The Impacts of Fluctuations in Public Revenue and Expenditures on Economic Growth in Pakistan: An Impulse Response Approach

Zia Ur Rahman, Musarat Abbas, Madiha Riaz and Saeed Ur Rahman
Department of Economics, Ghazi University, Dera Ghazi Khan, Pakistan

Corresponding Author:
Zia Ur Rahman
Department of Economics, Ghazi University, Dera Ghazi Khan, Pakistan

Abstract: 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 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 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.

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 believe 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. 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. Tax collection in Pakistan is very low. 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.

In recent researches like, Cyrenne and Pandey, Ghosh and Gregoriou and Petrakos, etc., 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, etc., reported that productive government spending influences the private sector productivity. Hence, has 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 productive, unproductive and direct tax on the economic growth. Either increase in the unproductive expenditure influence the economic growth or not. Does 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 tried to capture the association among 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.

Literature review: 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 who totally change the method to determine the inter-link 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 affects the economic development. Though, the Keynesian economist says that spending and the money supply is connected. However, in the event that 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. 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. 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.

Gemmell and Bleaney, 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. This period fluctuated from the others by recognizable improvement of govet. 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 explains that some type of expenditures like expenditure on transport, expenses on education, expends 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.

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 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 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 etc. 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 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 utilized the economic development and the direct tax, determines a positive link employing the error correction technique.

Hussain manages a study in Pakistan and Indian economy, to build an association between direct and indirect tax. And determines that 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 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.

Mura found in their studies, direct taxes negatively correlated with the economic growth. While indirect tax has positive association with the economic growth in the six countries from Eastern Europe between 1995-2012. Chu et al.[1], conduct a study to analyze 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, a positive a change in the composition of the indirect tax positively influenced the economic growth but in medium time frame. Besides, a positive change in the structure of direct taxes will be affect the economic growth negatively in the coming time period.

In the perspective of the above stated literature review, most of the study found the positive response, if the direct taxes fluctuate and response of the direct tax is directly related to the volume of the government and also depends on the developed or the emerging economy. Because it is found in a study that the response of a variable which is thought to be in the favor of the economy turns in the opposite direction due to size and currently prevailing economic scenario or the economy is developed or the emerging. And the other variable, no one is not in the favor of unproductive expenditure except Abu Qarn who states that if invest unproductive expenditure in the defense sector can be beneficial for the economy.

Theoretical model, data and methodology: Barro states, when government chooses to physique the financial extension, ultimately, it will expand the development of the country. Nowadays a lot of work is done on growth and developed a verity of endogenous growth model to establish association between government expenditure

with economic growth the long-term. It was the Devarajan *et al.*[2], who first time introduce the theoretical framework which compile the productive (g1) and non-productive (g2) expenditures of the government. By reframing the key equation:

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

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

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

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

The set of equation elaborates the productive, non-productive and tax regression model conditions to enlist the association with the economic growth[2].

Data: We use time series data from 1978-2018 for our analysis to determine the relationship among 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.

MATERIALS AND METHODS

The stationery of data is required if employ time series. So, the study firstly employed the Augmented Dickey-Fuller incorporated with the Philip Perron 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 Fig. 1 expresses all the steps in a single glance which study is going to follow.

While, to discover the long-term affiliation among the growth and the explained variables, Johansen[3] test is employed. However, this test is comprising on two parts Trace value and the Max-eigenvalue such as:

$$Joh_{trace}(m) = -T \sum_{i-m-1}^{\sigma} \beta \ln(1-\lambda_i) \quad (5)$$

While, the max-eigenvalue equation is expressed as:
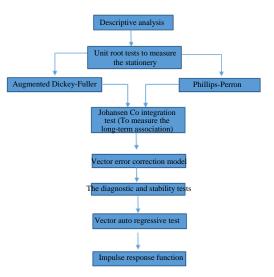
$$Joh_{Max-Ei}(m+1) = -T \ln(1-\lambda_{n+1}) \quad (6)$$

Fig. 1: Flow chart

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:

$$\Delta GDP_t = \alpha - \beta_1 DXT_t - \lambda_1 UPRO_t - \delta_1 PRO_t - \Delta GDP_{t-1} - \beta_{12} DXT_{t-i} - \lambda_{12} UPRO_{t-i} - \delta_{12} PRO_{t-i} - \mu_{1t} \quad (7)$$

$$\beta_1 DXT_t = \alpha - \Delta GDP_t - \lambda_1 UPRO_t - \delta_1 PRO_t - \beta_1 DXT_{t-1} - \beta_{12} GDP_{t-i} - \lambda_{12} UPRO_{t-i} - \delta_1 PRO_{t-i} - \mu_{2t} \quad (8)$$

$$\lambda_1 UPRO_t = \alpha - \Delta GDP_t - \beta_1 DXT_t - \delta_1 PRO_t - \lambda_1 UPRO_{t-1} - \beta_{12} GDP_{t-i} - \beta_1 DXT_{t-i} - \delta_1 PRO_{t-i} - \mu_{3t} \quad (9)$$

$$\delta_1 PRO_t = \alpha - \Delta GDP_t - \beta_1 DXT_t - \lambda_1 UPRO_t - \delta_1 PRO_{t-1} - \beta_{12} GDP_{t-i} - \beta_1 DXT_{t-i} - \lambda_{12} UPRO_{t-i} - \mu_{3t} \quad (10)$$

Further the equation cab be express such as:

$$ECM_t = \alpha_0 - \beta GDP_{t-i} - \delta DXT_{t-i} - \lambda UPRO_{t-i} - \delta PRO_{t-i} - \mu_{it} \quad (11)$$

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

$$Y_t = \sum A_i k_{i=t} Y_{t-1} + u_t \quad (12)$$

where, Y_t = [GDP, DXT, UPRO, PRO] 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 primegoal 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, Breusch-Godfrey Autocorrelation LM test to find out the autocorrelation, Ramsey reset for the mis-specification of the model and the Jerque-Bera test, 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.

RESULTS AND DISCUSSION

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 Table 1. However, Fig. 2 elaborates the trend of the variable.

The result of ADF and PP test are presented in Table 2 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 1(1).

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 Table 3.

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 Table 4 and 5.

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
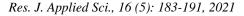
Table 1: Descriptive analysis

Description	GDP	DXT	PRO	UPRO
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
Kurtosis	2.38	2.23	1.73	2.34
Jarqu-Bera	0.71	6.98	5.56	7.21

Table 2: ADF and PP result

	ADF test		PP test		
Variables	t-stat	Prob.	t-stat	Prob.	Integration
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)

Table 3: Lag length criteria

Lag	Log	LR	FPF	AIC	SC	HQ
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*

Table 4: Trace value

Hypothesized No. of CE(s)	Eigen values	Trace values	Critical values	Prob.
Non*	0.75	119.88	69.82	0.00
At most 1*	0.64	69.000	47.86	0.00
At most 2*	0.46	32.120	29.79	0.02

Table 5: Maximum eigen value

Hypothesized No. of CE(s)	Eigen value	Max-Eigen value	Critical value	Prob.
Non*	0.75	50.88	33.87	0.00
At most 1*	0.64	36.37	27.58	0.00
At most 2*	0.46	22.41	21.13	0.03

Table 6: Normalized co-integration equation

Indicators	Coefficient	SE
GDP	1.000	-
DXT	-3.77	(2.13)
PRO	9.75	(3.67)
UPRO	13.55	(2.22)

Author(s) calculations

greater than the critical value. Which illustrate the two integrated equation are present in the system to confirm the long term relationship among the variables (Table 6).

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
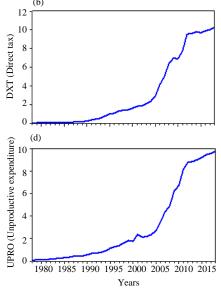
Fig. 2(a-d): Trend of the variables; Author(s) calculation

Table 7: Error correction estimations

Error correction	D(GDP)	D(DXT)	D(PRO)	D(UPRO)
Coint Eq. 1	0.01	0.05	0.00	-0.00
	(0.01)	(0.00)	(0.00)	(0.00)
	[1.02]	[1.08]	[1.47]	[-4.07]

Table 8: Diagnostic and stability test

Wald test		
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)	0.01
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

Author(s) calculations

Table 9: VAR estimation

Variables	GDP	DXT	PRO	UPRO
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]

Author(s) calculations

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 7.

The estimation (Table 7) 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 Table 8.
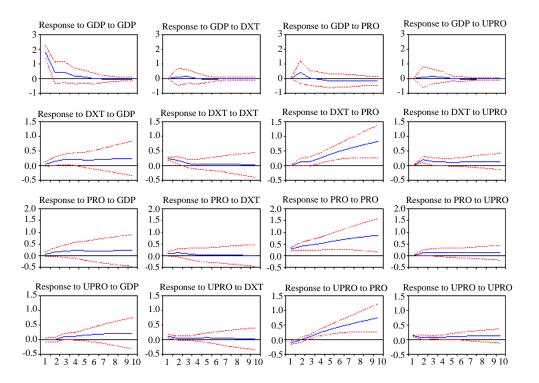
The ARCH and Brusch-Godfrey reports that the error term is free from autocorrelation issue. The Ramsey RESET test portrays the specification of the model is correct. The Jarque Bera demonstrates that the model is normally distributed. Now study moves to the next methodology which is employed to detect the linear interdependencies among multiple time series and famous for its stochastic process known as 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 Table 9.

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 to a system of equation if one standard deviation shock is given, then the response

Fig. 3: Impulse response function

passes 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 Fig. 3.

According to Fig. 3, when a shock of standard deviation of 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 government decides to fluctuate the direct tax level then initially gross domestic product remains on the equilibrium after about 1.75 year it starts increasing and remain on increasing till approximately 3.0 year and then moves to the equilibrium state.

While, the other hand the shock of productive spending of 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 3rd year. In the economic meaning, when the productive expenditure of the government starts to increasing then the gross domestic product of the economy increases till the 2nd year and after about 2.7 year's gross domestic product starts move towards the

equilibrium and attain the stabilization in the 3rd year. And moves negatively along with the equilibrium line after 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 administration decides to fluctuates the level of unproductive spending then in 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 off 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 pocket of the government. And government invest 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 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 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 states 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 to 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 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 change 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 of 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, 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. Consequently, we can say that the results of this study are in the line with the findings of the Chu *et al*.[4], Chu *et al*.[1] and Mura[5]. Their study state that productive expenditure positively influences the economic growth[1] while direct tax positively influences in the short run but negatively in the long-time frame[5].

CONCLUSION

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 comprising 1978-2018. 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 growthand 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 growthalso fluctuateand 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 growthand unproductive expenditure level fluctuate then the response of direct tax will be in the favor of the economy, meaning that economic growthand unproductive spending gave positively response when direct tax fluctuates. If talk about the unproductive expenditure, both economic growthand direct tax respond separately with each other. Initially, the response of the economic growthis 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 growthof the economy increases then the response of all the factors increase with increasing rate, broadly speaking with increase in the gdp, the productive head of the fiscal policy,obtains a huge money due to which demand for goods and services will increase to fulfill that demand, production is enhanced. The government earn more amount in the context of direct tax. And unproductive expenditure indirectly smooths the road of 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 should 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.

REFERENCES

01. Chu, T.T., J. Holscher and D. McCarthy, 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 Econ., 1: 1-28.

02. Devarajan, S., V. Swaroop and H.F. Zou, 1996. The composition of public expenditure and economic growth. J. Monetary Econ., 37: 313-344.

03. Johansen, S., 1991. Estimation and hypothesis testing of cointegration vectors in gaussian vector autoregressive models. Econometrica, 59: 1551-1580.

04. Chu, T.T., J. Holscher and D. McCarthy, 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 Econ., 58: 2403-2430.

05. Mura, P., 2015. Tax composition and economic growth. A panel-model approach for eastern Europe. Ann. Econ. Ser. Constantin Brancusi Univ. Fac. Econ., 1: 89-101.