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The Effects Of Fiscal Deficit And Trade Deficit Nexus On Pakistan's Economic Growth: An Econometric Analysis

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Abstract

This study focused upon the effects of Fiscal Deficit (FD_t) in terms of Total Expenditure (TR_t) and Total Revenue (TR_t) as well as consequences of Trade Deficit (TD_t) in terms of Imports (IMP_t) and Exports (EXP_t) on economic growth of Pakistan (GDP_t) for the sample period 1994-95 to 2020-21. Augmented Dickey Fuller (ADF) Test found that dependent variable i.e GDP_t as stationary at level $I(0)$, whereas independent variables i.e TE_t , TR_t , IMP_t , EXP_t , TD_t , as stationary at level $I(1)$ differencing. Results of Autoregressive Distributed Lags Model (ARDL) followed by Bound Test, Error Correction Mechanism (ECM), Variance Inflation Factor (VIF), Heteroscedasticity Test, Lagrange Multiplier (LM) Test, Normality Test, Granger Causality Test, Impulse Response Function and Wald Test found significant negative influence of Fiscal Deficit (FD_t) and Trade Deficit (TD_t) on economic growth in short run and long run. The study concludes the implications in terms of causes and effects of Fiscal Deficit and Trade Deficit, which could be overcome and significantly impacted on economic growth, emphasizing the need to reduce the burden of fiscal deficits and trade deficits by boosting exports through good fiscal managerial strategy, provide employment and investment opportunities, enhance tax revenue, generate capital accumulation so necessary to alleviate poverty, control inflation and accelerate economic growth of Pakistan's economy.

Keywords: GDP, OLS, ECM, causality, deficit, economic growth & Pakistan.

INTRODUCTION

Pakistan's GDP growth rate, exports promotion and imports substitution would be considerably improved through adoption of appropriate remedial measures looking into consideration the possible effects of Current Account Deficits, Fiscal Deficits and Trade Deficits (Lakhan et al., 2020 & 2021). Economic growth was found to Granger caused fiscal deficit, suggested focusing on growth-driven fiscal deficit to enhance sustainable economic growth (Gajurel & Dangal, 2023). Current account deficit was positively affected by Budget deficit in short and long term time periods, revealing the existence of twin deficit hypothesis, regardless of structural breaks (Shah et al., 2023). Using Johansen's cointegration approach the past study established a significant long-term association of the deficits, indicating that improving budgeting policy and export competitiveness can address the persistent current account and budget deficit issue (Waheed & Akram, 2023). The interplay of trade deficit, fiscal deficit, and saving-investment gap highlighted their interconnectedness and implications for the Pakistani economy, with ARDL and cointegration methods revealing short-run and bi-directional causalities among external debt, current account, and fiscal balances (Abbas et al., 2022). Twin deficit hypothesis demonstrated that fiscal rules, including fiscal councils, Budget balance rules and expenditure rules played a role in influencing the association of current account balance budget balance (Afonso et al., 2022). Johansen Co-integration, Auto Regressive Lag Model (ARDL), and Granger Causality techniques assessed the nexus between domestic debt, rate of interest, exchange rate and fiscal deficit. The findings indicated a long-run association of variables, with historical patterns of exchange rate and Fiscal deficit positively influencing domestic debt. Although, a study suggested that domestic debt does not contribute to achieving sustainable economic growth and calls for careful management considering future generations Ali et al. (2022). The presence of co-integration between variables indicated long-term association and suggested a two-way causal link among Financial Deficit, Budget Deficit, and Current Account Deficit, confirming the applicability of TDH in the South Asian context (Batool et al., 2022). Triple Deficit Pressure Index for Turkey (1998-2019), assessed economic pressure from budget, savings, and current account imbalances, aimed at exploring its potential as a leading indicator for financial crises, offering insights crucial for proactive economic measures (Akkaya, 2022). Deficits in sub-Saharan Africa's current, fiscal, and financial accounts, revealed bidirectional causal links between them, emphasized the need for coordinated fiscal, monetary, and trade interventions to support the African Continental Free Trade Area (Dimnwobi et al., 2022). Triple deficit hypothesis in the Iranian economy provided trade openness for two different models regarding oil as well as without oil trade with the help of error correction

mechanism and Johansen Co-integration approaches for the aim of determining long term relationships of tested parameters, revealed the confirmation of long run relationship between tested variables, whereas validity of triplet deficit hypothesis was not confirmed in case of short run relationships between tested parameters. Moreover, Impulse Response Function also confirmed the validity status of oil as well as non oil trade indicating presence of inverse mechanism for the model of oil free trade (Mehrara et al., 2022). Trade deficit was impacted by fiscal deficit in Pakistan's economy using time series estimation techniques from 1980 to 2018. Short-term effects showed an important definite association among trade deficit and fiscal deficit, while long-term effects indicated an adverse relationship, supporting the twin divergence proposition in the long run as well as twin deficit hypothesis in the short run. Economical monetary and fiscal policies are recommended for the enhancement of domestic production sectors' competitiveness towards international trade. Short-term results supported the twin deficit hypothesis and trade deficit was impacted by fiscal deficit, at the same time long-term results showed a negative impact, suggesting the need for prudent fiscal and monetary policies to enhance domestic production competitiveness in international trade (Abbas & Waheed, 2021). The present study focuses upon the critical role of macroeconomic variables, especially the pronounced link between Fiscal Deficit and Trade Deficits. Prudent fiscal management needs to be emphasized so necessary to mitigate excessive budget deficits, thereby alleviating current account imbalances. The findings aimed at emphasized the relevance of synchronized trade and fiscal policies, showcasing how addressing budget deficits and trade deficits can indirectly alleviate pressures on trade imbalances.

RESEARCH METHODOLOGY

Method, Structure of data, Range of data and Sources of data:

In this study, time series data-set ranges from 1994-95 to 2020-21 was utilized from authenticated sources i.e various issues of Pakistan Economic Surveys and Federal Bureau of Statistics. Augmented Dickey-Fuller test has been utilized to test the stationarity status of time series tested variables (Dickey and Fuller, 1981; Perron, 1990). Moreover, to estimate the long and short run relationships between variables, Auto-Regressive Distributed Lag (ARDL) Model for examining co-integrating relationships, Bounds Test for testing the presence of long run relationships, Error Correction Mechanism for conversion of short run dynamics toward long run equilibrium, Variance Inflation Factor for checking the presence of multicollinearity, Heteroscedasticity Test for checking the presence of heteroscedasticity, Lagrange Multiplier Test for checking the presence of serial correlation, Normality Test for checking stability, Granger causality Test for checking the presence of uni-directional, bi-directional or no causality, Impulse Response Function for indicating direction and magnitude of casual relationships among tested variables and Wald Test for confirming whether a set of independent variables individually or collectively 'significant' for a model or not (Pesaram & Shin, 1998; Resaran et al., 2001). EViews, being relevant statistical package was used for time series econometric analysis throughout research study.

Econometric Model

The econometric equation to assess the effects of Fiscal Deficit (FD_t) in terms of Total Expenditure (TR_t) comprised of Current and Development Expenditure and Total Revenue (TR_t) comprised of Tax and Non-Tax Revenue as well as consequences of Trade Deficit (TD_t) in terms of Imports (IMP_t) and Exports (EXP_t) on economic growth of Pakistan (GDP_t) is symbolically presented as follows;

$$GDP_t = \alpha_0 + \alpha_1 TE_t + \alpha_2 TR_t + \alpha_3 FD_t + \alpha_4 IMP_t + \alpha_5 EXP_t + \alpha_6 TD_t + e_t \text{-----i}$$

Where,

GDP_t = GDP Economic Growth Rate of Pakistan in year t.

α_0 = Constant Coefficient.

$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$ and α_6 = Slopes Coefficient

TE_t = Total Expenditure in year t.

TR_t = Total Revenue in year t.

FD_t = Fiscal Deficit in year t.

IMP_t = Imports in year t.

EXP_t = Exports in year t.

TD_t = Trade Deficit in year t.

e_t = Error term in year t.

Application of logarithm on both sides of equation i, hence log-linear form of the model specified becomes;

$$\text{Log}GDP_t = \alpha_0 + \alpha_1 \text{Log}TE_t + \alpha_2 \text{Log}TR_t + \alpha_3 \text{Log}FD_t + \alpha_4 \text{Log}IMP_t + \alpha_5 \text{Log}EXP_t + \alpha_6 \text{Log}TD_t + e_t \text{-----ii}$$

RESULTS AND DISCUSION

Unit Root Tests for Tested Variables: Augmented Dickey-Fuller (ADF) Test rejected the null hypothesis of non-stationarity of all such variables, when applied 1st difference, which verified that tested variable (GDP_t) is stationary at level I(0) order of integration and respective variables ($TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$) at 1st difference I(1) as reflected in Table-1. The present study is in association with previous study conducted by Fatima et al., 2011; Lakhan et al., 2020 & Dimnwobi et al., 2022.

Table-1. Unit Root Test for Variables ($GDP_t, TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$)

Variables	ADF (Levels)		ADF in 1 st Differences		Sequence of integration through differencing I()
	Intercept	Intercept & Trend	Intercept	Intercept & Trend	
GDP_t	-3.59	-3.52	-5.11	-4.99	I(0)
TE_t	-2.39	-2.35	-6.14	-6.22	I(1)
TR_t	-2.49	-3.34	-6.26	-6.31	I(1)
FD_t	-2.35	-2.39	-5.58	-5.49	I(1)
IMP_t	-2.54	-2.52	-6.51	-6.36	I(1)
EXP_t	-0.42	-2.22	-5.06	-4.99	I(1)
TD_t	-1.23	-2.11	-4.82	-4.81	I(1)

Note: All variables measured in natural logarithms;
 95% Critical values = -2.98 (No intercept and no trend); and
 95% Critical values = -3.67 (Presence of intercept and trend)

Table-2. Auto-Regressive Distributed Lags Model for Variables ($GDP_t, TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$)

Dependent Variable: GDP				
Method: ARDL (1, 2, 2, 2, 0, 1, 1)				
Sample (adjusted): 1997 2021				
Included observations: 25 after adjustments				
Variable(s)	Coefficient	Standard Error	t-Statistics	Probability
GDP(-1)	0.184234	0.146789	1.255094	0.2411
TE	-8.314387	5.110337	-1.626974	0.1382
TE(-1)	42.88346	8.888277	4.824721	0.0009***
TE(-2)	5.106643	3.989519	1.280015	0.2325
TR	8.523495	5.155601	1.653250	0.1327
TR(-1)	-41.57951	8.727652	-4.764112	0.0010***
TR(-2)	-7.294297	3.971529	-1.836647	0.0994
FD	7.906874	5.058739	1.563013	0.1525
FD(-1)	-43.30745	8.856371	-4.889976	0.0009***
FD(-2)	-5.584451	3.963756	-1.408878	0.1925
IMPORTS	-2.103283	0.522735	-4.023611	0.0030***
EXPORTS	2.689624	0.718858	3.741524	0.0046***
EXPORTS(-1)	-0.861835	0.336396	-2.561964	0.0306
TD	1.593797	0.485564	3.282363	0.0095
TD(-1)	-0.441878	0.195921	-2.255388	0.0506**
C	29.64895	4.469758	6.633235	0.0001
R ²	0.945811			
Adjusted R ²	0.855495			
F-statistics	10.47231			
Prob(F-stat)	0.000610***	Durbin-Watson statistics		2.563609

***Significance level at 1%

**Significance level at 5%

Perusal of Table-3 findings revealed that lag values of Total Expenditure comprised of Current and Development Expenditure ($P < 0.01$) impacted significant positive influence and Total Revenue comprised of Tax and Non-Tax Revenue ($P < 0.01$) impacted significant negative influence on economic growth of Pakistan. Values of Imports ($P < 0.01$) witnessed significant negative influence and Exports ($P < 0.01$) exhibited significant positive impact on economic growth of Pakistan. Fiscal Deficit ($P < 0.01$) and Trade Deficit ($P < 0.05$) witnessed significant negative influence on GDP Growth Rate of Pakistan. Hence, ARDL examined co-integrating relationships between tested variables ($GDP_t, TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$), in the model. The perusal of Table-3 provides that R^2 value is 0.94 which indicated that independent variables are predicting 94% variation in Dependent Variable as GDP_t . F value is worked out as 10.47 ($P < 0.01$) revealing overall combined effects and overall fitness of the Model. The findings confirmed the validation of twin deficit hypothesis in the short-run. The study recommends prudent fiscal reforms to make sure favourable macroeconomic conditions so necessary for competitiveness of local production sectors engaged in the foreign trade. The present study is on the analogy of previous studies conducted by Abbas and Waheed, 2021; Abbasi et al., 2021; Abbas et al. (2022); Dimnwobi et al. (2022); Etahisoa (2022) & Gajurel & Dangal (2023) & Nhemhafuki (2023) validated that Government Expenditure leads to increase in the aggregate demand of the goods and services as well as the stimulating the productivity, innovation and competitiveness. Moreover, sound import-exports policy can promote economic growth.

Table-4. Bound Test for estimating long run relationships of variables ($GDP_t, TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$)

ARDL Bounds Test		
Sample: 1997 2021		
Included observations: 25		
Test Statistic	Value	k
F-statistic	9.010238	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

HO= No Long Run Relationships between variables

HI = Long Run Relationships between variables

Perusal of Table-4 revealed findings of Bound Test that value of F statistics is worked out 9.0, which is greater than upper bound critical value, hence by rejecting HO hypothesis and accepting HI, long run relationship established between tested variables in the model. The finding of Bound Test shows that there exists long-run association between the Fiscal Deficit and Trade Deficits, thereby recommending that government may focus on a sound fiscal policy so as to make exports of Pakistan’s economy more competitive in the international market. The present findings are in association with previous research conducted by Acaravci & Ozturk, 2008; Akinci & Yilmaz, 2012; Abbasi et al., 2021; & Dimnwobi et al., 2022.

Table-5. Error Correction Mechanism for short run relationships and long run adjustment of variables ($GDP_t, TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$)

Dependent Variable: D(GDP)				
Method: Least Squares				
Sample (adjusted): 1996 2021				
Included observations: 26 after adjustments				
Variable(s)	Coefficient	Standard Error	t-Statistics	Probability
C	-0.276701	0.330177	-0.838038	0.4130
D(TE)	0.878717	5.680758	0.154683	0.8788
D(TR)	-1.164979	5.604709	-0.207857	0.8377
D(FD)	-1.342923	5.590840	-0.240201	0.8129
D(IMPORTS)	-0.474337	0.429117	-1.105380	0.2836
D(EXPORTS)	0.318532	0.711442	0.447727	0.6597
D(TD)	1.526994	0.560925	2.722281	0.0140
ECT(-1)	-1.130812	0.184079	-6.143075	0.0000***
R ²	0.721961			
Adjusted R ²	0.613835			
F-statistics	6.677019			
Prob(F-statistics)	0.000550	Durbin-Watson Statistics		1.813243

***Significance level at 1%

Perusal of Table-5 indicated the value of Co-integrating equation was negative and significant provided speed of adjustment indicating that there was convergence from short run dynamics towards long run equilibrium. A negative value of error correction term indicates that the variables will adjust positively towards their long-run equilibrium. The study is in line with past studies conducted by Lakhan et al., 2020; Abbas and Waheed, 2021 & Waheed & Akram, 2023.

Table-6. Variance Inflation Factors for checking the presence of Multicollinearity for variables ($GDP_t, TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$)

Part-A

Variance Inflation Factors			
Sample: 1995 2021			
Included observations: 27			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
TE	49.35893	135212.3	1310.845
TR	49.66237	69455.16	702.7162
FD	48.81318	11638.95	792.7483
IMPORTS	0.591573	1116.997	21.25213
EXPORTS	0.875834	751.7632	31.56835
TD	0.886318	213.8069	38.08886
C	24.55001	168.9932	NA

Variance Inflation Factors (VIF) ≥ 10 indicate existence of severe Multicollinearity in the Model. Perusal of Table-6 (A) indicated that Centered VIF values of tested variables (i.e TE_b , TR_b , FD_b , IMP_b , EXP_b , TD_b) are more than 10. Hence after removal of four highly collinear variables (i.e TE_b , FD_b , IMP_b , TD_b) containing values of Variance Inflation Factors (VIF) ≥ 10 , then applied VIF test again, which is reproduced as;

Part-B

Variance Inflation Factors			
Sample: 1995 2021			
Included observations: 27			
Variable(s)	Coefficient Variance	Uncentered VIF	Centered VIF
TR	0.120861	144.8780	1.465811
EXPORTS	0.047447	34.90655	1.465811

After removal of four highly collinear variables (i.e TE_b , FD_b , IMP_b , TD_b) in the model, thereafter Centered VIF values of left over variables (i.e TR_b , EXP_b) in Table-6 (B) are now found less than 10 revealed no severe presence of multicollinearity among variables in the model.

Table-7. Heteroskedasticity Test for variable (GDP_b , TE_b , TR_b , FD_b , IMP_b , EXP_b , TD_b)
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.533202	Prob. F(6,20)	0.7766
Obs*R-squared	3.723345	Prob. Chi-Square(6)	0.7141
Scaled explained SS	3.053173	Prob. Chi-Square(6)	0.8021

H0: No Heteroskedasticity
H1: Heteroskedasticity

Perusal of Table-7 indicated that probability value of F-Statistics and Chi-square are greater than 5% level of significance, hence Null Hypothesis is accepted revealing presence of homoskedasticity (no heteroskedasticity) in the model. The present research is related with past study conducted by Etahisao (2022).

Table-8. Lagrange Multiplier (LM) Test for checking Serial Correlation/ Autocorrelation of variables (GDP_b , TE_b , TR_b , FD_b , IMP_b , EXP_b , TD_b)

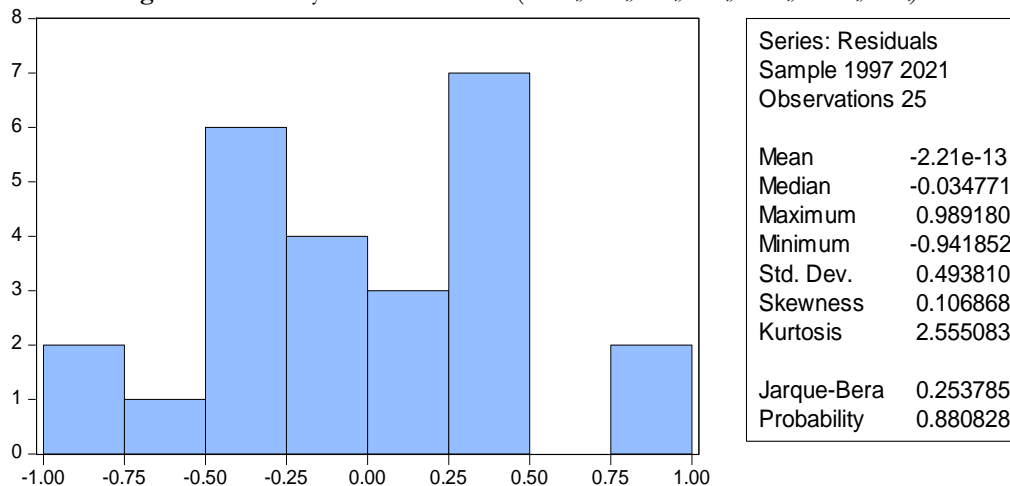
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.657462	Prob. F(2,18)	0.5302
Obs*R-squared	1.838110	Prob. Chi-Square(2)	0.3989

H0: Non existence of serial correlation between variables
H1: Existence of serial correlation between variables

Since the probability values of all tested variables (i.e GDP_b , TE_b , TR_b , FD_b , IMP_b , EXP_b , TD_b) are greater than 5% level of significance ($P > 0.05$) as shown in Table-8, hence null hypothesis is accepted, which revealed that there is no serial correlation/ no autocorrelation in the model. The current study is on the analogy of past study conducted by Etahisao (2022).

Figure-1 Normality Test for variables (GDP_b , TE_b , TR_b , FD_b , IMP_b , EXP_b , TD_b)



H0: Sample data has been drawn from normally distributed
H1: Sample data has not been drawn from normally distributed

Since the probability value of Normality Test (0.88) is greater than 5% level of significance ($P > 0.05$) depicted in Figure-1, hence null hypothesis is accepted, confirming that sample data has been drawn from normal distributed. Hence relationships among tested variables are normal in the model. The present research is linked with past study conducted by Etahisoa (2022).

Table-9. Granger Causality Test for variables ($GDP_t, TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$)

Pairwise Granger Causality Tests			
Sample: 1995 2021			
Lags: 2			
HO:	Obs	F-Statistic	Probability
TE not Granger Causing GDP	25	1.99648	0.1620
GDP not Granger Causing TE		1.00765	0.3829
TR not Granger Causing GDP	25	2.62676	0.0971*
GDP not Granger Causing TR		1.52701	0.2415
FD not Granger Causing GDP	25	5.34950	0.0138**
GDP not Granger Causing FD		0.09964	0.9056
IMPORTS not Granger Causing GDP	25	0.70944	0.5039
GDP not Granger Causing IMPORTS		4.84988	0.0192**
EXPORTS not Granger Causing GDP	25	0.58603	0.5658
GDP not Granger Causing EXPORTS		0.14964	0.8620
TD not Granger Causing GDP	25	1.86779	0.1804
GDP not Granger Causing TD		4.87927	0.0188**
TR not Granger Causing TE	25	1.04455	0.3703
TE not Granger Causing TR		0.03196	0.9686
FD not Granger Causing TE	25	0.94851	0.4041
TE not Granger Causing FD		0.50348	0.6119
IMPORTS not Granger Causing TE	25	2.49470	0.1078*
TE not Granger Causing IMPORTS		2.25961	0.1304
EXPORTS not Granger Causing TE	25	0.03241	0.9682
TE not Granger Causing EXPORTS		0.35055	0.7085
TD not Granger Causing TE	25	0.93262	0.4100
TE not Granger Causing TD		3.20682	0.0619
FD not Granger Causing TR	25	0.03718	0.9636
TR not Granger Causing FD		0.57914	0.5695
IMPORTS not Granger Causing TR	25	0.38831	0.6832
TR not Granger Causing IMPORTS		0.04577	0.9554
EXPORTS not Granger Causing TR	25	2.51944	0.1057*
TR not Granger Causing EXPORTS		0.67783	0.5190
TD not Granger Causing TR	25	0.61223	0.5520
TR not Granger Causing TD		1.23671	0.3116
IMPORTS not Granger Causing FD	25	1.93351	0.1707
FD not Granger Causing IMPORTS		3.34338	0.0559*
EXPORTS not Granger Causing Cause FD	25	0.54212	0.5898
FD not Granger Causing EXPORTS		0.54694	0.5871
TD not Granger Causing FD	25	3.21388	0.0616*
FD not Granger Causing TD		2.43946	0.1127
EXPORTS not Granger Causing IMPORTS	25	0.11258	0.8941
IMPORTS not Granger Causing EXPORTS		2.18227	0.1389
TD not Granger Causing IMPORTS	25	2.21698	0.1350
IMPORTS not Granger Causing TD		2.24254	0.1322
TD not Granger Causing EXPORTS	25	1.00618	0.3834
EXPORTS not Granger Causing TD		1.54803	0.2371

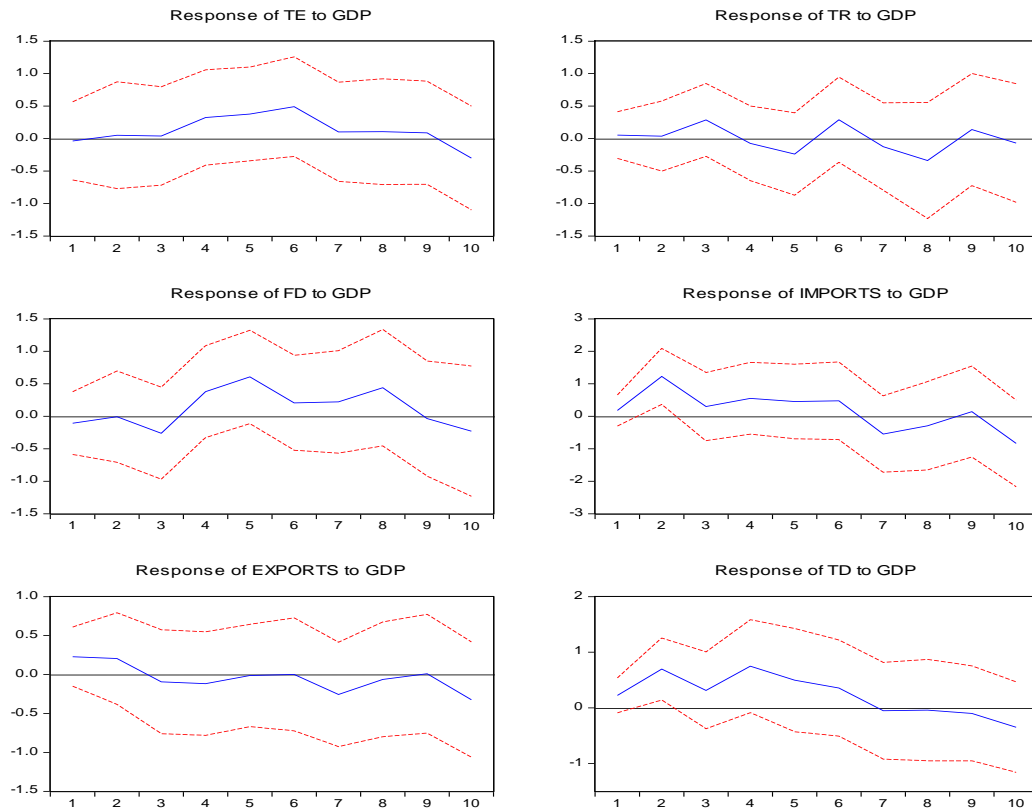
**Significance level at 5%

*Significance level at 10%

Perusal of Table-9, revealed uni-directional causal relationship between TR and GDP ($P < 0.10$), between FD and GDP ($P < 0.05$), between GDP and Imports ($P < 0.05$), between GDP and TD ($P < 0.05$), between Imports and TE ($P < 0.10$), Exports and TR ($P < 0.10$), between FD and Imports ($P < 0.05$) and between TD and FD ($P < 0.10$), whereas no causality observed in rest of combinations in the model. The main indicators affecting short and long term macroeconomic stability are fiscal deficits and trade deficits, revealing one way Granger causality. The present results are in agreement with past study conducted by Etahisoa (2022), confirming unidirectional causal effect of import-export on economic growth in the short run. It was recommended to the government to peruse the trade policies and promote export due to negative trade

balance of the economy. The current study is related with past research conducted by Akbas et al., 2014; Abbas et al., 2022; Akkaya, 2022 & Gajural & Dangal, 2023.

Figure-2. Impulse Response Analysis for variables ($GDP_t, TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$)
Response to Cholesky One S.D. Innovations ± 2 S.E.



Perusal of Figure-2 depicted red lines and blue line in all six responses of $TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$ to GDP. Red lines referred to 95% confidence interval and blue line referred to Impulse Response Function.

1st Response: In order to explain Response of Total Expenditure (TE_t) to GDP, one standard deviation shock or impulse or innovation given to GDP resulted in maintaining stability of TE from period 1st to 3rd, then sharp increases upto 4th period becomes positive state, then gradual increases from 4th to 6th period, then sharp declines from 6th to 7th period, then remained constant from 7th to 9th period and then sharp declines from 9th to 10th period.

2nd Response: In case of Response of Total Revenue (TR_t), one standard deviation shock or impulse or innovation given to GDP resulted in maintaining stability of TR from 1st to 2nd Period, then sharp increase from 2nd to 3rd period becomes positive state and then sharp declines from 3rd to 4th period, then gradual declines from 4th to 5th period becomes negative, then sharp increase from 5th to 6th period becomes positive, then sharp declines from 6th to 7th period becomes negative, then gradual declines from 7th to 8th period, then sharp increases from 8th to 9th period becomes positive and then sharp declines from 9th to 10th period.

3rd Response: In case of Response of (FD_t), one standard deviation shock or impulse or innovation given to GDP resulted in gradual increases from 1st to 2nd period, the sharp declines from 2nd to 3rd period become negative, then sharp increases from 3rd to 4th period becomes positive, then gradual increases from 4th to 5th period, then sharp declines from 5th to 6th period, the remained stable from 6th to 7th period, then gradual increases from 7th to 8th period, then sharp declines from 8th to 9th period and then gradual declines from 9th to 10th period becomes negative.

4th Response: In case of Response of (IMP_t), one standard deviation shock or impulse or innovation given to GDP resulted in sharp increase from 1st to 2nd period, then sharp declines from 2nd to 3rd period, then remained constant from 3rd to 6th period, then sharp declines from 6th to 7th period becomes negative, then gradual increases from 7th to 9th period becomes positive and then sharp declines from 9th to 10th period.

5th Response: In case of Response of (EXP_t), one standard deviation shock or impulse or innovation given to GDP resulted in maintaining stability from 1st to 2nd period, then gradual declines from 2nd to 3rd period becomes positive, then maintaining stability from 3rd to 4th period, then gradual increases from 4th to 5th period, then remained constant from 5th to 6th period, then sharp declines from 6th to 7th period, then sharp increases from 7th to 8th period, then remained stable from 8th to 9th period and then sharp declines from 9th to 10 period becomes negative.

6th Response: In case of Response of (TD_t), one standard deviation shock or impulse or innovation given to GDP resulted in sharp increases from 1st to 2nd period, then sharp declines from 2nd to 3rd period, then sharp increases from 3rd to 4th period, then gradual declines from 4th to 6th period, then sharp declines from 6th to 7th period becomes negative, then remained stable from 7th to 9th period and then gradual declines from 9th to 10th period.

Hence in all six responses, negative as well as positive responses exist, so shock to GDP will have symmetric impact of $TE_t, TR_t, FD_t, IMP_t, EXP_t, TD_t$ in Pakistan's economy in short as well as in long run.

Table-10. Wald Test for variables (GDP_t , TE_t , TR_t , FD_t , IMP_t , EXP_t , TD_t)
Part-A: Wald Test (TE_t , TR_t and FD_t)

Test Statistic	Value	df	Probability
F-Statistics	2.730675	(3, 20)	0.0710***
Chi-square	8.192024	3	0.0422***

***Significance level at 1%

Null Hypothesis: $C(1)=0, C(2)=0, C(3)=0$		
Null Hypothesis Summary:		
Normalized Restriction (= 0)	Value	Std. Err.
C(1)	7.759081	7.025591
C(2)	-7.638670	7.047153
C(3)	-8.498110	6.986643

Restrictions are linear in coefficients

HO: The value of independent variable is zero (0)

H1= The value of independent variable is not equal to zero (0)

Part-A: Wald Test (IMP_t , EXP_t and TD_t)

Test Statistic	Value	df	Probability
F-statistic	0.140148	(3, 20)	0.9348
Chi-square	0.420444	3	0.9360

Null Hypothesis: $C(4)=0, C(5)=0, C(6)=0$		
Null Hypothesis Summary:		
Normalized Restriction (= 0)	Value	Std. Err.
C(4)	-0.014804	0.769138
C(5)	0.163683	0.935860
C(6)	0.185944	0.941445

Restrictions are linear in coefficients

The results of Wald Test as shown in Table-10 (Part A) indicated F-Test ($P < 0.01$) and Chi-Square ($P < 0.01$) revealed significant impact of TE_t , TR_t , FD_t , towards GDP economic growth. It means Null Hypothesis of assuming the values of independent variables (*i.e.* TE_t , TR_t , FD_t) is zero (0) is rejected, confirming set of independent variables are significant for a model. Perusal of Table-10 (Part-B) indicated F-Test and Chi-Square revealed insignificant influence of IMP_t , EXP_t , TD_t , towards GDP economic growth.

CONCLUSION AND RECOMMENDATIONS

The authors arrived at concluding remarks that twin deficit dilemma in terms of fiscal deficit and trade deficit validated short run and long run significant negative association with economic growth in Pakistan's economy during sample period 1994-95 to 2020-21. Hence, the growth-driven strategy of sound fiscal management will be more useful for Pakistan's economy. There will be dire need on the part of Government to convert current deficit financing into productive channels in order to ensure enhancement in the sustainable economic growth for Pakistan's economy. Sound fiscal management, import substitution and export promotion would be instrumental in achieving desired economic growth of Pakistan's economy. In this regards, the Government must have to enhance tax revenues and cut down unproductive consumption expenditures at all cost.

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