

## EVALUATING THE IMPACT OF GST ON SERVICES ON THE FISCAL EFFORTS OF FEDERAL AND PROVINCIAL GOVERNMENTS IN PAKISTAN

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### Abstract

The paper aims to assess the role of the provincial government in collecting Sales Tax on Services (GST) following its devolution to provincial governments in Pakistan. Additionally, the paper compares fiscal efforts (excluding GST) after the implementation of the 7<sup>th</sup> National Finance Commission (NFC) award in 2009. The application of the Stone-Geary utility function establishes a strong foundation for empirical assessment. This approach not only allows for a more accurate and robust analysis but also makes a theoretical contribution to the existing literature. Furthermore, for empirical analysis, the Least Squares Dummy Variable (LSDV) regression, a panel data technique, is applied. The results indicate that after the devolution of service taxes, provincial governments have reduced their fiscal efforts, while the federal government has improved tax collection over the same period. Among the provinces, Balochistan and Sindh are more focused on collecting GST on services compared to other taxes in their provinces. After the 7<sup>th</sup> NFC award, the federal government has managed recurring expenses more effectively than the provincial governments. Additionally, Khyber Pakhtunkhwa has significantly increased its development expenditures, rising from Rs. 274 to Rs. 600 in real per capita terms during the same period. Overall, the paper concludes that the devolution of taxes in Pakistan has not significantly impacted tax performance (on the fiscal efforts of the provincial governments). The objectives of tax devolution may be better achieved if the federal government is linked with the performance of provincial governments. Specifically, federal transfers should be tied to the fiscal and socio-economic performance indicators of the provinces.

*Keywords:* Devolution of Taxes, Fiscal Efforts, National Finance Commission Awards.

*JEL Classification:* H20, H21, H23, H 25, H71, H72.

### I. Introduction

The Constitution of Pakistan empowers the federal government to transfer fiscal resources to sub-national governments every five years. For this purpose, the federal

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government constituted a committee to distribute fiscal resources through the National Finance Commission (NFC) award.

Since 1974, Pakistan has announced nine NFC awards, except for the existing 7<sup>th</sup> NFC award in 2009, the provincial population was the single criterion for the distribution of resources to the provincial governments. Previously, direct grants were also provided to Balochistan and KPK provinces. The NFC also established the criteria to distribute the straight transfer, such as the surcharge on natural gas, royalty, excise duty, and profit on hydroelectricity. The 5<sup>th</sup> NFC award in 1997 reduced the share of provincial governments from 80 to 37.5 per cent, considering the multiple taxes, including the wealth tax and customs duties in the divisible pool. However, in 2006, the 5<sup>th</sup> NFC award was extended by the President of Pakistan, that may considered as 6<sup>th</sup> NFC award.

The 7<sup>th</sup> NFC award, for the first time, introduced multiple indicators, including population, inverse population density, revenue generation/collection, and poverty/backwardness. Under this distribution, each province has comparatively gained the maximum amount in at least one indicator. Furthermore, with the shift from a single to multiple indicators, the share of Punjab province reduced by 5 per cent. In contrast, Balochistan gained an additional 4 per cent share compared to previous allocations. In the same award, KPK and Sindh received an additional 1 per cent share.

Following this award, the major development through the 18<sup>th</sup> Amendment was the restructuring of federalism in Pakistan in 2010, as it devolved multiple functions to the provincial governments, which increased the expenditures of the provincial governments. The amendment also ensured that the provincial share could not be reduced according to the agreed-upon formula.

In 2020, the government announced the Term of Reference (TOR) for the new NFC transfer formula. Hence, fiscal behaviour in response to the devolution of GST on services under the 7<sup>th</sup> NFC transfer is an important component for the estimation. In addition, there is a need to measure the fiscal efforts of provincial governments. Moreover, the impact of the devolution of the services tax is also an aspect that requires assessment.

This study aims to evaluate the effect of transferring the services tax to provincial governments. Additionally, measures the fiscal efforts of both tiers of government. This paper focuses explicitly on the devolution of service tax and the fiscal behaviour of government.

The study is structured as follows: Section II provides an overview of the literature. Section III examines the operational framework of the devolution of GST on services. Section IV establishes the theoretical model for quantifying the fiscal efforts of both tiers of government. Section V outlines the methodology and analytical techniques applied to the datasets. Section VI presents the findings of the study. The final Section VII discusses the policy implications.

## II. Literature Review

The traditional theory of decentralisation supports the arguments for the efficiency of the public sector. Oates (1997) argued that the decentralised governance structure generally increased citizen welfare. The process is more flexible in accommodating citizens' preferences. Slack (1980) used the Stone-Geary utility function to derive the impact of federal grants to the subnational government for the empirical analysis.

However, recent studies on devolution also indicate that it improves policy-making at the lower tier of government compared to the national government. It also improves the local conditions of the lower-tier government. Fiscal decentralisation can generate governance and economic outcomes.

The literature also highlights that the sub-national government plays a central role in delivering services at the grassroots level; therefore, this tier is more accountable and has a lower possibility of corruption than other tiers of government (Rodden 2003). Similarly, taxes depend on the mobile factor of production, and resident-based taxes are the foundation of revenue decentralisation in the literature. Garzarelli (2006) highlights that the central government may involve itself in taxes based on the mobility of resources. Musgrave (1959) suggests that the federal government may collect taxes with an unequal base.

The literature on federalism indicates that the constitutions define the right to tax collection and government spending, while federalisms involve the allocation of collection responsibility by tiers of government (Oates 1999). When the federal government has more power to collect taxes than the sub-national government, a vertical fiscal imbalance arises in the economy. While, the horizontal fiscal imbalance appears when the revenue collection capacity is lower than the fiscal needs of the government (Shah 1999). However, intergovernmental fiscal transfer plays the most important role in reducing the horizontal gap at the lower tier of government (Bird and Smart 2002). In some countries, these transfers, especially in Pakistan, Mexico and South Africa, finance 90 per cent of the income of the sub-national government.

Feldstein (1975) considers the fiscal transfer as the backbone of the decentralisation process at the subnational level. This transfer helps to guarantee the compulsory expenditures of the governments. Blochilger and Charbit (2008) suggest that fiscal transfers play a crucial role in service delivery at the grassroots level. Further, this transfer helps to reduce the regional disparities (Rao and Sen 1997). Huber et al. (2000) suggest that the federal transfer may decline the fiscal efforts of the lower tier of governments in some countries.

In Pakistan, Ghaus and Pasha (1994) found a strong relationship between fiscal transfers and subnational spending. For example, when federal transfers increase by Rs. 100 per capita, spending increases by Rs. 61 per capita. The remaining

amount, Rs. 39 per capita, represents the fiscal efforts of the subnational government. However, Jeffery and Sadaqat (2006) conclude that the institutional reform may help to improve the fiscal position of governments.

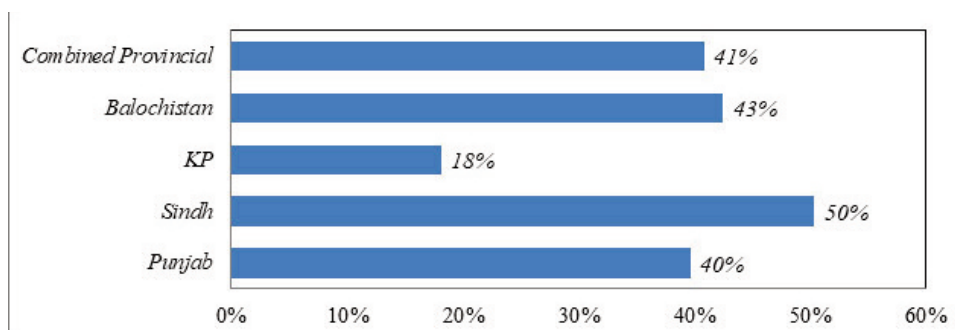
### III. Devolution of Sales Tax on Services

Historically, the provincial governments were responsible for collecting the GST on services. However, in 2001, the responsibility of collection was transferred to the federal government. Since then, the federal government has collected GST on services. In 2009, the 7<sup>th</sup> NFC award devolved this tax to the provincial governments.

Following the devolution of service taxes, four provincial governments developed a mechanism to collect the GST on services. The collection rate varies across provinces; like, Punjab province set the highest rate, 16 per cent, compared to Sindh province's lowest rate 13 per cent. However, the KPK and Balochistan applied the 15 per cent in their respective provinces. This variation in the tax rate increases the compliance cost for taxpayers (World Bank 2019).

Figure 1 highlights that around 40 per cent of provincial taxes were collected from GST on services in the past five years. At the provincial level, Sindh province collects 50 per cent of its tax revenue from GST on services. Meanwhile, Punjab and Balochistan provinces collect 40 per cent and 43 per cent of their taxes from this source, respectively. The KPK province collects the lowest share of this tax.

Referring to the GST on services, Sindh has the highest collection among the four provinces in Pakistan, Rs. 691 per person. While the KPK province has collected only Rs. 153 per person, which is the lowest per capita tax collection compared to other provinces. Punjab has collected Rs. 427 per person, and Balochistan province has collected only Rs. 200 per person. The four provinces have combined collected an average of Rs. 317 in the past years.



Source: Fiscal operation, authors' estimation.

**FIGURE 1**

GST Share in Provincial Revenues (of Total Revenues)

#### IV. Conceptual Basis for Devolution of GST

This section highlights the conceptual basis of the devolution of taxes and their impact on the fiscal behaviour of Pakistan's provincial government. To achieve this, the study employs the Stone-Geary utility function to establish the relationship among the key variables. Slack (1980), Shah (1989), Islam (1998), and Knight (2002) previously used this model.

Pasha et al. (2010) and Wasti (2013) applied this methodology in Pakistan. This study modifies the same model by deducting the share of devolved taxes from the total tax collection at both tiers of government. Previous research considered the total revenues as a single variable, merging the GST with total taxes. In the study, we separated the two, as GST has been devolved to the sub-national government in 2009.

##### 1. Model Estimation for the Federal Government

The study assumes the utility is a function of income (GDP), tax revenue, GST on services, non-tax revenues and the income of the previous year. The Stone-Geary utility function of the federal government is represented in Equation number (1) and (2);

$$U = (X - T - Gt - Nt - Xo) \oslash (Z - Zo)^{1-\oslash} \quad (1)$$

$$Z = \oslash T + Gt + Nt + B \quad (2)$$

where X represents the GDP of the country, T is the overall tax collection, and Nt indicates the non-tax revenues. Z highlights the public spending of the government. Here,  $\oslash$  represents net tax revenues excluding the provincial share through NFC distribution, of the federal government. Gt indicates the services taxes. B indicates the budget deficit. Now the federal government's utility function is expressed in Equation (3).

$$U (X - T - Gt - Nt - Xo) \oslash (\oslash T + Gt + Nt + B - Zo)^{1-\oslash} \quad (3)$$

For the optimisation of the function, we take the partial derivative w.r.t total revenue of Equation (3)

$$\frac{\partial U}{\partial T} = (X - T - Gt - Nt - Xo) \oslash (\oslash T + Gt + Nt + B - Zo)^{1-\oslash}$$

$$\frac{\partial U}{\partial T} = (X - T - Gt - Nt - Xo) \oslash (\oslash T + Gt + Nt + B - Zo)^{1-\oslash-1}$$

$$(1 - \oslash)(\oslash) + (\oslash T + Gt + Nt + B - Zo)^{1-\oslash} \cdot \oslash (X - T - Gt - Nt - Xo) \oslash^{-1} (-1)$$

Now consider the partial derivative equal to zero to find the required values in Equation (3)

$$\begin{aligned}
 & \partial(1 - \emptyset)(X - T - Gt - Nt - Xo) \wedge \emptyset (\partial T + Gt + Nt + B - Zo)^{-\emptyset} \\
 & = \emptyset (\partial T + Gt + Nt + B - Zo)^{1-\emptyset} \cdot (X - T - Gt - Nt - Xo)^{\emptyset-1} \\
 \\ 
 & \frac{\partial(1 - \emptyset)(\partial T + Gt + Nt + B - Zo) \wedge \emptyset}{(X - T - Gt - Nt - Xo)^{1-\emptyset}} = \frac{\emptyset (\partial T + Gt + Nt + B - Zo) \wedge \emptyset-1}{(X - T - Gt - Nt - Xo)^{\emptyset}} \\
 \\ 
 & \frac{\partial(1 - \emptyset)(\partial T + Gt + Nt + B - Zo) \wedge \emptyset}{(\partial T + Gt + Nt + B - Zo)^{1-\emptyset}} = \frac{\emptyset(X - T - Gt - Nt - Xo) \wedge \emptyset-1}{(X - T - Gt - Nt - Xo)^{\emptyset}} \\
 \\ 
 & \partial(1 - \emptyset)(\partial T + Gt + Nt + B - Zo)^{-1} = \emptyset(X - T - Gt - Nt - Xo)^{-1} \\
 \\ 
 & \frac{-\emptyset}{(X - T - Gt - Nt - Xo)} + \frac{\partial(1 - \emptyset)}{(\partial T + Gt + Nt + B - Zo)} = 0 \\
 \\ 
 & = -(\emptyset)(\partial T + Gt + Nt + B - Zo) + \partial(1 - \emptyset)(X - T - Gt - Nt - Xo) \\
 & = -(\emptyset \partial T + \emptyset Gt + \emptyset Nt + \emptyset B + \emptyset Zo) + \partial(1 - \emptyset)\{(X - T - Gt - Nt - Xo)\} \\
 & = -(\emptyset \partial T + \emptyset Gt + \emptyset Nt + \emptyset B + \emptyset Zo) + \partial(1 - \emptyset)\{(X - Xo) - \partial T(1 - \emptyset) - Gt - Nt\} \\
 & = -\emptyset \partial T - \emptyset Nt - \emptyset B + \emptyset Zo + \partial(1 - \emptyset)\{(X - Xo) - \partial T - \partial Nt + \emptyset \partial T + \emptyset \partial Nt\} - Gt(1 - \emptyset)\} \\
 & = -\emptyset \partial T + \emptyset \partial T - \partial T - \partial Nt + \emptyset \partial Nt + \partial(1 - \emptyset)\{(X - Xo) - \emptyset Nt - \emptyset B - Gt(1 - \emptyset) + \emptyset Zo\} \\
 & = \partial T(-\emptyset + \emptyset - 1) - \partial Nt(-1 + \emptyset) + \partial(1 - \emptyset)(X - Xo) - \emptyset Nt - \emptyset B - Gt(1 - \emptyset) + \emptyset Zo\} \\
 & \partial T = \partial(1 - \emptyset)(X - Xo) - \{\emptyset + \partial(1 - \emptyset)\}Nt - Gt(1 - \emptyset) - \emptyset B + \emptyset Zo = 0 \\
 & \partial T = (1 - \emptyset)\partial(X - Xo) - \{\emptyset + \partial(1 - \emptyset)\}Nt - Gt(1 - \emptyset) - \emptyset B + \emptyset Zo = 0 \quad (4)
 \end{aligned}$$

The Equation (4) highlights that government revenue depends on factors like income/GDP, non-tax revenues, services tax, fiscal deficits, and government spending. Therefore, the general functional form can be expressed as given in Equation (5).

$$FR = F(Gdp, Gt Nt, B, Exp) \quad (5)$$

The partial derivative of Equation (4), w.r.t.  $\partial$

$$\frac{\partial \partial T}{\partial \partial} = (1 - \emptyset)\partial(X - Xo) - \{\emptyset + \partial(1 - \emptyset)\}Nt - Gt(1 - \emptyset) - \emptyset B + \emptyset Zo$$

$$\frac{\partial \partial T}{\partial \partial} = \partial X - \partial X_o - \emptyset \partial X + \emptyset \partial X_o - \emptyset N_t - \partial N_t + \emptyset \partial N_t - G_t(1 - \emptyset) - \emptyset DF + \emptyset Z_o$$

$$\frac{\partial \partial T}{\partial \partial} = X - X_o - \emptyset X + \emptyset X_o - N_t + \emptyset N_t$$

$$\frac{\partial \partial T}{\partial \partial} = (1 - \emptyset)\{X - X_o - N_t\}$$

The partial derivative of Equation (4), w.r.t. X

$$\frac{\partial \partial T}{\partial \partial} = (\partial X - \partial X_o) - \emptyset \partial X + \emptyset \partial X_o$$

$$\frac{\partial \partial T}{\partial \partial} = \partial - 0 - \emptyset \partial + 0$$

$$\frac{\partial \partial T}{\partial \partial} = \partial(1 - \emptyset) > 0$$

The partial derivative of Equation (4), w.r.t. Gt

$$\frac{\partial \partial T}{\partial G_t} = -1 + \emptyset$$

$$\frac{\partial \partial T}{\partial G_t} = \emptyset - 1$$

Now using Equation (4), to find the tax revenues of the government

$$\begin{aligned} T &= \frac{1 - \emptyset}{\partial} \partial(X - X_o) - \frac{1}{\partial} \{\emptyset + \partial(1 - \emptyset)\} N_t - \frac{\emptyset}{\partial} G_t(1 - \emptyset) - \frac{\emptyset}{\partial} B + \frac{\emptyset}{\partial} Z_o \\ T &= (1 - \emptyset)(X - X_o) - \{(1 - \emptyset) + \frac{\emptyset}{\partial}\} N_t - \frac{\emptyset}{\partial} G_t(1 - \emptyset) - \frac{\emptyset}{\partial} B + \frac{\emptyset}{\partial} Z_o \end{aligned} \quad (6)$$

Now differentiating Equation (6), w.r.t.  $\partial$

$$\frac{\partial T}{\partial \partial} = \frac{\emptyset}{\partial^2} \{N_t - G_t + B D - Z_o\}$$

The above equation indicates that the relationship can be positive or negative. As mentioned previously,  $\partial$  represent the net tax revenues of the government, excluding the provincial government's share as determined by the NFC formula. In other words,  $\partial$  reflects the government's fiscal efforts. However, the relationship between federal revenues and the  $\partial$  is unclear as of now, because it depends on the government spending. If spending exceeds the  $N_t$ ,  $G_t$ , and  $B$  then the values  $\partial$  may decline.

The expenditure function from Equation (2) and (4) would represent as in Equation (7):

$$Z = \partial T + G_t + N_t + B \quad (7)$$

Now putting the Equation (4) and (2), to find the expenditure of the government in Equation (8):

$$\begin{aligned}
 Z &= (1 - \emptyset) \partial(X - X_o) - \{\emptyset + \partial(1 - \emptyset)\} N_t - G_t(1 - \emptyset) + G_t - \emptyset B + \emptyset Z_o + N_t + B \\
 Z &= (1 - \emptyset) \partial(X - X_o) - \{\emptyset N_t + \partial N_t - \emptyset \partial N_t\} - G_t(1 - \emptyset - 1) - \emptyset B + B + N_t + \emptyset E_o \\
 Z &= (1 - \emptyset) \partial(X - X_o) - \emptyset N_t - \partial N_t + \emptyset \partial N_t + (1 - \emptyset) B + \emptyset G_t + N_t + \emptyset Z_o \\
 E &= (1 - \emptyset) \partial(X - X_o) - (\emptyset + \partial - \emptyset \partial - 1) N_t + \emptyset G_t + B(1 - \emptyset) + \emptyset Z_o \\
 Z &= (1 - \emptyset) \partial(X - X_o) - \{(1 - \emptyset)(1 - \partial) N_t + B(1 - \emptyset) + \emptyset G_t + \emptyset E_o\} \quad (8)
 \end{aligned}$$

Now estimate the relationship with respect to  $\partial$ ,

$$\begin{aligned}
 \frac{\partial Z}{\partial \partial} &= (1 - \emptyset)(X - X_o) - N_t + \emptyset N_t \\
 \frac{\partial Z}{\partial \partial} &= (1 - \emptyset)(X - X_o) - N_t(1 - \emptyset) \\
 \frac{\partial Z}{\partial \partial} &= (1 - \emptyset)\{X - X_o - N_t\} > 0
 \end{aligned}$$

For the relationship with the X,  $N_t$  and  $G_t$ , we may use the same steps

$$\frac{\partial Z}{\partial X} = > 0 \quad \frac{\partial Z}{\partial N_t} > 0 \quad \frac{\partial Z}{\partial G_t} = > 0$$

One may consider the budget deficit as in Equation (9):

$$B = \emptyset + \emptyset - iX \quad (9)$$

To get the desire values, we use the lag adjustment process, in Equation (10):

$$(\partial T) = (1 - \vartheta)(\partial T)^* + \vartheta (\partial T_o) \quad (10)$$

Now using the values of  $\partial$ , to get the expenditure function as in Equation (11) and (12):

$$(\partial T) = (1 - \vartheta)(\partial T)^* + \vartheta (\partial T_o) \quad (11)$$

$$Z = (1 - \vartheta_2)(Z)^* + \vartheta_2 (Z_o) \quad (12)$$

It can be observed that if  $\vartheta_2 > \vartheta_1$ , then there is possibility to increase the budget deficit following the 7<sup>th</sup> NFC award. Consequently, the estimated equation can be expressed as in Equations (13) and (14):



$$\partial TR = f(X, \partial, Gt, Nt, To) \quad (13)$$

$$Z = f(X, \partial, Nt, Zo) \quad (14)$$

## 2. Model Estimation for Provincial Governments

For the provincial government, the utility function is given as in Equations (15), (16) and (17):

$$U = (Xp - Tp - Gt - Ntp - Xop)^\theta (Zp - Zop)^{1-\theta}, \quad 0 < \theta < 1 \quad (15)$$

$$Zp = FT + Tp + Gt + Ntp + Bp \quad (16)$$

$$FT = (1 - \partial)Tf \quad (17)$$

FT represent the provincial share in divisible pool,  $Xp$  indicates the GDP of provincial governments in Pakistan,  $Tp$  denote the provincial's revenues,  $Ntp$  represents the non-tax revenues and  $Bp$  indicate the budget position of the provincial governments, So the optimisation of the utility may be taken as the partial derivative w.r.t revenues of the provincial governments as:

$$\frac{\partial U}{\partial Tp} = (Xp - Tp - Gt - Ntp - Xop)^\theta (Zp - Zop)^{1-\theta}$$

Consider the  $\frac{\partial U}{\partial Tp} = 0$ , to obtain the following form in Equation (18):

$$\begin{aligned} &= \frac{\theta(1-\theta)(Tp + Gt + Ntp + Bp - Zop)}{(Tp + Gt + Ntp + Bp - Zop)^{1-\theta}} \wedge -\theta = \frac{\theta(Xp - Tp - Gt - Ntp - Xop)}{(Xp - Tp - Gt - Ntp - Xop)^\theta} \wedge \theta - 1 \\ &Tp = (1 - \theta)(Xp - Xop) - (\theta FT - \theta Gt - \theta Bp + \theta Zop - Ntp) \end{aligned} \quad (18)$$

$$\frac{\partial Tp}{\partial FT} = -\theta < 0$$

The Equation (18) shows the negative relation between the provincial revenues and the federal transfers in Pakistan. In other words, it indicates that higher fiscal transfers may reduce the provinces' fiscal efforts.

$$\frac{\partial Tp}{\partial GT} = -\theta < 0$$

The above statement shows the inverse relationship between the  $Gt$  and the revenues of the provincial governments. For the expenditures function, we applied the same mechanism that was used to derive the federal relationship of the expenditures function in Equation (19):

$$Z_p = (1 - \theta)(X_p - X_{op}) FT + G_t + (1 - \theta)(B_p + \theta Z_{op}) \quad (19)$$

$$\frac{\partial Z_p}{\partial FT} = (1 - \theta) > 0$$

$$\frac{\partial Z_p}{\partial G_t} = (1 - \theta) > 0$$

The above conditions indicate that federal fiscal transactions and the sales tax on services may play a significant role in influencing the spending patterns of provincial governments in Pakistan.

## V. Methodology and Data

The study applied the Least Square Dummy Variable (LSDV) technique to estimate the results and considers net tax collection (excluding sales tax on services), reflecting the fiscal efforts of the provincial governments. Similarly, at the federal government, net tax revenues represent the share of taxes (excluding the NFC transfer). This indicator shows the federal government's fiscal effort. The independent variables also consider expenditures of the federal and provincial governments, provincial GDPs and dummy variables for the provincial governments. All data is taken for the period 2001 to 2020.

$$Y_{it} = \beta_0 + \beta_1 PG_{it} + \beta_2 FT_t + \beta_3 G_{t_{it}} + \beta_4 DV_{it} + \bar{e}_{it}$$

- Y = Total Revenues excluding services tax and NFC distribution of both tiers of governments  
 PG = GDPs for Provincial Governments  
 Gt = Sales tax on services  
 FT = Federal transfer  
 DV = Dummy variables representing pre- and post-7<sup>th</sup> NFC award  
 $\bar{e}_{it}$  = Residual

### 1. Data Sources

The study gathers data from the budget documents of both tiers of government. The net federal revenues, excluding the provincial share of NFC, represent the fiscal efforts of the federal government. The net tax revenues, excluding the taxes on services, reflect the provincial governments' fiscal efforts.

The federal government in Pakistan collected tax on services prior to the 7<sup>th</sup> NFC award. However, in 2009, this tax was devolved to the provincial governments. The Sindh province first published data on GST on services in its annual report in 2015. This series was used to estimate the missing data on GST on services

for three provinces.<sup>1</sup> For this purpose, the share of GST on services in Sindh's total revenues was first calculated. This ratio was then multiplied by the share of the services sector in each province's GDP to estimate the provincial GST on services. Data on public spending and the fiscal deficit, however, were directly obtained from budget documents.

For the provincial GDPs, the paper gathered the data from two studies: Bengali et al. (2005) and Pasha (2015). The first study measured the GDP from 1975 to 2000, while the second study estimated the GDP from 2000 to 2015 using the same approach. The two series were converted into constant bases before consolidating into one series. The remaining variables are considered in real per capita terms, divided by the GDP deflator with a base of 2005-06. Table 1 highlights the summary statistics of the NFC transfer in real per capita terms.

**TABLE 1**  
Descriptive Statistics of the Variables

Variables Name	Mean	Std. Dev.	Min	Max
Provincial Own Source Revenues	540	895	21	5307
Divisible Pool Transfers	4176	4786	303	21321
Straight Transfers	558	551	0	1760
Total Federal Transfers	5274	5333	312	24252
Provincial GDP	46344	11094	25557	75147

*Source:* Authors' estimation from the budget documents.

## VI. Empirical Results

This section presents the results of the empirical findings. Table 2 shows that following the 7<sup>th</sup> NFC award, the federal government increased its tax collection from Rs. 2400 to Rs. 2800 per capita. In other words, this represents the fiscal efforts of the federal government. However, at the provincial level, after the 7<sup>th</sup> NFC award, provinces are more dependent on the federal transfers as the fiscal efforts are declined in four provinces from Rs 6400 to Rs. 2600. Among the four provinces, The Sindh and Balochistan provinces results reveals the highest decline in the tax revenues above Rs. 2500, respectively.

The result related to the devolution of tax indicates that if the provincial government collects the GST by Rs. 1 per capita, then the other revenues decrease by Rs. 40 paisas. The results also show a positive sign, which indicates that prior to

<sup>1</sup> The estimated series for this tax is available from 2012 onwards for Punjab and from 2014 onwards for the remaining two provinces.

**TABLE 2**  
Regression Analysis of Fiscal Efforts for Federal and Provincial Governments (*in per capita*)

LSDV Models	Estimation 01		Estimation 02		Estimation 03		Estimation 04		Estimation 05	
	Fiscal Efforts		Own Source Revenues		Total Expenditures		Current Expenditures		Development Expenditures	
Names of the Variables	Prior to the 7th NFC Award	7th NFC Era	Prior to the 7th NFC Award	7th NFC Era	Prior to the 7th NFC Award	7th NFC Era	Prior to the 7th NFC Award	7th NFC Era	Prior to the 7th NFC Award	7th NFC Era
Provincial Gross Domestic Product		0.032 (0.003)	0.059 (0.004)	0.028 (0.00)	0.158 (0.00)	0.154 (0.00)	0.03 (0.00)			
NFC Distribution	0.071 (0.016)	0.012 (0.025)	0.281 (0.009)	0.77 (0.00)	0.279 (0.120)	0.688 (0.00)	0.095 (0.006)	0.266 (0.006)		
Services Tax Collection	5.22 (0.029)	-0.4 (0.139)	15.3 (0.00)		1.56 (0.068)	1.45 (0.046)				
Non-tax Revenue Collection			1.429 (0.00)	0.567 (0.006)	0.833 (0.00)	0.609 (0.078)	0.688 (0.006)			
Fiscal Deficits					0.068 (0.00)	-0.542 (0.00)	-0.152 (0.00)			
Federal Government Status	1350 (0.00)		2455 (0.00)	2799 (0.019)	473 (0.083)	-4928 (0.015)	1433 (0.00)	-866 (0.00)		
Four Provincial Government Combined Status	-1528 (0.00)	-2389 (0.00)	-2608 (0.00)	-6481 (0.00)	-990 (0.00)	-891 (0.022)	-165 (0.085)			
Punjab Province	-1493 (0.00)	-2335 (0.00)	-2579 (0.00)	-6349 (0.00)	-1064 (0.00)	-984 (0.00)	-136 (0.146)			
Sindh Province	-1530 (0.00)	-2546 (0.00)	-2581 (0.00)	-6879 (0.00)	-1197 (0.00)	-3107 (0.002)	-568 (0.00)			
KPK Province	-1575 (0.00)	-2267 (0.00)	-2671 (0.00)	-6201 (0.00)	-537 (0.004)	1849 (0.076)	274 (0.020)	599 (0.200)		
Balochistan Province	-1775 (0.00)	-2578 (0.00)	-2880 (0.00)	-6817 (0.00)	-490 (0.011)	2992 (0.013)	154 (0.112)			
F-Statistics	2400 (0.00)	186 (0.00)	548 (0.00)	493 (0.00)	462 (0.00)	73 (0.00)	85 (0.00)	10 (0.00)		
Coefficient of Determination- R <sup>2</sup>	0.959	0.971	0.98	0.989	0.976	0.929	0.959	0.79	0.575	
Adjusted R <sup>2</sup>	0.952	0.966	0.978	0.987	0.974	0.917	0.956	0.775	0.511	
Sample Size	120	66	120	66	120	66	120	66	120	66

Source: Authors' estimation. Note: Figures in brackets represent the probability of the coefficient.

the 7<sup>th</sup> NFC award, the GST was collected by the federal government. The positive sign of provincial GDPs reflects the positive relation with tax revenues and the expenditures of the governments.

Regarding the expenditure models, this illustrates that federal spending declined in the post-7<sup>th</sup> NFC era, specifically to Rs. 4928 per person. However, at the provincial level, in KPK and Balochistan, spending has increased, Rs. 1849 per person and Rs. 2992 per person, respectively. The spending declined in Punjab, Rs. 1557 and Rs. 3107 per person in Sindh, during the same periods. The results show a positive relation between the fiscal deficit and total expenditures in Pakistan, as the total expenditures increase by Rs. 1, then the fiscal deficit increases by Rs. 0.068 paisa.

## VII. Conclusions and Policy Implications

This study examines the fiscal efforts of both tiers of government, particularly in the period following the 7<sup>th</sup> NFC award. The empirical analysis employs the Stone-Geary utility function to establish relationships among the variables and utilises the LSDV approach. Net tax revenues, excluding the GST on services, serve as an indicator of the fiscal efforts of both the federal and provincial governments.

The findings indicate that the fiscal efforts of the federal government significantly improved after the 7<sup>th</sup> NFC era compared to the provincial governments. Quantitatively, for every increase of Rs. 1 in fiscal efforts, there was an approximate decline of 40 paisas in the post-NFC period. Conversely, at the provincial level, fiscal efforts declined in four provinces from Rs. 6400 to Rs. 2600. Among these four provinces, Sindh and Balochistan experienced the most significant decline in tax revenues, exceeding Rs. 2500 per person.

Regarding expenditure patterns, the models illustrate that federal spending declined by Rs 4,928 per person in the post-7<sup>th</sup> NFC era. However, at the provincial level, spending increased in KPK and Balochistan by Rs 1849 and Rs 2992 per person, respectively. Conversely, spending declined in Punjab (Rs 1557 per person) and in Sindh (Rs 3107 per person) during the same period. The results also reveal a positive relationship between the fiscal deficit and total expenditures in Pakistan: for every increase of Rs 1 in total expenditures, the fiscal deficit increases by approximately 0.068 paisas. This finding aligns with the theoretical foundation that increased expenditures without a corresponding increase in tax collection can increase the fiscal deficit.

Based on these empirical results, the study recommends that intergovernmental transfers and the devolution of the services tax have reduced the fiscal efforts of provincial governments, particularly after the 7<sup>th</sup> NFC Award. Following the 18th constitutional amendment, there is a need to transfer the cost of devolved functions to the provincial governments through a revised NFC formula. This practice also helps the federal government to reduce the fiscal imbalance at the federal level and to alleviate its expenditure burden.

To improve the existing formula, it is recommended to incorporate performance-based indicators that are linked to the fiscal performance of Pakistan's provincial governments. Additionally, for targeted expenditures, the federal government should consider the Sustainable Development Goals targets as performance benchmark indicators in the horizontal distribution. These initiatives can help both the federal and provincial governments establish revenue and expenditure targets, which is also an objective of the NFC award.

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