficit is the additional borrowing required at the low level of the business cycle. While structural deficit is the borrowing that is required across the business cycle because the general level of government spending is more than prevailing

tax level. However, the chief target of this study is fiscal consolidation and the basic aim of fiscal consolidation is to reduce government deficit. A vast series of literature shows that, government deficit can be reduced by generating economic activity or by economic growth. Hence, there is no consensus on the effect of fiscal consolidation on economic growth. Moreover, these types of economic activities or economic growth leads to reduce expenditure and raise revenue which is popularly known fiscal consolidation. The definition of what constitute the revenue measure and expenditure measure is not certain so, the measures listed in this study are mostly those which is reported by different countries.

Major expenditure measures listed by many countries are divided into three categories i.e. operating measures, program measures and other initiatives, also mentioned in the preceding chapter 2. Many countries especially OECD and European countries engage in consolidation process by reducing operating expenditures, which involves wage or staff reduction, government reorganization etc. while Turkey, Spain, Germany and many other countries added programme measures to consolidation, which refers to large expenditure by functional classification. Other initiative, the third category mostly include freeze on public consumption or overall spending cut. While on the side of revenue measures it focuses on direct tax and indirect tax. Indirect tax further includes sales tax, customs duty and excise taxes.

Correspondingly, their theoretical implication is different among economic theories. Most of the empirical literature on this topic demonstrate that, fiscal consolidation based on expenditure measures is more conducive to economic growth. The theoretical rationale behind this argument is that a decrease in expenditure induces

positive wealth effect that triggered private consumption and expansionary effect prevails. This argument is consistent with neo-classical point of view i.e. private consumption is the perfect substitute of public expenditure, that provide strong basis to pursue spending based fiscal consolidation. In the same way due to increase in wasteful expenditures Keynesian effect prevails because public borrowing increases and private investment is crowded out Kemal et al., (2017) also analyze the impact of fiscal consolidation in case of Pakistan and find the similar results that expenditure based fiscal consolidation is more beneficial.

Moreover, literature shows different arguments like, mixed strategy reduces the output losses associated with expenditure and tax based consolidation, irrespective of the choice of revenue and expenditure measures the successful fiscal consolidation depends upon the size of fiscal consolidation i.e. whether the fiscal adjustment was large enough to wipe out budget deficit. The theoretical arguments related to the perceptions that decrease in expenditure (current or development) increases output loses and irrespective of the choice revenue and expenditure measure, only size of consolidation matters provide motivation or sound basis to follow the discussion of fiscal consolidation in case of Pakistan.

## **4.2 Model**

There are various studies, such as Easterly & Rebelo (1993), Alesina & Perotti (1996, 1997a), Gupta et al., (2005), Nauschnigg (2010), Pennings & Ruiz (2013), Kemal et al., (2017) that investigate the impact of fiscal consolidation on economic growth by applying different models and methodologies. In this study we follow the model used by Gupta et al., (2005) and also used by Kemal et al., (2017) for the case of Pakistan.

Basically, this model provide basis to explain the growth nexus and relationship between fiscal consolidation (fiscal) variables (components of expenditure and revenue), non-fiscal variables (labor force, primary or secondary school enrolment, trade openness and physical capital), by regressing the growth of per capita GDP on non-fiscal variables, major expenditure measures and major revenue measures.

Model is as follows:

$$\text{Economic Growth} = f(L, K, HK, TO, \text{fiscal consolidation variables})$$

Equation is as follows:

$$y = \alpha_0 + \alpha_1 L + \alpha_2 K + \alpha_3 HK + \alpha_4 TO + \alpha_5 FCV + e_i \quad (4.1)$$

Where  $y$  is the growth of per capita GDP which is used as the proxy for economic growth, while  $L$ ,  $K$ ,  $HK$ ,  $TO$  and  $FCV$  are labor force, capital stock, human capital (Primary and Secondary school enrolment rate), trade openness and fiscal consolidation variable. Fiscal consolidation variable includes expenditure measures and revenue measures.

### 4.3 Dependent variable

There is a lot of studies that measure the impact of fiscal consolidation on economic growth, such as Easterly & Rebelo (1993), Alesina & Perotti (1996, 1997a), Zaghini (1999), Gupta et al., (2005), Nauschnigg (2010), Pennings & Ruiz (2013) and Kemal et al., (2017). Therefore, in this study, our dependent variable is Economic Growth and we use real per capita growth as the proxy of economic growth.

#### 4.4 Independent variables

The main independent variable in the study is fiscal consolidation and there is an extensive literature on different measures of fiscal consolidation, we also refer the different measures in the preceding chapter of literature review i.e. operating measures, programme measures etc. In this study we use programme measure also known as fiscal variables which is used by several studies like Giavazzi (1995), Alesina & Perotti (1996, 1997a), Alesina et al., (1998), (Zaghini (1999), (Hagen & Strauch 2001), Gupta et al., (2005), Gupta et al., (2017), Alesina & Ardagna (2013) and Kemal et al., (2017). We also use non-fiscal variables or control variables that is also used in different studies i.e. Gupta et al., (2005) and Kemal et al., (2017).

The fiscal variables for example, total expenditures, development expenditures, current expenditures, defense, general administration, interest payments, current subsidies, total revenue, tax revenue, non-tax revenue, direct tax, indirect tax, sales tax. Custom duties and excise duties are used as independent variables in this study aimed at capturing the effect of fiscal consolidation. These variables are converted into percentage of GDP form by dividing these variables by GDP at constant prices.

While other variables in the regressors side that is to say Non-fiscal variables includes employed labor force, capital stock, human capital and trade openness. These are the variables suggested by economic growth theory of Mankiw, Romer, & Ball (1992) and Barro (2003) to explain economic growth. Whereas, employed labor force is measured in millions. Trade <sup>2</sup>openness is measured by adding exports and imports in

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<sup>2</sup> Trade openness is divided by GDP at constant prices because we are interested in real impact of trade openness.



millions and then divided by GDP at constant prices. We use secondary school enrolment as the proxy of human capital, and this enrolment further divided by population in the relevant age group that is 10-14 to obtain enrolment rate. The data of population in this age groups is taken from UN statistics while the data of secondary school enrolment is taken from the economic survey of Pakistan. Capital stock is estimated by using gross fixed capital formation at constant prices and the depreciation rate. The data on depreciation rate is taken from Penn World tables (PWT 9.0), though the data of gross fixed capital formation is taken from economic survey of Pakistan. The method mostly used to construct the series of capital stock is perpetual inventory method (PIM). The notion behind PIM is that capital stock increases with increase in investment and once, investment has entered in the system it depreciates at some rate with the passage of time, but never approaches to zero (Berlemann and Weselhoff 2014).

Hence, we have:

$$K_t = K_{t-1} + I_{t-1} - D_{t-1} \quad (4.2)$$

Equation 1 shows that, the capital stock in period  $t$  is the function of capital stock in period  $t-1$ ,  $K_{t-1}$ , investment in the previous period  $I_{t-1}$ , and consumption of fixed capital stock,  $D_{t-1}$ .

As we discussed above that capital stock is also depreciated over time and if we assume that  $\delta$ , is the depreciation rate then the equation 1 becomes:

$$K_t = (1 - \delta) K_{t-1} + I_{t-1} \quad (4.3)$$

So, we construct the series of capital stock by iterating this equation backward up to the initial value for subsequent year.

However, in order to construct the series of capital stock for subsequent year, the PIM requires the initial value of capital stock. Regarding this, the method mostly reported in the literature to obtain the initial capital stock is to use the following equation:

$$K_{t-1} \approx \frac{I_t}{gI+\delta} \quad (4.4)$$

where  $K_{t-1}$  is initial capital stock,  $I_t$  is GFCF in period  $t$ ,  $gI$  is growth rate of GFCF for the entire period for which the capital stock period is to be estimated, and  $\delta$  is the depreciation rate of capital stock.

#### 4.4 Data

To evaluate the impact of fiscal consolidation on economic growth, we take fiscal variables, commonly known as measures of fiscal consolidation because these variables are mostly used to capture the effect of fiscal consolidation and non-fiscal variables. Data of these measures taken from Ministry of Finance, Pakistan Economic Survey and handbook of statistics 2015. The data we used for the analysis is from 1973 to 2018. (Before 1973 there were many structural breaks in the data because of the separation of East Pakistan that's why we use the data from 1973 to 2018).

Real per capita growth is used as the proxy of economic growth. Fiscal variables in the data set includes, expenditure measures and revenue measures. Expenditure measures further subdivided into current expenditure, development expenditure and the components of current expenditure, (i.e. interest payments, current subsidies, general

administration, defense and others). These components also refer to as programme measures. However, revenue measures include tax revenues, non-tax revenues. Tax revenue are bifurcated into direct tax, indirect tax and component of indirect taxes (i.e. sales tax, custom duties, excise duties and others).

We also consider a dummy variable in order to identify the consolidation episodes. Although Zaghini (1999), Alesina & Ardagna (2010) and many other studies used cyclically adjusted primary balance (CAPB) as a dummy to find episodes of consolidation. But in this study we focus on the current policy action regardless any change in (CAPB). Therefore, we use primary budget deficit as a dummy for the identification of fiscal consolidation periods, because it demonstrates the current stance of government i.e. if primary budget deficit is less than previous year's primary budget deficit than it means government implemented the policies of fiscal consolidation in that year. We use "1" for fiscal consolidation period and "0" otherwise.

#### **4.5 Data limitations**

Major expenditure measures includes operating measures, program measures and other initiatives.. Many countries engage in consolidation process by reducing operating expenditures, which is referred to government running cost and involves wage or staff reduction, government reorganization etc. Consequently, other initiative, the third category mostly include freeze on public consumption or overall spending cut but in Pakistan data on these two measures is not easily assessable. So we consider only programme measures.

## 4.6 Econometric methodology

The presence of reverse causality or endogeneity in the literature of fiscal policy is a common issue faced during estimations. For example reverse causality may exist in the relationship of growth and investment. Moreover, it could be the case that growth itself is influenced by fiscal variables. However, if estimation techniques do not consider this endogeneity, they will give inconsistent and biased results.

In this study, economic growth is affected by capital, labor, and human capital, however, these variables in turn affect economic growth through the production function. These variables potentially triggered the problem of endogeneity. In order to address the problem of endogeneity, the GMM model is used, because it is a superior and best technique to tackle these problems. We also determined the presence of endogeneity using J-statistics. If the value of J-statistics is large, then the null hypothesis that all variables are exogenous will be rejected, which indicates that some variables are endogenous and some are exogenous in the model. Therefore, to tackle the problem of endogeneity, we find instruments for endogenous variables, and in time series, generally the lagged values of the explanatory variables are used as instruments for endogenous variables because lagged variables do a satisfactory job (Wooldridge, 2009).

Furthermore, in order to check the stationarity of the variables, we use the Augmented Dickey-Fuller (ADF) test. If data is not stationary, then GMM may give biased results. If we make it stationary after differencing, it may imply a loss of long-run properties and information of the relationship between variables. To circumvent this problem, we check for cointegration between variables. If cointegration exists between variables, then the condition of stationarity is not necessary, and the concept of biased or spurious results is avoided.

become irrelevant. Nkoro (2016) and Ghous (2019). For this purpose that is to check cointegration, Johansen Cointegration test is used, that expresses long run relationship between multiple variable.

In this study, Fully Modified Ordinary Least Square FMOLS approach is also used to estimate the economic model. It is used to investigate the long run relationship between variables. This technique modifies least squares to account for serial correlation effects and test for the endogeneity in the regressors that result from the existence of Co-integrating Relationships (Kalim & Shahbaz, 2008).

## **Chapter 5: Empirical Results**

After the detailed discussion of data and variables in the preceding chapter. In this chapter, firstly, unit root of all variables are discussed and lastly, long run empirical results of our model are discussed secondly, Johansen cointegration method is explained and lastly, we explained the empirical results.

### **5.1 Unit root test**

As it is well known that, the stationarity is necessary to check in order to find the cointegration among variables and we also knows that, the testing of stationarity involves the testing of unit root. So, in this section, we have checked the existence of unit root in all variables that we are going to use in this study, which is also discussed in the preceding chapter a number of unit root tests like Augmented Dicky fuller-test (ADF), Phillips Perron (pp) test etc. were applied to find the stationarity. In this study, we use ADF test and their result are reported in table 5.1 and probability values are given in parenthesis. The results confirmed that all variables are integrated of order 1 except interest payments, which is stationary at level.

### 5.1.1 Augmented Dickey-Fuller (ADF) Test

Table 5.1 Unit Root Test

Variable	I(0)	I(1)	Variable	I(0)	I(1)
GDPPC(y)	-0.492 (0.88)	-4.32 (0.001)	Custom duties(cd)	-0.47 (0.88)	-5.08 (0.00)
Labor(L)	0.16 (0.96)	-6.5 (0.00)	Excise duty(ed)	-2.55 (0.10)	-4.82 (0.00)
Capital(K)	-0.95 (0.76)	-4.37 (0.001)	Sales tax(st)	-1.68 (0.43)	-5.82 (0.00)
Primary school enrolment(hk)	-0.521 (0.87)	-6.46 (0.00)	Other indirect tax(oidt)	-1.75 (0.39)	-6.72 (0.00)
Secondary school enrolment(hk)	1.70 (0.99)	-4.58 (0.001)	Current expenditure(ce)	-0.86 (0.78)	-8.22 (0.00)
Trade openness(to)	1.70 (0.99)	-4.31 (0.001)	Defense(df)	-1.67 (0.43)	-6.78 (0.00)
Total revenue(tr)	-2.10 (0.24)	-7.34 (0.00)	Current subsidies(cs)	-1.85 (0.35)	-8.78 (0.00)
Total expenditure(te)	-1.07 (0.71)	-6.70 (0.00)	General administration(ga)	-2.19 (0.21)	-7.28 (0.00)
Tax revenue(taxr)	-2.20 (0.207)	-6.68 (0.00)	Interest payments(ip)	-3.06 (0.03)	
Non-tax rev.(ntr)	-0.95 (0.76)	-7.16 (0.00)	Others current expenditure(oce)	0.20 (0.96)	-11.66 (0.00)
Direct tax(dt)	-1.20 (0.66)	-5.24 (0.00)	Development expenditure(de)	-0.95 (0.76)	-11.28 (0.00)
Indirect tax(idt)	-1.75 (0.39)	-6.72 (0.00)			

Author's own estimation

### 5.2 Johansen Juselius Cointegration:

Mostly two cointegration technique, Eangle Granger two step method and Johansen Cointegration model are used in the previous studies. In this study, Johansen Cointegration is used because it is a multivariate analysis method that expresses the long run relationship between multiple variables. As we examine following models with multiple variable so it also suits the data.

$$y_t = \beta_0 + \beta_1 tr_t + \beta_2 taxr_t + \beta_3 ntr_t + \beta_4 te_t + \beta_5 ce_t + \beta_6 de_t + e_t \quad (5.1)$$

**Table 5.2 Johansen Cointegration Test**

Hypothesized Number of Cointegrating equations	Trace Statistics	Critical value (5%)	P-value
None*	161.5726	125.6154	0.0001
At most 1*	108.5924	95.75366	0.0049

The results in the above table shows the trace value which indicates that 2 cointegration equation exist at 5 percent level. Which means that cointegration exist in the data.

$$y_t = \beta_0 + \beta_1 dt_t + \beta_2 idt_t + \beta_3 st_t + \beta_4 cd_t + \beta_5 ed_t + \beta_6 oidt_t + e_t \quad (5.2)$$

**Table 5.3 Johansen Cointegration Test**

Hypothesized Number of Cointegrating equations	Trace Statistics	Critical value (5%)	P-value
None*	128.8813	125.6154	0.0312

The results in table demonstrate the existence of cointegration as 1 cointegration equation is significant at 5 percent.

$$y_t = \beta_0 + \beta_1 df_t + \beta_2 cs_t + \beta_3 ga_t + \beta_4 ip_t + \beta_5 oce_t + e_t \quad (5.3)$$

**Table 5.4 Johansen Cointegration Test**

Hypothesized Number of Cointegrating equations	Trace Statistics	0.05 Critical value	P-value
None*	136.6433	95.75366	0.0000
At most 1*	74.28968	69.81889	0.0210



Result of table also illustrate that 2 cointegration equations exist at 5 percent level. Which reveals that cointegration exist in the variables.

### **5.3 Estimation results**

In all the equations of FMOLS and GMM all variables are in log form. The results of these equation shows the effect of fiscal and non-fiscal variables. We have reported the results of FMOLS technique. The value of J-statistics is also calculated to check the endogeneity through null hypothesis of all variables being exogenous. If null hypothesis is rejected then it means endogeneity exist in the data. The relationship between fiscal consolidation and economic growth can be estimated different models, which includes fiscal and non-fiscal variables as given below.

#### **Model 5.3.1 With Consolidation Episodes**

Table 5.5 represents the results after estimating equation 5.4, which includes dummy variable (dd), which is created to identify the fiscal consolidation episodes. This variable will help us establish the significance of fiscal consolidation impact on economic growth. We also have used control variables i.e. L, k, to and hk as independent variable.

$$Y_t = \beta_0 + \beta_1 L_t + \beta_2 K_t + \beta_3 hk_t + \beta_4 to_t + \beta_5 dd + e_t \quad (5.4)$$

Where t represents time period that is from 1973 to 2018.

**Table 5.5 Dependent Variable  $Y_t$  (Equation 5.4)**

<b>Variables</b>	<b>FMOLS</b>	<b>P-values</b>	<b>GMM</b>	<b>P-values</b>
<b>Labor</b>	1.13* (0.03)	(0.000)	1.32* (0.083)	(0.000)
<b>Capital</b>	0.04 (0.14)	(0.147)	0.60* (0.027)	(0.000)
<b>Secondary School Enrolment</b>	0.54 (0.10)	(0.1033)	0.20 (0.34)	(0.557)
<b>Trade Openness</b>	-0.19** (0.01)	(0.0164)	-0.25* (0.036)	(0.000)
<b>Consolidation Episodes</b>	-0.02* (0.003)	(0.0032)	-0.02** (0.009)	(0.036)
<b>F-statistics (probability)</b>			(0.001)	
<b>Degree of freedom (df)</b>			5,39	
<b>J-statistics (probability)</b>			(0.002)	
<b>Note: *, **, *** indicate significant at 1,5 and 10 percent level of significance respectively.</b>				

Before moving to our main results discussion the results show that non-fiscal, also called control variables namely labor, human capital and capital stock are positively associated with GDP growth as predicted by the theory. However, human capital is mostly insignificant these results may arise due to proxy of human capital. On the other hand the results of trade openness is different from the theory, because it is negatively associated with growth. The negative association of trade openness with growth may be arise, because in a particular case of Pakistan, imports are greater than exports, so that the impact of trade openness may be negative. The results of these non-fiscal variables are almost same in all models, so we will not discussed the effect of these variables separately in each model and focusses the main variables i.e. fiscal variables.

Furthermore, in above results the P-value (0.036) of consolidation episodes (dd) which is calculated through GMM model, implies that the impact of fiscal consolidation is significant in Pakistan. However, the negative value of coefficient (-0.02) shows that fiscal consolidation episodes has negative effect on GDP growth in case of Pakistan, which stresses that we need to focused on the composition of measures of fiscal consolidation (revenue based and expenditure based) and not the aggregate measure only. These results are consistent with the study of Kemal et al., (2017) that also said that fiscal consolidation in Pakistan are not growth enhancing and contradicts with the study of Gupta et al., (2005) that said that fiscal consolidation were not harmful in low income countries.

### **Model 5.3.2 With Total revenue and Total expenditures**

In the next step, we have used total expenditure (te) and total revenue (tr) with control variables in equation 5.5 as to analyze the impact of these variables on economic growth.

$$y_t = \beta_0 + \beta_1 L_t + \beta_2 K_t + \beta_3 hk_t + \beta_4 to_t + \beta_5 tr_t + \beta_6 te_t + e_t \quad (5.5)$$

**Table 5.6 Dependent Variable  $Y_t$  (Equation 5.5)**

<b>Variables</b>	<b>FMOLS</b>	<b>P-values</b>	<b>GMM</b>	<b>P-values</b>
<b>Labor</b>	-0.01 (0.06)	(0.834)	0.125 (0.18)	(0.507)
<b>Capital</b>	2.16* (0.15)	(0.000)	0.76* (0.032)	(0.000)
<b>Secondary School Enrolment</b>	-0.44* (0.09)	(0.000)	-0.125 (0.21)	(0.554)
<b>Trade Openness</b>	-0.24* (0.01)	(0.000)	-0.15* (0.029)	(0.000)
<b>Total Revenue</b>	0.15* (0.03)	(0.000)	0.02 (0.076)	(0.722)
<b>Total Expenditure</b>	0.13* (0.03)	(0.000)	0.18* (0.066)	(0.009)
<b>F-statistics (probability)</b>			(0.001)	
<b>Degree of freedom (df)</b>			6,37	
<b>J-statistics (probability)</b>			(0.03)	
<b>Note: *, **, *** indicate significant at 1,5 and 10 percent level of significance respectively.</b>				

As we discussed in the preceding chapter that fiscal consolidation is achieved through expenditure cut, revenue increase and through mixed strategy. An extensive literature for developed countries shows that fiscal consolidation based on expenditure cut is more beneficial for GDP growth than revenue increase. The results in table 5.6 represents the impact of revenue and expenditures. The results shows that total expenditure estimated by GMM are significantly and positively associated with GDP which means that the current level of expenditure will be growth enhancing. Total revenue that is also estimated by GMM is positively associated with GDP growth but its effect is insignificant, which may arises due to low level of revenue so, it does not

directly affect the economy, however it comes through expenditures. These results especially the result of total expenditure is inconsistent with the studies on developed countries like Gunter et al., (2018), Erceg & Lindé (2013), Perotti, (2013), Alesina (2012) etc. that write in favor of expenditure cut. While these results consistent with Alesina et al., (2017) and Kemal et al., (2017).

### Model 5.3.3 Tax revenue and nontax revenue

As we have seen the positive association of total revenue and growth the equation 5.6 includes the components of total revenue such as tax revenue and non-tax revenue along with control variables.

$$y_t = \beta_0 + \beta_1 L_t + \beta_2 K_t + \beta_3 hk_t + \beta_4 to_t + \beta_5 taxr_t + \beta_6 nontr_t + e_t \quad (5.6)$$

**Table 5.7 Dependent Variable  $Y_t$  (Equation 5.6)**

Variables	FMOLS	P-values	GMM	P-values
<b>Labor</b>	0.22 (0.22)	(0.311)	0.16 (0.19)	(0.403)
<b>Capital</b>	0.14 (0.49)	(0.768)	0.79* (0.031)	(0.000)
<b>Secondary School Enrolment</b>	0.44 (0.31)	(0.168)	0.02 (0.25)	(0.916)
<b>Trade Openness</b>	-0.14* (0.04)	(0.001)	-0.14* (0.030)	(0.000)
<b>Tax Revenue</b>	0.12* (0.04)	(0.014)	0.12* (0.034)	(0.000)
<b>Non-tax revenue</b>	0.03 (0.02)	(0.134)	0.06* (0.017)	0.0009
<b>F-statistics (probability)</b>			(0.001)	
<b>Degree of freedom (df)</b>			6,38	
<b>J-statistics (probability)</b>			(0.04)	

Note: \*, \*\*, \*\*\* indicate significant at 1, 5 and 10 percent level of significance respectively.

As we know that, there is an extensive literature on fiscal consolidation that highlights many countries use taxes as a stabilization tool to achieve fiscal consolidation targets. At the same time, countries with large fiscal deficit use it as a main tool of fiscal consolidation because only spending cut is might be not enough to reduce fiscal imbalance. However, the results in table 5.7 shows that tax revenues and non-tax revenues are significantly and positively associated with economic growth. This implies that increase in tax may enhance economic growth or may create fiscal space for expenditures. These results are against the findings for developed countries as mentioned in the chapter of literature review and the study of Gunter et al., (2018) and Gunter et al., (2019) for developing countries that argues that in general multiplier of tax is negative and increase in taxes reduces the economic activity. Whereas, the positive value of coefficients of both tax and non-tax revenue is consistent with the study of Kemal et al., (2017) along with that, their study also shows that the effect of these variables are insignificant. Moreover, the coefficient value of tax revenue (0.12) is higher than non-tax revenue (0.06) which requires that there is a need of paying further attention on the component of tax revenues.

### **Model 5.3.4 Direct tax and Indirect tax**

To explore the effect of components of tax revenue equation 5.7 includes direct tax (dt) and indirect tax (idt) as independent variable with control variables.

$$y_t = \beta_0 + \beta_1 L_t + \beta_2 K_t + \beta_3 hk_t + \beta_4 to_t + \beta_5 dt_t + \beta_6 idt_t + e_t \quad (5.7)$$

**Table 5.8 Dependent Variable  $Y_t$  (Equation 5.7)**

<b>Variables</b>	<b>FMOLS</b>	<b>P-values</b>	<b>GMM</b>	<b>P-values</b>
<b>Labor</b>	0.81* (0.24)	(0.001)	0.69** (0.29)	(0.023)
<b>Capital</b>	-0.70 (0.62)	(0.262)	0.67* (0.04)	(0.000)
<b>Secondary School Enrolment</b>	0.84** (0.37)	(0.031)	-0.31 (0.50)	(0.538)
<b>Trade Openness</b>	-0.13* (0.04)	(0.004)	-0.16** (0.05)	(0.003)
<b>Direct Tax</b>	-0.03 (0.03)	(0.339)	-0.013 (0.03)	(0.668)
<b>Indirect tax</b>	-0.07 (0.05)	(0.209)	0.13** (0.05)	(0.018)
<b>F-statistics (probability)</b>			(0.001)	
<b>Degree of freedom (df)</b>			6,38	
<b>J-statistics (probability)</b>			(0.002)	
<b>Note: *, **, *** indicate significant at 1,5 and 10 percent level of significance respectively.</b>				

The taxation policies may reduce the production and create in-efficiency by lowering the economic activity but it is also used as a tool to create fiscal space for expenditures. In the above results, the coefficient value of direct tax (-0.013) is negatively associated with GDP growth but it is insignificant it is consistent with the study of Kemal et al., (2017) which argues that direct tax may not enhance growth and it is may be due to the taxation system which is not growth friendly. On the other hand, the results of indirect taxes contradicts the study of Kemal et al., (2017), as it is significantly and

positively associated with GDP growth, which indicate that indirect taxes has an impact GDP growth. To explore this result further the components of indirect tax are considered for further analysis.

### Model 5.3.5 Components of indirect taxes

One of the contribution of this study is the estimation of the impact of components indirect tax namely sales tax (st), custom duties(cd), excise duties(ed) and other indirect taxes together with control variables.

$$y_t = \beta_0 + \beta_1 L_t + \beta_2 K_t + \beta_3 hk_t + \beta_4 to_t + \beta_5 st_t + \beta_6 cd_t + \beta_7 ed_t + \beta_8 oidt_t + e_t \quad (5.8)$$

**Table 5.9 Dependent Variable  $Y_t$  (Equation 5.8)**

Variables	FMOLS	P-values	GMM	P-values
<b>Labor</b>	0.40* (0.09)	(0.000)	0.24 (0.17)	(0.164)
<b>Capital</b>	-0.44 (0.27)	(0.106)	0.81* (0.03)	(0.000)
<b>Secondary School Enrolment</b>	0.43* (0.15)	(0.008)	-0.27 (0.28)	(0.328)
<b>Trade Openness</b>	-0.05* (0.01)	(0.004)	-0.088** (0.03)	(0.014)
<b>Sales Tax</b>	0.05* (0.009)	(0.000)	0.066* (0.01)	(0.000)
<b>Custom Duties</b>	0.12* (0.01)	(0.000)	0.13* (0.01)	(0.000)
<b>Excise Duties</b>	-0.08* (0.01)	(0.000)	-0.02 (0.01)	(0.119)
<b>Other Indirect Tax</b>	-0.01* (0.004)	(0.009)	-0.003 (0.005)	(0.514)
<b>F-statistics (probability)</b>			(0.001)	
<b>Degree of freedom (df)</b>			8,37	
<b>J-statistics</b>			(0.001)	



(probability)				
Note: *, **, *** indicate significant at 1,5 and 10 percent level of significance respectively.				

The results of components of indirect taxes which is calculated through GMM model shows that sales tax and custom duties are positively associated with GDP growth while excise duties and other indirect taxes are insignificantly associated with growth. These results imply that fiscal consolidation specifically through sales tax and custom duties may increase the economic growth.

### Model 5.3.6 Current Expenditure and Development Expenditure

After doing the decomposition analysis on taxes side now we explore the expenditures. Equation 5.9 used the component of total expenditure specifically current expenditure and development expenditure with same control variables.

$$y_t = \beta_0 + \beta_1 L_t + \beta_2 K_t + \beta_3 hk_t + \beta_4 to_t + \beta_5 ce_t + \beta_6 de_t + e_t \quad (5.9)$$

**Table 5.10 Dependent Variable  $Y_t$  (Equation 5.9)**

Variables	FMOLS	P-values	GMM	P-values
<b>Labor</b>	-0.04 (0.13)	(0.751)	-0.08 (0.07)	(0.242)
<b>Capital</b>	1.30* (0.33)	(0.000)	0.76* (0.01)	(0.000)
<b>Secondary School Enrolment</b>	-0.29 (0.19)	(0.130)	-0.49* (0.17)	(0.006)
<b>Trade Openness</b>	-0.18* (0.02)	(0.000)	-0.16* (0.01)	(0.000)
<b>Current Expenditure</b>	0.16* (0.02)	(0.000)	0.146* (0.01)	(0.000)
<b>Development Expenditure</b>	0.10* (0.01)	(0.000)	0.145* (0.02)	(0.000)
<b>F-statistics (probability)</b>			(0.001)	
<b>Degree of freedom (df)</b>			6,37	
<b>J-statistics</b>			(0.01)	

(probability)				
Note: *, **, *** indicate significant at 1,5 and 10 percent level of significance respectively.				

Revenue increase is important component but better targeted spending also help in enhancing growth. As noted earlier, the general concept about fiscal consolidation is that, the successful fiscal consolidation is done through cut in both current and development expenditure but mostly done through current expenditure. The results in table 6 demonstrate that, in case of Pakistan both current and development expenditure are significant and both are positively affect the GDP growth. The effect of current expenditures are more than development expenditure and it could be due to lower share of development expenditure. These results are also consistent with the study of Kemal et al., (2017), but their study also argued that very high level current expenditure have negative impact on growth.

### **Model 5.3.7 Components of current expenditure**

Another contribution of this study is the calculation of the impact of components of current expenditure on economic growth. This may provide information about the area which need to be focused for fiscal consolidation programs.

$$y_t = \beta_0 + \beta_1 L_t + \beta_2 K_t + \beta_3 hk_t + \beta_4 to_t + \beta_5 df_t + \beta_6 cs_t + \beta_7 ga_t + \beta_8 ip_t + \beta_8 oce_t + e_t \quad (5.10)$$

**Table 5.11 Dependent Variable  $Y_t$  (Equation 5.10)**

<b>Variables</b>	<b>FMOLS</b>	<b>P-values</b>	<b>GMM</b>	<b>P-values</b>
<b>Labor</b>	-0.08 (0.11)	(0.475)	0.099 (0.16)	(0.541)
<b>Capital</b>	2.28* (0.31)	(0.000)	0.76* (0.02)	(0.000)
<b>Secondary School Enrolment</b>	-0.18 (0.14)	(0.226)	0.12 (0.24)	(0.630)
<b>Trade Openness</b>	-0.20* (0.02)	(0.000)	-0.16* (0.04)	(0.000)
<b>Defense</b>	0.12* (0.02)	(0.000)	0.22* (0.03)	(0.000)
<b>Current Subsidies</b>	-0.0003 (0.007)	(0.958)	0.031** (0.01)	(0.015)
<b>General Administration</b>	0.068* (0.015)	(0.000)	0.025 (0.01)	(0.154)
<b>Interest Payments</b>	0.00	0.00	-0.058** (0.02)	(0.010)
<b>Other current expenditure</b>	0.075* (0.01)	(0.000)	0.028 (0.02)	(0.325)
<b>F-statistics (probability)</b>			(0.001)	
<b>Degree of freedom (df)</b>			9,34	
<b>J-statistics (probability)</b>			(0.02)	
<b>Note: *, **, *** indicate significant at 1,5 and 10 percent level of significance respectively.</b>				

Many studies in the literature concentrated on the components of current expenditure and portray different results for different countries. In this study, the results of the components of current expenditure calculated through GMM model, represented in table 7 shows that the impact of defense and current subsidies are significant and

positively associated with GDP growth, which denotes that cut in these variables may not be supportive for growth. These results contradict the study of Hagen & Strauch (2001) which indicates that cut in subsidies and government transfers may enhance GDP growth. However, significant and negative association of interest payments with growth is consistent with the findings of Kemal et al., (2017), they also argue that the decrease in interest payments may prove as helping hand for growth process. Lastly, the general administration and other current expenditures are insignificantly associated with growth which are standard results of non-productive government expenditures.

## **Chapter 6: Conclusion and Policy Recommendation**

### **6.1 Conclusion**

Most of the Developing countries face financial imbalance due to high fiscal deficit, which is the outcome of higher expenditure and low revenue. It is the key problem of many developed as well as developing countries, because fiscal deficit beyond the certain level shrink the fiscal space of the economy that reduces the economic growth or have negative impact on economic activity. Pakistan now a days also face the problem of high fiscal deficit, so there is a dire need to spend the resources efficiently and for efficient resource mobilization fiscal consolidation is necessary tool. On the other hand at times fiscal consolidation also help improve economic efficiency as theoretically speaking what is now not done by the government is taken up by the private sector in the economy, hence can prove more pro-growth. Then this becomes an important issue to see whether consolidation reduces economic growth or in fact it fosters it. Therefore, this study tried to shed light on the relationship of fiscal consolidation and economic growth in case of Pakistan.

To explore the relationship of fiscal consolidation, we estimated different models which particularly include bifurcated data of expenditures and revenues. The empirical results of this study suggest that fiscal consolidation in case of Pakistan would not be growth enhancing. Most of the results provided in this study are consistent with the study of Kemal et al., (2017). They pointed out that structure and level of the expenditure, revenue and taxation did not supportive for growth enhancement.

One of the finding of the analysis is the positive association of expenditures (current and development) with economic growth which suggest that the current level of

both current and development expenditure increases the GDP growth, but the multiplier of development expenditure is less than current expenditures which may be due to its less share. The positive correlation of current expenditure contradict the general perception that consolidation through current expenditure increases the economic growth. However, one of the components of current expenditure, that is, interest payments has negative association with GDP growth strengthen the argument that in order to boost growth or to create more fiscal space we need to reduce fiscal deficit.

Another important finding is that the indirect tax is significantly and positively associated with GDP growth, due to this positive association, we also find the impact of components of indirect tax which shows that sales tax and custom duties are positively and significantly correlated with growth, which concludes that revenue based consolidation might increase the economic growth. But the insignificant impact of overall revenue implies that the tax structure of Pakistan is not helpful in enhancing economic growth so, we need structural reforms in tax regime.

## **6.2 Policy Recommendation**

Results indicate that fiscal consolidation, so far, has a negative effect on economic growth in case of Pakistan. Which means that fiscal consolidation if implemented without evaluating its effects could lead to more economic slowdown. Therefore, there is a need that government should consolidate while clearly evaluating the economic costs and benefits of these fiscal consolidation strategies. With respect to subcomponents, we observed that total revenues based consolidation is insignificant, so, in order to have a beneficial consolidation, the government should focus on raising revenues rather than focusing on the expenditure side cut only.

## References

- Acconcia, A., Corsetti, G., & Simonelli, S. (2014). Mafia and public spending: Evidence on the fiscal multiplier from a quasi-experiment. *American Economic Review*, 104(7), 2185–2209. <https://doi.org/10.1257/aer.104.7.2185>
- Agnello, L., & Sousa, R. M. (2014). How does fiscal consolidation impact on income inequality? *Review of Income and Wealth*, 60(4), 702–726. <https://doi.org/10.1111/roiw.12004>
- Ahmad, I., & Qayyum, A. (2008). Effect of Government Spending and Macro-Economic Uncertainty on Private Investment in Services Sector: Evidence from Pakistan. *Economic Policy*, (2116), 0–33. <https://doi.org/10.1227/01.NEU.0000349921.14519.2A>
- Ahrend, R., Catte, P. A., & Price, R. (2006). Interactions between Monetary and Fiscal Policy: How Monetary Conditions Affect Fiscal Consolidation. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1010655>
- Alesina, A., & Ardagna, S. (2010). Large Changes in fiscal policy: Taxes versus spending. *Tax Policy and the Economy*, 24, 35–68. <https://doi.org/10.1086/649828>
- Alesina, A., & Ardagna, S. (2013). The design of fiscal adjustments. In *Tax Policy and the Economy* (Vol. 27). <https://doi.org/10.1086/671243>
- Alesina, A., Barbiero, O., Favero, C., Giavazzi, F., & Paradisi, M. (2017). The Effects of Fiscal Consolidations: Theory and Evidence. 66. Retrieved from <http://www.nber.org/papers/w23385>

- Alesina, A., Favero, C., & Giavazzi, F. (2015). The output effect of fiscal consolidation plans. *Journal of International Economics*, 96(S1), S19–S42.  
<https://doi.org/10.1016/j.jinteco.2014.11.003>
- Alesina, A., & Perotti, R. (1996). Fiscal Adjustments in OECD Countries: Composition and Macroeconomic Effects.
- Alesina, A., Perotti, R., Giavazzi, F., & Kollintzas, T. (1995). Fiscal Expansions and Adjustments in OECD Countries. *Economic Policy*, 10(21), 205.  
<https://doi.org/10.2307/1344590>
- Alesina, A., Perotti, R., & Tavares, J. (1998). The Political Economy of Fiscal Adjustments Author ( s ): Alberto Alesina , Roberto Perotti , José Tavares , Maurice Obstfeld and Barry Stable URL : <https://www.jstor.org/stable/2534672> The Political Economy of Fiscal Adjustments. (1), 197–266.
- Alesina, A., & Tabellini, G. (2005). Why fiscal policy often procyclical? NBER Working Papers, (September 2005), 47. <https://doi.org/10.1017/CBO9781107415324.004>
- Angelopoulos, K., & Philippopoulos, A. (2007). The growth effects of fiscal policy in Greece 1960-2000. *Public Choice*, 131(1–2), 157–175.  
<https://doi.org/10.1007/s11127-006-9111-3>
- Ardagna, S. (2004). Fiscal stabilizations: When do they work and why. *European Economic Review*, 48(5), 1047–1074.  
<https://doi.org/10.1016/j.eurocorev.2003.09.010>
- Arizala, F., Gonzalez-Garcia, J., Tsangarides, C., & Yenice, M. (2017). The Impact of



- Fiscal Consolidations on Growth in Sub-Saharan Africa. IMF Working Papers, 17(281), 1. <https://doi.org/10.5089/9781484333112.001>
- Auerbach, A. J., & Gorodnichenko, Y. (2017). NBER Working Paper Series Fiscal Multipliers in Japan Fiscal Multipliers in Japan. Retrieved from <http://www.nber.org/papers/w19911>
- Baldacci, E., Hillman, A. L., & Kojo, N. C. (2004). Growth, governance, and fiscal policy transmission channels in low-income countries. *European Journal of Political Economy*, 20(3), 517–549. <https://doi.org/10.1016/j.ejpoleco.2003.12.002>
- Barrios, S., Langedijk, S., & Pench, L. (2010). Fiscal Policy: Lessons from the Crisis. *Banca d'italia*, 793. Retrieved from [http://www.bancaditalia.it/studiricerche/convegni/atti;internal&action=\\_setlanguage.action?LANGUAGE=en](http://www.bancaditalia.it/studiricerche/convegni/atti;internal&action=_setlanguage.action?LANGUAGE=en)
- Barro, R. J. (2003). Determinants of Economic Growth in a Panel of Countries. *Annals of Economics and Finance*, 4(2), 231–274.
- Beetsma, R., Furtuna, O., & Giuliadori, M. (2018). Revenue-Versus Spending-Based Consolidation Plans: The Role of Follow-.
- Bergman, U. M., & Hutchison, M. M. (2010). Expansionary fiscal contractions: Re-evaluating the danish case. *International Economic Journal*, 24(1), 71–93. <https://doi.org/10.1080/10168731003589857>
- Blanchard, O., & Perotti, R. (2002). An empirical characterization of the dynamic effects of changes in government spending and taxes on output. *Quarterly Journal of*

- Economics, 117(4), 1329–1368. <https://doi.org/10.1162/003355302320935043>
- Branch, S. G., & Adderley, S. S. (2007). Of Fiscal and Debt Sustainability in the Bahamas. 223–246.
- Branch, S. G., & Adderley, S. S. (2009). Of Fiscal and Debt Sustainability in the Bahamas. 223–246.
- Callegari, G., Melina, G., & Batini, N. (2012). Successful Austerity in the United States, Europe and Japan. *IMF Working Papers*, 12(190), 1. <https://doi.org/10.5089/9781475505382.001>
- Carriere-Swallow, Y., David, A., & Leigh, D. (2018). The Macroeconomic Effects of Fiscal Consolidation in Emerging Economies: Evidence from Latin America. *IMF Working Papers*, 18(142), 1. <https://doi.org/10.5089/9781484361696.001>
- Castro, L. A. V., & Sousa, R. M. (2012). “What determines the duration of a fiscal consolidation program?” NIPE WP 17.
- Christiano, L., Eichenbaum, M., & Rebelo, S. (2009). When is the Government Spending Multiplier Large? When is the government spending multiplier large? Retrieved from <http://www.nber.org/papers/w15394>
- Ciminelli, G., Ekkehard, E., Massimo, G., & Rossana, M. (2019). The Composition Effects of Tax-Based Consolidations on Income Inequality.
- Cournede, B., & Gonand, F. (2006). Restoring Fiscal Sustainability in the Euro Area: Raise Taxes or Curb Spending? *SSRN Electronic Journal*, (520). <https://doi.org/10.2139/ssrn.1997167>

- David, A. (2017). Fiscal Policy Effectiveness in a Small Open Economy: Estimates of Tax and Spending Multipliers in Paraguay. *IMF Working Papers*, 17(63), 1. <https://doi.org/10.5089/9781475588262.001>
- Dell’Erba, S., Koloskova, K., & Poplawski-Ribeiro, M. (2014). Medium-term fiscal multipliers during protracted economic contractions. *Journal of Macroeconomics*, 56, 35–52. <https://doi.org/10.1016/j.jmacro.2017.09.004>
- Easterly, W., & Rebelo, S. (1993). Fiscal policy and economic growth: an empirical investigation.
- Eggertsson, G. B. (2010). What fiscal policy is effective at zero interest rates? In *NBER Macroeconomics Annual* (Vol. 25).
- Erceg, C. J., & Lindé, J. (2013). Fiscal consolidation in a currency union: Spending cuts vs. tax hikes. *Journal of Economic Dynamics and Control*, 37(2), 422–445. <https://doi.org/10.1016/j.jedc.2012.09.012>
- Eyraud, L., & Weber, A. (2013). The Challenge of Debt Reduction during Fiscal Consolidation. *IMF Working Papers*, 13(67), 1. <https://doi.org/10.5089/9781475553864.001>
- Fatima, G., Ahmed, A. M., & Rehman, W. U. (2011). Fiscal Deficit and Economic Growth: An Analysis of Pakistan’s Economy. *International Journal of Trade, Economics and Finance*, 2(6), 501–504. <https://doi.org/10.7763/ijtef.2011.v2.156>
- Feldstein, M. (1980). Foundation for financial support . This paper was prepared for the Tulane Conference on Government Debt , Fiscal Policy , and expectational theory .

The research reported. Program.

Feldstein, M. (2006). The Effect of Taxes on Efficiency and Growth.(May).

Francesco Giavazzi, M. pagano. (1995). Non -Keynesian effects of fiscal policy changes : international evidence and the swedish experience. National Bureau of Economic Research, (5332).

Furceri, D., Jalles, J. T., & Loungani, P. (2015). Fisca Consolidation and Inequality in Advanced Economies: How Rubust The Links?

Furceri, D., & Li, B. G. (2017). The Macroeconomic (and Distributional) Effects of Public Investment in Developing Economies. IMF Working Papers, 17(217), 1.  
<https://doi.org/10.5089/9781484320709.001>

Ghouse, G. (2019). ARDL Model as a Remedy for Spurious Regression: Problems, performance and Prospect .(Unpublished Thesis)

Giavazzi, F., & Pagano, M. (1990). Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries. NBER Macroeconomics Annual, 5, 75.  
<https://doi.org/10.2307/3585133>

Gil, P., Martí, F., Morris, R., Pérez, J. J., & Ramos, R. (2017). The output effects of tax changes: narrative evidence from Spain. SERIES, 10(1), 1–23.  
<https://doi.org/10.1007/s13209-018-0173-5>

Gollwitzer, S., Kvintradze, E., Prakash, T., Zanna, L.-F., Dabla-Norris, E., Allen, R., ... Lledo, V. D. (2010). Budget Institutions and Fiscal Performance in Low-Income Countries. IMF Working Papers, 10(80), 1.

<https://doi.org/10.5089/9781451982237.001>

Gunter, S., Riera-Crichton, D., Vegh, C., & Vuletin, G. (2018). Non-Linear Effects of Tax Changes on Output The Role of the Initial Level of Taxation. (December).

Retrieved from <http://www.worldbank.org/>

Gunter, S., Riera-Crichton, D., Vegh, C., & Vuletin, G. (2019). Policy Implications of Non-linear Effects of Tax Changes on Output. (January). Retrieved from

<http://www.worldbank.org/>

Gupta, S., Baldacci, E., Clements, B., & Tiongson, E. R. (2003). What sustains fiscal consolidations in emerging market countries? *International Journal of Finance and Economics*, 10(4), 307–321. <https://doi.org/10.1002/ijfe.274>

Gupta, S., Clements, B., Baldacci, E., & Mulas-Granados, C. (2005). Fiscal policy, expenditure composition, and growth in low-income countries. *Journal of International Money and Finance*, 24(3), 441–463.

<https://doi.org/10.1016/j.jimonfin.2005.01.004>

Gupta, S., Jalles, J. T., Mulas-Granados, C., & Schena, M. (2017). Governments and Promised Fiscal Consolidations: Do They Mean What They Say? *IMF Working Papers*, 17(39), 1. <https://doi.org/10.5089/9781475581133.001>

Heimberger, P. (2018). The dynamic effects of fiscal consolidation episodes on income inequality: evidence for 17 OECD countries over 1978–2013. *Empirica*, 1–29.

<https://doi.org/10.1007/s10663-018-9404-z>

Hernández de Cos, P., & Moral-Benito, E. (2016). On the predictability of narrative fiscal

- adjustments. *Economics Letters*, 143, 69–72.  
<https://doi.org/10.1016/j.econlet.2016.03.024>
- Holden, S., & Midthjell, N. (2013). Successful Fiscal Adjustments. Does Choice of Fiscal Instrument Matter? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2345297>
- House, C. L., & Tesar, C. P. L. L. (2017). Austerity in the Aftermath of the Great Recession.
- Huidrom, R., Kose, M. A., Lim, J. J., & Ohnsorge, F. L. (2019). Why do fiscal multipliers depend on fiscal Positions? *Journal of Monetary Economics*, (March).  
<https://doi.org/10.1016/j.jmoneco.2019.03.004>
- Hyder, K. (2015). Seventeenth Annual General Meeting and Conference of the Pakistan Society of Development in a Vector Error Correction Hypothesis Framework : A Case Study of Pakistan. 40(4).
- Illera, R. M., & Mulas-Granados, C. (2008). What makes fiscal consolidations last? A survival analysis of budget cuts in Europe (1960-2004). *Public Choice*, 134(3–4), 147–161. <https://doi.org/10.1007/s11127-007-9211-8>
- Jaimovich, N., & Rebelo, S. (2017). Nonlinear effects of taxation on growth. *Journal of Political Economy*, 125(1), 265–291. <https://doi.org/10.1086/689607>
- Javid, A. Y., & Arif, U. (2009). Dynamic effects of changes in government spending in Pakistan's economy. *Pakistan Development Review*, 48(4), 973–988.
- Jha, S., Mallick, S. K., Park, D., & Quising, P. F. (2014). Effectiveness of countercyclical fiscal policy: Evidence from developing Asia. *Journal of Macroeconomics*, 40, 82–

98. <https://doi.org/10.1016/j.jmacro.2014.02.006>

John F. Cogan, J. B. (2013). Fiscal Consolidation strategies. *Journal of Economic Dynamics and Control*.

Kemal, Ali, M., Siddique, O., & Qasim, A. W. (2017). Fiscal consolidation and economic growth: Insights from the case of Pakistan. *Pakistan Development Review*, 56(4), 349–366. <https://doi.org/10.30541/v56i4pp.349-367>

Lemoine, M., & Lindé, J. (2016). Fiscal consolidation under imperfect credibility. *European Economic Review*, 88, 108–141. <https://doi.org/10.1016/j.eurocorev.2016.04.008>

Mankiw, N. G., Romer, D., & Ball, L. (1992). A CONTRIBUTION TO THE EMPIRICS OF ECONOMIC GROWTH.

Margit, M. (2013). What factors determine the success of consolidation efforts ? *OECD Journal: Economic Studies*, 2012. <https://doi.org/10.1787/5k9h28mzp57h-en>

McDermott, C. J., & Wescott, R. (1996). An empirical analysis of fiscal adjustments. *IMF Working Paper*, 96/59(4), 725–753. <https://doi.org/10.2307/3867367>

Mehmood, R., & Sadiq, S. (2010). The relationship between government expenditure and poverty: A cointegration analysis. *Romanian Journal of Fiscal Policy*, 1(1), 29–37. Retrieved from <https://www.econstor.eu/handle/10419/59799>

Moreno, M., & Hector, A. (2014). Government Spending Multipliers in Developing Countries : Evidence from Lending by Official Creditors. *Journal of Development Studies*, 17(3), 0–34. Retrieved from <http://www->

wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/12/18/000442464\_20131218151209/Rendered/PDF/793790JRN0Natu00Box0379850B00OUO090.pdf

Mulas-granados, C. (2005). Fiscal Adjustments and the Short-Term Trade-Off between economic growth and equality. *Hacienda Publica Espanola / Revista de Economica Publica*, 172, 61–92.

Mundle, S., Bhanumurthy, N. R., & Das, S. (2011). Fiscal consolidation with high growth: A policy simulation model for India. *Economic Modelling*, 28(6), 2657–2668. <https://doi.org/10.1016/j.econmod.2011.08.001>

Nauschnigg, F. (2010). Better European financial architecture to prevent crises. In *After the crisis: towards a sustainable growth model*. Retrieved from <http://www.etui.org/Publications2/Books/After-the-crisis-towards-a-sustainable-growth-model>

Nkoro, E. a. (2016). Autoregressive Distributed Lag (ARDL) cointegration technique: application and interpretation . *Journal of Statistical and Econometric Methods*.

OECD. (2011). Fiscal consolidation: targets, plans and measures. *OECD Journal on Budgeting*, 11(2).

Pennings, S., & Pérez Ruiz, E. (2013). Fiscal Consolidations and Growth: Does Speed Matter? *IMF Working Papers*, 13(230), 1. <https://doi.org/10.5089/9781475517866.001>

Perotti, R. (1999). *Fiscal Policy in Good Times and Bad* Author ( s ): Roberto Perotti



Reviewed work ( s ): Published by : Oxford University Press. 114(4), 1399–1436.

Perotti, R. (2013). The “Austerity Myth” Gain without Pain? (June).

Ramey, V. A., & Zubairy, S. (2018). Government spending multipliers in good times and in bad: Evidence from US historical data. *Journal of Political Economy*, 126(2), 850–901. <https://doi.org/10.1086/696277>

Riera-Crichton, D., Vegh, C. A., & Vuletin, G. (2016). Tax multipliers: Pitfalls in measurement and identification. *Journal of Monetary Economics*, 79, 30–48. <https://doi.org/10.1016/j.jmoneco.2016.03.003>

Romer, C. D., & Romer, D. H. (2010). NBER Working Paper Series The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks the Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal. Retrieved from <http://www.nber.org/papers/w13264>

Tapsoba, S. J. A. (2013). Options and strategies for fiscal consolidation in India. *Economic Modelling*, 43, 225–237. <https://doi.org/10.1016/j.econmod.2014.08.012>

Topalova, P., & Nyberg, D. (2010). What Level of Public Debt Could India Target? IMF Working Papers, 10(7), 1. <https://doi.org/10.5089/9781451961836.001>

Von Hagen, J., & Strauch, R. R. (2001). Fiscal consolidations: Quality, economic conditions, and success. *Public Choice*, 109(3–4), 327–346. [https://doi.org/10.1016/0040-4020\(77\)80082-3](https://doi.org/10.1016/0040-4020(77)80082-3)

Vtyurina, S., & Leal, Z. (2016). Fiscal Multipliers and Institutions in Peru: Getting the Largest Bang for the Sol. IMF Working Papers, 16(144), 1.

<https://doi.org/10.5089/9781498381017.001>

Zaghini, A. (1999). The Economic Policy of Fiscal Consolidations: The European Experience. October, 35(442), 1–28. <https://doi.org/10.1162/JEEA.2008.6.6.1109>