Department of Economics

Doctoral Thesis

Macroeconomic Determinants of Tax Morale, Institutional Development and Optimal Government Spending in Pakistan

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This dissertation is submitted to the Department of Economics, The University of Lahore, Pakistan in partial fulfillment of the requirement for the completion of Ph.D. in Economics.
In the Name of Allah, the Most Beneficent and Most Merciful
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**Ghulam Rasool Madni**

PhD candidate
In Dedication to

Mumtaz Ahmad Sabri

for making me be who I am
Acknowledgment

First of all, thanks to Almighty Allah Who sent the Holy Prophet ﷺ to bestow the knowledge to humanity. I would like to express my special thanks of gratitude to my supervisor Prof Dr M Aslam Chaudhary who provided a continuous support and guidance to complete my PhD. A special thanks to my foreign examiners Dr Nathan Berg from New Zealand and Dr Ling Sun from Canada, as well as, local examiners Prof Dr Rukhsana Kalim and Dr S Salman Rizavi for sparing their busy and valuable time by providing useful comments to improve the quality of research. Indeed, my departmental colleagues were a source of encouragement and fruitful suggestions.

Last but not least, a special heartiest tribute to my parents, wife, children and other family members, for suffering during my busy schedule of research days.

Ghulam Rasool Madni
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Abstract

The effectiveness of fiscal policy for economic activities has long been a subject on the applied research agenda and theoretical front for policy makers and academicians since the emergence of macro-economics. Over the years, developing economies failed to finance their public spending through collected revenues. This dissertation is focused to explore the four different facets of fiscal policy for a developing economy, Pakistan. Firstly, tax to GDP ratio of country is not sufficient to meet the public spending for welfare of society and improvement of human resource. Comprehending the importance to increase the tax revenues for economy, the determinants of tax morale in Pakistan are explored, acquiring data from the World Values Survey for the wave of 2010-2014. The estimation is carried out by using weighted ordered probit model that is a more appropriate technique to estimate such type of data. The estimated results demonstrate that confidence in parliament, confidence in civil services and confidence in government affect the tax morale positively and significantly. Moreover, religiosity has impact on people’s behavior and it may be a restriction in the way of tax evasion. The estimated results reveal that population having age of 30-49 years have higher level of tax morale contrary to other groups. It is also disclosed that Pakistani women and married people have higher level of tax morale as compared with man and unmarried people respectively.

Institutions play a vital role to explain the varying economic performance across the nations and the impact of fiscal policy to improve institutional quality is still an explored dimension in literature. To find the impact of fiscal policy on institutions, annual time series data covering the time span from 1984-2015 was used and ARDL technique was applied. A new index for twelve institutional indicators taken from International Country Risk Guide was constructed by Principal Component Analysis. The estimated results draw attention that government spending
are contributing to improve the quality of institutions at little extent while education and equitable income distribution are also promoting the institutional quality in the country.

The impact of institutions and fiscal policy on economic growth is examined using the data from 1984-2015 by applying the ARDL technique. The estimated results signify that government spending and institutions have momentous impact on economic growth of the country. In the same way, education and private investment are boosting the economic growth while trade openness has not significant impact on growth.

Finally, the growth maximizing level of government spending for different categories like current expenditure, development expenditures, defense expenditures and overall government expenditures is determined. The data for this section consists of annual time series data for the period of 1984-2015. The Scully Model is used to estimate the optimal level of different categories of government spending that augment real economic growth. The empirical results illustrate that optimal sizes of government expenditures, current expenditures, development expenditures and defense expenditures are 20.66%, 13.18%, 6.75% and 3% of GDP respectively.

It is suggested that government has to take serious steps to restore the confidence of people on public institutions to improve the tax morale, which will enhance the tax to GDP ratio of the country. The collected revenues should be spending on welfare oriented projects and free from resource crunch in form of corruption. It will improve the quality of institutions along with boosting economic growth. To attain the potential economic growth, government should have to rethink about different categories of public spending because the estimated optimal points of spending are different from existing trend of expenditures by the government.
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List of Acronyms

ADF: Augmented Dickey Fuller test

AIC: Akaike Information Criteria

ARDL: Autoregressive Distributed Lag

ARV: Assess Rental Value

CD: Custom Duty

CPI: Corruption Perception Index

DW: Durbin Watson

ECM: Error Correction Model

FBR: Federal Board of Revenue

FCA: Foreign Currency Account

FED: Federal Excise Duty

FP: Fiscal Policy

FRDL: Fiscal Responsibility and Debt Limitation

GDP: Gross Domestic Product

GMM: Generalized Method of Moments

GOP: Government of Pakistan
ICRG: International Country Risk Guide

IMF: International Monetary Fund

IRF: Impulse Response Function

KPK: Khyber Pakhtunkhwa

LTU: Large Tax Payer Units

MDG: Millennium Development Goals

MOF: Ministry of Finance

MP: Monetary Policy

MTU: Medium Tax Payer Units

NEC: National Economic Council

NFC: National Finance Commission

NIE: New Institutional Economics

OLS: Ordinary Least Square

PCA: Principal Component Analysis

PIU: Produce Index Unit

PSDP: Public Sector Development Program

RBC: Real Business Cycle
SBC: Schwartz Bayesian Criteria

SBP: State Bank of Pakistan

SECP: Securities Exchange Commission of Pakistan

SOP: Standard Operating Procedures

ST: Sales Tax

TARP: Tax Administration Reforms Program

USAS: Universal Self Assessment Scheme

VAR: Vector Auto Regressive

VAT: Value Added Taxes

WTO: World Trade Organization

WVS: World Values Survey
Chapter 1

1. Introduction

“Perhaps the most fundamental achievement of the Keynesian revolution was the reorientation of the way economies viewed the influence of government activity on the private economy. Before Keynes, it was a commonplace that government spending and taxation were powerless to affect the aggregate levels of spending and employment in the economy; they could only redirect resources from the private to the public sector.” Blinder and Solow (2005)

The effectiveness of fiscal policy on economic activities has been on applied and theoretical research agenda for both policy makers and academicians since the evolution of macroeconomics\(^1\). It is clear that a sound fiscal policy is a crucial pre-condition to achieve macroeconomic stability and sustainable economic growth that may have primary impacts on income generation and poverty alleviation through taxation, optimal revenues generation, public borrowings and public expenditures. However, conversely; an inefficient fiscal policy curbs the options for government for optimal tax collection, sustainable economic growth and economic performance.

In Pakistan’s case, it is evident that fiscal policy has been playing a major role in providing policy options for the government throughout her history of economic management. Pakistan is trying hard to sustain the macroeconomic conditions of the economy and struggling to broaden tax net, improving the service delivery, enhancing the tax compliance, minimizing the untargeted subsidies, result based management of development expenditures and restructuring of Public...

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Sector Enterprises (PSEs). In June 2005, National Assembly of Pakistan passed the Fiscal Responsibility and Debt Limitation (FRDL) Act that supports the financial regulation in the country and to ensure accountable and responsible fiscal management by government. It is necessary for the Federal Government to make clear its intention to acquire further debt and/or grants. It is stressed in this law to eliminate revenue deficit till 30th June, 2007 and to reduce the public debt to 60 percent of GDP till 30th June 2012. Public debate about fiscal policy is also proposed in this law.

Realizing the importance and intention of government regarding fiscal policy, this study is aimed to explore the following fiscal insights for a developing economy, Pakistan, to provide improved policy options to attain the desired goals of sustained and developed economy.

- Determinants of tax morale
- Effectiveness of fiscal policy for institutions
- Impact of institutions and public spending on economic growth
- Optimal government spending at disaggregated level

1.1. **Determinants of Tax Morale**

Importance of tax revenues in the fiscal system of a country cannot be negated because it is a leading source of revenues. Tax revenues constitute major component of revenue receipts in all around the world with the exception of few countries rich in natural resource where non tax revenues are major sources of revenues. It is also not out of place to mention that public service delivery is adequate in countries where tax collection as a percentage of GDP is considerably

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higher\(^3\). The collection of tax revenues is not always an easy task for countries. It was a famous and motivational slogan of the American Revolution: “No Taxation without Representation”. Upon the basis of findings of Allingham and Sandmo (1972), many economists insinuate the usage of deterrence policy for tax payers regarding implementation of taxation rules and propose the penalties in case of breaches of laws. But experimental and empirical evidences substantiate that deterrence policy is not much effective to overcome the tax evasion in an economy while the coverage of deterrence policy is very small in numerous economies as described by Torgler (2001).

The known mechanism to coerce people to pay taxes is policy of deterrence. Interest to reveal the causes that led to underground economy and illegal activities has increased dramatically now days as highlighted by McGee (2005). However, exploring the reasons of the shadow economy is still a developing facet of research. Tax avoidance, in broader sense, is an element of pattern of corruption, ineffective legal systems, fluctuating economies and incompetent governments that do not impart basic services\(^4\). When someone thinks that officials are corrupt and government is not providing the best quality services then people have motivations to avoid paying taxes. Numerous and harsh penalties create an environment where corruption and bribery prevails resulting low level of tax compliance and shortfall of confidence in public institutions. Efficient policy to curb tax avoidance necessitates an insight of the performance dimensions of decisions to tax compliance.


\(^4\) For details see, Acemoglu et al (2008).
The deterrence policy may be replaced with enhancing the tax morale of people to collect the revenues. Tax morale is self-motivation or eagerness of individuals to pay taxes. The tax morale does not gauge the behavior of individuals, but it determines the attitude of taxpayers. It can be perceived a moral obligation of taxpayers and their conviction for development of community by paying taxes. All progressive and advanced societies are based to pay taxes in compulsion. So, enforcement attempts are applied to promote tax compliance. Usual alternative explanation for the lack of compatibility between tax compliance and enforcement is known as tax morale or a "moral obligation" or "intrinsic motivation" for paying of taxes (Torgler and Schneider, 2006). Tax morale is an eminent factor for resource mobilization and responsibility to pay taxes shows patriotism and devotion to the nation. Tax revenues lead to combat poverty, provision of social and physical infrastructure. The sustainable growth is based upon provision of public services like infrastructure, educational and health facilities etc. Generally, governments of developing economies respond oppositely to improve taxation system but they hardly succeeded, development and social welfare is hampered resultantly. However, developing economies still face challenges of increasing revenue through local sources. These challenges comprise of outsized informal sector, a small tax base, ineffective governance and administrative capability, poverty and tax evasion by elite class.

Why few individuals are tax payers while others are not? This debate got much attention in the taxation literature since last many decades and there are many theories explaining the above mentioned question. Rational choice theories explain that if anticipated penalties or probability

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6 For details see, Nelson and Winter (1982).
of being caught are lower as compared with avoidance of taxes so gains will be higher. In this case, people have more attraction to avoid the taxes and non compliance behavior will prevail.

In 1997, Bo Rothstein (Swedish political scientist) was asked by a Russian civil servant that how can Russians overcome the problem of tax evasion in the country. All Swedes respond honestly to pay taxes, while Russians often to avoid the taxes (Rothstein, 2001): “First, [Russian citizens] rightly did not believe that all the other tax payers were paying their taxes properly, so it was really no point in being the only one who acted honestly. The goods (public, semi-public or private) that the government was going to use the money to produce would simply not be produced because there were too little taxes paid in the first place. Secondly, they believed that the tax authorities were corrupted, so that even if they paid their taxes, a significant part of the money would never reach the hospitals or schools, etc. Instead, the money would fill the pockets of the tax bureaucrats.”

Field and Frey (2002) noted that:

Often studies focus on “tax morale” in the form of a black box without discussion or even look at the way that may increase or how it can be preserved. Usually, it is observed as the portion of preferences for tax payers and considered as remnants to capture mysteries of tax evasion for analysis. The situation is more interesting to know the determinants and factors shaping maintenance and emergence of tax morale.

Hanousek and Palda (2004) argued:

Excellence of public services plays a crucial role in the tax compliance. When public trusts that taxes will be utilized for public and social services, and it will not into the pouches of revenue authorities and politicians, then they are expected to pay taxes. When corruption on a large scale
prevails and the legal system is not fair or weak, then level of tax compliance will be reduced. If people are trusted in honesty of officials, it will lead to increase the trust in government.

Torgler (2007) pointed out, “Taxes can be seen as a pride paid for government’s positive actions. If the government tries to generate trust with well functioning institutions, co-operation can be initiated or increased, when taxpayers are satisfied with the way they are treated, the cooperation is enhanced. If the outcome received from the government is judged to be fair in relation to the taxes paid, no distress arises.”

Pakistan is among one of the world’s lowest tax to GDP ratio countries and facing significant challenges for realization of its potential tax revenues. It is desired to expand the growth oriented public expenditures on healthcare, education, infrastructure and social assistance programs. The tax to GDP ratio is increased to 12.4 percent over the past three years but it is still not competing with other developing economies of the region. This ratio remained stagnant since long as shown in the table (1).

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax Revenues</td>
<td>11.4</td>
<td>13.2</td>
<td>13.0</td>
<td>10.9</td>
<td>10.2</td>
</tr>
<tr>
<td>Non Tax Revenues</td>
<td>2.3</td>
<td>3.6</td>
<td>4.2</td>
<td>4.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Total Revenues</td>
<td>13.7</td>
<td>16.8</td>
<td>17.2</td>
<td>16.4</td>
<td>13.5</td>
</tr>
</tbody>
</table>


Pakistan is confronting the deep financial crisis that cannot be easily solved. Pakistan collected very lower tax revenues throughout the 1970s. In 1980s, tax to GDP ratio was 13.2% which was further decreased to 13.0% at the end of the 90s. This declining trend continued till the first decade of 2000s and tax to GDP ratio fell to 10.9%, getting the lowest position in the region.
This ratio remained at 9.8% in 2012-13 against 10.2% in 2011-12 while slightly increased to 10.2% and 11.5% in 2013-14 and 2014-15, respectively. In spite of many initiatives and schemes like Universal Self Assessment Scheme (USAS), establishment of regional tax offices, introduction of single National Tax Number (NTN), Sales Tax Risk Evaluation and Management System (STREAMS), Sales Tax Automated Refund Repository System (STARRS) etc\(^7\) but these reforms could not bring a significant change in revenue collection. If revenues collection of Pakistan is compared with neighboring and other comparable countries (like India, Maldives, Sri Lanka, Bangladesh, Nepal) then a disappointing situation of country exists for standing at bottom position\(^8\). A comparative picture is presented in the following table (2).

### Table: 2 Tax to GDP ratio of Various Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>8.5</td>
<td>9.0</td>
<td>9.7</td>
</tr>
<tr>
<td>Bhutan</td>
<td>17.6</td>
<td>17.8</td>
<td>14.3</td>
</tr>
<tr>
<td>India</td>
<td>15.9</td>
<td>16.3</td>
<td>17.38</td>
</tr>
<tr>
<td>Nepal</td>
<td>9.2</td>
<td>13.4</td>
<td>16.5</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>13.7</td>
<td>13.3</td>
<td>11.7</td>
</tr>
<tr>
<td>European Union</td>
<td>39.1</td>
<td>38.4</td>
<td>40.0</td>
</tr>
</tbody>
</table>


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\(^7\) For details see, Pakistan Economic Survey (2002-03) to onward.

The policy of “Pakistan Muslim League (N)” was communicated in the Parliament on 12th June 2013 during the Budget and in line with the constraints of “Fiscal Responsibility and Debt Limitations Act of 2005”, the aim was to enhance the tax revenues to 15% of GDP till 2017-18. By keeping in view the tax elasticities of economy, two up to date studies are referenced here. Fenochietto and Pessino (2013) estimated tax capacity of 113 countries in their study and calculated the ratio between tax capacity and actual tax revenues in these countries. They estimated the tax capacity of Pakistan to be 22.3% of GDP, which shows a gap of 10% of GDP as compared with tax revenues collected in 2016.

Cevik (2016) estimated the long run as well as short run tax elasticites of Pakistan covering the period of 1960-2015 for better perceiving of tax revenues with respect to changing economic activities. To avoid the endogenity problem between economic growth and tax revenues, author applied a multivariate cointegration analysis for estimation of “Error Correction Model” and an “Instrumental Variable” approach. The estimated results by both techniques are reported in the following table (3).

According to Cevik (2016), “the IV regression results show that the short-run elasticity of Corporate Income Tax (CIT) and General Sales Tax (GST) revenues to be above 1, while Personal Income Tax (PIT) is less responsive. Including a weighted average of tax rates in the regression, estimated short-run elasticity of total tax revenue is 1.16 and statistically significant at the 1 percent level. This implies that total tax revenue increase by about 1.16 percent in response to an increase of 1 percent in GDP, while a change in tax rates appears to have no

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9 It may be noted that mentioned target is still lower than 17%, which is required to attain Millennium Development Goals by United Nation.


significant effect on tax revenue in the short run. At a disaggregated level, the short-run elasticities of CIT and PIT revenues are estimated to be 1.37 and 0.96, respectively.

Table: 3 Tax Revenues Elasticities

<table>
<thead>
<tr>
<th>IV-2SLS Estimates</th>
<th>Total</th>
<th>CIT</th>
<th>PIT</th>
<th>GST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔGDP</td>
<td>1.159***</td>
<td>1.372***</td>
<td>0.955*</td>
<td>1.095**</td>
</tr>
<tr>
<td>ΔTax Rate</td>
<td>-0.005</td>
<td>-0.006</td>
<td>-0.002</td>
<td>0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>Two Step ECM Estimates</th>
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</thead>
<tbody>
<tr>
<td><strong>Long Run Equation</strong></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>1.260***</td>
</tr>
<tr>
<td>Tax Rate</td>
<td>0.028***</td>
</tr>
</tbody>
</table>

| **Short Run Equation** | |
| ΔGDP                  | 0.718 | 0.514 | -1.524 | 1.695* |
| ΔTax Rate             | 0.004 | -0.003 | -0.001 | 0.025 |
| ECT                   | -0.196 | -0.083 | -0.086 | -0.121* |

***, **, and * denote significance at the 1, 5, and 10 percent levels.
Source: Cevik (2106).

These coefficients indicate that CIT and PIT revenues increase by about 1.4 percent and 1 percent for every 1 percent increase in GDP. However, it should be noted that the PIT estimates do not capture the prevalence of withholding taxes, a substantial amount of which is treated as a final tax and often not reflected in PIT returns either as adjustable tax or final tax. The GST revenue elasticity, on the other hand, is estimated to be 1.1, slightly higher than that of PIT but significantly less than that of CIT revenue. This implies that the GST revenue increases by
around 1.1 percent for every 1 percent increase in GDP. The estimation results at a disaggregated level suggest that tax rates have no statistically significant effect, and its coefficient comes out to be negative in the case of PIT. The estimates obtained by using the IV-2SLS method are found to be larger than the coefficients obtained using the ordinary least squares (OLS) regression for across all three subcategories of tax revenue.

The ECM results indicate that CIT revenue is considerably more elastic than other tax categories in the long run. The long-run tax revenue elasticity with respect to GDP is estimated to be above unity at 1.26, which is statistically significant at the 1 percent level. This implies that tax revenue increases by about 1.3 percent over the long run as a response to an increase of 1 percent in GDP. Contrary to short-run dynamics, the coefficient on tax rates (0.03) is economically more meaningful and statistically significant in the long run. However, this elasticity estimate should be interpreted with caution, as the tax rate used in the regression is a weighted average of CIT, PIT and GST rates excluding other taxes such as customs duties and excises. At a disaggregated level, the long-run elasticities of CIT and PIT are estimated to be 1.92 and 0.51, respectively. These statistically significant coefficients indicate that CIT and PIT revenues increase by about 1.9 percent and 0.5 percent for every 1 percent increase in GDP, highlighting the relative and absolute underperformance of PIT. The long-run elasticity of GST revenue, on the other hand, is estimated to be 1.47, significantly higher than that of PIT but still less than that of CIT revenue. This implies that the GST revenue increases by around 1.5 percent over the long run for every 1 percent increase in GDP. Accordingly, the error-correction term shows the extent to which the long-run equilibrium drives short-term dynamics. The error-correction term is found to vary between -0.08 for CIT revenue and -0.2 for aggregate tax revenue, indicating that the speed of
adjustment is low. This means that only about 8-20 percent of the disequilibrium appears to be corrected in a given year following deviation from the long-run equilibrium.

The empirical results indicate that both short-run and long-run elasticities of tax revenue are slightly above 1 over the sample period. There is, however, significant variation in short-run and long-run elasticities across subcategories of tax revenue. It was found that corporate income tax (CIT) and the general sales tax (GST) are more responsive to GDP, with elasticity coefficient well above 1, while personal income tax (PIT) appears to be significantly less elastic. This could, however, partly reflect the fact that Pakistan's income tax system relies heavily on withholding taxes, a substantial amount of which is treated as a final tax and often not declared in PIT returns either as adjustable tax or final tax. I also conduct a panel data analysis to put Pakistan’s performance in an international perspective and find that Pakistan’s tax revenue elasticity is well below the average of developing countries. Even though estimated tax effort improved from 0.43 in 2011 to 0.56 in 2016, Pakistan is still significantly below the average of comparator countries (0.64) and high-income countries (0.76). This indicates that Pakistan can realistically achieve a tax ratio of 14-15 percent of GDP over the medium term by bringing the tax effort toward the average level of developing countries.

The empirical findings indicate that a tax system with low elasticity cannot take full advantage of economic growth. Accordingly, unlocking revenue potential is dependent on broadening the tax base, strengthening administration, and rationalizing tax policy across all levels of the general government. Pakistan’s tax system with low elasticity cannot take advantage of economic growth to a greater extent.”

Another important reason for collection of tax revenues less than potential is weaker enforcement of laws. One plausible reason for weak enforcement is inadequate and inefficient
tax authorities\textsuperscript{12}. With a population of exceeding 180 million, there were only 13,344 tax officials against the sanctioned strength of 17,044. On the other hand, in Japan for a population of 128 million, tax administration consists of more than 53,000 officials\textsuperscript{13}. Though two zones broadening of tax base and withholding taxes have been created in each of the eighteen regional tax offices but no additional workforce has been recruited to be employed there.

To address the problem of lower tax collection, Government of Pakistan started a Tax Administration Reforms Program (TARP) in Federal Board of Revenue (FBR) in 2005 to increase the revenues for attaining fiscal targets; enhancing tax to GDP ratio, by widening of tax base; improving audit and enforcement methods through proficient capacity building of FBR administrators; ensuring more fair & transparent application of taxation laws by providing of eminence tax services. Its outcome still remained to be seen.

\textbf{Figure: 1 Trend in Tax Revenues as Percentage of GDP in Pakistan}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Trend in Tax Revenues as Percentage of GDP in Pakistan}
\end{figure}

Source: Pakistan Economic Survey 2014-15

\textsuperscript{12} See, Reforming Tax System in Pakistan (2013) by Sustainable Development Policy Institute.

In spite of increase in tax revenues by the “Federal Board of Revenue” (FBR) in nominal terms, taxes as a percentage of GDP ranged from 8.5% to 9.7 % over the past decade. Pakistan faced many challenges of tax policy for the establishment of an efficient tax system. As a result, a narrow tax base, not only led to a lower proportion of GDP, but also posed a serious threat to financial stability. To broaden the tax base, many steps were initiated and several are under preparation. According to annual report 2015 by State Bank of Pakistan and Pakistan Economic Survey 2016-17, the primary goal is to add new 300,000 tax payers. In this sense, 465,000 notices have been issued until June 2016. Similarly, a detailed plan including collection methods, prosecution procedures etc. has been achieved and is being implemented. Moreover, an unprecedented step to enlarge the tax net is declaration of the merging of existing data base of 3.6 million people holding “National Tax Number” with a computerized data base of “National Identity Card” including 150 million people. In spite of repeated announcements by the government, it could not be implemented, which is an example of bad governance, regarding tax collection.

Tax evasion is usually perceived as uncontrolled in Pakistan. It can be observed from past that every time the government has tried to widen the tax net for the purpose of collecting more revenues, it has faced controversy and resistance. Currently, there is resistance from various sections of the business community against the imposition of withholding tax on banking transactions exceeding Rs. 50,000 for non tax filers. The statistics often cited to emphasize that one in 100 persons in Pakistan pay income tax. There is too much stress on income tax evasion. It is expected that more revenues could be gained by concentrating on corporate tax evasion. The numbers are stunning: 67,624 companies are enlisted with the Securities Exchange Commission
of Pakistan (SECP) in 2015 and less than one third companies submit file returns and among those one fifth declares taxable profits.

These tax revenues are not sufficient to combat poverty, provision of education, health and other public services as well as to improve the quality of human resources. United Nation (UN) declared that 17% tax to GDP ratio is the least level to attain the “Millennium Development Goals” (MDG). On the other side, the OECD countries have increased this ratio to about 35% of GDP in tax revenues. Usually, the tax to GDP ratio for low income countries is 15-18 percent. Middle income countries have this ratio of 22-25% while the high income countries have 40% tax to GDP ratio\(^\text{14}\). It is very clear that this tax to GDP ratio is far lower for Pakistan and it requires to be increased to meet the basic standards of living of people by empowering the tax morale instead of deterrence policies.

It requires to be identified the factors explaining such low tax morale in the country so that essential target for revenue collection could be achieved. Surprisingly, however, there is hardly any study exploring the determinants of tax morale in Pakistan so, there is a need of empirical confirmation that may explain the black box of tax morale, as well as, the factors defining the shape and maintenance of tax morale. If tax morale is important to determine the tax compliance degrees, then it is more valuable to recognize the factors that may affect the tax morale. One of the major objectives of this research is to explore the factors that can affect the level of tax morale in Pakistan because of very less concentrated area of research for the said country.

1.2. Effectiveness of Fiscal Policy for Institutions

The institutions comprise both formal rules and informal norms with their enforcement mechanism, structure human interaction. Unwritten taboos, customs and traditions are informal

\(^{14}\) For details see, https://data.worldbank.org/indicator/GC.TAX.TOTL.GD.ZS
norms while the constitutions and laws that govern the economy and politics are formal rules (North 1990). It is now well established fact that institutional framework plays an important role directly and indirectly in economic activities. Efficient and effective institutions matter for enhancing the investment levels, higher social capital stock of a society, good governance, and effectual control on social violence, conflicts and ethnic diversity [see North (1990, 1994); Frischtak (1995); Aron (2000); Chu (2001); Dollar and Kray (2002); Rodrik, et al. (2002); World Bank (2002); and Jutting (2003)]. The weak institutional framework leads to poor governance as highlighted in Hassan (2002); Government of Pakistan (1999) and DRI / McGraw-Hill (1998). Translucent, proficient and participatory institutions ensure exact priorities and suitable policies; their useful and effectual applications result in higher economic growth, lessening of poverty and enhanced welfare of people.

According to Rodrick (2007), institutions are the main reason for varying economic performance of different countries. Economists have usually focused on the effects of the technological innovation, accumulation of physical and human capital, the process of creation and dissemination of knowledge, total factor productivity, and international economic integration. However, a detailed analysis of literature shows that there institutions lie behind much of these reasons that may cause to boost economic development and growth. Institutions conduct a series of economic functions in the market system, which affects the goals of equity and efficiency. Institutions build markets by providing protection to property rights, and to ensure the sanctity of the contract, and the provision of law and order and provision of such environment where private investment and business may flourish. Posner (1998) argued that “affluence in developed countries is a cumulative result of efficient institutions; poverty in poor countries of inefficient institutions.” Institutions regulate markets and are needed to protect market failure or other
common social objectives like income distribution that communities want to meet their needs. Sometime, market does not provide that is socially required like financial institutions and banks should be regulated to make sure that they do not carry too much risk that may cause expensive functionality of banks and financial institutions.

Over time importance of role of institutions has gained much importance to explain the economic performance. Institutions began to gain popularity in the 1990’s as an elucidation of international disparities in economic development, bad governance, and failure to achieve inclusive growth as well as establishment of law. The institutional role gained importance in decade of 1990, when two pioneer studies by Knack and Keefer’s (1995) "Institutions and Economic Performance", and Mauro’s (1995) "Corruption and Growth” were published. By relying on new dimensions of property rights and institutions, these items gained special place to explain the economic performance across the countries. Knack and Keefer (1995) considered the data of 97 economies from 1974 to 1989 and concluded that institutional quality is working as a protection of property rights and contract enforcement is an essential difference for investment and growth. In the same way, Mauro (1995) found that the corruption rates have negative association with economic growth and private investment. The other experimental evidence supports these preliminary results. For example, Alesina (1998) indicates that institutional quality plays a vital role for growth and this quality of institutions was measured by bureaucracy, corruption, property rights and law & order. As concerned for these results, it seems that literature provide pragmatic assistance to views of Douglass C North and Olson, who emphasized upon importance of contract enforcement and property rights in defining the prosperity and growth of economies (North, 1994).
Friedman (1962) argued that “the ‘two freedoms’ – political and economic freedom – are mutually reinforcing and the impact of democracy on growth operates through quality of economic institutions. The more democratic a country is, the higher the government’s incentive to implement sound economic institutions. Consequently, its economic performance improves.”

If we have a look on performance of institutions in Pakistan, we come to know that country has very poor development of institutions and rents are extracted by elites by breaches of laws or abuses of institutions as highlighted by Hussain (1999). According to Hassan (2002), there was degeneration of institutions in the country over the past three decades, and the decade of 1990’s brought a great degradation of institutions. Poor governance of country excluded the poor people of society in process of decision making and malfunctioning of institutions caused the failure of benefits of rising per capita income to the poor. The increased poverty further weakened the quality of institutions and poor are trapped in the vicious circle of poverty. The performance of institutional indicators of Pakistan is given in the table (4).

<table>
<thead>
<tr>
<th>Years/ Variables</th>
<th>Voice and Accountability</th>
<th>Political Stability and Absence of Violence</th>
<th>Government Effectiveness</th>
<th>Regulatory Quality</th>
<th>Rule of Law</th>
<th>Control of Corruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996-2000</td>
<td>-0.87</td>
<td>-1.17</td>
<td>-0.54</td>
<td>-0.55</td>
<td>-0.80</td>
<td>-0.97</td>
</tr>
<tr>
<td>2001-2005</td>
<td>-1.19</td>
<td>-1.65</td>
<td>-0.41</td>
<td>-0.75</td>
<td>-0.79</td>
<td>-0.94</td>
</tr>
<tr>
<td>2006-2010</td>
<td>-0.89</td>
<td>-2.16</td>
<td>-0.61</td>
<td>-0.53</td>
<td>-0.85</td>
<td>-0.88</td>
</tr>
<tr>
<td>2011-2015</td>
<td>-0.82</td>
<td>-2.01</td>
<td>-0.74</td>
<td>-0.67</td>
<td>-0.84</td>
<td>-0.92</td>
</tr>
</tbody>
</table>

*Values approximately range from -2.5 (weak position) to 2.5 (strong position)
Source: World Governance Indicators
The presented data reveal that institutional performance in Pakistan is very poor and having trend of further deterioration. The poor institutions lead to increase the transactions costs of economy and living standard of public could not be improved in spite of heavy public spending as described by North (1990). The corruption is going to prey the fruit of public spending and hindrance in the way of improvement of institutional quality. According to report of transparency international 2013, there was a corruption of $180 billion during the last five years and Pakistan is now at 35th position of corrupted countries in the world. It is also admitted by the chairman of National Accountability Bureau (NAB) in a press conference held on 12th December 2012 that there is estimation of corruption of Rs.10-12 billion in Pakistan daily. The deterioration of institutional indicators requires the investigation of factors responsible explaining the behavior of institutions.

Recently, role of public spending for institutional development got a striking attention of the policy makers and researchers of the subject, especially after financial crisis of 2007. Endogenous and Keynesian growth theories proved the significant role of fiscal policy for economic development of an economy. The public spending may be helpful to raise the economic growth by developing the institutions like maintaining the law and order, protection of property rights, control over corruption, provision of public goods, and other social services that may lead to improve the aggregate demand and sustainability of economic growth. In addition, the productive projects of government or its interaction with local or foreign investors has a positive effect on growth.

Government spending is an important factor that may improve or deteriorate the institutional quality. According to Hobbes (1651), “government’s role in the development process of the

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economy is vital by providing law and order services including provision of property rights and effective court system for justice.”

When do public spending or public policies have the covet outcomes? For instance, suppose that the government's intention is to raise citizens' education attainment and trim down their mortality rates. Then, would intensified education and health spending always ameliorate to achieve these objectives? Rajkumar and Swaroop (2008) insinuate that it may not, showing that for those policies to work, they need to be escorted by good institutions. Acemoglu et al. (2008) suggest that it may not, arguing that whether the reform works or not depends on institutions.

Several studies (La Porta et al 2008, Acemoglu et al 2001, Keefer & Shirley 2000, Clague et al 1999, Knack & Keefer 1995) have shown presence of close links between development, growth and institutions. These studies pay attention to address the question is that how institutional framework and institutions explain the economic development and performance of economies. To investigate the determinants of institutional quality especially with reference to public spending is a dimension not explored well in earlier literature. This part of study is intended to determine the factors explaining the institutional quality in Pakistan which is a novel topic in literature of economics, especially for Pakistan. This study is first stab to my acquaintance to gauge the response of government spending to develop the institutions of Pakistan. It has the goal to explore how public spending contours the attitude of a state en route for the quality of institutions. This analysis is remarkably crucial for Pakistan at a time when country has many economic and political challenges; such as poor governance, corruption, terrorism, worst law and order situation, inflation, and energy crises. Realizing the importance and effectiveness of institutions and government spending from literature, it will be much concern of interest to know the impact of public spending and institutions on economic growth of Pakistan.
1.3. Optimal Government Spending at Disaggregated Level

The emergence of growth models developed by Lucas (1988), Romer (1986) and Barro (1990), are considered as “new endogenous growth models”, laid the basis of special importance about role of government in economic development and growth. These models were focused on that sustained growth, is endogenous instead of exogenous. There are many important factors in determining the long-term growth, but all models of endogenous growth predict that government can influence economic growth, either in direct or indirect way (Brons, de Groot and Nijkamp, 1999). Consequently, growth rates in the long run may vary across countries; so there is no need that per capita income of economies may converge. Additionally, as Dar and Amir Khalkhali (2002) suggest that main inference of endogenous growth models is that policies of governments have far-reaching consequences for the performance of long run growth in a country. Taxes, spending and other budgetary tools are main fiscal instruments which affect the efficient allocation of resources, factor accumulation and technological innovations, lead to affect the long run growth.

The historical facts show that every society attained economic development and prosperity with active involvement of government. A state without appropriate government faces many types of chaos and disorders which ultimately halt their economic growth. The societies where governments are affirmed to assure the property rights and rule of law gained the higher level of economic prosperity and development. The other side of picture reveals that when inefficient economic decisions are made by governments, economic development not only slows down but

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also lead to unsustainable due to suppressing the aspirations of private agents. A controversial
debate in the literature exists about the optimal size of public expenditures, which promotes
growth, rather hampering it. This debate has much importance and attraction for policy makers,
politicians as well as public. Public spending is important because it decides allocation of
resources from rich to poor while on the other side, it creates the problem of fiscal deficit for the
developing economies.

Ley (2009) stated that role of fiscal policy got much importance in many developing countries
after the placing of fiscal adjustments program by International Monetary Fund (IMF). Often,
these programs are based largely on squeezing public investment that can improve current cash
flow of government, at the cost of economic growth in the future. The efficiency of public
spending is another issue of government budget. World Bank (2005) argued that efficient use of
resources in developing countries may enhance the GDP of developing countries and it would be
helpful to attain welfare objectives by government. It is a controversial debate since many
decades about the growth promoting size of public spending. It is a matter of great concern that
large and growing size of governments may deteriorate the long run economic growth of the
economies. Usual policy recommendation is to reduce the government activities or public
spending which is ever increasing, particularly in case of Pakistan.

IMF (2005) states that high fiscal deficits and debt burdens stress for fiscal consolidation and
prompted to reduce public spending in developing economies. However, it is also a parallel view
that productive government spending enables to promote economic growth. There are conflicting
and opposing views regarding the role of government for development process (Heller, 2005).
The empirical econometric models have different outcomes of government spending, for
example, Barro (1990) highlighted that different size of government may affect the economic
growth by two different ways. A tax increase reduces the rate of growth through disincentives effects, while public spending may enhance the marginal productivity of capital which leads to improve the economic growth of a country. He believed that public services can be provided at optimum level if their “marginal product” is equal to “unity”\(^\text{18}\). He showed an inverted U shaped curve derived on the basis of empirical findings and established a relationship between public spending and economic growth ratio in this curve. This curve shows that increase in government spending decreases the economic growth after a threshold level, while threshold level of spending varies across the countries.

The optimal design of government spending is an issue that has long attained the attention of economic policy makers and theorists. The obvious relation between public spending and economic growth is not apparent, but it can be argued that a specific amount of public spending is pre-requisite for general public order and economic growth. For example, without a government that maintains the enforcement of property rights, rule of law, protects the national border, then country will not perform well. But this does not signify that every rise in public spending will have positive impact despite of the size of government. As concluded by many researchers like Gwartney et al. (1998), Vedder and Gallaway (1998), and Barro (1990) that beyond the threshold level, rise in public spending has negative impact on economic growth. Gwartney et al. (1998) argued that probable cause to elucidate why augment public spending after a specific level may be destructive for economic growth. But what is the optimal point or size? The optimum point has deviation across the economies. In other words, there is not a single optimal size for all economies.

\[\text{It is also known as Barro Rule.}\]
The general increase in average size of government over time has precipitated fears that progressively larger governments will compromise economic growth\textsuperscript{19}. This has prompted calls to scale back government activities and cut budgets. However, the areas of government spending which typically end up being cut during fiscal adjustment are categories associated with productive expenditure—public investment in physical infrastructure, public goods, education and healthcare\textsuperscript{20}. Spending in these areas has been shown to have a positive impact on aggregate production and is considered crucial for long-term growth and development.

The empirical and theoretical literature explored the composition and level of public spending but presented contradictory results. Ram (1989), Rubinson (1977) described that a group of researchers believes on the large public spending since it facilitates to improve the economic growth. While Landau (1986), Barro (1991), Vedder and Gallaway (1998) and Gwartney et al. (1998), are of view that government spending reduces the per capita income after some point, instead of improving the growth. Bairam (1990) explored the relation between growth and public spending for many countries and found that it has a positive relationship for many countries, while negative for others. The actual relationship between these variables is not obvious. The diversity of results show that government spending up to a certain level may improve the economic growth and beyond that level, it may decrease the economic growth, as well as, development. It is a question of great importance that what should be the level of government spending, which may be productive for economy because there is not a unique level of government spending for all economies.

\textsuperscript{19} The larger government spending reduces the resources for private investment so crowding out phenomenon exists in the economies.

There is an ample body of literature [Ram (1989), Rubinson (1977), Gwartney et al. (1998), Vedder and Gallaway (1998), and Barro (1990), Bairam (1990)], which attempted to find optimal level of government spending for developed countries; even focused on balanced budgets. Such conditions are very rare in case of developing countries that are facing large fiscal deficits and Pakistan is one of them. If a bird’s eye views of economy of Pakistan, we come to know that fiscal deficit was only 2.1% of GDP in 1960’s and it increased to 7.6% of GDP in 1970’s. After that, it decreased to 6.8% of GDP in 1980’s and then increased to 7.3% of GDP in 1990’s due to commitments made with “International Monetary Fund” by “Structural Adjustment Program” (SAP). In 2000’s, fiscal deficit was reduced to 4.6% of GDP. Fiscal deficit reached to its highest level at 8.2 percent of GDP in 2012-13 from 5.2 percent in 2008-09 owing to delays in implementation of tax reforms. The fiscal deficit was 8.2 percent of GDP in fiscal year 2012-13. It was further declined at 5.5 percent of GDP in fiscal year 2013-14 through revenue measures and reached to 5.1% of GDP in 2014-15. Now a comparison of economic growth and selected fiscal variables is presented in the following table (5).

<table>
<thead>
<tr>
<th>Variables/ Years</th>
<th>1970’s</th>
<th>1980’s</th>
<th>1990’s</th>
<th>2000’s</th>
<th>2011-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Growth</td>
<td>5.0</td>
<td>7.1</td>
<td>4.4</td>
<td>4.7</td>
<td>4.0</td>
</tr>
<tr>
<td>Fiscal Deficit</td>
<td>8.6</td>
<td>5.5</td>
<td>7.3</td>
<td>4.6</td>
<td>6.4</td>
</tr>
<tr>
<td>Public Expenditures</td>
<td>21.9</td>
<td>22.3</td>
<td>23.2</td>
<td>18.8</td>
<td>20.2</td>
</tr>
<tr>
<td>Current Expenditures</td>
<td>18.6</td>
<td>17.8</td>
<td>19.8</td>
<td>15.5</td>
<td>16.1</td>
</tr>
<tr>
<td>Development Expenditures</td>
<td>3.3</td>
<td>4.5</td>
<td>3.4</td>
<td>3.3</td>
<td>4.1</td>
</tr>
<tr>
<td>Defense Expenditures</td>
<td>6.0</td>
<td>6.3</td>
<td>5.8</td>
<td>3.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Source: The World Bank and Pakistan Economic Survey (Various Issues)
The historical behavior of economic growth rate and fiscal variables are presented in the above table. Pakistan has experienced respectable economic growth for more than three decades i.e. up to 1990. The economy grew over 6% per annum, on average, but after that economy performed poorly. Wagner’s law states that public expenditures’ elasticity exceeds well above unity in the early economic growth process. It implies that a country needs more public expenditures for providing social services. In spite of fluctuating trend in public expenditures and fiscal deficit, GDP growth could not be enhanced as compared with preceding decades after 1980’s. It can be observed that development expenditures are not strengthened with passage of time and have a stable trend. Current expenditures remained at the priority of state while development expenditures could not gain their importance. Increased fiscal deficits were utilized to finance the current expenditures but they could not contribute in growth process significantly. These volatile categories of expenditures require to be explored the threshold level of spending, which may increase the economic growth of the country irrespective of hampering.

By keeping in view the fluctuating trend in economic growth, government spending and fiscal deficit, this study is intended to estimate the optimal level of public expenditure along with current expenditures, development expenditures, and defense expenditures in Pakistan. There is hardly any study which explored the optimal level of these categories for the economy of Pakistan. This will help the policy makers to bring the government spending for each category of economy close to optimal level to attain the potential economic growth and welfare of the society.

### 1.4. Objectives of the Study

By targeting the different aspects of fiscal policy variables, an effective mechanism of fiscal policy can be designed. The major objectives of this study are:
Present historical perspectives of instruments of fiscal policy and institutions in Pakistan

Explore the factors defining shape and maintenance of tax morale

Investigate the impact of public spending on quality of institutional indicators.

Discover the impact of government spending and institutions on economic growth

Examine the optimal level of government spending at disaggregated level

Make policy recommendations on basis of derived results.

1.5. Novelty of the Study

In the light of objectives given above, this study intends to make three major new contributions in the literature of economics pertaining to Pakistan. This study is the first exploring the dimensions of tax morale, institutional quality and its impact on economic growth and optimal government spending at disaggregated level, especially on empirical front.

This study highlights the determinants of tax morale in Pakistan which was hardly explained in existing economic literature of the country and it has much importance due to low tax to GDP ratio. In spite of many efforts by government to convalesce the tax neat, tax to GDP ratio is waning instead of improvement. So it will be novel to delve into the main determinants of tax morale explaining its shape and maintenance.

The present study investigates how government spending is affecting the institutional quality in the country. One resilient motivation behind this investigation is the lack of literature and evidences regarding the effectiveness of government spending on institutions prevailing in economy. Moreover, the impact of government spending and institutions on economic growth is explored. This study is first endeavor to my information that explored the impact of government spending on institutional
development as well as the joint effect of institutions and public spending on economic growth of Pakistan.

- This study is intended to estimate optimal level for different categories of public expenditures in Pakistan. To examine optimal government spending, total government expenditures will be disaggregate into current expenditures, development expenditures, defense expenditures. There is hardly any study exploring such mentioned dimension for the economy of Pakistan. This will ameliorate the policy makers to bring the government spending for each category of economy close to optimal level to attain the potential economic growth and welfare of the society.

1.6. Organization of the Study

After introduction, chapter 2 is endowed with a brief review of Pakistan’s fiscal structure and performance. Chapter 3 pictures a detailed review of literature while chapter 4 enlightens the methodology, data and variables. Chapter 5 imparts the details about the empirical estimation and chapter 6 encloses the conclusions and policy implications from derived results.
Chapter 2

2. A Review of Pakistan’s Fiscal Structure and Performance

Fiscal policy is a core tool which generates the resources through tax system, on the one side while resources are mobilized through desired social goods, on the other side. This resource generation and their mobilization help to achieve the specific social and economic goals by the government for public. This chapter focuses to explain the fiscal structure and outcomes of fiscal indicators for Pakistan.

2.1. Fiscal Structure of Pakistan

The structure of the economy of Pakistan is federalist. The resource allocation for federating units as well as for provinces is also carried out by federal government through “National Finance Commission” award in spite of own federal budget. On the other side, provinces have also authority for generation and utilization of their sources for their budgets. But revenues collected by federal government are divided later by a formula developed by NFC. The main institution for coordination between government spending and revenue collection is Ministry of Finance (MoF) and prepares a budget document for a fiscal year (from 1st July to 30th June of next year). The current expenditures are put up by MoF with consultation of other government departments while development expenditures are prepared with consultation of “Planning Commission of Pakistan” along with preparation of short and long run visionary plans. The task of revenue collection is responsibility of “Federal Board of Revenue” (FBR). “National Economic Council” (NEC) heads the overall planning machinery and reviews the economic performance of the country with respect to commercial and financial policies.
2.2. Taxation System of Pakistan

By the 1973 constitution of Pakistan, following tax structure is defined for the tiers of the government.

## Table 6 Tax Structure by Legislation for Pakistan

<table>
<thead>
<tr>
<th>Level of the Government</th>
<th>Direct Taxes</th>
<th>Indirect Taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Government</td>
<td>Income Tax</td>
<td>Sales Tax</td>
</tr>
<tr>
<td></td>
<td>Corporation Tax</td>
<td>Excise Duty</td>
</tr>
<tr>
<td></td>
<td>Wealth Tax</td>
<td>Import and Export Duty</td>
</tr>
<tr>
<td></td>
<td>Property Tax</td>
<td>Gas and Petroleum Surcharge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Foreign Travel Tax</td>
</tr>
<tr>
<td>Provincial Government</td>
<td>Land Revenue</td>
<td>Stamp Duty</td>
</tr>
<tr>
<td></td>
<td>Urban Immovable Property Tax</td>
<td>Motor Vehicle Tax</td>
</tr>
<tr>
<td></td>
<td>Tax on Transfer of Property</td>
<td>Entertainment Tax</td>
</tr>
<tr>
<td></td>
<td>Agriculture-Income Tax</td>
<td>Excise Duty</td>
</tr>
<tr>
<td></td>
<td>Capital Gains Tax</td>
<td>Cotton Fee</td>
</tr>
<tr>
<td></td>
<td>Tax on Professions, Trades</td>
<td>Electricity Duty</td>
</tr>
<tr>
<td></td>
<td>and Callings</td>
<td></td>
</tr>
</tbody>
</table>

Source: Zaidi (2005)

Now a detail of these taxes is given. Federal taxes are classified in country, like majority of tax systems in other economies of world into two major groups, namely indirect and direct taxes. Federal taxation in Pakistan is imposed through the 4th schedule of the Federal Legislative List of
the Constitution. Main Federal taxes are customs duty, sales tax and excise tax. Here is explanation of these prevailing kinds of taxes.

Direct taxes mainly include income taxes, which is a complementary function of wealth tax. British are pioneer in this region to introduce the income tax with introduction of Income Tax Act 1860, but withdrew after only five years. It was again implemented in 1869, but dropped out after three years. The re-imposition of the tax in 1886 was continued for the rest of British reign. Agriculture income accounted to tax for the first time, but when taxes were levied in 1886; cultivators were excluded from tax on agriculture income because they were paying enough taxes already from land revenues in the earlier years of 1880’s. The “Act II of 1886” presented a plan to impose the ongoing reforms in income tax later. This law was, in fact, statuette “The Act of 1922” based on suggestions of the “All India Income Tax Committee” that was assigned the task to examine the collection of income tax from launching the first general income tax in India. After independence of Pakistan in 1947, Income Tax Act 1922 was adopted for newly established country. The Constitution of Pakistan in 1973 exempted the agricultural income from the federal legislative of federal income tax that protected agriculture income constitutionally. In 1977, Government of Pakistan under leadership of Mr. Bhutto substituted land revenues with an “Agricultural Income Tax” (AIT), on ground of “Produce Index Unit”. The newly imposed tax was effective since July 1977, but General Zia ul-Haq taken over the government in July 1977 and it could not be implemented. New president reinstated the exclusion of agriculture income and restored the system of land revenue.

During regime of General Zia ul-Haq in 1980, “Zakat and Ushr Ordinance 1980” was introduced as an element of Islamization of his campaign. This Act substituted land revenue with Usher for Muslims landlords, leaseholders and tenants with exceptions of some sects (fiqhs). Imposing a
rate of 5% of the value of production, receipts and disbursements must be evaluated by the Zakat and Ushr committees. The land revenue authority has no role in collection and assessment of Ushr according to Ordinance, but there were some certain changes in “Finance Act 1990”. In 1983-1984, collected amount of Ushr in the country remained Rs.267 million, but continued to slide to Rs.134 million by 1988-1989. In 1998-1999, it was only 100 million rupees and later on, it was negligible²¹.

Pakistan adopted new set of proposals made by “Central Board of Revenue” (CBR, the precursor of “Federal Board of Revenue”), an organizational section of the “Ministry of Finance” as “Income Tax Ordinance of 1979”. The tax base and tax net was expanded by promulgation of the ordinance. There was a similar need to review this ordinance after 21 years when the personal income tax ordinance introduced in 2001 and still is in the execution.

According to the current structure of income tax, personal income is categorized as: (a) the revenue of the company (b) capital gains (c) property income (d) salary (e) Any other type of income.

Salary income includes: (i) remuneration & wages, consisting of any additional gain in form of money like vacation remuneration, commissions and bonuses.

According to the Income Tax Law 2001, different types of income were taxed according to their type. The Ordinance provides different categories of subsidies, tax rebates and discounts. The collection of income tax is carried out through withholding taxes, the collection on demand (based on assessments) and willingly payments (which are made at time of submitting file returns). Tax collection is retained through two sources; 1) deduction at time of addition of income - for example, interest income, salaries, dividends and other, 2) the presumptive tax that

²¹ For details see, Pakistan Economic Survey (various issues)
are collected by bills of water supply, electricity, banking system, air travel, buying a car etc. The income tax is imposed on individuals, associations and private companies.

The "agricultural income" defined in “Income Tax Act of 1922” was replaced in 1977 with “Finance Act of 1977” in the era of Mr. Bhutto, due to his efforts to consider agriculture income under federal authority. Soon after, General Zia ul-Haq took over the government and above mentioned efforts was stopped. The definition of "agricultural income" remained unchanged and became a part of “Ordinance of 1979” and “Ordinance of 2001” as well as.

The caretaker government led by Moeenuddin Qureshi introduced “Agricultural Income Tax” in provinces in 1993 which was based on Produce Index Unit (PIU). When an elected government came into power, income tax based on Produce Index Unit was introduced in three provinces out of four while Punjab was exempted from this condition. This tax remained imposed up to 1996 when other caretaker government applied tax on agriculture income and land in whole country once again. Shortly thereafter, the elected government in all provinces adopted agricultural tax.

Punjab provincial government adopted the “Punjab Agricultural Income Tax Act 1997” which was modified occasionally. According to “Punjab Agricultural Income Tax Act 1997”, “Agricultural Income Tax” (AIT) was evaluated by any one of these ways: (1) charges on planted land (2) tax on agriculture income after allowances and deductions. The taxpayer was obliged by paying a single tax, and amount that is greater of two. In practice, tax collected on lands is not a tax on agriculture income.

“Income Tax Ordinance 2001” defines the agriculture income as follows:

“(a) any rent or revenue derived by a person from land which is situated in Pakistan and is used for agricultural purposes;

(b) Any income derived by a person from land situated in Pakistan from:
(i) Agriculture;

(ii) the performance by a cultivator or receiver of rent-in-kind of any process ordinarily employed by such person to render the produce raised or received by the person fit to be taken to market; or

(iii) the sale by a cultivator or receiver of rent-in-kind of the produce raised or received by such person, in respect of which no process has been performed other than a process of the nature described in sub-clause (ii); or

(c) Any income derived by a person from:

(i) Any building owned and occupied by the receiver of the rent or revenue of any land described in clause (a) or (b);

(ii) any building occupied by the cultivator, or the receiver of rent-in-kind, of any land in respect of which, or the produce of which, any operation specified in sub-clauses (ii) or (iii) of clause (b) is carried on, but only where the building is on, or in the immediate vicinity of the land and is a building which the receiver of the rent or revenue, or the cultivator, or the receiver of the rent-in-kind by reason of the person’s connection with the land, requires as a dwelling-house, a store-house, or other out-building.”

Generally public companies founded in country are levied taxation at the rate of 39% except banking sector. But the actual rate may vary with respect to exemptions and allowances related to the location, industry and exported.

If a public company receives dividends then these are taxed at rate of 5% and in case of receiving dividends from foreign country then this ratio is 15%. Distributed or announced dividends by power generation companies are taxed at rate of 7.5 percent while rests of firms or companies are
levied tax at 20%. Non shareholders of company have to pay withholding tax of 10% on dividends.

According to Income Tax Ordinance 2001, following dividend income has been provided tax exclusion which is not above than Rs. 10,000.

“•Dividend received by non-resident from the state enterprises Mutual Fund set by the Investment Corporation of Pakistan.

• Dividends received from a domestic company out of income earned abroad provided it is engaged abroad exclusively in rendering technical services in accordance with an agreement approved by the Central Board of Revenue.”

An individual who is citizen of Pakistan has relief on income tax that was earned abroad and paid tax on that income already. Proportional relief on this income allows an average tax rate in Pakistan or abroad, whichever is less.

After discussing the structure of direct taxes, now detail about structure of indirect taxes is given. The categories of indirect taxes are as follows;

• Custom Duties are levied under the “Customs Act 1969”

• Sales Tax are charged under the “Sales Tax Act 1990”

• Excise Duties are imposed by the “Federal Excise Act 2005”

“Pakistan Customs” is one of long-standing institutions of government. The structure of custom duties was strengthened by the “Customs Act of 1878”. With growth of international trade, it gained much importance due to having a major share of tax revenue for the federal government. However, the customs authorities and its structure are still not enough to pace with developments in trade at international level and demands of the local economy. The “Customs Act of 1969”substituted the “Sea Customs Act of 1878”, but contains no substantial change.
Pakistan is among those first developing economies, joined the “Customs Cooperation Council” (now the “World Customs Organization”) and adopted classification system used at international level. At beginning, customs operations were limited to imports carried out by sea and published a document entitled “Appraisal Manual” that was included operating processes. This “standard operating procedures” (SOPs) were declared in this document. Over time, usage of this Act of 1969 for reference has been shrunk, and now it seems hard to available. Imported and exported goods from Pakistan are levied taxes as mentioned in Pakistan Customs Tariff. The import and export duties have a share of about 37% in tax revenues. There are numerous social and economic factors that determine the framework of tariff. Generally, higher tariff are imposed on luxurious goods, while less rates on basic commodities. Industrial sector has specific rebates in import tariff by keeping customs duties lower on industrial machinery and plants, as compared with consumer commodities.

Federal government of Pakistan levies sales tax on goods under “Sales Tax Act 1990”. The inputs and outputs taxation system brings it nearer to framework of “value added tax” (VAT). The “Sales Tax Act 1990”imparts the system of registration, offences, penalties and filing of returns. This tax is imposed at different steps at a ratio of 15 percent:

- Importer pays tax on all imported goods into Pakistan.
- A registered person pays tax on any supply made in country in context of promoting any business.
- A registered person or firm can adjust its paid tax on previous stages in their supplies.

Therefore, the paid tax will not exceed to 15% of total price at any stage.

According to the Federal Excise Duty Act of 2005, some commodities like cigarettes are subject to be considered for supervision and clearance. Schedule I of the Act has the list of the
taxable goods and their rates of tariff, which is either ad valorem or specific. These duties are imposed on certain commodities manufactured or produced and services in country. Generally, the goods or services under these duties are charged on the base of price or value. The classification of goods is carried out according to “Harmonized Commodity Description” and “Coding System” that is prevailing globally. All exports are exempted from central excise duties due to promotion of the exports of country.

2.3. Fiscal Performance of Pakistan

A sound fiscal policy of any economy is necessary to accelerate the economic growth to attain economic stability. However, an inefficient fiscal policy restricts the options for government to sustain economic growth and economic recovery. Pakistan is confronting the severe fiscal crises which have deep roots. Government revenues are not sufficient to meet emerging needs of public spending, the dream for welfare state remained hanging. Tax to GDP ratio restricts state to improve governance, provision of public services and improve the quality of human resources. To address these problems, Government of Pakistan (GoP) started Tax Administration Reforms Program (TARP) by Federal Board of Revenue (FBR) in 2005 to enhance revenues for attaining fiscal targets; enhancing tax to GDP ratio by widening of tax base; improving audit and enforcement methods through proficient capacity building of FBR administrators; ensuring more fair & transparent application of taxation laws by providing of eminence tax services. By finishing TARP in 2011, FBR had achieved some success for the required objectives in spite of structural and operational obstacles. The fruit of TARP depends upon good governance and sincere efforts to improve FBR's Tax management. Pakistan is still far away from achieving desired tax to GDP ratio and meeting development needs.
The fiscal performance of Pakistan is equipped with ups and down for previous three decades. A comparison of this period is given below in the table (7).

**Table:7 Fiscal Indicators as Percentage of GDP**

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP growth</th>
<th>Fiscal Deficit</th>
<th>Expenditures</th>
<th>Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Current</td>
<td>Development</td>
</tr>
<tr>
<td>1970’s</td>
<td>5.0</td>
<td>8.6</td>
<td>18.6</td>
<td>3.3</td>
</tr>
<tr>
<td>1980’s</td>
<td>7.1</td>
<td>5.5</td>
<td>17.8</td>
<td>4.5</td>
</tr>
<tr>
<td>1991-95</td>
<td>4.8</td>
<td>6.7</td>
<td>19.2</td>
<td>5.5</td>
</tr>
<tr>
<td>1996-2000</td>
<td>3.98</td>
<td>6.4</td>
<td>18.7</td>
<td>3.5</td>
</tr>
<tr>
<td>2001-05</td>
<td>5.2</td>
<td>3.7</td>
<td>15.1</td>
<td>2.6</td>
</tr>
<tr>
<td>2006-10</td>
<td>4.0</td>
<td>5.3</td>
<td>15.5</td>
<td>3.6</td>
</tr>
<tr>
<td>2011</td>
<td>3.7</td>
<td>6.5</td>
<td>15.9</td>
<td>3</td>
</tr>
<tr>
<td>2012</td>
<td>3.8</td>
<td>8.8</td>
<td>15.6</td>
<td>4.1</td>
</tr>
<tr>
<td>2013</td>
<td>3.7</td>
<td>8.2</td>
<td>16.3</td>
<td>5.1</td>
</tr>
<tr>
<td>2014</td>
<td>4.0</td>
<td>5.5</td>
<td>15.8</td>
<td>4.0</td>
</tr>
<tr>
<td>2015</td>
<td>4.2</td>
<td>5.3</td>
<td>16.2</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Source: World Bank and Pakistan Economic Survey (Various Issues)

The government, as manager of the economy has responsibility to provide public goods and services as well as provision of conducive environment for private sector to play its role for development. Public spending shows the predilection of government for public goods and manages effective demand so that economy continues to grow at accelerated, stable and sustained growth. The public expenditures were on average 11.6% and 21.9% of GDP in 1960’s
and 1970’s respectively. During the decade of 1970’s, nationalization policy was a big cause for expansion in public expenditures. Unstable and bad governance lead to permanent drain of national resources which resulted in poor control over public expenditures. In 1980’s, public expenditures increased to 22.3% of GDP on the face of poor improvement in collecting revenues which caused to increase public debt. The debt problem became more severe in the decade of 1990’s and Pakistan had to embrace the “structural adjustment program”. The public expenditures were curtailed to 24.1% of GDP in 1990’s. During the decade of 2000’s, public expenditure remained to 18.7% of GDP. There was a downward trend in public spending and decreased to 20 % of GDP in 2013-14 as compared with 21.5% of GDP in 2012-13. These were further declined to 19.4 percent of GDP in 2014-15.

**Fig: 2 GDP Growth, Current and Development Expenditures as Percentage of GDP**

Source: Data from World Bank and Pakistan Economic Survey (Various Issues)
Composition and components of public expenditures show the priorities of government regarding the welfare of people and development of the economy. A brief review of current and development expenditures is given in fig (2).

The current expenditure\textsuperscript{22} has a share around 70-80% of total Government expenditure. These expenditures are generally in large volume and often criticized by the public. The economic development of an economy may be helpful to control the rising trend in current expenditures in spite of rising population, massive corruption and ever increasing threats from enemies. The other side of picture describes that if development expenditures are neglected, then economy will face the loss of human capital in form of deficiency in educational attainment, lack of hospital and dispensaries, energy crisis due to maintenance and shortage of dams, bridges, and deterioration of forests. Non-developmental expenditures require special attention and management to keep development expenditures at their maximum level for prosperity of Pakistan.

In the decade of 1980’s\textsuperscript{23}, current expenditures of federal government were 17.8% of GDP and there was rising trend in the decade of 1990’s when these expenditures increased to 19.3% of GDP. In this period, total public expenditures were decreased at the cost of development expenditures but the current expenditures were increased. It is a common phenomenon in Pakistan that whenever government faced large budget deficit then it decreased the development expenditure rather than its own expenditures. In spite of massive reduction in development expenditures, the government maintained the current expenditures at a higher level.

\textsuperscript{22}Current expenditures include mainly social services, general administration, debt servicing, subsidies, defence, law and order, economic services, Railway, community services, grants to Azad Jammu Kashmir and others. Current expenditures are utilized to finance the services and goods like salaries, maintenance, rent and debt servicing.

\textsuperscript{23}All data figures of current and development expenditures are obtained from World Bank and Pakistan Economic Survey (Various Issues)
expenditures, fiscal deficit could not be controlled effectively. However, current expenditures were controlled in first half decade of 2000’s and these were on average 15.5% of GDP. Current expenditure decreased to 9.4% of GDP in 2013-14 while it remained to 17.2% of GDP in 2012-13. There was again declining trend in 2013-14 and reached to 16% of GDP. In the decade of 1980’s, Pakistan paid 3.8% of GDP, on average, for interest payments because Afghan war was in practice and many countries provided concessions to combat war but severity of problems could not be reduced after Afghan war and debt servicing reached to 7.5% of GDP in 1997-98 but on average it remained to 6.8% of GDP in 1990’s. After the incidence of 9/11, Pakistan once again gained the benefits of debt rescheduling due to alliance against terrorism and interest payments reduced to 4.9% of GDP in 2000’s while these payments remained 4.4 to 4.6 percent of GDP from 2011-2014.

Development expenditure plays an effective role for growth, reduction of poverty and inflation. “Public Sector Development Program” (PSDP) is also known as Government’s development expenditure. It is described earlier that due to pressure of International Financial Institutions, successive governments reduced development expenditures in spite of unproductive expenditures to keep the total expenditures at a level of sustainability. Usually, developmental expenditures should remain higher because they play an active and important role to enhance the living standard of people. These expenditures increase the infrastructure of the country to facilitate the business environment and foreign investors are attracted by well developed infrastructure. So development expenditures are considered the backbone of any economy. Development expenditures reduced from 7.4% of GDP in 1973-77 to 2.3% of GDP in 2000-01. The

\[\text{Development expenditures comprise expenditures on infrastructure, education, health, transportation, sanitation, energy, water and communication and usually spends about 50\% of total development expenditures to these sectors.}\]
development expenditures were 4.5% of GDP, 4.6% of GDP and 3.5% of GDP in 1980’s, 1990’s, 2000’s respectively. Development expenditures declined to 3.5% of GDP in 2012-13 against 3.7% of GDP in 2011-12 but these were further increased to 4.5% of GDP in 2013-14 while again declined to 4.0% of GDP in 2014-15. The reduction in development expenditures is likely to affect the economic growth by three different ways. Firstly, reduced spending on health, education and social services affect the human capital for its development which is a pre-condition for sustainability of economic growth of any economy. Secondly, if there are cuts in public investment, particularly in infrastructure like water supply, roads, natural gas and electricity etc, then it will increase the cost of business in Pakistan. Thirdly, reduced development expenditures are discouraging the private investment.

It can be viewed that a major portion of public expenditures consists on current expenditures instead of development expenditures. Pakistan is among those lower middle income countries pay highest level of interest payments. A rising trend in public expenditures may be observed historically and growth in current expenditures is higher than development expenditures. In the decade of 1990’s, current expenditures continued to increase while development expenditures further deteriorated. This situation further worsened in the decade of 2000’s when every four rupees out of five were for current expenditures while only one rupee was for development expenditures. The reduced amount of development expenditures is not sufficient to boost economic growth significantly.

2.4. Public Revenues

To meet the public spending, government imposes various types of taxes to get revenue so that it may finance the expenditures. The collection of these resources is carried out in a way that it increases social welfare, applied equally and having non distortionary affects on the economy.
In Pakistan, revenue collection was 13.1% of GDP in the decade of 1960’s and tax to GDP ratio showed upward trend in the decade of 1970’s and reached to 13.7% of GDP and further increased to 16.8% of GDP in the decade of 1980’s. But after that, it started to decrease and declined to 17.1% of tax to GDP ratio in 1990’s and further reduced to 14.2% of GDP in 2000’s. Total revenues increased to 13.3% of GDP in 2012-13 against 12.8% of GDP in 2011-12 and further increased to 14.5% of GDP for both years of 2013-14 and 2014-15. It can be summarized that reduced level of public revenues is a major reason of fiscal deficit and situation is not satisfactory for the economy of Pakistan. There are two categories of public revenues; tax revenues and non tax revenues.

**Fig:3 Fiscal Revenues as Percentage of GDP**

![Graph showing fiscal revenues as percentage of GDP](image)

Source: World Bank and Pakistan Economic Survey (Various Issues)

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25 All data figures of public revenues, tax revenues, non tax revenues are obtained from World Bank and Pakistan Economic Survey (Various Issues)
The tax to GDP ratio in the decade of 1980 was 13.7% and there was a declining trend up to 13.4% in the decade of 1990. This ratio continued to decline and in the decade of 2000’s, it reached to 10.6% of GDP. Tax to GDP ratio decreased to 9.8% in 2012-13 against 10.2% in 2011-12 while this ratio increased to 10.2% and 11.5% in 2013-14 and 2014-15 respectively.

In 1980’s, non tax revenue\(^26\) were 3.5% of GDP, raised to 3.7% of GDP in 1990’s and became 3.7% of GDP in 2000’s. Non tax revenues remained 3.5% of GDP against 2.6% of GDP in 2011-12. This ratio increased to 4.3% in 2013-14 but again declined to 3% in 2014-15. This ratio is not sufficient to stimulate economic growth and development.

**Fig:4 Fiscal Resource Gap***

Source: Data from World Bank and Pakistan Economic Survey (Various Issues)

*Public Expenditures, Total Revenues and Fiscal Deficit are given as percentage of GDP.

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\(^{26}\)Non tax revenue consists of, income from government property, dividends of public sector enterprises, receipts from general administration, user fee, short term and long term bonds. Mines etc are the big source of this type of revenues in Pakistan.
If we observe the resource gap between public spending and revenues then it is evident that Pakistan never achieved a surplus budget. The fig (4) represents this resource gap. After having a look on Pakistan economy, we come to know that expenditures always remained higher as compared with public revenues and a volatile picture presents the trend of spending and revenues. The fiscal deficit was only 2.1% of GDP in 1960’s and it increased to 8.6% of GDP in 1970’s due to 1971’s war. After that, it decreased to 5.5% of GDP in 1980’s and further reduced to 6.9% of GDP in 1990’s due to commitments made with International Monetary Fund (IMF) by Structural Adjustment Program (SAP). In 2000’s, fiscal deficit was reduced to 4.5% of GDP. Overall fiscal deficit increased to 8.2% of GDP in 2012-13 against 6.8% in 2011-12 and decreased to 5.5% and 5% of GDP in 2013-14 and 2014-15 respectively.

In this chapter, it was made effort to analyze the economy of Pakistan in historical fiscal perspectives. The fiscal situations of country does not seem satisfactory due to low level of tax to GDP ratio with higher level of public spending, facing larger fiscal deficits. On the other hand, volatile trends of fiscal variables are hindrances in the way of sustained economy and dream of welfare state is far reaching. On expenditure side, the size of government is not adopted optimally and rising debt burden due to fiscal deficit shrinking the resources for development purposes and good governance. So there is excessive cuts in development expenditures and rise in current expenditures. On revenue side, an inefficient tax system is not meeting the required needs and people are not willing to pay taxes by self motivation. The deterrence policies for revenue collection could not improve the tax to GDP ratio but put it on the path of deterioration.

The present fiscal situation of country motivates to explore the missing aspects of fiscal policy due to its structurally changed dynamism over the years. It will be misleading to check merely

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For details see, Pakistan Economic Survey (various issues)
the composite values, as taxation and spending have their own dynamics. It is dire need of time
to examine the insights of fiscal instruments like tax morale and institutional role for
effectiveness of fiscal variables and instruments. It is needful to analyze econometrically the
determinants of tax morale and institutional quality to shape and maintenance of fiscal policy
along with optimal level of government spending that may maximize and stabilize the economic
growth of the country.
Chapter 3

3. Literature Review

“The difficulty lies, not in the new ideas, but in escaping from the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds.”

J.M. Keynes


“The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas.”

J.M. Keynes


The effectiveness of fiscal policy got central importance of interest to policy makers across the world after the financial crisis of 2008. This section presents a brief explanation of theoretical as well as empirical literature on various fiscal aspects such as tax morale, impact of public spending for institutional development and their impact on economic growth, and optimal level of government spending at disaggregated level. The aim is to highlight the unexplored fiscal dimensions and their relationship with other macroeconomic variables pertaining to Pakistan.
economy. In the end of literature review, it is also identified the existing gaps and dimensions which require further investigation for better designing of policy framework for the country.

The organization of the chapter is as: First section discusses the studies highlighting the importance, theoretical strands and empirical analysis of tax morale. The next section throws light on theoretical basis of significance of institutions for economic activities and then determinants of institutions quality. The last section deals with optimal level of government spending, boosting the economic growth instead of hampering.

3.1. Tax Morale

In literature, we know appealing theories that allow incorporating moral restrictions in a rational model of taxpayers. Chung (1976) considered a philanthropic approach that entails taxpayers who have no concern in their personal interest but interested for well being of others. The choice to avoid is restricted by the level of information that avoidance will decrease the quantity of sources for public benefits. ‘Kantian’ morality method described another dimension of theory (Sugden 1984, Laffont 1975). This method is generally concerned with Kant’s explanation of morale, established on fair tax which any taxpayer considers being good for other tax payers. A wrong assertion will cause to create anxiety and decline in taxpayer’s own-worth. It is supposed that a taxpayer will feel harmful impact if he thinks that his tax portion is higher than others. If he is giving a larger amount of taxes, tax avoidance can be observed as a kind of self-defense.

Dorrenberg et al. (2013) investigated the relationship between progressive taxes and tax morale of tax payers. The 4th wave from the World Values Survey (WVS) is used for cross country analysis with tax morale as an endogenous variable, while exogenous and control variables were religiosity, tax progressivity, demographic, trust in government, economic variables and national pride. The results highlighted that married persons and women have higher level of tax morale
while religiosity, national pride and employed person have positive relationship with tax morale. The estimated result proved the declining and positive relation between tax morale and progressive taxes, and proposed that tax cuts will help to reduce tax evasion. Since the causal relation cannot be deduced, it is quite possible that people having higher tax morale supports a progressive tax structure.

Taschetti (2013) investigated the tax morale in Latin American economies morale and found that institutional and social factors are more important to explain the tax morale in these countries. However, the results are not consistent with above mentioned findings in case of Chile and Argentina. An interaction variable is added to perceive the compliance that improves the tax morale in case of Argentina for further analysis. The conclusions of the study reveal that tax compliance depends on tax morale and deterrence policy, and their interaction term is helpful to improve the understanding of tax liability. His revealed findings explore that people having higher level of knowledge regarding tax evasion have lower tax morale.

Mughals and Akram (2012) studied for 92 cities of Pakistan, and found that all ten of their hypothesis about the tax evasion had a significant impact. These include a lack of tax morale, high taxes, poverty, the proliferation of taxes, inadequate enforcement, the lack of appropriate tax incentives, the lack of a fair and effective tax system, no public lighting campaign, and existence of weak relationship between tax administration and taxpayers. They also ranked the hypothesized reasons in descending order of importance. The most common reason is the poor relation among the administration and taxpayers, followed by lack of appropriate tax incentives, and spread of illiteracy regarding tax collection and then no public lighting campaign. However, if factor loading is considered then ranking is from the non existence of public lighting
campaign, lack of appropriate tax incentives, the weak relationship between the taxpayers and administration, the proliferation of taxes, and finally, illiteracy regarding computation.

Cummings et al. (2009) investigated that how the compliance level is affected by tax morale in South Africa, Bostwana and other neighboring states having diverse social norms and history. The findings of the study show that level of tax compliance with personage perceptions of good governance increases. Tax compliance also increases at lower level with perception of less good governance. It is indicated that the concept of good governance is shown by individual responses to apply enforcement regarding penalties and audit to observe a correlation with tax morale. The compliance level is positively affected by enforcement efforts and has a negative correlation with perception of lower level of good governance.

Torgler, Schaffner and Macintyre (2008) investigated about the tax compliance by using multiple regression models to find out the volume of underground economy using tax morale as a dependent variable with per capita GDP, proportion of urban population, proportion of agricultural sector in GDP, marginal tax rate, labor power and regions as independent variables. Their findings show that “substantial growth in the shadow economy can lead to crowding out of willingness to pay taxes”. Trade has inverse relation to the volume of underground economy and underground economy has a positive relation with urbanization and share of agricultural sector in GDP. It was concluded that tax morale has a positive and significant affect on the level of tax compliance. Old people and females are more docile and personal wealth negatively affects the level of tax compliance. The analysis of probit model revealed that institutions, confidence in judiciary, status, educational level, gender and religion are significant variables to explain the tax morale.
Berenson (2008) evaluated the level of tax compliance for three countries using binomial logit model. The “Tax Compliance Attitudinal Survey” contained question relevant to theories regarding quasi voluntary tax compliance, deterrence, relation with tax administration and impacts of past experience. The tax compliance is based on the theory of quasi voluntary that rely on confidence in government to offer services and goods and confidence in other people to pay their adequate part of taxes. The comparative analysis highlights the differences in behaviors and attitudes in these states. The tax behavior of Russians and Ukrainians is much affected by deterrence policy and highly significant in case of Russia.

Mcgee (2005) argued that transparency of a tax system is much important factor of higher tax morale. It was declared more valuable than tax load. Tax avoidance is estimated more to be justified morally when more corrupt government is noticed. When society has not effective judicial system then tax avoidance has many moral justifications.

Alm and Torgler (2004) investigated for United States and 15 other European states applying data sets from “World Values Survey” (WVS), show significance of cultural and social variables. United States have top level of tax morale. They also acquired that certain socio-demographics features matter and the similar is true for institutional trust in legal system, parliament and degree of financial satisfaction. They also obtained a negative correlation between formal sector and tax morale in said countries.

Weder (2002) explored that institutions are closely linked with business. Many contemporary studies emphasize significance of institutions for good economic performance. Concerning with tax compliance and tax morale, it is evident that public sector institutional framework play a pivotal role. These institutions comprise of a fair and tax system, honest tax officers, and trust of
taxpayers in government. Bureaucrats in East Asian economies are usually considered as proficient, expert and extremely motivated, protecting contract and property rights.

Polinsky and Shavell (2000) presented a survey regarding law implementation, extracted concentration to problem of social norms for imminent exploration. Social norms are substitute for law implementation to figure personals’ attitude. The breach of informal norms has corollary comprising constraints like shame and remorse or external social and legal constraints like rumor and ostracism. They argued that there is a vast literature persists that explain the impact of norms of a society on behavior.

Erard and Feinstein (1994) incorporated guilt and shame into utility function of taxpayers. They found that a taxpayer thinks ashamed when he under reports about taxes and avoid recognition to get caught.

Schmölders (1970) explored the tax morale for self-employed people of European countries. He observed that self-employed people kept less tax morale as compared with those taxpayers who were employees of companies.

Strümpel (1969) investigated tax morale of European people also and performed a survey to examine the tax system among different European countries and level of tax morale between people of every country’s taxpayers. He uncovered that Germany has comparatively lower tax morale, while UK has higher. He suggested main disparity between tax systems of UK and German was that the German Government used tax enforcement policies, while the England regarded tax payers with admires and lower enforcement. He claimed that the enforcement approaches by German government assisted to push away the people that have negative impact on tax morale. He proposed that the UK system assisted to flourish the tax morale among the people in spite of easy environment to avoid the taxes.
When evaluating Swiss tax regime before a century, Georg von Schanz (1890) emphasized about importance of considering tax payers as allies in tax agreement between people and State. After 6 years, German researchers linked with “Cologne school of tax psychology” carried out analysis to determine tax morale in taxpayers. They struggled to put association among social psychology and economics, accentuating that economic fact should not be investigated from the conventional way only. They observed tax morale as a significant and fundamental approach that was concerned to tax compliance.

While a huge volume of early tax morale research was performed in mid of previous century by “Cologne school of tax psychology” and notion of tax morale was ignored at that time by researchers. Many present-day tax researchers have indicated the view of tax morale in their research studies but some of them treated it in more detail.

3.2. Theoretical Strands of Institutions

There are different views on the economic growth proposed by other branches of the economics that does not include institutions in explaining the differences in economic development. One is the neo-classical theory. According to this school of thought, growth and development is based on the institutions given growth models and some structural change models as described in Lewis model. These models have some specific assumptions about economic agents and economy. One of them is economic agents are homogenous and rational who make their decisions for maximization of profits and utilities. According to neoclassical theories, economic growth is explained by accumulation of labor, capital and technological knowledge as highlighted in model of Solow in 1957. Ramsey-Cass-Koopmans model, all subsequent additions in these models and new endogenous growth models are based on the accumulation of human capital as foremost sources of growth. In these analyses, low level of economic growth is
shortage of minimum endowment which enables sustainable growth of production and a reasonable level of prosperity is characterized by economy at equilibrium. This constraint creates the condition of poverty trap in the economies which cannot be escaped unless there are some external elements that operating needed stipulation of endowments or changes.

According to these theories, there is no room for other interpretations of the poor distribution of endowments that is not enough and not used properly. The external variables like institutions, infrastructure and culture are rejected generally because they are not considered as issues but sub-issues that have not much importance in the analysis of these theories. These theories collide with so-called “evolutionary theory”. It is well known that doctrine of evolutionary theory has some linkages with the New Institutional Economics as mentioned in proposal of Nelson and Winter (1982). Economics is understood in this approach on a large scale through the use of evolutionary analogy, on a variety of grounds, copying and choice. The central figure of this analysis is firm which plays its role to move the economy forward. These theories assume that firms are heterogeneous and their decisions are based on a set of rules and regulations that do not rely on maximizing process. However, these decisions are changed during the process of innovation that companies deploy when there are changes in variables like prices or new rules for competition.

In addition to these theoretical frameworks, there is another approach that some of the actions of these last two, but extends various topics of growth and development to a different viewpoint of new institutional economics. According to this strand, institutions play a pivotal role in determining the fate of the country. Unlike the neo-classical theories, it does not take institutions as given. The reason is claimed as that some countries may develop because of the institutional framework that enhances agents’ efficient behavior, while others are facing problems because
their institutional framework does not put off abusive behavior and methods that are ineffective, so there is frustration in investment and economic agents have hesitation to make contracts or agreements. “This negates some of the benefits of specialization, because agents are more vulnerable to others as they need to buy and sell products constantly” (North, 1990).

Even within new institutional economics till the decade of 1990, there was an excessive work related to development economics but role of institutions was not incorporated in this area as it arose fundamentally from the thought of neo-classical economics. Only the traditional economics did then, because of malfunction association with its efforts to promote economic growth and development in developing countries, begin to look at the role of institutions. Rodrick (2007) says that a country without or poor institutions cannot attain the developmental level in spite of same initial conditions.

We consider that the two backward economies are very identical in human, technical and physical conditions and both are intended to acquire a plan to improve the economic performance. After adopting the recipes of neo classical theories, we would know about the main disadvantages of these economies, we applied the same models and there was expectation of similar outcomes in both economies. But results will not be to those as there were expectations in both countries where same models were implemented and similar countries meet the different fate as observed experimentally having very divergent paths of the countries that have applied the same types of policy. Why this is a difficult question to answer. But we know that in addition to all issues that involve concentrating on a particular idea and direct support to a certain point; we should keep in view the conditions of existing institutions in these economies. Take the example of investment tied aid or reforms.
Assuming institutional structure is perfect, easily divisible, agents homogeneous and rational, these policies of reforms and investment at least have some success. It also helps to regulate and promote investment to be attractive for economic agents. It is also assumed that political environment is also perfect. It is expected that any variation in policy will be absorbed by economic agent in the future decision process of agents or firms. But it seems much difficult to be implemented in the real world because we have to consider those assumptions declared by new institutional economics for economic agents. According to these assumptions, economic agents and firms have not same behavior but their behaviors differ widely and these behaviors are developed by the embedded incentives. So prevailing institutional framework have deep influences upon the results. Investment does not depend only on the funding, but also on existing institutions of a particular country. If there is no respect for property rights or there is no enforcement of contracts and exploitation of firms and agents is carried out, if there are poor conditions of security and no informal restrictions to promote good behavior of the agents, then there will be hardly any investor intended to invest in these economies, and investment will be the only flame flashed suddenly, leaving behind empty buildings and unmet expectations.

Formal rules, informal norms, their enforcement and their structure are determined by the incentives and opportunities for individuals and organizations to maximize the wealth. North (1990) argues that "the Third World countries are poor because the institutional constraints define a set of payoffs to the political/economic activities that do not encourage productive activity. These rules affect individuals and organizations, and is defined as political organizations (municipalities, regulatory bodies, political parties, councils, tribal) and economic organizations (corporations, unions and family farms, cooperatives, revolving credit groups), agencies and
education (schools, universities and vocational training centers) and social organizations (churches, clubs and civic associations).”

Institutions affect economic growth because it is an essential part of amount spent on both transaction cost, and the costs of processing in production process. For example, transaction costs are much greater when rule of law or property rights are not trustworthy. In this case, private companies often function on small scale, and perhaps illegal in the shadow economy, and will include corruption and bribery to facilitate their businesses. Transaction costs are elevated to a large extent because of no enforceable contracts means the use of low-cost technology and less efficient and competitive in a short time horizon process.

The poor institutional framework has a direct effect on growth and prosperity, as it reduces effectiveness of investment. The impact of efficiency can take place from the initial condition of the institutions in model, and quality of institutions affect the productive capacity of existing capital or it may be outcomes of changes in institutions with the passage of time. When enforcement of contracts and property rights cannot be relied upon then companies tend to be small in size and the use of low capital technology for the short time horizon. So the volume of investment declines due to higher transaction cost in form of rent seeking and bribes that would lead to decline the economic growth of that country.

Keeping in view the all explanations and arguments, it can be argued that the theoretical model to study the economic development and growth should certainly incorporate the institutions as a main factor. According to Gagliardi (2008), historical perspective, imperfect information theory and comparative institutional analysis are three main approaches for economic development to study institutions. In context of historical perspective, they argue that “the reason for some
countries mired in poverty is due to the historical path that has undermined the institutions and produced the institutional structure, which has become difficult to convert the path dependent institutions. So every country has historically key factors in determining the diversified institutions. It follows that argument of path dependency is very important for the course in this context, and explain why countries have different economic destinies.

Comparative institutional analysis has made progress in explaining the differences in outcomes of institutions. These explanations have been linked with game theory. Therefore, it is divided into the evolutionary game and repeated games. It does not underestimate the historical point of view, but links both historical perspectives and comparative point of view of jointly.

Finally, the last item suggested with respect to the institutions in the context of economic development is incomplete information theory. The underlying causes of this goes to the institutions that are the pieces that solve the mystery of the missing markets and reduce the incomplete information in markets. This corresponds closely with the viewpoint mentioned among the major strands of the NIE, but now applies specifically in the field of development economics. The important research in this area aims to understand how the institutions in developing countries overcome the loss of markets.”

Above mentioned three distinct lines of economic development are linked with generalized topics of new institutional economics. In spite of these differences, these methods are harmonizing to some extent, because without historical investigation is not possible to comprehend the insinuation of the assets of economies and institutional heritage. But this examination is not enough. It is also imperative to know how institutions are formed from ongoing agents’ dealings, and how they are changing and how society accepts these institutions.
This could give us a vision of how to enter the appropriate institutional framework to improve economic efficiency, but will not provide support for these methods to apply individually. Moreover, if the first two dimensions are essential then the third is also relevant, because it studies invisible force of human needs, which indicates that the institutional framework is formed because of shortage of efficient and more better elucidation. The third aspect counsels of negative outcomes that may arise if these institutions have been deleted or spoiled in the blind pursuit of the policies of reform, leaving whole communities without security mechanisms. This would cause an impediment in process of development instead to promote it.

3.3 Determinants of Institutional Quality

Profeta et al. (2012) explored the relationship between the tax revenues, political variables and government spending for three geological areas; Latin America, Asia and new EU members, for period of 1990-2005. Their results are not explicit to explain the channels of political institutions which affect the economic stability and development of these economies. They refer to two different variables for democracy; “political strength of democratic institutions” and “protection of civil liberties”. They estimated three different econometric models which include the “country fixed effects regressions”, “cross-country pooled OLS regressions with region fixed effects” and “region specific regressions with country fixed effects”. They find several significant correlations between taxation and political variables by estimating pooled regression. Regarding to the government expenditures, estimated results of pooled regression model show a significant and positive relationship between democracy and government spending for education and public order. When country fixed effects model is included, then a strong relationship is not found for these variables.
Funk and Gathmann (2011) estimated the impact of democracy on public spending in Swiss cantons. Their findings show that “budget referendum” and “voter initiative” are sources of reduced canton public spending, but the restraining impacts of these institutions are much moderate as compared with previous cross sectional research studies. Furthermore, institutions of direct democracy have very limited role for vertical structure of government at canton level. They measure spending centralization as (Canton Exp/Canton + Local Exp). The both variables of voter initiative and budget referendum have no effect on local spending or decentralization. They suggest that positive relationship in earlier studies or in raw data is due to omitted time-invariant variables.

Aidt et al. (2010) explored the relation between democracy and public expenditures and found a U-shaped relationship among above variables. They evoke that if level of democracy is low then government expenditure is high due to fulfilling demands of elite class and whenever democracy is at its higher level then government spending is again high because of demand of public goods by voters. If democracy is at its medium level then public spending is at minimum because there is no pressure from any of the group; elites or usual voter.

Vergne (2009) examined the impact of electoral for allocation of government spending by collecting the data of 42 developing economies for the time period of 1975 to 2001. She considers three spending variables; “current expenditures”, “capital expenditures” and “infrastructure expenditures”, treated as a percentage of total government spending. The study found that current expenditures in form of wages and subsidies increase during the election year and there is reduction in capital expenditures. In addition, her findings conclude that “electoral impacts on the allocation of public spending are likely to endure, even though countries gain
experience in electoral politics”. The results show that infrastructure spending is not affected by electoral.

According to Rodrick (2007), institutions are the main reason for varying economic performance of different countries. Economists have usually emphasized on the consequences of the technological innovation, human and physical capital accumulation, process of creation and dissemination of knowledge, total factor productivity, and international economic integration. However, a detailed review of literature shows that institutions appear to lie behind much of these reasons causing to boost development and growth. Institutional structure conducts a series of economic functions in the market system, which affects the goals of development, competency and impartiality. Institutions ensure provision and implementation of property rights, the sanctity of contract, and providing a peaceful environment where markets are established for investment and business. Institutions regulate markets. These functions are needed for specific social goals, like the allocation of income that communities want for their needs to meet these tasks. That is, the market does not provide the societal requirements. As banking and supplementary financial sector should be regulated, to not carry risk at extreme level that may cause expensive to run these institutions.

Redek et al. (2005) conducted a panel analysis covering the data of twenty four transitional countries for the period of 1995 to 2002 to investigate the role of institutions for economic growth and performance. It was hypothesized that higher the institutional quality boosts the economic growth. The data set of index for institutions is gained from “Heritage Foundation”. This index is constructed on the basis of ten indicators of institutional quality; intervention of government in the economy; fiscal load of government; trade policy; monetary policy; banking and finance sector; foreign investment and capital flows; prices and wages; rules and regulations;
property rights and informal market activities. The economic growth is treated as dependent variable while domestic investment, budget deficit and foreign direct investment (FDI) and inflation are treated as exogenous variables. The model without institutions presented poor estimations. But after inclusion of institutional variables in the model, the estimated model explained the fifty one percent variations in economic growth by the institutional variables and signs of variables were according to expectations. The estimated coefficients were highly significant. Additionally, it was concluded that economic growth is affecting by not only the current institutional quality but also affected by the past trend of variables reflecting the institutional quality. The national output of the economies is directly linked with the quality of institutions prevailing in these economies. The institutional quality and speed of reforms are essential features to explain diverse economic outcomes in these countries.

Ali et al. (2005) is of view that the growth volatility of Sudan is due to inherited institutional structure during the colonial period. This institutional structure is neither changed nor improved with the passage of time and prevailing institutional structure is failed to provide a feasible and workable solutions to meet the social, economic and political challenges of the country. Resultantly, economic growth of the country could not be propelled. It was also pointed out that deep injustices during the period of colonization are responsible for civil violence in the country. The old societal hierarchy has been transformed and affecting the economic, political and social spheres at large extent, causing to propel the inequality and poverty in the country. It is dire need to pay special attention towards the improvement in structure and framework of institutions of the country.

Glaeser (2004) observed that proposition about the positive impact of institutions on economic growth is ambiguous and variables used to measure the institutional quality is unsuitable for this
purpose. He argued that these variables do not measure the quality of institutions which is claimed as constraints in theoretical literature but it is outcome of institutional variables. Author is of view that governance indicators are very volatile that do not reflect the actual position of political environment but it varies with variation in per capita income. The established empirical relationship between institutions and economic growth in literature was questioned about the instrumental techniques and common measures by author and his collaborators. The study also raised some interesting analytical questions regarding the conceptualization of institutions, the uncritical use of institutions and governance as similar concepts and the nature of the theoretical link between governance, institutions and economic development.

Brown and Hunter (2004) conducted a study of 17 Latin American economies to explore the relationship between educational spending and democracy covering the period of 1980-1997. They found that democracy has higher level of education spending especially at primary level because it benefits the large segment of voters and education is much important for development of human capital in these countries.

Assane et al. (2003) estimated a regression model by considering a sample of 110 economies along with sub-samples representing economies with diverse level of development. The variables are labor force growth, physical capital formation, human capital formation, economic freedom. Two variables are used to represent the institutional framework. One is the institutional efficiency which is measured as un-weighted averages of nine indicators of government performance. The outcomes show that institutional quality will be higher if institutional efficiency is higher. The second variable of institutional quality is used political risk ratings measured by the “International Country Risk Guide”. Political risk is an un-weighted average of thirteen indicators of government performance. The estimated results of the model indicate
institutional variables are significant to explain the economic growth for both medium developed and less developed countries. There was an important role of human capital formation for economic development of countries. Moreover, institutional quality and institutional framework are also very significant for the process of economic development. By concluding, the author suggests that model with inclusion of institutional variables are stronger in explaining the economic growth as compared with exclusion of institutional variables.

Feng (2003) used the pattern of political economy theory of economic growth to investigate the economic development in Pacific Asian economies. The profound argument of the study is that institutions are very important to explain the economic growth of these countries. Yet, a closer look at his work unveils a more gradation situation. The author showed that variables such as political polarization, political stability and government repression were the political variables affecting growth in these countries. He also explored that political institutional framework is an important factor for explanation of economic growth by restricting individual decisions in their market place.

Sachs (2001) investigated the relationship between economic performance, institutional and structural reforms for transitional countries. He concluded that rapid systematic transformation remained successful in transition process after the first five years. This period was enough to set the institutional framework of market economies and to gain the economic growth in some transition countries. The study used the indices by “European Bank for Reconstruction and Development” (EBRD) to measure the institutions in transition countries and compared it with developed countries. EBRD indices cover nine areas: legal rules on investment; security markets; banking reform; price liberalization; competition policy; large-scale privatization; trade and foreign-exchange system; enterprise restructuring and small scale privatization. The author
created a new index by combining all these indices named as Index of Reform Progress (IRP) and estimated the two models. The estimated results of the model show that IRP has a positive correlation with economic growth in the year 1995 and also an average growth rate for the period of 1989-95. The coefficients of estimated model have expected signs and statistically are significant. The author argued that, “even though the success of TCs on average was positive after five years of transition, the success of those countries varies between the particular aspects of transition measured by the EBRD indices. The liberalization of the economy seems to be the most successful aspect of transition while the most difficult one was privatization, especially large-scale privatization. The beginning of the transformation process structural and institutional reforms examined together had produced ‘many losers, as well as winners’. Indeed, after more than fifteen years of transition, some countries still have problems in achieving their pre-transition level of development and obviously do not conform to the estimated model. Finally, the ‘simple sum’ of different structural, institutional and other indices as a proxy for overall success in the transition process may be questionable. A simple average does not tell us much about overall success, given that even one problematic area can impede the economic progress of a country”.

Hare (2001) advanced a theoretical explanation of economic performance and institutional change in transitional economies. He argued that a passable institutional frame work is an important pre condition for success in sustained economic growth and transition process. Institutional reforms are needed at the first stage of transition. Unluckily, the importance of institutional framework was not recognized at first in mainstream economic theory. Author is of view, “it was assumed that the necessary institutional structure would be established rapidly. This proved to be incorrect. Instead, it became apparent that if a country lacks important
institutions or if its institutions operate in a manner not conducive to market relations, then
business activity and national economic performance are impaired or even devastated”.

Snyder and Yackovlev (2000) presented evidence from a panel of nineteen Caribbean and Latin
American economies for the time span of 1970-1996. They disaggregated social spending into
education and health and other components and explain changes in spending as function of the
level of political and program specific variables. Using a binary indicator for democratic regimes
they find that social spending (particularly education and health) grows more under democratic
rule. They also find that more pro-poor components of social spending (like education
expenditures) are comparatively more isolated from economic shocks.

Hall and Jones (1999) postulated one of first empirical research establishing the relation between
economic performance and institutions. Social infrastructure is considered as institutional
variable which was defined as “the institutions and government policies that determine the
economic environment within which individuals accumulate skills, and firms accumulate capital
and produce output.” They mentioned the relation between the provision of protection to private
productive units from confiscatory diversion and institutions. Yielding that a perfect
measurement of social infrastructures is not in rehearsal, they choice a proxy gained by pooling
two indexes: “an index of government anti-diversion policies” and “an index of openness to
international trade”. On the other hand, a fundamental basis to measure the institutions was
provided in this study and adopted methodology to measure institutional variables was used in
many studies to know the relation between institutions and economic performance in many
studies later on.

Clague et al (1999) defined the political institutions as the structure of the state as well as the
political process which shape the creation and enforcement of economic institutions, particularly
economic policy and its administrative implementation. They influence the behavior of politicians, political parties, voters and interest groups, and thus define how institutions are created, altered and enforced. The emergence and evolution of the rules stem from the motivations and decisions of individual actors. This makes it important to pay attention to how institutions emerge, either spontaneously or as the intended result of collective action. A growing body of literature poses collective action problems with creating institutions as the major theme. Research on the new political economy (NIE applied to polities) has focused largely on developed countries, mainly the United States.

3.4. Economic Growth, Institutions and Government Spending

Nazir et al. (2013) investigated the effect of fiscal policy in the short run and long run economic growth of Pakistan. Public expenditures and tax revenues are treated as fiscal variables while gross fixed capital formation, trade openness and discount rate are used as control variables covering the time period from 1980 to 2012 for the economy of Pakistan. Johansen cointegration and VECM is applied to find out the short and long run impact of fiscal variables on economic growth of country. The results indicate that fiscal policy has a significant role for economic progress. The findings of the study indicate that public spending negatively affects the economic growth while public revenues have positive relation with GDP growth of the Pakistan. The study suggested to decrease the public spending and to increase the public revenue as policy implication.

Christie (2011) highlighted various aspects of the relationship between government expenditures and economic growth in long term. A model has been developed through the application of a general method of moments (GMM) to find the dynamic nature of relation between the described variables for 136 developing and developed countries during the period of 1971 to 2005. The
conclusions of the study indicate that government spending beyond the threshold level affects the growth negatively. The findings of the study indicate that public spending at 26-32% of GDP is threshold level for developed economies and 33% of GDP for developing countries. Based on the findings, it was suggested to manage public spending, because 28 developed economies have the public spending more than 30% of GDP from 2001 to 2005. The expansion of public spending in these economies will have negative impacts on long term growth. The outcomes of research indicate that improving the quality of institutions may improve the economic growth in case of increasing public spending. It was also found that the threshold level of spending without imposing serious side effects between production and non-productive spending, which alleviate the potential gain of increased government expenditure.

Babalola and Aminu (2011) investigated the relationship between fiscal policy and economic growth in Nigeria over the period covering 1977-2009. Engle-Granger approach and Error Correction Model are applied to test the long and short run relationship among variables. GDP growth rate is taken as dependent variable while productive government expenditure, unproductive government expenditure, direct income tax and capital expenditure are considered as independent variables. The results show that both productive and unproductive expenditures have insignificant impact on economic growth. On the other side, contrary to economic theory, direct income tax has positive effect while capital expenditure has negative impact on economic growth of Nigeria. Improvement in government expenditure on health, education and economic services is recommended to boost economic growth.

Fatima et al (2011) explored the impact of fiscal deficit on investment and economic growth for the economy of Pakistan over the period of 1980 to 2009. The two stage least square method is adopted to estimate the simultaneous equation model. GDP growth and investment are
considered as dependent variables while fiscal deficit, investment, exports, imports, foreign aid, inflation, real interest rate and population growth are taken as independent variables. It is concluded that fiscal deficit affects economic growth of country very adversely because of poor tax collection, inelastic tax system, complex tax laws, and heavy reliance on foreign trade taxes, large tax exemptions and incentives. Results also show that there is persistence deficit in balance of payments that creates fiscal deficit. Improvement in tax system and lowering the interest rate are policy implications for government in this study.

Kakar (2011) determined the impact of fiscal variables on economic growth in Pakistan covering the period from 1980-2009. Johansen Cointegration, error correction and Granger causality techniques are applied to determine the relationship among the variables. In this study, GDP growth rate is considered as dependent variable while tax revenues, real interest rate, public expenditure, consumer price index, capital stock and population growth rate are taken as independent variable. The findings show that fiscal policy affects the economic growth in long run. In short run, economic development can be stimulated by controlling interest rate and government expenditure at the cost of inflation.

Rizvi et al. (2010) explored the behavior of GDP growth and public spending for the province of Sind for the time period 1979-2008. Johansen cointegration and vector error correction models were applied to examine the long run and short run relation of variables. The impact of shocks of public spending on economic growth is observed through impulse response function. The estimated results reveal that development expenditures positively affect the economic growth for long term as well as in short run in the Sind province. The results of Granger causality test reveal that GDP growth causes the public spending having unidirectional relationship between these
variables while “Impulse response function” prove that shock in GDP explain 8% variation in developmental expenditure.

Ali and Ahmed (2010) investigated effect of fiscal variables on macro economy of Pakistan covering time period of 1972-2008. Short and long run impacts of fiscal variables on growth of country were determined by applying ARDL and error correction models. Current account deficit and fiscal deficit are considered as fiscal policy variables while control variables were inflation and private investment. The findings of the study show that fiscal deficit and economic growth have long run relationship while non developmental expenditures restrict the economic growth. They also explored the threshold level of fiscal deficit and found that fiscal deficit in the range of 3-4% of GDP affect the economic growth positively. It is suggested in the study that government has to reduce the budget deficit to eradicate the problem of debt overhanging. They argued that the ratio of debt to GDP would increase unless the fiscal deficit goes above the real GDP growth rate.

Benos (2009) disintegrated public revenues and government spending into sub categories and analyzed the impact of each category on GDP growth of 14 European Union economies for the period 1990 to 2006. In this study, public spending on health, recreation, education, housing, culture, economic affairs, religion, defense, public order safety, taxes on wealth, income, capital, imports, production, and fiscal deficit are considered as fiscal variables while private investment, population, secondary education, employment growth, imports and exports are treated as non fiscal variables. Panel data techniques and ordinary least square methods were applied to estimate the results. The empirical analysis reveals that public spending on human capital has not significant effect on economic growth while infrastructure spending affects the economic growth.
positively. It was also found that taxation affect economic growth negatively while budget deficit has not a clear relation with economic growth.

Owoye, et.al (2007) determined the relationships between government expenditure and economic growth for a group of 30 OECD countries during the period 1970-2005. The obtained results show that there is a long-run relationship between government expenditure and economic growth. Furthermore, they also found a unidirectional causality from government expenditure to growth for 16 out of the 30 countries that support the Keynesian hypothesis. However, causality runs from economic growth to government expenditure in 10 out of the countries, confirming the Wagner’s law. They also found the existence of feedback relationship between government expenditure and economic growth in four countries.

3.5. Optimal Government Spending

Varoudakis, Tiongson, and Pushak (2007) examined the optimal size of government for 25 transitional economies for the period of 1992-2004. The results of spline regression indicate that 35% of GDP is threshold level for government spending and this value is also equal to the median of sample. Beyond the 35 percent of GDP of government spending, it affects the economic growth negatively.

Heitger (2001) considers that the increase in the size of government derived from increased consumption restrains the economic growth, while increase in the volume of public investment has a positive impact on economic growth. The central hypothesis is that public spending on basic public goods (like external and internal security, rule of law and others) may affect the economic growth positively, but this positive effect of government spending has a diminishing trend or even it may be reversed if the public spending increases beyond a certain or threshold level. This study declared two major causes of negative impact of extreme government spending.
on economic growth; taxation decrease incentives to work, innovation and investment and crowding out effect on efficient private suppliers.

Odedokun (2001) categorized the 103 developing countries into four different classes; poor, rich, foreign aid dependent and mineral export dependent countries and analyzed the affect of disaggregated public spending on growth of these economies. The results of estimation show that capital expenditure has negative relation with economic growth in mineral exporting and high income countries while low income countries have no significant impact of infrastructure spending on economic growth of these countries. Current expenditures of government restrict the economic growth in all categories of the countries while foreign aid dependent countries are exceptional for this relation. Public spending on services and goods affect the economic growth negatively while spending on salaries and wages have positive effect on economic growth in all groups of countries. Educational and transportation spending plays vital role to boost the economic growth while spending on administration and defense affect the growth negatively.

Gwartney et al (1998) described, “as governments move beyond these core functions, they will adversely affect economic growth because of (a) the disincentive effects of higher taxes and crowding-out effect of public investment in relation to private investment, (b) diminishing returns as governments undertake activities for which they are ill-suited, and (c) an interference with the wealth creation process, because governments are not as good as markets in adjusting to changing circumstances and finding innovative new ways of increasing the value of resources”.

Vedder and Gallaway (1998) examined optimal size of public expenditures through behavior of Armey Curve for the USA covering the time period 1947-1997 and found that optimal level of federal government spending was 17.45 percent of GDP but in actual it was about 22% in 1990’s which was much higher from the threshold level and it was predicted that it was restraining the
economic growth of USA. It was found that the optimal size of different categories of federal
government expenditures followed the pattern of Armey Curve in states as well as local
governments. The researchers explored that the optimal level of public spending United
Kingdom, Sweden, Italy, Denmark and Canada should be 20.96, 19.44, 22.22, 26.15 and 21.36
percent of GDP respectively. It was argued that actual level of government spending is much
higher in these countries as compared with estimated optimal level.

The concept of optimal government spending was much popular by Armey (1995) by developing
the “Armey Curve”. He describes that “non-existence of government causes a state of anarchy
and low levels of output per capita, because there is no rule of law, and no protection of property
rights. Consequently, there is little incentive to save and invest, because the threat of
expropriation exists. Similarly, where all input and output decisions are made by government,
output per capita is also low. However, where there is a mix of private and government decisions
on the allocation of resources, output should be larger. Accordingly, the output-enhancing
features of government should dominate when government is very small, and expansions in
governmental size should be associated with expansions in output. Nevertheless, at some point
growth-enhancing features of government should diminish and further expansion of government
should no longer lead to output expansion. Namely, as spending rises, additional projects
financed by government become increasingly less productive and the taxes and borrowing levied
to finance government impose increasing burdens. At some point, the marginal benefits from
increased government spending become zero.”

Peden (1991) investigated the optimal size of public spending for the United States and found
that 20 percent of GDP is optimal public spending for US economy. A similar result was also
gained by Scully (1994), by estimating the optimal level of public spending for local, state and
federal taxes covering the period of 1929 to 1989 and found that optimal level of government spending varies from 21.5% to 22.9% of GNP for US economy.

Growth rate affected by different size of government spending by two ways as pointed out by Barro (1990). A tax increase reduces the rate of growth through the disincentive effect but marginal productivity of capital increases as the public spending increase that leads to boost the economic growth of an economy. He argued that channel of economic growth through public spending is dominate if government size is small while tax reduction growth is dominate if government size is large. Resultantly, impact of increased government spending on growth is monotonous and there must be a certain optimal size of government. On the basis of empirical results, Barro derived an “inverted U shaped curve” establishing the relation between public spending and economic growth.

Sheehy (1993) categorized 102 countries with respect to their government size and explored that public spending may affect positively as well as negatively on economic growth for different categories. If public spending is below than 15 percent of GDP, then it affect economic growth positively while if it is above than 15 percent of GDP then it restrains the economic growth of these countries. The results of the study are supported by non linear hypothesis. The threshold level of 15 percent is subjective that creates the uncertain condition to attain the maximum economic growth point of an economy.

The above mentioned findings of studies highlight that experimental outcomes are different from country to country with variations in time periods, in spite of usage of same techniques, models and methods. A review of literature reveals that there is hardly any study which explores the optimal size of public expenditures for different categories of government spending in Pakistan. This study is intended to make efforts for analysis of optimal level of various categories of public
expenditures, and optimum level of overall government spending to achieve the highest level of economic growth.

3.6. Conclusion

This chapter sheds some light on findings of some previous studies carried out to explain the diverse fiscal and institutional perspectives and highlighted the existing research gap in literature pertaining to Pakistan, specially. After evaluation, it may be concluded that tax morale is a topic of great concern to improve the efficiency of resource mobilization and it needs to be explored but it is hardly discussed in literature. Developed countries are struggling hard to increase the tax morale of people so that level of sustained growth may be improved but developing economies have focus on deterrence policies instead to rising the self motivation of people to pay taxes. On the one side, low tax to GDP ratio is a hindrance in the way of development and public oriented welfare projects while on the other side huge public spending are causing to increase their debt burden so debt servicing and subsidies are shrinking their resources for development purposes.

The importance of institutions cannot be negated due to their diverse impacts on economic performance of countries. A brief review of literature reveals that there is hardly any study which explores the determinants of institutional quality in context of fiscal policy with reference to Pakistan as well as globally which is a novel dimension and has significance to be explored. This study is first attempt to investigate the impact of fiscal policy on the quality of institutions in the country and then effectiveness of institutions and fiscal policy is examined for the economic growth of Pakistan.

Existing literature points out that optimal level of government spending is explored but rarely any study investigates the optimal size of government at disaggregated level such as current
expenditure, development expenditures and defense expenditures. It is very necessary to know the optimal level of these categories because historical patterns reveal that current expenditures are always financed through cut backs in development expenditures so this study is intended to find out the optimal level of each category which may enhance the economic growth of the country instead of hampering. All above perspectives are covered in the following chapters.
Chapter 4

4. Theoretical Models, Methodology and Empirical Analysis

This chapter comprises of four sub sections and each sub section explains a fiscal aspect with respect to the theoretical models, methodology, data explanation and their estimated results. The first sub section (4.1) describes the determinants of tax morale while second sub section (4.2) discusses the effectiveness of fiscal policy for institutional performance. The third sub section (4.3) highlights the impact of fiscal policy and institutions on economic growth and last section (4.4) explains the optimal level of public spending at disaggregated level.

4.1. Determinants of Tax Morale

To find out the determinants of tax morale, a model is derived following Yitzhaki (1974), and Allingham and Sandmo (1972). If an individual taxpayer \( i \) has an income of \( Y_i \) at each period which is not recognized by tax authorities and the individual taxpayer shows the income \( M \) to tax authorities on which a tax \( t \) is levied. It is assumed that the individual taxpayer conceals a part of \( v \) of his income \( Y_i \). So;

\[ M_i = (1-v_i) Y_i \]  \hspace{1cm} (4.1.1)

Assume that \( f \) is the fine has to pay if taxpayer is discovered. Then income will be;

\[ Y_{ai} = Y_i - t (1-v_i) Y_i - f v_i Y_i \]  \hspace{1cm} (4.1.2)

If taxpayer is not discovered, then income will be;

\[ Y_{bi} = Y_i - t (1-v_i) Y_i \]  \hspace{1cm} (4.1.3)

Taxpayer can maximize its expected utility by choosing \( v \) at each period of time:

\[ \max_{v_i} E u_i (Y_i) = p u_i (Y_{ai}) + (1-p) u_i (Y_{bi}) \]  \hspace{1cm} (4.1.4)
\( p = \) detection probability

Putting the values of \( Y_{ai} \) and \( Y_{bi} \) in eq (4.1.4), we get;

\[
\max_v E_{ui}(Y_i) = p_{ui} [Y_i - t (1 - v_i) Y - f t vY_i] + (1 - p) u_i [Y_i - t (1 - v_i) Y_i] \\
\]

(4.1.5)

According to model of Allingham and Sandmo (1972), the proportion of escaped income is dependent on degree of deterrence policies like fines and detection probabilities.

Fortin et al (2007) included an institutional utility function in individual taxpayers’ utility function. So tax payer’s expected utility function will be;

\[
EU_{i}(Y_i) = EU_{i}(Y_i) + Q_i(v_i, Z_i) \\
\]

(4.1.6)

Where \( Q_i(v_i, Z_i) \) is institutional interaction term representing \( v_i \) as proportion of evaded income (income which is not recognized by tax authorities) and \( Z_i \) shows the set of institutional variables associated with tax morale. While;

\[
Q_i(v_i, Z_i) = q_i(Z_i) (1-v_i) Y_i \\
\]

(4.1.6.1)

By substituting the values of \( EU_{i}(Y_i) \) and \( Q_i(v_i, Z_i) \) in (4.1.6), the expected utility function of tax payers will be as follows;

\[
EU_{i}(Y_i) = p_{ui} [Y_i - t (1 - v_i) Y - f t vY_i] + (1 - p) u_i [Y_i - t (1 - v_i) Y_i] + [q_i(Z_i)(1-v_i)Y_i] \\
\]

(4.1.7)

Upon the basis of above derived expected utility function of tax payers and incorporating the institutional variables, key model for investigating tax morale in Pakistan has following equation;

\[
TM_i = \beta_0 + \beta_1 CG_i + \beta_2 CP_i + \beta_3 CC_i + \beta 4 REL_i + \beta_5 CTR_i + \epsilon_i \\
\]

Where \( TM_i \) stands for tax morale;

\( CG_i \) = confidence in government;

\( CP_i \) = confidence in parliament;
$CC_i =$ confidence in civil services;

$REL_i =$ religiosity;

$CTR_i$ shows various other variables like age, marital status, gender, financial satisfaction and education.

The data of this study is acquired from “World Values Survey” (WVS) which is an international exploration of social, political, cultural and institutional change. The waves of survey evaluate prime values and faiths of world. The WVS was started in 1981-84, with succeeding surveys$^{28}$ being performed in 1990-94, 1995-98, 1999-2004, 2005-2009 and 2010-2014. The data of these surveys is publicly accessible for use of researchers who are interested to know how beliefs and views altered with the passage of time. The WVS has generated facts of ongoing but persistent modifications which describe about values, faiths and desires of people. It is suggested that these variations have a vital effect on behavior and social life. This study used the data of sixth wave conducted during 2010-2014.

The dependent variable of this study is Tax Morale ($TM$). To determine tax morale, following question is used by WVS:

“Please tell me for each of the following actions whether you think it can always be justified, never be justified, or something in between: Cheating on taxes if you have the chance.”

Now a description of independent variables used in the model is given. Torgler (2006) proposed that there are many key determinants that appeared to be crucial to understand tax morale. To check the significance of variables to understand tax morale in Pakistan, three variables that strongly suggest these notions were selected from WVS and used for analysis of tax morale.

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$^{28}$ The conducting duration of a survey is called a wave. There are six waves up to now covering the time periods mentioned as above.
These core variables are explored to find relationship taxpayers had with institutions. One of them is *Confidence in Government* which is computed by the “World Values Survey” as:

“I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all? The government (in your nation’s capital)”

The other variable employed to investigate the relationship between taxpayers and institutions is “*Confidence in the Parliament*” which is computed by the “World Values Survey” as:

“I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all? Parliament.”

The third variable that investigates the relation between taxpayers and authority is “*Confidence in the Civil Service*” which was computed by “World Values Survey” as:

“I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?: The Civil Service.”

These variables help to determine the confidence on institutions of the country (e.g., confidence in Government), therefore concentrating on how the association between citizens and state is determined, and also permit to examine confidence more adjacent at present politico economic level (For example, Confidence in Parliament and Civil Service).

*Religiosity (REL)* is a supplementary independent variable which is considered in this study. In previous studies of tax morale, it is claimed that morality is important to realize tax morale. There are many moral restrictions and norms that are significantly affected by religiosity. Earlier empirical evidences have proved that states having higher level of religiosity have substantially
lowered violent. Therefore, it might be the situation that religiosity might affect habits of people
infield of white collar crime.

In order to determine religiosity, the given question is selected from the “World Values Survey”
(WVS):

“Apart from weddings and funerals, about how often do you attend religious services these
days?”

Additionally, major explanatory variables mentioned (i.e. “confidence variables”, and
“religiosity”), many other variables are also utilized as control variables (CTR) to investigate
what determinants may form tax morale. Each of them is given below:

Age: It is evident from literature that aged people have more response against the risk of
restrictions and studies have steadily proved that aged taxpayers have higher compliance level.

Gender: Women have distinctive degrees of tax morale as compared with men. Psychological
explanation finds that women are more in compliance and not as much of self reliant than men.

Marital Status: This variable may have legal or illegal attitude depends on individuals who are
inhibited by their social connections. It is claimed that wedded persons are more acquiescent
than others. Thus, it would be guess that persons with deep rooted social connections would have
higher level of tax morale as compared with singles.

Education: The impact of education is ambiguous. It can be convincingly considered that literate
taxpayers are more aware regarding tax laws and taxation networks as compared with
uneducated taxpayers, and consequently have more consciousness of advantages and gains the
State offers for people. But this supposition cannot be inevitably agreed. If it is valid, however,
one may anticipate that literate taxpayers would have higher tax morale due to recognition of tax
responsibility. On the other side, literate tax payers might have lower level of cooperation due to
better understanding of advantages for avoidance and may be more unfavorable because of awareness of how the State utilizes tax revenues.

For estimation of such type of data discussed above, probit model is more appropriate so estimation is carried out by using weighted ordered probit model.

**Table: 8 Estimated Determinants of Tax Morale**

<table>
<thead>
<tr>
<th>Dependent Variable: <strong>Tax Morale</strong></th>
<th>Weighted Ordered Probit Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>Coefficient</td>
</tr>
<tr>
<td><strong>Confidence in Parliament</strong></td>
<td>0.192*</td>
</tr>
<tr>
<td><strong>Confidence in Civil Service</strong></td>
<td>0.147**</td>
</tr>
<tr>
<td><strong>Confidence in Government</strong></td>
<td>0.186*</td>
</tr>
<tr>
<td><strong>AGE</strong></td>
<td></td>
</tr>
<tr>
<td>30-49</td>
<td>0.418**</td>
</tr>
<tr>
<td>50 and more</td>
<td>0.325</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>0.261***</td>
</tr>
<tr>
<td>Divorced</td>
<td>0.419</td>
</tr>
<tr>
<td>Separated</td>
<td>0.417</td>
</tr>
<tr>
<td>Widowed</td>
<td>-0.521</td>
</tr>
<tr>
<td><strong>Financial Satisfaction</strong></td>
<td>0.071*</td>
</tr>
<tr>
<td><strong>Religiosity</strong></td>
<td>0.038**</td>
</tr>
<tr>
<td><strong>Woman</strong></td>
<td>0.591**</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>-0.041</td>
</tr>
</tbody>
</table>

*, ** and *** shows significance at 1%, 5% and 10% respectively. The reference groups are age up to 29; single; completely satisfied; very important; man and illiterate.

Source: Author’s own calculations
Usually, a selected sample of data is a miniature of population it came from which is needed to be reflected for all population measured in a survey. Samples are supported to be adjusting by weighted variables and helpful to assess the ranking order of scaled explained variable like tax morale. It may happen that by combining indicators having high correlation are counted double into an index. A solution has often been given by testing indicators for statistical correlation and choosing only indicators having a low degree of correlation or adjusting weights accordingly, e.g. giving less weight to correlated indicators. Weighted ordered probit model have capability to assign weights to the estimated variables. During the estimation of these model, the sign of the coefficients are only inferred, not their magnitude. Estimated marginal effects quantify the effect of an explanatory variable on dependent variable. The marginal effect shows changes in behavior of tax payers to particular level of tax morale, when explanatory variables deviate by single unit. The estimated results of data set are shown in above table (7) which show that confidence in parliament positively and significantly affect the tax morale of the country. It indicates that enhancing one point confidence in parliament raises the tax morale by 0.82 percentage points. It elaborates that trust in parliament raises the tax morale of individuals with high extent. Confidence in civil service has a significant positive impact. It is found that by increasing the confidence in civil service by single unit will lead to higher tax morale by 0.42 percentage points. The estimated result declares that confidence in government is also significant at 1 percent on individuals’ tax morale and it is estimated that one unit rising in the confidence in government leads to increase the tax morale by 0.91 %age points. The institutional coefficients (confidence in parliament, confidence in civil service and confidence in government) persist extremely significant. Generally, the findings of results are robust. Likewise, with aim to check the alternate details, extra variables are included. Religiosity has impact on people’s traditions
and behavior and it may be a constraint in the way of tax cheating. Kirchgässner (1999) explored that states of Northern Europe are more religious contrary to big part of Catholic states in the south. Breaches of laws of states were also considered as religious offenses and therefore part of a sin. Generally, Northern States have higher tax moral due to consideration of tax as religious obligation. As religious variable, it measures that how much religion is important in a person’s life. Tittle (1980), Grasmick et al. (1991) and Torgler (2002) proved that religiosity alters the intensity of rules violation, tax morale and tax compliance. The findings also support the above discussed results; religiosity positively affects the tax morale in the country. By adding the income variable for analysis in equation, it is analyzed that increasing the level of financial satisfaction by a unit leads to increase the tax morale by 0.62 percentage points.

It can be observed from estimated results that demographic variable has an influence on dependent variable. The tested model reveals that demographic variable positively affects the tax morale. The age group from 30 to 49 has positive and significant impact on tax morale as compared with other groups (i.e. the reference group is up to 29 years old). For example, the population having age of 30-49 years have higher level of tax morale contrary to other groups. The estimated results show that tax morale for this group (age 30-49) is 0.13 percentage points high as compared with reference age group of up to 29 years. Moreover, it can be seen that marginal effects for tax morale increases as age increases but is not significant for the 50+ age group. It is shown also that a Pakistani woman has higher level of tax moral as compared with man. A positive and significant impact was observed for the married group and show that married person have higher tax morale with 0.12 percentage points as compared with singles while rest of marital status groups have not significant impact on tax morale. Financial satisfaction is also significant at 1 percent to tax morale and shows that one unit increase in
financial satisfaction increases the tax morale by 0.62 percentage points. The estimated results are also supported by some other studies carried out for other countries such as Acemoglu et al (2005), Alesina and Perotti (1996), Alm and Torgler (2004), Berenson (2008), Cumming et al (2009), Feld and Frey (2002), Trogler et al (2008).

4.2. Effectiveness of Public Spending for Institutional Quality

The review of literature highlights the linkages between institutions and government spending. It is assumed that there are two rational agents in the economy, want to maximize their utility. The utility of government depends upon the tax rate and a policy position. Its utility will increase by increasing the tax rate and will decrease if it is farther from policy position. On the other side, the tax rate and selected policy position will also affect the utility of citizens. The citizens owning the factors of production will make production decision on the basis of tax rate. Their utility will increase by increasing the level of output which will be net of production costs and taxes. So this utility maximization can be shown as;

For government

\[
\text{Max } U^G [T f(Y), NR, -(P-P^+)^2] \tag{4.2.1}
\]

\[(T, NR, P)\]

s.t \[T f(Y) + NR \leq K \tag{4.2.2}\]

\[U^c \geq U^c\]

For citizens

\[
\text{Max } U^c [(1-T) f(Y)-W, Y, -(P-P^-)^2] \tag{4.2.3}
\]

Where

\[U^G = \text{Government Utility}\]

\[U^c = \text{Citizens Utility}\]
$U_c =$ Minimum Tolerable Utility of Population

$P =$ Chosen Policy by Government

$P^+ =$ Preferred Policy Position by Government

$P^- =$ Preferred Policy Position by Citizens

$T =$ Tax Rate

$NR =$ Non Tax Revenues

$K =$ Maximum amount of Collected Revenues

$f(Y) =$ Output

$Y =$ Factors of Production

$W =$ Average Cost of Production

Nash equilibrium states that decisions of government and citizens are best response against each other. Given P and T, citizens decide how much factors of production has to hire in response of government’s policy. First order condition will be;

$$(1-T) f ''(Y) = W$$

and solution is;

$Y* (T, P)$

Government maximizes against the response of production by citizens by knowing $Y* (T, P)$. Government’s maximization problem will be;

$$Max \ U^G [T f(Y), NR, - (P-P^+)^2] + \lambda_1 + [(1-T) f ''(Y) - W] + \lambda_2 (U^c - U^g) + \lambda_3 [K - T f(Y) - NR]$$

(4.2.4)

First order conditions are as follows;

$$(U^G) f(Y) - \lambda_1 f ''(Y) - \lambda_2 (f)^1 f(Y) - \lambda_3 f(Y) = 0 \ w.r.t \ "T"$$

(4. 2.4.1)

$$(U^G) _{\lambda_3} = 0 \ w.r.t. \ "NR"$$

(4. 2.4.2)
-2 \left( U^G \right)_3 (P-P^*) - 2 \lambda_2 \left( U^G \right)_2 (P-P^*) = 0 \quad \text{w.r.t.} \quad \text{“P”} \quad (4.2.4.3)

\left( U^G \right)_1 T f'(Y) + \lambda_1 (I-T) f''(Y) + \lambda_2 (U^F)_1 \left[ (I-T) f'(Y) - W \right] - \lambda_3 T f'(Y) = 0 \quad \text{w.r.t “X”} \quad (4.2.4.4)

(I-T) f'(Y) - W = 0 \quad \text{w.r.t.} \quad \lambda_1 \quad (4.2.4.5)

\lambda_2 (U^F - U^F) = 0 \quad \text{w.r.t.} \quad \lambda_2 \quad (4.2.4.6)

\lambda_3 \left[ K - T f(Y) - NR \right] = 0 \quad \text{w.r.t.} \quad \lambda_3 \quad (4.2.4.7)

where (4.4.6) and (4.4.7) follow Kuhn-Tucker condition for inequality constraints.

From (4.2.4.2)
\lambda_3 = (U^G)_3 > 0 \quad (4.2.4.8)

\lambda_2 = [(U^G)_3 (P-P^*)] / [(U^F)_2 (P-P^*)] > 0 \quad (4.2.4.9)

(4.4.8) and (4.4.9) show that inequality constraints are binding by (4.2.4.6) and (4.2.4.7) in equilibrium i.e.

\[ U^F = \bar{U}^F \quad (4.2.10) \]

\[ T f(Y) + NR = K \quad (4.2.11) \]

Taking the total derivative of (4.2.10) after substituting its values, we get;

\[ - (U^F)_1 f(Y^*) dT - 2 (U^F)_2 (P-P^*) d (P-P^*) = 0 \]

\[ \Rightarrow d (P-P^*) /dT = -(U^F)_1 f(Y^*) / 2 (U^F)_2 (P-P^*) < 0 \]

\[ \Rightarrow d (P-P^*) / f(Y^*) dT = -(U^F)_1 / 2 (U^F)_2 (P-P^*) < 0 \quad (4.2.12) \]

Derived (4.2.12) implies the comparative static results for change in institutions due to changes in tax and non tax revenues. These revenues are utilized for government expenditures so revenues can be replaced by government expenditures. Therefore, derived model suggests that institutions can be shown as function of government expenditures. The estimated model will be as follows;
\[ \text{INST} = f (\text{GEXP}, \text{CTRL}) \]

where, \( \text{INST} = \) Institutional Quality, \( \text{GEXP} = \) Government Expenditures and \( \text{CTRL} \) represents other control variables.

The data set of institutional quality is based on the compilation of different institutional measures from ICRG (International Country Risk Guide), organized in twelve clusters namely as Bureaucratic Quality, Democratic Accountability, Ethnic Tension, Rule of Law, Religion in Politics, Military in Politics, Corruption, Government Stability, External Conflict, Internal Conflict, Investment Profile and Socioeconomic Condition. All of these variables range from 0-10. A higher score means higher condition and vice versa. By considering all these variables, an institutional quality index is developed by PCA (Principal Components Analysis). PCA is a statistical technique which uses an orthogonal transformation to alter a group of observations having a possible correlation of variables into an array of uncorrelated linear variables. The time span of data for this part is from 1984-2015.

Government expenditures are treated as a percentage of GDP. Public spending affects legitimacy and efficiency of institutions so it can be perceived as a crucial variable explaining the behavior of institutions. Government spending is not only a necessary source for high quality institutions in the country but also permits consolidation of social contracts that ensures and develops a more trustworthy relation between citizens and state. Resultantly, higher accountability and transparency will lead to creation of high quality institutions (Moore, 2002; Tilly, 1992).

According to Alonso and Garcimartin (2011):

“Income distribution also plays an important role for explaining the quality of institutions in the state. It supposedly influences both institutional legitimacy and predictability. Firstly, because a strong inequality causes divergent interests among different social groups, which, in turn, leads
to conflicts, socio-political instability and insecurity. Secondly, inequality facilitates that institutions remain captured by groups of power, whose actions are orientated to particular interests rather than to the common good. Thirdly, it diminishes social agents’ disposition to cooperative action and favors corruption and rent-seeking activities. Also this relationship is supported by previous studies (Alesina and Rodrik, 1993; Alesina and Perotti, 1996; or Easterly, 2001). This variable is measured by GINI coefficient.

International openness is also a factor that can encourage institutional quality. It is related to the dynamic efficiency of institutions. Firstly, it creates a more dynamic, sophisticated and demanding environment, which fuels a larger demand for good institutions. Secondly, international openness encourages a more competitive environment; therefore it can hinder rent-seeking activities, corruption and nepotism. Finally, openness can facilitate learning processes and good practices imitation from other countries experience. References to this variable are abundant, though with not totally coincidental results. For example, Rodrik et al. (2002) confirm that openness has a positive impact on institutional quality, but their estimates do not control for development level. Rigobon and Rodrik (2004) find a positive relationship, though weak, between trade openness and the rule of law, but the relationship becomes negative in case of democracy. The authors interpret this paradoxical result in terms of distributive tensions generated by economic openness. Islam and Montenegro (2002) state that, when controlling for development level, openness affects some institutional quality variables but not others.

Education is also considered as a determinant of institutional quality. It is a variable related to institutions dynamic efficiency. A more educated population demands more transparent and dynamic institutions and permits to build them. As an exception, the work of Alesina and Perotti (1996), which confirms the positive impact of education on institutional quality, must be pointed
out. Also, in the literature on corruption, the education effect has been detected in work of Evans and Rauch (2000).” Primary and secondary enrolment as a percentage of population is considered as a proxy for education.

4.2.1. Methodology

To avoid the spurious and unreliable results, it is necessary to test the stationarity or presence of unit root in time series data. The economic theory also describes that shocks to a stationary series are temporary and with the passage of time, the series will go back to mean level. The test used to check the stationarity in time series data is called Unit Root test. The explanation of Unit Root test is given in following.

4.2.1.1. Unit Root Test

It is assumed in time series data that the series under study follow “stationary stochastic process” which means a collection or group of random variables which are ordered in time. A stochastic process $y_t$ is stationary if it follows three conditions:

i. $E(y_t) = \mu_y$ for all $t \in T$

This condition represents that mean value of all observations of stationary stochastic process is constant. A time series generated by a stationary process must fluctuate around a constant mean and does not have a trend.

ii. $\sigma^2_y = E[(y_t - \mu_y)^2] = \gamma_0$

It mean that the variances are also time invariant.

iii. $E \left[ (y_t - \mu_y)(y_{t-h} - \mu_y) \right] = \gamma_h$ for all $t \in T$ and all integers $h$ such that $t - h \in T$. 

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The co-variance of two time periods does not depend on the current time period at which the co-variance is estimated but on the lag between the two time periods.

According to economic theory, simple regression analysis based on non stationarity provides spurious and invalid results. A “Spurious Regression” is that when economic theory suggests no relationship among the variables but still the value of $R^2$ is very high and variables are highly significant which will lead towards wrong forecasting. So the pretest of stationarity is considered as necessary in order to carry on time series analysis. Engel and Granger (1987) developed seven test statistics that are estimated by ordinary least square technique (OLS).

This study applied ADF (Augmented Dicky Fuller Test) to check the stationarity of variables. The description of ADF is given below.

4.2.1.2. Augmented Dicky Fuller (ADF) Test

Dicky and Fuller (1979) investigated the following three equations in order to test the unit root

\[ \Delta z_t = \beta_0 + \alpha z_{t-1} + \epsilon_t \]

\[ \Delta z_t = \beta_0 + \alpha_1 z_{t-1} + \epsilon_t \]

\[ \Delta z_t = \beta_0 + \alpha_1 z_{t-1} + \alpha_2 + \epsilon_t \]

The major difference in the above three terms is the inclusion of drift, time trend and without drifts and time trend. The first equation shows random walk while second equation is random walk with drift and third equation represents with drift and time trend. In the above equations the parameter $\alpha$ is of special importance because the ADF tests the following hypothesis:
H₀: \( \alpha = 0 \) The time series is Non Stationary (There is unit root)

H₁: \( \alpha \neq 0 \) The time series is Stationary (There is no unit root)

The decision to reject or accept null hypothesis is based on comparison of estimated and tabulated t-statistics. There are three possibilities:

1. All the variables are stationary at level form
2. All the variables are stationary at difference form
3. Stationary at same level but greater than one

ADF test is fundamentally a modification of Dicky Fuller test with equations to:

\[
\Delta Y_t = \alpha + \delta_t + \gamma Y_{t-1} + \beta \sum_{t=1}^{p} \Delta Y_{t-1}
\]

\[
\Delta Y_t = \alpha + \gamma Y_{t-1} + \beta \sum_{t=1}^{p} \Delta Y_{t-1}
\]

4.2.1.3 Autoregressive Distributed Lag (ARDL) Approach for Long Run Relationship

In time series analysis, if the regression model includes values of independent variables along with lagged values of independent variables then model will be distributed lag model while lagged values of dependent variable as explanatory variable is nominated as autoregressive model. If model has the own and lagged values of both dependent and independent variables as explanatory variables, then it is autoregressive distributed lag model. In other words, it is amalgamation of autoregressive and distributed lag model. This approach was developed by
Pesaran and Shin (1999), Pesaran and Smith (1998) and Pesaran et al. (2001). This approach has the following advantages over the other techniques of co integration:

a. This method can make a distinction between regressand and regressors.
b. It overcomes the problems of endogeniety and omitted variables.
c. It provides good results for smaller sample size from 30-80 observations.
d. This approach provides unbiased and efficient estimates because it solves the problems of serial correlation and endogeniety (Pesaran et al. 2001).
e. The dynamic long run and short run estimates along with the adjustment parameter can be estimated simultaneously from ARDL.
f. This technique can be applied irrespective of whether the variables are I(0), I(1) or fractionally co integrated.

The ARDL process consists of three following steps:

- Carrying out Dynamic Analysis of Bounds Test Procedure
- Determining the long run elasticities
- Error Correction Model Representation

4.2.1.4. **Bounds Test Procedure**

To find the presence of long run relation, value of F-statistics is calculated that depend on the following:

I. Sample size.
II. Number of explanatory variables.
III. Presence of trend or intercept.
The null hypothesis is \( H_0 : \sum \mu_i = 0 \). This means the absence of long run relationship. While the alternative hypothesis is \( H_1 : \sum \mu \neq 0 \). The computed F-statistics value is compared with two sets of critical values that are specified by Pesaran et al (2001). “One set assumes all the variables are I(0) while the other set assumes that all the variables are I(1). This provides a band covering all possible classification of the variables into I(0) and I(1) or even fractionally integrated.”

There might be three possibilities regarding comparison of values. Firstly, the calculated value of F is greater than upper bound value means that long run relation exists among variables. Secondly, if calculated F value falls between upper bound value and lower bound values, then decision in inconclusive. Thirdly, if the value lies below the lower bound values, then there is no long run relation between variables. The Bounds Test procedure is adopted due to following reasons:

a. It is simple as compared with other multivariate cointegration techniques because cointegration relationship is estimated through OLS.

b. No pre-testing requirement of order of integration. It is applicable to all the situations whether variable are I(0), I(1) or mutually integrated. However Bounds test is not applicable to I(2).

c. The test gives more efficient and good results for smaller sample size.

### 4.2.1.5. Estimation of Long Run ARDL Elasticities

After finding the integrating order of variables and existence of long run relationship, the long run ARDL model can be estimated. First of all, order of lag length is generally gained from unrestricted “vector autoregressive” (VAR) via “Schwarz Bayesian Criterion” and “Akaike
Information Criterion”. To decide number of lags, that model is chosen where values of these criterions are lower. The lower values of criterions represent the better model. In VAR methodology, many dependent variables are treated jointly but each dependent variable is determined by its lagged values and lagged values of all other dependent variables. This model has no independent variable. This methodology was developed by Sims (1980). According to Sims, “if there is true simultaneity among a set of variables, they should all be treated on an equal footing; there should not be any priori distinction between endogenous and exogenous variables”. The mathematical description of a VAR model is:

\[ y_t = A_1 y_{t-1} + \ldots + A_p y_{t-p} + B x_t + \varepsilon_t \]

where \( y_t \) represents a \( k \) vector of dependent variables, \( x_t \) indicates a \( d \) vector of independent variables, \( A_1, \ldots, A_p \) and \( B \) show the matrices of coefficients to be estimated and \( \varepsilon_t \) is a vector of innovations that may be contemporaneously correlated but are uncorrelated with their own lagged values and uncorrelated with all of the right hand side variables. After obtaining the no of lags of variables, ARDL can be estimated by applying OLS technique and coefficients will describe elasticities of variables.

### 4.2.1.6. Error Correction Representation

After estimating the long run relationship, the next step is to measure the short run behavior of variables by error correction model. If the variables are co integrated and there is long run relationship then it may have short run disequilibrium. So the error term can be treated as “equilibrium error”. This error term can be used to tie the short run behavior to its long run value. The “Error Correction Mechanism” (ECM) was used firstly by Sargan and afterword; it was popularized by Engle and Granger. “Granger Representation Theorem” describes that if two
variables $X$ and $Y$ are co integrated then their relationship can be expressed as ECM. The general mathematical form of an ECM is:

$$\Delta y_t = \alpha_0 + \alpha_1 \Delta x_t + \alpha_2 u_{t-1} + \varepsilon_t$$

Where $\Delta$ is first difference operator, $\varepsilon_t$ denotes a random error term, while $u_{t-1}$ represents one period lagged value of error from the co integration regression. This equation describes that $\Delta y$ is dependent on $\Delta x$ and also on equilibrium error term. If the error term is not zero, then model is out of equilibrium. The value of $\alpha_2$ suggests correction of disequilibrium in short run.

### 4.2.2. Empirical Analysis

#### 4.2.2.1. Testing the Unit Root Hypothesis

To find the unit root and order of integration, ADF test is applied to all variables. The results indicate that some variables are stationary at level while others are stationary at first difference. The estimated results of the test are reported in the following table (8).

The estimated values indicate order of integration of each variable of model. It is obvious that order of integration is different of variables. Some variables are integrated at level while others are integrated at first difference. If variables have different integrating order, then ARDL approach is appropriate to find the long and short run dynamics of variables.
### Table: 9 Unit Root Tests Results (Augmented Dicky Fuller Test)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level Intercept</th>
<th>1st DIFF Intercept</th>
<th>Level Trend and Intercept</th>
<th>1st DIFF Trend and Intercept</th>
</tr>
</thead>
<tbody>
<tr>
<td>INST</td>
<td>-1.73</td>
<td>-4.71*</td>
<td>-1.84</td>
<td>-4.63*</td>
</tr>
<tr>
<td>GEXP</td>
<td>-1.69</td>
<td>-7.97*</td>
<td>-2.28</td>
<td>-7.85*</td>
</tr>
<tr>
<td>INDIS</td>
<td>-1.12*</td>
<td>-5.36*</td>
<td>-1.95*</td>
<td>-5.94*</td>
</tr>
<tr>
<td>EDUC</td>
<td>-0.88</td>
<td>-5.66*</td>
<td>-4.24*</td>
<td>-5.55*</td>
</tr>
<tr>
<td>OPEN</td>
<td>-2.52***</td>
<td>-6.43*</td>
<td>-2.72***</td>
<td>-6.24*</td>
</tr>
</tbody>
</table>

Note: *, ** and *** shows significance at 1%, 5% and 10% level respectively.  
Source: Author’s own calculations

### 4.2.2.2. ARDL Bounds Test to Co-integration

After finding the integrating order of variables, ARDL bounds testing approach to cointegration is used to check the long run relationship between variables. The integrating order of all variables has been found in first stage. Now the lag length of variables is obtained from “unrestricted vector autoregressive” (VAR) model via “Schwartz Bayesian Criterion”. The minimum value of SBC selects the order of lag length as shown in the table (9).

To find presence of long run relation, F statistics values are calculated after determining the integration order of variables. The value of F-statistic is 6.13 while “critical Bound values” are (2.131-3.250) at 10% level of significance, (2.476-3.646) at 5% level of significance and (3.267-4.540) at 1% level of significance. It can be concluded that long run relation persists among...
variables. The lag length of variables is obtained where minimum value of Schwartz Bayesian criterion exists.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>LAGS</th>
<th>INST</th>
<th>GEXP</th>
<th>INDIS</th>
<th>EDUC</th>
<th>OPEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0.92</td>
<td>0.64*</td>
<td>1.17</td>
<td>2.27</td>
<td>0.75*</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0.47*</td>
<td>2.16</td>
<td>1.23</td>
<td>2.04</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.82</td>
<td>2.05</td>
<td>1.16*</td>
<td>1.97*</td>
<td>1.41</td>
</tr>
</tbody>
</table>

Note: * Shows minimum Schwarz SBC.
Source: Author’s own calculations

4.2.2.3. Estimation of Long Run Elasticities

After finding the existence of long run relationship, ARDL approach is applied to find long and short run coefficients of variables. The ARDL form of equation will be as follows;

To find the long run relationship among variables, auto regressive distributes model (ARDL) is applied and results are reported in following table (11).

The ARDL technique is more suitable when some variables are stationary at level while others are stationary at first difference. Moreover, it provides more reliable results in case of short samples as we have in this study. This technique also provides the solution to include the lagged values of dependent as well as of independent variables.
Table: 11 Estimated Long Run Coefficients for Institutional Quality

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>ARDL Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>INST</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient</th>
<th>Stand. Error</th>
<th>t-Statistics</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEXP</td>
<td>0.15***</td>
<td>0.085</td>
<td>1.75</td>
<td>0.09</td>
</tr>
<tr>
<td>INDIS</td>
<td>-0.70*</td>
<td>0.25</td>
<td>-2.80</td>
<td>0.00</td>
</tr>
<tr>
<td>EDUC</td>
<td>0.39**</td>
<td>0.18</td>
<td>2.10</td>
<td>0.04</td>
</tr>
<tr>
<td>OPEN</td>
<td>0.14</td>
<td>0.07</td>
<td>1.80</td>
<td>0.08</td>
</tr>
</tbody>
</table>

$R^2=0.92$

Adjusted $R^2=0.90$

$DW$-stat =1.88

White Heteroscedasticity =0.81(0.49)

ARCH Test =1.64(0.22)

Serial Correlation LM Test=0.01(0.90)

Jarque-Bera Test =0.34(0.72)

Note: *, ** and *** shows significance at 1%, 5% and 10% level of significance respectively.

The lagged values of dependent variables may be included as independent variables. It should be kept in view that the value of coefficient of determination is not much important to verify the significance of the model because the value of coefficient of determination will increase as the number of lagged values are included in the model as independent variables. The estimated values are reported in the table where institutional quality is dependent variables while independent variables are components on institutional quality in the country.
The estimated equation indicates a comparatively high value of $R^2$ (0.92), which means that independent variables of model explain a great proportion of institutional quality of the country.

The estimated results show that government spending has positive relationship to improve the institutional quality but it contributes very little. The results show that 1% increase in government spending will improve the quality of institutions by 0.15%. It may be argued that many categories of government expenditure are not public oriented while government spending is necessary to build high quality institutions, and it produces a more direct relation between state and citizens. According to findings of Moore (2002) and Tilly (1992), government spending is an essential variable explaining the quality of institutions in a country. Government spending is not only a necessary source for high quality institutions in the country but also permits consolidation of social contracts that ensures and develops a more trustworthy relation between citizens and state. Resultantly, higher accountability and transparency will lead to creation of high quality institutions.

Regarding education, it affects positively on quality of institutions. The results suggest that educational variable is significant at 4% and improvement in education will promote the institutional quality in the country. The results indicate that one percent increase in education will lead to promote the institutional quality by 0.39%. It is more important and much significant variable that may enhance the quality of institutions in the country so it should be a more concentrated area to prosper the country. Evans and Rauch (2000), Rodrik et al (2002) also found the positive impact of education on institutional quality.

The significance of income inequality shows that an equitable income distribution enhances the institutional quality of country. The results show that 1% increase in income inequality cause to decrease the quality of institutions by 0.70% because income inequalities cause to lose the
confidence of people on institutions. The results are significant at one percent. There is dire need to handle this problem immediately because this variable is degrading the quality of institutions very sharply. Alesina and Rodrik (1993); Alesina and Perotti (1996); Easterly (2001) also found negative relationship between quality of institutions and income inequality.

International openness is also improving the quality of institutions in Pakistan but it has very lower level of contribution. The estimated results indicate that one percent increase in international openness will lead to improve the quality of institutions by 0.14 percent. It is very clear in the literature that trade openness has a positive role for economic growth. Higher economic growth provides more revenues to government and such government spending may be utilized to improve the quality of institutions by restoring the confidence of people. The studies by Rigobon & Rodrik (2004), Rodrik et al (2002) found a positive but weak relationship between trade openness and institutions.

4.2.2.4. Error Correction Representation for the ARDL Model

After estimation of long run relation, now we may find the short run behavior of variables by error correction model. The ECM form of model is following;

\[
\Delta \text{INST} = \alpha_0 + \sum_{i=0}^{n} \alpha_1 \Delta \text{INST}_{t-i} + \sum_{i=0}^{n} \alpha_2 \Delta \text{GEXP}_{t-i} + \sum_{i=0}^{n} \alpha_3 \Delta \text{INDI}_t + \sum_{i=0}^{n} \alpha_4 \Delta \text{EDUC}_{t-i} + \sum_{i=0}^{n} \alpha_5 \Delta \text{OPEN}_{t-i} + \text{ECM}_{t-1} + \epsilon_t
\]

Here ECM_{t-1} is adjustment parameter. It shows the speed of adjustment while the other parameters represent the short run coefficients. The institution is a dependent variable while government expenditures, income disparities, education and trade openness are considered as independent variables. The estimated results are presented in the following table (12).
The estimated values of error correction model are reported in the following table. The estimated lagged error correction term $ECM_{t-1}$ is significant and negative. The significance and negative sign of error correction term shows the presence of long run relation among the variables. The feedback coefficient is -0.28 which shows that 28 percent disequilibrium is corrected in short run.

### Table: 12 Estimated Short Run Coefficients for Institutional Quality

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient</th>
<th>Stand. Error</th>
<th>t-Statistics</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta GEXP$</td>
<td>0.20</td>
<td>0.41</td>
<td>0.49</td>
<td>0.63</td>
</tr>
<tr>
<td>$\Delta INDIS$</td>
<td>-0.40*</td>
<td>0.14</td>
<td>-2.88</td>
<td>0.00</td>
</tr>
<tr>
<td>$\Delta EDUC$</td>
<td>0.20***</td>
<td>0.11</td>
<td>1.81</td>
<td>0.08</td>
</tr>
<tr>
<td>$\Delta OPEN$</td>
<td>0.21</td>
<td>0.44</td>
<td>0.48</td>
<td>0.63</td>
</tr>
<tr>
<td>ECM$_{t-1}$</td>
<td>-0.28**</td>
<td>0.14</td>
<td>-2.04</td>
<td>0.05</td>
</tr>
</tbody>
</table>

$R^2 = 0.88$

Adjusted $R^2 = 0.85$

$DW-stat = 1.93$

Jarque-Bera Test = 0.96(0.50)

Serial Correlation LM Test = 0.02(0.79)

White Heteroscedasticity = 0.37(0.39)

ARCH Test = 0.40(0.43)

Note: * and ** shows significance at 1% and 5% level of significance.

Source: Author’s own calculations
In short run, the government expenditures have positive but insignificant impact on quality of institutions in Pakistan while income inequality has negative but significant impact on institutions. Education has also positive and significant effect for short term while international openness has positive but insignificant effect on quality of institutions in Pakistan.

4.3. Economic Growth, Fiscal Policy and Institutions

In this section, a framework is derived to investigate the impact of fiscal policy and institutions on economic growth in an economy.

Barro (1990) derived a model, representative of infinite households in a close economy which has the maximum utility as follows;

\[ U = \int_0^\infty u(C) e^{-pt} dt \] (4.3.1)

Where \( C \) represents the “consumption of per person” in the economy and \( p > o \) is the “constant rate of time preference”. The utility function will be as follows if population is being kept constant;

\[ u(C) = \frac{c^{1-\theta} - 1}{1 - \theta} \] (4.3.2)

Where \( \theta > 0 \), so that “marginal utility” has “constant elasticity” \( -\theta \). According to Barro and Sala-i-Martin (1992), household hold the quantity \( a(t) \) of real assets and return on assets, consumable in future with respect to per unit of time is \( r(t) \). So, household’s budget constraints determine the variations over time in assets will be;

\[ a = r a - c \] (4.3.3)
The term \( ra \) includes returns on assets like physical and human capital. The growth rate of consumption per person is obtained by “first order condition for maximization of utility” in eq. (4.3.1) subject to “budget constraint” in eq. (4.3.3);

\[
\frac{c^\ast}{c} = \left(\frac{1}{\theta}\right)(r-p)
\]  

(4.3.4)

Rebelo (1991) assumed the rate of return as constant, so;

\[
y = A k
\]  

(4.3.5)

Where \( A > 0 \) is “constant net marginal product of capital”. Now the above production function may be distinguished into non human and human capital. The function can be extended also to those sectors that produce physical and human capital. Now substituting \( r=A \) into equation (4.3.4), we get

\[
f = \frac{c^\ast}{c} = \left(\frac{1}{\theta}\right)(A-p)
\]  

(4.3.6)

Where \( f \) shows per capita growth rate and \( A>p>A(1-\theta) \)

According to Madni (2014), “now the analysis is incorporated with public sector. It is assumed that \( g \) is the quantity of public services provided to each household producer and these public services can be considered as an input to private production. Production now exhibits constant returns to scale in \( k \) and \( g \) together but diminishing returns in \( k \) separately. Now production function can be written as

\[
y = \Phi(k, g) = \Phi\left(\frac{g}{k}\right)
\]  

(4.3.7)

It is assumed here that production function is Cobb-Douglass, and then it can be written as
\[
\frac{y}{k} = \Phi \left( \frac{g}{k} \right) = A \left( \frac{g}{k} \right)^{\alpha} \quad (4.3.8)
\]

After simplifying, we get

\[
y = Ak^{1-\alpha}g^{\alpha} \quad (4.3.9)
\]

Where \(y\) is per capita output, \(A\) is a productivity factor and \(k\) is per capita private capital. If the government expenditures are financed by a flat rate income tax

\[
g = T = ty = t \cdot \Phi \left( \frac{g}{k} \right) \quad (4.3.10)
\]

Where \(T\) is government revenue, \(t\) is the tax rate and \(g\) shows aggregate expenditure. But this equation has a constraint of balanced budget. In developing countries, it is hardly observed that government balances its budget so Kneller et al (1999) took a more practical view by assuming a non balancing government budget constraint in some periods. Now (4.3.10) can be re-write as,

\[
n g + C + b = L + \tau n y \quad (4.3.11)
\]

Where \(b\) is the budget deficit/surplus in a given period. Both \(C\) and \(L\) are hypothesized to have zero effects on growth. The predicted sign of \(g\) and \(\tau\) is positive and negative respectively. Similarly \(b\) is zero as long as Ricardian equivalence holds, but may not be zero otherwise (Bleaney et al, 2000).

Theoretically, a proportional tax on output affects private investment but a lump sum tax does not. Subject to specified utility function, Barro (1990) and Barro and Sala-i-Martin (1992) derived the long run growth rate in this model as,

\[
\gamma = \lambda (1-\tau) (1-\alpha)A^{1/(1-\alpha)}(g/y)^{a/(1-a)-\mu} \quad (4.3.12)
\]
Where \( \lambda \) and \( \mu \) stand for parameters in the assumed utility function.”

This equation shows that growth rate is decreasing function of distortionary tax rate \( \tau \) and an increasing function of productive government expenditures \( (g) \).”

Both fiscal \( (x_{it}) \) and institutional variables \( (z_{it}) \) in the spirit of Kneller et al (1999) are considered then growth equation becomes,

\[
y_i = \alpha + \sum_{i=1}^{k} \beta_i z_{it} + \sum_{j=1}^{m} \gamma_j x_{jt} + \epsilon_{it} \quad (4.3.13)
\]

If the budget constraint is fully specified, then

\[
\sum_{j=1}^{m} x_{jt} = 0
\]

So expenditures are equal to revenues. To avoid the perfect collinearity in the model, we have to omit at least one element of \( x (x_m) \). Rewriting the equation (4.3.13), we get;

\[
y_{it} = \alpha + \sum_{i=1}^{k} \beta_i z_{it} + \sum_{j=1}^{m-1} \gamma_j x_{jt} + \gamma_m x_{mt} + \epsilon_{it} \quad (4.3.14)
\]

Following is general form to analyze the impact of fiscal policy and institutions on economic growth.

\[
Y = \beta_0 + \beta_1 F P_t + \beta_2 Z_t + \mu \quad (4.3.15)
\]

Where \( FP \) represents the fiscal policy variables and \( Z \) shows the institutional and control variables.
Now the detail of used variables in this section is discussed, having the time span of data from 1984-2015. The economic growth is considered as real economic growth of the country and data source is Handbook of Statistics and Pakistan Economic Survey (Various Issues). The data set of institutional quality is based on the compilation of different institutional measures from ICRG (International Country Risk Guide), organized in twelve clusters namely as Bureaucratic Quality, Democratic Accountability, Ethnic Tension, Rule of Law, Religion in Politics, Military in Politics, Corruption, Government Stability, External Conflict, Internal Conflict, Investment Profile and Socioeconomic Condition. All of these variables range from 0-10. A higher score means higher condition and vice versa. By considering all these variables, an institutional quality index is developed by PCA (Principal Components Analysis). PCA is a statistical technique which uses an orthogonal transformation to alter a group of observations having a possible correlation of variables into an array of uncorrelated linear variables.

Government expenditures are treated as a percentage of GDP. Public spending affects legitimacy and efficiency of economic growth so it can be perceived as a crucial variable. Government spending is not only a necessary source for boosting the economic growth in the country but also permits consolidation of social contracts that ensures and develops a more trustworthy relation between citizens and state (Moore, 2002; Tilly, 1992).

International openness is also a factor that may have an impact of economic growth of the country. It creates a more dynamic, sophisticated and demanding environment, which encourages a more competitive environment; therefore it can hinder rent-seeking activities, corruption and nepotism. Finally, openness can facilitate learning processes and good practices imitation from other countries experience. It is measured by sum of imports and exports ratio to GDP.
The importance of education is not hidden to explain the growth process of an economy and also considered as a fundamental determinant of growth. Primary and secondary enrolment as a percentage of population is considered as a proxy for education. Investment is also considered as percentage of GDP.

Now an analysis of government spending and institutions on economic growth is presented. At first, the integrating order of variables used in model is determined.

4.3.1 Testing the Unit Root Hypothesis

To find the unit root and order of integration, ADF test is applied to all variables. The results indicate that some variables are stationary at level while others are stationary at first difference. The estimated results of the test are reported in the following table.

Table: 13

<table>
<thead>
<tr>
<th>Variable</th>
<th>LEVEL</th>
<th>1st DIFF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LEVEL</td>
<td>1st DIFF</td>
</tr>
<tr>
<td></td>
<td>Intercept</td>
<td>Trend and Intercept</td>
</tr>
<tr>
<td>INST</td>
<td>-1.73</td>
<td>-1.84</td>
</tr>
<tr>
<td>GEXP</td>
<td>-1.69</td>
<td>-2.28</td>
</tr>
<tr>
<td>EDUC</td>
<td>-0.88</td>
<td>-4.24*</td>
</tr>
<tr>
<td>OPEN</td>
<td>-2.52***</td>
<td>-2.72***</td>
</tr>
<tr>
<td>INVT</td>
<td>-1.72</td>
<td>-2.53</td>
</tr>
<tr>
<td>GDPG</td>
<td>-2.63</td>
<td>-3.89</td>
</tr>
</tbody>
</table>

Note: *, ** and *** shows significance at 1%, 5% and 10% level respectively.
Source: Author’s own calculations
The estimated values indicate order of integration of each variable of model. It is obvious that order of integration is different of variables. Some variables are integrated at level while others are integrated at first difference. If variables have different integrating order, then ARDL approach is appropriate to find the long and short run dynamics of variables.

**4.3.2. ARDL Bounds Test to Co-integration**

After finding the integrating order of variables, ARDL bounds testing approach to cointegration is used to check the long run relationship between variables. The integrating order of all variables has been found in first stage. Now the lag length of variables is obtained from “unrestricted vector autoregressive” (VAR) model via “Schwartz Bayesian Criterion”. The minimum value of SBC selects the order of lag length as shown in the table.

<table>
<thead>
<tr>
<th>LAGS</th>
<th>VARIABLES</th>
<th>GDPG</th>
<th>GEXP</th>
<th>INST</th>
<th>EDUC</th>
<th>INVT</th>
<th>OPEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>1.55</td>
<td>2.97</td>
<td>3.26</td>
<td>0.56</td>
<td>0.54*</td>
<td>1.83</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>0.07*</td>
<td>1.39*</td>
<td>2.73</td>
<td>0.16*</td>
<td>1.93</td>
<td>1.27*</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>0.33</td>
<td>2.45</td>
<td>1.92*</td>
<td>0.71</td>
<td>2.59</td>
<td>1.99</td>
</tr>
</tbody>
</table>

**NOTE:** * Shows minimum Schwarz SBC.
Source: Author’s own calculations

To find the presence of long run relation between variables, the value of F-statistics is calculated. The calculated value of F-statistics is 5.34 while the critical Bounds values are at 10% level of significance (2.035-3.153), at 5% are (2.365-3.553) and at 1% are (3.027-4.296) so it indicates the presence of long term relation between variables.
4.3.3. Estimation of Long Run Elasticities

After finding the existence of long run relationship, ARDL technique is applied to estimate the long run and short run coefficients. The ARDL form of the growth equation will be as follows:

\[
\Delta GDP = \alpha_0 + \sum_{i=0}^{n} \alpha_1 \Delta GDP_{t-i} + \sum_{i=0}^{n} \alpha_2 \Delta GEXP_{t-i} + \sum_{i=0}^{n} \alpha_3 \Delta INST_{t-i} + \sum_{i=0}^{n} \alpha_4 \Delta EDUC_{t-i} \\
+ \sum_{i=0}^{n} \alpha_5 \Delta INV_{t-i} + \sum_{i=0}^{n} \alpha_6 \Delta OPEN_{t-i} + \beta_1 GDP_{t-1} + \beta_2 GEXP_{t-1} + \beta_3 INST_{t-1} + \beta_4 EDUC_{t-1} + \beta_5 INV_{t-1} + \beta_6 OPEN_{t-1} + \varepsilon_t
\]

In this model, government expenditures (GEXP), institutions (INST), education (EDUC), private investment (INV), trade openness (OPEN) are considered as independent variables while GDP growth is a dependent variable. To test the efficiency of data, White heteroscedasticity test, serial correlation LM test, normality test and ARCH test were applied and output of tests indicate that data has not any econometric problem. The estimated results are pasted in the following table (15). This part of study examined the relationship between economic growth, government spending and institutions. The estimated results indicate that government spending has significant impact on economic growth of country and 1 percent increase in government spending will lead to economic growth by 0.27 percent. The increased government spending causes to improve the human capital, infrastructure and more facilitation for public that leads to increase the productivity of labor so economic growth is accelerated.
Table: 15

Estimated Long Run Coefficients for Growth Equation

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>ARDL Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP growth</td>
<td>Order (1,1,2,1,0,1)</td>
</tr>
<tr>
<td>Regressors</td>
<td>Coefficients</td>
</tr>
<tr>
<td>GEXP</td>
<td>0.27***</td>
</tr>
<tr>
<td>INST</td>
<td>0.47*</td>
</tr>
<tr>
<td>EDUC</td>
<td>0.65***</td>
</tr>
<tr>
<td>INVT</td>
<td>0.37**</td>
</tr>
<tr>
<td>OPEN</td>
<td>0.45</td>
</tr>
</tbody>
</table>

R² = 0.92  
Adjusted R² = 0.90  
DW-stat = 1.93  
Serial Correlation LM Test = 0.08(0.77)  
ARCH Test = 2.53(0.38)  
White Heteroscedasticity = 0.85(0.48)  
Jarque-Bera Test = 0.44(0.70)

Note: *, ** and *** shows significance at 1%, 5% and 10% level of significance respectively.

The estimated result point out that institutional quality is more important than the government spending. The effectiveness of institutions on economic growth of Pakistan is significant and one unit increase in institutional quality will lead to improve the economic growth by 0.47 units. It is evident that with strong and effective institutional framework, people have inclusion in the development process as well as availability of equal opportunities. The efficient judicial and law enforcement mechanism makes it convenient to reduce the transaction costs so the gains from economic activities increase. Education also plays an important role to increase the growth of
Pakistan. Findings of empirical investigation reveal that on unit increase in educational level of people will boost the economic growth by 0.65 units. It is evident that literate person are more productive as compared with illiterate persons. In the same way, private investment has a significant and positive impact on economic growth. It indicates that increase in investment increases the productivity and there are more chances of employment so it accelerates the economic growth. The derived results show that trade openness has not significant impact on economic growth. One of the reasons of insignificance of trade openness may be the non-competitive prices of our production sector in international market due to energy crisis and inflation rate of the country while on the other side; our imports are higher than exports so Pakistan is not much beneficiary from free trade policies. All above results are consistent with the findings of Acemoglu et al (2005), Alesina & Perotti (1996), Ali & Ahmad (2010), Barro (1990), Clague et al (1999), Madni (2014), Peroti (2005).

4.3.4. Error Correction Representation for the ARDL Model of Economic Growth

After estimating the long run relationship, we are able to estimate the error correction model for short run dynamics. The ECM form of growth model is following;

\[
\Delta GDP_t = \alpha_0 + \sum_{i=0}^{n} \alpha_1 \Delta GDP_{t-i} + \sum_{i=0}^{n} \alpha_2 \Delta INST_{t-i} + \sum_{i=0}^{n} \alpha_3 \Delta EDUC_{t-i} + \sum_{i=0}^{n} \alpha_4 \Delta INVT_{t-i} + \sum_{i=0}^{n} \alpha_5 \Delta OPEN_{t-i} + \sum_{i=0}^{n} \alpha_6 \Delta GEXP_{t-i} + ECM_{t-1} + \varepsilon_t
\]
Here ECM\(_t-1\) is the adjustment parameter. It shows the speed of adjustment while the other parameters represent the short run coefficients.

### Table: 16 Estimated Short Run Coefficients for Growth Equation

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>ARDL Technique</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Growth</td>
<td>Order (1,1,2,1,0,1)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficients</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\Delta GEXP)</td>
<td>0.27</td>
<td>0.15</td>
<td>1.75</td>
<td>0.09</td>
</tr>
<tr>
<td>(\Delta INST)</td>
<td>1.10*</td>
<td>1.25</td>
<td>0.88</td>
<td>0.38</td>
</tr>
<tr>
<td>(\Delta EDUC)</td>
<td>1.35</td>
<td>1.14</td>
<td>1.18</td>
<td>0.24</td>
</tr>
<tr>
<td>(\Delta INV)</td>
<td>2.54</td>
<td>1.40</td>
<td>1.81</td>
<td>0.08</td>
</tr>
<tr>
<td>(\Delta OPEN)</td>
<td>0.19</td>
<td>0.26</td>
<td>0.74</td>
<td>0.46</td>
</tr>
<tr>
<td>ECM(_{t-1})</td>
<td>-0.37**</td>
<td>-0.19</td>
<td>-1.99</td>
<td>0.05</td>
</tr>
</tbody>
</table>

\(R^2=0.93\)

Adjusted \(R^2=0.91\)

\(DW\)-stat =1.92

Serial Correlation LM Test=0.15(0.66)

ARCH Test =0.34(0.48)

White Heteroscedasticity =0.16(0.38)

Jarque-Bera Test =0.87(0.54)

Note: * and ** shows significance at 1% and 5% level of significance.

The estimated lagged error correction term ECM\(_{t-1}\) is negative and significant. The negative and significant error correction term indicates that there is a long run relationship among the variables. The feedback coefficient is -0.37. It indicates that 37 percent disequilibrium is corrected in the short run. In short run, public spending and private investment is significant for
economic growth while institutional framework, education and trade openness are not significant in the short run.

4.4. Optimal Government Spending at Disaggregated Level

To find the optimal level of public spending, Deverajan et al. (1996) developed a model following the Barro (1990) model by incorporating the optimal level of government spending. This model adopts a constant elasticity of substitution (CES) technology which means that elasticity of substitution has some constant number, other than one and not necessarily equal to one. If K is capital, Y is output and G1 and G2 show two different categories of public expenditures, then model will be as;

\[ Y = \left[ \alpha K^\zeta + \beta G_1^\zeta + \gamma G_2^\zeta \right]^{-1/\zeta} \]  

(4.4.1)

Where \( \alpha > 0, \beta \geq 0, \gamma \geq 0, \alpha + \beta + \gamma = 1, \zeta \geq -1 \)

The budget constraint of government is as;

\[ T \ Y = G_1 + G_2 \]  

(4.4.2)

Where “T” is tax ratio.

The share of public expenditures for G1 (\( \theta \)) & G2 (1-\( \theta \)) are as;

\[ G_1 = \theta TY \quad & \quad G_2 = (1-\theta) TY \]

The growth rate of economy is derived as;

\[ \lambda = \left[ \alpha (1 - T) \left\{ \alpha T^{\zeta} / \left[ T^{\zeta} - \delta \ 0 - \gamma (1 - \theta) \right] \right\} \right] - (1 + \zeta)/\zeta - p \] / \sigma  

(4.4.3)

To test the relation between public spending and economic growth, a simple “quadratic equation” is used by following Davies (2008), Pevcin (2004) and Vedder and Gallaway (1998).

\[ 1 + g = a + b \left( G \ C \right) + c \left( G \ C \right)^2 \]  

(4.4.4)

The linear term in above model captures the positive impact of size of government, while the negative impact is captured by the squared term. Vedder and Gallaway (1998) used squared and
linear terms of public expenditures, time trend and unemployment rate as exogenous variables in their developed model. The linear term of public spending in the model is expected to be positive while squared term may be negative. Openness of economy is also used as an independent variable by Facchini and Melki (2013) and Herath (2012). As established in growth literature (Barro & Sala-i-Martin, 1999; Levine & Renelt, 1992), inflation rate, domestic investment, and trade openness are considered as control variables to find optimal level of public expenditures. The effect of physical capital accumulation is captured by domestic investment. The latter are control variables to determine the effects of macro-economic policy. Trade openness is assumed to have a positive effect on economic growth, while higher inflation curbs the economic growth of the country.

Following specification is derived on the basis of previous studies:

$$GGDP = \beta_0 + \beta_1 \text{GEXP} + \beta_2 \text{GEXP}^2 + \beta_3 \text{OPEN} + \beta_4 \text{PINV} + \beta_5 \text{INF} + \varepsilon$$

Where GGDP stands for growth rate of real GDP, GEXP for public spending, OPEN represents the trade openness of the country measured by sum of imports and exports divided by GDP, INF is inflation rate, PINV is private investment and ε represents the error term. As discussed earlier, the coefficient of public spending indicates the positive effect of public spending on growth, while the squared term reflects negative effects. The optimal level of public spending affecting economic growth positively can be obtained by differentiating the following quadratic function with respect to public spending:

$$\text{GEXP}^* = -\beta_1 / 2 \beta_2 .$$

This study employed four estimation equations to find the optimal level of government spending and model can be disaggregated for other categories of government expenditures into current
expenditures, development expenditures and defense expenditures to determine the optimal level of each category that enhance the level of economic growth.

2\textsuperscript{nd} Equation

\[ GGDP = \beta_0 + \beta_1 CEXP + \beta_2 CEXP^2 + \beta_3 OPEN + \beta_4 PINV + \beta_4 INF + \varepsilon \]

3\textsuperscript{rd} Equation

\[ GGDP = \beta_0 + \beta_1 DEXP + \beta_2 DEXP^2 + \beta_3 OPEN + \beta_4 PINV + \beta_4 INF + \varepsilon \]

4\textsuperscript{th} Equation

\[ GGDP = \beta_0 + \beta_1 DEXP + \beta_2 DEXP^2 + \beta_3 OPEN + \beta_4 PINV + \beta_4 INF + \varepsilon \]

Scully Model is used to estimate the optimal level of government spending that maximizes real economic growth.

A significant research needs reliable and adequate data of all variables. The data for this study is time series data covering the period of 1984-2015. The sources of data set for the used variables in the study are Pakistan Economic Survey (Various Issues) \(^{29}\), Handbook of Statistics on Pakistan Economy\(^{30}\) and World Development Indicators\(^{31}\). The detail about descriptions of various variables is as follows:

- \( GGDP = \) Growth Rate of Real GDP
- \( GEXP = \) Government Expenditures as percentage of GDP
- \( CEXP = \) Current Expenditures as percentage of GDP
- \( DE = \) Development Expenditure as percentage of GDP.
- \( DFE = \) Defense Expenditure as percentage of GDP.

\(^{29}\) Published by Ministry of Finance, GoP, Islamabad, Pakistan.
\(^{30}\) Handbook of Statistics is available at the official website of State Bank of Pakistan, Karachi.
\(^{31}\) The WDI data set is available on the official website of World Bank.
PI = Private Investment as percentage of GDP.

OPEN = Trade Openness (Imports + Exports / GDP)

In time series study, stationarity of variables has to be examined at first. A time series is non-stationary when it has different mean at different points in time, and its variance increases with the sample size (Harris and Sollis (2003). A non-stationary time series estimates the spurious regression having highly significant t-values of coefficients, high value of $R^2$ (coefficient of determination) but lower value of Durbin Watson. The results of coefficients of estimated spurious regression become biased.

4.4.1. Unit Root Testing

To avoid spurious and unreliable results, it is necessary to test the stationarity or the presence of unit root in time series data. The economic theory also describes that shocks to a stationary series are temporary and with the passage of time, the series will go back to mean level. The test used to check the stationarity in time series data is called Unit Root test.

To find the unit root, ADF test is applied to all variables. The estimated results of the test are reported in table (17). The reported values indicate order of integration of each variable of model. It is obvious that variables have different order of integration. Some variables are integrated at level while others are integrated at first difference.
In resemblance with methodological framework discussed earlier, this study investigates four regression equations using OLS estimation technique to determine the optimal level of different categories of public spending. To measure this, there will be investigation of marginal impacts of public expenditures, square term of public expenditures, trade openness, private investment, and inflation on real GDP growth of Pakistan.
Table: 18
Estimated Coefficients for Government Expenditures

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>OLS Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP growth</td>
<td></td>
</tr>
<tr>
<td>Regressors</td>
<td>Coefficient</td>
</tr>
<tr>
<td>GEXP (Government Expenditures)</td>
<td>0.31**</td>
</tr>
<tr>
<td>GEXP^2</td>
<td>-0.0075**</td>
</tr>
<tr>
<td>PINV(Private Investment)</td>
<td>0.73*</td>
</tr>
<tr>
<td>INFL(Inflation)</td>
<td>-0.33*</td>
</tr>
<tr>
<td>OPEN (Trade Openness)</td>
<td>0.12</td>
</tr>
</tbody>
</table>

R^2=0.85
Adjusted R^2=0.81
DW-stat =1.86
Serial Correlation LM Test=0.07(0.71)
ARCH Test =0.61(0.38)
White Heteroscedasticity =1.37(0.31)
Jarque-Bera Test =0.12(0.73)

Note: *, ** and *** shows significance at 1%, 5% and 10% level respectively.
Source: Author’s own calculations

The results shown in above table (18) indicate that total government spending has the significant positive impact on economic growth of Pakistan up to a threshold level. While the squared or the quadratic term has the significant negative effect on economic output which shows the robustness of Armey Curve for the Pakistan’s Economy; public spending have the positive impact on economic output up to a certain level (the coefficient of GEXP is positive) and after that level the relationship among the public expending and economic output switches into
negative (the coefficient of $GEXP^2$ is negative). The terrific government sizes drive to lessen economic output while confined government sizes drive to improve growth. However the control variable private investment and inflation rate are affecting the economic growth significantly whereas the openness has not significant effect on economic growth of Pakistan. The growth maximizing public spending can be determined from the quadratic function $GGDP$ differentiating with respect to government spending $GEXP$:

$$GEXP: - \beta_1/2 \beta_2.$$  
$$GEXP= - 0.31/2(0.0075)$$  
$$= 20.66$$

This empirical findings show the optimal government size for the economy of Pakistan, conversely the identical size of public expending is determined to be approximately 20.66% against the 19.4% of GDP in 2015 whereas the calculated optimal size of government from the above estimation is 20.66 % of GDP. This outcome is immensely fascinating ever since it emphasized that the current size of government in Pakistan is lower than the optimal level and there is scope of increase in total government spending to the GDP ratio in Pakistan. The present findings are consistent with the hypothesis of Friedman (1997); that the range of optimum size of government should be 15% to 50 % of GDP while Scully (2000) investigated for 112 countries and found the optimal level of government spending 20.2-22.8% of GDP.

To find the optimal level of current expenditures, following equation is regressed.

$$GGDP=\beta_0 + \beta_1 CEXP+ \beta_2 CEXP^2 + \beta_3 OPEN+ \beta_4 PINV+ \beta_4 INF + \varepsilon$$

The estimated results are reported in the following table (19).
Table: 19
Estimated Coefficients for Current Expenditures

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>OLS Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP growth</td>
<td></td>
</tr>
<tr>
<td>Regressors</td>
<td>Coefficients</td>
</tr>
<tr>
<td>CEXP (Current Expenditures)</td>
<td>0.29**</td>
</tr>
<tr>
<td>CEXP²</td>
<td>-0.11**</td>
</tr>
<tr>
<td>PINV(Private Investment)</td>
<td>0.72*</td>
</tr>
<tr>
<td>INFL(Inflation)</td>
<td>-0.38*</td>
</tr>
<tr>
<td>OPEN (Trade Openness)</td>
<td>0.32</td>
</tr>
</tbody>
</table>

R²=0.79
Adjusted R²=0.74
DW-stat =2.15
Serial Correlation LM Test=0.52(0.61)
ARCH Test =0.49(0.37)
White Heteroscedasticity =2.21(0.39)
Jarque-Bera Test =0.42(0.63)

Note: *, ** and *** shows significance at 1%, 5% and 10% level respectively.

The results indicate that current expenditure has positive and significant effect on growth of Pakistan up to a threshold level. While the squared or the quadratic term has the significant negative effect on economic output which shows the robustness of Armey Curve for the Pakistan’s Economy; current spending have the positive impact on economic output up to a certain level (the coefficient of CEXP is positive) and after that level the relationship among the current expending and economic growth switches into negative (the coefficient of CEXP² is negative). However the control variables private investment and inflation rate are affecting the economic growth significantly whereas the trade openness has not significant impact on
economic growth of Pakistan. The growth maximizing current expenditures can be determined from the quadratic function \( \text{GGDP} \) differentiating with respect to current expenditures \( \text{CEXP} \):

\[
\text{CEXP: } - \frac{\beta_1}{2} \beta_2.
\]

\[
\text{CEXP} = - \frac{0.29}{2}(0.011)
\]

\[
= 13.18
\]

This empirical findings show the optimal current expenditures for the economy of Pakistan. The calculated optimal current expenditures are 13.18 % of GDP against the 15 % of GDP in 2015. This outcome is immensely fascinating ever since it emphasized that the current expenditures are higher than the optimal level and there is need to decrease the current government spending to maximize the economic growth.

To find the optimal level of current expenditures, following equation is regressed.

\[
\text{GGDP} = \beta_0 + \beta_1 \text{DEXP} + \beta_2 \text{DEXP}^2 + \beta_3 \text{OPEN} + \beta_4 \text{PINV} + \beta_4 \text{INF} + \epsilon
\]

The estimated results are reported in the following table (20).

The dependent variable is GDP growth while independent variables are development expenditures as a percentage of GDP, private investment as a percentage of GDP, inflation measured by consumer price index and trade openness which is measured as percentage of GDP of sum of imports and exports. The sum of imports and exports represent the trade volume of the country so it is used as a proxy for trade openness.
Table: 20
Estimated Coefficients for Development Expenditures

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>OLS Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP growth</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficients</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEXP (Development Expenditures)</td>
<td>0.27**</td>
<td>0.13</td>
<td>2.12</td>
<td>0.04</td>
</tr>
<tr>
<td>DEXP²</td>
<td>-0.02*</td>
<td>0.01</td>
<td>-2.49</td>
<td>0.01</td>
</tr>
<tr>
<td>PINV(Private Investment)</td>
<td>0.72*</td>
<td>0.26</td>
<td>2.80</td>
<td>0.00</td>
</tr>
<tr>
<td>INFL(Inflation)</td>
<td>-0.22***</td>
<td>0.13</td>
<td>-1.77</td>
<td>0.08</td>
</tr>
<tr>
<td>OPEN (Trade Openness)</td>
<td>0.45</td>
<td>0.59</td>
<td>0.76</td>
<td>0.45</td>
</tr>
</tbody>
</table>

R² = 0.77
Adjusted R² = 0.72
DW-stat = 2.25
Serial Correlation LM Test = 0.17(0.73)
ARCH Test = 0.72(0.52)
White Heteroscedasticity = 1.81(0.34)
Jarque-Bera Test = 0.16(0.47)

Note: *, ** and *** shows significance at 1%, 5% and 10% level respectively.
Source: Author’s own calculations

The results shown in above table indicate that development expenditures have the significant positive impact on economic growth of Pakistan up to a threshold level. While the squared or the quadratic term has the significant negative effect on economic output which shows the robustness of Armey Curve for the Pakistan’s Economy; current spending have the positive impact on economic output up to a certain level (the coefficient of DEXP is positive) and after that level the relationship among the development spending and economic growth switches into
negative (the coefficient of $DEXP^2$ is negative). However the control variables private investment and inflation rate are affecting the economic growth significantly whereas the trade openness has not significant impact on economic growth of Pakistan. The growth maximizing development expenditures can be determined from the quadratic function $GGDP$ differentiating with respect to development expenditures $DEXP$:

$$DEXP: - \frac{\beta_1}{2} \beta_2.$$  

$$DEXP = - \frac{0.27}{2}(0.020)$$  

$$= 6.75$$

This empirical findings show the optimal development expenditures for the economy of Pakistan. The calculated optimal development expenditures are 6.75 % of GDP against the 4.5 % of GDP in 2015. This outcome indicates that development expenditures are far lower than optimal level which may maximize the economic growth so it is dire need that government should increase the level of development expenditures to improve the economic output.

To find the optimal level of defense expenditures, following equation is regressed.

$$GGDP=\beta_0 + \beta_1DFEXP+ \beta_2DFEXP^2 + \beta_3OPEN+ \beta_4PINV+ \beta_4 INF + \varepsilon$$

The estimated results are reported in the following table.

The dependent variable is GDP growth while independent variables are defense expenditures as a percentage of GDP, private investment as a percentage of GDP, inflation measured by consumer price index and trade openness which is measured as percentage of GDP of sum of imports and exports. The sum of imports and exports represent the trade volume of the country so it is used as a proxy for trade openness.
### Table: 21

**Estimated Coefficients for Defense Expenditures**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>OLS Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP growth</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficients</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFEXP (Defense Expenditures)</td>
<td>0.18**</td>
<td>0.08</td>
<td>2.34</td>
<td>0.02</td>
</tr>
<tr>
<td>DFEXP^2</td>
<td>-0.03</td>
<td>0.02</td>
<td>-2.48</td>
<td>0.01</td>
</tr>
<tr>
<td>PINV(Private Investment)</td>
<td>0.83*</td>
<td>0.23</td>
<td>3.75</td>
<td>0.00</td>
</tr>
<tr>
<td>INFL(Inflation)</td>
<td>-0.22***</td>
<td>0.12</td>
<td>-1.83</td>
<td>0.07</td>
</tr>
<tr>
<td>OPEN (Trade Openness)</td>
<td>0.52</td>
<td>0.73</td>
<td>0.72</td>
<td>0.47</td>
</tr>
</tbody>
</table>

R^2 = 0.77  
Adjusted R^2 = 0.72  
DW-stat = 2.02  
Serial Correlation LM Test = 0.77 (0.42)  
ARCH Test = 0.44 (0.22)  
White Heteroscedasticity = 2.15 (0.33)  
Jarque-Bera Test = 1.23 (0.74)

Note: *, ** and *** shows significance at 1%, 5% and 10% level respectively.  
Source: Author’s own calculations

The results shown in above table indicate that defense expenditure has the significant positive impact on economic growth of Pakistan up to a threshold level. While the squared or the quadratic term has the significant negative effect on economic output which shows the robustness of Armey Curve for the Pakistan’s Economy; defense spending have the positive impact on economic output up to a certain level (the coefficient of DFEXP is positive) and after that level the relationship among the defense spending and economic growth switches into
negative (the coefficient of $DFEXP^2$ is negative). However the control variables private investment and inflation rate are affecting the economic growth significantly whereas the trade openness has not significant impact on economic growth of Pakistan. The growth maximizing defense expenditures can be determined from the quadratic function $GGDP$ differentiating with respect to defense expenditures $DEFXP$:

$$DFEXP: - \beta_1/2 \beta_2.$$  

$$DFEXP = - 0.18/2(0.03)$$

$$= 3$$

This empirical findings show the optimal defense expenditures for the economy of Pakistan. The calculated optimal current expenditures are 3 % of GDP against the 2.5 % of GDP in 2015. This outcome is immensely fascinating ever since it emphasized that the defense expenditures are lower than the optimal level and there is scope to increase the defense spending to maximize the economic growth.
Chapter 5

Conclusions and Policy Implications

Fiscal policy has got great attention of policy makers and academicians since the evolution of macroeconomics. The importance of fiscal instruments and tools remained in main debate especially after the financial crisis of 2007 to achieve the desired goals of sustained economies. Interestingly, insights of some fiscal perspectives are not explored yet in spite of its importance and significance for smooth functioning of economy pertaining to Pakistan. In order to gauge the potential effectiveness of fiscal policy, it becomes crucial to investigate the tax morale, effectiveness of fiscal policy for institutional performance and optimal government size for different categories, the issues remained undiscovered up to now. In this context, the theoretical as well as empirical analysis is carried out to present a better picture of described fiscal aspects.

First of all, a historical overview of fiscal performance is presented. It is evident that in case of Pakistan fiscal policy has a major role as a policy option for government for economic management. The economic performance of Pakistan remained well since the decade of 1980’s but after that there were significant changes in the structure of economy. The excessive increase in public spending in context of current expenditures could not be meeting by domestic revenues collection. To finance these expenditures, heavy debts were earned from foreign sources and debt servicing of these loans caused to cuts in development expenditures so situation of economic growth worsened. All efforts to improve the collection of revenues remained in vain. On the one side, government could not control the rising public spending while on the other side, declining trend in public revenues had to be faced which resulted into ever rising public debt and high expenses on debt servicing.
This study explored the four fiscal dimensions for a developing economy, Pakistan. First of all, the determinants which may affect the level of tax morale in Pakistan are determined by considering data of “World Values Survey” for wave of 2010-14. Earlier research studies on this topic have been carried out for Latin America and Europe so it has much importance to know whether Pakistan was lower or high with respect to tax morale. It is concerned of study to analyze factors that form tax morale in Pakistan. Previous studies on this topic found a number of important variables to calculate individual’s tax morale. For example, confidence in Parliament or confidence in government was an important factor of tax morale. The people having greater levels of confidence in government or confidence in parliament were also expected to have higher tax morale. The more religious persons have also higher level of tax moral. It is also notable that this research study is the first that statistically analyzed the determinants of tax morale in Pakistan. Resultantly, it advances the reader an understanding into how taxation behavior is evolved in Pakistan for 2010-14.

The foundational intent of this study is to examine the impact of informal and formal institutions influencing the tax morale and to fill this space by considering tax morale as endogenous variable with data set of WVS for Pakistan. Special concentration has been focused to three institutional elements, which are hardly analyzed in the empirical literature of tax compliance for Pakistan: “confidence in parliament”, “confidence in civil service” and “confidence in government”. Institutions that enhance the confidence of people will lead to increase tax morale. Furthermore, this study shows that “confidence in parliament”, “confidence in civil service” and “confidence in government” have high correlation with higher level of tax morale.

The second aspect is to investigate the impact of public spending on institutional quality of the country. Institutional development is necessary to promote the economic growth and living
standard of the country, has been proven extensively in the literature of new institutional economics. In this analysis a number of competing hypotheses, on what contributes to Pakistan’s poor performance of institutional quality, have been tested using econometric model. Subsequently, the factors of institutional quality were investigated. This study is a first attempt to explore the factors of institutional quality in Pakistan. There is hardly any study that investigated the determinants of institutional quality in Pakistan.

This study used the time series data covering the time span from 1984-2015 and econometric techniques were applied to formulate the empirical results. The estimated results suggest that the quality of institutions depends fundamentally on government expenditures. Government spending is contributing to improve the quality of institutions but it has very little share. There is an ample space to improve the productive efficiency of government spending to have major proportion in improvement of institutions. The public spending establishes a relation of confidence between state and public. Higher the level of confidence builds higher quality of institutions. If government spending is not public oriented, the people prefer to be more corrupt and lose their confidence on institutions that leads to degrade the quality of institutions. If we consider the effectiveness of government spending on economic growth of the country then we come to know that it also enhances the growth. To boost the institutional quality and economic growth of the country, government has to take steps to improve the efficiency of public spending as a major portion of public spending going to be preyed of corruption. According to report of transparency international, in the Corruption Perception Index (PCI), Pakistan stands at 117th position out of 168 countries where 1st position got the Denmark where corruption level is at the lowest level while Somalia and North Korea remained at 167th position that reflects highest level of corruption in the world. The Corruption Perception Index (CPI) ranks countries and territories
based on how corrupt their public sector is perceived to be. The public oriented and corruption free expenditures may increase the economic growth as well as institutional structure of the country.

Income distribution is an important and significant variable explaining the performance of institutions. In Pakistan, inequality is affecting the quality of institutions badly. When income is not distributed equally, people do not abide by the rules of state because they are deprived form luxuries and sometimes, necessities of life. These deprived people are reasons of religious confliction and social unrest in the society. The gap between rich and poor can be overcome by creating more employment opportunities and earning sources.

Education is the backbone of a society for development. In Pakistan, education is significantly and positively affecting the quality of institutions. The literate people have more respect for the rules and regulations of the state. Government of Pakistan is trying hard to increase the level of education in the country but there is still much space for improvement. The estimated results also highlight that educational level is also helpful to improve the economic growth very significantly.

International openness has also positive and significant impact on quality of institutions in Pakistan. If the level of foreign direct investment is higher in the country, there will be more employment opportunities and increased per capita income will improve the living style of people and more sympathy for the country so institutional performance will be better. International openness can be enhanced by reducing the tariffs and barriers on trade. But the impact of trade openness on economic growth of Pakistan is not significant. It may be due to many reasons. One of the reasons of insignificance of trade openness may be the non-competitive prices of our production sector in international market due to energy crisis and
inflation rate of the country while on the other side; our imports are higher than exports so Pakistan is not much beneficiary from free trade policies.

The third part of the study examined the effectiveness of public spending and institutions on economic growth. The estimated results highlight that government spending and institutions are important factors to boost the economic growth of the country so there is dire need of attention to be given to make sure the productive use of government spending for different sectors. The sustained long term economic growth is not possible without the higher quality of institution so it should be focused agenda of policy makers to improve the indicators representing the institutional framework because theoretical as well as empirical literature has proved that strong institutions are among of necessary condition for growth and development. By concluding, government spending fosters good institutions and high quality institutional framework is expected to be developed in equitable and open economies, with a sound fiscal contract in an educated population. If these conditions are met, then it is possible to build predictable, plausible and efficient institutions. Overall, results propose that variables leading to explain the institutional quality are in reach of government. Although it is not an easy task but there is room for policies aimed at improving the quality of institutions.

Finally, the optimal level of different categories of government spending is determined. During the last century, there was a significant expansion and intervention of governments in the economies of world in form of public expenditures. There is controversial debate regarding the effectiveness of public spending for economies. A group of studies are in of view that government spending boosts the economic activities that leads to enhance the economic growth while other group argues that government intervention in form of public spending restrains the economic growth. The consensus emerges on the argument that a certain level of government spending is necessary for economic prosperity and growth. This study attempted to find the relation between different categories of
public spending and economic growth of Pakistan, and then estimated optimal level of
government spending by considering the annual time series data covering the period of 1984-
2015. This study attempted to answer whether government expenditure increases or decreases
economic growth and determined the optimal level of government spending, current spending,
development spending and defense expenditures maximizing the economic growth of the
country. For this purpose, four estimation equations were applied. In answering the first question
as to whether different categories of public spending decreases or increases growth, the estimated
results of equations indicate that different categories of public expenditures affect the economic
growth of Pakistan in positive way, as public spending increases up to a threshold level, the
economic growth also witnesses upward trend. The estimated results of the regression analysis
show that the optimal share for public spending, current spending, development and military
spending is 20.66, 13.18, 6.75 and 3% of GDP respectively. Moreover, the control variable used
in the study showed that private investment promotes the economic growth in all the estimated
equations whereas inflation hurts the economy significantly while trade openness has not any
significant impact on economic growth of Pakistan.

When comparing these findings to the public expenditure in recent years, analysis show that in
last decade (2006-2015), average public spending was 20.13 % of GDP, average current
expenditures were 16.04 of GDP, average development expenditures were 4.19 % of GED and
average defense expenditures were 2.63 % of GDP while estimated optimal level of public
spending, current expenditures, development expenditures and defense expenditures are 20.66,
13.18, 6.75 and 3 % of GDP respectively. There is an ideal condition for public spending, current
expenditures needed to be decrease, while development and defense expenditures are required to
be increase from the standpoint of growth optimization.
5.1. Policy Conclusions

The findings of the study have a significant inference for policy design of government regarding its expenditures and budget as follows:

- Increasing the confidence of people on institutions and government can enhance the level of tax compliance and tax morale that will lead to raise the revenues.

- Increase transparency in decisions on financial policy and modernization of tax authorities will be beneficial to decrease the corruption and will restore the confidence of tax payers. Perceptions about civil services, especially taxes, may affect attitudes toward taxes.

- The empirical findings of the study clearly show that fiscal authorities of Pakistan have to reduce the current expenditures and there is need to increase the development expenditures to attain the optimal level of economic growth.

- Widening gap between rich and poor should be reduced to improve the quality of institutions in the country because deprived people have no respect for institutions.

- The government size as a percentage of GDP requires to be decreased while development expenditures should be increase to attain the potential economic growth.

- Efficient institutional structure will be helpful to increase the tax to GDP ratio and good governance will eradicate the public resource crunch by corrupt official so confidence of tax payers on institutions will be restored.

5.2. Future Areas of Research

- The data of the study gained from the World Values Survey needs to be explored at large extent. Therefore, the survey specifically designed to explore issues related to ethics of taxation may be fruitful in the future.
- It may be considered as a proposal for future investigation is to measure the behavior of taxpayers before and after major reforms in tax authorities and institutions with different time intervals. No such practice exists in Pakistan and there is hardly any comprehensive empirical analysis on the subject matter.

- The transparency in conduct of objectives of fiscal policy is required; a future study may explore the identification and ex post analysis of policy outcomes as well as goals for the short and long run.

- The time span in time series analysis has direct relation to robustness of results. In case of developing countries, it is always difficult to gain the data of required variables in large samples. The obtained results of the study may be overturned in future by adding more observations and variables.

- It will be of great interest to determine the gains that can be made by decreasing the size of government at optimal level (threshold level) and potential tax to GDP ratio. Furthermore, the optimal size of different categories of current expenditures will be an interesting topic for future researchers for better policy design in context of Pakistan.

- This study used limited time period for analysis due to availability constraints of data. Any future study may update this existing analysis by widening sample period.
References


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