International Consortium on Governmental Financial Management

“Working globally with governments, organizations, and individuals, the International Consortium on Governmental Financial Management is dedicated to improving financial management so that governments may better serve their citizens”

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General Information

“Working globally with governments, organizations, and individuals, the International Consortium on Governmental Financial Management is dedicated to improving financial management so that governments may better serve their citizens.”

Our mission includes three key elements. First, it highlights that, within the international community, the International Consortium on Governmental Financial Management (ICGFM or the “Consortium”) is unique - it serves as an “umbrella” bringing together diverse governmental entities, organizations (including universities, firms, and other professional associations), and individuals. At the same time, it welcomes a broad array of financial management practitioners (accountants, auditors, comptrollers, information technology specialists, treasurers, and others) working in all levels of government (local/municipal, and national). Additionally the mission statement emphasizes the organization’s commitment to improving government infrastructure so that needs of the people are better met. Our programs provide activities and products to advance governmental financial management principles and standards and promote their implementation and application.

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4. Student Members: persons enrolled at a college or university who are interested in financial management are eligible and will enjoy the benefits of Individual Members. (Dues: $25)

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Foreword

While the economic and public sector reform attempts in both developed and developing countries aim at creating value added of the government expenditures and hence improving the economic growth, the practical experiences of developing countries have approved that such government expenditures did not get translated into a greater level of infrastructural development and improvement in living standards of the people. This is due to the fact that government expenditure in most developing countries are mostly directed toward general services and running of the state administration and less focus was for capital generation and resources development.

Accordingly, in the first article of this issue Samir Ul Hassan and Biswambhara Mishra have attempted to analyze how far the government expenditure and its different components are prominent to encourage the growth of economy in the state over the years and how far the current allocation pattern is growth oriented in line with future economic growth. They also examine the casual nexus between public expenditure and economic growth in order to understand the productivity of government expenditure in the state of Jammu and Kashmir. The findings of this article suggest that the government expenditure in the state of Jammu and Kashmir is less significant and inefficient to promote economic growth in the state of Jammu and Kashmir despite the huge growth in government expenditure over the years.

The second article deals with the balanced budget constitutional stipulation and its role in reducing unbridled financial leakages by serving as a constant caution of societal desire for fiscal discipline. In this article Nicholas Amponsah and Samuel Pimpong attempt to provide some reasons for the menace and some mechanisms for resolution.

The third article focuses on the high Costs of capital appreciation bonds and intertwined bond usage. In this article, Brandy Hadley and Jim Estes explore Puerto Rico’s debt issues and the compounding and perpetuity effect on those debt issues by the use of Capital Appreciation Bonds.

The fourth contribution addresses the reconfiguration of revenue recognition principle to fit the context of public sector entities. In this contribution, Hassan Ouda has attempted to examine the accounting treatment of revenues recognition in the public sector from different international and national standard setting bodies' point of view and to develop the practice-relevant approach for the recognition of revenues (including exchange and non-exchange transactions) in the public sector context.

In the last contribution, Michael Parry and other members of Ad Hoc Committee on International Accounting Standards, ICGFM summarize comments on Exposure Drafts and other discussion documents issued by the International Public Sector Accounting Standards (IPSAS) Board.

We hope the articles in this issue will stimulate discussion on contemporary problems of public organizations. If you would like to participate in such discussions, please contribute to the next issue of this Journal and/or attend future ICGFM events. We would also be pleased to receive reviews and suggestions for future issues. Send them to icgfm@icgfm.org.

We look forward to hearing from you!

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Abstract

Over last three decades, the state of Jammu and Kashmir has witnessed an enormous increase of government expenditure both in its absolute and relative sense. Surprisingly, the increased level of public expenditure did not get translated in to a greater level of infrastructural development and improvement in living standards of the people. In order to study the dynamics of the causal relationship between the public expenditure and economic growth in Jammu and Kashmir states, this study tries to apply Unit root test and Johansen Co-integration Test followed by Error correction Mechanism on the time series data to estimate the short-run and long-run relationships between government expenditure and economic growth.

The results show the non-existence of a causal relationship between aggregate government expenditure and economic growth. Further, the aggregate government expenditure and its main components have very weak adjustment tendency towards long run equilibrium in economic growth. Expenditure on social, economic and general services has positive and significant impact on economic growth. Furthermore expenditure on education, health, industry and mining has significant and positive impact on economic growth while as expenditure on agriculture and allied sectors and expenditure on administrative services were found negative impact on economic growth.

Key words

Government expenditure, components, Economic growth, Error Correction Model, Co-integration , JEl Classification: H11, H30, H50, C22, C32
1. Introduction

In recent years the government expenditure has increased in all the states of the Indian federation in both relative and absolute terms. This particular observation provides a strong base for any systematic attempt to study the intricacies of government expenditure growth, for the growth of governmental activities lies in the heart of continued controversy over the increasing importance of the public expenditures in the process of economic development. This particular proposition tries to negate a situation in an underdeveloped state like Jammu and Kashmir, where the rate of growth of government expenditures surpasses the growth of State Domestic Product.

In a socialistic welfare characterized state, a significant share of domestic resources is directly controlled by the government where it tries to shape the policy measures for private economic agents and civil society by not only controlling the size of government expenditure but also by dictating terms and conditions for its efficient utilization. Therefore, in the quest for economic and social progress, the use of government expenditure must give emphasis to efficiency and equity so as to attain the end objective of a sustainable economic growth. Such participation of the government not only raises the quality and sustainability of development programs but also helps to insert a greater degree of purchasing power by way of a greater impetus to the expanded economic activities.

As a result, the question of economic growth remains as an obvious outcome of the government economic policies of expenditure on social, economic and general services which comprises the aggregate government outlays to the various sectors. In the above context, if, the rate of economic growth will be taken to be positively associated with the size of government investment that the government undertakes from time to time, the relevant question that arises; to what extent, government economic policies of its public expenditure affect the scale of economic growth?

Further, in the economy of Jammu and Kashmir, where government sector is highly influenced due to affirmed objectives of the state so as to attain a desirable rate of economic growth, there will be continuously complicated choices in selecting an suitable composition of government expenditure and in choosing among alternatives government programs that are projected to accomplish social goals. In the state where social goals change continually, selection of suitable composition of government expenditure remains vague and as a result the achievement of new goals pushes the government expenditure growth to incredible heights. In recent times, much of the theoretical as well as applied work has been concentrated on finding out the factors accounted for the major variations in the share of public expenditure in the aggregate national / state income and to identify and specify the nature of relationship between the structure of public expenditure and the level of economic development. In working out the developmental plan which implicitly takes into account the public expenditure ratio, a major question that always arises is: what is the ultimate effect of public expenditure growth on the economic development and whether the question of economic development is the sole factor that pushes the growth of public expenditure to a higher plateau? No doubt, the fiscal philosophy of the government to execute a certain level of public expenditure depends on the societal needs, which are the culmination of societal values judgments. What we intend to hammer at is the fact that public expenditure policies do not emerge in a vacuum, but by and large, are mainly influenced by the socio-economic environment that exist in the state.

So, the extents to which these socio-economic factors have been responsible for determining the absolute level of government expenditure in the state remain an open question. Therefore by taking into account these socio-economic dimensions, a systematic analysis of public expenditure and its effect on economic development may be illuminating for ascertaining the extent to which the rate of economic development explains the rate of growth of government
expenditure and to examine the inherent nexus between them. We believe that a causal-effect analysis would enable us not only in understanding the intricacies of public expenditure growth but also to have a better understanding of the mechanism of changes that take place in the quantum of public expenditure in response to a change in social value judgment and its inherent effects on the level of economic development in the state.

A fundamental question is whether or government expenditure increases the long run steady state growth rate of the economy or not. The universal view is that public spending, notably on physical infrastructure or human capital, can be growth oriented although the financing of such expenditures can be growth retarding due to disincentive effects associated with taxation. There has been increased argument among development economists as to the relationship between public expenditure and economic growth, Jerono, (2009). Government spending activity may directly or indirectly increase total output of economy through its interface with the private sector. Lin (1994) pubic goods, public infrastructure, social services and targeted intervention (subsidies) are significant provisions in which government can increase growth in economy. Barro (1990), expenditure on infrastructure and productive activities contribute positively to growth. Folster and Henrekson (1999) argue that there is negative relationship, whereas Agell et al (1999) respond that it is not significant. The actual relationship between public expenditure and economic growth is not well understood and there require more empirical research (Grier and Tullock, 1989).

However our primary aim is to examine the casual nexus between public expenditure and economic growth in order to understand the productivity of government expenditure in the state of Jammu and Kashmir. Our main focus in this paper is to analyze how far the government expenditure and its different components are prominent to encourage the growth of economy in the state over the years and how far the current allocation pattern is growth oriented in line with future economic growth. As we know from earlier discussion of growth and pattern of government expenditure that there is huge increase of government expenditure over the years. But despite the ever increasing rate of government expenditure in recent times in Jammu and Kashmir, there has not been a proportionate growth in the economy. It appears that either these funds are not released or they are released to finance an inappropriate expenditure item or maybe the funds are mismanaged or not fully utilized.

Therefore the relationship between government expenditure and economic growth become obvious research question to analyze and is the relation between government expenditures and economic growth robust over time or not. The understanding of relationship between government expenditure and economic growth in the state of Jammu and Kashmir will improve the understanding of structural and long term public finance issues, whether the size of government expenditure shrinks or expends the economy of state. Second, an enhanced understanding of the dynamic relation between government expenditure and economic growth will help in comprehension of policy-relevant issues over a short-to medium term horizon. Disposing of a reliable measure of the structural relation between the non-cyclical components of government expenditure and potential output is key to obtain a standard to assess the attitude of expenditure policy and then of overall fiscal policy. Analyzing the relationship will ensure that whether expenditure policy of the state has translated its public expenditure into a higher growth trajectory of the state or not. If, the state has failed in this direction, then, what measures need to be taken to make it productive and growth oriented.

2. Background of the study

The exponential growth of government expenditure in the state of Jammu and Kashmir without a matching growth of its own tax revenue and income has brought about an explosive growth of government expenditure in the state. A closer analysis of Jammu and Kashmir fiscal scenario
shows a rising trends of government expenditure on the service sector followed by the primary and manufacturing sectors. The sluggish growth of manufacturing sector over the years has resulted not only in a limited economic activity and thereby limiting the economic base of taxation but also has brought about its accompanying problems of poverty and its immediate transformation in to apparent social tension and unrests. It is noteworthy that the state economy has undergone a severe upswing and downswing both in its economic, social and cultural front from time to time and as a result, public expenditure pattern has shown an erratic trend in recent times. Public expenditure in the state has increased tremendously during late 90’s to cover the rising administrative cost, law and order, salaries for government employees, pension, debt repayment etc. As a result, all these expenditure noted above have squeezed the expenditure on social and economic services like education, health care, tourism, industries, transport, infrastructure like roads, railways, communication etc.

In the light of the above discussion, it can be inferred that the state has failed miserably in transforming its public expenditure growth into an economic growth oriented economy. Over the last thirty years the government expenditure of the state has increased with an average annual growth rate of 15.6 percent while as the Net State Domestic Product (NSDP) has increased with average annual growth rate of 13.1 percent. This is indicative of the possible leakages in the income- expenditure flow in the state, which we believe is mainly responsible for this poor state of affairs. The growth of government and its components can be seen in the figure 1.1 and 1.2 below.

![Figure 1.1: Share of Revenue and Capital expenditure to total expenditure](image)

Sources: Calculated by author

The figure predicts the wide spreading gap between the two major components of government expenditure over the years, which lead the nature of economic growth. The figure shows that since the 90’s the gap between revenue and capital expenditure has increased widely and is constantly increasing in current time period. It might be due to the tremendous increase of unproductive spending of the state. The higher percentage of government spending, over last two and half decades, is for non-productive programs, like administrative services, security, law and order, pension, salary bills etc., which hardly promote growth in NSDP, while as spending on economic and social services is considerably very less and reducing, it results heavy growth of revenue expenditure and less of capital expenditure. This entire imbalance of growth in revenue and capital expenditure is also due to the social and economic constraints in the state which create hindrance in allocating funds for economic and social purposes. The state is continually affected by violence and unrest, which make the government spending unproductive and inconsistent to promote economic growth.
The public expenditure of the state has increased 239 percent “between 1984-85 to 1993-94” with an average annual growth rate of 15 percent while as revenue expenditure and capital expenditure increased 247 and 246 percent with average annual growth rate of 10 and 14 percent respectively during same period. The NSDP of the state during this period has increased 214 percent respectively with average annual growth rate of 10 percent during same period. Similarly between 1993-94 and 2003-04 the total public expenditure of the state has increased 266 percent with average annual growth rate of 13 percent and revenue expenditure and capital expenditure increased 272 and 169 percent respectively with average annual growth rate of 12 and 9 percent respectively during same period. During 1993-94 to 2003-04, the NSDP has increased 235 percent with average annual growth rate of 9 percent. Further during last ten years from 2003-04 to 2013-14 the total expenditure of the state has increased 306 percent and revenue expenditure has increased 311 percent with average annual growth rate of 15 and 13 percent respectively. Similarly the capital expenditure has got highest share during this period. The capital expenditure has increased 456 percent during with average annual growth rate of 16 percent. With growth in capital expenditure the NSDP of the has increased 273 percent over same period with average annual growth rate of 12 percent, which no doubt, show a positive and encouraging trend in the economic activities and public finance of the state.

The allocation pattern of government expenditure which can directly and indirectly support economic growth has also undergone a vast change over the years. It can be seen that the developmental expenditure of the state during 1984-85 to 1993-94 was growing with average annual growth rate of 10 percent while as non-developmental expenditure was growing at 13.8 percent annually during the same period. Between 1993-94 and 2003-04 the developmental expenditure was growing at 10.4 percent while as non-developmental expenditure was growing at 16.3 percent annually during the same period. It is only from last ten years from 2003-04 to 2013-14 that the developmental expenditure has increased with an average annual growth rate of 13.9 percent and non-developmental expenditure has shown decreasing trend growing at 13 percent annually during the same period. Similarly the social, economic and general expenditure of the state has shown an unexpected and fluctuating trend. The social expenditure of the state between 1984-85 and 1993-94 has increased 293 percent with average annual growth rate of 13 percent but between 1993-94 and 2003-04 the social services expenditure has increased 169 percent with average annual growth rate of 9 percent which clearly shows a large decline in social services expenditure during this period. During last ten years from 2003-04 to 2013-14 the social services expenditure has increased 297 percent with average annual growth rate of 13.3 percent respectively during same period which shows an upward trend in expenditure in social services like health care, sanitation, electricity, roads, transport etc. on other hand the
economic expenditure of the state over the years shows upward trend but with low rate of growth. During 1984-85 to 1993-94 the Economic expenditure has increased 155 percent with average annual growth rate of 8 percent respectively during same period. Further during 1993-94 to 2003-04 the economic expenditure has increased 227 percent with an average annual growth rate of 11 percent while as during last ten years from 2003-04 to 2013-14 the expenditure on economic services has increased 340 percent with average annual growth rate of 14.4 percent which mean that state has adopted the policy of self-sufficiency and self-dependence by increasing its expenditure on services like industries, hydro plants, animal husbandry, handicraft etc., where it can generate income. But apart from expenditure social and economic services the expenditure on general services have always remained ahead due to different economic, political and social constraints inside the state, the general expenditure between 1984-85 and 1993-94 has increased 318 percent with average annual growth rate of 13.8 percent. During 1933-94 to 2003-04 the general expenditure has marked highest status and its share in total expenditure was highest during this period. The general expenditure during the period has increased 430 percent with an average annual growth rate of 16 percent which is highest than social and economic expenditure during the same period. Moreover from last ten years during 2003-04 to 2013-14 the expenditure on general services has increased only 285 percent with average annual growth rate of 13 percent which is less than last decade which might be due to policy diversion and focus on social and economic expenditure.

Thus, it is evident from the foregoing analysis that the public expenditure in the state exhibits not only a wide fluctuation in its trend between revenue expenditure and capital expenditure but also has given rise to a widening gap between developmental and non-developmental expenditure. Further, it is evident that the government over the years has failed to maintain a consistency in balancing its expenditure pattern between expenditure on social, economic and general services.

In the light of the above discussion, it becomes pertinent to have a closer look into the intrinsic relationship between the growth of public expenditure vis-a-vis the growth of State Domestic Product to ascertain the extent to which the exponential growth of public expenditure has contributed the growth of State Income over the years. Keeping consistency with our argument, the paper seeks to explore the following objectives. (I) to analyze the linkage between government expenditure and economic growth (II) to identify the various components of public expenditure that have a strong capacity to stimulate economic growth in the state (III) to examine and to identify the extent to which the short run instability in expenditure can be adjusted in long run.

The paper is divided into III sections. Section-I deals with a brief description of growth of Government expenditure in the state. Sections II spells out estimation procedure where a detail explanation is provided regarding econometric models and variables used. Section III reports the result and discussion of the models used.

3. Sources of Data

The study is primarily based on secondary data. The study has been carried out for a period of thirty years from 1984-85 to 2013-14. This is a period in which the state economy has passed through both upswing and down swing in its economy due to a variety of factors including economic, social and cultural, that have reinforced a relatively a static growth rate. Further entire period has witnessed a drastic political instability and social unrest leading to a wide change in expenditure and economic policies in the state. During this period the public expenditure has increased tremendously but the growth of state income has not come up with same pace which has resulted in a wide gap in the growth of public expenditure and the resultant economic growth in the state.

4. Methods and Variables

Our primary aim is to establishing dynamic properties of the relationship between government expenditures and Economic growth in the state of Jammu and Kashmir over the period 1984-2013. In particular, we are concerned in the following questions. Are government expenditures and potential output linked by a stable long-run relationship? Is the long-term elasticity between government expenditure and potential economic growth greater than one, as predicted by the Keynesian law? No doubt, a clear cut answer to the questions raised above requires the establishment of an intricate relationship between a set of growth related variables with that of various components of public expenditure. The literature suggest that many researchers have indicated economic growth with GDP, Per capita income, social welfare, standard of living etc., Jerono (2009), Olabisi (2012), Patricia (2013), Nworji et al. (2012), Vuale and Suruga (2005). Therefore, we thought it imperative to take Net State Domestic Product at current prices (NSDP) as a proxy variable for economic growth. The relationship between government expenditure and economic growth (hereafter NSDP) has not only been explained with total expenditure of the state but also with different subcategories as different studies of Hansson and Henrekson (1994), Knellar et al, (1998), Nurudeen and Usman (2010) suggest. Further, all these studies suggest that other components of government expenditure like education, health, revenue, capital, organs of state administration services also have an impact on GDP.

In the line of the studies carried out by Ashauer (1989), Maingi (2010), Kar and Taban (2003) Yilgör (2012), we thought it logical to take into consideration the following explanatory variables to analyze the relationship between government expenditure and economic growth are, total government expenditure, revenue expenditure, capital expenditure, developmental expenditure, non-developmental expenditure, expenditure on social services, expenditure on general services, expenditure on general services, education, health agriculture, industry and mining, administrative services and interest payments and servicing of debt. The variables used to explain their impact on NSDP of the state are very important in terms the fiscal system of the state. The revenue expenditure has remained high in the share of total government expenditure while as capital expenditure has lagged behind. The developmental expenditure has not shown steady growth in line with non-developmental growth. The expenditure on social, economic and general services has fluctuated considerable and further expenditure on other activities of the state has increased over the years but with wide ups and downs. Thus does the changing trend of these variables have produce any impact on growth of NSDP over the years will be an important question to answer? Thus the variables used in this paper are denoted by:

$Govtexp_t =$Total government expenditure

$Reve_xpt =$ Revenue Expenditure

$Capexp_t =$ Capital Expenditure

$Deve_xpt =$ Developmental expenditure

$Nondevexp_t =$ non-developmental expenditure

$Soexp_t =$ expenditure on social services

$Ec_oxpt =$ expenditure on economic services

$Genexp_t =$ expenditure on general services
\[ Eduexp_t = \text{expenditure on education and allied activities} \]

\[ Healthexp_t = \text{expenditure on health and allied services} \]

\[ Adminexp_t = \text{expenditure on administrative services} \]

\[ Interestpayexp_t = \text{expenditure on interest payments and servicing at debt} \]

The study uses time series data, collected from RBI and other state government authorities. The data has been converted into natural log equations for time series so as to ascertain the elasticity from the coefficients, Gujarati (2008). The Error Correction model has been used to identify the long-term as well as short-term relationship between NSDP and different components of government expenditure. In order to perform regression approach on time series data there are lot of issues which need to address before perform the regression and overcome the issue of spurious regression that characterized in earlier studies due to the neglect of the time series properties, Ram (1987). We follow three standard step approach consisting of (i) analyzing the stationarity of the time series data (ii) in case the variables are not stationary, checking whether they are characterized by a co-integration relationship, Wahab (2004), Chang (2002), Akitoby et al. (2004). (iii) in Case co-integration holds, estimating error correction mechanism (ECM) has been used, which permits to analyze the long-run relationship between the variables jointly with the short-term adjustment towards the long-run equilibrium, Maku (2009), Abu and Abdullahi (2010), Rehman et al., (2010), if co-integration does not exists only short-term coefficients will be analyzed by VAR model. In this paper we have used Vector Auto regression model (VAR) and Vector Error Correction model (VECM) Abdullah (2000), Simiyu (2015) to analyze the relationship between Government expenditure and NSDP as per the nature of the data predicted.

5. Estimation Procedure

5.1 Stationary Test/Unit Root Test

The time series stationarity is a statistical characteristic of a series like its mean and variance (Gujarati & Porter 2008). So if in a series, both mean and variance are constant over time then the series has no unit root or is stationary otherwise if not constant over time than the series has unit root or is non-stationary and thus we need to change the series in to respective differences. Thus at first, we examine the stationarity properties of the time series using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test. The purpose of Augmenting Dickey-Fuller (ADF) and Phillips-Perron (PP) tests regression is to get white noise errors. A series \( y_t \) (government expenditure and its different components) are said to be integrated of order d denoted by \( y_t \sim I(d) \) if it becomes stationary after differencing d times and thus \( y_t \) contains d unit roots. A series which is I(0) is said to be stationary. To test formally for the presence of a unit root for each variable of government expenditure and NSDP in the model, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests of the type given by regression (1) and (2) were conducted. The ADF test is conducted using the regression of the form:

\[
\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{j=1}^{p} \gamma_j \Delta y_{t-j} + \epsilon_t
\]  

(1)

Where, \( \Delta \) is the first-difference operator, \( y_t \) is the respective variable of expenditure over time, \( p \) is lag, \( \alpha_0 \) is constant, \( \alpha_1 \) and \( \gamma_j \) are parameters and \( \epsilon_t \) denotes stochastic error term.

If \( \alpha_1 = 0 \), then the series is said to have a unit root and is non-stationary. Hence, if the hypothesis, \( \alpha_1 = 0 \), is not accepted according to equation it can be concluded that the time series does not have a unit root and is integrated of order I(0), or in other words it has stationarity properties.
Similarly the Phillips-Perron (PP) test is estimated by following equation:

\[ y_t = \alpha_0 + \alpha_1 y_{t-1} + \alpha_2 (t - T/2) + \mu_t \]  

Where \( \alpha_0, \alpha_1, \alpha_2 \) are the expected least-squares regression coefficients. The hypotheses of stationarity to be tested are \( H_0: \alpha_0 = 1 \) and \( H_0: \alpha_1 = 1, \alpha_2 = 0 \).

To level series and allow an explanation of regression coefficients in terms of elasticities, all the regression analysis has been done on the natural logarithms of government expenditure and its components and NSDP series. With trending variables, the testing equation has intercepts when variables are expressed in first differences and Akaike’s Information Criterion (AIC) has been used to determine the lag order of each variable under study.

### 5.2 Co-integration Test

After the stationary test we perform Co-integration test to identify the stable relationship between non-stationary series within a stationary model, Adam (1998). It is important to carry co-integration test to avoid spurious and inconsistent regression problem. Co-integration method made it feasible to identify the information of non-stationary series without losing the statistical strength of the estimated equation (Stock and Watson, 1988). The test is conducted to know the number of co-integrated vectors/equations between the variables and examine is there long run association between the variables or not. Johansen and Juselius Co-integration Test (1990) has been to carry out with following equation:

\[ y_t = \alpha_t + \theta_{iit}x_{it} \ldots \ldots \ldots \theta_{ntnlt} + \mu_t \]  

Where \( y_t \) and \( x_{it} \) are, respectively, the log of prime cyclically adjusted NSDP and of government expenditure and its respective components variable \( i \) in year \( t \), \( \mu_t \) is a stochastic residual and \( \alpha_t \) is specific intercept. The elasticity of NSDP \( \theta_{iit} \) is allowed to vary across individual variables over time. Co-integration occurs when the linear combination of I(1) variables is stationary, implying that deviations of one variable from the path prescribed by the co-integrating relationship are temporary. In such a case, there is a long-run relationship between the variables and temporary deviations can be modeled with an error correction mechanism (ECM). The test is analyzed on certain hypotheses which are tested on trace statistics and Max-Egan value statistics. Trace statistics tests the null hypothesis of none or 1, 2, 3……..\( n \) co-integrated vectors or alternative hypothesis of no co-integrated vectors. Similarly Max-Egan statistic tests the hypothesis of none or 1, 2, 3………..\( n \) co-integrated vectors. If we do not found any co-integration equation among the variables fitted in ECM equation the method to obtain Error correction term will change accordingly either to VAR or VECM model. If in some cases Trace and Max-Eigen statistics may yield different results then the results of trace test should be preferred. The test is performed on natural log of level data and the following equation has been used to identify co-integration between the variables:

### 5.3 Error Correction Models (ECM)

After all above analysis we reach to the final analysis to examine the long run as well as short run relationship between NSDP and different government expenditure categories. After co-integration analysis we find that some variables are having long run association ship with NSDP (i.e. having co-integration) while as some variables are not having long run association with NSDP (not having co-integration). Thus we have used both VAR and VECM model to predict relationship between the variables mentioned. VAR model is used for those equations where we found no co-integrated equation (i.e. no long run association) in order to identify short run relationship between those variables and VECM model used for those equations where we found more than one co-integration equations (having long run association) in order to get both long run and short run coefficients of relationship.
A vector error correction model (VECM) is a modeling technique which adds error correction features to a multi-factor model to understand the long run as well as short run relationship among the variables after knowing that the variables are co-integrated, Jerono (2009); Chipaumire et.al (2014) and Ayo et.al (2011) while as VAR model is an autoregressive model in which all variables were accepted as endogenous without distribution and get short-term association between dependent and independent variables in absence of long run association, Terzi and Kurt, (2007); Bozkurt, (2007). The study follows the approach of Simiyu (2015), Arpaia (2008) and Loizides and Vamivoukes (2005). We have divided the explanatory variables into five equations where three of them have been analyzed through VAR model due to their nature of relationship and two of them have been analyzed under VECM model. The equations have been arranged in such an order to avoid the problem of multi-collinearity (Karagoz 2012). The five ECM equations used in this paper to analyze the long as well as short run relationship between aggregate government expenditure and its different categories with NSDP by keeping in mind the multi-collinearity factor and in order to get Error correction term VAR and VECM will be used on the bases of co-integration test of these equations.

\[
DNSDP_t = \alpha_1 + \sum_{i=0}^{n} \beta_1 DNSDP_{t-i} + \sum_{i=0}^{n} \beta_2 DGovtexp_{t-i} + \prod ECT_{t-1} + \epsilon_{1t} \quad (1)
\]

\[
DNSDP_t = \alpha_2 + \sum_{i=0}^{n} \gamma_1 DNSDP_{t-i} + \sum_{i=0}^{n} \gamma_2 Drevexp_{t-i} + \sum_{i=0}^{n} \gamma_3 Dcapexp_{t-i} + \prod ECT_{t-1} + \epsilon_{1t} \quad (2)
\]

\[
DNSDP_t = \alpha_3 + \sum_{i=0}^{n} \gamma_4 DNSDP_{t-i} + \sum_{i=0}^{n} \gamma_5 Drevexp_{t-i} + \sum_{i=0}^{n} \gamma_6 Dnondevexp_{t-i} + \prod ECT_{t-1} + \epsilon_{2t} \quad (3)
\]

\[
DNSDP_t = \alpha_4 + \sum_{i=0}^{n} \beta_3 DNSDP_{t-i} + \sum_{i=0}^{n} \beta_4 Ddevexp_{t-i} + \sum_{i=0}^{n} \beta_5 Dnondevexp_{t-i} + \sum_{i=0}^{n} \beta_6 Dagriexp_{t-i} + \sum_{i=0}^{n} \beta_7 Dindimen_{t-i} + \sum_{i=0}^{n} \beta_8 Dadminexp_{t-i} + \sum_{i=0}^{n} \beta_9 Dinterestpayexp_{t-i} + \prod ECT_{t-1} + \epsilon_{3t} \quad (4)
\]

Where D is the difference level of the variable \(\alpha_1, \alpha_2, \alpha_3, \alpha_4 \text{ and } \alpha_5\) are the long run coefficients of the equations. However, if the series are not co-integrated there will be no long run coefficient. ECT is the Error coefficient term of the long term relationship of the variables and \(\prod t\) are the Error coefficients term of the equations which capture the adjustment of independent variables in the long run towards dependent variable. Also \(\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12} \text{ and } \beta_{13}\) are the coefficients of the respective variables of ECM equation 1, 4 and 5 and \(\gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5, \gamma_6\) are the coefficients of the respective variables in ECM Equation 2 and 3. The hypothesis of both the equations is tested on probability value of t-statistics at 5% and 10% level of significance.
However, if the series are not co-integrated, ECM test is carried out without the error correction terms.

### 5.4 Diagnostic Tests

In order to check the strength of our models estimated, different diagnostic tests have been carried out. The diagnostic tests applied in the restricted equations of the government expenditure and NSDP are: the Breusch-Godfrey Serial Correlation or LM Test done for serial correlation of the model, ARCH Test (autoregressive conditional heteroskedasticity) has been carried for Heteroskedasticity. Similarly, the test for parameter stability of the model has been performed by the CUSUM statistics and the Normality test has been done through Jarque-Bera test. All the diagnostic tests are estimated through null hypothesis which are tested through the test statistic value of each test at the probability value at 5% level of significance.

### 6. Result and Discussion

#### 6.1. Unit Root Test

The empirical analysis begins with the lag creation. Akaike’s Information Criterion (AIC) has been used to find out the lag order of each variable under study. The Augmented Dickey-Fuller (ADF) test and Pearson Philips (PP) test was conducted to pretest the variables for unit roots to verify that the variables are not integrated of an order higher than one. Table 1.1 provide the cumulative distribution of ADF and PP test based on Mackinnon (1991).

**Table 1.1: Estimated Results of Augmented Dickey-Fuller Test and Phillips-Perron Test for Unit Root**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition of variables</th>
<th>At level</th>
<th>1st difference Stationary order I(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>t-stat 1% 5% Prob*</td>
<td>t-stat 1% 5% Prob*</td>
</tr>
<tr>
<td>GOVTEXP</td>
<td>Total Government Expenditure</td>
<td>-1.078 3.679 2.968 0.71</td>
<td>-4.682 4.324 3.581 0.0044</td>
</tr>
<tr>
<td>REVEXP</td>
<td>Revenue Expenditure</td>
<td>-0.801 3.679 2.968 0.80</td>
<td>-5.47 4.324 3.581 0.0007</td>
</tr>
<tr>
<td>CAPEXP</td>
<td>Capital Expenditure</td>
<td>-1.029 3.679 2.968 0.72</td>
<td>-4.316 4.324 3.581 0.0102</td>
</tr>
<tr>
<td>DEVEXP</td>
<td>Developmental Expenditure</td>
<td>-0.777 3.679 2.968 0.81</td>
<td>-4.512 4.324 3.581 0.0065</td>
</tr>
<tr>
<td>NONDEVE XP</td>
<td>Non Developmental Expenditure</td>
<td>-1.242 3.679 2.968 0.64</td>
<td>-3.577* 4.324 3.581 0.0503</td>
</tr>
<tr>
<td>SOSEXP</td>
<td>Social Expenditure</td>
<td>-1.622 3.700 2.976 0.45</td>
<td>-5.786 4.339 3.581 0.0003</td>
</tr>
<tr>
<td>ECOEXP</td>
<td>Economic Expenditure</td>
<td>-0.016 3.700 2.976 0.94</td>
<td>-3.061* 3.689 2.972 0.0413</td>
</tr>
<tr>
<td>GENEXP</td>
<td>General expenditure</td>
<td>-1.508 3.689 2.972 0.51</td>
<td>-4.858 4.324 3.581 0.0029</td>
</tr>
</tbody>
</table>
### Variables and Definition

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition of variables</th>
<th>At level</th>
<th>1st difference Stationary order I(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>t-stat</td>
<td>1%</td>
</tr>
<tr>
<td>NSDP</td>
<td>Net State Domestic Product</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.219</td>
<td>-0.370</td>
</tr>
<tr>
<td>EDUEXP</td>
<td>Education Expenditure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1.190</td>
<td>-0.369</td>
</tr>
<tr>
<td>HEALTHEXP</td>
<td>Health Expenditure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.367</td>
<td>-0.369</td>
</tr>
<tr>
<td>AGRIALLIEXP</td>
<td>Expenditure on Agriculture and allied sectors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.585</td>
<td>-0.369</td>
</tr>
<tr>
<td>INDMINGEXP</td>
<td>Expenditure of industry and mining</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.972</td>
<td>-0.369</td>
</tr>
<tr>
<td>ADMINSEXP</td>
<td>Expenditure on administrative services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.986</td>
<td>-0.369</td>
</tr>
<tr>
<td>INTERESTPAY</td>
<td>Expenditure on interest payments and servicing at debt</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-2.038</td>
<td>-0.369</td>
</tr>
</tbody>
</table>

*M Mackinnon (1991) * 1% level of significance ** 5% level of significance*

The results suggest that the null hypothesis is accepted for level data of the variables which shows that all the variables are non-stationary at level for. Controlling the variables at differenced data the computed ADF and PP test shows that the null hypothesis is not accepted for all the variables at first order of difference at 1% and 5% level of significance and the variables Govtexp, Revexp, Capexp, Devexp, Nondevexp, Sosexp, Ecoexp, Genexp, Eduexp, Healthexp, Adminexp and Interestpayexp are integrated of order one i.e. I(1). Thus all the variables are stationary at 1st difference level according to ADF test and PP test and are of same integrated order I(1).

### 6.2 Co-Integration Test

Determining that the variables are stationary at integral order of I(1) i.e. first difference we perform the Johansen co-integration test (1991) for all the variables put under different model equation to examine whether there are more than a single co-integration relationship between economic growth (NSDP) and the government expenditure variables and to know whether the variables in each model have long run association ship or not. The co-integration test for each model is shown in tables 1.2, 1.3, 1.4, 1.5 and 1.6 respectively. The null hypothesis tested for each co-integration test is there is r number of co–integration vectors among each variable in the model.
### Table 1.2: Result of Johansen Co-integration Test

**Model 1: Series: NSDP GOVTEXP TAXREV**

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Trace</th>
<th>5 Percent</th>
<th>1 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of CE(s)</td>
<td>Eigenvalue</td>
<td>Statistic</td>
<td>Critical Value</td>
</tr>
<tr>
<td>None</td>
<td>0.32849</td>
<td>17.75385</td>
<td>29.68</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.210039</td>
<td>6.603502</td>
<td>15.41</td>
</tr>
<tr>
<td>At most 2</td>
<td>6.77E-05</td>
<td>0.001894</td>
<td>3.76</td>
</tr>
</tbody>
</table>

**Hypothesized**

<table>
<thead>
<tr>
<th>No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Statistic</th>
<th>Critical Value</th>
<th>Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.32849</td>
<td>11.15035</td>
<td>20.97</td>
<td>25.52</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.210039</td>
<td>6.601608</td>
<td>14.07</td>
<td>18.63</td>
</tr>
<tr>
<td>At most 2</td>
<td>6.77E-05</td>
<td>0.001894</td>
<td>3.76</td>
<td>6.65</td>
</tr>
</tbody>
</table>

*(**) denotes rejection of the hypothesis at the 5% (1%) level. Max-eigenvalue test indicates no co-integration at both 5% and 1% levels. Trace test indicates no co-integration.

### Table 1.3: Result of Johansen Co-integration Test

**Model 2: Series: NSDP REVEXP CAPEXP**

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Trace</th>
<th>5 Percent</th>
<th>1 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of CE(s)</td>
<td>Eigenvalue</td>
<td>Statistic</td>
<td>Critical Value</td>
</tr>
<tr>
<td>None</td>
<td>0.397365</td>
<td>22.37888</td>
<td>29.68</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.253635</td>
<td>8.198473</td>
<td>15.41</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.000263</td>
<td>0.007357</td>
<td>3.76</td>
</tr>
</tbody>
</table>

**Hypothesized**

<table>
<thead>
<tr>
<th>No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Statistic</th>
<th>Critical Value</th>
<th>Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.397365</td>
<td>14.18041</td>
<td>20.97</td>
<td>25.52</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.253635</td>
<td>8.191116</td>
<td>14.07</td>
<td>18.63</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.000263</td>
<td>0.007357</td>
<td>3.76</td>
<td>6.65</td>
</tr>
</tbody>
</table>

*(***) denotes rejection of the hypothesis at the 5% (1%) level. Trace test indicates no co-integration at both 5% and 1% levels, Max-eigenvalue test indicates no co-integration at both 5% and 1% levels.
### Table 1.4: Result of Johansen Co-integration Test

**Model 3: Series: NSDP DEVEXP NONDEVEXP**

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Trace</th>
<th>5 Percent</th>
<th>1 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of CE(s)</td>
<td>Eigenvalue</td>
<td>Statistic</td>
<td>Critical Value</td>
</tr>
<tr>
<td>None</td>
<td>0.373248</td>
<td>21.69486</td>
<td>29.68</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.256632</td>
<td>8.613122</td>
<td>15.41</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.010987</td>
<td>0.309331</td>
<td>3.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Trace</th>
<th>5 Percent</th>
<th>1 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of CE(s)</td>
<td>Eigenvalue</td>
<td>Statistic</td>
<td>Critical Value</td>
</tr>
<tr>
<td>None</td>
<td>0.373248</td>
<td>13.08174</td>
<td>20.97</td>
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<tr>
<td>At most 1</td>
<td>0.256632</td>
<td>8.303791</td>
<td>14.07</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.010987</td>
<td>0.309331</td>
<td>3.76</td>
</tr>
</tbody>
</table>

*(***) denotes rejection of the hypothesis at the 5%(1%) level, Trace test indicates no co-integration at both 5% and 1% levels, Max-eigenvalue test indicates no co-integration at both 5% and 1% levels

### Table 1.5: Result of Johansen Co-integration Test

**Model 4: Series: NSDP SOSEXP ECOEXP GENEXP**

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Trace</th>
<th>5 Percent</th>
<th>1 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of CE(s)</td>
<td>Eigenvalue</td>
<td>Statistic</td>
<td>Critical Value</td>
</tr>
<tr>
<td>None *</td>
<td>0.641103</td>
<td>53.91247</td>
<td>47.21</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.426757</td>
<td>25.22028</td>
<td>29.68</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.278674</td>
<td>9.639794</td>
<td>15.41</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.01746</td>
<td>0.493191</td>
<td>3.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Trace</th>
<th>5 Percent</th>
<th>1 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of CE(s)</td>
<td>Eigenvalue</td>
<td>Statistic</td>
<td>Critical Value</td>
</tr>
<tr>
<td>None *</td>
<td>0.641103</td>
<td>28.69219</td>
<td>27.07</td>
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<td>At most 1</td>
<td>0.426757</td>
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<tr>
<td>At most 2</td>
<td>0.278674</td>
<td>9.146603</td>
<td>14.07</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.01746</td>
<td>0.493191</td>
<td>3.76</td>
</tr>
</tbody>
</table>

*(***) denotes rejection of the hypothesis at the 5%(1%) level, Trace test indicates 1 co-integrating equation(s) at the 5% level, Trace test indicates no co-integration at the 1% level, Max-eigenvalue test indicates 1 co-integrating equation(s) at the 5% level, Max-eigenvalue test indicates no co-integration at the 1% level
### Table 1.6: Result of Johansen Co-integration Test

**Model 5: Series: NSDP EDUEXP HELATHEXP AGRIALLIED INDMING ADMINS INTERESTPAY**

#### Unrestricted Co-integration Rank Test

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Trace</th>
<th>5 Percent</th>
<th>1 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. of CE(s)</strong></td>
<td><strong>Eigenvalue</strong></td>
<td><strong>Statistic</strong></td>
<td><strong>Critical Value</strong></td>
</tr>
<tr>
<td>None **</td>
<td>0.857045</td>
<td>168.2056</td>
<td>124.24</td>
</tr>
<tr>
<td>At most 1 **</td>
<td>0.777939</td>
<td>113.7392</td>
<td>94.15</td>
</tr>
<tr>
<td>At most 2 *</td>
<td>0.709339</td>
<td>71.60478</td>
<td>68.52</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.468703</td>
<td>37.00806</td>
<td>47.21</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.367329</td>
<td>19.29991</td>
<td>29.68</td>
</tr>
<tr>
<td>At most 5</td>
<td>0.18401</td>
<td>6.481367</td>
<td>15.41</td>
</tr>
<tr>
<td>At most 6</td>
<td>0.027732</td>
<td>0.787465</td>
<td>3.76</td>
</tr>
</tbody>
</table>

#### Hypothesized Max-Eigen

<table>
<thead>
<tr>
<th><strong>No. of CE(s)</strong></th>
<th><strong>Eigenvalue</strong></th>
<th><strong>Statistic</strong></th>
<th><strong>Critical Value</strong></th>
<th><strong>Critical Value</strong></th>
</tr>
</thead>
<tbody>
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<td>51.57</td>
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<td>At most 1 *</td>
<td>0.777939</td>
<td>42.13447</td>
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<td>45.1</td>
</tr>
<tr>
<td>At most 2 *</td>
<td>0.709339</td>
<td>34.59672</td>
<td>33.46</td>
<td>38.77</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.468703</td>
<td>17.70815</td>
<td>27.07</td>
<td>32.24</td>
</tr>
<tr>
<td>At most 4</td>
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<td>12.81855</td>
<td>20.97</td>
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<tr>
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<td>14.07</td>
<td>18.63</td>
</tr>
<tr>
<td>At most 6</td>
<td>0.027732</td>
<td>0.787465</td>
<td>3.76</td>
<td>6.65</td>
</tr>
</tbody>
</table>

*\(^*\)\(^**\) denotes rejection of the hypothesis at the 5%(1%) level. Trace test indicates 3 co-integrating equation(s) at the 5% level, Trace test indicates 2 co-integrating equation(s) at the 1% level. Max-eigenvalue test indicates 3 co-integrating equation(s) at the 5% level. Max-eigenvalue test indicates 1 co-integrating equation(s) at the 1% level.

The co-integration test of each model indicates that in model 1, 2 and 3 there is no co-integration vectors equation among them which means that there is no long run relationship among these variables. The null hypothesis of all these models is not accepted as the trace static indicates that each group of variables in each model is not co-integrated as the Trace statistic as well as Max-Eigen statistic is not significant at 1% and 5% level of significance. Thus it proves that variables like NSDP, Govtexp in model 1, NSDP, Revexp, Capexp in model 2 and NSDP, devexp and nondevexp in model 3 does not have long run association between the respective variables thus has no co-integrated equation in these variables thus for these model we can use VAR model to generate short run relationship and error term. On other hand the Trace static and Max-Eigen statistic shows that model 4 and 5 has one and more than one co-integrated vectors. The table 1.5 and 1.6 shows that there is long run association between NSDP, Sosexp, ecoexp and genexp as the trace statistic and Max-Eigen statistic is rejecting null hypothesis of no co-integration at 5% level of significance. Thus table 1.5 shows there is at least one co-integrated
equation among variables. Similarly table 6.6 also shows long run association ship between the variables like NSDP, eduexp, healthexp, agrialledexp, indiminingexp, adminexp, and interestpay. The Trace statistic and Max-Eigen statistic indicates that there are 3 co-integrated equations at 5% level of significance and 2 co-integrated equation at 1% level of significance. Thus it accepts the null hypothesis of r number of co-integrating equations. Thus for model 4 and 5 we can use VECM model to generate short run as well as long run estimates as the variables have co-integration and we can examine Error correction term for short run adjustment of the variables.

6.3 Result of Models

Having verified that from the above five model, used to identify the relationship between government expenditure and economic growth (NSDP) there some variables which are not having any co-integration with NSDP, thus for short run estimates VAR model will be used for model 1, 2 and 3 to generate Error term. Therefore the model 1, 2 and 3 will be modified as below:

\[ DNSDP_t = \sum_{i=0}^{n} \beta_1 DNSDP_{t-i} + \sum_{i=0}^{n} \beta_2 DGovtexp_{t-i} + \sum_{i=0}^{n} \beta_3 Dtaxrev_{t-i} + \varepsilon_{1t} \] (1)

\[ DNSDP_t = \sum_{i=0}^{n} \gamma_1 DNSDP_{t-i} + \sum_{i=0}^{n} \gamma_2 Devexp_{t-i} + \sum_{i=0}^{n} \gamma_3 Dcexp_{t-i} + \varepsilon_{2t} \] (2)

\[ DNSDP_t = \sum_{i=0}^{n} \gamma_4 DNSDP_{t-i} + \sum_{i=0}^{n} \gamma_5 Devexp_{t-i} + \sum_{i=0}^{n} \gamma_6 Dnonevexp_{t-i} + \varepsilon_{3t} \] (3)

Where, n is lag length; \( \varepsilon \) is random error term whose average is zero, covariance with its own lag values is zero, and variances are constant and which has normal distribution. D is the level of difference and \( \beta_1, \beta_2, \beta_3 \) and \( \gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5 \) and \( \gamma_6 \) are the short run coefficients of the respective variables.

Further from the co-integration analysis we found that the group series of model 4 and 5 are having more than one co-integrated equations thus for these models ECT can be analyzed through VECM model. The error correction terms \( Et-1 \) and \( Ct-1 \) serve as measures of disequilibrium, representing stochastic shocks in the dependent variables in each model (NSDP) respectively. They symbolize the proportion by which the long-run disequilibrium in the dependent variables is corrected in each short-term period. The coefficients on \( Et-1 \) and \( Ct-1 \) are expected to be negative and statistically significant.

6.4 Vector Auto Regression Model

The VAR model has been used to identify the short run coefficients of the variables in those group series which does not have co-integration. There are three techniques for using the VAR model in structural analysis i) Short-term estimation and ii) impulse-response analysis. In this paper we have used these methods to identify the mutual relationships and interaction between variables through short-term estimates and symmetrical relationships to determine dynamic relationships between the examined variables by impulse-response analysis, Cansu (2006). The results of VAR model for equation 1, 2 and 3 are shows in table 1.7 below.
<table>
<thead>
<tr>
<th>Variables</th>
<th>ECM Model 1 DNSDP</th>
<th>ECM Model 2 DNSDP</th>
<th>ECM model 3 DNSDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNSDP(-1)</td>
<td>0.544219</td>
<td>-0.333868</td>
<td>-0.240962</td>
</tr>
<tr>
<td></td>
<td>(-0.20563)</td>
<td>(-0.20082)</td>
<td>(-0.21772)</td>
</tr>
<tr>
<td></td>
<td>[2.64662]**</td>
<td>[-1.66255]</td>
<td>[-1.10677]**</td>
</tr>
<tr>
<td>DNSDP(-2)</td>
<td>0.136987</td>
<td>-0.00274</td>
<td>0.108319</td>
</tr>
<tr>
<td></td>
<td>(-0.21792)</td>
<td>(-0.17674)</td>
<td>(-0.2273)</td>
</tr>
<tr>
<td></td>
<td>[0.62863]</td>
<td>[-0.01551]</td>
<td>[0.47655]</td>
</tr>
<tr>
<td>DGOVTEXP(-1)</td>
<td>0.009295</td>
<td>-0.26531</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[0.03504]</td>
</tr>
<tr>
<td>DGOVTEXP(-2)</td>
<td>0.20678</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[0.88608]</td>
</tr>
<tr>
<td>DTAXREV(-1)</td>
<td>0.168806</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[1.33087]</td>
</tr>
<tr>
<td>DTAXREV(-2)</td>
<td>-0.056211</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[-0.46191]</td>
</tr>
<tr>
<td>DREVEXP(-1)</td>
<td></td>
<td>0.109767</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[-0.18846]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[0.58244]</td>
</tr>
<tr>
<td>DREVEXP(-2)</td>
<td></td>
<td>-0.248055</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[-0.2055]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[-1.21005]</td>
</tr>
<tr>
<td>DCAPEXP(-1)</td>
<td></td>
<td>0.358963</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[-0.10708]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[3.35224]*</td>
</tr>
<tr>
<td>DCAPEXP(-2)</td>
<td></td>
<td>0.197161</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[-0.10814]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[1.82325]**</td>
</tr>
<tr>
<td>DDEVEXP(-1)</td>
<td></td>
<td></td>
<td>0.109116</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.18214</td>
</tr>
</tbody>
</table>
The results of VAR model suggests that the variables have short run relationship at the set of two period lag which were optimal lags according to the value of the Akaike Information Criteria (AIC). The results of VAR estimation for all these models are surprising. The results show that government expenditure and tax revenue has positive but insignificant relationship with NSDP that means government expenditure and tax revenue are not efficient to produce change in NSDP of the state, Yilgör (2012); Gacener (2005) while as NSDP of previous year has significant impact on change in NSDP of current year (model 1). The t statistics of both the variables are not significant at 5% level of significance. The reason might be that most of the government expenditure over the years was defective and has been allocated to unproductive services like administrative services, organs of the state, security, law and order, repayment of loans, interest payments and many services which does not have direct linkage with growth like revenue expenditure on education, health, agriculture and allied activities, industry and mining etc., which only produce dead lock in economy as there was no efficient change in these sectors which could not produce any asset to produce any change in NSDP of the state. However from model 2 we find that revenue expenditure has positive but insignificant impact on economic growth of the state Agell et al (1999). Which suggest that revenue expenditure is inefficient to promote economic growth as at both the lags revenue expenditure coefficient is insignificant at
1% and 5% level of significance. While as capital expenditure has positive and significant impact on growth of NSDP of the state at both time lags, Yilmaz and Kaya (2005) Altay and Altin (2008).

The results show that 1 percent increase in capital expenditure of previous year will produce 0.3% change in NSDP. Also 1 percent change in capital expenditure of previous of previous year produce 0.19 percent change in NSDP. Both the coefficients are significant at 1% and 10% percent level of significance at both the time lags. This reason might be due to that factor that capital expenditure is incurred for generating the capital assets and the return of those assets is not soon it take more than 2-3 years to return. The increase of expenditure in economic services like health, water and power, industry and mining, tourism, transport and communication have increase capital expenditure and thus help to promote change in NSDP of the state after a long time thus produce change in NSDP. From the model 3 we also get surprising results which shows that developmental expenditure does not have significant impact on NSDP of the state. The results show that developmental expenditure has positive impact but is insignificant variable to produce change in NSDP. However on other hand non developmental expenditure shows negative and insignificant variable to promote change in NSDP as it was expected. Both the variables are insignificant at 1% and 5% level of significance at both time lags.

The reason might be that the developmental expenditure is mostly allocated to the project which does not have long run duration. Also the vast mismanagement and improper allocation of funds for developmental purpose have also made developmental expenditure unproductive thus could not promote economic growth in the state. Thus the VAR estimation of model 1, 2 and 3 shows that the variables like government expenditure, tax revenue, revenue expenditure, developmental expenditure have positive but insignificant short run association with NSDP which indicates that these variables are inefficient to promote any change in economic growth of the state. On other hand capital expenditure has negative but significant impact on economic growth of the state. Also non developmental expenditure shows negative and insignificant impact on economic growth. Thus over all the VAR estimation shows that most of government expenditure and its main components are inefficient to produce economic growth. The R-square of model 1 indicate that 64 percent variation in NSDP is explained by the respective variables in the model while rest is due to other factors similarly model 2 and 3 shows that 46 percent and 47 percent variation in NSDP is explained by the respective variables in the model which is quite less than normal level. Thus it suggests that there are some other important factors which have significant impact on economic growth over long and short period of time.

In order to find out the reliability of the model and how fit and adequate is our data, certain tests were applied. The results of those test show that all the equation of NSDP are significant and robust. Table 1.8 shows the result of different diagnostic test. Breusch-Godfrey Serial Correlation LM test was used to analyze the serial correlation in the model. The hypothesis tested was that the model has no serial correlation. The results of the test accept the null hypothesis as the observed $R^2$ and its respected P value is greater than 5% level of significance. So there is no problem of serial correlation in the model, auto regressive conditional heterokedasticity test (ARCH Test) is used to asses that the significance of the model. The results show that as the respective P value of the observed $R^2$ is greater than 5% level of significance, so there is no Auto regression in the model which was our null hypothesis and our model is significant. Normality test was carried out to know whether the date was under the normal distribution or not. Jarque-Bera test shows that the residuals of the model are normally distributed as the respected p value of Jarque-Bera test is more than 5% level of significance. So we accept our null hypothesis that the residuals are normally distributed. The CUSET (coefficient Specification Test) statistics for model1, 2, 3 is in figure 1.3, 1.4, and 1.5.
respectively, which reveal no serious omission of variables, indicating the correct specification of the entire model.

**Table 1.8: Diagnostic Test of the Models**

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Breusch-Godfrey Serial Correlation LM Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-statistic</td>
<td>2.252325</td>
</tr>
<tr>
<td></td>
<td>Obs*R-squared</td>
<td>4.945381</td>
</tr>
<tr>
<td></td>
<td>ARCH Test:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F-statistic</td>
<td>0.316803</td>
</tr>
<tr>
<td></td>
<td>Obs*R-squared</td>
<td>0.337866</td>
</tr>
<tr>
<td></td>
<td>Normality test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jarque-Bera statistic</td>
<td>5.473618</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 2</th>
<th>Breusch-Godfrey Serial Correlation LM Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-statistic</td>
<td>1.076975</td>
</tr>
<tr>
<td></td>
<td>Obs*R-squared</td>
<td>2.885619</td>
</tr>
<tr>
<td></td>
<td>ARCH Test:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F-statistic</td>
<td>0.150005</td>
</tr>
<tr>
<td></td>
<td>Obs*R-squared</td>
<td>0.161496</td>
</tr>
<tr>
<td></td>
<td>Normality test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jarque-Bera statistic</td>
<td>0.752</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 3</th>
<th>Breusch-Godfrey Serial Correlation LM Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-statistic</td>
<td>0.161442</td>
</tr>
<tr>
<td></td>
<td>Obs*R-squared</td>
<td>0.47579</td>
</tr>
<tr>
<td></td>
<td>ARCH Test:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F-statistic</td>
<td>0.238638</td>
</tr>
<tr>
<td></td>
<td>Obs*R-squared</td>
<td>0.25598</td>
</tr>
<tr>
<td></td>
<td>Normality test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jarque-Bera statistic</td>
<td>3.2003</td>
</tr>
</tbody>
</table>
6.5. Impulse response function

An impulse response refers to the response of any dynamic system in response to some external change. The results of Impulse-response function for VAR model 1, 2 and 3 are shown in Figure 1.6, 1.7 and 1.8 respectively.
The Figure 1.6 shows the response of Dgovtexp to DNSDP and DNSDP to Dgovtexp. It can be seen that one unit shock occurs in DGOVTEXP variable, the response of DNSDP variable is to increase until 2nd period and remain positive until 3rd period. After 3rd period it decreases and after the 4th period it remains positive up to 10th period. While as when one unit shock occur in DNSDP variable the increase occurs in DGOVTEXP variable until after 3rd period in response which remain positive after 4th period.

The chart also shows response of DNSDP to DTAXREV and DTAXREV to DNASP, it can be seen that one unit shock occurs in DNSP variable is to increase DTAXREV until 2nd period. After second it decrease, and shows negative growth. After 3rd its start rising but remain negative and after 4th period it remain positive until 10th period. The effect of DTAXREV on DNSDP is like that one unit shock occurs in DTAXREV increase DNSDP until 2nd period. After that decrease until 3rd period and after 3rd start increasing until 4th period and after 4th it remain positive until 10th period.

Also the figure shows response of DTAXREV to DGOVTEXP and DGOVTEXP to DTAXREV. It shows that one unit shock occur occurs in DTAXREV decrease DGOVTEXP until 3rd period. After 3rd period it will increase but remain negative and after 4th period remain positive and stable until 10th period. While as the response of DGOVTEXP to DTAXREV shows that one unit shock occurs in DGOVTEXP increase DTAXREV until 2nd period. After it will decrease until 3rd period and goes negative, after 4th period it increases and remains positive.

**Figure 1.7: Impulse-response Function of NSDP, REVEXP and CAPEXP**

![Figure 1.7](image_url)

Figure 1.7 shows the response of DNSDP to DREVEXP, it can be seen that one unit shock in DNSDP, the response of DREVEXP is to increase after 3rd period, after 4th period it decrease and goes negative until 5th period. After 5th it increased but remains negative until 7th period. After 7th period it remains positive until 10th period. Chart also shows the response of DREVEXP to DNSDP, it shows that one unit shock in DREVEXP, the response of DNSDP is to increase until 2nd period, after decrease until 3rd period. After 3rd period it increase but remain negative until 4th period, after 4th period it remain positive.

Further the figure shows the response of DCAPEXP to DREVEXP, it shows that one unit shock in DCAPEXP, the response of DREVEXP is to decrease until 2nd period, after it will increase until 3rd period but remain negative, after 4th period it will increase and remain positive until 6th period.
period but from 5th period it decrease but remain positive until 10th period. The response of DRECEXP to DCAPEXP shows that one unit shock in DREVEXP, the response of DCAPEXP remains same until 10th period which means it does not affect.

Figure 1.7 also shows the response of DCAPEXP to DNSDP, it can be seen from the chart below that one unit shock in DCAPEXP, the response of DNSDP is to increase until 3rd period and after remain positive 4th period, after 4th increase until 5th period, after remain positive until 10th period.

**Figure 1.8: Impulse-response function of NSDP, DEVEXP and NONDEVEXP**

Figure 1.8 shows the response of DDEVEXP to DNSDP, it shows that one unit shock in DDEVEXP, the response of DNSDP is to remain positive in same position as it was before until 10th period. While as the response of DNSDP to DDEVEXP shows that one unit shock in DNSDP, the response of DDEVEXP is to decrease until 3rd period, after 3rd period increase but remain negative until 4th period. After 4th period increases until 5th period, after 5th decrease but remains positive until 6th period and after that remains positive until 10th period.

The chart also shows response of DNSDP to DNONDEVEXP, it shows that one unit shock in DNSDP, the response of DNONDEVEXP is to remain positive until 2nd period, after 2nd it increases until 3rd period. After 3rd it decreases but remains positive until 10th period. While as the response of DNONDEVEXP to DNSDP shows that one unit shock in DNONDEVEXP, the response to DNSDP is to increase until 2nd period, after decrease until 3rd period. After 4th period it increases and remains positive until 10th period.

Thus the impulse response in general shows that there is a wide range of period in expenditure variables to stable any disequilibrium in state income. It shows that any disequilibrium in NSDP can be stabilizing in short run but the stability period is longer.

**6.6. Long Run and Short Run Estimates (VECM)**

After verifying that the there are some series groups which are having long run co-integration with NSDP we can examine the casual relationship between different components of expenditure and economic growth (NSDP) by ECM models. The Vector error Correction model is used to identify the long run as well as short run relationship between the variables. The importance of analyzing VECM is we can understand the long run adjustment with short run stability through the Error Correction term. The error correction terms, $\Pi ECT_{t-1}$ and $\epsilon_t$ serve as measures of disequilibrium, representing stochastic shocks in the dependent variables, NSDP.
respectively in our different model 4 and 5. In the model 4 and 5 they will represent the proportion by which the long-run disequilibrium in the dependent variables is corrected in each short-term period. The coefficients on \[ ECT_{t-1} \] and \( \epsilon_t \) in these models are expected to be negative and statistically significant. The coefficients on the lagged values of Dsosexp, Decoexp, Dgenexp, Deduexp, Dhelath, Dagriexp, Ddiminexp, Dadminexp and Dinterespay are short-run parameters measuring the immediate impact of independent variables on NSDP. The result of long run as well as short run estimates of model 4 and 5 is shown in table 1.9 and 1.10 with some diagnostic tests as well to find out the strength, reliability and efficiency of our models and data.

### Table 1.9: Long and Short Run Estimates of ECM Model 4

<table>
<thead>
<tr>
<th>Long run estimates</th>
<th>Coefficient</th>
<th>standard error</th>
<th>T-statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSDP(1)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOSEXP(1)</td>
<td>2.100854</td>
<td>-0.98516</td>
<td>[2.13250]</td>
<td>0.0512***</td>
</tr>
<tr>
<td>ECOEXP(1)</td>
<td>1.076562</td>
<td>-0.48266</td>
<td>[2.23049]</td>
<td>0.0257**</td>
</tr>
<tr>
<td>GENEXP(1)</td>
<td>-0.129818</td>
<td>-0.53184</td>
<td>[-1.24409]</td>
<td>0.0158**</td>
</tr>
<tr>
<td>C</td>
<td>-0.819362</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short run estimates</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>T-statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(NSDP(-1))</td>
<td>-0.328885</td>
<td>-0.18849</td>
<td>-1.74484</td>
<td>0.0991***</td>
</tr>
<tr>
<td>D(NSDP(-2))</td>
<td>-0.052876</td>
<td>-0.19522</td>
<td>[-0.27086]</td>
<td>0.7898</td>
</tr>
<tr>
<td>D(SOSEXP(-1))</td>
<td>-0.07859</td>
<td>-0.17432</td>
<td>[-0.45084]</td>
<td>0.6578</td>
</tr>
<tr>
<td>D(SOSEXP(-2))</td>
<td>0.240254</td>
<td>-0.18534</td>
<td>[1.29630]</td>
<td>0.2122</td>
</tr>
<tr>
<td>D(ECOEXP(-1))</td>
<td>0.339345</td>
<td>-0.18513</td>
<td>[1.83303]</td>
<td>0.0844***</td>
</tr>
<tr>
<td>D(ECOEXP(-2))</td>
<td>-0.14083</td>
<td>-0.15438</td>
<td>[-0.91223]</td>
<td>0.3744</td>
</tr>
<tr>
<td>D(GENEXP(-1))</td>
<td>-0.079602</td>
<td>-0.13241</td>
<td>[-0.60119]</td>
<td>0.5556</td>
</tr>
<tr>
<td>D(GENEXP(-2))</td>
<td>-0.042637</td>
<td>-0.12663</td>
<td>[-0.33671]</td>
<td>0.7405</td>
</tr>
<tr>
<td>ECT</td>
<td>-0.186296</td>
<td>-0.07017</td>
<td>[-2.65488]</td>
<td>0.0167**</td>
</tr>
<tr>
<td>C</td>
<td>0.113061</td>
<td>-0.07612</td>
<td>[1.48537]</td>
<td>0.1558</td>
</tr>
</tbody>
</table>

| R-squared                                      | 0.514836    | Sum sq. resids | 0.080283   |          |
| F-statistic                                    | 2.00441     | S.E. equation  | 0.068721   |          |
| Akaike AIC                                      | -2.239414   | Log likelihood | 40.23209   |          |
The observed result of model 4, where we regress, different categories of expenditure, like expenditure on social, economic and general services with NSDP to examine their impact on economic growth, Josaphat et al. (2000). The results indicate long run relationship of these variables. Table shows that expenditure on social and economic services are significant and positive relationship with NSDP, Deverajan et al. (1993) while as expenditure on general services has negative relation but is insignificant to produce any change in NSDP. It suggests that over long run 1 percent increase in expenditure on social services led 2.1 percent change in NSDP which means more elastic over long run. Similarly 1 percent increase in expenditure on economic services led to 1.07 percent change in NSDP. This might be due to the direct impact of expenditure incurred on services like education, health, water and sanitation, transport and communication and some of the economic activities like horticulture, handicraft, handloom, cement industry, mining etc., which increase the production of goods and services through expenditure on these services and thus directly results growth in economy.

The t-statistic of both these variables over long run is significant at 10% and 5% level of significance and thus proves that these variables have long run association with economic growth. However in short run expenditure on social services over current year has negative relation with economic growth but is insignificant. But in previous year expenditure on social services has positive impact but is again insignificant to produce any change in NSDP which means in short run 1 percent increase in expenditure on social services in current year will decrease NSDP at -0.07859 percent and 1 percent increase in expenditure on social services over previous year will increase NSDP at 0.24025 percent but at both time lags t- statistic is insignificant. It might be due to the returns of investment. The expenditure incurred on social services like education, health, sanitation, water, transport, communication sports etc., return back their profit after long duration of time thus the expenditure on these services has no immediate return to economic but takes a long time to function in line with growth.

While as in short run expenditure on economic services has positive and significant impact on economic growth. Table shoes that 1 percent oncr4ese in expenditure on economic services in current year will increase NSDP by 0.339345 percent next year but 1 percent increase in expenditure on economic services in previous year will reduce NSDP by -0.14083 percent. Thus expenditure on economic services has significant impact on economic growth over lag 1 but on lag two it has negative and insignificant impact on NSDP. Further over long run the expenditure
on general services has negative and significant impact on economic growth. Table show that over long run 1 percent increase in expenditure on general services reduces NSDP by -0.12981 percent and t statistic is significant at 5% level of significance. Over short period the expenditure on general services is negative but is insignificant at both the time lags. It shows that 1 percent increase in expenditure on general services in current year will reduce NSDP by -0.079602 percent and 1 percent increase in expenditure on general services over previous year will reduce NSDP by -0.042637 percent but t statistic of both the variables in short run are insignificant.

The co-integrated of the variables justifies the use of VECM. The VECM permit the long term performance of the endogenous variables to converge to long term equilibrium while allowing a wide range of short dynamics. The table 6.9 shows the speed of adjustment indicated by the error correction terms in the co-integrating equation 4. The coefficients of the error correction terms are interpreted as speed of adjustment to long run equilibrium in dependent variable by short run stability in independent variables. The error coefficient term is negative signed and is significant at 5% level of significant which indicates long run co-integration and shows that any disequilibrium in dependent variable in long can be corrected 18 % in each short run period. This shows that any shock in NSDP will take longer time to adjust, it does not adjust immediately. The R-Square is analyzed for looking at goodness of fit and reliability of model. The table shows that the model explains a significant proportion of variability of the series for expenditure on social, economic and general services. The R square of the series shows that 51 percent variation in economic growth is explained by the variables respectively in the state and rest by other factors.

Various diagnostic tests have been analyzed to find out the adequacy of data and fitness of the results. From table 1.9, Breusch-Godfrey Serial Correlation LM test was tested on hypothesis that the model has no serial correlation. The results of the test accept the null hypothesis as the observed R² and its respected P value is greater than 5% level of significance. So there is no problem of serial correlation in the model Auto regressive conditional heterokedasticity test (ARCH Test) is used to asses that the significance of the model. The results show that as the respective P value of the observed R² is greater than 5% level of significance, so there is no Auto regression in the model which was our null hypothesis and our model is significant. Normality test for, date was under the normal distribution or not. Jarque-Bera test shows that the residuals of the model are normally distributed as the respected p value of Jarque-Bera test is more than 5% level of significance. So we accept our null hypothesis that the residuals are normally distributed. The CUSET (coefficient Specification Test) statistics figure (1.9), reveal no serious omission of variables, indicating the correct specification of the model.

Figure 1.9: Coefficient Specification Test

![CUSUM 5% Significance](image)
As mentioned early due to the problem of multi-collinearity we have divide equation in such a way so that we get better results. Thus VECM model has been used separately on another set of ECM equation due to the factor that the series of variables in that model were found co-integrated. The short run and long run estimates of variables like education expenditure, health expenditure, expenditure on agriculture and allied sectors, expenditure on industry and mining, expenditure on administrative services and expenditure on interest payments and servicing at debt to find out there impact on economic growth. Table 1.10 shows both long run and short run estimates of categories of public expenditure and NSDP followed by diagnostic tests.

<table>
<thead>
<tr>
<th>Table 1.10: Long and Short Run Estimates of EMC Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long run estimates</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>NSDP(1)</strong></td>
</tr>
<tr>
<td>Coefficient: 1</td>
</tr>
<tr>
<td>Standard error: -0.12103</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>EDUEXP(1)</strong></td>
</tr>
<tr>
<td>Coefficient: -1.694804</td>
</tr>
<tr>
<td>Standard error: -0.07143</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>HELATHEXP(1)</strong></td>
</tr>
<tr>
<td>Coefficient: 0.123201</td>
</tr>
<tr>
<td>Standard error: -0.07143</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>AGRIALLIED(1)</strong></td>
</tr>
<tr>
<td>Coefficient: -0.245924</td>
</tr>
<tr>
<td>Standard error: -0.08172</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>INDMING(1)</strong></td>
</tr>
<tr>
<td>Coefficient: 1.213715</td>
</tr>
<tr>
<td>Standard error: -0.15725</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>ADMINS(1)</strong></td>
</tr>
<tr>
<td>Coefficient: -0.077444</td>
</tr>
<tr>
<td>Standard error: -0.05821</td>
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<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>C</strong></td>
</tr>
<tr>
<td>Coefficient: -2.75464</td>
</tr>
<tr>
<td>Standard error:</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>ECT</strong></td>
</tr>
<tr>
<td>Coefficient: -0.24018</td>
</tr>
<tr>
<td>Standard error: -0.12311</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>Short run estimates</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>D(NSDP(-1))</strong></td>
</tr>
<tr>
<td>Coefficient: -0.297897</td>
</tr>
<tr>
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</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
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<tr>
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<tr>
<td><strong>D(NSDP(-2))</strong></td>
</tr>
<tr>
<td>Coefficient: 0.10005</td>
</tr>
<tr>
<td>Standard error: -0.22016</td>
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<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>D(EDUEXP(-1))</strong></td>
</tr>
<tr>
<td>Coefficient: 0.213794</td>
</tr>
<tr>
<td>Standard error: -0.19223</td>
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<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>D(EDUEXP(-2))</strong></td>
</tr>
<tr>
<td>Coefficient: -0.131311</td>
</tr>
<tr>
<td>Standard error: -0.20903</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
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<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>D(HELATHEXP(-1))</strong></td>
</tr>
<tr>
<td>Coefficient: -0.006355</td>
</tr>
<tr>
<td>Standard error: -0.07123</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>D(HELATHEXP(-2))</strong></td>
</tr>
<tr>
<td>Coefficient: 0.073614</td>
</tr>
<tr>
<td>Standard error: -0.07495</td>
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<tr>
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</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>D(AGRIALLIED(-1))</strong></td>
</tr>
<tr>
<td>Coefficient: -0.020652</td>
</tr>
<tr>
<td>Standard error: -0.13552</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
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<tr>
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<tr>
<td><strong>D(AGRIALLIED(-2))</strong></td>
</tr>
<tr>
<td>Coefficient: -0.016386</td>
</tr>
<tr>
<td>Standard error: -0.10314</td>
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<tr>
<td>T-statistic: [-14.0029]</td>
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<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>D(INDMING(-1))</strong></td>
</tr>
<tr>
<td>Coefficient: 0.02643</td>
</tr>
<tr>
<td>Standard error: -0.19472</td>
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<tr>
<td><strong>D(INDMING(-2))</strong></td>
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<tr>
<td>Coefficient: -0.08417</td>
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<tr>
<td>Standard error: -0.15651</td>
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<td>T-statistic: [-14.0029]</td>
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<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>D(ADMINS(-1))</strong></td>
</tr>
<tr>
<td>Coefficient: -0.255885</td>
</tr>
<tr>
<td>Standard error: -0.16477</td>
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<td>T-statistic: [-14.0029]</td>
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<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>D(ADMINS(-2))</strong></td>
</tr>
<tr>
<td>Coefficient: 0.092985</td>
</tr>
<tr>
<td>Standard error: -0.18788</td>
</tr>
<tr>
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</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>C</strong></td>
</tr>
<tr>
<td>Coefficient: 0.171721</td>
</tr>
<tr>
<td>Standard error: -0.06946</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>ECT</strong></td>
</tr>
<tr>
<td>Coefficient: -0.24018</td>
</tr>
<tr>
<td>Standard error: -0.12311</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
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<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
</tr>
<tr>
<td>Coefficient: 0.75086</td>
</tr>
<tr>
<td>Standard error:</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
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<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>Sum sq. resid</strong></td>
</tr>
<tr>
<td>Coefficient: 0.041227</td>
</tr>
<tr>
<td>Standard error: -0.06946</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
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<tr>
<td>Prob: 0.0002</td>
</tr>
<tr>
<td><strong>F-statistic</strong></td>
</tr>
<tr>
<td>Coefficient: 3.0138</td>
</tr>
<tr>
<td>Standard error: Log likelihood</td>
</tr>
<tr>
<td>T-statistic: [-14.0029]</td>
</tr>
<tr>
<td>Prob: 0.0002</td>
</tr>
</tbody>
</table>
The table shows that in long run expenditure on education has positive but significant impact on economic growth Osborn (2007) while as in short run it has positive impact on lag1 and negative impact on lag two but on both short run periods it is insignificant Kakar et al., (2011). it suggest s that 1 percent increase in education expenditure led to 1.694804 increase in NSDP over long period and in short run 1 percent increase in expenditure on education will increase NSDP by 0.213794 percent in first period lag and in second 1 percent increase in expenditure on education in previous year will reduce NSDP by -0.131311 percent. This implies that the expenditure on education does not have immediate impact on economic growth due to its slow and late returns. However expenditure on health was found positive and significant over long run, Baldacci et al. (2008) and shows that 1 percent increase in health expenditure will increase NSDP by 0.123201 percent as the t statistic is significant at 10 % level of significance. While as in short run current year expenditure on health has negative but insignificant impact on NSDP as 1 percent increase in expenditure on health will reduce NSDP by -006355 percent and over previous period 1 percent increase expenditure on health will increase NSDP by 0.073614 percent. Thus expenditure on health will encourage economic growth in long run because its nature on expenditure is mostly falling under economic and social services were returns are more continue than education.

Further expenditure on agriculture and allied sectors has significant but negative impact on NSDP growth. Table shows that 1 percent increase in expenditure on agriculture and allied sectors will reduce state income by -0.245924 percent as t statistic is significant at 1% level of significance. It might be due to the subsistence level of farming in the state where most of the production is for subsistence live except few sectors like horticulture and saffron cultivation. Thus expenditure on vast agriculture dependent state will defiantly reduce economic growth. While as in short expenditure on agriculture and allied sectors have negative but are insignificant at both time lags which shows that 1 percent increase in expenditure on current and previous year will reduce the economic growth by -0.020652 and -0.16386 percent respectively. Thus it shows that expenditure on agriculture and allied sectors have not supported the economic growth in the state over the years. On other hand expenditure on industry and mining shows positive and significant impact on economic growth (NSDP). Table indicate that 1 percent increase in expenditure on industry and mining led to 1.213715 percent growth in

Table 1.10: Long Run and Short Run Estimates of EMC Model 5

<table>
<thead>
<tr>
<th>Diagnostic tests</th>
<th>Akaike AIC</th>
<th>Schwarz SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breusch-Godfrey Serial Correlation LM Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>1.624385</td>
<td>1.937673</td>
</tr>
<tr>
<td>Obs*R-squared</td>
<td>0.240926</td>
<td>0.460409</td>
</tr>
<tr>
<td>ARCH Test:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>1.422382</td>
<td>0.24467</td>
</tr>
<tr>
<td>Obs*R-squared</td>
<td>1.4547</td>
<td>0.227775</td>
</tr>
<tr>
<td>Normality test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jarque-Bera statistic</td>
<td>1.13821</td>
<td>0.566032</td>
</tr>
</tbody>
</table>

** Significant at 5% level of Significance, *** Significant at 10% level of significance
NSDP which means NSDP is more elastic with change in expenditure on industry and mining. The t statistic is significant at 1% level of significance.

It might be due to the reason that the expenditure incurred on industry and mining has direct association with NSDP like expenditure on cement industry, handicraft, handloom, mining etc., has direct involvement of employment, production and consumption which obviously increase economic output and thus economic growth as well. On other over short run expenditure on industry and mining has positive impact on first lag and negative impact on lag 2. It indicates that current year’s expenditure has positive but insignificant Impact on NSDP while as previous year has negative and also insignificant impact. It must be due to the return of income from industry and mining which is neither immediate nor not efficient due to the economic and social atmosphere in the state over the years which destroy the industrial infrastructure in the state.

At last, expenditure on administrative services show negative relationship with NSDP but is insignificant to promote change in NSDP. Table shows that over long run 1 percent increase in expenditure on administrative services will reduce NSDP by -0.077444 percent. In short run at first lag expenditure on administrative has negative impact and at second lag it is positive but at both lags is insignificant. The R Square of the model suggests that 75 percent variation in NSDP is explained by these variables is quite satisfactory. The speed of adjustment towards long-run equilibrium carries the expected negative sign and it is very significant at the 5% level. The coefficient indicates a response of about 24.018% of the previous year’s disequilibrium from the long-run elasticity of these variables. This means that the speed with which expenditure on education, health, agriculture and allied sectors, industry and mining and administrative services adjust from short-run disequilibrium to changes in economic growth in order to attain long-run equilibrium is only 24.018% within one year.

The diagnostic tests carried for checking reliability of data and of results are significant and robust. The Breusch-Godfrey Serial Correlation LM test reveals no significant serial correlation in the disturbance of error term as the p value of the test is greater than 5% thus we accept null hypothesis of no serial correlation. ARCH test suggest that the errors are homoskedastic and independent of the repressors. The p value of the observed R-square test is greater than 5% level of significance thus also null hypothesis accepted of no heterokidasticity. The normality test carried by Jarque-Bera statistic indicates that the disturbance of the repressors’ is normally distributed as the null hypothesis is accepted at 5% level of significance. Apart from these tests, CUSET test for coefficient Specification in figure (1.10) reveals that there is no serious omission of variables and model is correctly specified.

**Figure 1.10: CUSET test (Coefficient specification Test)**
7. Conclusion

The primary aim of the study was to analyze the impact of government expenditure and its different categories on economic growth in the state of Jammu and Kashmir. The analysis was carried out for a period of thirty years. The results of different models used together in this study suggest that government expenditure has positive but insignificant impact on economic growth of the state. The aggregate government expenditure itself has no association with economic growth long run while as in short run it is insignificant to promote stability in economic growth, if there happens to be any disequilibrium. Revenue expenditure on other hand comes out to be positive but insignificant to produce economic growth while capital expenditure remains significant and has a positive impact on economic growth. Also in short run these variables have adjustment power towards long run equilibrium in economic growth. This implies that if any disequilibrium occurs in economic growth of the state, government expenditure, revenue and capital expenditure can produce significant change in the economic growth with short run adjustments, but after long period. Expenditure on social, economic and general services have positive and significant impact on economic growth and can somehow adjust the long run disequilibrium by short run dynamics but the duration of period is very long enough. Furthermore expenditure on education, health, industry and mining has significant and positive impact on economic growth while as expenditure on agriculture and allied sectors and expenditure on administrative services were found negative impact on economic growth. The adjustment period of long run disequilibrium is satisfactory over short run stability of these periods but the duration is again very long.

Also developmental and non-developmental expenditure are not having any long run association with economic growth while in short run developmental expenditure of previous year has positive and significant impact on economic growth of current year’s economic growth and non-developmental expenditure does not have significant impact but has negative association with economic growth on both time lags.

Therefore from the discussion it is obvious that government expenditure in the state of Jammu and Kashmir is broadly inconsistent and unproductive to produce significant change in economic growth. The reason might be the pattern of spending over the years which was mostly for general services and running of the state administration and less focus was for capital generation and resources development. It might be also due to the ongoing political and social tension in the state which has reduced economic efficiency; also the government spending is not very efficient due to the different political and economic constraints which block the output of the public spending. The 20 years of deep unrest in the state has also set back the social and physical infrastructure into deep stagnant phase where it was difficult to government to set efficient spending policies for long period of time especially in mid-90’s and early 2000. The spending of government expenditure over economic services is also less efficient because of nature and limited economic activities in the state. Thus the conclusion of the paper can be like that the government expenditure in the state of Jammu and Kashmir is less significant and inefficient to promote economic growth in the state of Jammu and Kashmir despite the huge growth in government expenditure over the years.

References


The Case for an Entrenched Balanced Budget Constitutional Provision in Ghana

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Abstract

Fiscal indiscipline has been a major tussle of most African nations and a disturbing problem. African governments are challenged by how to subscribe to the basic principles and canons of institutional restraint and accountability which are hallmarks of good governance. The paper employs institutionalism (North 1991, Putnam’s notion of social capital to show that when it costs to transact, institution really, matter. Cases of best practices exist elsewhere in East Asia and advanced counties to confirm these assertions. The paper attempts to provide some reasons for the menace and some mechanisms for resolution.

Key Words

Fiscal indiscipline, institutional restraint, accountability, liberal democracy.

Introduction

There is no doubt that fiscal prudence is a virtue of good governance and democracy. It is indicative of how a government and the people of a nation subscribe to the basic principles and canons of institutional restraint and accountability. These are hallmarks of good governance. Indeed, of all the major causes of poor governance and its associated problems of poverty, indebtedness, instability and underdevelopment, the absence of institutional restraints, especially, in the area of national finances, has been noted as the single major factor accounting for mass poverty in developing countries. In Ghana, it is a well-known fact that the greatest source of interparty and governmental castigations, and disappointments that emerge after governmental change-over has been due to the incidence of huge indebtedness left by outgoing administrations. The scourge of national indebtedness emanating from unrestrained governmental spending is such that it has become a major source of the loss of confidence on the part of the people of Ghana in their government, irrespective of whichever party comes to power. This has been a specially recurrent challenge that has faced Ghana throughout its post-independence history. Not only have our governments acted without restraints, they have also, in the absence of institutional restraints wantonly violated the rules of democratic game. Indeed, governments of poor nations such as Ghana have been able to act with impunity because they are not limited in any way in the extent to which they can spend, even if it is clear they do not have the resources available.

Fiscal deficits bequeathed by outgoing governments have always been decried by incoming governments. In its 2010 budgetary statement to parliament, the government lamented about the crumbling economy. The Minister of Finance and Economic Planning presenting the government’s budget statement noted that “The truth that must be told is that, the Government inherited a distressed economy characterised by huge twin deficits,” (Republic of Ghana, 2009: 3). The Minister noted that “the fiscal deficit alone stood at GH¢2.6 billion at the end of 2008 when the New Patriotic Party (NPP) left office compared with GH¢260 million registered at end of 2000 when the National Democratic Congress (NDC) left office” (ibid). He lamented that “in addition, by end September, arrears and unpaid bills amounted to GH¢1.7 billion in 2008, amounting to almost 22% of GDP,” and that “never in the history of our country have we faced such a huge fiscal deficit in proportion to GDP.” What was worse, the Minister noted that this
huge indebtedness had occurred despite “the significant increases in Government resources between 2005 and 2008.” The conclusion thus, was that “the huge deficit showed a serious failure of expenditure control”, and that, as a nation, “we were living beyond our means in a manner that we could not sustain” ibid).

The Scourge of Fiscal Indiscipline

The devastating impact of fiscal indiscipline on Ghana’s long term prosperity, dignity and national pride cannot be gainsaid. It was the urgent need to mitigate the perennial economic devastation and the strain that huge indebtedness put on the country’s efforts at economic development that the country had to travel the painful and degrading journey of a Highly Indebted and Poor Country (HIPC). While mindful of what the humiliation effects that such a declaration meant for the country, including international ridicule, and the possible closure to access to international capital, the country nonetheless accepted to take the painful road or the bitter pill. It was obvious that as a nation we had realized the devastating consequences of unsustainable fiscal deficits. And it was to curb the cancer of fiscal indiscipline the entire country yielded to the option of swallowing the bitter pill through the HIPC status. Having gone thus far in our effort to initiate renaissance in our spending habit, one would have thought our governments had their bitter lesson and would not want to witness such a humiliation in the future. But that was not the case, because in the absence of a culture of moral probity, not constrained the leaders to turn a new leaf to become fiscally responsible. The reason is quite obvious. In the absence of clearly and rigidly provided institutional restraints to serve as warning signals and self-control, and in a society whose politics is colored in neopatrimonial politics, our governments will be unwilling or unable to rationalize their spending behavior.

Thus, the preamble that highlighted fiscal imbalance was replayed in the 2011 budgetary statement. Thus the Minister noted sadly that though there is some significant improvement “the fiscal deficit reduced significantly from the double digit of 14.5 percent on cash basis at the end of 2008 to 9.7 percent in 2009.” To be sure the scourge of deficit budgetary situation continues to haunt us as a nation. There is the urgent need to find a way to mitigate this undoubtedly catastrophic economic situation if we are to achieve our goal of a better Ghana. It will be recalled that the same lamentation about wanton fiscal indiscipline, ravaged the entire country in 2001 when the then Minister of Finance referring to this same unbridled budgetary deficit used the terminology of “trillion” in quoting the national debt. Thus, the problem of unrestrained fiscal indiscipline has not only become a noticeable anathema in our politics, but it is increasingly becoming unacceptable by the entire nation and the key political players in our political game.

The presentation is premised on the arguments that:

• The entire nation is becoming weary about the perpetual game of budgetary indiscipline and unbridled indebtedness of governments.

• There is the need to take decisive decision by way of constitutional restraints on the problem of budgetary indiscipline.

• The only way to halt the accusations and counter accusations of our various governments over the problem of macroeconomic uncertainty is to craft constitutional rules or norms that rationalize the financial behavior of our governments, including their revenue mobilization and spending behavior.

• Our governments would be able to exhibit the capacity for effective and efficient planning and also be able to make reasonable predictions about our overall future financial stability and sound economy and development if we consciously indicate a cap on permissible governmental spending.
Several examples or evidence exist from best practices elsewhere in the Highly Performing Asian Economies (HPAEs), as well as the Advanced Industrialized Countries, that point to the imperative that a balanced budget principle is not only desirable, but a fundamental governance principle that should guide the Poorly Performing African Countries (PPACs) including Ghana in their desire to ensure economic growth and prosperity for their peoples. It is also one of the major indicators of the level of institutional restraint required for both political and economic stability, while curbing arbitrariness, and capricious governance.

Liberal democracy does not imply the simple act of election of leaders. While this is a necessary aspect of democratic governance, the really important part of democratic governance is to have governments and leaders that actually deliver and act according to the norms of economic and political rationality. More important, such a society, under normal circumstances, must be seen as not dependent on the charity of other nations (a situation which is highly unpredictable and not dignifying, in any case). Democracies thrive on good governance. Nonetheless, they persist only under sound macroeconomic regimes, which in itself is a further indicator of the prevalence of a culture of moral probity and accountability.

The Rationale of Balanced Budget Principle

The purpose of a balanced budget is to ensure that governments are disciplined and spend within their means.

- Just as in conventional individual behavior budgetary discipline requires a convergence of revenues and expenditures, a balanced budget sets a convention that unrestrained leakages of public funds is intolerable and that state resources must as far as practicable be utilized for their sole intended purposes.

- The balanced budget convention has the potential of cautioning government that society takes mapping or tracking of all possible routes for corruption seriously.

- It is also a major indicator of a self-restraining state which is a fundamental principle of democracy (Andreas, Diamond and Plattner 1999). Simply put, governments must act responsibly in terms of spending, and when the urge for spending becomes necessary, it must be in tandem with the capacity to raise revenue.

- In fact, the principle serves as a great motivation for government to be enthusiastic in the area of firm, fair and rational revenue mobilization.

The great founders of the American Democracy recognized this nearly a century ago. Thomas Jefferson is on record as noting that fiscal deficits and wanton debts left by previous governments and generations were not only morally unacceptable, they are also unauthorized. As he intimated, the principle of a Balanced Budget “is of such importance as to place it among the fundamental principles of government”, and warning that current governments and generations “should consider ourselves unauthorized,” (emphasis, authors) to saddle posterity with our debts “to which the future generation did not contribute to its accumulation (Http://cwx.prenhall.com/bookbind….. last visited November, 2016).

Indeed, the scare of unbridled indebtedness and the need to ensure fiscal prudence on the part of our governments appears to be such indubitable that one may not be wrong to argue that it is the shared position of all our governments when they take over the reign of government from their predecessor. Thus, one can argue convincingly that all the stakeholders, governments and the entire population alike share this position to warrant making a provision on this issue a critical aspect of the constitution review exercise. The need to be prudent in one’s management of resources and in particular fiscal matters warrants much of our attention as it deserves. There is no need to talk of poverty reduction in the face of unbridled and wasteful spending. Reckless
spending is tantamount to disregard for future unfortunate and unanticipated events that may need scarce resources. To reduce poverty warrants being able to have a revolving fund one can fall on the rainy day. As Ayimpusah and Opoku-Afriye (2008) rightly observed, one of the best strategies to confront or mitigate poverty is to be mindful of “the need to have a dual strategy of raising incomes”.

The idea of a balanced budget could be institutionalized through several ways, one of which might be to establish an estimated per capita limitation on the national debt permissible for incumbent governments. Another would be to place an estimated projection on the level of deficit governmental spending that may be tolerable in view of future urgent demands and the extent that unsustainable deficits would hamper the future plans of current generations. In fact, a major overarching conclusion arrived at in the US Congressional discussions on the importance of a balanced budget rule are based on the understanding that persistent deficits threaten the nation’s long-term prosperity. Accordingly, congressional debate conclusion on fiscal prudence is that since the search for popular and painless ways to limit deficit spending is difficult to come by, a balanced budget constitutional provision may be the only way to provide the fiscal discipline the nation desperately needs (ibid: 3).

**Lessons from Best Practice Cases**

Recent findings by reputable research think tanks clearly suggest that part of the explanation for the Asian economic miracle growth lies in the area of fiscal restraints (Campos and Root: 1996). According to these findings, regime commitment to fiscal discipline is one of the surest ways of ensuring institutional credibility necessary for economic growth and development. It is thus reasonable to argue, from these abundance information available on best practices from the High Performing Asian Economies (HPAEs) that budgetary discipline played no mean role in the economic success in those countries. Among the key instruments that accounts for the rapid economic growth and development of virtually all the HPAEs. Campos and Root (1996: 127) provide abundant data that clearly points to the role of budgetary controls. While noting the depth of the commitment and reliance of regime leaders in these countries on technocratic policy advice, they attributed so much of the success on the advice that technocrats provided with special emphasis on fiscal discipline. The major argument can be summed up in the extent budgetary discipline provided grounds for sound macroeconomic management.

According to Campos and Root (1996) a major hallmark of the technocrats’ policies which ensured responsible macroeconomic management was stringent controls on their budgets among others. They argued that the regime of Soeharto, for instance committed itself to growth by following the advice of the technocrats lock, stock and barrel. As they put it, in the bid of the Soeharto regime to demonstrate commitment to provide a sound macroeconomic environment, “he had a balanced budget requirement inserted into the constitution in 1967” (Campos and Root ibid: 140). That was so many years ago and during the twentieth century when the advanced nations such as US had also initiated debate on the importance of balanced budget for macroeconomic stability and overall development. This should thus tell how significant the issue of budgetary discipline has taken center stage in discussions on development, good governance and institutional restraint among rich and developing countries alike.

The record is thus replete and clear on the potential economic and political befits to be derived from the application of a balanced budget principle as a foundation for overall good governance and development especially in the Poorly Performing African Economies such as Ghana. In the key to the Asian Miracle Compas and Root (1996) provide compelling arguments on the need for considering the balanced budget principle as an institutional foundation not only for stable development, but also for sustained economic growth, lessons worth noting as we in Ghana make strenuous efforts at establishing a constitutional framework that will not only ensure stable
economic growth but peaceful democratic development as well. Campos and Root note emphatically that the HPAEs, Thailand, Indonesia as well as Japan have been the strongest adherents to hard budgetary rules, which implies predictability for a nation’s economic transactions.

**What are the benefits to be derived from a balanced budget constitutional provision?**

While the positive benefits need not be overemphasized, a few concrete social, economic and political benefits can be summed up here. Campos and Root (1996: 155-161) provides several time tested beneficial outcomes including the following:

- **Credible and predictable macroeconomic environment**: The first is that a credible and predictable macroeconomic environment that emerges definitely will provide foundation for curbing the chaotic economic environment that often characterizes Third World economies and the constant search for leverage from outside agencies with concomitant economic uncertainty.

- **Autonomy and Adherence to Economic and Bureaucratic Advice**: Adoption of credible budgetary constraints via the aegis of a **balanced budget principle** is a sure way of giving the economic bureaucracy the desired autonomy over macroeconomic policy making.

- **Mapping and Tracking Macroeconomic Management**: Well established and institutionalized budgetary rules that are entrenched in a constitution also provide efficient and low cost means of monitoring macroeconomic policy. The well-known adage of North (1990) that when it is costly to transact, institutions matters is very true under this circumstance. Institutionalized budgetary constraints, provides the surest way and strongest way of constraining the influence of the political elite and their comprador private parties over government expenditure, because it will take away capricious and arbitrary economic decision making from the momentary whimsical pursuits of politicians.

- **Curbing Wanton Corruption**: Pervasive corruption in the Less Developed Countries always results from the capture of the state in patronage and neopatrimonial politics and policy making practices that involve the dispensing of favors rather than promoting the broader public good. The surest way to combat or limit this, is to institute institutional mechanisms that ensure that state resources are prevented from being employed directly and indirectly for political advantage with impunity.

- **Curtailment of Uncontrollable Inflationary Spiral**: In more concrete terms, because budgetary constraints will ensure certainty and predictability of the macroeconomic regime, it will curb uncontrollable inflationary spiral, a condition that is antithetical to private economic initiative.

- **Motivation for Private Investment**: The stable macroeconomic environment, devoid of uncontrolled inflation, and the disciplinary economic framework in itself is beneficial for overall economic growth as this will motivate and invigorate private economic actors to initiate investment projects for the overall national economic health, especially in the area of employment and increased productivity.

- **Incentive for Revenue Mobilization**: There is no better signal for private business activity than a sound, stable and predictable macroeconomic environment. At the same time an invigorated economic environment would provide huge benefits in terms of government revenue mobilization capacity.
• **Checking Overreliance on Foreign Loans and Donor Conditionality:** Finally, strict adherence to fiscal discipline through the adoption of a constitutional provision on a cap on the national budget would be one of the surest ways, that Ghana can avoid overreliance on unpredictable and debilitating foreign loans. For as Deyo (1992) notes, one of the major reasons why the East Asian New Industrialized Countries (NICs) have ensure sustained growth and development is their ability to avoid overreliance on foreign loans.

**Conclusion**

The urgent need for a much more concrete harmonized legal and regulatory provision in the area of fiscal restraint and discipline cannot be overemphasized. In sum, a balanced budget constitutional stipulation would help reduce unbridled financial leakages by serving as a constant caution of societal desire for fiscal discipline. This will also go a long way in corruption reduction in our governments by highlighting national consensus on the anti-corruption drive. In our desire for promoting economic growth and development for our people, especially through the aegis of the private sector which has become universally recognized as the engine of growth, there can be no better idea or approach than that provided by the adoption of hard and budgetary discipline, which brings economic certainty and predictability in overall national development. The urgent need for the provision of a cap on our budgetary framework so as to ensure sound macroeconomic environment, good governance and development cannot therefore be delayed any further.

**References**


The High Costs of Capital Appreciation Bonds and Intertwined Bond Usage: Evidence from Puerto Rico

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Abstract

Capital Appreciation Bonds are similar to zero coupon bonds and not the more typical current interest bond. They are issued for periods well in excess of the normal 25 year municipal bond. In addition, a normal payback for a municipal bond is 2 to 3 times the amount borrowed at issue while it is as much as 1,800 times for Capital Appreciation Bonds. This paper explores Puerto Rico’s debt issues and the compounding and perpetuity effect on those debt issues by the use of Capital Appreciation Bonds. The serious problems of Puerto Rico’s debt structure, past and probable defaults, and underfunded pensions are explored through the intertwining of their debt issues between agencies. This misjudgment and poor fiscal oversight by Puerto Rico effectively insures another more serious crisis, even if they weather their current situation, the next debt crisis will have far reaching consequences on their pensions and economic future.

Keywords
Capital Appreciation Bond, Puerto Rico, Pensions, Sales Tax Bonds

1. Introduction

Puerto Rico has a population less than that of Oklahoma (3,704,329) and a gross domestic product smaller than Mississippi ($103.1 Billion vs. $104.1 Billion in 2013). According to usgovernmentspending.com it also has more debt — $70 billion — than any U.S. state government with the exceptions of California and New York. In addition, Puerto Rico is carrying a debt to GDP ratio greater than any three states combined. We explore the effect of a type of bond, called a Capital Appreciation Bond (CAB) developed by Goldman Sachs, and its use in Puerto Rico on an already serious debt crisis. CABs are a type of municipal bond but the similarity ends there. The CAB postpones payment of any interest until the redemption of the bond, compounding and accruing those payments with the principal at the time of redemption of the bond. In the case of Puerto Rico, the maturity is 55 years. Municipal bonds normally pay interest on a semianual basis at the same rate over their life and are issued with maturities from 10 to 30 years with the entire bond issue redeemed at face value on the maturity date. A municipal bond is a debt security issued by a public agency, such as state, city or school district, to finance (new money) or refinance (refunding) capital expenditures. Typically, the federal, state and local governments allow the interest income on municipal bonds to be exempt from income taxes in the state of issue only. In the case of Puerto Rico, its municipal bonds are exempt from federal, state, and local taxes throughout the US, making these appealing bonds, especially in New York City where there is a sizable city income tax.

Puerto Rico issued CAB sales tax bonds (COFINA bonds) in 2007 through 2011. These bonds are backed solely by sales tax revenue and have a minimal probability of redemption. The Puerto Rico Pension fund, less than 1% funded, purchased $163 million of these bonds, stating in their financial report that they have increased in value to $230 million, per the Commonwealth of Puerto Rico’s Government Development Bank. In fact, they are only worth $16,731.00 as shown on bondview.com, an online bond quote service, clearly reflecting their high probability of default. Thus the pension fund, which has also issued bonds in its own right, faces bankruptcy. This will be compounded by the default of these COFINA bonds which were purchased to shore up the pension fund. This paper will explore the details of Puerto Rico’s debt
issues, focusing on these two bond issues and the compounding impact to Puerto Rico and its state pension fund.

2. **Background on Capital Appreciation Bonds (CABs)**

Capital Appreciation Bonds (CABs) are municipal securities that defy typical municipal fiscal standards and controls (Estes, Fudge, & Van Wart, 2014). A CAB is a municipal security in which the investment return on an initial principal amount is reinvested at a stated rate until maturity, at which time the investor receives a single payment representing the face value of the bond and all accrued interest (Fudge, 2013). The initial investment is a deeply discounted value from the bond’s face value and the bonds are frequently sold in multiples of $5,000. CABs are different from zero coupon bonds because the investment return is considered to be in the form of compounded interest rather than accreted original issue discount. CABs often are not callable and if they have a sinking fund (most do not have a mandatory payment provision in the bond indenture agreement), payments to that fund are often not started until after 15 or 20 years into the bond’s life, leaving no debt service to be reported on financial statements (Ayala, 2013).

Because of the deep discount at purchase, CABs are a very expensive financing mechanism for the issuer. They are carried on the buyer’s balance sheet at only the accreted value or the original cost, the accreted value representing the gradual increase of the bond until maturity. However, they are only shown in a footnote on the balance sheet of the issuer; it is not required that they be shown as a liability or expense since there are no current interest payments. This can serve to hide the future liability that they represent for the issuer while ignoring the risk for the buyer through the use of accreted values that do not reflect any risk factor (indicated by the credit rating of the bond) but a simple calculation of the increasing value.

Despite the risks and costs of CABs, these securities are often enticing to cash-strapped municipalities with a lack of financing options. In addition to providing financing, these bonds are carried on the issuer’s books at only their principal values, the heavily discounted amounts at which they are issued. This amount reflects the significant risk of a long-term bond without any interest payments or sinking fund provisions (Estes, 2013; Estes & Sheil, 2015). Despite the discounted amounts shown on balance statements, at maturity municipalities face fiscal disaster when they are on the hook for accreted values that can be 10 to more than 100 times what was received at issue (Adelmann, 2013; Lusvardi, 2012).

Accretion is the gradual increase of an asset over time while amortization is the gradual decrease of an asset over time. Although they are often used interchangeably, they are quite different in both premiums and discounts. The Municipal Securities Rulemaking Bureau (MSRB) defines accretion of discount as an accounting process by which the book value of a security purchased at a discount from par is increased during the security’s holding period. The accretion reflects the increase in the security’s value as it approaches the redemption or maturity date and face amount of the bond. Compound accreted value is defined by the MSRB as the nominal value, at any given time, of a security such as a capital appreciation bond of which all or a portion of the investment return is received in the form of an accretion from an initial principal amount to maturity or redemption value. The compound accreted value is equal to the initial principal amount plus the accretions (calculated on the compound interest method) to that date. In the case of Puerto Rico’s Pension Fund, it specifically states the accreted value of its bonds, misstating the value by 13,746.9 times the actual value. Given the significant accreted values to be paid in the future, the lack of funds being set aside to service the debt, and the growing liability for Puerto Rico, CABs present a particularly dangerous method of funding for Puerto Rico.
3. Puerto Rico’s Debt Issue

Puerto Rico has faced a history of economic challenges. According to the United States Treasury report entitled “Puerto Rico’s Fiscal Challenges” (2015), Puerto Rico has experienced a record of poor fiscal performance due to unrealistic budget and revenue estimates, lack of fiscal discipline, and opaque reporting and disclosure. Despite these challenges, historically the Commonwealth has been able to rely on the municipal bond markets for relatively low-cost financing. According to Wirtz, Timiraos, and Kiriloff of the Wall Street Journal (2015), the popularity of these bonds, due to their tax-free nature, led to the amassing of over $71 billion in total bond indebtedness (representing over 70% of GDP and over 100% of GNP), including close to $50 billion in tax-supported debt. This amounts to more than a third of annual tax revenues being consumed by debt service. According to Walsh of the New York Times (2015), this amount of debt is more than twice the debt per capita of the two worst US states combined.

These high levels of debt and historical poor fiscal performance combined with a lack of growth and increasing poverty, unemployment, outmigration, and economic uncertainty have led to the downgrade of the Commonwealth’s general obligation bonds and Commonwealth guaranteed bonds to non-investment grade and to the loss of access to market funding for Puerto Rico. According to the US Treasury report on Puerto Rico’s fiscal challenges, first, over the last two years, Puerto Rico has had to rely on nontraditional lenders who would place their high-cost bonds to make fiscal ends meet. However, in the past year, Puerto Rico can no longer even raise expensive short-term financing in the markets. In addition, according to the U.S. Treasury, existing uninsured bonds trade at up to a 70% discount which suggests a high likelihood of restructuring.

Given the lack of available financing to support Puerto Rico’s immediate fiscal needs, the Commonwealth has begun to run of cash and to utilize emergency liquidity measures (Krueger, Teja, and Wolfe, 2015). Payments to vendors are stretched, tax refunds are delayed, pension assets have been liquidated early, debt service has been withheld, and ultimately Puerto Rico predicts it will be out of liquidity in the very near future. When that occurs, Puerto Rico will no longer be able to both repay its debts and continue municipal services. In fact, according to the Fiscal and Economic Growth Plan (2015), without emergency measures, Puerto Rico estimates a negative cash balance throughout fiscal 2016. Puerto Rico identifies this as a risk factor in its quarterly report dated May 7, 2015:

“The Commonwealth may need to implement administrative and emergency measures in fiscal 2016 and thereafter, which could include a moratorium on the payment of debt service or debt adjustment… The Commonwealth’s liquidity during the balance of fiscal year 2015 and throughout fiscal year 2016 may be significantly impaired. As a result, it may be unable to honor all of its obligations as they come due.”

As explained in the U.S. Treasury report outlining Puerto Rico’s fiscal crisis, “There is no doubt that there is a large gap between Puerto Rico’s required operating expenses, contractual debt obligations and its available financial resources.”

To confront these fiscal challenges, Puerto Rico has taken a number of actions in recent years including cutting operating expenses and increasing tax rates. According to its recent quarterly financial statements dated May 7, 2015, Puerto Rico has also proposed an alternative solution: it plans to issue bonds based on its new petroleum tax. However, despite the action, restructuring of Puerto Rico’s debt appears to be inevitable. According to Puerto Rico’s Fiscal and Economic Growth Plan (2015), a $14 billion fiscal gap is expected over the next five years even after policy changes that further increase tax revenue. The U.S. Treasury report on Puerto Rico’s Fiscal Crisis predicts that that gap will likely need to be filled through restructuring of Puerto
Rico’s complex debt burden. Similarly, a private report by former IMF economists Krueger, Teja, & Wolfe (2015) ordered by Puerto Rico’s Growth Development Bank suggests that a key solution would be the voluntary exchange of existing bonds for new ones with a later and/or lower debt service profile. Of course, this would require that bondholders believe that the expected value of their claims would increase by allowing the government to continue functioning. Despite the suggested solution, the complex nature of Puerto Rico’s bonds, issued by 18 different debt issuing entities all with different legal protections and financial obligations, creates challenges on a scale never seen before in municipal bonds – no U.S. state has ever restructured its general obligation debt before.

In the past, Puerto Rico has looked to its public pension funds to aid with fiscal shortages. In fact, according the US Treasury report on Puerto Rico’s fiscal troubles, early sales of fund assets have recently provided a significant means of short-term financing pushing Puerto Rico’s public pension funds to the lowest funded ratio of any state or territory. The US Treasury estimates that at current drawdown rates, the assets will be depleted before 2020 risking the future of Commonwealth retirees. This pending insolvency of the public pension system is another factor that must be considered in financial forecasts as future pension payouts could consume significant portions of Puerto Rico’s general fund.

Under United States law, there is currently no bankruptcy protection for American states or territories and a US bailout has proven to be unfavorable among voters and taxpayers. However, according to Kaske with Bloomberg (2015b), lawmakers and the Supreme Court are now considering establishing new bankruptcy protections for territories to address Puerto Rico’s issues and, according to Wirtz, Timiraos, and Kiriloff with the Wall Street Journal (2015), the US Treasury has considered the issuance of a “superbond” to aid in restructuring. Both of these propositions include the development of an independent fiscal oversight board to aid Puerto Rico out of its fiscal troubles. Clearly, a bankruptcy of any kind will have negative impacts on the future borrowing ability and costs for Puerto Rico. In addition, there is concern that giving Puerto Rico access to bankruptcy will encourage other fiscally strapped states to seek bankruptcy protection as well.

In addition to the bankruptcy is the impact on the US Municipal Bond Market where about half of muni funds are exposed to Puerto Rican Bonds according to Jeff Benjamin of Investment News (2015). However, according to the Soreide Law Group Website, much more heavily exposed are UBS and Oppenheimer. As can be seen from Table 1 below, which illustrates the largest exposures to the bonds, present losses equal almost $21 billion with value shrinking from $25.5 billion to 4.5 billion as of June 29th of 2015. While this table represents only the top 20 mutual funds, the actual remaining exposure is over $11 billion according to Tom Anderson of CNBC (2015). Obviously the bankruptcy, in addition to having a significant impact on Puerto Rico’s economy, would have large reverberations throughout the US muni bond mutual fund market.
4. Puerto Rico’s Sales Tax Bonds

A significant portion of Puerto Rico’s debt stems from its sales tax bonds, originally issued to “plug budget gaps and repay other lenders” (Kuriloff, 2015). After a sales tax was introduced in 2006, the Puerto Rico Urgent Interest Fund Corporation (also known as the Puerto Rico Sales Tax Financing Corporation), the Corporación del Fondo de Interés Apremiante (COFINA) in Spanish, issued bonds backed by Puerto Rico’s future sales tax revenues, called COFINA bonds, in 2007, 2008, 2009 and 2011. The Corporation is a subsidiary of the Government Development Bank and was created by Law No. 291 of 2006. Thus, this corporation is effectively a government subsidiary which makes its bonds General Obligation Bonds backed by the full faith, credit and taxing ability of Puerto Rico. However, the corporation feels that the bonds are only backed by the sales tax revenue of Puerto Rico pointing to a future issue to be tested in the courts.

Bonds issued by COFINA are called Puerto Rico Sales Tax Revenue Bonds. Current bonds, according to the Commonwealth of Puerto Rico’s Government Development Bank (2015), total over $15.2 billion and are structured to be repaid from dedicated sales-tax revenue and come in two types: senior, with the first claim on revenue, and subordinated, which are second in line. The COFINA CABs have a face amount of $3.565 billion with a repayment amount of $4.489 billion. However, Puerto Rico received only $173.5 million at issue, a discount of 96.1% and a payback of 25.9 times the amount borrowed. In a Check on Bond View, an online service that

Table 1. Top 20 Mutual Funds Holding Puerto Rican Bonds

<table>
<thead>
<tr>
<th>Fund Name</th>
<th>Market Value of Puerto Rican debt as of June 29, 2015</th>
<th>Percentage of the portfolio invested in Puerto Rican debt</th>
<th>Total Investment as of portfolio date</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oppenheimer Rochester Fund Muni A</td>
<td>$1,376,856,503</td>
<td>22.30%</td>
<td>$6,185,980,085</td>
<td>Muni New York Long</td>
</tr>
<tr>
<td>Oppenheimer Rochester High Yld Muni A</td>
<td>$715,302,841</td>
<td>13.20%</td>
<td>$5,406,587,424</td>
<td>High Yield Muni</td>
</tr>
<tr>
<td>Oppenheimer Rochester Ltd Term NY Muni A</td>
<td>$726,558,930</td>
<td>20.60%</td>
<td>$3,515,612,163</td>
<td>Muni Single State Short</td>
</tr>
<tr>
<td>Oppenheimer Rochester Ltd Term Muni A</td>
<td>$608,173,909</td>
<td>19.20%</td>
<td>$3,160,840,263</td>
<td>High Yield Muni</td>
</tr>
<tr>
<td>MainStay High Yield Muni Bond A</td>
<td>$215,681,931</td>
<td>12.90%</td>
<td>$1,727,077,784</td>
<td>High Yield Muni</td>
</tr>
<tr>
<td>Oppenheimer Rochester CA Muni A</td>
<td>$150,523,359</td>
<td>11.40%</td>
<td>$1,328,984,067</td>
<td>Muni California Long</td>
</tr>
<tr>
<td>Oppenheimer Rochester AMT-Free NY Muni A</td>
<td>$190,431,569</td>
<td>16.30%</td>
<td>$1,166,986,059</td>
<td>Muni New York Long</td>
</tr>
<tr>
<td>Oppenheimer Rochester PA Muni A</td>
<td>$123,108,661</td>
<td>13.90%</td>
<td>$883,561,556</td>
<td>Muni Pennsylvania</td>
</tr>
<tr>
<td>Oppenheimer Rochester Ltd Term CA Muni A</td>
<td>$89,003,199</td>
<td>12.90%</td>
<td>$687,146,588</td>
<td>Muni Single State Short</td>
</tr>
<tr>
<td>Oppenheimer Rochester NJ Muni A</td>
<td>$82,876,129</td>
<td>17.30%</td>
<td>$479,016,636</td>
<td>Muni New Jersey</td>
</tr>
<tr>
<td>Franklin Double Tax-Free Income A</td>
<td>$110,282,812</td>
<td>47.20%</td>
<td>$233,553,864</td>
<td>High Yield Muni</td>
</tr>
<tr>
<td>Wells Fargo Advantage WI Tax-Free Inv</td>
<td>$24,420,696</td>
<td>15.30%</td>
<td>$160,092,126</td>
<td>Muni Single State Interim</td>
</tr>
<tr>
<td>Oppenheimer Rochester VA Muni A</td>
<td>$40,736,112</td>
<td>33.80%</td>
<td>$120,667,805</td>
<td>Muni Single State Interim</td>
</tr>
<tr>
<td>Oppenheimer Rochester NC Muni A</td>
<td>$15,577,530</td>
<td>17.30%</td>
<td>$89,810,812</td>
<td>Muni Single State Interim</td>
</tr>
<tr>
<td>Oppenheimer Rochester Oz Muni A</td>
<td>$10,310,176</td>
<td>14.60%</td>
<td>$70,479,154</td>
<td>Muni Ohio</td>
</tr>
<tr>
<td>Oppenheimer Rochester AZ Muni A</td>
<td>$12,059,832</td>
<td>18.80%</td>
<td>$64,312,517</td>
<td>Muni Single State Long</td>
</tr>
<tr>
<td>Oppenheimer Rochester MD Muni A</td>
<td>$23,093,065</td>
<td>36.90%</td>
<td>$62,603,594</td>
<td>Muni Single State Long</td>
</tr>
<tr>
<td>Oppenheimer Rochester MA Muni A</td>
<td>$9,850,542</td>
<td>16.10%</td>
<td>$61,339,160</td>
<td>Muni Massachusetts</td>
</tr>
<tr>
<td>Oppenheimer Rochester Michigan Muni A</td>
<td>$10,105,790</td>
<td>19.50%</td>
<td>$51,800,240</td>
<td>Muni Michigan</td>
</tr>
<tr>
<td>Alpine High Yield Managed Dur Muni A</td>
<td>$5,835,739</td>
<td>13.80%</td>
<td>$42,105,336</td>
<td>High Yield Muni</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$4,540,789,325</strong></td>
<td><strong>$25,498,558,233</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

quotes the estimated price of these outstanding bonds, these bonds have a total value of $16,731.00. According to the June 30, 2014 Basic Financial Statement of the Puerto Rico Urgent Interest Fund Corporation, audited by KPM, a financing deficit of $5,474.5 million has been accumulated. In addition, the bonds have been downgraded twice this year, on 5/11/2015 and 4/24/2015. After these downgrades, the senior bonds currently carry a credit rating of Caa2 and CCC+, from Moody’s and S&P respectively, while the subordinated bonds have a credit rating of Ca and CC, respectively.

According to Kaske with Bloomberg Moody’s Investors’ Service (2015a), there is a 65 –80% likelihood of recovery of the senior debt, the $6.57 billion portion, and only a 35 – 65% likelihood of recovery of the subordinated debt, the $9.74 billion portion for the COFINA bonds. The required payments for debt maturity are beginning to mount, exponentially increasing Puerto Rico’s liquidity issues. Last year, the island collected $1.42 billion of sales-tax revenue in the fiscal year that ended June 30. Nearly 50% or approximately $670 million of that revenue was used to repay COFINAs, according to the US Treasury. In the 2015-2016 fiscal year in Puerto Rico, “after paying $1.2 million of principal and interest in August, $1.2 million of interest is due in November, February and again in May” (Kuriloff, 2015). The increased likelihood of default is reflected in increased yields. Senior COFINAs maturing in 2040 last traded for an average yield of 9.3 percent while subordinate bonds yielded approximately 15 percent. One major issue that is providing a significant stumbling block is that according to Puerto Rico’s Constitution, its public institutions cannot declare bankruptcy but are forced to seek a restructuring with the bondholders. As the law requires a consensus to restructure, the subordinated debt holders are in a position to block any restructuring until they are satisfied that they are protected.

Taking steps to bolster its revenue, Puerto Rico has increased its sales tax from 7 to 11.5%, the highest in the US, and will move on April 1, 2016 to a value added tax system. Despite these steps, Puerto Rico’s first default occurred on August 3, 2015 when it failed to make a $58 million payment on its Public Finance Corporation (PFC) bonds (Kuriloff, 2015). This broke a 70 year period of successful bond payments by the territory. There is deep concern that this default may signal a series of continuing defaults as their debt problem gets more serious.

Compounding the problem, only three of the seven issues of these bonds are insured. These three, according to data from the Thompson Reuters database, were issued with a face amount of $5.675 billion and an amount due of $7.163 billion, but only received a tiny $105.8 million on issue. As can be seen from Figure 1 below, the exposure to the insurance companies is large, though it is thought by those same carriers that their reserves are sufficient in the event of a Puerto Rico default. However, the insured portion represents only 51.6% of the outstanding bonds, 39% of which are the senior bonds; with Puerto Rico left with the balance of liability in the event of a default.
As quoted in Bloomberg (Chappatta, 2015), Bill Bonawitz, director of municipal research in Philadelphia at PNC Capital Advisors explains, “The biggest risk for National and Ambac is COFINA. Because of the CABs, they would ultimately owe enormous numbers.” The issue at hand is the large accreted values and the lack of funding to date by Puerto Rico. Since there are no current interest payments due there is no immediate risk of default, thus the risk is a long term one and it is substantial. Ambac discloses its exposure to Puerto Rico interest payments on its web site, though it’s most recent quarterly filing includes only a tally based on the amount of bonds outstanding. In an interview with Bloomberg (Chappatta, 2015), David Trick, chief financial officer of Ambac, discussed the disclosure, “You need some sort of consistent basis to disclose your par exposure in your portfolio and that’s a metric over time that investors have found valuable in assessing the guarantors and their risk. It’s hard to make everything perfectly apples-to-apples without making disclosures extremely complex and potentially confusing.”

### 5. Puerto Rico’s Pension Fund

According to statistics from the financial statements of the Commonwealth of Puerto Rico, the Government Development Bank of Puerto Rico, and a paper published for the Economic Commission for Latin America and the Caribbean by Ines Bustillo and Helvia Velloso (2015), Puerto Rico’s debt issues are compounded when considering the impact on its public pension system. Puerto Rico’s Employees Retirement System, covering 119,975 employees, is only 0.7% funded with a shortfall of $44 billion as of December 2015 (Kaske, 2015c). While the pension fund represents government employees who only make up 3.3% of the population, it represents 63% of the 2104 Gross National Product of $69.201 billion and 42% of the 2014 Gross Domestic Product of $103.675 billion. The pension system is poised to run out of money by 2020, which would leave the government on the hook for more than $2 billion in benefit payments the next year alone (Kaske, 2015c). That’s equal to about one-fourth of this year’s general-fund revenue.

In 2008, according to the Thompson Reuters database, the pension fund issued three different tiers of zero coupon Pension obligation bonds (rated at issue BBB-) with a value of $2.947 billion in order to strengthen the pension fund. Today, Moody’s rates these bonds Ca, according to bondview.com. The bonds are to be repaid from contributions that the commonwealth and
municipalities make to the retirement system with absolutely no guarantee from the Commonwealth of Puerto Rico. At maturity, in 2058, these bonds call for a payment of $3.841 billion. The pension fund received only $71.3 million on the CABs as shown in Table 2 below. The value of these bonds today is $10,853 based on values taken from bondview.com.

### Table 2. Value of Bonds Issued by Puerto Rico’s Pension Fund

<table>
<thead>
<tr>
<th>Sale Date</th>
<th>Issuer</th>
<th>Amount of Issue</th>
<th>Amount at Maturity</th>
<th>Amount Received</th>
<th>Value on 24-Dec-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/29/2008</td>
<td>Puerto Rico Employee Retirement System</td>
<td>1,588,811</td>
<td>1,700,450</td>
<td>12,948</td>
<td>$4,020.00</td>
</tr>
<tr>
<td>5/8/2008</td>
<td>Puerto Rico Employee Retirement System</td>
<td>1,058,635</td>
<td>1,833,660</td>
<td>57,808</td>
<td>$5,954.20</td>
</tr>
<tr>
<td>6/26/2008</td>
<td>Puerto Rico Employee Retirement System</td>
<td>300,203</td>
<td>307.09</td>
<td>0.539</td>
<td>$878.90</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>2,647,746</strong></td>
<td><strong>3,534,417</strong></td>
<td><strong>71,295</strong></td>
<td><strong>$10,853.10</strong></td>
</tr>
</tbody>
</table>

Data Sources: Thompson-Reuters Database; http://www.bondview.com/price-check/bond

During the fiscal year ended June 30, 2011, the Pension System received a special contribution of approximately $163 million from the Puerto Rico Infrastructure Financing Authority, an instrumentality of the Commonwealth. The entire contribution of $163 million was invested in bonds issued by the Puerto Rico Sales Tax Financing Corporation (COFINA Bonds), which are intended to provide for a 7% accretion rate and maturity dates between 2043 and 2048. These sales tax bonds are carried on the asset side of the Pension Fund at an accreted value of $270 million per the Thompson-Reuters database. As can be seen from Table 3 below, these bonds have a market value of $3,490, representing only .001% of the stated value on the balance sheet, per bondview.com, an online bond quote service.

### Table 3. Value of COFINA Bonds Held by Puerto Rico’s Pension Fund

<table>
<thead>
<tr>
<th>Value of the Bonds</th>
<th>CUSIP</th>
<th>Muni Issue Size</th>
<th>Issue Year</th>
<th>Coupon Type</th>
<th>Maturity Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>$60.10</td>
<td>29216MBM1</td>
<td>$300,203,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2030</td>
</tr>
<tr>
<td>$940.36</td>
<td>29216MAZ3</td>
<td>$1,059,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2034</td>
</tr>
<tr>
<td>$940.36</td>
<td>29216MAY6</td>
<td>$1,059,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2033</td>
</tr>
<tr>
<td>$87.00</td>
<td>29216MAX8</td>
<td>$1,059,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2032</td>
</tr>
<tr>
<td>$943.60</td>
<td>29216MAW0</td>
<td>$1,059,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2031</td>
</tr>
<tr>
<td>$99.40</td>
<td>29216MAV2</td>
<td>$1,059,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2030</td>
</tr>
<tr>
<td>$105.90</td>
<td>29216MAU4</td>
<td>$1,059,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2029</td>
</tr>
<tr>
<td>$112.80</td>
<td>29216MAT7</td>
<td>$1,059,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2028</td>
</tr>
<tr>
<td>$115.60</td>
<td>29216MAB6</td>
<td>$1,589,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2028</td>
</tr>
<tr>
<td>$85.00</td>
<td>29216MAA8</td>
<td>$1,589,000,000</td>
<td>2008</td>
<td>ZERO COUPON</td>
<td>7/1/2028</td>
</tr>
<tr>
<td>$3,490.12</td>
<td></td>
<td>$10,891,203,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Sources: Thompson-Reuters Data Base; http://www.bondview.com/price-check/bond

According to the US Treasury, as of 2014, Puerto Rico’s three public pension funds held just $2 billion in net assets, including the questionable sales tax bonds valued at $240 million, against a combined estimated pension liability of $46 billion. Clearly, Puerto Rico is well below its required contribution to the pension fund. In 2013, as part of the total Employee Retirement System (ERS) legislation pension reform, employer contributions increased from 10% of payroll to over 20% which brings total employee and employer contributions to 30% of payroll. However, even with the legislative reform, the fact remains that with the Commonwealth’s...
current deficit, the pension fund is less than 1% funded. In 2013, Puerto Rico was forced to pay the current pension amounts due by prematurely selling $1 billion of the pension fund assets. At this rate of depletion and with the lack of contributions by Puerto Rico, the funds will be exhausted by the end of this decade. In addition, as part of emergency actions caused by the overall debt crisis the Commonwealth is accelerating the sale of pension fund assets in order to fund government operations. With less than 1% funding, the pension fund is in very serious trouble and with the worsening debt of Puerto Rico, it may be forced to cease pension payments altogether.

**Discussion**

Puerto Rico’s debt crisis has received significant attention in recent years but recognition of the Commonwealth’s dependence on high-risk CAB municipal bonds has been limited. The COFINA CABs issued in recent years drastically increase the liability of Puerto Rico due to the delay, magnitude of repayment, and the lack of debt service required. According to Aaron Kuriloff of the Wall Street Journal (2015), Puerto Rico may be looking at sales tax revenue as a source of funds for looming interest payments. This would only serve to compound the problems for these failing bonds to which those sales taxes are pledged, reducing the price even further. Holders of these bonds have already told the government that they will sue to block any action to divert sales tax revenue from the bonds. This will make the debt service issue more complicated and difficult to resolve by the due date. To intensify Puerto Rico’s problems, the Commonwealth’s pension system, funded at a level lower than any U.S. state at less than 1%, issued its own expensive pension CABs and used the proceeds to purchase significant portions of the high-risk COFINA CABs, carrying them on their balance sheet at more than 77,000 times their value, according to data from the Thompson-Reuters Database. With current estimates that the pension fund will be depleted within the decade without appropriate funding, the issue and purchase of these CABs combined with Puerto Rico’s immediate lack of liquidity increases the pension fund’s risk dramatically virtually insuring depletion of all benefits to present and future pensioners (Bomey, 2015).

Most employees of the Commonwealth of Puerto Rico are covered by the Employees Retirement System of the Government of the Commonwealth of Puerto Rico, which was established in 1951 to provide employees with pension and other benefits upon retirement. The system covers a range of employee groups including general employees, public safety officers, and judges according to the National Association of State Retirement Administrators (NASRA). Should this system collapse and existing employees and retired employees lose their pension benefits, the chaos stemming from this could be disastrous for Puerto Rico. Imagine, if you would, utilities, street maintenance and trash pickup, in combination with law enforcement and the judicial system all ceasing activities for any significant period of time. The effect on the economy and tourism would be a disaster for Puerto Rico. Should Puerto Rico weather their current debt storm, they face another more serious issue related to pension funding and further bond defaults by the end of the decade.

Compounding this is the overall impact of the Puerto Rican Bonds on the bond market, especially municipal bond mutual funds where about half of all funds are exposed to increased risks from holding Puerto Rican Bonds. However, according to the Soreide Law Group Website, UBS and Oppenheimer bear more risk due to their heavy involvement in the Puerto Rican bond market as illustrated in Table 1. A collapse of the Puerto Rico debt market would have far reaching implications to GO bonds, and the funds holding those bonds, throughout the US. Puerto Rico did meet its 2015 obligation to its General Obligation Bonds ($326.7 million) as well as $383 million in debt maturity. However it did so by sacrificing the January 1 bond payment of $37.3 million to the Puerto Rico Infrastructure Financing Authority and the Puerto Rico Public Finance Corporation (Kuriloff, 2016a). This is in addition to having missed the
August 3, 2015 bond payment of $58 million payment on its Public Finance Corporation (PFC) bonds (Kuriloff, 2016b). Puerto Rico is simply choosing which bonds on which to default in order to meet its constitutional obligation on the GO bonds. While this is a temporary solution, it forces the value of all non-GO bonds down to pennies on the dollar and simply postpones the eventual collapse of Puerto Rico’s bond debt. Puerto Rico has virtually no options unless the US Congress allows Chapter 9 bankruptcy for some of their municipal entities. This is strongly opposed by retirees and hedge funds and even more doubtful since the Obama Administration has rejected a bailout of more than $70 billion of debt (Kaske & Braun, 2016), a figure that appears to be some $16 billion short of the recently revised estimate of needed funding (Kuriloff, 2016d). Puerto Rico faces the simple alternative of defaulting on their bonds and forcing a complex restructure of their debt after the default or attempt a restructure prior to a massive default. It appears that they are in the process of doing just that according to Aaron Kuriloff of the Wall Street Journal (2016c). Puerto Rico is currently proposing a swap of debt that would postpone payments well into the future. According to Melba Acosta of the Government Development Bank of Puerto Rico (Kuriloff, 2016c), there are already dissenters on that plan as it appears to simply “kick the can down the road” and burden the faltering economy with unsustainable debt levels.

UBS has already been ordered to pay more than $2.9 million to investors for losses tied to Puerto Rico’s municipal bonds (Prior, 2015). In addition, according to the Soreide Law Group’s website, Soreide lawyers have also begun to file FINRA arbitrations related to losses from high-risk Puerto Rican municipal bonds. One of these, in Florida, was filed on behalf of an elderly client against UBS. Regardless of the decision made, it is a very dangerous time for either individual investors or bond mutual funds to hold Puerto Rico Bonds, a risk that has yet to be addressed by the regulators of the largest financial entities in the US.

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A Practice-Relevant Approach for Revenues Recognition in the Public Sector Entities: A Practitioner’s Perspective

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1- Introduction

While private sector receives its revenues from exchange transactions, public sector entities receive a large portion of their revenues through non-exchange transactions, including sales, income, and property taxes; intergovernmental grants, entitlements, and other financial assistance; and private donations. In addition, governments provide financial assistance to other governmental and nongovernmental entities (GASB, 1998). Therefore, the government’s decision with respect to the timing of recognition of non-exchange transactions in the financial statements can have significant impact on the reported results and financial position and on the user’s ability to compare information across governments and over time (GASB, 1998). Despite the significance of non-exchange transactions, there is a lack of uniform guidance on when to report them. As a result, different public sector accounting standards setting bodies, such as IPSASB, GASB and ASB-UK, AASB-Australia and CICA-Canada, have used different criteria in making reporting decisions. This has resulted in making the situation more difficult for the practitioners to adopt different criteria into practice and for the users (internal and external) to understand the financial statements and to make their decisions. Furthermore, the public sector accounting literature did not cover enough the recognition of revenues resulting from non-exchange transactions and it did not even agree about the approaches that should be used in that recognition process. Therefore, there is a need for developing a Practice-relevant approach that can assist the practitioners in the recognition of revenues process in the public sector including both exchange and non-exchange transactions. Therefore, the main aim of this paper is to make an attempt to develop a practice-relevant approach for the recognition of revenues (including exchange and non-exchange transactions) in the public sector context. The contribution of this paper is twofold: First, our paper examines the accounting treatment of revenues recognition in the public sector from different international and national standard setting bodies’ point of view; this has led to infer that there is a lack of uniform guidance for the revenues recognition in the public sector entities. Second, we will make an attempt to develop practice-relevant approach. The paper proceeds as follows. Section 2 discusses the theoretical background. Following that we review prior Literature with respect to different accounting treatment of revenues recognition in public sector from different standard setting bodies’ point of view. Section 4 describes our attempts to develop a Practice-Relevant Approach for revenues recognition in the public sector from the practitioner's perspective. Section 5 concludes.

2- Theoretical Background: Recognition/Realization Principle

As starting point, it may be useful to consider whether the recognition principle is a synonym of the realization principle or not. A considerable numbers of writers have been used the recognition principle as a synonym of the realization principle (see for example, Larson and Pyle, 1987, p.21 and Hendriksen, 1982, p.178). On the other hand, many writers and professional bodies are making difference between recognition principle and realization principle (see for example, FASB –SFAC 5- paragraph 83). According to FASB –SFAC 5- paragraph 83, revenue should be recognized in the financial statements when:
- it is earned; and
- it is realized or realizable.
Basically, revenue is earned when the earnings process is completed or virtually completed. It is realized when cash is received and it is realizable when claims to cash are received and can be converted into a known amount of cash. Then, a distinction can be made between the recognition and realization as follows:

- Recognition is the process of recording an item in the financial statements.
- Realization is the process of converting non-cash resources into cash.

Herein, we agree with the second point of view, which does not use the recognition principle as a synonym of the realization principle.

However, the timing of recognition and realization of revenues will differ under the two main accounting bases: cash-based accounting and accrual-based accounting. Under the traditional government accounting (cash-based system), the revenues are recognized and realized when cash is received. In addition, receipts and revenues are identical since no difference is made between the time when they are recognized and when they are collected. Generally, under this system, the cash inflows are recognized as receipts regardless of source or type. For instance, borrowings and custodial receipts are included as revenues although they may be identified separately from other sources of revenues. So the problem of recognition and realization does not exist under the traditional government accounting system as the timing of recognition and realization of revenue coincides (Ouda, 2006).

On the other hand, the transition to accrual accounting in the public sector entails making a distinction between the point at which the revenues are considered to be recognized and the point at which they are considered to be collected. The revenues are usually recognized at the time of the exchange transaction when goods are sold or services rendered. For instance, revenue is recognized at the time of invoicing. It is at the point in time that the amount of the accrued revenue can reliably be measured, for example, the amount of the debtor invoice for accrued income. On the other hand, because an accrual basis attempts to recognize events in the period in which they occur, it is possible that unrealized gains (e.g., increase in the value of assets, increases caused by growth of livestock or forests) are included among revenues. This will depend on whether or not, in a particular jurisdiction, realization is considered to be a criterion for the recognition of revenues (IFAC, 1996). Furthermore, in other jurisdictions such as the UK, the realization principle states that assets value increases should not normally be accounted for and reported on until such time as they have been realized in terms of either cash or near-cash resources. Conversely, asset value decreases should be recognized and accounted for as soon as they arise, irrespective of when realization of the asset concerned will take place (United Nations, 1984). Consequently, because earned income is not reported until realized and assets values are understated, the financial statements of the entity are misleading. For instance, when the current valuations of assets do not fall below their original costs, the balance sheet will value unrealized assets at their original cost minus any depreciation allocations in the case of fixed assets and not at their current valuation. Thus, the balance sheet does not reflect the entity current value but rather its original transaction value (United Nations, 1984).

Unlike the private sector, governments obtain their inflows from different sources, and this in turn makes the recognition and realization problems in case of the adoption of accrual accounting more difficult since diversity of sources will require different recognition points. The main categories of inflows to governments are (IFAC, 1996):

(i) Revenues derived from exchanges in a manner similar to the private sector. These include revenues from sales of goods or services, dividends, interest and gains arising from the sale of assets;
(ii) Revenues derived from the use of sovereign powers; these include a variety of direct and indirect taxes, duties, fees and fines. These revenues are called non-exchange revenues. These are:

- Income tax;
- Fringe benefits tax;
- Sales tax;
- Value-added tax;
- Payroll tax;
- Property tax;
- Capital gains tax;
- Stamp, cheque and credit duties;
- Death/estate duties;
- License tax;
- Road-user charges and motor vehicle fees;
- Lives; and
- Fines.

(iii) Other non-exchange transfers such as grants or donations from other governments, from supranational authorities or from the private sector;

(iv) Financing inflows, notably borrowings; and

(v) Custodial receipts. These include taxes collected as agent for another government, contributions towards pension and welfare funds, and other receipts collected as agent for another entity.

As aforementioned, governments raise revenues from both exchange transactions and non-exchange transactions. Due to the fact that exchange transactions are entirely different from the non-exchange transactions, the revenue recognition of both transactions requires different accounting treatment. Therefore, the recognition principle, similar to matching principle, needs to be reshaped to fit the context of public sector entities:

3- Literature review: Revenues recognition from different standard setting bodies perspectives

The main issue in accounting for revenue is determining when to recognize revenue in financial statements of governmental entities. IPSAS 9 determines two main criteria for the recognition of revenues. Revenue recognized when it is probable that 1- future economic benefits or service potential will flow to the entity, and 2- these benefits can be measured reliably. While these two criteria are applicable to both exchange and non-exchange transactions, the accounting for revenue arising from exchange transaction is entirely different from the revenue arising from non-exchange transactions in terms of approaches, models and timing of recognition.

3.1 Revenue Arising from Exchange Transactions (Bilateral/Reciprocal Transactions)

Exchange transaction means that each party receives and gives up essentially equal values. In order to suggest the accounting treatment of revenue resulting from the exchange transactions, the use of ASB-GRAP 9, IPSAS 9, IFRS 15 and AASB 15 can assist in determining when the
revenues arising from exchange transactions can be recognized. The focus here is on the revenue arising from exchange transactions and events as follows:

- The sale of goods;
- The rendering of services; and
- The use by other of entity assets yielding interest, royalties, dividends or similar distributions.

Goods include goods produced by the entity for sale such as publications or purchased for resale such as merchandize or land. According to IPSAS 9 and GRAP 9, rendering of services involves the performance by the entity of an agreed task over an agreed period of time. Rendering of services by governmental entities for which revenue is received in exchange can take one of the following examples: management of toll roads, management of water facilities and provision of housing. Also the use by others of entity assets gives rise for revenue in form of interest: charges for the use of cash or cash equivalent or amounts due to the entity. Royalties: charges for the use of long term assets of the entity, for example, patents and copyrights. Dividends or similar distributions –distributions of surpluses to holders of equity investments in proportion to their holdings of a particular class of capital (IPSAS, 9 and GRAP 9).

While the IFRS 15 focuses only on contracts with customers for goods and services supplied in the ordinary course of operations, IPSAS 9 and GRAP 9 base the revenue recognition on the type of transaction, for example, whether revenue relates to the provision of goods, services, interest, royalties or dividends. This is due to the fact that while they are sharing the two main criteria of revenue recognition, there are specific conditions related to each transaction and event that should be satisfied to consider whether the revenue arising from the exchange transaction can be recognized or not.

Sale of goods

Revenue from the sale of goods shall be recognized when all the following conditions have been satisfied (IPSAS 9 and GRAP 9):

(a) the entity has transferred to the buyer the significant risks and rewards of ownership of the goods;
(b) the entity retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
(c) the amount of revenue can be measured reliably;
(d) it is probable that the economic benefits associated with the transaction will flow to the entity; and
(e) the costs incurred or to be incurred in respect of the transaction can be measured reliably.

Rendering of services

While the recognition of revenue arising from the sale of goods depends on transferring the significant risks and rewards of ownership of goods to the customer, the revenues associated with the rendering of services shall be recognized by reference to the stage of completion of the transaction at the end of the reporting period. The outcome of a transaction can be estimated reliably when all the following conditions are satisfied (IPSAS 9 and GRAP 9):

(a) the amount of revenue can be measured reliably;
(b) it is probable that the economic benefits associated with the transaction will flow to the entity;
(c) the stage of completion of the transaction at the end of the reporting period can be measured reliably; and

(d) the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

Interest, royalties and dividends

For the interest, royalties and dividends: Revenue shall be recognized on the following (IPSAS 9 and GRAP 9):

(a) interest shall be recognized on a time proportion basis that takes into account the effective yield on the asset.

(b) royalties shall be recognized on an accrual basis in accordance with the substance of the relevant agreement; and

(c) dividends shall be recognized when the shareholder’s right to receive payment is established.

While the standards setting bodies use different approaches for the recognition of revenues arising from the exchange transactions and events in the public sector, these approaches are not entirely different from that approaches used in the private sector. For example, the risk and rewards approach used by IPSAS 9 and GRAP 9 is, to a great extent, consistent with Performance Obligations Approach used by IFRS 15. A performance obligation is a promise to transfer goods or services to another party. However, in identifying performance obligations associated with a contract under IFRS 15, the main focus is on identifying distinct goods and services. A good or service is distinct when the following criteria are met: (IFRS 15)

- The customer can benefit from the good or service on its own or together with other readily available resources; and
- The entity's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract.

So once the distinct goods and services are identified, the performance obligations can also be identified. Accordingly, public sector entity recognizes revenue when the performance obligations are satisfied by transferring the promised goods or services to the customer. Similarly, under IPSAS 9 and GRAP 9, revenue is recognized for goods when risks and rewards of ownership are transferred or when services are provided. ASB-UK (2015) concluded that while the process followed by the two approaches is different, the effect on revenue recognition may be similar. In addition, Australian Accounting Standard Board has also issued ED 260-AASB 15 (2015) – Income of Not-for-Profit (NFP) Entities, which also encouraging the application of Performance Obligations approach to exchange transactions. The core principle under AASB 15 is that an entity recognizes revenue at an amount that reflects the consideration to which the entity expects to be entitled in exchange for transferring goods or services to a customer. AASB 15 (2015) also stated that for performance obligation to exist with respect to a NFP entity, the promise to transfer a good or service must be sufficiently specific to be able to determine when the obligation is satisfied. So application of performance obligation approach is more consistent with exchange transactions. However, some accounting standard bodies argue (such as AASB15) that Performance obligation approach can be applied to both exchange and non-exchange transactions by using both IFRS 15 and AASB 15. Some other such as ASB argue that while it is possible to extract certain principles from the approach in IFRS 15 and apply them to non-exchange transactions, it is difficult to apply the model “as is” to non-exchange transactions. This is because: (ASB, 2015):

(a) non-exchange transactions often arise from statutory rather than contractual arrangements, which makes the initial step in the IFRS 15 difficult to apply; and
(b) non-exchange transactions are not executory in nature in that they do not require performance by both parties to the transaction. Under IFRS 15, the event that gives rise to the initial recognition of a transaction is usually based on one party to the arrangement having performed in terms of the arrangement.

In contrast, the event that gives rise to the recognition of non-exchange transactions is often the occurrence of an event, e.g. a taxable event, or breach of a law. Because the recognition of transactions in IFRS 15 is driven by performance by parties and the satisfaction of performance obligations, the initial recognition of transactions and the recognition of revenue under IFRS 15 is unclear for many non-exchange transactions.

In addition, IPSASB (2015) agreed that a performance obligation approach cannot be applied to transactions that are not subject to performance obligations, and that these transactions would need to be dealt separately. Therefore, the non-exchange transactions should be treated differently from the exchange transactions.

3.2 Revenue from Non-Exchange Transactions (Unilateral/Non-Reciprocal Transactions)

Non-exchange transactions (including taxes and transfers), means that revenues are not directly derived from incurring costs and an entity will receive resources and provide no or nominal consideration directly in return (IPSAS, 23). In other words, non-exchange revenues are politically not economically driven (van Peursem, 2006). While the exchange transactions are to some extent similar to the transactions in the private sector, the non-exchange transactions are entirely different from the private sector in respect of the recognition and measurement criteria. For example, when are the tax revenues considered to be recognized and measured? The answer to this question under accrual accounting is not easy. Whilst it may be probable that a government is entitled to revenue at the time a taxpayer earns income subject to taxation, it may not be possible to measure the amount of the tax revenue until some later point – for example, at the end of the income year, when tax returns are filed or when tax is assessed (IFAC, 1996). Furthermore, there may be a considerable time lag between the point at which the transaction which gives rise to the revenue takes place and the point at which the amount can reliably be estimated. For example, there may be a lag between the time sales tax is collected by vendor and the time it is accounted for by the government.

To overcome the problem associated with the recognition of non-exchange transactions, IPASAB issued IPSAS 23 - Revenue from Non-Exchange transactions (including taxes and transfers) to tackle this problem. IPSAS 23 tackles the requirements for the recognition, measurement and disclosure of revenue from non-exchange transactions. The IPSAS 23 develops an “Assets and Liabilities Approach” that requires entities to recognize revenue when an inflow of resources is recognized as an asset, to the extent that liability or contribution from owners is not also recognized. The IPSAS 23 has stated in paragraphs 44, 45, 46, 47 and 48 the following recognition and measurement criteria of revenue from non-exchange transactions:

a. An inflow of resources from a non-exchange transaction recognized as an asset shall be recognized as revenue, except to the extent that a liability is also recognized in respect of the same inflow.

b. As an entity satisfies a present obligation recognized as a liability in respect of an inflow of resources from a non-exchange transaction recognized as an asset, it shall reduce the carrying amount of the liability recognized and recognize an amount of revenue equal to that reduction.

And if an inflow of resources satisfies the definition of the contributions from owners, it is not recognized as a liability or revenue.
c. Revenue from non-exchange transactions shall be measured at the amount of the increase in net assets recognized by the entity as at the date of initial recognition of assets arising from the non-exchange transaction.

According to IPSAS 23, the assets-liability approach should be based on the control-based model. Control of an asset arises when the entity has the ability to exclude or regulate the access of others to the benefits of an asset and when the entity can use or otherwise benefit from the asset in pursuit of its objectives. However, exercising of a regulatory role by governments over some activities such as pension funds does not necessarily mean that such regulated items meet the definition of an asset or satisfy the criteria for recognition as an asset in government financial statements. Therefore, in many cases, the entity will need to establish enforceability of its control of resources before it can recognize an asset (IPSAS 23). This is due to the fact that if the entity does not have an enforceable claim to resources, it cannot exclude or regulate the transferor's access to those resources.

In addition to IPSAS 23, Australian Accounting Standard Board has released an Exposure Draft (ED) 260 in 2015. This draft has been partially driven by a range of concern with current standard, AASB 1004 Contributions (AASB 1004), the issuance of AASB 15 Revenue from Contracts with Customers (AASB 15). Unlike IPSAS 23, the ED 260 does not only considering the control-based model for the recognition of the non-exchange transactions but it also considers the enforceable right to receive funds. Therefore, the ED 260 - Part B, has made distinguish between two non-exchange transfers:

- **Voluntary transfers:**
  - Donations, including identifiable donation components of contracts with customers;
  - Other transactions with donation elements such as where the fair value of asset acquired by the NFP entity significantly exceeds the consideration paid;
  - Grants in relation to which specific performance obligation have not been identified; and
  - Appropriations to government department and agencies.

- **Compulsory transfers:** such as taxes, rates and fines.

The revenue recognition is determined by an assessment of when control of funds passes to the NFP entity (Control-based Model) for voluntary transfers or when the entity has an enforceable right to receive funds (compulsory transfers). Therefore, voluntary transfers would usually be recognized on receipts of funds, and compulsory transfers would usually be recognized when the underlying "taxable event" occurs.

So both control-based model and enforceable right to received funds based on the occurrence of taxable event are consistent with Asset-Liability approach. For taxes –enforceable right to receive funds is based on occurrence of the underlying "taxable event". As example of the occurrence of taxable event, we can use the New Zealand and Australian experience as follows:
**New Zealand**: the recognition points of major non-reciprocal revenues are summarized below (in Table 1):

<table>
<thead>
<tr>
<th>Revenue Type</th>
<th>Revenue Recognition Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source deductions (PAYE)</td>
<td>When an individual earns income that is subject to PAYE</td>
</tr>
<tr>
<td>Residents withholding tax</td>
<td>When an individual is paid interest or dividends subject to deduction at source</td>
</tr>
<tr>
<td>Fringe benefits tax (FBT)</td>
<td>When benefits are provided that give rise to FBT</td>
</tr>
<tr>
<td>Provisional tax</td>
<td>Payment due date</td>
</tr>
<tr>
<td>Terminal tax</td>
<td>Assessment filed date</td>
</tr>
<tr>
<td>Goods and services tax</td>
<td>When the liability to the Crown is incurred</td>
</tr>
<tr>
<td>Excise duty</td>
<td>When goods are subject to duty</td>
</tr>
<tr>
<td>Road user charges and motor vehicle fees</td>
<td>When payment for the fee or charge is made</td>
</tr>
<tr>
<td>Stamp, cheque and credit card duties</td>
<td>When the liability to the Crown is incurred</td>
</tr>
<tr>
<td>Other indirect tax</td>
<td>When the debt to the Crown arises</td>
</tr>
</tbody>
</table>

**Australia**: The bases of recognition for major types of taxation revenue are summarized as follows (in Table 2): (IFAC, 2000).

<table>
<thead>
<tr>
<th>Major type of taxation revenue</th>
<th>Basis of revenue recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income tax from individual (PAYE, PPS, Provisional Tax)</td>
<td>recognized on earnings of taxpayers during the reporting period where such amounts can be reliably measured and are expected to be collected</td>
</tr>
<tr>
<td>Company Tax &amp; Superannuation Fund Tax</td>
<td>recognized on company income for the reporting period</td>
</tr>
<tr>
<td>Sales Tax &amp; Withholding Tax</td>
<td>recognized on defined sales and other relevant activities occurring during the reporting period</td>
</tr>
<tr>
<td>Fringe Benefits Tax</td>
<td>recognized on fringe benefits provided to employees during the reporting period</td>
</tr>
<tr>
<td>Excise Duty</td>
<td>recognized when goods are distributed for home consumption</td>
</tr>
<tr>
<td>Customs Duty</td>
<td>recognized when imported goods are distributed for home consumption</td>
</tr>
</tbody>
</table>

In addition to the aforementioned public sector accounting setting bodies, the USA- GASB (1998) issued a statement No.33 regarding the Accounting and Financial Reporting for Non-exchange Transactions. GASB 33 has focused on accounting treatment of non-exchange transactions. The main focus was on the timing of recognition of non-exchange transactions – that is, when should governmental entities recognize the non-exchange transactions in the financial statements? The statement No. 33 identifies four classes of non-exchange transactions based on shared characteristics that affect the timing of recognition as follows:

- **Derived tax revenues**: result from assessments imposed on exchange transactions (i.e., income taxes, sales taxes and other assessments on earnings or consumption).
- **Imposed non-exchange revenues**: result from assessments imposed on nongovernmental entities, including individuals, other than assessments on exchange transactions (i.e. property taxes; fines and penalties; and property forfeitures, such as seizures and escheats).

- **Government-mandated non-exchange transactions**: occur when a government at one level provides resources to a government at another level and requires the recipient to use the resources for a specific purpose (i.e., federal programs that state or local governments are mandated to perform).

- **Voluntary non-exchange transactions**: result from legislative or contractual agreements, other than exchanges, entered into willingly by two or more parties to the agreement (i.e., certain grants, certain entitlements and private donations).

The GASB 33 has determined the timing of recognition of the four classes of non-exchange transactions under both accrual accounting and modified accrual accounting. It is assumed the timing of recognition should be the same whether the accrual or modified accrual basis is used. However, the recognition of revenue under modified accrual basis should not only meet the recognition criteria but also the revenues should be available. Available means that the government has collected the revenues in the current period or expects to collect them soon enough after the end of the period to use them to pay liabilities of the current period (GASB 33, 1998). According to GASB 33 the timing of revenues recognition is outlined as follows:

- **Derived tax revenues**
  Revenues are recognized when the underlying exchange transaction occurs. If the resources received before the underlying exchange has occurred should be reported as deferred revenues (Liabilities).

- **Imposed non-exchange revenues**
  Revenues are recognized in the period when use of the resources is required or first permitted by time requirements (for example, for property taxes, the period for which they are levied; and for the other than property taxes revenues recognized in the period when an enforceable legal claim has arisen), or at the same time as the assets if the government has not established time requirements. Resources received or recognized as receivable before the time requirements are met should be reported as deferred revenues.

- **Government-mandated non-exchange transactions and voluntary non-exchange transactions**
  Revenues are recognized when all applicable eligibility requirements are met. According to GASB 33-The eligibility requirements comprise one or more of the following:
  a. **Required characteristics of recipients.** The recipient (and secondary recipients, if applicable) has the characteristics specified by the provider. (For example, under a certain federal program, recipients are required to be states and secondary recipients are required to be school districts.)
  b. **Time requirements.** Time requirements specified by enabling legislation or the provider have been met. (The period when the resources are required to be used [sold, disbursed, or consumed] or when use is first permitted has begun, or the resources are being maintained intact, as specified by the provider.)
  c. **Reimbursements.** The provider offers resources on a reimbursement (-expenditure-driven) basis and the recipient has incurred allowable costs under the applicable program.
  d. **Contingencies** (applies only to voluntary non-exchange transactions). The provider’s offer of resources is contingent upon a specified action of the recipient and that action has occurred. (For example, the recipient is required to raise a specific amount of resources from third parties or to dedicate its own resources for a specified purpose and has complied with those requirements.)
After reviewing the accounting literature of accounting treatment regarding the revenues recognition in the public sector from different international and national standard setting bodies' point of view, it is obviously that these bodies do not only agree about the accounting treatment of revenues but also on the classification of non-exchange transactions. For example, in Australia, the non-exchange transactions are classified as voluntary transfers and compulsory transfers while in USA, they are classified into four classes as stated above. It can be concluded that there is a lack of a unified guidance of accounting on revenues arising from both exchange and non-exchange transactions.

4- A Practice-Relevant Approach for revenues recognition: A Practitioner’s perspective

4.1 Revenue from Exchange Transactions: Public Sector Performance Obligation Approach

In fact, assets, liabilities, revenues and expenses arising from transactions and events must be recognized in the financial statements when they have an economic impact on the government, regardless of when the associated cash flows occur. As earlier stated, governments obtain their revenues from both exchange transactions and non-exchange transactions. The accounting treatment of revenues arising from exchange transactions in the public sector is to a reasonable extent similar to that of the private sector. The accounting treatment of revenue in both sectors agreed about the two main revenue recognition criteria which are: a- revenue is recognized when it is probable that future economic benefits will flow to the entity; and b- these benefits can be measured reliably. In addition, there is consensus in both sectors that these recognition criteria should be applied separately to each transaction (see, IAS 18, IFRS 15, IPSAS 9, AASB 15 and GRAP 9). The revenues arising from exchange transactions and events include: -The sale of goods; the rendering of services; and the use by other of entity assets yielding interest, royalties, dividends or similar distributions. While the two recognition criteria are applied to all revenues arising from the exchange transactions and events, there are specific conditions associated with each transaction that should be satisfied to consider the revenue is recognized. For the sale of goods, the recognition of revenue should be based on risks and rewards model. This means that the entity has transferred to the buyer the significant risks and rewards of ownership of the goods. For rendering the services, the recognition of revenue should be based on the stage of completion of the transaction at the end of the reporting period. The recognition of revenue by reference to the stage of completion of a transaction is often referred to as the percentage of completion method. Under this method, revenue is recognized in the accounting periods in which the services are rendered. The recognition of revenue on this basis provides useful information on the extent of service activity and performance during a period. For the interest, royalties and dividends: Revenue shall be recognized on the following bases:

(a) interest shall be recognized on a time proportion basis that takes into account the effective yield on the asset.

(b) royalties shall be recognized on an accrual basis in accordance with the substance of the relevant agreement; and

(c) dividends shall be recognized when the shareholder’s right to receive payment is established.

It is obvious that approaches and models that have been used as a basis for the recognition of revenue arising from the exchange transactions and events, (such as risks and rewards model, percentage of completion method, etc.), are to a great extent consistent with the performance obligation approach applied to the private sector based on IFRS 15. The question is: can the performance obligation approach be also applied to the public sector? In fact, IPSASB, during its meeting held in Johannesburg, South Africa, IAESB Meeting—April 13-15, 2015, has considered the extent to which the performance obligation approach can be applied to revenue and expense transactions. The IPSASB noted that the performance obligation approach in IFRS
15, *Revenue from Contracts with Customers*, only relates to contracts for good and services with customers. Accordingly, it does not cover the accounting treatment of other exchange transactions such as the use by other of entity assets yielding interest, royalties, dividends or similar distributions. Therefore, the IPSASB suggested that the performance obligation approach should be broadened to include the other exchange transactions with performance obligations. Such transactions include those that meet the criteria in IFRS 15 and transactions out of the scope of IFRS 15 that contain performance obligations. In addition, the IPSASB sees that developing the performance obligation approach to be applied to the public sector needs to include non-contractual binding arrangements in the public sector, noting that specific legislative requirements can give rise to performance obligations. Furthermore, it needs to take a broad view of the enforceability of binding arrangements, which is not just through legal means (IPSASB, 2015).

However, the core of the recognition of revenues under performance obligation approach based on IFRS 15 is that revenue is recognized when the performance obligation is settled. The settlement of a performance obligation at a point in time is considered in relation to the transfer of control over the asset that is created in fulfillment of the performance obligation. This means that the point at which control over the asset is transferred coincides with the point in time that a performance obligation can be considered to have been fulfilled. This establishes the control-based revenue recognition model employed by IFRS 15. However, Most of standard setting bodies in the public sector such as ASB-UK and IPSASB (GRAP 9 and IPSAS 9) prefer the use of risks and rewards model where the revenue from the sale of goods is only recognized when the risks and rewards related to an asset are transferred to the customer. Accordingly, the transfer of risk and rewards is considered in IFRS 15 to be a subset in evaluating the transfer of control over an asset. As such, it is considered that the control-based model of IFRS 15 might result in a later point of revenue recognition in the public sector entities (ASB, 2015), which can create confusion into practice from the practitioner's standpoint. Therefore, the development of the public sector performance obligation approach should be based on risks and rewards model.

Taking into account that Public Sector Performance Obligation Approach only appropriate when agreed performance obligations are “identifiable and specific”, therefore, the development of the Public Sector Performance Obligation Approach for the exchange transactions should be based on:

1- Identify which goods or services are distinct and hence should be accounted for as a separate performance obligation, this can be facilitated by focusing on:
   a- Transactions with performance obligations stipulated in both IFRS 15 and AASB 15; and
   b- Transaction with performance obligations but not included in IFRS 15 and AASB 15.

2- When considering the large volume of customers of public sector entities, it is envisaged that the use of control-based model would be onerous to the point of becoming impractical; therefore the satisfaction of the performance obligation should be based on the transferring of significant risks and rewards of a promised goods or services to a customer.

3- Enforceability should be considered as a key aspect of Public Sector Performance Obligation Approach legal and equivalent binding arrangements.

Performing the aforementioned amendments will result in improving reporting of revenue from exchange transactions within the public sector. However, given the current level of maturity of accounting practice in the public sector it is considered that the public performance obligation approach should be simplified to remove the complexities provided in IFRS 15.
4.2 Revenue from Non-Exchange Transactions: Assets-Liabilities Approach

While the performance obligation approach can be modified to be applied to the revenue arising from exchange transactions, it seems impractical to be used to recognize revenue arising from non-exchange transactions. This is due to the following facts:

- Revenues recognition within the scope of the performance obligation approach- IFRS 15 are based mostly on contractual agreements, whereas the revenues recognition of non-exchange transactions often arise from statutory rather than contractual arrangements.

- Non-exchange transactions are not executory in nature in that they do not require performance by both parties to the transaction. This is obvious from the scope of GRAP 23 and IPSAS 23, as it is argued that arrangements within the scope of GRAP 23 may entitle one party to recognize an asset before either party to the arrangement has performed.

- The performance obligation approach described in IFRS 15 requires the identification of a customer whereas the nature of transactions in the public sector often precludes the identification of a specific customer. The goods and services rendered by public sector entities are determined by their legislative mandate to a wide range of people/entities. These goods and services are also often provided collectively rather than individually (ASB, 2015).

Furthermore, non-exchange transactions entail the public sector entity to receive resources, either for free of charge or provide nominal consideration that is considerably lower than prevailing market prices. The transaction or arrangement that governs the transfer of the resources, irrespective of whether it is statutory or contractual, gives one party to the transaction or arrangement a right to receive the resources (ASB, 2015).

Consequently, recognition principle should be reconfigured to enable the public sector entities to recognize the revenues resulting from the non-exchange transactions. The performance obligation approach based on the transferring the risks and rewards of goods or services to the customer is unlikely to be valid to be applied to the non-exchange transactions. There should be a new approach that can recognize the revenues that are politically and not economically driven. In other words, revenues derived from the use of the sovereign powers. Therefore, standard setting bodies (such as: IPSASB, ASB and GASB) agreed on the application of assets-liabilities approach to the public sector entities for the recognition of revenues arising from the non-exchange transactions. This assets-liabilities approach with respect to recognition of revenues works as follows: (GRAP 23 and IPSAS 23)

1. Determine if the entity can recognize an asset from a non-exchange transaction.
2. Identify the stipulations attached to the transaction or arrangement and determine if they give rise to conditions or restrictions.
3. Recognize revenue to the extent that an asset is recognized, and any present obligation is satisfied (i.e. to the extent that conditions are met).
4. Measure revenue at the amount of the increase in net assets recognized by the entity.

In addition, IPSAS 23.44 and GRAP 23.43 mention that “An inflow of resources from a non-exchange transaction recognized as an asset shall be recognized as revenue, except to the extent that a liability is also recognized in respect of the same inflow”.

This means that under the assets-liabilities approach, described in IPSAS 23 and GRAP 23, the starting point of the revenue recognition is the determining whether an arrangement gives a right to receive resources that would meet the definition of an asset. Once the right to receive resources is confirmed, the public sector entity is required to determine whether it controls such a resource and otherwise meets the definition of an asset. This is confirmed by IPSAS 23.32 and
GRAP 23.27 as they stated that “An entity will recognize an asset arising from a non-exchange transaction when it gains control of resources that meet the definition of an asset and satisfy the recognition criteria.”

Gaining control of an asset means that the public sector entity has the ability to exclude or regulate the access of others to the benefits of an asset (IPSAS 23.32 and GRAP 23.27). It is evident that GRAP 23 and IPSAS 23 employ a control-based model for the recognition of assets arising from non-exchange transactions. Once an entity confirms the existence of a right to an asset, and confirms that it has the ability to control such an asset, it will recognize an asset in accordance with IPSAS 23 and GRAP 23 and either a liability or revenue as the counter entry (ASB, 2015).

However, based on the experiences of some countries (such as Australia and United states) the control-based model solely is not enough to cover the recognition of all revenues resulting from the non-exchange transactions. For example, Australia distinguishes between two non-exchange transfers:  

- **a- Voluntary transactions** including items such as donations, grants and appropriations, herein the recognition of revenues arising from these transactions should be based on the use of control-based model.  

- **b- Compulsory transfers**: such as taxes, rates and fines, herein the revenues would be recognized when the public sector entity has an enforceable legal claim to receive funds and the underlying taxable event occurs. In addition to Australian experience, the USA experience distinguishes among four classes of the non-exchange transactions: Derived tax revenues, imposed non-exchange revenues, government-mandated non-exchange transactions, and voluntary non-exchange transactions. As it obvious from the literature (discussed in section 3) that the four classes of non-exchange transactions are using different approaches as follows: some classes recognize the revenue based on the occurrence of taxable event and arising of an enforceable legal claim, as the case of derived tax revenues. Some other such as imposed non-exchange revenues, the recognition of revenues are divided into two cases: in case of the property tax, revenue is recognized in the period in which the property taxes are levied. While the other than property taxes, such as fines and penalties .etc., the revenue is recognized in the period when an enforceable legal claim has arisen. This means that the recognition of property taxes is based on the control-based model whereas the other than property taxes are based on the arising of enforceable legal claim and the occurrence of the underlying taxable event. So it could be derived that in addition to control-based model, the enforceable legal claim and occurrence taxable event are also an essential element for the recognition of the revenue resulting from the non-exchange transactions.

As it is clear from the aforementioned discussion that accrual accounting recognition principle needs to be reshaped to fit the context of public sector entities. Moreover, the reconfiguration of recognition principle should take into consideration the specific characteristics of public sector entities compared to the private sector entities. As the recognition of revenues resulting from exchange transactions is to a great extent different from that of the non-exchange transactions. Furthermore, even within the non-exchange transactions context, the recognition of revenues will be based on different approaches and models. Therefore, the development of Practice-Relevant Approach for revenue recognition in the public sector should take all these issues into account (see the following page).

**5- Conclusion**

Even though some pioneer writers in public sector accounting such as Lauglin (2011) argues that some of the [private sector] underlying concepts and standards need reshaping to allow them to fit the context of PBEs (Public Benefits entities), the last three decades have witnessed that the standard setters, academics and practitioners have directed their efforts to force public sector entities information into business reporting frameworks (Mack and Ryan, 2006), instead
of really thinking in reshaping the accrual accounting principles, assumptions and concepts to make them more practice-relevant for the public sector entities. The discussion in this paper is consistent with Lauglin suggestion regarding the reshaping of the recognition principle to allow it to fit the public sector context. It is inferred that the recognition of revenues in the public sector should be based on different approaches and models other than that applied to the private sector. Accordingly, to facilitate the matter for the practitioners this paper has developed the practice-relevant approach for the recognition of revenues arising from the exchange transactions and the non-exchange transactions and this has been based on different approaches and models. The practice relevant approach made clear that the performance obligation approach used in private sector according to IFRS 15 may be used for the exchange transactions but after making some amendments which are required to simplify it and to remove the complexities highlighted in IFRS 15. Furthermore, these amendments are needed to facilitate appropriate application of the Public sector Performance Obligation Approach from the practitioner's perspective in the public sector. Moreover, the non-exchange transactions require different approach for the recognition of revenues, which is the Assets-Liabilities Approach using the control-based model and enforceable legal claim and the occurrence of taxable event. Finally, the practice-relevant approach has attempted to cater for the wide variety of transactions and circumstances prevalent in the Public Sector.
Practice-Relevant Approach for Revenues Recognition in Public Sector

Exchange Transactions
- Sales of goods
- Rendering of services
- Interest, royalties and dividends
  - Recognition of revenue based on Risks and Rewards Model
  - Recognition of revenue based on percentage of completion method
  - Interest: R.R. based on Time proportion basis
  - Royalties: R.R. based on substance of relevant agreement
  - Dividends: R.R.

Public Sector Performance Obligation Approach

Non-Exchange Transactions
- Voluntary Transfers
  - Recognition of Revenue based on Receipt of Funds
    - Control-based Model
  - Arising of Enforceable legal Claim
- Compulsory Transfers
  - Recognition of Revenue based on when underlying taxable event occurs

Assets-Liabilities Approach

*RR = Revenue Recognition
REFERENCES


- GRAP 9 (2014), "Revenue from Exchange Transactions" National Treasury, Republic of South Africa, Published by Department National Treasury.

- GRAP 23 (2014), "Revenue from Non-Exchange Transactions" National Treasury, Republic of South Africa, Published by Department National Treasury.


- IAS 18, " International Accounting Standard 18 Revenue"


- IFRS 15, " IFRS 15 Revenue from Contracts with Customers"


ICGFM Ad Hoc Committee on International Accounting Standards: Report On Activities

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Introduction

The Ad Hoc Committee on International Accounting Standards has been established by the ICGFM to review and issue comments on Exposure Drafts and other discussion documents issued by the International Public Sector Accounting Standards (IPSAS) Board. The Committee comprises a group of members of the ICGFM, as listed on the ICGFM website.

All comments submitted by the ICGFM are included in the published comments on the IPSAS Board website1, but we thought it would be useful to provide an annual summary of the work of the Committee in the Journal.

Membership and How the Committee Works

Members of the Committee have been invited to join, but the Committee welcomes new members if any ICGFM member is interested. We would particularly welcome participation from members in South America, the Caribbean and Asia.

The Committee works entirely through electronic communication. When a new document is issued by the IPSAS Board for comment, members are asked for initial comments. Then a draft response is prepared and circulated for further comments to arrive at an agreed response. The response is circulated to the ICGFM Board before being submitted as a comment from ICGFM on the IPSAS website.

Recent activities

Jesse Hughes, as one of his many contributions to ICGFM, chaired the Committee for a number of years until the end of 2014. During Jesse’s Chairmanship the main principles and methods for the Committee were established, along with a Compilation Guide and supporting documents for a staged transition to accrual accounting. Since 2015 Michael Parry has chaired the Committee. This article relates to the Committee’s work since 2015.

Since 2015 the IPSAS Board has published six exposure drafts and two Consultative Papers. Comments have been submitted on all of these except the most recent Consultative Paper (on Financial Instruments), on which comments are not due until December 31, 2016.

This article summarises the main features of each of the above documents, ICGFM comments and the outcomes from the IPSAS Board. The full texts of EDs and Consultative Papers have not been repeated as these are available on the IPSAS website. Web links are provided. Submitted comments can be found through the same linked web page.

ED56 Applicability of IPSAS

Summary of ED56

ED56 was issued in July 20152. The proposals represented a fundamental change in the way in which the coverage of IPSAS is defined.

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1 http://www.ipsasb.org
2 http://www.ifac.org/publications-resources/exposure-draft-56-applicability-ipsas - this reference also leads to the submitted comments
Previously IPSAS were defined as applying to public sector entities other than Government Business Enterprises (GBEs)

The proposals in ED56 redefined the applicability of IPSAS by defining the entities to which they do apply, thus removing the requirement to define GBEs

ICGFM comments

Our comments:

- Supported the proposed changes and definitions in ED56
- Recommended that all references to GBEs are removed from all IPSAS and replaced with the term “Public Corporations” used in the IMF Government Finance Statistics (GFS) Manual
- Include the definition of applicability in IPSAS 1 as well as in the Preface to IPSAS.

Outcome

In April 2016 the IPSAS Board issued “The Applicability of IPSAS” and a revised Preface to IPSAS based on the proposals in ED56. Also the paragraph in all IPSAS that refers to their applying “except to GBEs” has been deleted.

However:

- There is now no definition in IPSAS 1 of the applicability of IPSAS – to obtain this definition it is necessary to refer to the Preface to IPSAS
- The term GBE has been replaced with a new term “Commercial Public Sector Entities”. Whilst this is an improvement on GBEs this still means that IPSAS and GFS use a different name for the same type of entity. We can see no good reason for this difference and consider this a lost opportunity to better harmonise IPSAS and GFS.

ED57 Impairment of Revalued Assets

Summary of ED57

Issued in October 2015 IPSAS 57 was a relatively minor change to remove what most users considered an anomaly in the treatment of impaired revalued assets. The changes simply bring revalued assets within the scope of IPSAS 21 “Impairment of Non-Cash-Generating Assets” and IPSAS 26 “Impairment of Cash-Generating Assets”. The changes also clarify that an impairment to one or more individual assets within a class of property, plant, and equipment does not necessitate a revaluation of the entire class to which the impaired asset belongs.

ICGFM Comments

The ICGFM supported the proposed changes without further comment.

Outcome

In July 2016 the IPSAS Board issued “Impairment of Revalued Assets” which set out the amendments to IPSAS 21 and 26 to implement the proposals in ED57.

ED58 Improvements to IPSAS 2015

Summary of ED58

Issued in January 2016, ED58 is a periodic update of EDs on a range of issues. These included

• Changes and consequential amendments arising from the first four chapters of the IPSASB Conceptual Framework
• Improvements to increase consistency with Government Finance Statistics reporting guidelines
• Improvements to maintain convergence with International Financial Reporting Standards (IFRSs).
• Amendments to adopt the principles set out by the International Accounting Standards Board (IASB) in June 2014 to International Accounting Standards (IAS) 16 and 41 regarding bearer plants.

ICGFM Comments
We supported these relatively minor changes to IPSAS, particularly those converging with IFRS. We also repeated our recommendation on ED56 that the term GBE be replaced with the GFS term “Public Corporations”, though as noted above we now know that the IPSAS Board has instead decided to use its own new term “Commercial Public Sector Entities”.

Outcome
The changes as set out in ED58 were adopted in April 2016.

ED59 Employee Benefits

Summary of ED
Issued in January 2016, ED59\(^4\) deals with one of the most complex IPSAS - IPSAS 39 (formerly IPSAS 25) on Employee Benefits. This Standard deals with two major areas:

1. A range of short term and accumulated employee benefits, e.g. bonuses, leave entitlement, etc.
2. Employee pensions

The primary objective of ED59 was to bring the treatment of employee benefits in IPSAS in line with the treatment in IAS 14 as released by the IASB.

ICGFM Comments
Our comments were substantial and in general critical of the approach and organisation of ED59. Because of their length our comments are reproduced in full in Annex 1 to this article. In summary we concluded that:

1. IPSAS 25 as amended by ED59 is not aligned with the issues facing entities in the general government sector (especially sovereign governments) and does not adequately address the requirement for transparency in relation to the inter-generational impact of post-employment benefits.

2. We also recommended that IPSAS 25 should be restructured to clearly segregate the different types of employee benefits. Also the presentation of the IPSAS should be reorganised to improve clarity, and the language used in the IPSAS should be meaningful to persons who are not pension experts.

Outcome

Some 24 comments were submitted on ED59, including those of the ICGFM. However, none of the other respondents commenting on ED59 indicated the fundamental issues in our comments, and all other comments agreed with the general principles of ED59 though making a number of detailed comments.

Therefore, not surprisingly, IPSAS 39 issued in July 2016 to replace IPSAS 25 substantially incorporates the proposals in ED59. However, we continue to be of the view that ED39 is flawed and requires a fundamental revision:

- To better address the issue of public sector pensions that are completely or substantially unfunded, and also
- To make the Standard better organised and more intelligible.

ED60 Public Sector Combinations

Summary of ED60

Exposure Draft 60 was issued in January 2016 as part of the IPSAS Board project on public sector combinations. The objective of this project is to “establish requirements for classifying, recognizing and measuring public sector combinations”.

ED60 introduces a number of concepts and makes important proposals for the accounting treatment of combinations.

ICGFM Comments

We made a number of substantial comments on ED60 of which the most important are as follows (the request for comments as set out in ED60 is in italics, followed by our response).

Specific Matter for Comment as set out in ED60

Do you agree with the approach to classifying public sector combinations adopted in this Exposure Draft (see paragraphs 7–14 and AG10–AG50)? If not, how would you change the approach to classifying public sector combinations?

No - ED60 does not adequately recognise the nature and substance of government entity combinations. ED60 distinguishes amalgamations from acquisitions, but in fact there are three potential situations:

Situation 1. An amalgamation of two government entities, for example two government agencies combining into one new agency

Situation 2. A combination of two government entities that that meets the description of an acquisition, but where there is no consideration. An example would be where the two agencies in situation 1 above are combined into one of the agencies.

Situation 3. An acquisition by a government entity of another entity for a consideration. This latter situation would most probably arise when a government acquires a commercial entity, which then becomes a Commercial Public Sector Entity.

For government entities the first two situations differ only in the form of the combination arrangements. Both involve a political decision to reorganise government operations and the substance of the combination remains the same. Therefore, there is no logical reason why the

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accounting treatment should differ as between Situations 1 and 2. On the other hand, situation 3 probably involves the acquisition of a commercial entity and hence the creation of a new, or expansion of an existing, Commercial Public Sector Entity.

Situation 3 has much in common with combinations of commercial entities, and therefore it is appropriate that it is treated in a similar manner to IFRS 3. On the other hand, Situations 1 and 2 are simply government reorganisations and should both be accounted for in the same manner using the modified pool approach as described in the ED.

Therefore, it is our view that these three situations should be clearly identified and defined, and that the accounting treatment for Situations 1 and 2, as defined above, should be identical applying the modified pool approach.

**Conclusions**

It is our view that the distinctions between acquisitions and amalgamations as defined in paras 7 and 8 of ED60 lack clarity. The definitions will make it difficult in some circumstances to distinguish acquisitions from amalgamations of government entities. A clearer definition is required.

ED60 appears to have been drafted without adequate consideration of the substance of government entity combinations. In many cases such combinations could meet the definition in the ED of either an “amalgamation” or an “acquisition without consideration”. A different accounting treatment for these two situations is inappropriate. Different accounting treatments could unintentionally influence public policy considerations for which the accounting treatment should be irrelevant.

**Outcome**

The 31 responses from various organisations to ED60 indicated a number of criticisms and proposed changes. However, none of the other responses made the same points as our response. In total the responses have left the public sector combinations project much to consider.

As yet no new standard has been published on public sector combinations.

**ED61 Cash Basis Standard**

**Summary of ED61**

Published in February 2016, ED61 incorporated most of the recommendations we made in our response to the consultation paper on the Cash Basis IPSAS. These comments were published in the 2015 edition of the International Journal on Government Financial Management.

The major changes proposed to the Cash Basis Standard in ED61 include the moving of a number of problem areas to Part 2 of the Standard – Encouraged Additional Disclosures. These include:

- Requirements for consolidation
- Information on external assistance
- Information on third party payments


7 [http://www.icgfm.org/journal/2015/vol1/5.pdf](http://www.icgfm.org/journal/2015/vol1/5.pdf)
ICGFM Comments

In general, we were supportive of the proposed changes, which will make the Cash Basis Standard a more realistic goal for countries that do not adopt the full accrual IPSAS. However, we made a number of detailed comments:

- We disagreed with the principle that all countries should be moving to accrual reporting and adoption of the accrual standards
- We recommended that the IPSAS 2 cash flow format should be allowed as an alternative to the traditional Receipts and Payment format. It should be noted that the current Standard allows the IPSAS 2 cash flow format but is not specific as to the format of the financial statements
- We recommended a more structured approach to additional encouraged disclosures in Part 2 of the Standard
- We recommended a requirement that additional information on Part 2 of the Standard should be presented in compliance with any existing accrual IPSAS.

Outcome

Some 17 comments were submitted on ED61. Most supported the reforms, but made a number of suggestions for improvements to the ED before it becomes a standard.

As yet no revised Cash Basis Standard has been published.

Consultative Paper on Social Benefits

Summary of Consultative Paper

The Consultative Paper on Social Benefits addresses fundamental issues that concern the concept and scope of government financial reporting. When governments make legal or policy commitments to pay future social benefits, to what extent should these be recognised as liabilities in the government financial reports? This also raises issues relating to the extent to which non-contractual and inter-generational liabilities should be recognised. It follows on from previous IPSAS Board discussions that did not lead to any published standard or guidance.

The Consultative Paper suggested three options to account for social benefits:

- Option 1: The obligating event approach
- Option 2: The social contract approach
- Option 3: The insurance approach

The Consultative Paper needs to be read in full to better understand the options.

ICGFM Comments

The ICGFM response was a paper on the issue, which is reproduced in Annex 2 to this Article.

Outcome

There were 36 comments on this consultation paper, representing a variety of views. Interesting, there appears to be a general consensus on the principle of recognising social benefits as a liability in the financial statements, though many different views on the scope, definitions and measurement of such a liability.

8 https://www.ifac.org/publications-resources/recognition-and-measurement-social-benefits
As yet ICGFM has not published any response or proposed standard on Social Benefits.

**Conclusions on the ICGFM Ad Hoc Committee on International Accounting Standards**

As is apparent from the above analysis, ICGFM has had some successes on influencing Standards, particularly the Cash Basis Standard. But in other areas our views have not been heard. We shall continue to express our views and seek to ensure they have the maximum impact. Publishing our comments in the International Journal of Government Financial Management is part of the approach to ensure ICGFM’s voice is heard.
ANNEX 1: ICGFM RESPONSE ON ED 59 “AMENDMENTS TO IPSAS 259”

Overview

IPSAS 25 is so complex and the methodology descriptions so abstruse that most accountants will be inclined to regard ED59 as raising technical issues best left to those with expertise in the pensions area. This is unfortunate, because pension liabilities for government entities10 are, in many instances, very large in relation to other figures in the balance sheet11.

Accounting for pension liabilities is very important, but it is our view that by simply replicating most of IAS 19 the IPSAS Board is not recognising the special nature of pension liabilities of government entities. In consequence the pension liability disclosure requirements for government entities are inadequate.

Comparison of government sector and private sector pension issues

Pension issues for the commercial corporate sector

Commercial entities’ pensions are almost invariably intended to be fully funded. If pensions are based on the returns from pension fund assets (defined contribution), then it follows that there is no risk of any further liability to the entity. However, if the pension is one which defines the benefits without direct reference to contributions (defined benefit pension) then there is the risk that the entity may be liable for pension payments not covered by income from pension fund assets – a pension fund liability.

In the latter situation any shortfall will have to be made good from future revenues of the entity, affecting the future profitability, and possibly the solvency, of the entity. The focus of IAS 19 is on identifying such situations, measuring the potential pension fund liability, profit impact and risk to the entity resulting from the pension liability.

Pension issues in the government sector

In contrast, pensions schemes of government entities are commonly unfunded (or only part funded) defined benefit schemes. Therefore, many government entities have large unfunded pension liabilities. However, in the case of sovereign governments this liability is offset by the ability to raise taxes or other revenues – a major difference from commercial entities. This and the inter-generational responsibility of governments should affect the disclosure of pension liabilities.

Until IPSAS 25 (or the application by some governments of national standards) the potential liabilities from pension schemes were not recognised in government entity financial statements. However, since IPSAS 25 all government entities reporting on the accrual basis are required to disclose their unfunded pension liability.

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9 IPSAS 25 has now been replaced with IPSAS 39

10 For clarity we use the term “government entities” to describe entities within the General Government Sector and to which IPSAS are applicable. The Corporate Sector refers to commercial entities, included those owned by government. Using the new IPSAS terminology these latter are referred to as “commercial public sector entities”.

11 The UK Whole of Government Accounts 2013/14 estimate the pension liabilities of the UK Government as £1,302 billion (US$1,888 billion) of which 93% is unfunded. This compares to total UK government revenues for the same period of £684.5 billion (US$993 billion)
This has undoubtedly been a step forward in terms of transparency. Where IPSAS 25 has been applied the disclosure of pension liabilities has focused attention on the scale of such potential liabilities\textsuperscript{12} to government entities, including sovereign governments.

However, despite the benefits of disclosure, there are arguments for \textbf{not} recognising pension liabilities of government sector entities in their financial reports. These arguments against pension liability disclosure are as follows:

- Governments have legal authority to raise revenues. Therefore, governments are in a very different situation to commercial entities. For the latter future revenues depend on success in business. This is a fundamental difference.

- Pensions may be paid from such future revenue flows under the control of the entity, and to show a liability without the corresponding asset of such future revenues is misleading.

- Since there is no concept of profit in the public sector the impact of pension liabilities on future profit is irrelevant – it is the impact on future generations of citizens that is important.

- Governments do not cease to exist as a result of insolvency – even if a government defaults on its debts the government continues to exist and is still able to pay future pensions.

These arguments require consideration. At the very least they must influence the design of pension disclosure requirements.

However, there are compelling reasons in favour of recognising pension and other post-employment liabilities for government entities:

1. Unfunded pension liabilities of government entities can be very large (see above) and transparency requires that such liabilities be identified and reported.

2. Not all entities within the government sector are guaranteed their future existence or have an automatic right to raise revenues, e.g. educational institutions. For such entities the pension liabilities may threaten their very existence. The need to make good any shortfall may impact, for example, on the fees charged to future students.

3. Pension liabilities represent an inter-generational transfer – to the extent that future pensions cannot be met from employee contributions, they must be met from future revenues, pre-empting the use of such revenues for other purposes.

4. Pension liabilities are a factor taken into account in assessments of credit risk, and may affect the cost of borrowing by the entity.

These arguments are implicitly accepted by IPSAS 25 and are the reasons requiring the disclosure of pension liabilities.

\textit{Conclusions on recognising the pension liabilities of entities within the government sector}

It is our conclusion that the requirements for transparency require the disclosure of pension and other post-employment liabilities, and particularly the inter-generational impact of such liabilities. Furthermore, we agree that the IPSAS 25 measurement methodology and methodology in IAS 19 is appropriate for calculating a single figure value of such liabilities.

\textsuperscript{12} For example, a report on the BBC website on April 16, 2016 on the UK government pension liability emphasised public concern with the issue.
However, we consider that the presentation and disclosure requirements of IPSAS 25 are inadequate for government entities.

**Identifying and measuring the pension liability**

IPSAS 25 sets out a general approach for measuring future pension liabilities that is in essence unchanged by ED 59. This requires an actuarial estimate of future pensions that have accrued from contributions made by employees, discounted to their present value. The liability is reduced by the expected returns from any pension fund assets.

In a funded pension scheme the expectation is that the contributions will enable the pension fund to acquire assets that will generate a sufficient cash flow to pay future pensions. However, it is obvious that calculating the level of pension contributions to achieve this outcome involves forecasts of the future that may prove to be inaccurate. This may lead to a shortfall between the pension fund liability to pensioners and the expected revenues from pension fund assets (it may of course lead to a surplus). The focus of IPSAS 25 is to identify and measure any such funding gap, and then to report this as a single figure pension liability.

The measurement methodology in IPSAS 25/ED 59 is equally valid for commercial or government entities. As indicated above, the difference between commercial and government entities is that government pensions are often completely, or mainly, unfunded. There may also be other material unfunded post-employment liabilities, for example health care of former employees in the US public sector\(^\text{13}\).

**Why IPSAS 25 is so complex**

There are three reasons why IPSAS 25 is such a complex Standard, as set out below.

1. **The mechanics of calculating a single figure for the net pension liability or asset**

   As indicated above, the mechanics of reducing pension liabilities to a single figure are complex. It requires calculation of the accrued liability for future pension payments (using assumptions for example about life expectancy, survival within an organisation to pension age, interest rates, etc.) and also the anticipated returns from fund assets. It is inevitably difficult to use words to define the calculations.

2. **The use of terminology in a manner different from normal usage**

   Terms are used in both IPSAS 25 and ED 59 with a quite different meaning from normal usage. For example, the term “interest cost” does not refer to an interest payment that will ever actually occur or be paid – it is the amount of the notional interest on the defined benefit liability.

3. **Confused presentation of the standard**

   IPSAS 25 is about employee benefits in general. These include short term benefits and defined contribution pension schemes. None of these issues present any major complexities or differences between the government and corporate sector. Yet the requirements relating to such benefits are interspersed with the more complex requirements relating to defined contribution pensions.

   Even within the part of the IPSAS dealing with defined benefit schemes, the Standard does not follow the principle of moving from the general to the particular. For example, the definition

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\(^{13}\) The incidence of government sector pension liabilities in the US is specific to the USA. At the State and Local levels, bonding agencies expect the government to fund 70% of their liabilities. If government does not fund at least 70%, the agency can expect to pay higher interest rates for their municipal bonds. At the federal level, there is no such policy. Health care liabilities are generally unfunded, but are often a substantial cost.
Proposed changes to IPSAS 25 and ED 59

The basic measurement and valuation principles set out in IPSAS 25, as amended under the proposals in ED 59, are supported as the basis for providing a single figure estimate of unfunded (or part funded) pension liabilities in the government sector. However, this information alone is inadequate, or even misleading, for government entities. A more comprehensive approach is required that:

1. Identifies the unfunded liability for post-employment benefits
2. Identifies and values flows earmarked to meet the cost of such unfunded liabilities
3. Provides an indication of the inter-generational impact of unfunded pension liabilities in future years
4. Makes clear the level of uncertainty in such forecasts and the impact of the more likely variability in the estimates.

These concepts are further expanded below.

1. **Amount of any unfunded pension liability**

No change is proposed in the calculation methodology set out in IPSAS 25 as amended by ED 59.

2. **Funding of pension liabilities**

Most government sector entities which have unfunded pension liabilities will (or should) have a plan for funding future pension payments, e.g. future employee and/or employer pension contributions, earmarking of a specific source of revenue, etc. This plan should be described in narrative with a quantification of the anticipated inflows as compared to pension outflows.

Consideration could be given to providing a single figure value of such planned future funding arrangements to be offset against the unfunded pension liability.

3. **Future cash flow impact year by year, taking account of any funding plans**

Disclosure should involve not just single figure estimates of post-employment benefit liabilities and planned funding flows, but also a year by year estimate of the cash flows. This would clearly indicate the inter-generational impact of employment benefits being incurred by the entity. The information could be presented in a table, possibly also with a graphical representation to make the information clearer as illustrated below.
4. Assumptions underlying the above calculations, indicating major uncertainties and possible impact of changed assumptions.

Some assumptions underlying the calculation of pension liabilities and future cash flows are subject to particular uncertainty, e.g. life expectancy, interest rates. As well as a central estimate, a range of possible outcomes for both single figure estimates and future cash flows should be provided.

Organisation of the IPSAS

In order to improve clarity a revised structure for the IPSAS is proposed:

- Part 1: short term employee benefits
- Part 2: defined contribution pension schemes
- Part 3: defined benefit pension schemes and other unfunded post-employment benefits

Within each section the Standard should be organised to move from the general to the specific, as indicated below for the proposed Section 3:

1. Basic principles and objectives
2. Calculation of defined benefit pension liability – it might be best to define the main principles and use an annex to provide detailed examples
3. Disclosure requirements
4. Special situations and exceptions.

Pension liabilities of commercial public sector entities

The above analysis relates to entities in the general government sector which are required to comply with IPSAS. Commercial public sector entities are required to apply IFRS. If the more extensive disclosures described above are applied to government entities, this will raise problems when commercial public sector entities are consolidated into whole of government financial reports. For consolidation purposes the more comprehensive information indicated above will be required from all consolidated commercial public sector entities.
Furthermore, pension liabilities of commercial public sector entities may be a contingent liability of the national government. Even if the pension liabilities of a commercial public sector entity are not expressly guaranteed by central government, it would be a brave government which refused to honour such pension commitments.

**First time recognition of pension liabilities**

Many, indeed most, governments and government sector entities have not as yet recognised in their financial reports unfunded pension and other post-employment liabilities. IPSAS 25 should provide guidance on first time recognition of such liabilities. In particular, guidance is needed whether the first time charge should be taken directly from net equity or charged against surplus/deficit in the Statement of Financial Performance.

**Summary and Conclusions**

In summary, it is our view that the proposed changes to IPSAS 25 in ED 59 do not go far enough. What is required is a complete redesign of IPSAS 25 so that it requires financial reports to provide information for full transparency on the post-employment benefit liabilities of entities (including sovereign governments) within the general government sector. This information should include information on unfunded liabilities, revenues to meet such liabilities, and forecast future cash inflows and outflows relating to post-employment benefits.
ANNEX 2: RESPONSE TO CONSULTATION PAPER ON RECOGNITION AND MEASUREMENT OF SOCIAL BENEFITS

Overview

1. The Consultation Paper (CP) on the Measurement of Social Benefits raises two fundamental issues:
   a. The recognition as liabilities commitments made by a government to specific groups of citizens – even though there is no contractual obligation requiring future governments to honour such commitments
   b. The inter-generational impact of such commitments – in particular the cost of a state pension payable to all citizens.

2. Governments across the world commit to certain social benefits, e.g.:
   a. Health care benefits
   b. Unemployment benefits
   c. State pension benefits.

3. There is a flow from the commitment through liability to the actual payment of social benefits as illustrated in Figure 2 below.

   Figure 2: The flow of social benefit obligations

4. In most countries social benefit commitments made by a current government are honoured by subsequent governments, but such commitments do not amount to legally binding contractual obligations. There are numerous examples where the terms of the social benefit obligation have been retrospectively changed, e.g. raising the age for state pension, reducing the amounts to be paid.

5. These issues are addressed in the IPSAS Conceptual Framework. This identifies when non-legally binding obligations become liabilities in Para 5.24 as follows:
   a. *The entity has indicated to other parties by an established pattern of past practice, published policies, or a sufficiently specific current statement that it will accept certain responsibilities;* 
   b. *As a result of such an indication, the entity has created a valid expectation on the part of those other parties that it will discharge those responsibilities;* and
   c. *The entity has little or no realistic alternative to avoid settling the obligation arising from those responsibilities.*
6. The first two conditions are normally part of governments making social benefit commitments. The issue of recognition as a liability is when condition (c) above is met. At some stage social benefits do meet condition (c) and hence become liabilities.

The ICGFM supports the principle of recognising social benefits as liabilities when the three conditions specified in the Conceptual Framework are met.

Specific Matters for comment 1

In your view:

(a) Is the scope of this CP (i.e., excluding other transfers in kind, collective goods and services, and transactions covered in other IPSASs) appropriate?

(b) Do the definitions in Preliminary View 1 provide an appropriate basis for an IPSAS on social benefits?

Please explain the reasons for your views

(a) Scope

7. We consider the scope appropriate, subject to the comments below.

   a. Pensions and other retirement benefits
   b. Non-pension social benefits.

9. Pensions are specifically included in the GFS definition of social benefits (GFS 2014 Para 2.46 and Annex 2). However, the treatment of liabilities for pensions and for other social benefits is potentially different. IPSAS 25 has defined the approach for employment pension liabilities and logically should be the basis for defining the approach for funded state pensions and other retirement benefits.

10. We therefore consider it important that the two categories of social benefits as above are defined so that consideration can be given as to whether they are to be treated differently.

(b) Definitions

11. The use of the GFS definitions is strongly supported. In principle we consider that only in exceptional circumstances should the IPSAS use different terminology or definitions to those used in GFS.

12. Our comments on specific definitions relate to two important issues:
   a. In Europe social benefits would be regarded as citizen entitlements rather than acts of charity. Persons become entitled to social benefits when they meet certain conditions in many cases without regard to their personal circumstances, e.g. disability and related social benefits are paid irrespective of an individual's income or financial status, e.g. in the UK even the richest are entitled to a state pension. Therefore, the definitions should refer to *entitlement* rather than need.
   b. It is our view that the treatment of funded benefits (social insurance) should be different from the treatment of unfunded payments. Therefore, it is necessary to define what is meant by funded benefits.
Definition of funded schemes (social insurance)

13. It is our view, as indicated below, that schemes that are fully or mainly funded are different in nature, and therefore in accounting treatment, from unfunded schemes. For this purpose, we would define funded schemes quite narrowly, e.g. “A funded age related or other benefit is one where an individual has over time made payments to a fund represented by specific assets, which assets are administered separately from other government assets through an independent agency, and such agency is able to generate its own balance sheet separate from the balance sheet of general government. Furthermore, the revenues generated from the fund’s assets are expected mainly or entirely to meet the costs of the anticipated social benefits payable from the fund.”

14. Such funded schemes create an implied contract between the potential beneficiary and the fund to pay the social benefits. Furthermore, citizens in general may assume that the fund has sufficient resources to make such payments and hence there will be no charge on citizens in general. This makes it important to identify and disclose in the financial reports any fund surplus or deficit on such funded schemes. We would regard the entitlement to benefits under such funded schemes as a constructive liability of the government.

2.41 Social benefits

15. For the reason indicated in (a) above the definition should refer to entitlement, i.e. “Benefits provided to individuals and households, in cash or in kind, when they meet the conditions entitling them to such benefits.”

2.42 Social risks

16. Social risks include events that entitle a person to certain benefits even though there may be no worsening in their financial situation, e.g. pensions are payable in the UK even if a person continues in employment earning a very high income.

17. Therefore, we would prefer a definition that refers to entitlement to benefits rather than making assumptions about an individual’s financial circumstances, e.g. “Events or circumstances that make an individual or household entitled to social benefits”

2.49 Social assistance

18. Similarly, social assistance should be defined in terms of entitlement to benefit rather than because of an individual need, e.g. “The provision of social benefits to all persons who are entitled without any formal requirement to participate as evidenced by the payment of contributions”.

Specific matters for comment 2 (following Para 3.4)

(a) Based on your review of Chapters 4 to 6, which approach or approaches do you support?

(i) The obligating event approach;

(ii) The social contract approach;

(iii) The insurance approach

Please provide reasons for your views, including the conceptual merits and weaknesses of each option; the extent to which each option addresses the objectives of financial reporting; and how the different options might provide useful information about the different types of social benefit.

14 Headings are numbered as in the Consultative Paper
(b) Are you aware of any additional approaches to accounting for social benefits that the IPSASB should consider in developing an IPSAS? If yes, please describe such approach(es) and explain the strengths and weaknesses of each.

(a) Supported approach

19. In indicating the approach supported we see four possible combinations of social assistance, social insurance, pension and non-pension benefits as illustrated in Figure 3 below. We further consider that the approach should vary between these options.

<table>
<thead>
<tr>
<th>1. Social Insurance</th>
<th>A. Pensions and other retirement benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Social Assistance</td>
<td>B. Non-pension social benefits</td>
</tr>
</tbody>
</table>

We consider each of the above combinations in relation to the suggested approaches to recognition of social benefits. The numbers follow the numbers in the diagram.

1A. Funded pension and other retirement benefits (social insurance)

21. Provided the concept of a funded scheme is defined as above, then the treatment should be based on that described in IPSAS 25 for funded employee pension schemes. We can see no reason for a different treatment.

1B. Social insurance non-pension benefits

22. Provided, as above, the funding is clearly defined as above, we concur with insurance approach as recommended in the Consultation Paper

2A. Social assistance (unfunded) pensions and other retirement benefits

23. We consider the obligating event the most appropriate approach

2B. Social assistance - non-retirement benefits

24. Similarly, to 2A, we consider the obligating event approach the most appropriate.

25. We concur that Option 2 Social Contract is not appropriate for identifying the liabilities under an IPSAS on Social Benefits. However, as under that heading discussed, we consider the social contract approach is a useful model to provide supplementary information on inter-generational assets and liabilities.
Specific matters for comment 3

Having reviewed the three options in Chapters 4 to 6, are you aware of any social benefits transactions that have not been discussed in the CP, and which could not be addressed by one or more of the options set out in the CP?

If so, please provide details of the social benefit transactions you have identified and explain why the options set out in the CP do not adequately cover these transactions.

26. We are not aware of any social benefit transactions not discussed in the CP

Specific matters for comment 4

In your view, at what point should a future IPSAS specify that an obligating event arises under the obligating event approach? Is this when:

(a) Key participatory events have occurred;
(b) Threshold eligibility criteria have been satisfied;
(c) The eligibility criteria to receive the next benefit have been satisfied;
(d) A claim has been approved;
(e) A claim is enforceable; or
(f) At some other point.

In coming to this conclusion, please explain what you consider to be the relative strengths and weaknesses of each view.

If, in your view, a future IPSAS should consider that an obligating event can arise at different points depending on the nature of the social benefit or the legal framework under which the benefit arises, please provide details.

Please explain the reasons for your views.

Option 1: Obligating event approach

27. The fundamental problem is deciding when the obligation meets condition 3 of the Conceptual Framework para 24: “The entity has little or no realistic alternative to avoid settling the obligation arising from those responsibilities.”

a. It could be argued that this stage is never reached for non-contractual social benefit obligations. A recent example that demonstrates this point is Greece, where social benefit payments (including pensions) have been reduced even after beneficiaries have commenced receiving the benefits. In the UK the criteria for disability benefits have been changed so as to exclude some persons who were previously receiving this benefit.

b. These examples illustrate the point that as a general principle of constitutional law no government can bind its successor. Hence any social benefit obligation can be changed by decision of the government in power.

c. Thus it is possible to argue that there should be no recognition of social benefits as a liability since there is only a political obligation to provide the benefit.

28. On the other hand, it may be argued that in reality no government is ever likely to completely renege on an obligation by a previous government to provide social benefits. At most such obligations may be amended or reduced, but never eliminated.
29. Therefore, the argument of substance over form is that there should be some recognition of the liability in advance of actual payment. The question posed by the Consultation Paper is how this point is identified and how the liability should be measured.

30. We regard Obligating Event as the conceptually simplest approach. It also provides “de minimis” approach, in that obligating events can be defined so restrictively that the obligation is undoubtedly a liability.

**Specific matters for comment 4 (after Para 4.69)**

31. We respond to the four sub-questions as follows:
   a. We consider the obligating event approach appropriate for social assistance (i.e. unfunded) social benefits, both retirement and other.
   b. In such cases we would use a narrow definition of the threshold obligating event, i.e. claim become enforceable. Also this would be year by year basis, i.e. the liability recognised would only be for the current financial year.
   c. We would not allow any variation on this requirement.
   d. It is our view that supplementary information should be provided in financial reports using the social contract approach to indicate the inter-generational liabilities being created by the commitments. This is further explained below under Option 2: social Contract.

**Specific matters for comment 5**

In your view, does an obligating event occur earlier for contributory schemes than non-contributory schemes under the obligating event approach?

Please explain the reasons for your views.

32. We have indicated in our response to question 2(a) above that we support a different treatment for funded schemes. This would only apply where the contributions are used to acquire fund assets as defined above.

**Specific matters for comment 6**

In your view, should a social benefit provided through an exchange transaction be accounted for:

(a) In accordance with a future IPSAS on social benefits; or
(b) In accordance with other IPSASs?

Please provide any examples you may have of social benefits arising from exchange transactions. Please explain the reasons for your views.

33. As indicated in our response to question 2(b) above, social benefits provided through an exchange transaction, e.g. social insurance, should be accounted through a future IPSAS on social benefits. It is our view that these fall within the definition provided in our response to question 2(b) above.

**Specific matters for comment 7**

In your view, under the obligating event approach, when should scheme assets be included in the presentation of a social benefit scheme:

(a) In all cases;
(b) For contributory schemes;
(c) Never; or

(d) Another approach (please specify)?

Please explain the reasons for your views.

34. Since under our recommended approach the obligating event approach is only applied where there are no clearly identifiable scheme assets, the answer is (c) - never.

**Specific Matter for Comment 8**

In your view, under the social contract approach, should a public sector entity:

(a) Recognize an obligation in respect of social benefits at the point at which:
(i) A claim becomes enforceable; or
(ii) A claim is approved?

(b) Measure this liability at the cost of fulfilment?

Please explain the reasons for your views.

**Option 2: Social contract approach**

35. It is our view that the CP makes the concept of social contract overly complicated by equating social contract with executory contract. In our view, the concept of social contract is a concept of social philosophy and does not need to be linked to executory contracts.

36. The political philosophy approach to the social contract dates back to Socrates and Plato. In essence the concept of the social contract refers to the mutual transferring of rights. This is a definition of social assistance – a transferring of the rights to income from one group of citizens to another group of citizens.

37. A commitment by a government to certain types of social assistance takes this one stage further and transfers rights from future generations of citizens to current generations of citizens when the latter meet certain entitlement conditions, e.g. age, disability.

38. Thus the social contract approach provides a model for recognising the inter-generational impact of commitments to unfunded social benefits.
39. Because of the uncertainties attached to such inter-generational liabilities, we do not consider that they should be shown as liabilities within the Statement of Financial Position. However, we do consider that the model could be used to provide supplementary information within the financial reports on the intergenerational impact of today’s commitments to pay unfunded social benefits as well as constructive liabilities arising from part funded schemes.

Supplementary statement of inter-generational impact

40. We consider the concept of a supplementary statement of inter-generational impacts could be used to summarise and report a range of decisions taken today which impact on future generations where these are not reported as actual liabilities in the statement of financial position. Such a supplementary statement could also include other potential inter-generational commitments, e.g. long term subsidies of specific industries.

41. A future consultative paper may be required on including in the financial reports such a statement of inter-generational impacts. Issues to be considered are what would be included in the paper, the extent to which revenue flows should be taken into account (or perhaps the required revenue flows be defined), the use of actuarial data, discount rates, handling of uncertainty, the number of years into the future, and so on.

Specific matters for comment 8 (after Para 5.38)

In your view, under the social contract approach, should a public sector entity:

(a) Recognize an obligation in respect of social benefits at the point at which:
(i) A claim becomes enforceable; or
(ii) A claim is approved?

(b) Measure this liability at the cost of fulfilment?

Please explain the reasons for your views.

42. As indicated, we do not consider the social contract approach appropriate for the inclusion of liabilities in the statement of financial position.

43. However, we do consider that the social contract approach provides a model for providing supplementary information on the inter-generational impact of today’s social benefit commitments. It is our view that all governments that have significant unfunded social insurance commitments should be required to provide a supplementary report as part of their financial reports identifying the inter-generational liability.

Option 3: Insurance approach

Specific matters for comment 9 (after Para 6.24)

Do you agree with the IPSASB’s conclusions about the applicability of the insurance approach? Please explain the reasons for your views.

44. The insurance approach is supported as an appropriate approach for funded social insurance other than pensions and other retirement benefits (see above). This provides a conceptually valid approach for both recognising and measuring the liability.

45. Since this is only applicable to funded schemes, the amount of liability to be recognised would be net of fund assets.

Specific matters for comment 10 (after Para 6.35)

Under the insurance approach, do you agree that where a social security scheme is designed to be fully funded from contributions:

(a) Any expected surplus should be recognized over the coverage period of the scheme; and
(b) Any expected deficit should be recognized as an expense on initial recognition?

Please explain the reasons for your views.

46. We disagree. We can see no reason for treating surpluses and deficits differently. Therefore, the approach in (b) should be applied to a surplus or a deficit.

Specific matters for comment 11 (after Para 6.37)

In your view, under the insurance approach, what is the appropriate accounting treatment for the expected deficit of a social security scheme that is not designed to be fully funded from contributions:

(a) Recognize the deficit as an expense on initial recognition;
(b) Recognize the deficit as an expense over the coverage period of the scheme;
(c) Offset the planned subsidy and the liability only where this is to be received as a transfer from another public sector entity;
(d) Offset the planned subsidy and the liability irrespective of whether this is to be received as a transfer from another public sector entity or as an earmarked portion of general taxation; or
(e) Another approach?
Please explain the reasons for your views.

47. As indicated above we would only apply the insurance approach to social benefits that are mainly funded as defined above. In this case in our view any deficit should be expensed on initial recognition.

Specific matters for comment 12 (after Para 6.43)

In your view, under the insurance approach, should an entity use the cost of fulfilment measurement basis or the assumption price measurement basis for measuring liabilities? Please explain the reasons for your views.

48. We find the terminology in the section of CP less than clear, in that different terms are used for what is essentially the same concept, e.g. assumption price, prudentially adjusted liability, cost of fulfilment.

49. In our view the appropriate basis is the risk-adjusted cost of fulfilment, referred to as the assumption price.

Specific matters for comment 13 (after Para 6.63)

Do you agree that, in those cases where the link between contributions and benefits is not straightforward, the criteria for determining whether the insurance approach is appropriate are:

- The substance of the scheme is that of a social insurance scheme; and
- There is a clear link between the benefits paid by a social security scheme and the revenue that finances the scheme. If you disagree, please specify the criteria that you consider should be used. Please explain the reasons for your views.

50. As indicated above, we would propose a narrow definition of a funded (social insurance) scheme. All other schemes would be treated as social assistance.

Specific matters for comment 14 (after Para 6.72)

Do you support the proposal that, under the insurance approach, the discount rate used to reflect the time value of money should be determined in the same way as for IPSAS 25? Please explain the reasons for your views.

51. Yes - this is consistent with approaches discussed above

Specific matters for comment 15 (after Para 6.76)

Under the insurance approach, do you support the proposals for subsequent measurement set out in paragraphs 6.73–6.76? Please explain the reasons for your views.

52. Yes – this is consistent with all our other responses as indicated above.
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