

THE IMPACTS OF FLUCTUATIONS IN PUBLIC REVENUE AND EXPENDITURES ON ECONOMIC GROWTH IN PAKISTAN: AN IMPULSE RESPONSE APPROACH

¹Zia Ur Rahman, ²Musarat Abbas, ³Madiha Riaz and ⁴Saeed Ur Rahman

¹Lecturer, Department of Economics, Ghazi University, Dera Ghazi Khan, Pakistan,

*Corresponding Email: zia4939@gmail.com,

²Lecturer, Department of Economics, Ghazi University, Dera Ghazi Khan, Pakistan,

Email: musarat_abbas2000@yahoo.com,

³Assistant Professor, Department of Economics, Ghazi University, Dera Ghazi Khan, Pakistan,

Email: Mriaz@gudgk.edu.pk

⁴Lecturer Department of Economics, Ghazi University, Dera Ghazi Khan, Pakistan,

Email: Srehman@gudgk.edu.pk

ARTICLE INFO	ABSTRACT
<p><i>Article History:</i> Received: January Revised: February Accepted: March Available Online: April</p> <hr/> <p><i>Keywords:</i> Direct Tax, Productive Expenditure, Gross Domestic Product, Ramsey RESET Test and Impulse Response Function.</p> <hr/> <p><i>JEL Classification:</i> E62, H50</p>	<p><i>Allocation of public revenue among productive and non-productive expenditure and its impact on GDP are not extensively studies in Pakistan. In this study, we examine the relationship between government revenue, productive and non-productive expenditure and economic growth and sustainability over the period of 1978-2018 with the help of Johansen co-integration, error correction test and Impulse Response Function. The result of the study affirms a significant long run and the short run relationship between the fiscal instruments and the economic growth in Pakistan. Finally, impulse response illustrates that when direct tax is higher than GDP, productive and unproductive expenditures are also increased. It has also been observed some unproductive expenditures smooth the way for the economic growth. For the future better implication of fiscal policy and to achieve economic growth and development Government should take steps to increase its revenue through taxes. Tax collections can be increased by proper utilization of tax revenue and by educating people that tax is the responsibility not the penalty.</i></p>

© 2021 The authors, under a Creative Commons Attribution-Non-Commercial 4.0

1. INTRODUCTION

Fiscal policy is a well-known policy to achieve economic growth, development and stabilization in the economy both in developed and developing economies. This policy has two tools i.e government revenue and government expenditure to achieve these objectives. The Keynesian economist believes that any change in government spending and earning (taxation) has an impact on total demand and economic productivity of the economy. Government earning comes through many sources, but the direct and indirect tax are the main source of government revenue. Similarly, government spending consists of productive and unproductive expenditure respectively. (Keynes, 1936). To meet the growing expenditure requirements more revenues are required.

Public expenditures in Pakistan are continuously increasing to achieve economic growth and development. But to meet these growing Public expenditures is a big challenge for developing economies. These expenditures are normally financed through tax and non-tax revenue, but when the revenue from taxes is not enough than these expenditures has been financed through public debt (Ibraimo & Afonso, 2018). Tax collection in Pakistan is very low (Hussain, 2011). Pakistan in 1947, employed the Act 1935 which was designed by the Indian government. Latterly, it was replaced by the Act 1973. It was finalized that central government-imposed taxes and to some extent powers were given to the provincial government to levy certain types of direct taxes. With the passage of time, new policy acts were introduced to rise the tax circle in the economy, but financial arrangement is outfitted with the new targets and goals, yet unfit to accomplish the goal, because of the unproductive government arrangement and incapable duty gathering technique When state is unable to manage its expenses from its profit, nation needs to confront the obstacle of spending

deficiency. At the point when this happens government needs extra assets to determine the issue. To manage, the state invigorates its approach instruments like duty (to gather more reserve government increment the expense ratio reenacting monetary development, prompting increment assess age) or printing of cash by the central bank, which is identified as the obligation adaptation (Economic Survey, 2020).

In recent researches like (Cyrenne and Pandey 2015; Ghosh and Gregoriou 2008; Petrakos et al. 2007), it is reported that the economic growth can be determined with the help of endogenous growth models. Conferring to these models, any policy encouraging factor input accumulation results in the enhanced of economic growth. So, these models assist the governments to develop a broad range of effective growth policies. Researchers distinguished the productive and non-productive government expenditure and facilitates evidences i.e. How a country can increase its economic growth by changing the mix between these alternative forms of expenditure. Kneller et al. (1999) reported that productive government spending influences the private sector productivity. Hence, having a direct impact on growth, while non-productive expenditure, which normally has an effect on citizens' welfare, is likely to have a zero or negative growth impact. On the off chance that the discussion about the shocks, they are unforeseen and capricious and furthermore affect the economy.

The inspiration to pick this segment is to capture the dynamic influence of the product, unproductive, and direct tax on the economic growth. Either increase in the unproductive expenditure influences the economic growth or not. Do all the variables cumulatively affect the economic growth. And more importantly, if one variable fluctuates then tries to capture the behavior of all other variables. Besides trying to capture the association between all the variables. This study tries to fulfill the gap in the literature, while providing the fresh perspective. The remaining work is arranged such as Chapter two comprises on literature review, three explores the theoretical model, data and methodology and in the chapter 4 the result and discussion are given. Conclusion and suggestions are expressed in section 5.

2. REVIEW OF LITERATURE AND HYPOTHESES DEVELOPMENT

A large amount of literature is accessible on the tax impact on economic growth with different variable, but this study employs the direct tax and unproductive spending in analysis to see how these two fluctuates the growth process in Pakistan. The direct tax is the. Main earning head of the income of the state and unproductive spending on the other are high in Pakistan.

It was the Barro (1990), who totally change the method to determine the interlink between government, fiscal growth and the savings of the economy, while introducing the spending of the government in a development model. He claims, if the government decides to enhance the unproductive spending ratio, it will negatively affect the economic development. Though, the Keynesian economist says that spending and the money supply is connected. However, in the event the capital is infused to encounter the productive consumption, it will advance the success and whenever, funded non-productively at that point prompts the financial pain.

Although, the construction of the government expenditure varies from country to country. A variety of projects and plans, which thought that they will assist the economy and positively influence the growth process towards the equilibrium, after obtaining their results it was in the opposed way (Barro, 1991). Moreover, a foremost problem is the volume of the nation and if the economy is advanced then the response will be positive and if the emerging economy the reaction will be negative with the same variables. Although, approximately 80% spending in the non-OECD countries are done to suppose create a positive response and also based on the composition of the spending which vary from country to country (Barro, 1991). A huge amount of literature is available which states that many plans or projects of the government negatively influence the saving and capital accumulation which in turn generates the marginal affect a rise from tax (Barro, R.J, (1991).

Gemmell and Bleaney (1999), particular it is seen that unproductive spending significantly affects the monetary development yet contrarily. In this manner, it tends to be expressed that inefficient spending wins in the absolute government spending, which at last brings down the development rate. The joint impact and the blended impact of the crowding out and inefficient government spending has, as indicated by the previously mentioned i.e, negatively affect

the financial development ratio. Moreover, it is also imperative to consider their demeanor in the period after 2008 (Bleaney, 1999). This period fluctuated from the others by recognizable improvement of government spending as the reaction to the drop of money related development. This reality could similarly sign on the negative impact of total government spending on the money related advancement.

While on the other hand, Maku (2000) explains that some type of expenditures like expenditure on transport, expenses on education, expenses on telecommunications, expenses on power and expenditure on health enhance the economic process. However, the organic product can annihilate by the method for financing. Since government funded it by getting or expanding the duty ratio. Which thusly lessens the effectiveness of the productive consumption and leads the assets to the inefficient. With regards to government use neo-classical and Keynesian are in agreement that if the State builds its consumption this will improve the development. Despite what might be expected, in the event that the rate of tax is expanded, it will decrease the economic development rate. Be that as it may, neoclassical models ordinarily foresee a decrease in private utilization after a development in broad daylight uses because of the negative wealth impacts (Falorian Hopper, 2001).

Well, it's thought that the extent of spending shakes the economic development. The size of the economy influences the economic processing but negatively. DAR and Khalkali (2002) propose that if state employ their unproductive spending in the defense, this will generate the income but in the long term. Countries like Sweden, Norway and USA didn't exist in the overhead reference group since their coefficient is measurably unimportant. Asim and Ihsan (2008) reported that entire expenditure and direct obligation cause an adjustment in total national output enhancement. They come across while building up a connection between the clarified factors (add up to expenses, coordinate duty and GDP). For this reason, they utilize the causality and blunder adjustment strategy for the Pakistan. Additionally, investigate that the capability of social affair income is more when contrasted with the present gathering.

Ali, Yahya and Mashkooor (2009) look at an exploration to uncover the association among the aggregate expense, income tax and gross residential sparing rate of the improvement while utilizing the yearly information 1973-2008. They come to realize that each factor is making advancement develop in the short time span, albeit guide duty total income, don't advance gross domestic product development over the long term.

Unlukaplan and Arisoy (2010) inspect a study, while employing the economic growth, indirect tax and the direct tax for the Turkey, employing the data from 1968 to 2006. With the help of OLS, found the economic development positively linked with an indirect tax. While, the economic growth positively influenced by direct tax. Similarly, to detect the change Junjuwa (2003) utilized the economic development and the direct tax, determines a positive link employing the error correction technique. Hussain (2011) manages a study in Pakistan and Indian economy, to build an association between direct and indirect tax. And determines that a direct tax is appropriate for the Pakistan economy, while the indirect tax scenario is feasible for the Indian economy. Further, he claims that Pakistan economy can achieve its targets while imposing direct taxes in the economy. However, in the Indian economy, indirect tax strategy will be very fruitful.

Abu Qarn (2013) manages a study to explore the utilization of the unproductive spending of the government how it will be beneficial to the emerging economies like Pakistan, India and Bangladesh. He determines that if state employ its unproductive spending in the defense sector to generate new weaponries production for auction, which in turn generates a huge amount of funds in the country, however this strategy is feasible only in the longer time frame. While, in the short time period speculation in the defense is ineffective for the state and some time it is despondent for the administration as well.

The examination results demonstrated that administration spending diminishes monetary development. These outcomes could be most presumably connected to the presence of crowding out impact, with the arrangement of cumulative government expenditure, where the ineffective expenses prevail. Inefficient expenditure is associated with the financing of the purported prosperity of government, or by payments on government managed savings i.e., the last result brings down the rate of monetary development (Rudolf. M, 2014).

Mura (2015) and Stailova and Patonov (2012), found in their study, direct taxes negatively correlated with the economic growth. While indirect tax has a positive association with the economic growth in the six countries from Eastern Europe between 1995 to 2012. Chu et al, (2018), conduct a study analyzing the composition of the expenditure of state and its influence on the economic growth. While utilizing the endogenous growth model and found that an increase in the productive spending in the high-income countries along with lower income countries positively influence the growing ratio. While on the other hand, Bazgan, R.M (2018), a positive a change in the composition of the indirect tax positively influenced the economic growth, but in medium time frames Besides, a positive change in the structure of direct taxes will be affected the economic growth negatively in the coming time period.

In the perspective of the above stated literature review, previous studies were limited in nature and only focus on the role of direct tax or productive expenditure towards growth but the role of unproductive expenditures and fluctuations in variables are still not fully explored. This study tries to fulfill this gap regarding indirect tax and non-productive expenditure with the help of Shockwave of each variable, which in result fluctuate the whole economy. Because a number of questions like what will be the response of economic growth when unproductive expenditure or indirect tax fluctuate from equilibrium. Most importantly, the shoch of fluctuation of unproductive expenditures are given to the concerning variables along with its magnitude on economic growth. It has been observed that the response of a variable which is thought to be in the favor of the economy turns in the opposite direction due to the size of the economy and prevailing economic conditions.

3. RESEARCH METHODOLOGY

Barro (1990) states, when the government chooses to physique the financial extension, ultimately, it will expand the development of the country. Now a day a lot of work is done with growth, and developed a verity of endogenous growth model to establish an association between government expenditure with economic growth the long-term. It was the Devarajan et al. (1996), who first time introduces the theoretical framework, which compel the productive (g_1) and non-productive (g_2) expenditures of the government. By reframing the key equation.

$$GE_i = b_i + \beta_1 \left(\frac{GE_{pro,i}}{GE_{pro,i} + GE_{unpro,i}} \right) + \lambda_1 \left(\frac{GE_{pro,i}}{Y_i} \right) + \eta_i \quad (1)$$

$$GE_i = b_i + \beta_2 \left(\frac{GE_{unpro,i}}{GE_{pro,i} + GE_{unpro,i}} \right) + \lambda_2 \left(\frac{GE_{pro,i} + GE_{unpro,i}}{Y_i} \right) + \eta_i \quad (2)$$

$$GE_i = b_i + \beta_3 \left(\frac{GE_{pro,i}}{GE_{pro,i} + GE_{unpro,i}} \right) + \rho_3 \left(\frac{TX_i}{Y_i} \right) + \eta_i \quad (3)$$

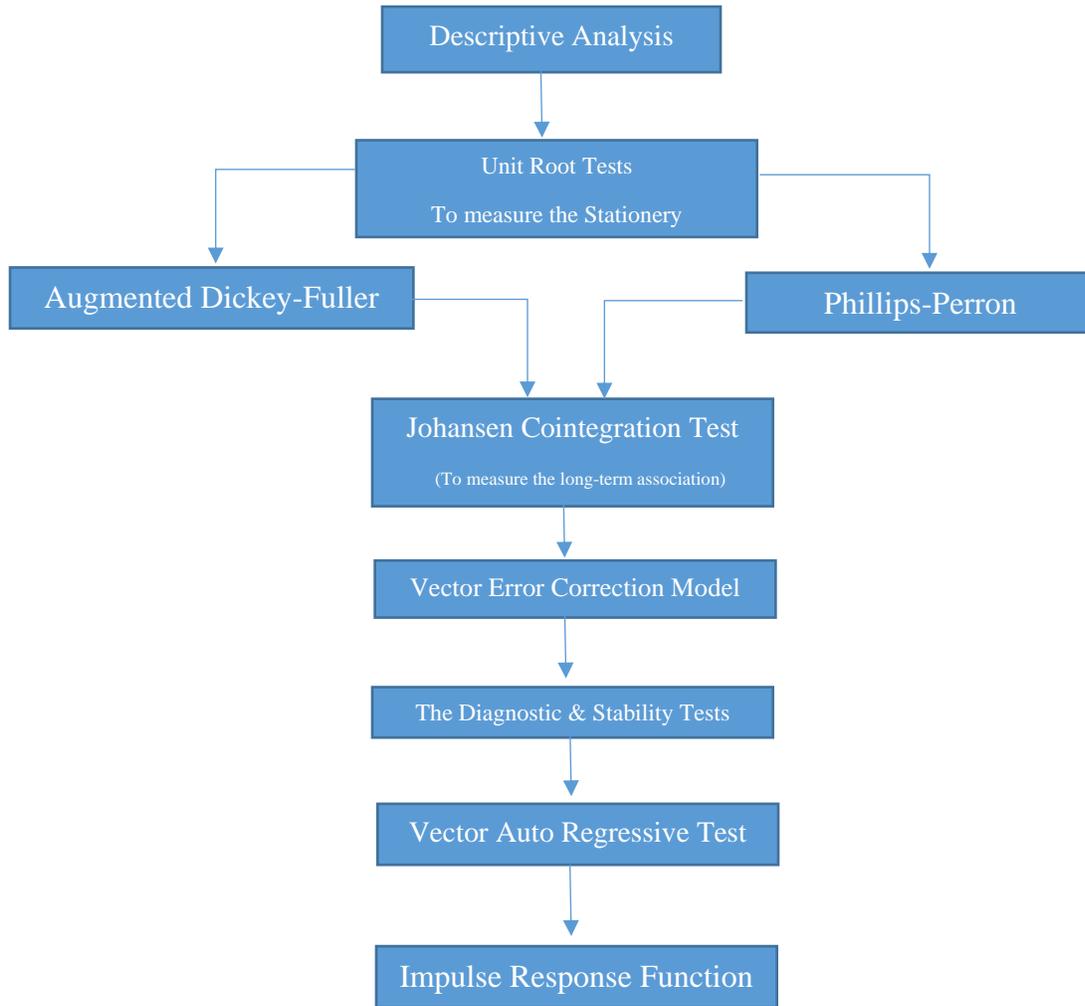
$$GE_i = b_i + \beta_4 \left(\frac{GE_{unpro,i}}{GE_{pro,i} + GE_{unpro,i}} \right) + \sigma_4 \left(\frac{TX_i}{Y_i} \right) + \eta_i \quad (4)$$

The set of equation elaborates the productive, non-productive and tax regression model conditions to enlist the association with the economic growth (Devarajan et al. (1996), Chu, et al (2020)).

3.1 DATA AND METHODOLOGY

The stationery of data is required if employed time series. So, the study firstly employed the Augmented Dickey-Fuller (1979) incorporated with the Philip Perron (1988) test to measure unit root. The beauty and significance of the PP test is, to handle the heteroscedasticity of any level and also perceive the auto-correlation. The flow chart 01 expresses all the steps in a single glance which study is going to follow.

Fig 01. Flow Chart



While, to discover the long-term affiliation among the growth and the explained variables, Johansen test (1991) is employed. However, this test is comprising of two parts Trace value and the Max-eigenvalue such as.

$$Joh_{trace}(m) = -T \sum_{i=m+1}^{\sigma} \ln(1-\lambda_i) \quad (1)$$

While, the Max-Eigenvalue equation is expressed as.

$$Joh_{Max-Ei}(m+1) = -T \ln(1-\lambda_{n+1}) \quad (2)$$

However, “m” denotes the vector number of co-integrations, “T” sample size and the “λ” estimation of the ith series. Moreover, the number of co-integrated equations discloses the consistency of the test for long-term co-integration. For short term linkages between the said variable, the study further will utilize the vector error correction technique (here after VECM). A series of equations regarding VECM are expressed as follows:

$$\Delta GDP_t = \alpha - \beta_1 DXT_t - \lambda_1 UPRO_t - \delta_1 PRO_t - \Delta GDP_{t-1} - \beta_{12} DXT_{t-1} - \lambda_{12} UPRO_{t-1} - \delta_{12} PRO_{t-1} - \mu_{1t} \quad (3)$$

$$\beta_1 DXT_t = \alpha - \Delta GDP_t - \lambda_1 UPRO_t - \delta_1 PRO_t - \beta_1 DXT_{t-1} - \beta_{12} GDP_{t-1} - \lambda_{12} UPRO_{t-1} - \delta_1 PRO_{t-1} - \mu_{2t} \tag{4}$$

$$\lambda_1 UPRO_t = \alpha - \Delta GDP_t - \beta_1 DXT_t - \delta_1 PRO_t - \lambda_1 UPRO_{t-1} - \beta_{12} GDP_{t-1} - \beta_1 DXT_{t-1} - \delta_1 PRO_{t-1} - \mu_{3t} \tag{5}$$

$$\delta_1 PRO_t = \alpha - \Delta GDP_t - \beta_1 DXT_t - \lambda_1 UPRO_t - \delta_1 PRO_{t-1} - \beta_{12} GDP_{t-1} - \beta_1 DXT_{t-1} - \lambda_{12} UPRO_{t-1} - \mu_{3t} \tag{6}$$

Further the equation can be expressed such as.

$$ECM_t = \alpha_0 - \beta GDP_{t-1} - \delta DXT_{t-1} - \lambda UPRO_{t-1} - \delta PRO_{t-1} - \mu_{it} \tag{7}$$

This will employ the strategy of Perotti and Blanchard (2002), expenditure and the taxes are influenced by the GDP growth rate, in this context Favero (2007) propose the influence of GDP on the study variables. The linear combination of the variables is written as

$$Y_t = \sum A_i k_{i-1} Y_{t-1} + u_t \tag{8}$$

$$Y_t = [GDP, DXT, UPRO, PRO]$$

There are three dimensional vectors in the logarithm of the gross domestic product (GDP), government unproductive spending (UPRO), direct taxes (DXT) and productive expenditure (PRO). Additionally, the prime goal of the work is to examine, the involvement of these variables on a single dependent gross domestic product. That’s why this technique come to be more suitable in the current scenario.

Besides, to detect the significance and reliability of the stated model, the study will apply some error term diagnostic tests i.e., ARCH test (1982), Breusch-Godfrey Autocorrelation LM test to find out the autocorrelation, Ramsey reset for the mis-specification of the model and the Jerque-Bera test (1987), to estimate the normality of the model. While in the perspective of VAR technique, the study utilized the Impulse response function (hereafter IRF), which explores the shocks of explained variables.

3.3 Data Collection

We use time series data from 1978 to 2018 for our analysis to determine the relationship between the gross domestic product, productive spending of the government, unproductive expenditures and direct taxes. The main source of the data is Pakistan Bureau of Statistics, World Development Indicator and Handbook of Statistics, Pakistan.

4. DATA ANALYSIS

To examine the expressive overview of the GDP, DXT, PRO and UPRO. The study employs the descriptive analysis. Which defines that the average values of the GDP, DXT, PRO and UPRO is 5.21, 3.14, 3.71 and 3.07 which lies between the maximum values (9.00, 10.27, 9.76 and 9.79) and minimum values (1.70, 0.04, 0.16 and 0.08). The results are cited in the table 01. However, fig 02 elaborates the trend of the variable.

Table 01 Descriptive Analysis

<i>Description</i>	<i>GDP</i>	<i>DXT</i>	<i>PRO</i>	<i>UPRO</i>
Mean	5.21	3.14	3.71	3.07
Median	5.20	1.42	2.06	1.62
Maximum	9.00	10.27	9.76	9.79
Minimum	1.70	0.04	0.16	0.08
Std. Dev.	1.79	3.70	3.59	3.40

Skewness	0.10	0.93	0.64	0.97
-----------------	------	------	------	------

Source: Author(s) calculations

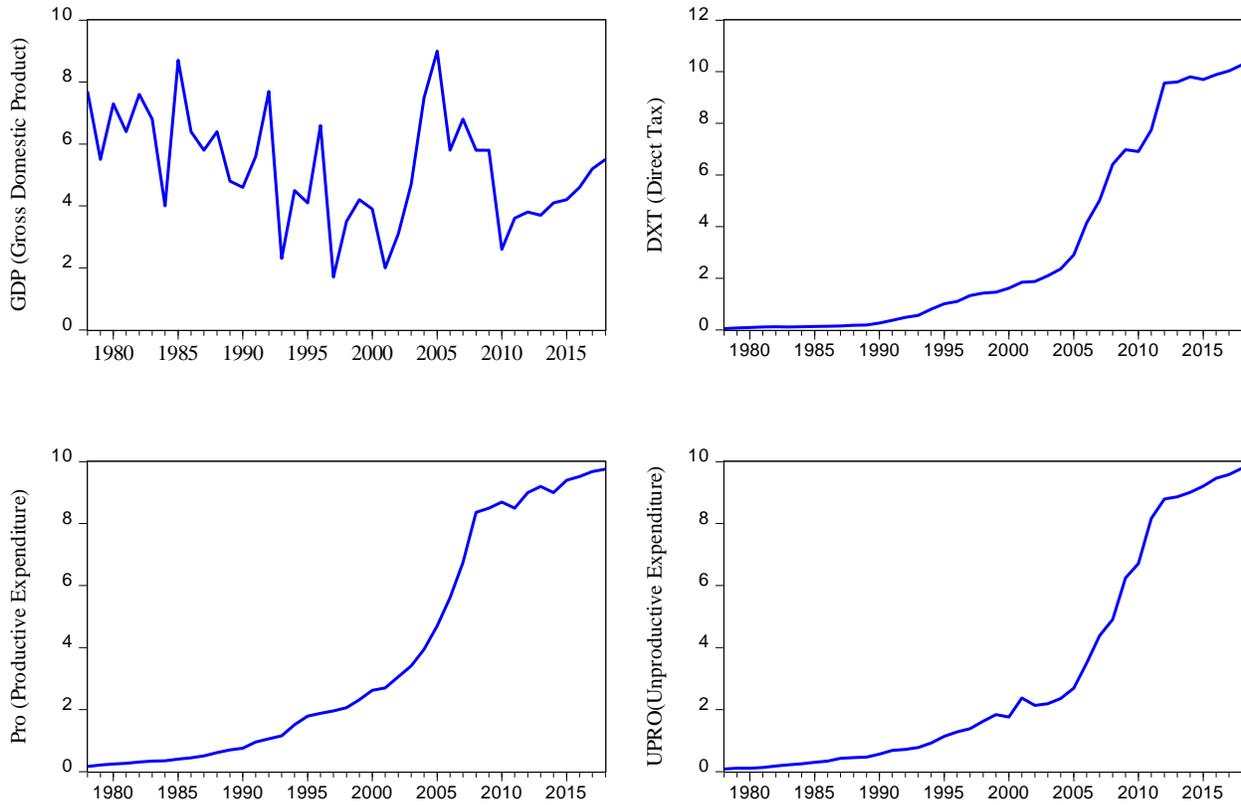


Fig 02 Trend of the Variables

Source: Author(s) calculation

The result of ADF and PP test are presented in the Table 02, which were employed to find out the zero mean and constant variance in each series of variables. As the results elaborate that at first difference all the concerning variables are stationary and integrated in the same order at I(1).

Table 02 ADF and PP Result

Variables	ADF Test		PP Test		Integration
	t-stat	Prob.	t-stat	Prob.	
GDP	-3.68	0.01	-4.02	0.01	I (1)
DXT	-4.27	0.01	-3.52	0.01	I (1)
UPRO	-3.06	0.02	-3.43	0.02	I (1)

Source: Author(s) calculation

To define the appropriate number of past values, the study employed the lag length criterion. While the sequential modification test is expressed as (LR), FPF represents the final prediction error, AIC stand for the Akaike information criterion. SC denotes the Schwarz information criterion and. HQ represents the Hannan Quinn information criterion.

The analysis indicates that one lag will be suitable for the further research, which based on the work of Sims 1980, although akaike information criterion expresses the goodness of fit. The results are depicted in the table 03.

Table 03 Lag Length Criteria

<i>Lag</i>	<i>Log</i>	<i>LR</i>	<i>FPF</i>	<i>AIC</i>	<i>SC</i>	<i>HQ</i>
0	21.52	NA	0.28	12.94	13.16	13.02
1	13.73	89.22*	4.37e*	3.78*	7.34*	5.01*

Source: Author(s) calculation

However, to get the association between the explained factors, this study applies the co- integration test among DXT, PRO, UPRO and GDP. Besides, a progression of factors has a connection, then it will demonstrate the co- integration among them. The results are presented in the table 04 & 05.

Table 04 Trace Value

<i>Hypothesized No. of CE(s)</i>	<i>Eigen Value</i>	<i>Trace Value</i>	<i>Critical Value</i>	<i>Prob.</i>
Non*	0.75	119.88	69.82	0.00
At most 1*	0.64	69	47.86	0.00
At most 2*	0.46	32.12	29.79	0.02

Source: Author(s) calculation

Table 05 Trace Value

<i>Hypothesized No. of CE(s)</i>	<i>Eigen Value</i>	<i>Max-Eigen Value</i>	<i>Critical Value</i>	<i>Prob.</i>
Non*	0.75	50.88	33.87	0
At most 1*	0.64	36.37	27.58	0
At most 2*	0.46	22.41	21.13	0.03

Source: Author(s) calculation

The trace value at none, at most 1 and at most 2, all are greater than the critical estimates, while on the other side, eignvalue at none, at most 1 and at most 2, all are greater than the critical value. Which illusterates the two integrated equition are present in the system to confirm the long term relationship among the variables.

Table 06 Normalized Co-integration Equation

<i>Indicator</i>	<i>Coefficient</i>	<i>Standard Error</i>
GDP	1.000	
DXT	-3.77	(2.13)
PRO	9.75	(3.67)
UPRO	13.55	(2.22)

Source: Author(s) calculations

The estimation stated that if gdp grows by one unit, then the direct tax will increase by 3.769 units, while one unit grow in the level of gdp the unproductive expenditure will decline from 13.55 units. In other words, it states that when the government adopted the policy to enhance the level of direct tax range, this strategy will generate the collection of the revenue, the size of the government pocket will increase. The government has more fund to spend in the context of different sector, while if government increase the level of unproductive expenditure it will retard the GDP growth rate in the economy.

We know the short-term fluctuation in the variable behavior destabilizes the economy in the long run. However, to capture the short-term association among the variables. This methodology also explores the speed of convergence/ the speed of adjustment of the variable towards equilibrium. The results are offered in table 07.

Table 07 Error Correction Estimations

<i>Error Correction</i>	<i>D(GDP)</i>	<i>D(DXT)</i>	<i>D(PRO)</i>	<i>D(UPRO)</i>
CointEq1	0.01	0.05	0.00	-0.00
	(0.01)	(0.00)	(0.00)	(0.00)
	[1.02]	[1.08]	[1.47]	[-4.07]
	0.01	0.05	0.00	-0.00

Source: Author(s) calculations

The estimation (table 07) indicates the short-term affiliation exists among the variable, along with the adjustment towards the equilibrium. However, to determine the significance and strength of the model, the study utilize a number of econometric diagnostic techniques. The results are depicted in the table 08.

Table 08 Diagnostic & Stability Test

<i>Wald Test</i>		
F-Stat	Degree of Freedom	Prob.
6.67	(2,33)	0.01
Diagnostic Test		
ARCH Test		
F-Stat	Degree of Freedom	Prob.
6.67	(2,33)	0.13
Brusch-Godfrey Serial Correlation LM Test		
X²- Stat	Degree of Freedom	Prob.
	1	0.69
Ramsey RESET Test		
F-Stat	Degree of Freedom	Prob.
0.01	(1,39)	0.95
Jarque- Bera Test		
F-Stat	Degree of Freedom	Prob.
2.44	2.34	0.29

Source: Author(s) calculations

The ARCH and Brusch-Godfrey reports that the error term is free from autocorrelation issue. The Ramsey RESET test portrays the specification of the model is correct. The Jarque – Bera demonstrates that the model is normally distributed. Now study moves to the next methodology, which is employed to detect the linear interdependencies among multiple time series and famous for its stochastic process known as a vector autoregressive model (VAR). All factors in the VAR, every variable with its lag value comprises on an equation explaining its evolution and there is no need of much information about the powers affecting a variable as do basic models with synchronous conditions. The result of VAR test was mentioned in the Table 09.

Table 09 VAR Estimation

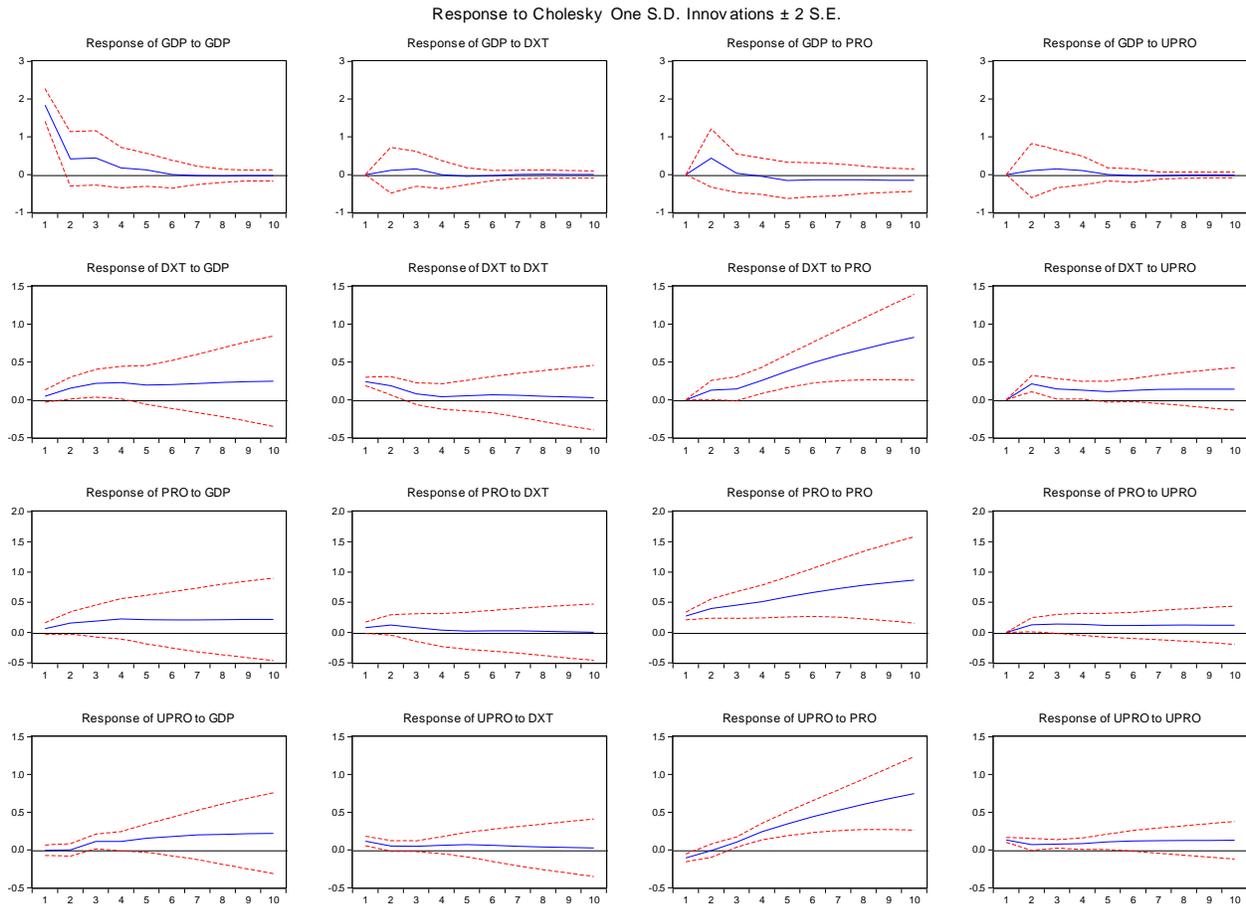
<i>Variables</i>	<i>GDP</i>	<i>DXT</i>	<i>PRO</i>	<i>UPRO</i>
GDP (-1)	0.21	0.06	0.04	0.01
	(0.17)	(0.02)	(0.03)	(0.02)
	[1.25]	[2.14]	[1.32]	[-0.25]

Source: Author(s) calculations

In real life VAR technique play very important role because this method is used to abstract information. which is hidden in the data. So, to reorganize the policy implements and to change the course of variables VAR is used to conduct some experiments. This method is designed by the Sims 1980 to explain, the fluctuating behavior and interrelationship among the variables. And the most important thing, results of VAR can't be explained in lonely, so the study takes the help of Impulse Response Function. However, VAR estimation indicates that there is a connection between the variables.

This technique states that for a system of equation if one standard deviation shock is given, then the response will pass through the whole system of equation and shock not only disturb the reaction of the variable in the current time period but also fluctuate the behavior of the variable in the future. However, this test also explores the shock which comes from out of the system presented in figure 03.

Fig 03 Impulse Response Function



Source: Author(s) calculations

According to figure, when a shock of standard deviation of a direct tax is given to the gross domestic product, initially the gross domestic product starts to increase and moves to equilibrium line near to the 4th year and after that again moves with the equilibrium line. Meaning that when the government decides to fluctuate the direct tax level than initially gross domestic product remains on the equilibrium after about 1.75 year, it starts increasing and remain on increasing till approximately 3.0 years and then moves to the equilibrium state.

While, the other hand the shock of productive spending by the government is given to the gross domestic product then the reaction of the gross domestic product will be positive and reached on its highest level at approximately 2nd year and then starts moving towards equilibrium and about after 2.7 year it attains the equilibrium on the 3rd year. In the economic meaning, when the productive expenditure of the government starts to increase than the gross domestic product of the economy increases till the 2nd year and after about 2.7 years' gross domestic product starts moving towards the equilibrium and attain the stabilization in the 3rd year. And moves negatively along with the equilibrium line after the 4th year.

Although, when a shock of unproductive spending is given to the gross domestic product then the response of the gross domestic product then initially the gross domestic product then starts to increase positively, reached at its maximum position in the 3rd year and then starts to moves towards equilibrium in the 5th year after that moves with the equilibrium line. Implying that when the administration decides to fluctuates the level of unproductive spending,

then at the beginning the gross domestic product increases till to the 3rd year after that moves towards the stabilization and then carry its movements with the equilibrium line.

However, when the shock of gross domestic product is given to the direct tax then, initially the direct tax starts to increase and adopt the behavior of increasing with the increasing rate, meaning that when government plans to increase the gross domestic product which in turn increase the collection of direct tax. When government increase the volume of gross domestic product then prosperity holds in the economy, which in turn promotes the income of the public, they earn more and the direct tax head of the fiscal policy collects more of funds to the pocket of the government. And government invests it gain in the flourishing of the economy.

Although, when the shock of productive expenditure of the government is given to the direct tax, the trend of the direct tax would be positive and collection of direct tax increase with the increasing rate. Because when government increase productive expenditure of the state, it means that government is spending its budget on the law and order, maintenance, security and other social services which in turn taxed directly and direct tax heads gain a lot of the funds from the spending productively.

The behavior of the direct tax would be positive when a shock of unproductive spending is given to the direct of the government, initially the direct tax increase positively and then falls slightly towards the stabilization after that remain and moves accordingly the equilibrium state. In economic sense when the government increase the spending head of unproductive, this scenario increases the volume of the direct tax collection and the collecting heads gather more amount of the taxes under the direct tax.

When a standard deviation shock of gross domestic product is given to the productive expenditure of the government, initially the reaction of the productive expenditure positive and the productive expenditure attain the behavior of increasing with the increasing rate till 5th year and then slightly downwards, after that moves positively with the equilibrium line. In other words, fluctuating the head of gross domestic product, the productive spending of the government increases, meaning that when government has the huge amount in its pocket, then it starts to expense on the productive activity which in turn promotes the productivity of the economy.

Although, the reaction of the productive expenditure is positive initially when a standard deviation shock of a direct tax is given to the productive expenditure, after 2nd year starts to move towards the equilibrium, in 4th year attain stabilization and the moves with the equilibrium line. Because with the increase in the level of direct tax, the share of productive spending goes in the duty head that's why initially economy moves positively and paying their taxes again attain the equilibrium position. When a standard deviation shock of unproductive expenditure is given to the productive expenditure, initially, the productive expenditure starts to increase till 2nd year, after that the productive expenditure moves along with the equilibrium state but in the positive way.

The behavior of the unproductive spending of the government will be positive initially, when a shock of gross domestic product is given to the unproductive expenditure of the government. After 2.3 years unproductive spending starts to increase positively, move along with the stabilization line and increase while adopting the positive trend. In other worlds, when government increase the pocket of the unproductive spending, then state spend it on the law and order, maintenance, security and other social services which does not generate any revenue for the economy, however in the long time frame these expenditures smooth the road towards prosperity. That's why it attains equilibrium in the approximately 2nd year of spending.

Moreover, when a shock of direct tax is given to the nonproductive spending of the government then the nonproductive spending starts its movements along with the equilibrium line because government sponsor their nonproductive expenditure by enforcing taxes, creating the opportunity to increase tax collection and direct taxes move positively above the equilibrium state with the increasing trend.

The results of IRF state that if a standard deviation shock of productive expenditure is given to the unproductive expenditure then, initially the reaction of the unproductive expenditure is negative, with the passage of time it starts

with increasing, while adopting the trend if increasing with the increasing rate. In the meaning that when government fluctuates the level of its productive expenditure it indirectly in the favor of unproductive expenditure because productive spending increases the productivity of the economy.

The graph of the impulse response function states that when the level of gross domestic product of the government fluctuates, this change generates a wave of shock which hits every segment of the economy. Then the trend or the behavior of the variable also changes and its movements may be towards equilibrium or away from the equilibrium and its effect also affect the pattern of the other variables. And fluctuation or the shock waves one after the other hit the economy. As it is shown in the graph that a change in the gross domestic product not only fluctuates the direct tax, but it also destabilizes the unproductive spending of the governments. And the next phase, the change in the level of direct tax fluctuates the level of gross domestic product besides with the unproductive expenditure of the government. Moreover, the shock wave created by the change in the unproductive spending by the government fluctuates the direct tax as well as the gross domestic product of the economy.

The study finds a positive relationship between direct tax, revenue collection and growth because direct tax is efficient in Pakistan to collect revenue and channelize economic activities. Ali (2011), states that few people pay their imposed money, which in turn has limited impact on the economic development. However, an increase in the level of direct tax has a positive association with unproductive expenditure because government spends more on unproductive as compared to the productive expenditure.

5. DISCUSSION AND CONCLUSION OF THE STUDY

This study is conducted to investigate the dynamic influence of the direct tax, productive expenditures of the government and the unproductive expenditures on the economic growth, while utilizing the time series data which is comprised 1978 to 2018. To find that, the study firstly utilized the ADF and PP test, to detect the stationery. However, to analysis the short-run as well as long term association among the variables VECM and Johansen econometric techniques were employed, whom result affirms the association among the variables in both time frames. Therefore, a number of diagnostic tests were also employed to determines the normality of the model and normal distribution, serial correlation and heteroscedasticity and all the results are in the favor of the study.

However, this study also explains the shock wave which is produced by the change in the level of single variable and the dynamicity passes through the whole economy. The study found that the shock wave not only produced by the direct tax or the unproductive expenditure but it may be due to the economic growth and starts a chain reaction or a number of shock waves which one after the other change the equilibrium of economy. Moreover, the study claims that due to change of direct tax and unproductive expenditure level, economic growth also fluctuate and direct tax respond positively while unproductive expenditure negatively responds to the change in the economic growth. But with the passage of time its effect will become in the favor of the economy.

And when economic growth and unproductive expenditure level fluctuate then the response of direct tax will be in the favor of the economy, meaning that economic growth and unproductive spending gave positively response when direct tax fluctuates. If talk about the unproductive expenditure, both economic growth and direct tax respond separately with each other. Initially, the response of the economic growth is negative, but with the passage of time the reaction converges in the favor of the economy. While, with the flexibility of the unproductive expenditure, the direct tax increase with the increasing rate meaning that when the ratio of unproductive spending change, direct tax responds positively and increases with the passage of the time.

As it is cleared from the results that if the economic growth of the economy increases then the response of all the factors increases with increasing rate. Moreover, if unproductive expenditures are utilized in such a way which smooth the way for productive expenditure. The efficiency of productive expenditure enhanced and economy will attain sustainability in coming period. Indirect economy will grow and the government earn more amount in the context of direct tax, unproductive expenditure indirectly smooths the road which leads the economy towards prosperity. The

government should increase the range of direct tax collection because the scenario of a direct tax is favorable in the Pakistan. It is necessary to spend under the head of unproductive expenditure, but government spend in the perspective of its earning. Taxes are the backbone of an economy so government should take steps to aware masses that tax is the responsibility not the penalty.

6. LIMITATIONS AND CALL FOR FUTURE RESEARCH

We only consider the aggregate values of all variables in our analysis which is the limitations of our study. Future research can be made on disaggregate level of implications of Fiscal Policy. We can further analyse the causality between unproductive expenditures, productive expenditures and growth. Moreover, we can explore the role of unproductive expenditures on Human Capital development and other macroeconomic variables with the help of SVAR.

REFERENCES

- Aamir, M., Qayyum, A., Nasir, A., Hussain, S., Khan, K. I., & Butt, S. (2011). Determinants of tax revenue: A comparative study of direct taxes and indirect taxes of Pakistan and India. *International Journal of Business and Social Science*, 2(19), 110- 145.
- Abu-Bader, S., & Abu-Qarn, A. S. (2003). Government expenditures, military spending and economic growth: causality evidence from Egypt, Israel, and Syria. *Journal of Policy Modeling*, 25(6), 567-583.
- Adegbe, F. F., & Fakile, A. S. (2011). Petroleum profit tax and Nigeria economic development. *Research in Computer Application & Management*, 1(1), 11-18.
- Ahsan, S. M., Kwan, A. C., & Sahni, B. S. (1992). Public expenditure and national income causality: further evidence on the role of omitted variables. *Southern Economic Journal*, 3(1), 623-634.
- Albatel, A. H. (2000). The relationship between government expenditure and economic growth in Saudi Arabia. *Journal of King Saud University*, 2(5), 75-83.
- Angelopoulos, K., Economides, G., & Kammas, P. (2007). Tax-spending policies and economic growth: theoretical predictions and evidence from the OECD. *European Journal of Political Economy*, 23(4), 885-902.
- Aschauer, D. A. (1989). Is public expenditure productive? *Journal of monetary economics*, 23(2), 177-200.
- Bania, N., Gray, J. A., & Stone, J. A. (2007). Growth, taxes, and government expenditures: growth hills for US states. *National Tax Journal*, 5(2), 193-204.
- Bazgan, R. M. (2018). The impact of direct and indirect taxes on economic growth: An empirical analysis related to Romania. *In Proceedings of the international conference on business excellence*, 12(1),114-127.
- Bergh, A., & Henrekson, M. (2011). Government size and growth: a survey and interpretation of the evidence. *Journal of Economic Surveys*, 25(5), 872-897.
- Blackley, P. R. (1986). Causality between revenues and expenditures and the size of the federal budget. *Public Finance Quarterly*, 14(2), 139-156.
- Bose, N., Haque, M. E., & Osborn, D. R. (2007). Public expenditure and economic growth: a disaggregated analysis for developing countries. *The Manchester School*, 75(5), 533-556.
- Canavire, B. G., Martinez-Vazquez, J., & Vulovic, V. (2013). Taxation and economic growth in Latin America. *Inter-American Development Bank*, 24(4), 213-225.
- Cheng, B. S., & Lai, T. W. (1997). Government expenditures and economic growth in South Korea: A VAR approach. *Journal of Economic Development*, 22(1), 11-24.
- Christiansen, V. (2007). Two approaches to determine public good provision under distortionary taxation. *National Tax Journal*, 11(3), 25-43.

- Chu, T. T., Hölscher, J., & McCarthy, D. (2018). The impact of productive and non-productive government expenditure on economic growth: an empirical analysis in high-income versus low-to middle-income economies. *Empirical Economics*, 1-28.
- Chu, T. T., Hölscher, J., & McCarthy, D. (2020). The impact of productive and non-productive government expenditure on economic growth: an empirical analysis in high-income versus low-to middle-income economies. *Empirical Economics*, 58(5), 2403-2430.
- Cyrenne P, Pandey M (2015) Fiscal equalization, government expenditures and endogenous growth. *Int Tax Public Finance*, 22(1), 311–329.
- Devarajan, S., Swaroop, V., & Zou, H. F. (1996). The composition of public expenditure and economic growth. *Journal of monetary economics*, 37(2), 313-344.
- Faisal Sultan Qadri, F., & Abdul Waheed, W. (2011). Human capital and economic growth: Time series evidence from Pakistan, *Pakistan Business Review*, 7(2), 150-161.
- Ghosh S, Gregoriou A (2008) The composition of government spending and growth: is current or capital spending better? *Oxf Econ* 60(3), 484–516.
- Gounder, N., Narayan, P. K., & Prasad, A. (2007). An empirical investigation of the relationship between government revenue and expenditure: The case of the Fiji Islands. *International Journal of Social Economics*, 34(3), 147-158.
- Gregoriou, A., & Ghosh, S. (2009). The impact of government expenditure on growth: empirical evidence from a heterogeneous panel. *Bulletin of Economic Research*, 61(1), 95-102.
- Greenidge, K., & Drakes, L. (2009). A New Measure of Taxation: An Application to Barbados. *Journal of Public Sector Policy Analysis*, 3(2), 119- 227.
- Haldar, S. K., & Mallik, G. (2010). Does human capital cause economic growth? A case study of India. *International Journal of Economic Sciences and Applied Research*, 4(1), 7-25.
- Höppner, F. (2001). A VAR analysis of the effects of fiscal policy in Germany. *Institute for International Economics*, 23(4), 135-144.
- Javid, A. Y. (2009). Test of higher moment capital asset pricing model in case of Pakistani equity market. *Inter-American Development Bank*, 3(1), 187-198.
- Jensen, E. M. (1997). The Apportionment of " Direct Taxes": Are Consumption Taxes Constitutional? *Columbia Law Review*, 1(3), 2334-2419.
- Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. *Econometrica: Journal of the Econometric Society*, 5(3), 1551-1580.
- Koch, S. F., Schoeman, N. J., & Tonder, J. J. (2005). Economic growth and the structure of taxes in South Africa: 1960–2002. *South African Journal of Economics*, 73(2), 190-210.
- Kweka, J. P., & Morrissey, O. (2000). Government spending and economic growth in Tanzania, 1965-1996. Centre for Research in Economic Development and International Trade. *University of Nottingham*, 5(3), 226-235.
- Loizides, J., & Vamvoukas, G. (2005). Government expenditure and economic growth: evidence from tri-variate causality testing. *Journal of Applied Economics*, 8(1), 255-267.
- Maingi, J. (2010). The impact of public expenditure on economic growth in Kenya (Doctoral dissertation, Ph. D. Thesis, *Nairobi: Kenyatta University*, 2(5), 167-255.
- Mamatzakis, E. C. (2005). The dynamic responses of growth to tax structure for Greece. *Applied economics letters*, 12(3), 177-180.
- Mofidi, A., & Stone, J. A. (1990). Do state and local taxes affect economic growth? *The Review of Economics and Statistics*, 4(7), 686-691.

- Mura, P. (2015). Tax composition and economic growth. A panel-model approach for Eastern Europe, *Annals of Constantin Brancusi University of Targu -Jiu. Economy Serie*, 2(1), 89-101.
- Ogbonna, G. N., & Ebimobowei, A. (2012). Impact of tax reforms and economic growth of Nigeria: A time series analysis. *Current Research Journal of Social Sciences*, 4(1), 62-68.
- Olugbenga, A. O., & Owoye, O. (2007). Public expenditure and economic growth: New evidence from OECD countries. *Business and Economic Journal*, 4(17), 145-167.
- Panday, M. (2006). Direct tax reforms in India. *International Journal of Business and Social Science*, 2(1), 176- 187.
- Refaqat, M. S. (2003). Social incidence of the general sales tax in Pakistan. *International Monetary Fund*, 3(2), 116- 127.
- Ram, R. (1986). Government size and economic growth: A new framework and some evidence from cross-section and time-series data. *The American Economic Review*, 76(1), 191-203.
- Petrakos G, Arvanitidis P, Pavleas S (2007) Determinants of economic growth: the experts' view. *Discus Pap Ser 13(10)*, 245–276.
- Sanni, A. (2007). Tax Reform in the Capital Market. In A Welcome Development Seminar Paper, *Ogun State Internal Revenue Service Seminar*, 3(23), 189- 201.
- Sancak, C., R. Vellos, and J. Xing. (2010). Tax Response Revenue to the Business Cycle. *International Monetary Fund*, 2(1), 190-213.
- Sen Gupta, A. (2007). Determinants of tax revenue efforts in developing countries. *International Journal of Business and Social Science*, 1(3), 167-178.
- Shuanyou, M. (2001). Tax Structure and Empirical Analysis on the Economic Growth. *Economic Theories and Economic Management*, 7(2), 158-167.
- Were, M. (2001). The impact of external debt on economic growth in Kenya: An empirical assessment. *World Institute for Development Economics*, 3(7), 197-209.