



## Impact of Fiscal Decentralization on Buoyancy of Services Tax in Khyber Pakhtunkhwa

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### ARTICLE INFO

### ABSTRACT

#### Article History:

Received: May 07, 2023

Revised: June 18, 2023

Accepted: June 19, 2023

Available Online: June 19, 2023

#### Keywords:

Buoyancy

Decentralization

Services Tax

Khyber Pakhtunkhwa

KPRA

#### Funding:

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

The present research investigates the impact of fiscal decentralization on services tax buoyancy in province Khyber Pakhtunkhwa covering time series data from 2001 to 2021. Chow Break Point test for detecting structural break was applied and found structural break in the year 2014 which coincided with the year of devolution. The break in the data was taken care by Binary Dummy variable as an intervention and interaction terms in the model. The results of segmented intervention model illustrated that the estimated tax buoyancy have positive and more than unitary effects during post-tax devolution period. While, the services tax was non-buoyant, at the time FBR was collecting the said tax. However, despite having buoyant tax, KPRA due to complexities in post devolved tax system have missed its revenue targets and was unable to explore services sector up to optimum potential. Based on the findings, the study recommends broadening of tax base, documentation to bring more taxpayers in the tax net and enhancement in tax administration to achieve revenue targets and explore un-tax services tax in the province.

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## 1. Introduction

Most of the developing world is faced by the serious issues of fiscal imbalances. It is argued that the main reasons causing such imbalances are increasing expenditures and decreasing trend in revenue generation (Ahmed & Muhammad, 2010). Hence, most of donators donating to such developing nations always advise on revenue mobilization at domestic levels. Therefore, moving towards such revenue mobilization, tax revenue is of utmost importance in inland resources augmentation (Cnossen, 1974). For the economic development, the elasticity of tax collections towards economic activities is an important factor. This elasticity also known as responsiveness of tax is measured as percentage variation in taxes in response to change in GDP. This is also known as buoyancy of tax revenue (Gupta, Jalles, & Liu, 2021). Therefore, it is important for the policy makers to check this buoyancy levels to measure the efficiency of taxation system. Otherwise, making fiscal decision without the knowledge of buoyancy would under or overestimate the capacity of an economy about revenue generation resulting in fiscal imbalances (Mandela, 2015).

Post 18th Amendment to the constitution of Pakistan, the provinces became considerably autonomous in fiscal collection and planning. As noted by Jia, Ding, and Liu (2020), fiscal autonomy is more effective than fiscal transfers particularly in the case of autonomy in tax collection. It helps in strengthening the fiscal structures of local government. As per the statistics (World Bank 2012) the level of share of tax revenue collection was 5%, compared to 25% expenditure that incurred. However, post decentralization has helped in improving the provincial tax domain and buoyancy including services tax (Mittru, Anwar, & Gillani, 2021). As estimated by the institute of public policy, effectively taxing the base would produce 0.5 % equivalent of GDP. On the contrary since 1997 provinces are having a challenging time levying and collecting taxes on agriculture income. Since decentralization, the officials of the respective provinces have started collection of decentralized taxes under their own operational setups i.e. collection

agencies (ul Haq, 2016). They were empowered to setting up their own independent tax collection institutions and boards (Zaman, Subhan, Mumtaz, & Khan, 2018). Taking the lead, the Government of Sindh established an organization, Sindh Revenue Board (SRB) in 2010 and enacted an act for levy and collection of devolved Sales Tax on Services in 2011. This followed by Punjab Revenue Authority (PRA) created via Punjab Revenue Authority Act, 2012 in 2012 by Government of Punjab to levy and collect devolved services tax, initially on fourteen services. Subsequently, Khyber Pakhtunkhwa Revenue Authority (KPRA) was established in 2013 in Khyber Pakhtunkhwa for the purpose of administration and collection of transactions taxes on services. Finally, Baluchistan Revenue Authority (BRA) formed in 2015 for enforcement and collection of said devolved tax in Baluchistan (Raudla, Bashir, & Douglas, 2019).

Although for collection of decentralized services tax, the provinces have established institutions for them, however, manpower with relevant skills is still lacking. This include, manpower having expertise in tax collection, and other necessary human capital skills. The provinces welcomed the decentralization after 18<sup>th</sup> amendment; however, it fell in disagreement with FBR on types of collection, as well as FBR collection reduced, because of Sales Tax collection transferred to provinces. Hence, provinces appreciated decentralization, on the other side; they lacked necessary skills of sales tax collector, which created uncertainty to achieve maximum collection as per their actual potential in the services industry (Cyan, Koumpias, & Martinez-Vazquez, 2016). For taxpayers, however, the troubles increased, because now they have to face two governments, both provincial and federal for tax payments. It increased more time consumption, red tape and paperwork for taxpayers. Bukhari (2020) concluded that almost all chamber of commerce raised their concerns about these challenges faced by businesses. The scattered collection system formed after devolution was not welcomed, and an integrated system was demanded by the taxpayers in services sector. Hence, because of certain reasons this job has been challenging for the officials and is weakening and worsening specially in the immediate years following decentralization. It is estimated by the World Bank from the provincial government fiscal operation reports that the oscillated ratio of tax collection has been from 0.35% to 0.55% of GDP and is on the falling trend. This weakening performance of the respective provinces collection agencies is causing serious concerns for the federal government causing stress on federal resources. Especially after the amendment, provinces are expected to tap their own potential in the devolved taxes.

The same situations were faced by newly established KPRA too. They faced various challenges including lack of expertise, human capital, legal challenges for collection laws, and administrative and management skills that led to fiscal challenges to the provincial government, during the commencement years of KPRA. This was followed by Khyber Pakhtunkhwa Finance Act 2013, where the provincial government established several directorates for collection, as well as appellate tribunals for grievances of taxpayers. However, it took time to make these operational in Khyber Pakhtunkhwa. Hence, lack of expertise human resources, lack of relevant efficient laws and regulations, confusions among taxpayers and general public and other such issues affected KPRA performance greatly, resulting in collection of KPRA less than true potential and created fiscal challenges for provincial government as stated by (KPRA, 2020). In the following years of decentralization, in the province of Khyber Pakhtunkhwa, GST on service was imposed on 11 sectors only. In the beginning this was very limited base, and collection was very low. This was followed by robust expansion of bringing in more sectors to the base. As of 2018 there are now 91 sectors that contribute towards GST on services in Khyber Pakhtunkhwa. This has significantly increased the collection of revenue for the province of Khyber Pakhtunkhwa in nominal term. Currently, KPRA is collecting to the tune of 56% of total provincial revenue showing better performance compared to the initial years of decentralization (KPRA, 2020).

Singer (1968) suggests that it is the important factor to review empirical studies of tax buoyancy for effective designing and implementation of the tax systems. Therefore, it is of great importance to know the magnitude of buoyancy of tax system and the factors that constitute such magnitude. Likewise, decentralization of tax on services was the result of 18th major Amendments to the constitution of Pakistan in 2010. This is considered a major intervention by legislation authorities in the fiscal system of Pakistan and is, therefore, subject of the current research work.

### **1.1. Problem Statement**

The subject of decentralization of taxes is considered as complicated process and sensitive issue in Pakistan. If not done with required planning, it can further affect the fiscal situation of the country as well as the provinces. In the initial years of devolution, the tax collection has been ambiguous because of complexities created due to lack of preparation of the provinces specifically Khyber Pakhtunkhwa. The freshly formed revenue authority in the province is still facing significant challenges that lead to the questioning of its actual potential and effectiveness despite increase in nominal collection of services tax.

### **1.2. Objective of the Study**

The present study is aimed to evaluate the decentralized tax system performance in the province of Khyber Pakhtunkhwa. This evaluation will determine whether the decentralized tax system of the province is performing efficiently and generating enough revenue from the tax on services sectors. In the current study, buoyancy of the services tax with regards to services sector is measured for the first time in Khyber Pakhtunkhwa. The buoyancy is measured for the purpose to assess the effectiveness of decentralization policies, and its impact on revenues from devolved services tax. The study aims to identify weaknesses for enhancement in collection of GST on services in the province of Khyber Pakhtunkhwa.

### **1.3. Significance of Study**

In advanced countries and some emerging countries, the level of the organization, being a central or sub central, that is responsible for tax collection is being subject to various research and discussions, especially in the recent past. In Pakistan, the 18th amendment in the constitution was a key movement where provinces were given the right to collect tax on services in their respective geographical domain. This is considered a great opportunity where the provinces are free from federal interference with regards to development of tax collection policy and authority. Although the establishment of authorities was quick, but like any other new organization, these established authorities started facing significant structural and operational challenges in performing their tasks of tax collection (Shah, Shah, & Shah, 2021). With this regard, the KPRA has taken several numbers of initiatives and reforms to improve provincial revenue collection, however there were still operational constraints such as skilled manpower, lack of expertise, which affected the overall potential of tax collection. Hence, it justifies the need to assess post-decentralization services tax status of Khyber Pakhtunkhwa and measure buoyancy and elasticity of devolved tax on services.

### **1.4. Organization of Study**

Research began with an introduction, followed by a statement of the problem, objectives and significance of the study. The second part focuses on the literature that has already been written about the current research topic. The third part of the current study based on the methods used for this investigation. It includes econometric models that adopted for this study as well as data collection, analytical procedures etc. Fourth part based upon results and discussions obtained from analytical technique. Last part focuses on the study's conclusions and recommendations.

## **2. Literature Review**

The role of the public sector has evolved significantly when it comes to the management of economy and decision making. Because of this paradigm shift, traditional finance management has been the subject of questions and new approaches have been suggested (Bale & Dale, 1998; Hughes, 2017). One such approach is decentralization which has been adopted and tested by several countries. One of the popular elements of decentralization approach is fiscal decentralization, where central government authorities devolve fiscal collection powers to local administrative units (Balunywa, Nangoli, Mugerwa, Teko, & Mayoka, 2014). The argument for this approach is that the lower-level administrative units will use the available resources more effectively and will have efficient collections (Akinyele, 1996). Although, it is complicated to assess the factors that determine the devolved tax efficiency, still, the concept of tax buoyancy can be studied. Tax buoyancy explains how a revenue change as tax base is varied. The objective of system restructuring is to increase tax buoyancy above the unit for an increase in fiscal collections by more than its base (Beling, Benedek, De Mooij, & Norregaard, 2014).

Following this, the concept of tax buoyancy has been the subject several studies and noted countries achieving better tax collections adopted devolved tax collections (Oates, 1972; Rodríguez-Pose & Gill, 2005). In such cases, Kargbo and Egwaikhide (2012) found higher buoyancy estimates in Sierra Leone. The researchers further demonstrated that for mobilization of additional tax revenues, discretionary tax measures were effective. Similarly, Yousuf and Huq (2013) investigated direct and indirect tax buoyancy for pre and post reforms in Bangladesh. For the years 1980–2011, the author used a slope dummy to address the discretionary effect. The researchers found a buoyant tax system after reforms and suggested that tax elasticity and buoyancy were effective indicators for measuring efficiency of tax systems. Following the suite, Muriithi and Moyi (2003) assessed individual tax buoyancy and collective tax system buoyancy in Kenya, following Kenya's major restructuring in tax structure. The findings of the study noted that following structural changes overall tax system was buoyant. Similar to this, Kusi (1998) investigated how Ghana's tax reform affected tax yields from 1970 to 1993. In comparison to pre-reform buoyancy of 0.72 and elasticity of 0.71, he discovered that post-reform buoyancy (1.29) and elasticity (1.22) were significantly bigger. Smuggling, unreported commerce, tax evasion, and weak tax collection practises were primarily blamed for the low buoyancy and elasticity during the pre-reform period. Ramu (2021) concurred with arguments and conclusions presented by Yousuf and Huq (2013) by suggesting that significant reforms and restructuring plan have positive effects on buoyancy.

For Pakistan, the 18<sup>th</sup> amendment in the constitution provided major restructuring plan for fiscal collections. The amendment is termed to be the most significant and landmark reform steps taken in the history of the country to empower provinces (Majeed, Qureshi, & Qayum, 2021). The authors claimed that this decentralization provided opportunities to the provinces to exploit more service tax sectors. The authors, however, did not address the uncertainties and ambiguities following decentralization. Following the decentralization in Pakistan, Aslam and Yilmaz (2011) studied a different approach by applying an intervention analysis model and analysed the service sector of Pakistan. The authors concluded that the decentralization improved the magnitude of service delivery. Ghaus-Pasha (2012) noted that following the decentralization, there is potential in the country for provinces after the service tax collection is transferred to provinces. The author, however, warned of consolidated fiscal deficits, if both provincial and central tax authorities fail to improve their efforts.

The decentralization of fiscal system, however, has disadvantages too. Several studies have noted buoyancy to be negatively affecting following decentralization of taxes. One of the arguments for failure of decentralization is the non-existence of relevant resources, and lack of planning and preparation at the provincial levels (Dabla-Norris, 2006; Jin & Zou, 2005; Smoke & Lewis, 1996). As a result, there are chances that buoyancy may fall as compared to its base. Bahl and Wallace (2005) also noted that post decentralization benefits may not be realized under an inhospitable environment. Oommen (2006); Rodden (2002) also indicated that that if decentralization efforts at the provincial levels are ill designed, not well prepared, the province lacks relevant skills, then such devolution will lead to fiscal imbalances at lower levels leading to substantial fiscal operation failures. To evaluate tax collection of Kenya following restructurings and general administration improvement in Kenya's Revenue Authority, Wanjala (2020) used dummy variable technique. The author noted following his conclusions that the prevailing system had failed to increase required revenues.

Nabi and Shaikh (2010) noted that fiscal decentralization is challenging to be implemented in Pakistan, mainly because of the lack of relevant skills of the provinces for dealing in inter-provincial tax systems. The authors argued that this will result in realization of decentralization benefits less than the capacity. Martinez-Vazquez and Richter (2009) also made note of the inefficiency of the tax administration apparatus at the provincial level, particularly in Khyber Pakhtunkhwa and Punjab. The author claimed that both provinces suffer from inaccurate and out-of-date records, implying that the genuine tax base is not well understood. Due to difficulties with services tax collection at the corporate level, a lack of political will, and poor tax administration at the provincial level, the income potential of a sales tax is not fully realised. One other such aspect of not fully reaping the benefits of decentralization tax systems is because of the theme of decentralization as stated by (Osoro, 1995). He further identified that the subject of decentralization is mainly based on devolution of tax structures, and not administration. This leads to unpreparedness of provinces for tax collection because they lack in relevant administrative skills and human resources. This in turn leads to fiscal imbalances at local level.

Likewise, Lopez-Calix and Touqeer (2013) further observed ill efforts to collect new taxes by the provinces in Pakistan, especially in initial years of decentralization. The authors noted that this was due to different tax compositions, and administrative obstacles that caused low tax buoyancy. Other factors that caused negative effects on tax buoyancy, as outlined by Bilquees (2004), are inherent weakness in economic structure and undocumented economic activities. This leads to many unorganized activities that are not documented and therefore goes untaxed. The researcher suggested that provinces after devolution can levy indirect taxes on most professions, trades, and callings.

Summarizing the discussion above, it can be noted that there have been several studies that discuss the decentralization structures benefits on tax buoyancy in general. However, the studies that specifically target the tax buoyancy following post decentralization in the province of Khyber Pakhtunkhwa are hardly found. Consequently, the current study is based on assessing tax buoyancy levels in the province of Khyber Pakhtunkhwa which has been unexplored. In the absence of empirical analysis, this paper intends to be the first of its kind to shed light and fill the research gap by applying intervention analysis model.

### 3. Research Methodology

#### 3.1. Model Specification

To measure buoyancy and elasticity of decentralized services tax in Khyber Pakhtunkhwa an econometric model is developed. To serve this purpose, general discussions begin with the functional form i.e. economic model which is given as;

$$SST = f(PSS, \varepsilon_i) \quad (1)$$

Where, SST=Services Sales Tax, PSS = Output of Provincial Services Sector, and  $\varepsilon_i$  is error term. From the above economic model (1), an econometric model can be specified as:

$$SST = \beta_0 \pm \beta_1 PSS_i \pm \mu_i \quad (2)$$

However, assuming the effect of decentralization after the year 2013, a binary dummy variable as an intervention variable, with addition of interaction terms is introduced in the model. This empirical technique is proposed and applied by (Chipeta, 1998; Nelson, 1959; Orme, 2014; SAMAILA & MAIJAMA'A, 2021). Thus, re-specifying model (2), an econometric double log regression and intervention model for long run estimates in re-specified form is cited below:

$$\ln SST_t = \phi * SST_{t-1} \pm (1 - \phi) [\beta_0 \pm \beta_1 \ln PSS_t \pm \beta_2 D_t \pm \beta_3 D_t * \ln PSS_t] \pm \mu_t \quad (3)$$

Similarly, for short-run analysis, the model can be stated as:

$$\ln SST_t = \phi * SST_{t-1} \pm \beta_0 \pm \beta_1 \ln PSS_t \pm \beta_2 D_t \pm \beta_3 (D_t * \ln PSS_t) \pm \mu_t \quad (4)$$

Where, SST stands for Services Sales Tax which is collected by tax agencies pre and post devolution during the period 2001-2021. PSS is output in Services Sector of Khyber Pakhtunkhwa used as a base for decentralized services tax for the period 2001 to 2021. D is the Decentralization and taken as one-off variable, which takes zero value before decentralization and one after and during decentralization in the models. Dummy variable is added in the model to offset the assumed structure break that happened after decentralization.  $D_t * \ln PSS_t$  is the interaction variable which has been introduced in both long-run and short-run models to assess the interaction effect of decentralization and variation in services sector on gross devolved GST collection. It assumes a value equal to  $\ln PSS_t$  for after decentralization period (from 2014 to 2021) and zero (0) in pre-devolution period (2001-2013).

In the models (3 and 4)  $\beta_0$  is the intercept.  $\beta_1$  is the magnitude of tax buoyancy in pre decentralized period. While  $\beta_2$  captures the effect of decentralization on tax buoyancy. The subscript t-1 expresses the lag length of the variable. Log form (ln) is taken with all the variables.  $\mu_t$  represent the uncorrelated disturbance term.

Finally, for time period t, the above models (3 and 4) used to examine buoyancy of services tax with elasticity before and after decentralization for long-run as a policy measure and

short-run as well, respectively. Hence, the above equations imply that the Decentralized Services Sales Tax Revenue defines in term of provincial services sector, binary dummy variable, interaction term for both pre and post decentralization and error term.

The elasticity of the services industry as a particular tax base to services income is used in the current study. While buoyancy is a measurement of how responsiveness of tax revenue is to changes in its base, which includes services sector and changes in tax policy that are at the discretion of the government (Dougherty & de Biase, 2021). Changes that increase tax income from the same tax base are considered discretionary. It is a component of fiscal policy; hence the current study was able to capture its impact (Bekoe, Danquah, & Senahey, 2016).

#### 4. Results and Discussion

##### 4.1. Augment-Dicky Fuller (ADF) Test

Unit root test which shows the stationarity of the data play crucial role in the selection of appropriate analytical technique. For the purpose, ADF unit root test is carried out as a basic and initial stationarity test of which results for all the variables are given in table 1. The variable with probability less than 0.05 are assumes stationary as per given level. The results checked with trend and intercept, because generally trends are found in time series. The result of ADF unit root test is as follows:

**Table 1: ADF Unit Root Test Results**

Variables	Level	Prob.	1 <sup>st</sup> Difference	Prob.	Conclusion
	ADF t-statistic		ADF t-statistic		
LNPSS	-3.12871	0.1267	-5.05221	0.0037	Stationary at 1 <sup>st</sup> Difference
LNSST	-2.39959	0.3684	-4.96965	0.0043	Stationary at 1 <sup>st</sup> Difference

Source: Authors' computation

The table 1 represents the outcomes of ADF unit root test for both variables. The results show that both the variables PSS i.e. provincial services sector and Services Sales Tax (SST) are stationary at first difference 1(1) with trend and intercept. However, due to existence of break in post devolved data, therefore, researchers most often use Chow breakpoint unit root test for stationarity checking instead of conventional ADF test. Detail of which is given as follows:

##### 4.2. Chow Breakpoint Unit Root Test

As compared to traditional stationarity tests of ADF that do not have the ability to detect stationarity where there are structural breaks, therefore, Chow unit root test was applied. Vogelsang and Perron (1998) also recommend use of Chow unit root tests in series with structural breaks with substantiated evidence. As the current study is having structural breaks because of service tax decentralization, therefore Chow unit root is applied for stationarity, as described in the following table 2:

**Table 2: Breakpoint Unit Root test results for BREAKDUM**

Description	Variables	Chow t-statistic	Prob.*	Break Year
Levels	LNPSS	-5.8290	< 0.01	-
	LNSST	-6.8859	< 0.01	2013*
BREAKDUM	-	-	0.0000	-

Source: Computation by the Authors

The results of table 2 are fundamentally not the same as traditional ADF unit root. The result of Breakpoint Unit Root test of both variables i.e. LNSST and LNPSS shows that it is stationary at levels 1(0) with probability value at less than 0.01 with break year after 2013 which coincided with the period of decentralization. This is the matchless quality of Chow Break Unit Root test to catch potential break in data. Hence, both the selected variables are found stationary at level 1(0), therefore, it follows that Linear regression model can be applied.

##### 4.3. Chow Structural Break Point Test

It is evident from the literature that there can be structural breaks in time series data. This break could be in the form of policy change or shifting of responsibilities or any other major

change. In the current study, there is a structural break, where the services tax sector was decentralized to the provinces from centre. Since 2013, the province of Khyber Pakhtunkhwa has been collecting the service taxes in its region. Because of such breaks in data, the present study employed Chow Structural Break point test frequently used by researchers to detect break in the data.

In the current research, to deal with structural break because of decentralization and guarantee stability of the model, the study shadows similar empirical methodology from work by (Adamu & Mohammed, 2022). The result of Chow test for detecting structural shift is presented beneath:

**Table 3: Chow Break Point Test for Structural Break**

Description	Value	Description	Prob*
F-statistic	39.40143	Prob. F(2,17)	0.0000
Log likelihood ratio	36.31066	Prob. Chi-Square(2)	0.0000
Wald Statistic	78.80285	Prob. Chi-Square(2)	0.0000

Source: Based on Authors' estimation.

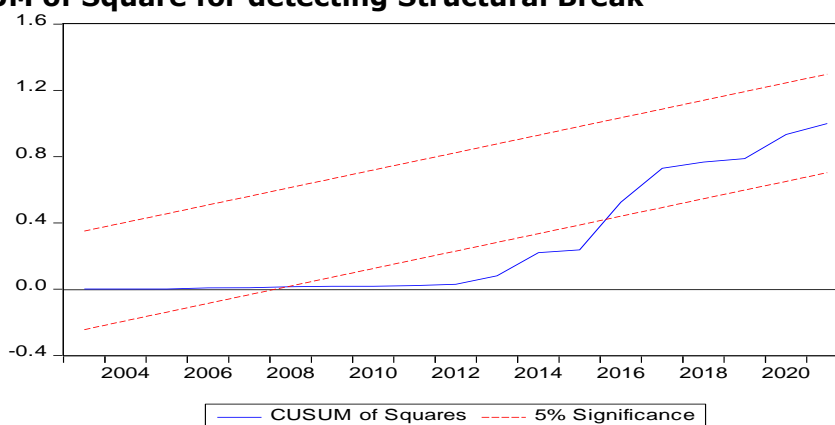
In the table 3, the chow break point test declared the presence of structural break in the year 2014, which matched with the year of decentralization of services tax. Structural Break can be observed from F-Probability value which is less than 5%. In such case, if not considered structural break; the results got from estimation of the basic regression model will be spurious, regardless of whether, all the parameters are viewed as significant.

For such cases, researchers have used dummy variables in the models. In the current study, data is categorized in pre and post decentralization categories of fiscal collection. Dummy variable is 0 for years before the structural break and 1 for years after the structural break. Similar procedures have been used in the past by several researchers such as (Ahiabor & Amoah, 2019; Kim & Park, 2018; Panjer, de Haan, & Jacobs, 2020).

#### 4.4. Stability of the Model Considering Structural Break

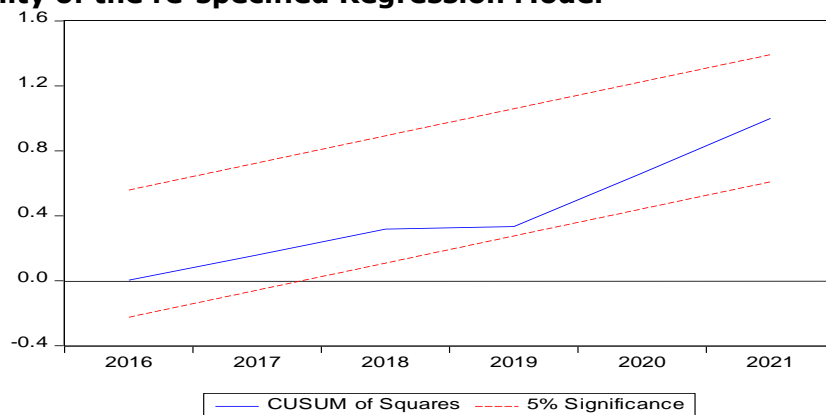
Stability of the model was check by plot of the CUSUM of square stability test without considering structural break in the data. The result confirmed that structural break exists in the year 2014. The result of the test accorded with the year of decentralization and is presented in figure 1.

**Figure 1: CUSUM of Square for detecting Structural Break**



Plot of the CUSUM of Square (CUSUMSQR) in Fig. 1 is obtained from basic estimation of equation (LNSST C LNPSS) and the plot deviate out of the 5% boundary indicating break in the model. This further encourages the present research to perform Chow Break test and outcome confirmed the occurrence of the break as presented in Table 2 above. In such case, if not accounting for structural break, results obtained from estimation of the basic regression model shall be spurious, even if, all the parameters of the model are found significant. After including a dummy variable with an interaction term in the fundamental regression model, the model is re-specified. The re-specified model's stability is given below.

**Figure 2: Stability of the re-specified Regression Model**



By adding dummy and interaction factors, residuals are examined to confirm the re-specified model's stability in the absence of a break. The above graph supports the model's stability, as evidenced by the data that lies between the model's extreme points (Barnard, 1959).

**4.5. Normality Test and Variability of the Data**

The normality test is a crucial step in choosing statistical methods for data analysis and ensuring accurate results. Therefore, the current research conducted Jarque and Bera (1987) test for checking normality of the data before estimation of the model. The results declared that the data is normal for which detail is given below:

**Table 4: Normality test and Descriptive Statistics**

Variables	Mean	Maximum	Minimum	Std. Dev.	Jarque-Bera	Prob.*
SST	7.39142	9.16000	6.10000	1.08710	2.85652	0.23972
PSS	13.2603	13.51000	12.94200	0.17692	1.36437	0.50551

Source: Authors' computation (2022)

As shown in table 4, a normal average value of services sales tax (SST) is 7.39, while the worth of KP services sector (PSS) is 13.26. The standard deviation values showed fluctuation in the series. The p-value of the Jarque-Bera coefficients are greater than 0.05 witnessed insignificance for both the variables, which is; 0.239 and 0.505, subsequently, affirming the presence of normality among the related series.

**4.6. Estimation of Tax Buoyancy and Elasticity Model**

For tax buoyancy estimation, for both post and pre decentralization periods, double log regression models (models 03 and 04) have been fitted for both short and long run analysis. Stationarity of both variables i.e. LNPSS and LNSST were tested and were found stationary at levels 1(0). Following these findings, the impact of decentralization on buoyancy of services tax was verified using double log Intervention model. Similar estimation methods have been proposed and applied by (Chow, 1960; SAMAILA & MAIJAMA'A, 2021; Upender, 2008). In the following table the outcome of estimation of tax buoyancy is presented:

**Table 5: Degree of Tax Buoyancy & Elasticity Pre and Post Decentralization**

Estimates	Variables	Before Decentralization		After Decentralization	
		Co-efficient (t-Statistic)	Prob.	Co-efficient (t-Statistic)	Prob.
Buoyancy	C	12.53659 (3.73384)	0.0047	-32.31043 (-2.04221)	0.0966
	PSS – SR	-0.93946 (-3.54219)	0.0063	2.69297 (2.24622)	0.0746
Elasticity	PSS – LR	-12.95774		2.49042	
	PSS – SR	-0.70035		24.45604	
	PSS – LR	-12.71863		24.25349	
	R-Squared	0.87744		0.70949	
	Prob(F-Statistic)	0.00007		0.04548	
	Durbin-Wat stat	1.94425		1.71313	

Source: Authors' computation



The regression result for both before and after devolution shows that the F-probability is extremely low for all results, which confirms that the model is significant. Furthermore, the explanatory variables account for a sizable portion of the dependent variable, as the R<sup>2</sup> is quite high. Additionally, the value of Durbin Watson statistic is 1.94 which is within the normal range. The standard limit is between 1.5 and 2.5 as suggested by (Field & Golubitsky, 2009), hence, there is no severe positive or negative autocorrelation in the regression.

Furthermore, the regression outcome for pre-tax decentralized period depicted that buoyancy of SST is significant and less than unity, i.e. -12.95 value obtained for long run while the value -0.93 represents the short run results. This result reflects that 1% growth witness in services sector in the Khyber Pakhtunkhwa territory might decrease devolved tax on services for both long-run and short-run by 12.95% and 0.94%, respectively. On contrary, the most concern result for period after decentralization which is after 2013 period over the long run is 2.490. Similarly, the result for the short run is 2.69. The result stated that services GST collection for short and long run elevates by 2.49% and 2.69%, respectively due to 1% increase in its base. Hence, the tax on services sector after decentralization is buoyant in both cases. The relative outcomes were also observed by various specialists, for example, (Arif, Khan, & Hussain, 2017; Bayu, 2015; Rasheed, 2006; Shahzada, Siddique, Mustafa, Hussain, & Abbasi, 2016; Upender, 2008).

Furthermore, the results for tax buoyancy are also illuminating that the services tax after decentralization is relatively elastic. The outcome of tax elasticity after devolution for short run is more than 1, i.e. 24.46 and 24.25 for the long run. The results stated above shows that the elasticity estimates are higher than buoyancy estimates which established that discretionary tax measures were ineffective in case of Khyber Pakhtunkhwa. Furthermore, it also revealed that taxes are wholly reactive to changes in income as elasticity estimates are higher than unity in post decentralization system. In order to determine if the measures stated would have their full effect during the year, the short-run results are included. However, only the long-run estimations are considered with respect to its base because it is more pertinent from a policy viewpoint.

The services tax is buoyant and elastic due to increased services tax collection by the KPRA as like other devolved services tax agencies in Pakistan during the past few years. The KP services sales tax experienced the largest growth of 64.84% in tax year 2019–20 compared to any other financial year. This was mostly caused by the expansion of the service sector in Khyber Pakhtunkhwa following devolution, notably by rising demand for telecommunication services across the entire nation. When compared to the prior fiscal year, the telecom sector's services tax collection has also had the largest growth—a 169% increase—during 2020. With the largest proportion of 37% in total revenue in the most recent year (2020–21), the telecom sector continued to be a significant revenue provider (Imtiaz, Khan, & Shakir, 2015; KPRA, 2020; Latif, Lei, Pathan, Hussain, & Khan, 2018). In addition, services connected to the discovery, extraction, and sale of oil and gas in the province are subject to the services tax. Following devolution, massive gas and oil reserves were discovered as a result of technological innovation in the oil and gas industry and seismic investigations conducted in the Kohat and Tal districts. Together with some departmental efforts, these discoveries contributed to a recent 105% increase in services tax collection. Additionally, this expansion has produced new chances for revenue production from a variety of activities, including transportation, logistics, building, and other associated services (Abbasi, 2018; KPRA, 2020).

After KPRA took over, the decentralised services tax collection is buoyant and elastic primarily because of the expansion of economic factors. However, the official reports released by KPRA confirmed that since its start, the aforementioned revenue body has failed to meet the revenue targets set by the government without considering the administrative competence of new revenue agency. However, later on, despite modification and lowering tax targets, data evidence showed that there were significant discrepancies between nominal collection and targets issued over the years. In addition, the services industry in Khyber Pakhtunkhwa has tremendous potential, however KPRA has not formally quantified it and a sizable portion of it is still untaxed. As a result, the province heavily relies on federal transfers to cover expenses (Bukhari, 2020).

A tax gap analysis conducted by the PRA in association with the World Bank and the UK revealed a 70% tax deficit (CDPR, 2018). Due to the vast informal services industry there, Khyber

Pakhtunkhwa is predicted to have a higher tax potential than Punjab. In the initial years of decentralization, the value added by the services industry in Khyber Pakhtunkhwa is projected to be Rs. 1557 billion, according to a tax potential estimate published by the International Growth Centre (2015). The potential tax income is Rs. 62 billion, if a value added tax at an average rate of 16% is applied to all services at a 26% ratio (this is Pakistan's federal sales tax's efficiency ratio). In Khyber Pakhtunkhwa, this tax potential as per similar procedure rises to Rs. 145 billion for the fiscal year 2020. This showed that, following devolution, there is a significant disparity between nominal collection and actual potential in the services sector.

The KPRA's difficulties and the complexity that followed decentralization are the main causes of the services tax collection deficiency and the sizeable untaxed sectors. These include the government's inability to effectively collect taxes due to both administrative shortcomings and a lack of a specialized institutional framework, as noted by (Bahl & Wallace, 2005). Additionally, the authors contend that Pakistan's tax agencies have considerably greater potential than is currently realized. But the province is unable to realize that potential due to a lack of suitable administrative and institutional framework.

Low taxable capability is also highlighted from reports of Regional Account Wing, Bureau of Statistics, Khyber Pakhtunkhwa (2021) that the contribution of services sector in total GDP of Khyber Pakhtunkhwa at Rs. 699,788 million in the year 2020-21 which is estimated at 56.37%. However, the current tax collection is only 4.2% that exhibited huge revenue loss to the government, despite nominal collection raises from PKR 6.02 billion in 2013-14 to PKR 20.80 billion in 2021. Hence, their capacity to tax all taxable services is quite inadequate; however, the potential is very high. Similarly, the province was not up to the required pace to increase tax collections from the service sectors. This indicates that the responsiveness of the province is slow in adapting to the post decentralized period, increasing the tax and widening of the tax base. Such adverse situation is also proved from the figures of fiscal budget for the periods of 2018-19, indicating provincial government tax collections from its potential in between 6.1% being the lowest, and 20.5% being highest. However, efforts of Khyber Pakhtunkhwa Revenue agency after decentralization cannot be undermined regarding tax evaders in services sector to bring them into tax net (Nazir, 2020). The tax exemption under article 247(3) of the constitution of Pakistan to merged areas in Khyber Pakhtunkhwa has also restricted KPRA to collect taxes from potential sectors, especially tourist sector (Khan, 2017).

Continuing with the reasonable cause of services un-tax revenue, it is also notably mentioned (Kashif., 2020) that the current Sales Tax Act in Khyber Pakhtunkhwa does not clearly determine a comprehensive definition of services. This opens up gaps for different interpretations by the tax authorities, which leads to lower coverage of services, consequently lower collections. This can be further explained by the fact that service taxes collections are only 0.6% in tax to GDP ratio, while, the service sectors contribute 56% to GDP. Furthermore, it also created a clash of jurisdiction between provinces and FBR, where other provinces and specifically, FBR claim taxes over different services sectors. It can be concluded here that because of the non-existence of a comprehensive framework for sales tax on service sectors, the existing system provides opportunities for tax evasion, through different means. Whereby different services are provided, and different services are claimed.

Hence, there are reasonable evidences why the province Khyber Pakhtunkhwa was unable to efficiently actualize its potential of revenue collections after decentralization. Therefore, this situation regardless of buoyant tax regime demands more actions from Khyber Pakhtunkhwa Revenue Authority with the support of provincial government and coordination from federal revenue agency.

## **5. Conclusion and Policy Recommendations**

The present study was stimulated to investigate the effectiveness of fiscal decentralization policy of Pakistan. The analysis found that the buoyancy of the GST on services during the pre-tax decentralized period is less than unity with a long-run value of -12.95 and -0.93 as a short-run value. On the other hand, over the long run, 2.490 is the outcome of the post-decentralization period, i.e. the time following 2013. The outcome for the short term is also buoyant at given value of 2.692. Thus, during the post-tax devolution phase, the estimated tax buoyancy has positive and more than unitary impacts. The results for tax buoyancy also showed that, following decentralization, the tax system was quite elastic. However, the present research on Khyber

Pakhtunkhwa as a case study, assessed that general sales tax on services were not collected as per actual potential in the services industry after decentralization despite being buoyant tax regime. The KPRA has not even able to achieve its targets for tax collection in this area. This reveals that, following major devolution, the province of Khyber Pakhtunkhwa was not ready, and therefore was not prepared to reap fiscal benefits of a decentralized tax regime. Because of the lack of existence of the system and emergence of complexities after decentralization, the KP revenue authority is unable to efficiently exploit the decentralized GST on services despite the provisions from the constitutional amendment. However, the efforts of newly established tax authority cannot be undermining that endow with noteworthy progress in nominal collection despite having multiple structural issues.

This concludes that fiscal decentralization in the province was the desirable fiscal option for the purpose to empower the provinces to create financial opportunities and efficiently collect devolved tax. However, being the first such major step, there are some challenges that can be dealt with, though, the policy of decentralization itself cannot be criticized for not actualizing its full benefits. There is room for improvement at both capacity and administrative levels which can be instrumental enabling KPRA to collect devolved services at its actual potential.

Such improvements may include, but not limited to, training sessions for human resources, consultation with experts, induction of latest information technology etc. One such opportunity at the operational level is expansion of the tax base. Other issues pointed out here must be addressed to reap the benefits.

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