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UNDEFINED CASES OF FISCAL DEFICIT: AN EMPIRICAL ANALYSIS FROM PAKISTAN

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ABSTRACT

The fiscal deficit is a gigantic problem for Pakistan. There are many causes of fiscal deficit. This study tries to find out the determinants of the fiscal deficit in Pakistan. This study selected tax revenue, tax rate, wage bill, FDI, military expenditure, and taxation on public investment as independent variables. The range of the data is from the years 1975 to 2019. This study applied econometric estimation to get the results from the data. The ADF (Augmented Dickey-Fuller 1979) is applied to verify the stationary values of the variables. Auto Regressive Distributed Lag Model (ARDL) is used to examine the long-run relationship among the variables. The structural stability test is carried out by applying CUSUM & CUSUMSQ. In the end, this study also checks the autocorrelation of the variable by the VEC test. This study concludes that the high tax rate has a positive effect on the fiscal deficit but tax revenue, wage bill, and taxation on public investment have a negative and significant impact on the fiscal deficit. In the end, this study suggests that government should revise the tax imposed policies.

KEYWORDS: Fiscal deficit, ARDL technique, VECM

1. INTRODCUTION

Fiscal deficit is one of the macroeconomic tribulations for any country, which affect the economic strategies of growth and development. Any country cannot attain economic expansion in the case of fiscal imbalance. The problem of the fiscal deficit takes place when the expenditures of the government increase more than revenues. The budget deficit can be the consequence of a delay in the collection of revenues specifically, sales tax, duty, and other sources of revenues (Fatima et al. (2012)).In this situation, the country has to cover this gap by domestic and foreign borrowing or rely on both, sometime government increase the tax rate. But these conditions eventually turn down the self-esteem of the country as well as its citizens. As far as the terms of fiscal deficit are concerned.

There are various terminologies of the fiscal deficit have been used in economic literature. Agenor and Montiel, (2008) stated that the commonly used terms for budget deficits are principal deficit primary deficit, conventional or predictable deficit, and operational deficit. Conventional deficit is equal to the primary deficit, which increases due to repayment of interest on domestic as well as foreign debt. On the other hand, the operational deficit is a conventional deficit accustomed to inflation. The current article refers to the primary deficit which indicates that there is a difference between revenue and expenditure of the

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government and uses tax rate, tax revenues, taxation on public investment, and wage bill as a variable of budget deficit in the case of Pakistan.

Pakistan's economy is the 22nd greatest economy in the world in terms of PPP (purchasing power parity). This country has a population of over 220 million. Pakistan is one of those developing countries that use to face outsized budget deficits every year. Pakistan has been tackle with the budget deficit for many years. During 1970 the deficit was around about 5.9 percent of the GDP. In the year 1980, the deficit lifts about 7.5% of GDP. During the budget of 1992 and 1993 deficit was 9.5 % of GDP. In this era, the fiscal deficit was two times greater than in 1989 and 1990(Pakistan Economic Survey (2010-2011)). The deficit in the fiscal year 2003 to 2004 was about 4% of GDP this abridged 3.4% in the next year. The number of auxiliaries decreased by 3.2% during the fiscal years 2005 and 2006. But in fiscal years 2006-7 deficit boost up 4.2% of GDP. The budget deficit taps the utmost points in fiscal years 2007-08 which was 7.3 % of GDP (Report, 2008).

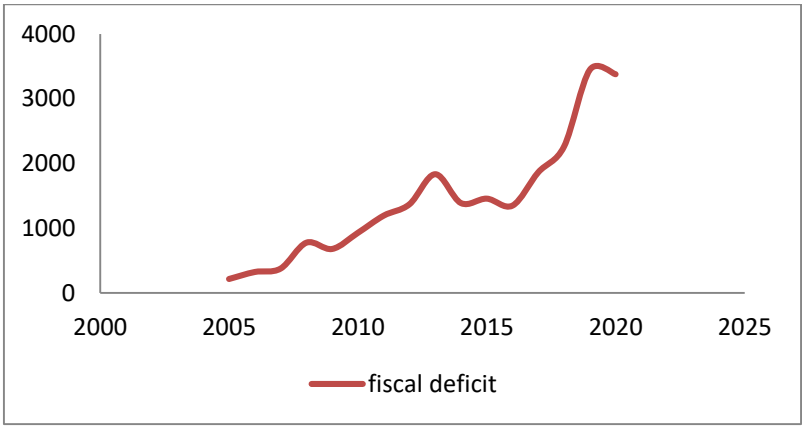

Figure 1: Fiscal deficit

Source: developed by author. Data from WDI

There are many studies on fiscal situation of the Pakistan but this study is consisted on the current data and situation of fiscal deficient in the Pakistan. Fiscal deficit is the mother of all economic ills (ishaqDr) so, to overcome this problem many author conducted their research , a number of previous literature find out the determinants of deficit such as the work of Rehman et.al(2012) ,Butt et.al (2013), Shabbier et.al(2005) ,these studies focused on economic growth, public debt, money supply, inflation and private investment and interest rate as stimulus of deficit but present study used the Model of Koussay and Bhoun (1993) first time in the Pakistan to uncover the determinants of fiscal deficit. In this study the fiscal deficit is dependent variable while wage bill, public investment, tax rate and tax revenue are independent variables.

Deficit is a major problem that harmful for any country. Pakistan is one of those countries whose budget always goes in deficit. Now a day, fiscal deficit is around about 4.2% of

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GDP that causes a number of economic problems such as inflation, crowding out investment, high interest rate and debt accumulation and low economic growth. So, this study gives right way to overcome this problem. This study developed following questions that help to get access to the objectives of this study.

RQ1: What are the main causes of the fiscal fluctuation in Pakistan?

RQ2: How the tax rate and tax revenue on the fiscal deficit?

RQ3: Is there any impact of wage bill and public investment on the fiscal deficit?

1.2 Objective of the study

- To explore the reasons and factors for the rising fiscal deficit of Pakistan.
- To explore policy implications to improve the fiscal deficit of Pakistan.

1.3. Research Questions

- What are the reasons and factors behind the increasing fiscal deficit of Pakistan?
- What are the policy implications for improving fiscal deficit of the country?

1.4. Hypotheses of the study

This study has following null hypotheses to analysis the phenomena of fiscal deficit in Pakistan

H_1: FDI and inflation has a positive impact on Fiscal deficit

H_2: Military expenditure and gross domestic product (GDP) has positive impact on Fiscal deficit.

H_3: Tax revenue and wage bill also has positive impact on Fiscal deficit

H4: Taxation on public investment and tax rates has positive impact on Fiscal deficit

2.0. Literature review

Ilyas et.al (2012) investigated the revenue gap and its impact on budget deficit, this study used the time series data from 1980-2010, ECM and ARDL are applied to draw the results. The conclusion of the study showed that revenue gap has significant and positive impact on deficit. This study also investigated that larger the revenue gap creates larger deficit.

Perotti et.al (1999) analyzed the Fiscal adjustment in OECD countries. The study work showed that fiscal adjustment by spending through wage bill reduction is expansionary and better than increase in taxes and reduction in public investment that is contractor and not showing long lasting effect.

Amir et al (2011) compared the tax culture of Pakistan and India in their paper. They expressed the two main types of the taxes (Direct Tax and Indirect Tax) .For the

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comparison they selected annually data from the period of 1999-2000 and 2008-2009 in their study and analysis that Pakistan's great source of income is indirect taxes and India use to impose direct taxes for generate the income for the economy. They develop two regression equations for the comparative result. They concluded that as in a Pakistan government use to impose more indirect taxes on the masses. So, it is creating more Gaps between the rich and poor and become the cause of the labor's exploitation. So, direct taxes should be levied on the rich and generate the high level of the tax to GDP (Gross Domestic Product) ratio (Usman, 2020).

Saqib et al. (2014) analyzed the taxation effects on economic activity in Pakistan. This study selected the data from the years 1973 to 2010. This study applied ARDL and ECM techniques to estimates the results and concluded that found there is overall negative effects of tax on real GDP, investment and household consumption expenditures.

Sultan Mehmood (2013) investigated the effect of the terrorism on economy of the developing countries also including Pakistan. The Pakistan had to face a great flow of the terrorism over past decade. These terrorism activities were great cause of the deaths in these years. He covered the data from 1993 to 2010 and 4500 terrorist incident. He used VER (Vector Auto Regression) and VECM econometric model to elaborate the relation between the terrorism with the macro economy and the GDP (gross domestic product) of the developing countries. He said that the terrorist activities are great cause of the low production in the agricultural sector and industrial sector. He concluded that the income of the Pakistan is stirring 33.02% every year because of the terrorism. He suggested that if Pakistan wants to improve the GDP (gross domestic product) and make great the economy size that Pakistan must have to curb the terrorism activities from the country (Tahir, 2020).

Sharif and Munir (2010) analyzed the low tax ratios to the GDP (Gross Domestic Product) in the Pakistan are great cause of the budget deficit. For this intention they selected time series data from 1973 to 2009. They used econometric technique OLS (ordinary least square) and Auto regressive Model (ARM) for testing the nexus among the low tax ratio, External debt, political instability, literacy rate and also checked the relation with the social and external variables in their research. On the bases of this research they suggested, that as the tax revenue are government's income. But tax to GDP (Gross Domestic Product) ratio is very low in Pakistan for development. So, it is needed to establish the high level of literacy rate, political stability and good tax structure in the state (Shakir et al., 2019).

Khan and Khattak (2008) investigated, "an analysis of short-term effects of budget deficits on macroeconomics variables: evidence from Pakistan". This study used time series data for the year 1960 to2005. This study used Error correction model (ECM for the estimation. This study concluded thatthere are some macroeconomic variables which have negative relationship and some has positive relationship with the fiscal deficit.

Glannaros and Kolluri (2010) used data from five industrial nations to apply the OLS approach to diverse models, including fisher equations and the IS-LM general equilibrium

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model (1965-1985). They found three distinct results: first, there is a negative relationship between interest rate and inflation; second, there is an indirect significant effect of budget deficit on interest rate; and third, the study did not find any clear relationship between variables using other exogenous variables.

Gulcan and Bilman (2005) investigated the stationary of the individual time series using the co-integration technique and the causality test, as well as the ADF, PP, and RPSS unit root tests. They examined data from Turkey from 1960 to 2003 and demonstrated that the budget deficit has a significant influence on the real exchange rate. According to the study, the significance of the budget deficit in maintaining the actual exchange rate is critical. They argued that the government should prioritise budget stability since actual exchange rates have a considerable impact on the trade balance. Huynh (2007) performed his research by gathering data from developing Asian countries between 1990 and 2006. While researching patterns in Vietnam, he determined that the budget deficit had a detrimental influence on the country's GDP growth.

Lozano (2008) used a vector error correction (VEC) model to investigate a mixed link between inflation and money growth and fiscal deficit during the previous 25 years (1983-2007) Shojai (1999) observed that deficit expenditure sponsored by the central bank can also contribute to inefficiencies in financial markets and excessive inflation in emerging nations. At the same time, budget deficits distort real exchange values and interest rates, undermining the economy's international competitiveness.

Vamvoukas et al. (2008) investigated the influence of budget deficit on interest rate and inflation rate using data from the Greek economy from 1948 to 2001, utilising co-integration analysis, granger causality, and impulse function (IRF) (Padda, 2020).

Siddiqi and Ilyas (2011) examined the “impact of revenue gap on budget deficit, debt burden and economic growth: evidence from Pakistan”. This study used annual data from the period of 1980 to 2009. This study applied ARDL model and ECM (error correction mechanism). This study extracted the result that there is short-run as well as long-run relationship of the revenue gap with budget deficit.

Maji and Achegbulu (2012) examined the impact of fiscal deficits on economic growth in Nigeria. This study selected the data from years 1970 to 2009. This study applied econometrics techniques OLS to analysis that whether these variables has positive relationship or negative and these variables are significant or not. This study concluded that fiscal deficits optimistically affect economic enlargement in Nigeria and money supply insignificant. This study recommended that Govt. should make expenditure son productive sectors of the economy (Hussain et al., 2022)

3. Data, methodology and model specification

3.1 Model and data range

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This study selected the data from WDI (World Bank indicators) of Pakistan from the period of 1975 to 2019.

3.2 Model

$$\Delta(\boldsymbol{FD}) = \alpha_0 + \alpha_1(\mathrm{T}_{\boldsymbol{t-1}}) + \alpha_2(\mathrm{TR}_{t-1}) + \alpha_3(\mathrm{TP}_{t-1}) + \alpha_4(\mathrm{WB}_{t-1}) + \sum_{i=1}^{q} \alpha_{5i}\Delta(\mathrm{FD}_{t-1}) + \sum_{i=0}^{q} \alpha_{6i}\Delta(T_{t-1}) + \sum_{i=0}^{q} \alpha_{7i}\Delta(\mathrm{TR}_{t-1}) + \sum_{i=0}^{q} \alpha_{8i}\Delta(\mathrm{TP}_{t-1}) + \sum_{i=0}^{q} \alpha_{9i}\Delta(\mathrm{WB}_{t-1}) + \varepsilon_t \quad (1)$$

$$\Delta(\boldsymbol{FD}) = \beta_0 + \beta_1(\mathrm{FDI}_{\boldsymbol{t-1}}) + \beta_2(\mathrm{GDP}_{t-1}) + \beta_3(\mathrm{INF}_{t-1}) + \beta_4(\mathrm{ME}_{t-1}) + \sum_{i=1}^{q} \beta_{5i}\Delta(\mathrm{FD}_{t-1}) + \sum_{i=0}^{q} \beta_{6i}\Delta(FDI_{t-1}) + \sum_{i=0}^{q} \beta_{7i}\Delta(\mathrm{GDP}_{t-1}) + \sum_{i=0}^{q} \beta_{8i}\Delta(\mathrm{INF}_{t-1}) + \sum_{i=0}^{q} \beta_{9i}\Delta(\mathrm{ME}_{t-1}) + \varepsilon_t \quad (2)$$

Where Δ is first difference operator, optimal lag length, α is parameter in equation (1) for long and short run dynamic, α_1 to $\alpha_4$represent the long run and α_5 to $\alpha_9$arelong runt is error term.

3.3 Brief Description of Variables and Data Sources

Variable	Symbols	Description	Data Source
Fiscal deficit	FD	When expenditure increases more than revenue this situation is called fiscal deficit.	WDI
Tax rate	T	The tax levied by the central government or states based on an individual's taxable income or on company's earnings at certain proportion is called tax rate.	WDI
Tax returns	TR	The tax returns are total sum of money that the government receives from taxation.	WDI
Taxation on public investment	TP	The tax on people for using the governmental projects.	WDI
Wage bill	WB	It is defined as the payments paid in wages by the government to government employees.	WDI
Inflation	In (CPI)	Rise in money supply or growth on the whole price level is called inflation.	WDI
Term of trade	TOT		WDI
Military expenditue	Me	This variable is defined as the annual expenditure on the defense.	WDI
Gross domestic products	GDP	GDP is used as a measure of worth of the economic output fixed for price fluctuation	WDI

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3.4. Research Methodology

The data of the variables is collected from WDI and Pakistan 50 years statistic. The range of data use for estimation is from 1975 to 2019.The ADF (Augmented Dickey Fuller 1979) is applied to verify the stationary values of the variables. Auto Regressive Distributed Lag Model (ARDL) developed by Pesaran *et al*. (2001) is used to scrutinize the long run relationship among the variables. The structural stability test is carried out by applying CUSUM (cumulative sum of recursive residuals) & CUSUMSQ (cumulative sum of squares of recursive residuals).At the end, this study also checks the auto correlation of the variable by VEC test.

3.5. Diagrammatic expression of the model

Following diagram expose whole study. There are different factors (like, tax revenue, GDP, FDI etc) that make the cause of fiscal deficit in the country every year. But it is realty that there are some another factors that affect the fiscal gap.

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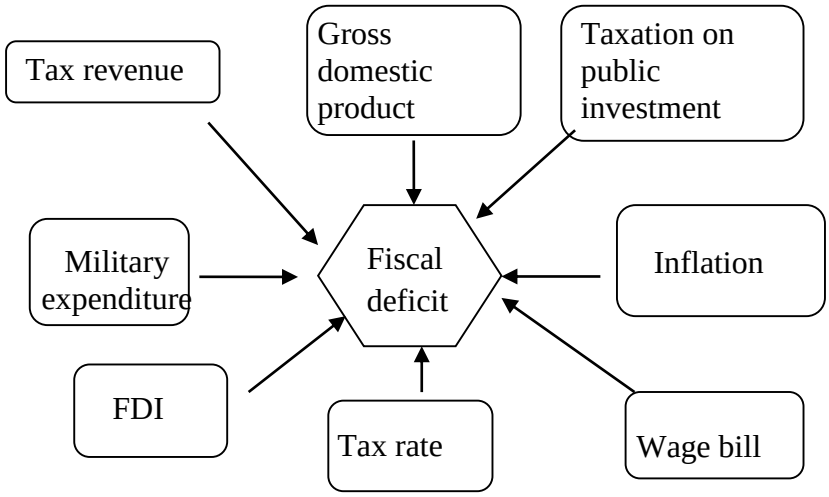

4. Empirical estimation and interpretation of the results

This study has developed two models to verify the impact of different variables on the fiscal deficient in Pakistan.

MODEL 1

4.1 Unit Root Test for model 1

The unit root test is frequently used to stationer the data. The Dickey and Fuller proposed the unit root test in 1981. The ADF (Augmented Dickey Fuller 1979) test is applied to the stationer the data. The result of variables is based on the E- Views estimation.

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4.1.1 Table Unit Root Test

Variables	Augmented Dickey-Fuller test							Result
	Values	Level			1st Difference			
		Trend	Without trend	None	Trend	Without trend	None	
FD	ADF value	2.57	2.98	1.00	8.16	8.14	8.25	I(1)
	5% level	2.93	3.52	1.94	2.94	3.53	1.94	
Wage bill	---	1.36	2.35	1.13	7.35	7.27	7.17	I(1)
	---	2.93	3.52	1.94	2.93	3.53	1.94	
TP	---	6.58	6.87	5.20	5.51	5.43	5.24	I(0)
	---	2.93	3.52	1.94	2.94	3.55	1.95	
T rate	---	4.15	4.24	1.13	8.22	8.13	8.32	I(0)
	---	2.92	3.52	1.94	2.94	3.53	1.94	
TR	---	3.54	4.10	0.54	5.11	5.03	5.15	I(0)
	---	2.94	3.52	1.94	2.94	3.53	1.94	

- Note*at 5% level of significant based on **Mackinnon (1996) and ***E
- Null hypothesis all above unit root test is that series has a unit root.
- SBC and AIC criteria are used for optimal lag selection.

In this study, ADF (Dickey and Fuller, 1979) is used to determine the orders of integration. According to the table, all three tests of the UR of these variables tstatistics result from parameter P = 0. The estimated t value contrasts with the crucial tvalue, and the data demonstrate that all variables are at 1%, 5%, and 10% level of significance, with I(0) in their level and I(1) in the first difference. The outcome demonstrates that certain variables are at I (1) first difference and others are on the level.

4.2 ARDL Approach for model 1

This method is developed by Pesaro et al. (2001). This approach is used to examine the short run and long run result of the variables.

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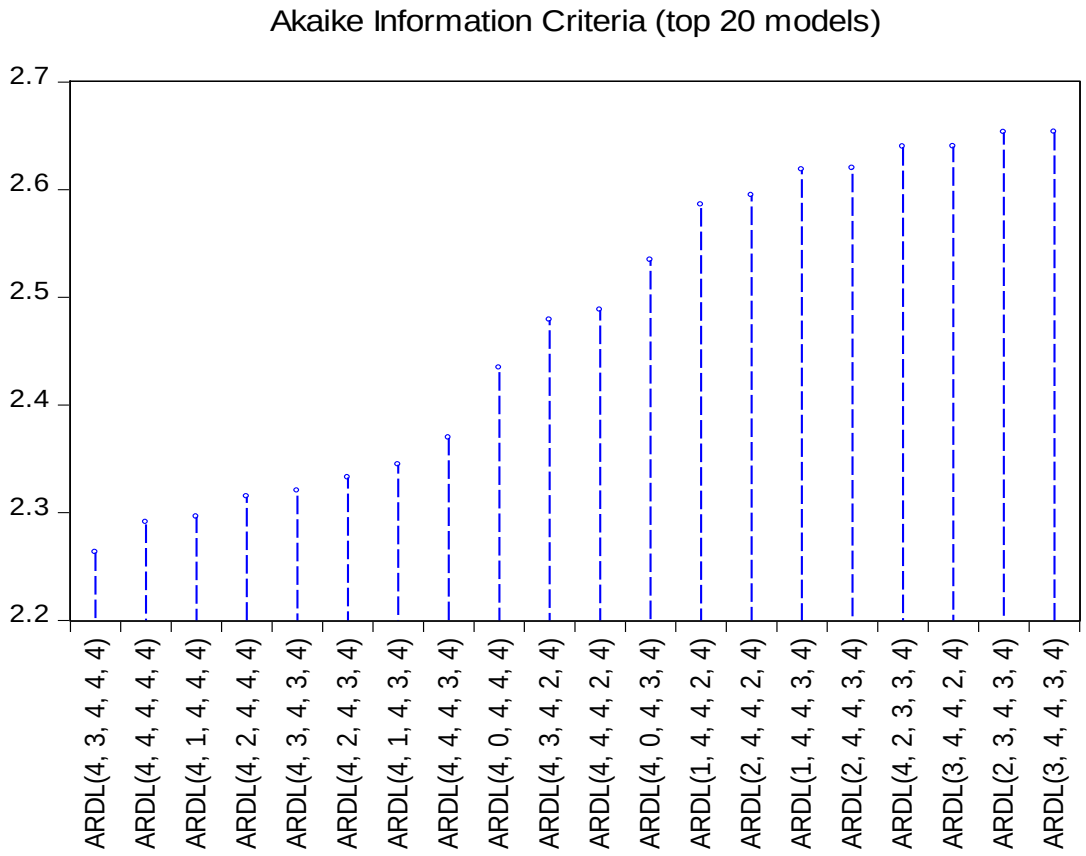
Akanke Information Criteria



For lag selection Akanke information criteria is used. In this, top 20 models are included. The model in which the value is minimum is taken for the test. The model taken here is (4, 3, 4, 4, and 4). Because this set of lags have the minimum values.

4.2.1Bound test for model 1

Null Hypothesis: No long-run relationships exist

Trace- statistics	Value	K
F-statistics	5.63	5

Critical value bonds

Significance	I0 bound	I1 bound
10%	2.26	3.26
5%	2.62	3.67
2.5%	2.96	4.18
1%	3.41	4.75

The lesser and greater bound values (2.62 and 3.79 at 5 percent) for F-statistic are taken from Table. It shows unrestricted intercept and no trend given in Pesaran et al. (2001).

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4.2.2 Short run ECM Model 1 Dependent Variable ∆ (FD)

Variables	coefficients	Stander error	t-ratio	Prob.value
T	1.26	0.12	10.19	0.00
TR	-1.14	0.19	-5.95	0.001
TP	0.06	0.01	3.66	0.003
WB	0.93	0.16	5.70	0.001
ECM(–1)	-0.96	0.12	-7.59	0.0000

INTENINTERPRETATION OF MODEL 1

The ECM result of short run ARDL model indicates that the Coefficients of variables. According to short run results the tax rate has positive effect on the fiscal deficit its means, 1unit increase in tax rate the fiscal deficit increase 1.26%. The 1.14 value of coefficient (TR) expose that 1unit increases in TR it brings about 1.14% decreases in fiscal deficit. 1unit increases in TP the fiscal deficit increase 0.06%. 1 unit increases in the wage bill the fiscal deficit increase 0.93%. The coefficient of ECM term (–0.96) is significant at one percent level. It quantifies speed of adjustment towards the long-run equilibrium.

4.2.3 Long run results of Model 1

Variables	coefficients	Stander error	t-ratio	Prob.value
T	0.79	0.33	2.35	0.036
TR	-0.31	0.09	-2.32	0.038
TP	-1.39	0.38	-3.68	0.003
WB	-0.59	0.07	-8.28	0.000
C	51.08	6.53	6.09	0.001

Fiscal deficit= α_0 +α_1 tax rate+α_2 tax revenue+α_3 tax p+α_4 wage bill+ ε_t_____(1)

Fiscal deficit = 51.08 + 0.79T -0.31TR. -1.39TP-0.59WB_____1

The result shows that the 1 % increases in the tax rate the FD increase 0.79.The result is positive as well as significant. It means that if the government increase the tax rate, the tax burden on the people also boost up. So, many people do not pay tax, even those people who have been giving tax, also deny paying such high rate of tax. The high tax rate decreases the efficiency of working, saving and investment of the people. Gupta (2012) found that high tax on personal income lessen motivation to work, save and invest. This situation create gap in public revenue and expenditure. The Harberger (1966) stated that high tax rates slow down the growth in the capital stock and lower the investment rate in country. Tax policies also disfigure the investment by affecting the MPC (marginal productivity of the capital).

The coefficient of tax revenue indicates that 1 unite increase in the tax revenue the deficit use to decrease 0.31. The result is negative and significant. The revenue is actually the

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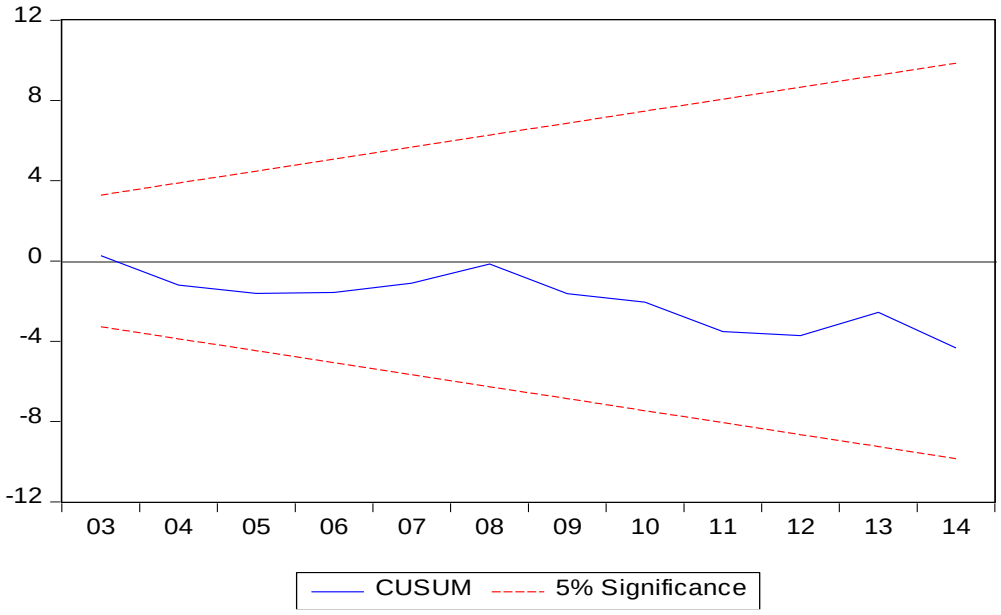
income of the government. If income increases, it makes shorter the gap between expenditure and revenue. The result of Ilyas et.al (2012) support current estimation that shorter the revenue and expenditure gap creates less deficit and Vis versa. The coefficient of TP indicates that 1% increase in the taxation on the public investment decrease the fiscal deficit. Its mean it has negative and significant effect on the fiscal deficit. Taxation has miscellaneous effects on economic actions and economic actions mean consumption augmentation, growth in investment, employment and gross domestic production (Lescaroux & Mignon, 2008).

The coefficient of wage bill elaborates that 1 % increase in the wage bill fiscal deficit decrease 0.59 percent. The wage bill has negative and significant effect on the fiscal deficit. The wage bill means government expenditure of salaries given to government employ. If government increases expenditure for provision of the wages to the government servant the deposable incomes of the people use to increase. The saving and investment power of the people also lead the economy of country get steadiness. On the other hand the people can easily pay the taxes on the commodities. This result supports the Perotti et.al (1999).

4.2.4 Stability Test for Model 1

The stability test enlightens fitness of ARDL model. So here by structural stability test is carried out by applying CUSUM (cumulative sum of recursive residuals) & CUSUMSQ (cumulative sum of squares of recursive residuals).



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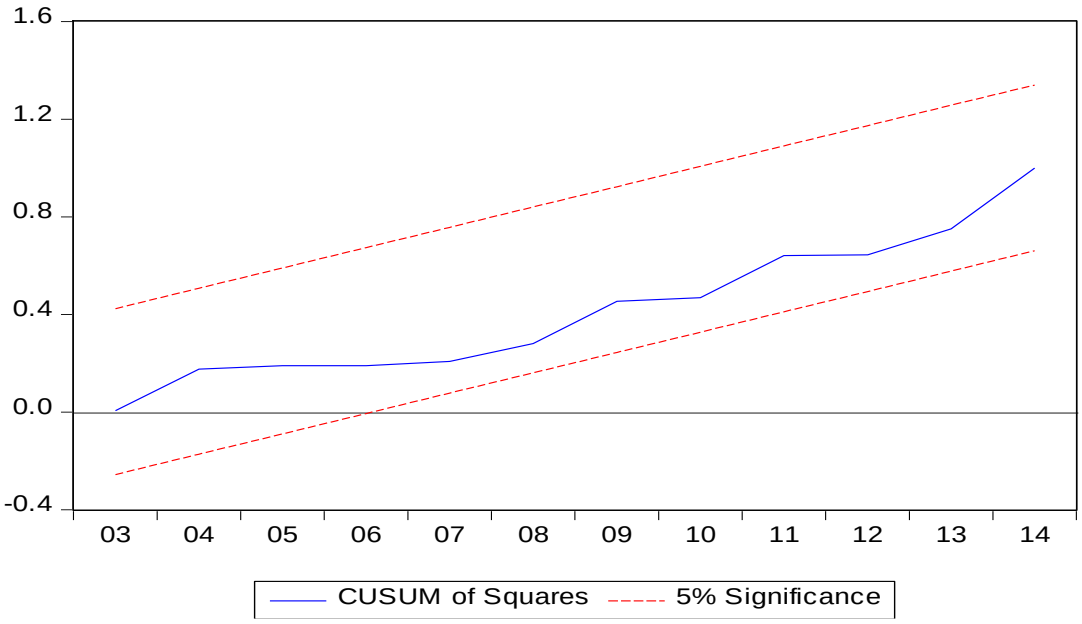

Red lines demonstrate the model lines. If the model lay between these red lines its means the model is structurally significant. The Diagrams of cusum and cusum of squares are elaborating that the model is stable and significant.

4.2.5 VECM Correlogram of data

The Correlogram is very important econometrics mod to test the stationary and auto correlation of data of the variables. The test of Correlogram indicates the result in graphical as well as tabulated form. The stationary and correlation is checked up to the lags 10.

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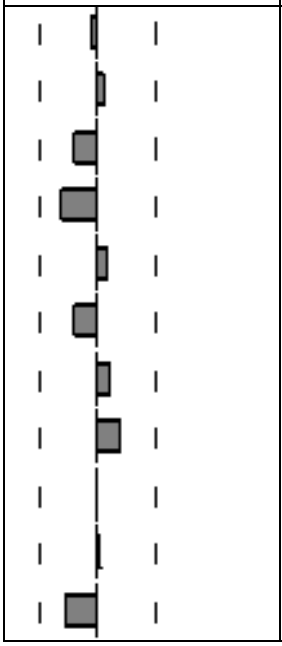
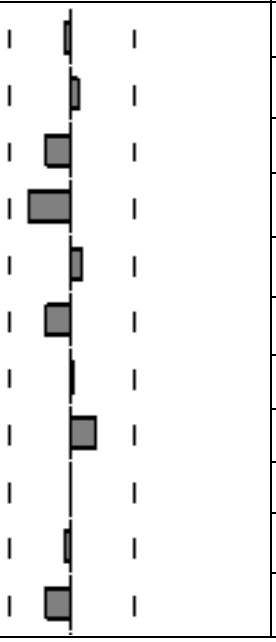
Table no 4.2.5.1;

Auto-correlation	Partial-correlation	Lags	AC	PAC	Q-STAT	Prob. values
		1	-0.035	-0.035	0.046	0.829
		2	0.037	0.036	0.1012	0.951
		3	-0.127	-0.125	0.7673	0.857
		4	-0.193	-0.205	2.3536	0.671
		5	0.054	0.049	2.4830	0.779
		6	-0.125	-0.130	3.1949	0.784
		7	0.077	0.012	3.4731	0.838
		8	0.128	0.124	4.2798	0.831
		9	0.002	-0.008	4.2799	0.892
		10	0.010	-0.039	4.2853	0.934
		11	-0.106	-0.131	6.1526	0.863

Hypothesis

- H_0 = there is no serial or auto-correlation
- H_a = there is serial or auto-correlation

In this table the vertical solid line indicates the zero axes. There are positive observation in t he right side of line and negative in the left side of this line. As the prob. Value is greater than the 0.05. So, the null hypothesis is accepted and alternative is rejected. On the other hand, it is very clear from this diagram that serial correlation at some lag is around to zero. Its mean the model is free from serial or auto-correlation and time series is probably stationary.

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MODEL 2

$$FD = \beta_0 + \beta_1 FDI + \beta_2 INF + \beta_3 TOT + \beta_4 ME + \varepsilon_t \_\_\_\_\_ (2)$$

Table Unit Root Test

Variables	Augmented Dickey-Fuller test							Result
	Values	Level			1st Difference			
		Trend	Without trend	None	Trend	Without trend	None	
FD	ADF value	2.57	2.98	1.00	8.16	8.14	8.25	I(1)
	5% level	2.93	3.52	1.94	2.94	3.53	1.94	
ME	---	1.32	2.85	1.05	4.53	4.54	4.16	I(1)
	---	2.93	3.52	1.94	2.94	3.53	1.94	
FDI	---	1.48	0.41	2.99	5.023	5.59	2.49	I(1)
	---	2.93	3.52	1.94	2.94	3.53	1.94	
TOT	---	0.21	1.14	1.64	5.68	5.89	5.63	I(1)
	---	2.92	3.52	1.94	2.94	3.53	1.94	
Inflation	---	3.01	3.09	0.89	7.83	7.74	7.93	I(0)
	---	2.93	3.52	1.94	2.94	3.53	1.94	

- Note*at 5% level of significant based on **Mackinnon(1996) and ***E
- Null hypothesis all above unit root test is that series has a unit root.
- SBC and AIC criteria are used for optimal lag selection.

In this study ADF (Dickey and Fuller, 1979) is applied to find out the orders of integration. The information of the table of Unite root test show that all the variables i.e. (FDI,FD,.INF,ME,TOT) are at 1%, 5% and 10% 5% level of significance I(0) in their level and I(1) in the first difference. The result is showed that some variables are stationer at the first difference and some variable are stationer at level.

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5.2 Bond test Model 2

Null Hypothesis: No long-run relationships exist

Trace- statistics	Value	K
F-statistics	9.33	4

Critical value bonds

Significance	(0 bound)	(1 bound)
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

The lower and upper bound values (2.62 and 3.79 at 5 percent) for F-statistic are taken from Table. Unrestricted intercept and no trend given in Pesaran et al. (2001).

5.4 Short run ARDL

variables	coefficients	Stander error	t-ratio	Pro.value
TOT	3.95	1.40	0.29	0.77
ME	-0.356	0.167	-4.251	0.0004
FDI	2.36	9.45	42.60	0.017
INF	-0.081	0.021	3.73	0.0014
ECM(–1)	-2.451	0.5113	-4.636	0.0002

5.4.1 INTERPRETAION OF MODEL2

Table is including the results of ECM of the selected ARDL model. The 0.062 value of coefficient of INF expose that 1unit increase in INF brings about 0.062% decrease in FDI in the short-run period. The 0.356 value of coefficient of MEexpose that 1unit increase in ME brings about 0.356% decrease FDI in the short-run period. Correspondingly, 3.95value of the coefficient of OTreveals that 1unit increase in TOT pulls FD almost 3.95%. The coefficient of FDI reveals that 1unit increase in tot pulls FDI almost 2.36. The coefficient of ECM term (–2.451is significant at one percent level. It quantity adjustment towards the long run equilibrium .the co.effiecent of (-2.451) show that about 2.451percent of deviation of from long-run equilibrium is corrected is the current period. It means that 245.1% per alum is towards long run.

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ARDL long run Model 2

variables	Coefficients	Stander error	t-ratio	Prob.value
TOT	-6.32	2.50	-3.349	0.0034
ME	-3.59	0.065	-2.649	0.015
FDI	4.17	8.33	5.002	0.001
INF	0.032	0.017	1.901	0.072
C	-2.075	0.259	-7.995	0.0000

INTERPRETATNION OF MODEL 2

This coefficient of TOT indicates that 1 unit increase in TOT the FD dencrease6.32%. It means that the OT has negative and significant effect on the Fiscal deficit. The gross fixed capital in any country is very helpful to stable the economy of the country. When the TOT is strong and there is stability in the country the other countries want to invest there. As Pakistan is agricultural country and have abundance of the raw material. So, through the better TOT the home country can make the financially strong (Chaudhry, 2018). The term of trade in any country enhance the inflow of the foreign direct investment in the country. The foreign direct investment increases the possibilities of the development of the country. Through the foreign direct investment the country produce final goods and make those goods which it has to import from those countries. This coefficient of ME indicates that 1 unit increase in the FDincrease3.59%. It means that the ME has positive and significant effect on the FD.

Foreign direct investment this coefficient indicates that 1 unit increase in foreign direct investment then FD increase 4.17%. It means that the foreign direct investment has positive and significant effect. If foreign direct investment raise the investment in different area. This investment increase in production and output shows positive impact on FD.This coefficient indicates that 1 unit increase in CPI (inflation) theft increase 0.032 %. It means that the CPI has negative and insignificant effect on the FD. When there is inflation in the country its means there is high prices of the commodities. In this situation the saving and investment of the country would be low. So, this situation invites the FD in the country.

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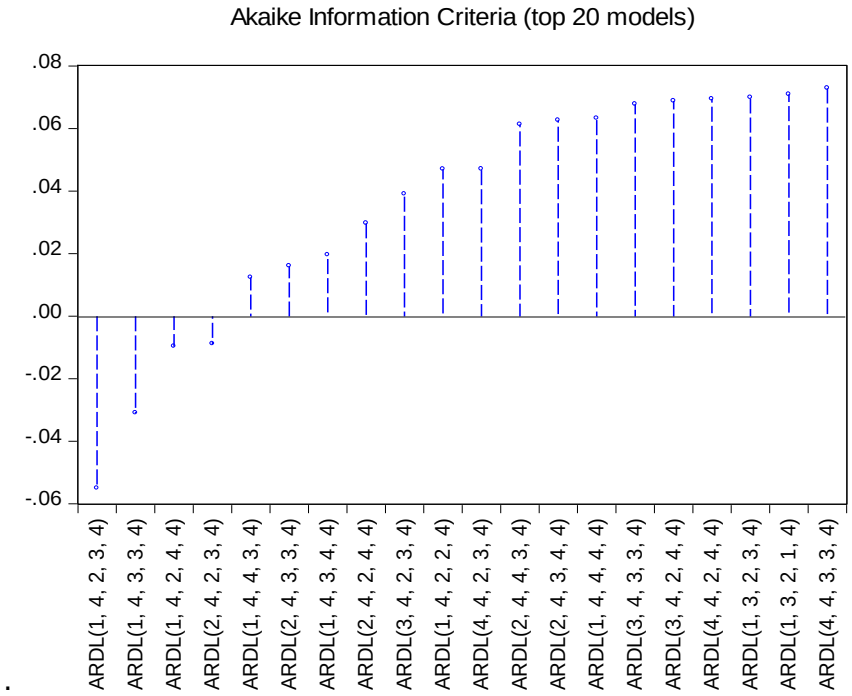

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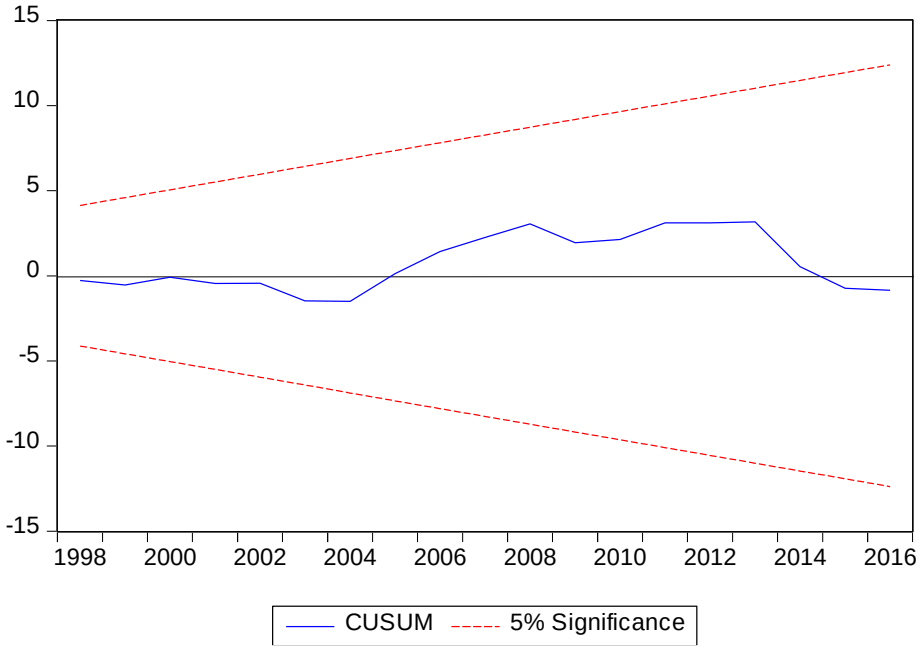
For lag selection Akaike information criteria is used. In this, top 20 models are included. The model in which the value is minimum is taken for the test. The model taken here is (4, 3, 2, 4, and 2). Because this set of lags have the minimum values.



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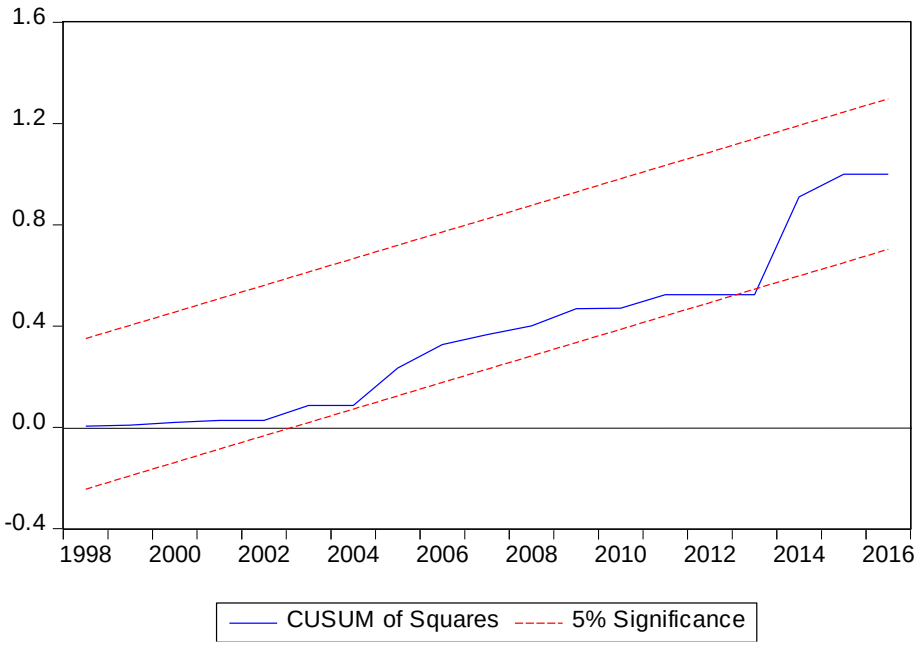

To determine the fitness of the ARDL model, a stability test is performed first. As a result, the structural stability test is performed here by utilising CUSUM) & CUSUMSQ. The model lines are shown as a red line. If our model is in the middle of the model lines, it is structurally significant. It is tested at a 5% level of significance. We may accept the analysis of valid regression modal specification since the plots of (CUSUM) and (CUSUMSQ) are within the crucial level of significance of 5%. (Chandia at al., 2022).

5. Conclusions and Policy Recommendations

Fiscal deficit is great issue not only for the backward countries but also for the developing countries including Pakistan. To analyze the detriments of the fiscal deficit in the Pakistan, the study selects the data from 1976 to 2019. This study selected fiscal deficit as the dependent variables and tax revenue, wage bill, tax are and taxation on public investment as independent variable. The ADF (Augmented Dickey Fuller 1979) is applied to verify the stationary values of the variables. Econometric technique ARDL is used to scrutinize the long run relationship among the variables.

The result of the study indicates that tax rate has positive and significant effect in short run as wall as long run. No doubt, the high tax rate increases the revenue. But this is reality that the high tax rate decrease the efficiency of working, saving and investment of the people. The result of the tax revenue has negative and significant effect on the fiscal deficit in short run and long run. The great amount of the government revenue decreases the gap that makes cause of budget deficit. The ARDL result also elaborates that the taxation on public investment and wage bill has positive effect on the budget deficit in short run. But in the long run, these both variables influences negatively on the fiscal deficit and helpful to decrease the budget deficit. The Pakistan has to face much political instability from the day of independence 1947. The terrorism increase the problem of

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security and Pakistan government has to spend a great amount to make the country secure (Sultan Mehmood2013). There a great part of budget has to provide to the military purpose and many time country has to take loans that increase the burden on fiscal department (Ali & Khalid, 2019).

This study is helpful for other researchers to validate this phenomenon in other countries. The model which was developed in this paper is also helpful to demonstrate same study in other economies. The variables which used in this study to highlight fiscal deficit problem, are also very useful in this context that policies makers can use these variables to remove fiscal deficit problem. For example it is proved that higher inflation affects investment adversely and GDP will be lower. Instability in prices people mostly hoarded those commodities which people demand more, it all creating distortion in the economy. There are also implications for the researchers to apply the model in the different period of time to validate the results of this study. The same study can be repeated with the budget surplus as a major variable in the model to check the impact of the budget surplus on the economic growth of the country.

Therefore keeping the results in views and in order to evade negative effects of high tax rate this study suggests that the government should exercise another polity to increase the revenue rather than increase in the direct tax rate. Government should facilitate the people with jobs, which increase the number of tax payers and make efficient tax collect system. The government should make political stability that reduces administrative cost (Abbas, 2021).

The Tax system of Pakistan needs to be improved to increase revenues. Government should increase the ratio of direct taxes, more taxes from rich and less from poor. There should be proper allocation of these revenues. Sustain trade balance is also key to remove fiscal deficit. Government official like parliamentarians should reduce their expenditure as much as they can. More than 60% revenues utilized on these expenditures.

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