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ANALYSIS OF DETERMINANTS OF CUSTOM TAX BUOYANCY IN PAKISTAN

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ABSTRACT

Objective: The paper investigates the major determinants which are affecting customs tax buoyancy in Pakistan in the short run and the long run. The study uses time series data from 1990-2024.
Research Gap: Customs taxes are an important part of Pakistan's government income, but there is no work done on how these taxes grow when the economy grows. Most studies focus on total taxes or income tax.
Methodology: The study employed the ADF test for estimating the stationarity of data and used ARDL for long-run data estimations, while ECM is used to estimate the short-run relationship.
Variables of the Study: The study used Custom Tax Buoyancy as the dependent variable while GDP, inflation, unemployment, trade openness, tax base and manufacture value added as independent variables.
Main Findings: The empirical results of the study reveals that in long run GDP has positive and significant relationship with custom tax buoyancy, MVA, tax base and trade openness have positive but insignificant relationship with custom tax revenue. While, inflation and unemployment have negative and insignificant relationship with custom tax revenue.
Practical Implications of Findings: The study recommended that Policymakers should focus on enhancing trade openness to improve the economy in the short term. It is essential to investigate these factors further to understand their long-term effects and potential interactions with trade openness. Policymakers should prioritize maintaining economic stability through prudent fiscal and monetary policies. To maximize revenue, the government should consider optimizing tax policies and improving tax collection mechanisms.

Key Word: Custom tax Buoyancy, Manufacture Value Added, Tax Base, ARDL, ADF, ECM.

Introduction

Fiscal policy plays a crucial role in the context of custom tax revenue. Good fiscal policy enables the government to regulate international trade, generate revenue and protect the domestic industry. Through adjusting custom tax policies government can influence the flow of goods, manage trade deficit and surpluses and raise the government revenue for public expenditure. Effective fiscal policy can help in reducing tax evasion, budget deficit and trade imbalance. Revenue from different sources of tax (Custom Tax, direct tax, indirect tax, sale's tax etc.) may leads to enhance the speed of development for any country (Haque, 2009). Fiscal deficit is the major problem in most of the developing countries especially Pakistan over the past period. An effective tax policy needs to be enhanced to become a significant tool of better mobilization of resources (Wawire, 2011). Low revenue collection and higher expenditure are the reasons behind large increase in fiscal imbalance (Ahmed et al., 2010). Fiscal

imbalances can be reduced through increasing the tax revenue or reducing the expenditure (Romer, 1996). Pakistan's fiscal policy has faced challenges in maintaining stable and efficient tax system, while the tax to GDP ratio of Pakistan is decreasing day by day (World Bank, 2019).

The custom revenues also decreasing day by day as the implementation of WTO have discouraged the imposition of custom tax on imports and exports. The Custom tax buoyancy are crucial indicators of country's fiscal health, analyzing the responsiveness of tax revenue of economic growth and changes in tax rate (IMF, 2018). Fiscal policy can increase custom tax revenue by designing an optimal tax structure that balances revenue generation with economic growth (Dudine and jalles, 2020). According to (Jalles, 2017) fiscal policy can adjust tax rates and exemption to optimize revenue generation and economic growth, affecting custom tax buoyancy.

Another indicator that can gauge the efficiency of the custom tax part of the fiscal policy is the custom tax buoyancy. The greater the buoyancy from unity indicating the efficient fiscal policy which will generate enough tax revenues from custom duty along with the increase in GDP, which will decrease the fiscal deficit, public debt and public debt servicing. While buoyancy less than unity indicating the inefficient fiscal policy with huge fiscal deficit and public debt. The Pakistan fiscal system is non-buoyant (Shehzada et al., 2016).

Again a Good fiscal policy refers to the government's effective management of its revenue and expenditure for promoting economic growth, stability and prosperity. Good fiscal policy contains high tax to GDP ratio, high tax revenues, sustainable expenditure, low debt and debt servicing. While a bad fiscal policy refers to the ineffective management of government's revenue and expenditure leading to economic instability, inefficiency and negative consequences. The bad fiscal policy will have low tax to GDP ratio, low tax revenues, unsustainable high expenditures, high public debt and debt servicing.

1.1 Buoyancy of Tax

Tax buoyancy refers to the gross responsiveness of tax revenue to the changes in economic activity. Tax buoyancy is typically measured by percentage change in tax revenue due to 1 percent change in GDP. Tax buoyancy indicates that how well tax revenue response to the changes in economic activities. The tax buoyancy includes two responses of tax revenues: one is the automatic response of tax revenue due to GDP and second was the increase in GDP due to Govt. policy.

Mathematically

$$Tax\ Buoyancy = (Percentage\ change\ in\ tax\ revenue \div Percentage\ change\ in\ GDP)$$

The buoyancy of tax revenue is further divided in two parts: tax revenue to base buoyancy and base to GDP buoyancy.

Conditions

There are three condition of tax buoyancy;

1. Buoyancy > 1 (tax revenue are growing faster than GDP)
2. Buoyancy =1 (tax revenue are growing equal to the GDP)
3. Buoyancy< 1 (tax revenue are growing slower than GDP)

1.2 Problem Statement

The instability of custom tax revenue in Pakistan accelerated by low elasticity of custom duty internationally is affecting the government's ability to achieve revenue stability and predictability, thereby limiting the economic growth and development. The aim of this research is to determine the major determinants of custom tax revenue internationally and elasticity in Pakistan and how these determinants effect the economic growth and development of the country (i.e. impacts of trade flow, tariff rates, economic activities, exchange rate, smuggling, tax evasion tax base and tax rate structure).

1.3 Objective of the Study

The objectives of the Study are;

1. To study the nexus between GDP, inflation, unemployment, Trade openness, tax base, manufacture value added Custom Tax Buoyancy
2. To advice the policy implication on the basis of empirical results.

1.4 Importance of the study

Determinants of custom tax buoyancy play a crucial role in ensuring revenue stability and effective fiscal planning. Policy maker can optimize revenue collection and trade facilitation through understanding the factors that are influencing the custom tax buoyancy which will ultimately improve economic growth.

The study also plays an important role in enabling accurate revenue forecasting and encourages effective fiscal policy planning. Understanding custom tax buoyancy help to maintain trade competitiveness, attracting FDI and promoting economic growth. This study is important because it inform the policy maker about the key factors that are influencing the custom tax buoyancy. This research contributes to economic development in Pakistan by optimizing the revenue collection and reducing the gap.

2. Review of Literatures

EP et al. (2024) has investigated the impacts of tax revenue on capital development in 10 Southeast Asian countries (Singapore, Malaysia, Indonesia, Brune Darussalam, Philippines, Thailand, Laos, Vietnam, Cambodia, Mynmar and Timor Leste. They used time series

data from 2001 to 2021.To analyze the quantitative data PLS structural equation Modeling had use. The dependent variable was tax revenue while independent variables were GDP, FDI, external debt, corruption perception index, manufacture and agriculture. The results indicated that GDP have positive impact on tax revenue, Agriculture and FDI have no impact tax revenue while external debt have negative impact on tax revenue. They recommended that further researches had to done in future especially on the factors like GDP, FDI, corruption that impact the tax revenue of the economy.

Gloray and Nmesirionye (2024) suggested that inflation has negative and insignificant impact on tax capacity while net exports and per capita GDP has positive and insignificant impact on tax capacity in Nigeria. They recommended that government should regulate issues of taxes effectively such that disposable income of both individuals and corporate organization left after tax payment will breed saving so as to create more investment which will invariably more employment opportunities and curb inflation in the country.

Ibrahim and Jairo (2023) has evaluated the tax revenue performance in East Africans community (EAC) partner states of Burundi, Kenya, Rwanda, Tanzania and Uganda. They also investigated whether administration efficiency impact the revenue performance. They used panel data for ten years (2009-2018). They recommended that revenue administration should consider increasing the number of tax payers and strengthen the quality of institution in short run by ensuring fairness in tax collection.

Bhoosal and Byanjankar (2022) examined the determinants of government revenue in Nepal. They used data from 1975-2021 to assess the effect of macroeconomic variables. They employed ARDL approach for analysis of data. The dependent variable was revenue while independent variables were imports, foreign aid, exchange rate and GDP per capita. They concluded that GDP per capita and imports are major determinants of government revenue in short run. In short run, GDP per capita, imports and exchange rate are major determinants. They recommended that import base revenue structure should be changed and increasing economic growth, which could be through increasing capital expenditure, can enhance revenue mobilization.

Albimana and Hemedb (2022) examined the determinants of tax revenue to GDP among four East African community countries (EAC). The dependent variable was tax revenue while independent variables were GDP, manufacturing sector performance, agricultural sector performance and services sector performance. They concluded that GDP growth has positive impact on total tax revenue while agricultural sector has negative and significant effect on revenue and also manufacturing and services sectors have positive impact on tax revenue.

Proud and Kollie (2021) determined the factors that are likely to drive the tax revenue performance in Liberia. They used time

series data. They employed Johansen co integration approach and VECM estimation technique to analyze the data. The depend variable was total tax revenue while independent variables were domestic tax revenue, revenue from international trade, inflation exchange rate and GDP growth. They concluded that in long run GDP growth, revenue from international trade have positive impact on total tax revenue performance and exchange rate and population growth have negative impact on total tax revenue performance. They recommended that Liberian government have to adopt the VAT regime in the place of current GST regime.

Osoro et al. (2001) evaluated the structure and performance of excise taxes on the basis of three main objectives of taxation; efficiency, equity and revenue generation in Tanzania. They estimated the short-run and long-run buoyancy and elasticity for excise taxes. They used quarterly data for the period 1990-1998.The dependent variables were excise tax revenue, revenue collection and demand for excisable goods while independent variables were GDP, excise tax rates, price of excisable goods. They concluded the short run and long run buoyancy and elasticity which show that excise tax revenue is inelastic with respect to quarterly change in GDP.

Theoretical Framework and Methodology

Fiscal policy plays a crucial role in the context of custom tax revenue. Good fiscal policy enables the government to regulate international trade, generate revenue and protect the domestic industry. Through adjusting custom tax policies government can influence the flow of goods, manage trade deficit and surpluses and raise the government revenue for public expenditure. Effective fiscal policy can help in reducing tax evasion, budget deficit and trade imbalance. Fiscal deficit is the major problem in most of the developing countries especially Pakistan over the past period. Fiscal deficit is the major problem in most of the developing countries especially Pakistan over the past period. An effective tax policy needs to be enhanced to become a significant tool of better mobilization of resources (Wawire, 2011). Tax revenue is one of the important source of government revenue generation in both developing and developed countries (Abdixhiku et al., 2017).

The custom tax revenues are decreasing day by day as the implementation of WTO have discouraged the imposition of custom tax on imports and exports. Another indicator that can gauge the efficiency of the custom tax part of the fiscal policy is the custom tax buoyancy.

Buoyancy greater than 1 indicating efficient fiscal policy which helps government to generate more revenue and decrease the public debt as well as fiscal deficit. Fiscal deficit is the major problem in most of the developing countries especially Pakistan over the past period. The Pakistan fiscal system is non-buoyant and inelastic, (Shehzada et al., 2016).

Through implementing good and efficient fiscal policy there is

a big chance to increase GDP, government revenue, international trade, employment level, reducing inflation and government debt. As Wagner's law state that, when there occurs increase in GDP it will bring proportionally more increase in government expenditure. He proposed a relationship between economic development and government spending, as GDP increases the government activities also increases means government need more resources to be allocated.

3.1.1 Tanzi Olivera Effect:

Tanzi effect explain how high inflation can negatively impact the total tax revenue and it was given by economist Vito Tanzi and Julio Olivera in 1977. The main idea behind this effect is that inflation erodes the real value of tax collections due to time lag between tax announcement and tax collection. Inflation reduces the real value of tax payments received by Government. As prices rises, the real value of tax revenue collected by Government decreases, even if the nominal amount remains the same.

3.1.2 Tax Base and Tax Handle Theory: Tanzi (1983)

Vito Tanzi in 1983 in his tax base and tax handle theory explored the relationship between tax rate tax evasion and use of cash in the economy. The theory suggest that high tax rate leads to increases tax evasion and as result reduce the tax revenue. According to this theory the expected relationship between tax base and tax revenue is negative means that higher tax rate leads to reduce tax revenue.

3.1.3 Keynesian economics theory:

This theory was given by John Maynard Keynes which described that there is negative relationship between unemployment and custom tax revenue. According to Keynesian theory high employment leads to reduce the aggregate demand and in turn decreased the import and results in lower custom tax revenue.

3.1.4 Monetarism Theory

This theory told that Inflation has mixed effect on custom tax revenue. According to Friedman's monetarist perspective inflation is influenced by supply of money can affect the real value of imports, while nominal value of import may rise, real purchasing power may decline potentially reducing import volume and customs revenue.

3.1.5 Comparative Advantage Theory

This theory was given by David Ricardo which described that greater trade openness can reduce the customs revenue in short term but enhance it in long run through volume effect. Ricardo's theory support the free trade based on comparative advantage, while tariffs may protect domestic industries, they can also hinder the benefits of trade openness affecting custom revenue dynamics.

3.1.6 Public Finance Theory

This theory was given by Carl Shoup which tells us that broad tax base reduce reliance on custom duties. According to carl finance theory broader domestic tax base allow Government to rely less on custom duties stabilizing revenue sources.

Import Substitution Industrialization Theory was presented by Arthur Lewis which proposed that manufacturing value added has negative impact on custom tax revenue. According to Lewis's theory increase in domestic manufacturing will leads to reduction in custom tax revenue. As local manufacturing grows, reliance on imported goods will reduce and potentially reducing the custom revenue.

3.2 Variables of the Study:

This study use Custom tax as dependent variable as Economic development, inflation, unemployment, exchange rate, level of import tax and international trade as Independent variable. We also find the nexus between the dependent variable and independent variable that how explanatory variables effect the custom tax in Pakistan.

Table 3.1: Variables of the Study

S. No.	Variables	Expected sign of Variables	Time Period	Source of Data
1	Custom Tax		1990-2024	WDI
2	Economic Development	Positive	1990-2024	WDI
3	Trade Openness	Positive	1990-2024	WDI
4	Inflation	Positive	1990-2024	WDI
5	Unemployment	Negative	1990-2024	WDI
6	Tax Base	Positive	1990-2024	WDI
7	Manufacturing value added	Positive/Negative	1990-2024	WDI

3.5 Data Source

The study collect data from;

- World Development Indicator
- State Bank of Pakista

Results and Discussions

4.1. Introduction

This chapter includes the analysis of data, graphs and tables of the results. The chapter include Augmented Dickey Fuller (ADF) test, Autoregressive Distributed Lag Model (ARDL), ARDL for long run and ECM for short run and many diagnostic test for long run and short run.

Table 4.1 Results of ADF Test

Source: Author's Estimation

Source: Author's Estimation

The augmented Dickey-Fuller test is used to check the unit root based on the null hypothesis that the data is stationary. A unit root can cause unpredictable results in time series analysis. The table below shows the results of the ADF test.

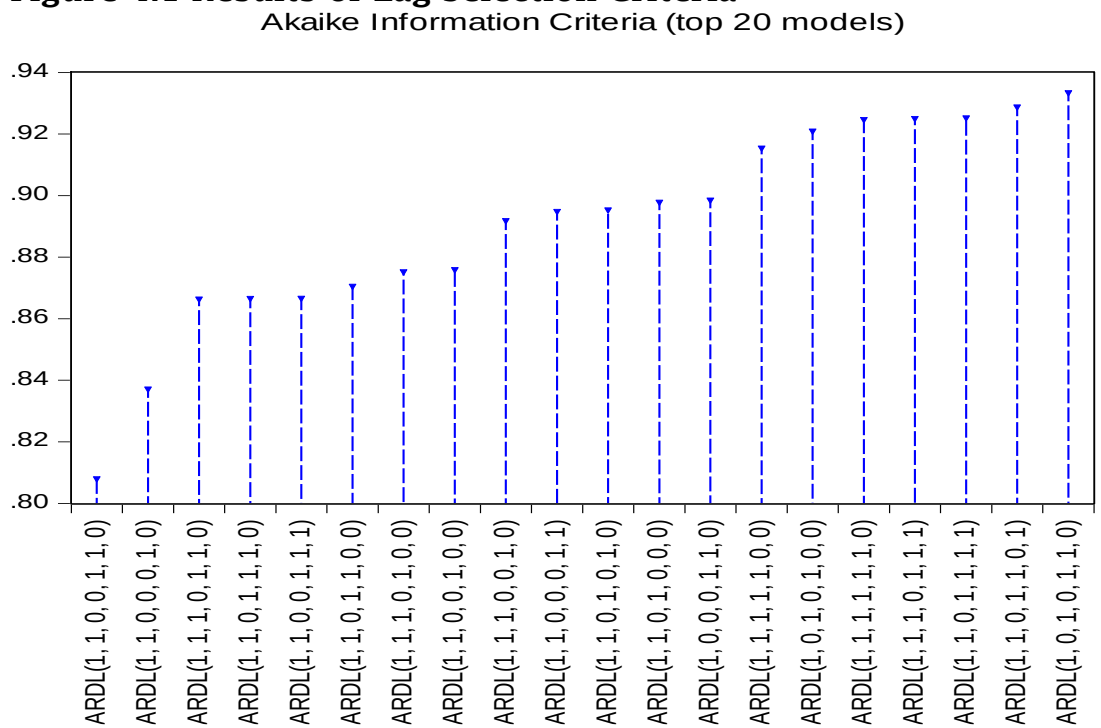
S No	Variables	ADF	Test Value	Critical value at	P-value	Remarks
1	Custom tax buoyancy	Level	2.177422	-3.552973	0.4859	**I(1)**
		1st Difference	-4.004047	-3.552973	0.0184	
2	GDP	Level	-4.619370	-3.548490	0.0040	**I(0)**
		1st Difference	*****	*****	*****	
3	Trade Openness	Level	-2.122729	-3.548490	0.5153	**I(1)**
		1st Difference	-5.956256	-3.552973	0.0001	
4	Unemployment	Level	-1.439665	-3.548490	0.8304	**I(1)**
		1st Difference	-5.659359	-3.548490	0.0003	
5	Inflation	Level	-5.460448	-3.548490	0.0005	**I(0)**
		1st Difference	*****	*****	*****	
6	Manufacture value added	Level	-5.460448	-3.548490	0.0005	**I(0)**
		1st Difference	*****	*****	*****	
7	Tax Base	Level	-3.321227	-3.548490	0.0799	**I(0)**
		1st Difference	*****	*****	*****	

Source: Author's own Estimations

The results indicate that the handles are integrated of mixed order, showing that some are stationary at level I (0) and some are stationary at 1st difference I (1). The variables GDP, inflation, manufacturing value added, and tax base are stationary at level I (0), and custom tax, trade openness, and unemployment are stationary at 1st difference.

Table No. 4.2 Results of the Bound Test

Figure 4.1 Results of Lag Selection Criteria



Source: Author's own estimation

The Akaike Information Criteria is statistical measure used to compare the fitness of different model. Lower AIC value indicate better model fit. The graph suggests that the top 20 models have AIC values ranging from 80-94, indicating the varying degree of fit. The model which have a lower AIC between 80-82 is likely to be the best fit among these 20 models shown in the graph.

Table 4.3 Results of Long Run ARDL Co-integration

S No.	Variables	Co-efficient	P-Value
1	Custom Duty (-1)	0.933282	0.0000
2	GDP	0.125064	0.0008
3	GDP (-1)	0.066527	0.0667
4	Inflation	-0.000639	0.9428
5	MVA	0.107208	0.2997
6	Tax Base	0.001904	0.9468
7	Tax Base (-1)	0.032636	0.1594
8	Trade Openness	0.003742	0.8981

9	Trade openness (-1)	-0.043045	0.0913
10	Unemployment	-0.016377	0.6193
11	C	-2.487366	0.2111

Source: Author own Estimations

Above table show the Long run ARDL estimations of the results. The results reveals that custom tax buoyancy have positive relation with its lag value and its co-efficient is 0.933282, which stated that 1% change in tax buoyancy in previous period would increase current time tax buoyancy by 0.93 and co-efficient is significant.

The GDP also has positive and significant relationship with custom tax buoyancy which stated that one % increase in GDP will bring 0.12 change in custom tax revenue. The lag of GDP (-1) also have positive and significant relationship with custom tax buoyancy in Pakistan in long run. GDP growth has positive impact on total tax revenue indicated that higher the GDP will tend to increase total tax revenue (Albimana and Hemedb, 2022). According to Proud and Kollie (2021) in long run HDP growth has positive relationship with total tax revenue.

Inflation has negative and insignificant impact on custom tax buoyancy in long run and have coefficient -0.000639. this indicate that increase in inflation will decrease that custom tax buoyancy in Pakistan in long run. Tanzi effect explain how high inflation can negatively impact the total tax revenue (Tanzi and Olivera, 1977). According to Ihuarylam et al. (2021) a unit increase in inflation will bring unit increase in tax revenue. Inflation has positive and significant relationship with tax revenue (Gobachew et al. 2018).

Similarly, manufacture value added has positive but insignificant relationship with custom tax buoyancy in long run in Pakistan. The results indicate that one % increase in manufacture value added will increase the custom tax buoyancy by 0.001904. trade openness can reduce the customs revenue in short term but enhance it in long run through volume effect (Ricardo, 1817).

Tax base and its lag both have positive but insignificant relationship with custom tax buoyancy in long run having coefficients 0.0019 and 0.032 respectively. According to tax base and tax handle theory the expected relationship between tax base and tax revenue is negative means that higher tax rate leads to reduce tax revenue (Tanzi, 1983).

Results also reveals that trade openness have positive and insignificant relationship with custom tax revenue but its lag have negative but significant relationship with custom tax buoyancy in long run. International trade has positive impact on tax revenue performance in long run (Proud and Kollie, 2021). According to Boukbech et al. (2018) degree of openness have positive and insignificant impact on tax revenue. Comparative Advantage Theory described that greater trade openness can reduce the customs

revenue in short term but enhance it in long run through volume effect (Ricardo, 1817).

Similarly, unemployment has inverse relation with custom tax revenue and its coefficient is -0.016377 show that one % change in unemployment will reduce the custom tax buoyancy by -0.016. High employment leads to reduce the aggregate demand and in turn decreased the import and results in lower custom tax revenue (Maynard, 1936). Unemployment has direct impact on tax revenue (Velaj and Prendi,2014).

Overall the results reveals that most of the variables are significant and positively impacting custom tax buoyancy in long run, while inflation and unemployment are insignificant in long and negatively impacting the custom tax buoyancy.

Table No 4.4 Diagnostic Test of Long run ARDL

S No.	Test Type	Null Hypothesis	Test Statistics	P-Value	Remarks
1	**R-Squared**		0.966694		Best fit Model
2	**F-Test**	Model is overall insignificant	66.75655	0.000000	Model is Significant
3	**Breusch-Pagan-Godfrey**	No heteroscedasticity	2.944548	0.8901	
4	**Jarque bera**	Data is normally Distributed	3.582029	0.658044	

Source: Author's own estimations

R-Squared test was used to gauge the goodness of the model and explained the percent variation in dependent variable caused by independent variables. The results reveals that R-Squared of the model was 0.96 which means that 96% of variation in dependent variable were explained.

F-Test was used to measure the overall significance of the model, as the H_0 of the model is that the model was overall insignificant. The value of F-Statistic was 66 and its p-value was 0.000 which stated that H_0 was rejected and model was overall significant.

Breusch-Pagan-Godfrey test was used to check the existence of heteroscedasticity in the model. Breusch-Pagan-Godfrey test use chi-square distribution. The result of the test reveals that P-Value was 0.8901 which was greater than 0.05, there is no significant evidence of heteroscedasticity hence the H_0 has been accepted.

Jarque Bera test was used to check that data is normally distributed or not, where its H_0 was data is normally distributed. The results of JB revealed that the P-Value was 0.65 which was greater than 0.05 hence H_0 is accepted and data was normally distributed.

4.5 Error Correction Mechanism for Short Run

If the variables are non-stationary at level and stationary at first

difference and Johenson test also confirm the existence of long run relationship among the variables. Then we use the Error correction mechanism for the short run analysis. If there is any type of shock in the model ECM told us about the time period in which this shock can be removed. The value of ECM's co efficient ranges from 0 to -1.

Table No 4.5 Results of ECM Short Run:

S No.	Variables	Co-Efficient	P-Value
1	D(GDPWB_GR)	0.045894	0.1438
2	D(INFLATION)	0.000903	0.9325
3	D(MAVSBP_MPKR)	-0.035630	0.7674
4	D(TBSBP_NAGDP)	-0.026152	0.3943
5	D(TOWB_GDP)	0.078963	0.0258
6	D(UNEMPLOYMENT)	-0.071979	0.2518
7	ECM(-1)	-0.190255	0.5404

Source: Author's own estimations

The results of ECM stated that trade openness is significant and have positive coefficient 0.078 indicating that in short run one % increase in trade openness will bring 0.078 increase in custom tax buoyancy. Where, GDP has insignificant and positive impacts on custom tax buoyancy in short run with coefficient 0.045, inflation was also insignificant and positive in short run with coefficient 0.0009, similarly, manufacturing value added, tax base and unemployment were insignificant and negatively impacting custom tax buoyancy in short run in Pakistan.

Table No 4.6 Results of Diagnostic Test of ECM Short Run

S No.	Test Type	Null Hypothesis	Test Statistics	P-Value	Remarks
1	**R-Squared**		0.346065		Best fit Model
2	**Breusch-Pagan-Godfrey**	No heteroscedasticity	2.944548	0.8901	
3	**Jarque bera**	Data is normally distributed	0.836966	0.658044	

Source: Author's own estimations

Above table show the results of diagnostic test of error correction mechanism for short run. The value of R-Squared is 0.340 which indicate that model is explaining the 34% of variation in dependent variable. The results suggest that model is good fit although the enough R-Squared value.

As Breusch-Pagan-Godfrey test is used to detect the heteroscedasticity in the model and the null hypothesis of BPG test

is that there is no heteroscedasticity in the model. The results of BPG test reveals that the T-statistic value is 2.39 with P-value 0.89 which is greater than typical significance level hence, null hypothesis is accepted and there is no evidence for heteroscedasticity presence.

Similarly, Jarque bera test is employed to check the normality in the model. The results of Jarque-Bera test stated that the T-statistic value is 0.837 with p-value 0.658 which is greater than significance level (0.05) hence the null hypothesis is accepted and data is normally distributed in the model.

5. Conclusion and Recommendations

5.1 Conclusion

This study explores the relationship between custom tax revenue and its major handles for long run and short run in Pakistan. The study use time series data from 1990-2024. The estimations of the study have been done in two stages. In first stage, the study use unit root for checking the stationarity and then employ the Johenson Co-integration. In second step the study uses Autoregressive Distributed Lag Model (ARDL) for estimating long run relationship between dependent and independent variables. Then, Error Correction Mechanism (ECM) is used for short run relationship analysis of the dependent and independent Variables. The study aimed to identify the key factors influencing custom tax revenue. The empirical evidence reveals that GDP, unemployment, inflation, tax base, trade openness and manufacture value added are the major handles of custom tax revenue which affect the custom tax revenue in short run and long run in Pakistan.

The short-run results from the Error Correction Model (ECM) show that only trade openness (how open a country is to international trade) has a meaningful impact on the economy in the short term. The results suggest that when trade openness increases, the economy improves. Other factors like GDP growth, inflation, unemployment, and interest rates were not found to have a strong or clear effect in the short term. Even though GDP growth and unemployment had the expected direction of effect (GDP helping and unemployment hurting), their influence was not strong enough to be considered significant in this analysis.

The error correction term, which shows how quickly the economy returns to its long-term balance after changes, had the correct negative sign, but it wasn't significant. This means the economy doesn't quickly adjust back to normal after short-term changes. Overall, the findings suggest that trade openness is the most important factor in the short run, while other economic indicators may only matter more in the long term or under different situations.

Results showed that GDP has positive and significant relationship with custom tax revenue in long run which indicate that an increase in GDP will increase the custom duty by 0.12. GDP growth has positive impact on total tax revenue indicated that higher the

GDP will tend to increase total tax revenue (Albimana and Hemedb, 2022). According to Proud and Kollie (2021) in long run HDP growth has positive relationship with total tax revenue.

Inflation is negative and insignificant with custom tax revenue showing that higher inflation leads to reduce the custom tax revenue in long run while, lower inflation tends to increase the custom tax revenue in Pakistan. As, Tanzi effect also explain how high inflation can negatively impact the total tax revenue (Tanzi and Olivera, 1977).

Result show positive but insignificant relationship between manufacture value added and custom tax revenue. As, increase in manufacture value added will leads to improve the government revenue generating from custom taxes.

Similarly, tax base shows the positive but insignificant results for custom tax revenue which specify that increase in tax base leads to increase the country's tax revenue in long run. Furthermore, trade openness also has positive but insignificant impacts on custom tax revenue in long run that reveals that increase in international trade will leads to enhance the custom tax and increase the tax revenue. According to Boukbech et al. (2018) degree of openness have positive and insignificant impact on tax revenue. International trade positively impacts tax revenue performance in long run (Proud and Kollie, 2021).

Unemployment has negative and insignificant impacts on custom tax revenue in long run in Pakistan. As higher unemployment leads to decrease the custom tax revenue while, lower unemployment leads to increase the tax revenue in long run.

5.2 Recommendation

1. Policy Implications: Policymakers should focus on enhancing trade openness to improve the economy in the short term. This could involve simplifying trade regulations, reducing tariffs, and improving infrastructure to facilitate international trade.
2. Further Research: The study's findings suggest that other economic factors do not have a significant impact on custom tax revenue in the short term. However, it is essential to investigate these factors further to understand their long-term effects and potential interactions with trade openness.
3. Economic Stability: The insignificant error correction term implies that the economy may take time to adjust to changes. Therefore, policymakers should prioritize maintaining economic stability through prudent fiscal and monetary policies.
4. Custom Tax Revenue: The study highlights the importance of custom tax revenue in Pakistan's economy. To maximize revenue, the government should consider optimizing tax policies and improving tax collection mechanisms.

The results suggest that policymaker should focus on promoting economic growth and trade openness and other factors that positively impacting the custom tax buoyancy in Pakistan. By understanding the determinants of custom buoyancy, policy maker

can design effective and efficient tax policies and optimized revenue collection in Pakistan.

References

Ahmed, M., & Mohammed, S. (2010). Determinant of Tax Buoyancy: Empirical Evidence from Developing Countries. European Journal of Social Sciences – Volume 13, Number 3 (2010) 408.

Albimana, M. M., & Moh'd Hemedb, I. (2022). The Determinants of Tax Revenues among EAC members. African Tax and Customs Review, 5(1), p11-

Abdixhiku, L., Krasniqi, B., Pugh, G., & Hashi, I. (2017). Firm-Level Determinants of Tax Evasion in Transition Economies. Economic Systems, 41(3), 354–366.

Bhoosal, Y. L., & Byanjankar, R. (2022). An Empirical Study on the Determinants of Government Revenue in Nepal. NRB Economic Review, 34(2), 30-49p19.

Dudine, P., & Jalles, J. T. (2017). How buoyant is the tax system? New evidence from a large heterogeneous panel (IMF Working Paper No. WP/17/4). International Monetary Fund.

EP, R. L., Ahmar, N., & Darmansyah, D. (2024). The Analysis of Southeast Asia's Tax Revenue Determinants (Empirical Study 2001–2021). Asian Journal of Management Analytics, 3(3), 867-888.

Friedman, M. (1956). The quantity theory of money: A restatement. In M. Friedman (Ed.), Studies in the Quantity Theory of Money (pp. 3–21). Chicago: University of Chicago Press.

Hussain, M. E., & Haque, M. (2017). Fiscal deficit and its impact on economic growth: Evidence from Bangladesh. Economies, 5(4), 37.

Ibrahim, A. J., & Jairo, I. J. (2023). Determinants of tax Revenue Performance in the East African Countries. African Journal of Economic Review, 11(2), 55-73.

International Monetary Fund. (2018). Pakistan: Staff report for the 2018 Article IV consultation (IMF Country Report No. 18/212). International Monetary Fund. (URL verified earlier)

Nwosu, N. G., & Nmesirionye, J. A. Determinants of Tax Capacity in Nigeria.

Osor, N., Mpango, P., & Mwinyimvua, H. (2001). An analysis of excise taxation in Tanzania. EAGER Publications.

Prowd, R. S., & Kollie, G. B. (2021). Determinants of tax revenue in Liberia: An empirical investigation. African Journal of Economic Review, 9(2), 62-85.

Prebisch, R. (1950). The Economic Development of Latin America and Its Principal Problems. United Nations, Economic Commission for Latin America (ECLAC).

Ricardo, D. (1817). On the Principles of Political Economy and Taxation. London: John Murray.

Romer, D. (1996). Advanced macroeconomics (1st ed.). McGraw-Hill.

Shehzada, N., Siddique, M., Mustafa, K., Hussain, A., & Abbasi, M. A.

(2016). Buoyancy, elasticity and stability of total tax revenues: evidence from Pakistan. Abasyn Univ. J. Soc. Sci.(AJSS), 9.
Shoup, C. S. (1969). Public Finance. Chicago: Aldine Publishing Company.
Tanzi, V. (1977). Inflation, real income, and the dynamic effects of taxation in developing countries. Journal of Development Economics, 4(2), 207-223.
Tanzi, V. (1983). The Underground Economy: The Causes and Consequences of this Worldwide Phenomenon. Finance & Development, 20(4), 10–13.
Wawire (2011) Explored the Determinant of VAT Revenue
World bank (2019) Tax to GDP data, Retrieved from www.worldbank. Org/Pakistan, retrieved on 6/10/2024.