UNVEILING THE TRAJECTORY: HOW THE 18TH CONSTITUTIONAL AMENDMENT RESHAPED FUNCTIONAL SPENDING MULTIPLIERS IN PAKISTAN

Iffat Ara and Muhammad Sabir

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ABSTRACT

Following the enactment of the 18th Constitutional Amendment in 2010 and the subsequent transfer of a significant share of revenues to the provinces under the 7th NFC Award, it is important to assess the effects of the amendment. This involves analyzing the impact of government spending patterns on economic growth. This study addresses this by estimating government spending multipliers for both federal and provincial expenditures. Using the Structural Vector Autoregressive (SVAR) model, it generates impulse response functions (IRFs) to calculate expenditure multipliers across various categories of public spending. The analysis is based on quarterly data spanning the period from 2001-02:Q1 to 2023-24:Q4. The findings will provide essential insights to guide evidence-based fiscal policy decisions in Pakistan's evolving federal landscape.

PREFACE

Following decentralization in many developing countries over the last three decades, a debate has emerged about the relationship between devolution of resources and economic growth. Empirical research determining this link has produced from a clearly positive to a clearly negative relationship, with some studies even concluding that there is no relationship at all. The positive relationship is based on the reason that devolution of spending to sub-national governments level is likely to deliver greater efficiency in the delivery of public goods and services and consequently stimulate economic activities at devolved units.

In Pakistan, a major reform pertaining to decentralization happened in 2010, when seventeen ministries, particularly related to social services, were devolved from the federal to the provincial governments, through the passing of the 18th Constitutional Amendment. Alongside, the 7th NFC Award, provided greater resources to provinces by increasing their share in vertical distribution from 49 percent to 57.5 percent. Hence, this led to the devolution of government spending along with a sizeable share of revenues to the provinces.

Government spending is one of the major determinants of economic growth of a country. After more than a decade, it seems pertinent to analyze whether this transformation in spending from the federal government to the provincial governments has any impact on economic growth. This requires measuring the government spending multipliers in the pre and post reform period. Further, a comprehensive and elaborate evaluation of the 18th Amendment and 7th NFC Award on economic growth demands estimating multipliers, particularly, across different categories of spending.

In Pakistan, negligible research is available on this subject. Though, studies have looked at the fiscal implications of these reforms, there is a scarcity of empirical research explaining the broader impact of transformation in government spending resulted thorough these reforms on economic growth.

This study aims to fill this vacuum by estimating the multipliers, across different categories of spending in the pre and post periods of the 18th Amendment and 7th NFC Award. This analysis allows assessing the long-term success of these reforms and guiding future policy decisions.

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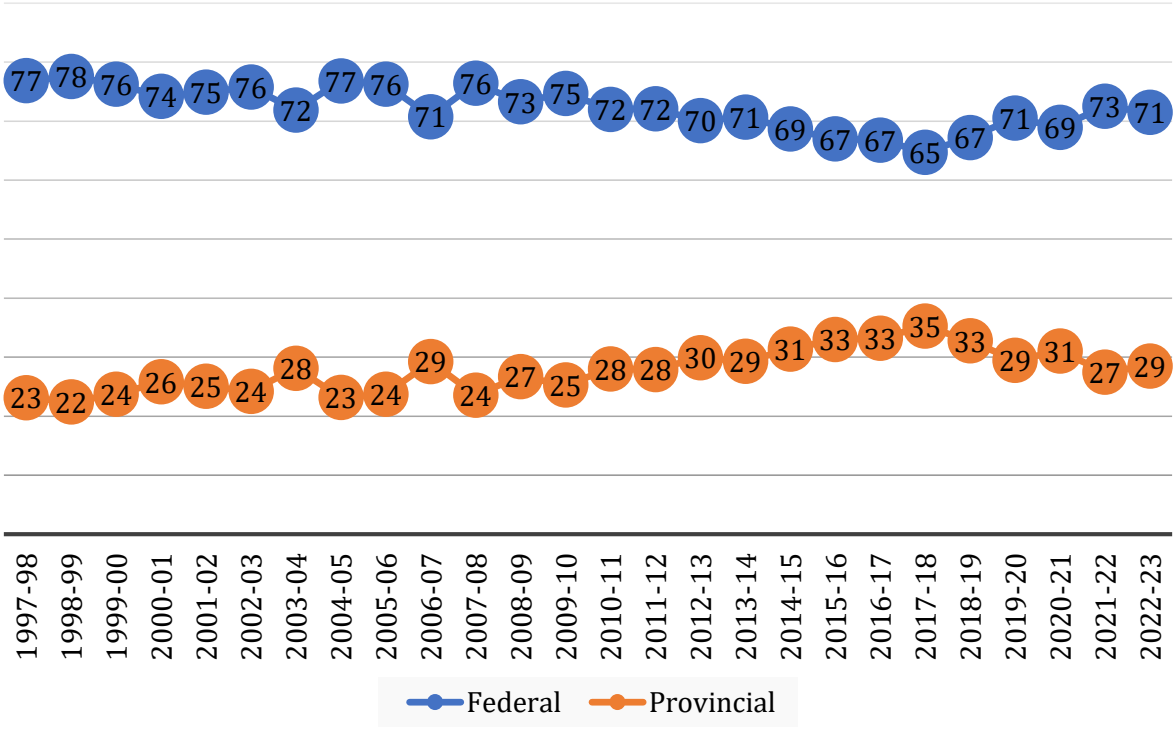
INTRODUCTION

Significant reforms occurred in 2010, when under the 18th Constitutional Amendment seventeen ministries/divisions were stipulated to be dissolved at the federal level and devolved to the provinces. Accordingly, the 7th NFC Award also transferred a sizeable share of revenues to the provinces. These reforms were likely to transform the role of provinces from just passive service providers to active drivers of national development.

Prior to the 18th Constitutional Amendment, provincial governments were already financing and delivering key social services like education, health, and public safety. However, their existing role significantly expanded after the reforms, which aligns with the expanded functional responsibilities devolved to them. This is evidenced by the rising share of these services in total current expenditures of provinces. While averaging at 25 percent between 1997-98 and 2009-10, the share climbed steadily to 35 percent in 2017-18 (Figure 1). Further, the development spending surged even more dramatically, reaching a peak of 50 percent in 2016-17 compared to a pre-reform share of just 16 percent to 20 percent (SPDC, 2018). A subsequent dip in the share of provincial expenditures after 2017-18 potentially reflecting factors like federal debt-servicing obligations or partial re-assumption of devolved functions.

Figure 1: Distribution of Current Expenditures (% of Total Expenditures)



Source: GOP. (Various Issues). Pakistan Economic Survey.

After the passage of more than twelve years, a pivotal question arises that whether these reforms actually happened to accomplish this transformation. While studies have explored the fiscal implications of these reforms, a critical gap persists in realizing their broader economic impact on Pakistan's growth trajectory. To understand this, a comprehensive evaluation of the effects of 18th

Constitutional Amendment and 7th NFC Award on economic growth as well as examining the dynamics behind these shifting spending patterns is crucial. This entails investigating the impact of government spending on account of increased NFC induce fiscal flows, on economic growth. Hence, the estimation of government spending multipliers, which allows measuring the short-term impact of spending on economic growth and helps assessing the long-term success of these reforms and guiding future policy decisions.

Earlier empirical research examined the impact of fiscal components on the long-run growth by linking the government spending or revenues with economic growth rates (Feder, 1983; Landau, 1983; Ram, 1986; Grier & Tullock, 1989; Romer, 1990; Barro, 1990 and 1991). Zagler & Dürnecker (2003) is well researched survey in this regard. Later it was realized to study the effect of government spending on economic growth in the short-run in order to capture the trend of the impact of discretionary fiscal policies on output growth. This led the estimation of fiscal multipliers that measure the short-term impact of discretionary fiscal policy on output.

A review of existing literature reveals a scarcity of empirical research evaluating the impact of spending by the federal and the provincial governments on Pakistan's economic growth. This study aims to fill this gap by estimating the spending multipliers for the consolidated federal and provincial governments. In addition to total consolidated spending, the study also takes government spending by its functional categories or PIFRA classification.[1] Analyzing the impact of spending on economic growth by functional categories is essential not only for understanding the true transmission mechanisms of fiscal policy, but also for identifying the effectiveness of reforms. Empirical research suggests that the effect on economic growth vary when different expenditure categories are considered (Gemmell, 2004; Devarajan et al., 1996; Kneller et al., 1999; Ormaechea & Morozumi, 2013; Afonso & Jalles, 2014). Examining component-specific impacts assists in informing evidence-based effective stabilization and fiscal consolidation policy decisions in Pakistan's evolving federal landscape.

Structural Vector Autoregressive (SVAR) models are commonly used to estimate government spending multipliers (Perotti, 1999; Blanchard & Perotti, 2002; Dime et al., 2021;). This study also utilizes the SVAR model and generate impulse response functions (IRFs) to estimate expenditure multipliers for different categories of public spending. It uses quarterly data covering the period 2001-02:Q1 to 2023-24:Q4. In order to assess the impact of 18th Constitutional Amendment, government expenditure multipliers are estimated separately for pre-era (2001-02:Q1 to 2009-10:Q4) and post-era (2010-11:Q1 to 2023-24:Q4).

This study is a pioneering effort in Pakistan, venturing beyond aggregate multipliers to explore the nuanced dynamics of various spending component. It proposes to illuminate the specific drivers of economic growth and provides invaluable insights for evidence-based fiscal policy decisions.

The structure of the reports is as follows. Section 2 presents review of literature; section 3 lays out research methodology; section 4 describes data collection and transformation; section 5 explains

[1] In 1996, the Government of Pakistan, with support from the World Bank, launched the Project to Improve Financial Reporting and Auditing (PIFRA) to align with international accounting standards.

performance of variables in the analysis; section 6 furnishes the results and their explanation; section 7 gives conclusion; and section 8 illustrates recommendation and policy implications.

LITERATURE REVIEW

While a vast body of research has explored the link between fiscal policy and economic growth, a crucial gap remains in understanding the differentiated impacts of individual functional components of government spending on growth, particularly in contexts like Pakistan's evolving fiscal federalism.

Earlier empirical research examined the impact of fiscal components on the long-run growth by linking the government spending or revenues with economic growth rates. Generally, they estimated the traditional growth equation by determining economic growth rate as function of government spending along with other relevant variables, largely by using cross-section data (Feder, 1983; Landau, 1983; Ram, 1986; Grier & Tullock, 1989; Romer, 1990; Barro, 1990 and 1991). Zagler & Dürnecker (2003) is well researched survey in this regard.

Examining the impact of government spending by functional classification was not usually used by the earlier research. Empirical research summarized by Gemmell (2004) describes importance of distinguishing between productive and non-productive government expenditures. It suggests that the effect on economic growth vary when different expenditure categories are considered.

In this regard, an initial work was carried out by Devarajan et al. (1996) that developed a model by combining empirical observations and theoretical framework. They derived the conditions under which the change in the composition of government expenditures (current and capital) led to a higher steady-state growth rate of the economy. They then examined which component of the government expenditure was productive. For this, they estimated a pooled regression of 43 developing countries by considering GDP per capita as a function of total expenditures-GDP-ratio, black market of foreign exchange, share of government expenditure by economic classification in total expenditures, and a shock term (a weighted average of world interest rate, export and import prices). The findings indicate that increase in the share of current expenditure affects positively while and that in the capital expenditures negatively affects economic growth. They explained that productive expenditures when used in excess could become unproductive. These imply that in developing countries government had been misallocating public expenditures, i.e. favoring capital expenditures at the expense of current expenditures.

Kneller et al. (1999) group functional components of government expenditures into two groups. Expenditures with substantial (physical or human) capital component as productive, such as, General Public Services, Defense, Education, Health, Housing, and Transport & Communication. Expenditures without a capital component as non-productive, such as Social security and Welfare, Recreation, and Economic Services. Estimation of an endogenous growth model for a panel of 22 OECD countries shows that productive expenditures boost growth, whereas non- productive expenditures do not.

Ormaechea & Morozumi (2013) studied the effects of public expenditure on long-run growth by estimating a panel of 56 countries (14 low-, 16 medium- and 26 high-income countries using dynamic panel generalized method of moments (GMM) approach. The results suggest that a reallocation involving a rise in education spending has a positive and statistically robust effect on growth, when this is associated with an offsetting reduction in social protection spending.

Afonso &Jalles (2014) examined which component of government spending has a stronger influence on per capita GDP growth rates. They estimated a standard growth model, where GDP per capita to

depend upon population growth, investment, education, trade openness and government expenditures, using a large panel of developed and developing countries. The findings indicate that government spending on public wages, interest payments, subsidies and government consumption have a negative effect on output growth; on social security and welfare are less growth enhancing and on education and health growth enhancing.

Later it was realized to study the effect of government spending on economic growth in the short-run in order to capture the trend of the impact of discretionary fiscal policies on output growth. This led the estimation of fiscal multipliers that measure the short-term impact of discretionary fiscal policy on output. In general, the studies that have estimated the government spending multipliers utilized either Vector Auto Regressive (VAR)/ Structural VAR or a two-stage estimation method.

Perotti (1999) analysed the effects deficit cuts implemented by 19 OECD countries that were facing large government debt by employing a flexible two-stage strategy. allows to exploit variation in economic conditions across space and time to gauge their impact on fiscal policy transmission. The first stage estimates a fiscal policy rule that defines the statistical process of government spending and provides estimates of spending shocks. The second stage uses contemporaneous and lagged values of the estimated policy shocks to trace the dynamic effects of government spending on several macroeconomic variables of interest by estimating impulse response function. The findings indicate that in many cases private consumption boomed rather than contracted.

The seminal work on estimating fiscal multipliers using VAR was carried out by Blanchard & Perotti (2002). They characterize the dynamic effects of shocks in government spending and taxes on economic activity in the United States. They described residuals obtained from the reduced form the system of equations, estimated using VAR, capturing the automatic effects of unexpected movements in activity on fiscal variables, and hence act as fiscal policy shocks. Once these shocks are identified, their dynamic effects on GDP can be traced using impulse response functions. Their results show that positive government spending shocks affect output positively, and positive tax shocks affect negative. The multipliers for both spending and tax shocks are typically small. They also examined the effects of taxes and spending on the components of GDP. The findings indicate that both increases in taxes and increases in government spending have a strong negative effect on investment spending.

Corsetti et al. (2012) employed a two-stage estimation method on a panel of OECD countries to compute government spending multiplier. They analyzed that the effects of government spending vary with the economic environment, such as exchange rate regime, public indebtedness, and health of the financial system. The fiscal shocks were identified as residuals from an estimated spending rule and their macroeconomic impact were traced under different economic environments. The results of the estimated spending rules show that government spending exhibits no clear cyclical pattern, but responds negatively to weak public finances, thus contributing to debt stabilization. The unconditional responses to a positive spending shock indicate increase in output, almost no response of consumption, and some crowding-out of investment and net exports. However, conditional responses differ systematically across exchange rate regimes, as real appreciation and external deficits occur mainly under currency pegs. They also find output and consumption multipliers to be unusually high during times of financial crisis.

Dime et al. (2021) estimated the effects of fiscal policy measures by computing fiscal multipliers using quarterly data for a panel of nine developing Asian economies. They employed a vector autoregression model specification but used local projections to extract the impulse responses. They analyzed several scenarios ranging from the baseline (that does not consider any possible regime shifts) to alternatives that allow for regime shifts in trade openness, debt fragility, economic cycle, monetary policy stance, and exchange rate system. The findings suggest that economies that are more open to trade, have a higher level of debt, or adopt a more flexible exchange rate have smaller or statistically insignificant spending multipliers compared with those that are less open to trade, have a lower debt level, or adopt a less flexible exchange rate.

Konstantinou et al. (2022) also used a two-stage estimation methodology on a panel of 33 OECD countries estimated government spending multipliers for eleven different functional categories of spending. They also looked at variations in the state of the business cycle (recession vs expansion). The results indicated heterogeneity among the functions of government spending. That the expenditure categories producing positive and high multipliers include public services, defense, public order, transport & communication, health, recreation and education. And that producing negative multipliers is economic services whereas for environmental protection, housing and social protection are multipliers are insignificant. Further, multipliers for Public Services, Defense, Public Order, Transport & Communication, Health, Recreation and Education are higher in recession than in expansion.

METHODOLOGY

The study will employ Structural Vector Autoregressive (SVAR) model and draw impulse response functions (IRFs) to estimate the expenditure multipliers for various categories of public expenditure.

3.1. Model Specification

SVAR including government expenditure (E) and GDP (G) is

$$E_t = c_1 + a_{11}E_{t-1} + a_{12}E_{t-2} + b_{10}G_t + b_{11}G_{t-1} + b_{12}G_{t-2} + v_{Et}$$

$$G_t = c_2 + a_{20}E_t + a_{21}E_{t-1} + a_{22}E_{t-2} + b_{21}G_{t-1} + b_{22}G_{t-2} + v_{Gt}$$

The model can also be written as,

$$E_t - b_{10}G_t = c_1 + a_{11}E_{t-1} + b_{11}G_{t-1} + a_{12}E_{t-2} + b_{12}G_{t-2} + v_{Et}$$

$$a_{20}E_t - G_t = c_2 + a_{21}E_{t-1} + b_{21}G_{t-1} + a_{22}E_{t-2} + b_{22}G_{t-2} + v_{Gt}$$

The model in matrix form can be illustrated as,

$$\begin{bmatrix} 1 & -b_{10} \\ -a_{20} & 1 \end{bmatrix} \begin{bmatrix} E_t \\ G_t \end{bmatrix} = \begin{bmatrix} c_1 \\ c_2 \end{bmatrix} + \begin{bmatrix} a_{11} & b_{11} \\ a_{21} & b_{21} \end{bmatrix} \begin{bmatrix} E_{t-1} \\ G_{t-1} \end{bmatrix} + \begin{bmatrix} a_{12} & b_{12} \\ a_{22} & b_{22} \end{bmatrix} \begin{bmatrix} E_{t-2} \\ G_{t-2} \end{bmatrix} + \begin{bmatrix} v_{Et} \\ v_{Gt} \end{bmatrix}$$

To identify structural shocks, the model up to p lags can be written as,

$$A_0 \begin{bmatrix} E_t \\ G_t \end{bmatrix} = C + A_1 \begin{bmatrix} E_{t-1} \\ G_{t-1} \end{bmatrix} + A_2 \begin{bmatrix} E_{t-2} \\ G_{t-2} \end{bmatrix} + \begin{matrix} \cdots\cdots\cdots \\ \cdots\cdots\cdots \end{matrix} + A_p \begin{bmatrix} E_{t-p} \\ G_{t-p} \end{bmatrix} + \begin{bmatrix} v_{Et} \\ v_{Gt} \end{bmatrix}$$

OR

$$\begin{bmatrix} E_t \\ G_t \end{bmatrix} = A_0^{-1}C + A_0^{-1}A_1 \begin{bmatrix} E_{t-1} \\ G_{t-1} \end{bmatrix} + A_0^{-1}A_2 \begin{bmatrix} E_{t-2} \\ G_{t-2} \end{bmatrix} + \begin{matrix} \cdots\cdots \\ \cdots\cdots \end{matrix} + A_0^{-1}A_p \begin{bmatrix} E_{t-p} \\ G_{t-p} \end{bmatrix} + A_0^{-1} \begin{bmatrix} v_{Et} \\ v_{Gt} \end{bmatrix}$$

The study uses the Cholesky identification scheme to identify exogenous government expenditure shocks. This requires ordering the variables in the VAR model from the most exogenous to the least exogenous. Specifically, government spending is placed first and GDP second

Let, $A_0^{-1} = \begin{bmatrix} \alpha_{11} & \alpha_{12} \\ \alpha_{21} & \alpha_{22} \end{bmatrix}$

Cholesky identification strategy

$$\begin{bmatrix} E_t \\ G_t \end{bmatrix} = \begin{bmatrix} \alpha_{11} & 0 \\ \alpha_{21} & \alpha_{22} \end{bmatrix} \begin{bmatrix} v_{Et} \\ v_{Gt} \end{bmatrix}$$

This restriction implies,
When there is change in E, there is contemporaneous effect on E $\Rightarrow \alpha_{11} > 0$
When there is change in G, there is no contemporaneous effect on E $\Rightarrow \alpha_{12} = 0$
When there is change in E, there is contemporaneous effect on G $\Rightarrow \alpha_{21} > 0$
When there is change in G, there is contemporaneous effect on G $\Rightarrow \alpha_{22} > 0$

3.2. Impulse Response Function

$$\begin{bmatrix} E_t \\ G_t \end{bmatrix} = \sum_{i=0}^{\infty} \delta_i \begin{bmatrix} v_{E,t-i} \\ v_{G,t-i} \end{bmatrix}, \qquad \delta_i = A_0^{-1} B_i$$

Where, B_i are coefficients from the reduced form VAR

Expenditure Multiplier (EM) is

$$EM_h = \frac{\sum_{i=1}^{h} \delta_{i,G}}{\sum_{i=1}^{h} \delta_{i,E}}$$

where $\delta_{i,G}$ and $\delta_{i,E}$ are elements of δ_i corresponding to E and G.

The study uses quarterly data and expresses multipliers as a ratio of cumulative GDP response for four quarters to cumulative expenditure shock for four quarters.

Blanchard & Perotti (2002) paper expressed the multiplier as the ratio of the peak output response to the initial government spending shock. Many subsequent studies have adopted either this definition or considered the average output response to the initial government shock (Ramey & Zubairy, 2018). Instead, multipliers should be calculated as the ratio of the integral of the output response to the integral of the government spending response [Mountford and Uhlig (2009), Uhlig (2010) and Fisher and Peters (2010)]. Integral multipliers are more relevant for policy analysis as they quantify the cumulative GDP gain relative to the cumulative government spending over a specified period.

DATA COLLECTION AND TRANSFORMATION

To estimate the government expenditure or spending multipliers, quarterly data on government spending and macroeconomic indicators spanning from 2001-02:Q1 to 2023-24:Q4 were assembled. This section discusses the collection of data, illustrates the transformation of different variables used in the analysis and assesses the performance of these variables over the period of study.

4.1. Data Collection

While quarterly data offer a more granular perspective on economic dynamics, challenges related to data availability and consistency across variables and regions necessitated rigorous data collection and processing. The subsequent section elaborates on the specific methodologies employed for data collection and construction for each variable.

4.2. Key Macroeconomic Indicators

The national-level dataset encompassed core macroeconomic indicators including real GDP, GDP deflator, general government deflator, consumer price index (CPI), State Bank's discount/policy rate and exchange rate. However, significant data limitations were encountered for these variables. For real GDP, GDP deflator, and general government deflator, a substantial gap existed spanning from 2001-02: Q1 to 2014-15: Q4. Furthermore, the CPI series exhibited inconsistencies due to multiple base years (2000-01, 2007-08, and 2015-16), necessitating data harmonization.

To address the identified data gaps, a tailored approach was implemented for each variable. Initially, the Denton method was considered for converting annual data to quarterly frequencies. However, for real GDP, a more robust solution was found in the research of Tahir et al. (2018). They generated quarterly GDP estimates for Pakistan for the period 1978:Q1 to 2015-16:Q4 with base year 2008. They utilized annual real GDP and quarterly index based on variables, such as, CPI, industrial production, imports, exports, and money supply (M2). To align these estimates with the official real GDP series, which employed a different base year (2015-16), a reconciliation process was undertaken. This involved applying quarterly shares from Tahir et al. (2018) to the official annual GDP data with base 2015-16, resulting in a consistent quarterly GDP series for the period 2001-02: Q1 to 2014-15: Q4. The quarterly GDP for the period 2015-16:Q1 to 2023-24:Q4 was obtained from Pakistan Bureau of Statistics (PBS), Government of Pakistan.

Quarterly data on CPI, and annual data on GDP deflator and general government deflator were obtained from various issues of Pakistan Economic Survey. The quarterly CPI series with different base years were rebased to the 2015-16 base year to ensure consistency. This harmonized CPI series was subsequently employed to convert the available annual data on GDP deflator and general government deflator into quarterly estimates spanning from 2001-02:Q1 to 2023-24:Q4. General government deflator is constructed by using nominal and real values of expenditures on public administration and social security.

4.3. Consolidated Expenditures

Data on quarterly series of consolidated (federal and provinces combined) public expenditures were obtained from Fiscal Operations, Ministry of Finance, Government of Pakistan. The categories of expenditures include current expenditures, development expenditures, domestic debt servicing and

external debt servicing. These data are obtained from various issues of *Fiscal Operations, Ministry of Finance, Government of Pakistan*.

While federal expenditures on domestic debt servicing involve intra-national transfers and that on foreign debt servicing constitutes an outflow with a potential zero multiplier. A netted current expenditure series is constructed by excluding expenditures on debt serving from consolidated current expenditures. This netted current expenditure series is used to estimate multiplier.

According to PIFRA classification, these are ten expenditure categories as shown in Table 1. Data on these categories are available only for federal expenditures in Fiscal Operations. In order to overcome this, these data were sourced from *Poverty Reduction Strategy Paper (PRSP) documents* that provides quarterly data by different expenditure categories (Table 1), mostly related to public service, for both federal and provincial governments.

General Public Service is biggest head of expenditures that encompass expenditures largely related to debt servicing. Since, the study is not considering the expenditures on debt servicing hence, this category is not incorporated in the analysis. Expenditures on defence services are also excluded as these are not linked with 18th Constitutional Amendment (responsibilities were not transferred to provinces). Expenditures categories, environment protection, housing and community amenities, and recreation, culture and religion are not included because they have a small share in total expenditures. Finally, expenditures on social protection mainly contain BISP expenditures, which are in the federal domain and shared by the provincial governments. Though provincial government do have some expenditures on social protection but their magnitude is little in their expenditures.

For the remaining categories, the corresponding expenditure categories were drawn from PRSP documents. For economic affairs, corresponding expenditure categories in PRSP include irrigation and agriculture; subsidies (fuel/energy); road, highways, bridges. for public order and safety affairs is law and order; health affairs & serv ices is health; and education affairs and serv ices is health.

Table 1: Expenditures Categories as Per Fiscal Operations and PRSP Documents

Categories in Fiscal Operations	**Categories in PRSP**	**Status**
General Public Serv ice	-	X
Defence Affairs and Serv ices	-	X
Public Order and Safety Affairs	Law and Order	✓
Economic Affairs	Irrigation; agriculture; subsidies; road, highways, bridges	✓
Environment Protection	Environment/Water Supply & Sanitation	X
Housing & Community Amenities	-	X
Health Affairs & Serv ices	Health	✓
Recreation, Culture and Religion	-	X
Education Affairs and Serv ices	Education	✓
Social Protection	Social Security & Welfare	X
-	Natural Calamities & Other Disasters	X
-	Rural Development	X
-	Justice and Administration	X

There were some inconsistencies in the PRSP data. For example, only annual series of PRSP expenditures are available for the period 2017-18 to 2022-23. In order to get quarterly series for this period, average annual shares for each quarter were computed for the period 2012-13:Q1 to 2016-17:Q4, and were applied to annual series.

4.4. Transformation of variables

Pre-2016, studies use variables in logs (GDP and spending) and transform the estimated elasticities into impulse responses ex post, using the sample average of govt. spending to GDP ratio. Post-2016, researches explored that this approach might be problematic as there may be variations in the sample averages and ex post conversion creates bias in the estimated multiplier (Ramey & Zubairy, 2018). According to these researches, Gordon and Krenn (2010) transformation helps resolving this problem. It suggests estimating 'potential output' and then use it to normalize all the variables. This makes all variables in the same units, which means that there is no need for an ex-post transformation. This study employs this transformation and compute potential GDP following (Ramey & Zubairy, 2018), (Konstantinou et al., 2022) and Ben Zeev et al., (2023).

PERFORMANCE OF VARIABLES: 2001-02 TO 2023-24

Before estimating disaggregated multipliers for government spending, expenditure categories were meticulously investigated. This section presents the performance of the variable by evaluating them in the pre-era and post-era of 18th Constitutional Amendment. Given the period of study, 2001-02 to 2009-10 is considered as pre-era and 2010-11 to 2023-24 as post-era.

5.1. Macroeconomic Variables

The magnitude of fiscal multipliers may vary based on a country's specific structural characteristics and prevailing economic conditions as shown in Table 2. Among structural factors, the level of development is particularly significant, with fiscal multipliers being larger in advanced economies compared to developing countries. Countries like Pakistan, which are low-income economies tend to have lower magnitude of multiplier.

Trade openness is a key factor, as countries with lower trade openness tend to have higher fiscal multipliers. Also, nations with flexible exchange rate regimes exhibit lower multipliers since exchange rate adjustments absorb shocks, offsetting the impact of fiscal measures. Likewise, countries with high debt levels generally experience lower multiplier effects because fiscal stimulus can negatively affect private demand and increase the interest rate risk premium. Similarly, fiscal multipliers are higher when there is greater monetary accommodation, such as when interest rates are low or near zero. The size of fiscal multipliers is also influenced by source of deficit financing. They tend to be larger when external financing is greater than domestic financing [see, Batini et al. (2014); Ilzetzki, Mendoza, and Végh (2013); Christiano, Eichenbaum, and Rebelo (2011); Woodford (2011); Cloyne, Jorda, and Taylor (2020); as reported in Lahouel et al. (2024)].

Table 2: Factors Affecting Multiplier

Determinants	Impact on size fiscal multiplier
Income level	(+)
Trade openness	(-)
Exchange rate flexibility	(-)
Public debt	(-)
Degree of monetary policy accommodation (low rate of interest)	(+)
Source of funding	External financing>domestic financing

Source: Authors' computation based on Lahouel et al. (2024).

Table 3 displays figures of key macroeconomic indicators in the pre- and post-18th constitutional Amendment periods. Trade openness, measured as the trade-to-GDP ratio, has generally hovered around 30 percent over the past two and a half decades. It stood at 29.6 percent in the pre-Amendment period and 28.7 percent in the post-Amendment period. The minimal difference in trade openness indicates that this factor is unlikely to significantly influence variations in the size of the fiscal multiplier between the two periods. Exchange rate has never operated solely on a purely market-based flexible mechanism. It has predominantly functioned as a managed float and has often been artificially fixed. As a result, this factor leads to a larger magnitude of the multiplier. However, there was a massive depreciation of rupee-dollar exchange rate in the latter period. Average annual depreciation in rupee was 4.4 percent in the former period while 9.6 percent in the latter period. This could tend to reduce the size of the multiplier in the post-era.

Pakistan is among the countries with a high level of public debt. On average, the debt-to-GDP ratio increased to 66 percent in the post-amendment period, compared to 51 percent in the pre-amendment period. Since increase in increase in public debt reduces the size of multiplier, this factor could contribute in determining the size of multiplier in the post-amendment period. Interest rate that grew minimally at an average rate of less than one percent per annum in the pre-era, rose enormously at an average rate of nearly 8 percent per annum in the post-era. This could also tend to reduce the size of multiplier in the post-era compared to that in the pre-era. Among other factors, the significant growth occurred in inflation. The CPI inflation was, on average, 8.8 percent per annum in the former period compared to 10.6 percent per annum in the latter period.

Table 3: Average Annual Growth in Key Macroeconomic Indicators (%)

	2001-02 to 2023-24	2001-02 to 2009-10	2010-11 to 2022-23
Average Annual Growth			
Real GDP	3.94	4.67	3.48
Consumer Price Index	9.86	8.78	10.56
SBP Policy/interest rate	5.00	0.60	7.83
Exchange Rate (Rs/$)	7.56	4.38	9.61
As % of GDP			
Trade-to-GDP ratio	29.1	29.6	28.7
Debt-to-GDP ratio	60.0	51.5	65.9

Sources: Pakistan Economic Survey, GOP; Statistical Bulletin, SBP; Online Data catalog, the World Bank.

Immense growth in inflation, interest rates, and exchange rates may have hindered economic growth in the later period by raising production costs. The growth in real GDP remained, on average, at 3.5 percent per annum in the post-era, which is much lower than the growth rate of 4.7 percent in the pre-era. In Pakistan, the commodity-producing sector accounts for 50 percent of the overall GDP. This sector, particularly manufacturing, is heavily reliant on imports. The depreciation of the rupee along with surge in inflation increased production costs. Further, the continual growth in interest rates discouraged private investment. All these factors worked together to place downward pressure on output.

5.2. Consolidated Expenditures

Composition of consolidated expenditures is presented in Table 4. In the pre-era, current expenditures, on average, constituted 81 percent per annum of total expenditures while development expenditures constituted 19 percent. This composition changed in the post-era, where the share of current expenditure increased to 83 percent and that of development expenditure declined to 16.6 percent.

Table 4 also gives the share of expenditures went into debt servicing. In the former period, debt servicing was, on average, 21.6 percent per annum of total expenditures while in the latter period it increased to 25 percent. Within debt servicing, the share of domestic debt servicing soared while that of foreign debt servicing shrank. Table 4, further shows that excluding debt servicing, the share of current expenditures slightly dropped in the post-era.

Major components of combined federal and provincial service related expenditures as a percent of total expenditures are also presented in Table 4. Expenditures on education emerged as a top priority

as its average share per annum remained at over 9 percent in both the periods. This is followed by expenditures on subsidies. Average annual share of all service related expenditures in total expenditures that constituted 28 percent in the pre-era climbed to 39 percent in the post-era. The highest increase occurred in subsidies component (from 4.3 percent to 8.4 percent) followed by health (from 2.8 percent to 4.8 percent) and law and order (from 2.8 percent to 4.7 percent).

Table 4: Composition of Consolidated Expenditures (% Share in Total Expenditures)

Categories	Overall period 2001-02 to 2023-24	Pre-18th Constitutional Amendment 2001-02 to 2009-10	Post-18th Constitutional Amendment 2010-11 to 2022-23
Expenditures by major heads			
Current Expenditure	82.39	80.90	83.36
Servicing of Domestic Debt	20.71	17.95	22.48
Servicing of Foreign Debt	2.97	3.65	2.53
Total Debt Servicing	23.68	21.60	25.01
Current Excl. Debt Servicing	58.72	59.30	58.34
Total Development Expenditure	17.61	19.10	16.64
Expenditures by Components			
Roads, Highways, & Bridges	3.49	2.86	3.89
Education	9.48	9.04	9.76
Health	4.00	2.78	4.78
Irrigation/Agriculture	3.35	3.25	3.42
Law and Order	3.96	2.80	4.71
Subsidies	6.76	4.29	8.36
Other	3.82	3.36	4.12
All service related expenditures	34.86	28.37	39.04

Growth in consolidated expenditures is displayed in Table 5. In the period prior to the amendment, average annual growth in consolidated total expenditures was 10 percent whereas in the period preceding to the amendment, it declined by two-thirds and stood at 3.6 percent. In case of current expenditures, the average annual growth rate declined from 9.4 percent in the former period to 4.8 percent in the latter period. Growth in debt serving portray an increase from 7.3 percent to 9.3 percent. However, once the expenditures on debt servicing are excluded, average growth in current expenditures became 11 percent per annum in the pre-era and then declined to 3 percent in the post-era. In case of development expenditures, the average annual growth rate that was 16 percent in the former period declined massively to less than one percent in the latter period.

Among service related expenditures, growth in all categories depicted a decline in the post-era period compared to that in the pre-era, except that in subsidies. For example, average annual growth in expenditures on roads, highways, bridges and irrigation/agriculture was as high as 35 percent and 31 percent respectively in the pre-era, which reduced to 9 percent and 3 percent respectively in the post-era period. Average annual growth in service related expenditures on education and health also reduced from 11 percent and 14 percent respectively in the pre-era to 2 percent and 8 percent respectively in the post-era.

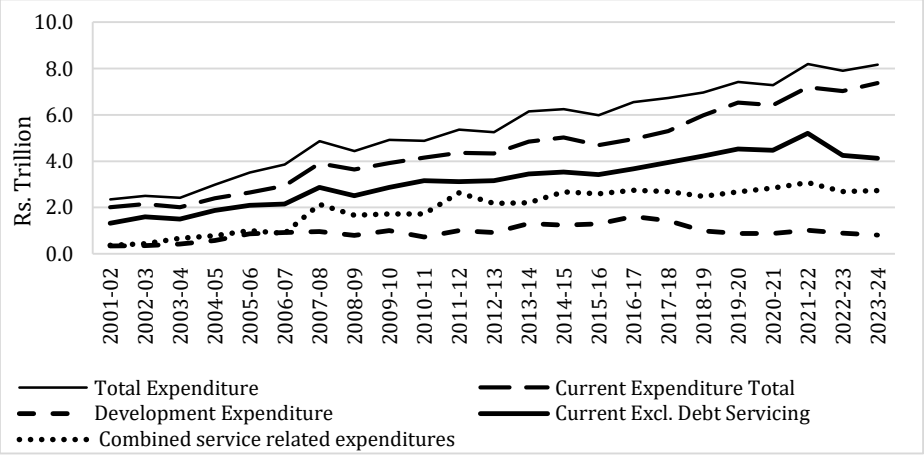
Table 5: Growth in Consolidated Expenditures (Average Annual Rate %)

	Overall period 2001-02 to 2023-24	Pre-18th Constitutional Amendment 2001-02 to 2009-10	Post-18th Constitutional Amendment 2010-11 to 2022-23
Expenditures by major heads			
Total Expenditure	6.21	10.31	3.87
Current Expenditure	6.46	9.43	4.77
Servicing of Domestic Debt	9.35	9.77	9.11
Servicing of Foreign Debt	6.44	-4.06	12.45
Total Debt servicing	8.56	7.27	9.29
Current Excl. Debt Servicing	5.94	11.12	2.98
Total Development Expenditure	6.26	16.10	0.63
Real GDP	3.88	4.90	3.30
Expenditures by Components			
Roads, Highways, & Bridges	18.67	34.84	9.42
Education	5.51	11.31	2.20
Health	10.31	14.31	8.03
Irrigation/Agriculture	12.96	30.69	2.83
Law and Order	3.67	8.17	1.10
Subsidies	11.02	10.77	11.16
Other	17.19	15.81	17.98
All service related expenditures	13.25	28.61	4.48

Note: These percentages are based on nominal values of expenditures and GDP.
Source: authors computation based on data from Fiscal operations and PRSP Expenditures.

Figure 2 that shows the trend in the magnitude of expenditures further illustrates this growth pattern. Magnitude of total current expenditures has been increasing with some slight dips over the entire period. However, increase in debt servicing reduced the pace of the magnitude of current expenditures.

Figure 2: Trend in the Magnitude of consolidated Expenditures



This is portrayed by the gap between current expenditures total and current expenditures excluding debt servicing, which is persistently widening over the passage of time. Development expenditures depict increase in size, though with some peaks and troughs, till 2016-17. But since then, there is a continuous decline in its size indicating that growth in these expenditures has died down.

Table 6 shows consolidated federal and provincial expenditures as percent of GDP. In the period prior to era, total consolidated expenditure as a percent of GDP were, on average, 16.1 percent per annum and, in the period, following the era, they increased to 19.8 percent. Component-wise, current expenditures were, on average, 15.3 percent of GDP per annum during pre-era, while increased to 16.1 percent of GDP. This increase happened primarily on account of increase in the ratio of debt servicing to GDP, which increased from an average of 4.1 percent to 4.9 percent per annum. Excluding this ratio, average annual current expenditures to GDP ratio contracted to 11.2 percent and 11.3 percent in the two periods, respectively. On the other hand, development expenditures as percent of GDP remained almost same at an average of 3 percent per annum in both periods. Since the growth rate in the latter period is faded away therefore the share remains the same.

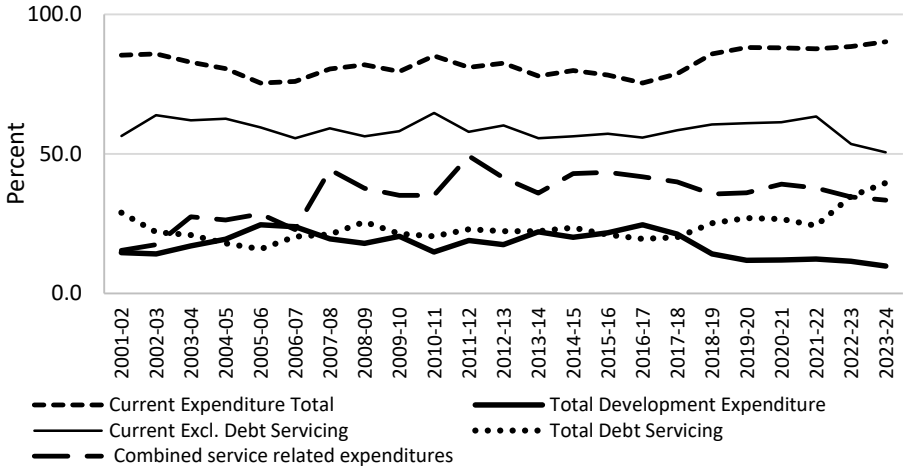
Table 6: Consolidated Expenditures as % of GDP (Average Annual Percentage Share)

Categories	Overall period 2001-02 to 2023-24	Pre-18th Constitutional Amendment 2001-02 to 2009-10	Post-18th Constitutional Amendment 2010-11 to 2022-23
Expenditures by major heads			
Total Expenditure	18.33	16.13	19.75
Current Expenditure	15.12	13.02	16.47
Servicing of Domestic Debt	3.85	2.92	4.46
Servicing of Foreign Debt	0.53	0.57	0.51
Total Debt Servicing	4.39	3.49	4.96
Current Excl. Debt Servicing	10.74	9.54	11.51
Total Development Expenditure	3.21	3.11	3.27
Expenditures by Components			
Roads, Highways, & Bridges	0.66	0.48	0.78
Education	1.74	1.45	1.92
Health	0.76	0.45	0.95
Irrigation/Agriculture	0.62	0.54	0.67
Law and Order	0.75	0.46	0.93
Subsidies	1.29	0.77	1.63
Other	1.49	0.90	1.87
All service related expenditures	7.30	5.05	8.74

Note: These percentages are based on nominal values of expenditures and GDP.
Source: authors computation based on data from Fiscal operations and PRSP Expenditures.

Figure 3 portray the pattern of different components of expenditures as a percent of GDP over the entire period. It shows that the ratio of total current expenditures to GDP declined in the period 2002-06, remained almost steady during 2007-17, then increased thereafter. The ratio of debt servicing to GDP also declined in the 2002-06, remained firm during 2007-17, but increased subsequently. It can be said that after 2016-17, increased in debt servicing to GDP ratio slows down the increase in other current expenditures to GDP ratio. On the other hand, development expenditures as a percent of GDP increased during 2002-06, remained within the same during 2007-17, then declined afterwards. For combined service related expenditures to GDP ratio, an upward pattern is seen in the period 2002-12, and then declined in the remaining period.

Figure 3: Consolidated Expenditures as % of GDP



The analysis indicates that there was increase in the magnitude of expenditures in the pre-amendment period. Due to enormous increase in the magnitude of expenditures on debt servicing in the post-amendment period, the increase in the magnitude of all other current expenditures combines slows down considerably. However, the magnitude of development expenditures depicts a decline in the post-era. On the growth front, all expenditures portray a decline except debt servicing, where the growth in service related expenditures declined considerably and that in development expenditures almost vanishing. This suggests that in the post-era, the priority of governments is to retire debt. And that has come at the cost of development and service related expenditures.

RESULTS AND EXPLANATION

Before estimating the VAR model, nominal values of consolidated expenditures categories were deflated by the general government deflator to transform them into real values. This adjustment accounted for inflation, ensuring that the data accurately reflected changes in purchasing power over time. All variables are normalized using the estimated potential GDP. GDP series depicts a big drop in quarters 2019-20:Q1 and 2020-21:Q4 due covid pandemic lockdowns. A dummy variable is used for these quarters. Current expenditures are taken after excluding debt servicing, consequently they are referred to as net current expenditures.

To estimate VAR, variables are required with lags. Optimal number of lags was determined using the AIC and HQC criteria. These criteria suggested three lags of variables in all VAR specifications. Impulse response functions are estimated for a horizon of eight lags.

The models are run over two sub-sample periods to estimate the differential output effects of change in the composition of public spending between federal and provincial governments in the aftermath of 18th Constitutional Amendment and 7th NFC Award.

1. Pre-18th Constitutional Amendment period (pre-era): 2001Q1 – 2010Q4
2. Post-18th Constitutional Amendment period (post-era): 2011Q1 – 2024Q4

The descriptive statistics of variables in real form and normalized form, for the pre- and post-18th Constitutional Amendment periods, are shown in Annexure Table A1. Total number of observations are 92 of which 36 are in the pre-era and 56 are in the post1-era.

6.1. Multipliers: Current and Development Components of Expenditures

Multipliers for government spending, depicting the impact of a shock to expenditures on GDP or economic growth, are presented in Table 7. These multipliers are computed at one-year integral (cumulated) and two-year integral periods.

Multipliers for total expenditures and its constituent categories experienced significant shifts following the 18th Constitutional Amendment. Its cumulative multiplier is 0.4 in both years one and year two in the pre-era. This means that as per the total expenditures in the pre-18th constitutional amendment period, a one-rupee increase in total expenditures increases GDP by Rs. 0.4 in first year and in a similar manner in the second year. This finding aligns with typical developing country experiences, were modest size of multiplier suggests limited capacity to leverage public spending for sustained growth due to constrained fiscal space.

In the post-era, cumulative multiplier surged to 2.8 in first year indicating that a one-rupee increase in total expenditures increases GDP by Rs. 2.8, indicating a strong short-term stimulus. However, the two-year integral plummeted to 0.08, signaling a rapid dissipation of these gains. While initial spending spurred growth, structural inefficiencies, high inflation and interest rates might likely undermined long-term impacts.

Computing multipliers by breaking-up total expenditures into its current and development components gives an elaborated picture. Current expenditures are taken as net of expenditure on debt servicing.

Table 7: Multipliers by Overall Expenditures

	Pre-18th Constitutional Amendment	Post-18th Constitutional Amendment
	Total Expenditures	
One-year integral	0.40	2.82
Two-year integral	0.39	0.08
	Net Current Expenditures	
One-year integral	0.59	0.98
Two-year integral	0.55	0.40
	Development Expenditures	
One-year integral	1.29	0.66
Two-year integral	1.69	0.41

Pre-amendment net current expenditure (excluding debt servicing) multipliers are relatively stable, with one-year and two-year integrals of 0.59 and 0.55, respectively. This means that a rupee increase in current expenditures leads to an increase of Rs. 0.59 in economic growth in the first year after the shock. In the second year after the shock, the multiplier slightly declines to 0.55. These figures suggest consistent impacts across both short- and medium-term horizons. Post-amendment, the one-year integral rose to 0.98, potentially reflecting improved short-term efficiency facilitated by decentralized governance. However, the two-year integral declined to 0.40, revealing challenges in sustaining economic impacts over time.

Development expenditures, exhibiting the highest multipliers in pre-amendment era with one-year and two-year integrals of 1.29 and 1.69 respectively, demonstrated significant growth potential for infrastructure and capital investments. However, post-amendment, these multipliers declined sharply to 0.66 and 0.41, respectively. Besides, governance challenges and escalating costs due to inflation, this reduced effectiveness can be attributed to fiscal constraints. In the post-era, growth of development expenditures significantly declined compared to that in the pre-era, as discussed in section 5. Further, addressing inefficiencies in project execution and improving governance are crucial to restore the growth potential of development spending.

6.2. Multipliers: Components of Expenditures

Table 8 presents the estimated multipliers by expenditure categories showing the effect of shock by each component on GDP in the pre- and post- 18th constitutional amendment eras.

Based on the expenditure pattern in the pre-era, the accumulated multiplier for combined services related expenditures is 0.40 in the first year and then declines to 0.38 in the second year. This indicates that while services provided an initial boost, their medium-term impact remained limited. On the other hand, considering the expenditure pattern in the post-era, the accumulated multiplier increased from 0.40 to 0.72 in the first year and then declines to 0.29 in the second year. This highlights the need for better prioritization and delivery of services to enhance sustained economic benefits, particularly within decentralized governance frameworks.

The picture however, varies when multipliers were estimated by different categories of these service related expenditures. Expenditures pattern in the pre-era shows that the highest magnitude of multiplier is for irrigation and agriculture, followed by roads, highways and bridges; law and order; and education and health. Expenditures pattern in the post-era indicate that the highest magnitude

of multiplier is for law and order, followed by education and health; roads, highways and bridges. The extent of multiplier for subsidies is lowest in both the periods.

Shocks of expenditures on roads, highways and bridges; irrigation and agriculture; and Law and order cause higher impact on growth in the second year in both the pre- and post-18th constitutional amendment periods, as portrayed by their estimated accumulated multipliers.

Education and health sectors exhibited marked improvements in multipliers post-amendment. In the pre-era, one-year integral multiplier is 1.31 and two-year integral multiplier is 1.72 suggesting impact of expenditure shock on GDP increases in second year. In the post-era, one-year integral multiplier is 2.18 and two-year integral multiplier is 2.10 indicating that impact on GDP slightly declines in the second year. Year-wise comparison between the two periods points out that one-year integral for education rose from 1.31 to 2.18, and the two-year integral remained consistently high at 1.72 and 2.10, respectively. This emphasizes the critical role of social sector investments in driving economic growth, even macroeconomic challenges and fiscal challenges. The sustained impact underscores the potential of education and health expenditures to enhance human capital and productivity. Notably, these sectors were primarily devolved to provincial governments under the 18th Amendment.

Law and order expenditures also demonstrated a similar positive trend where the impact of shock increases in the second year. Further, one-year integral increases from 1.99 to 2.49 and the two-year integral rises from 2.59 to 3.32. This highlights the economic value of investments in public safety and security, which contribute to a stable environment conducive to economic activity. The stronger multipliers post-amendment may reflect increased provincial government efforts to improve law enforcement and justice systems.

Table 8: Multipliers by Categories

	Pre-18th Constitutional Amendment	**Post-18th Constitutional Amendment**
	All Service related Expenditures	
One-year integral	0.40	0.72
Two-year integral	0.38	0.29
	Education and Health	
One-year integral	1.31	2.18
Two-year integral	1.72	2.10
	Law and order	
One-year integral	1.99	2.49
Two-year integral	2.59	3.32
	Roads, Highways and Bridges	
One-year integral	4.01	0.54
Two-year integral	4.91	0.77
	Irrigation and Agriculture	
One-year integral	4.55	-0.02
Two-year integral	5.42	2.67
	Subsidies	
One-year integral	0.47	-0.55
Two-year integral	0.26	-0.49

Conversely, multipliers for roads, highways, and bridges exhibited a significant decline post-amendment. The one-year integral plummeted from 4.01 to 0.54, and the two-year integral dropped from 4.91 to 0.77. This sharp reduction indicates inefficiencies in project execution, escalating costs due to inflation, and governance bottlenecks. Given the critical role of transportation infrastructure in economic growth, addressing these challenges is paramount.

For irrigation and agriculture, the one-year integral declined from 4.55 to -0.02, indicating a complete reversal of short-term impacts post-amendment. However, the two-year integral improved from 5.42 to 2.67, suggesting that while immediate outcomes were negative, medium-term benefits remained substantial. This suggests that inefficiencies in immediate implementation, possibly due to delays or misallocation of resources, may have undermined short-term impacts.

However, it is observed that the impact of shocks on economic growth increases in the second year for both types of infrastructure-related expenditures. This underscores that the outcomes of investments in such projects tend to materialize with a time lag.

Finally, subsidies demonstrated a negative trend post-amendment, with the one-year integral declining from 0.47 to -0.55 and the two-year integral falling from 0.26 to -0.49. This indicates that subsidies may have become counterproductive, potentially distorting markets and leading to inefficiencies.

It is essential to consider the size of the multiplier in the context of the performance of key macroeconomic indicators during the two periods, as macroeconomic stability influences the impact of public sector spending. With reference to the macro economic factors that affect multiplier, as discussed in section 5, the influence of factors causing the magnitude of multiplier to be lower in size are stronger in Pakistan. For example, substantial increase in debt-to-GDP ratio during the post-era could have played a significant role in lowering the size of the multiplier in that period. Similarly, growth in interest rates might have contributed to a reduction in the size of the multiplier in the post-amendment era compared to the pre-amendment era.

CONCLUSION

This study estimates government spending multipliers for the periods before and after the 18th Constitutional Amendment. The objective is to examine the impact of government spending on economic growth, particularly in light of increased fiscal transfers to the provinces following the 7th NFC Award and the 18th Constitutional Amendment. To achieve this, the SVAR model is utilized, and impulse response functions (IRFs) are generated using quarterly data from 2001-02:Q1 to 2023-24:Q4. The multipliers are calculated for overall government expenditures as well as for different categories of public spending. The period from 2001Q1 to 2010Q4 is categorized as the pre-18th Constitutional Amendment period, while 2011Q1 to 2024Q4 represents the post-18th Constitutional Amendment period.

The empirical analysis reveals the following findings: In the pre-era, the multiplier for development expenditures was larger than that for current expenditures, whereas in the post-era, it became smaller. Additionally, compared to the pre-era, the multiplier for current expenditures increased in the post-era, while the multiplier for development expenditures declined. Across various expenditure categories, the multipliers for education and health, and law and order showed an increase in the post-amendment era. Conversely, the multipliers for roads, highways, bridges, and irrigation and agriculture were significantly higher in the pre-amendment era.

It can be observed that, apart from current expenditures and education, the multipliers for other components indicate a weaker performance in the post-18th Constitutional Amendment period. It could be due to the fact that government's top priority during this era was retiring debt, which led to increased spending on debt servicing. Consequently, budget allocations for development expenditures appeared to be compromised.

Furthermore, the overall macroeconomic performance, which plays a critical role in shaping the spending multiplier, remained weak and unstable in the post-amendment era. For instance, the debt-to-GDP ratio deteriorated, interest rates surged significantly, inflation experienced substantial growth, and the rupee-dollar exchange rate depreciated sharply. These factors contributed to lower multiplier values, as they absorbed the impact of expenditure shocks.

RECOMMENDATION / POLICY IMPLICATIONS

The substantial shifts in fiscal multipliers observed post-18th Amendment underscore the pivotal role of provincial governments in driving economic growth. Effective intergovernmental coordination is crucial to ensure efficient resource allocation towards high-impact sectors such as development and essential services.

While the pre-18th Amendment era demonstrated the transformative potential of development expenditure, its impact has waned since devolution. The erosion of fiscal space, particularly at the federal level, may have hindered the execution of joint development projects, potentially leading to implementation delays. Strengthening planning, monitoring, and execution frameworks, including mechanisms to ensure timely allocation of funds, is essential to revitalize the growth impact of these investments.

The stark divergence between one-year and two-year multipliers, particularly for total and net current expenditures post-18th Amendment, highlights the need for policies that deliver immediate economic stimulus while safeguarding long-term fiscal sustainability.

Maintaining or even increasing investments in education, health, and law and order is crucial, as these sectors consistently demonstrate strong multiplier effects, even during economic crises. Simultaneously, redirecting resources away from inefficient subsidies towards sectors with higher growth potential is essential to ensure fiscal sustainability.

The diminished effectiveness of development spending post-18th Amendment points to potential governance and institutional constraints. Strengthening accountability, transparency, and rigorous evaluation mechanisms is crucial to improve fiscal outcomes.

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ANNEXURE

Table 9: Descriptive Statistics of Variables In Real Form

	Pre-era		**Post-era**		**Full Period**	
	2001-02 to 2023-24		**2001-02 to 2023-24**		**2001-02 to 2023-24**	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
GDP	5,313,189	695,125	8,146,848	1,191,434	7,038,025	1,725,499
Total expenditures	888,426	308,237	1,677,998	436,806	1,369,035	549,529
Net current expenditures	520,810	181,664	968,115	256,967	793,083	317,463
Development expenditures	172,977	96,407	266,766	151,149	230,066	139,646
Total PRSP expenditures	267,841	187,101	640,647	252,569	494,766	292,382
PRSP education & health	104,706	40,819	241,122	69,821	187,742	89,825
PRSP Irrigation/agriculture	30,850	24,492	55,901	26,079	46,098	28,158
PRSP Law and order	27,081	22,359	77,543	15,869	57,797	30,946
PRSP roads, highways, bridges	27,126	28,232	64,222	44,667	49,706	42,939
PRSP subsidies	48,174	82,220	133,621	118,486	100,185	113,329

Source: ?

Table 10: Descriptive Statistics of Real Variables in Normalized Form

	Pre-era		Post-era		Full Period	
	2001-02 to 2023-24		2001-02 to 2023-24		2001-02 to 2023-24	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
GDP	1.0019	0.0233	0.9989	0.0181	1.0001	0.0202
Total expenditures	0.1644	0.0422	0.2053	0.0410	0.1893	0.0458
Net current expenditures	0.0965	0.0257	0.1186	0.0246	0.1100	0.0271
Development expenditures	0.0316	0.0153	0.0334	0.0199	0.0327	0.0181
Total PRSP expenditures	0.0480	0.0295	0.0795	0.0271	0.0672	0.0319
PRSP education & health	0.0193	0.0057	0.0295	0.0072	0.0255	0.0083
PRSP Irrigation/agriculture	0.0055	0.0040	0.0069	0.0026	0.0064	0.0033
PRSP Law and order	0.0048	0.0037	0.0096	0.0021	0.0077	0.0037
PRSP roads, highways, bridges	0.0048	0.0047	0.0078	0.0049	0.0067	0.0050
PRSP subsidies	0.0082	0.0138	0.0169	0.0148	0.0135	0.0150

Source: ?