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### RESEARCH ARTICLE

#### INTERNATIONAL TRADE TAX REVENUE AND TRADE LIBERALIZATION, A CASE STUDY OF PAKISTAN.

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#### Abstract

This paper tries to find out the implications of trade liberalization on international trade tax revenues and its macroeconomic implication on Pakistan economy. The theoretical approach of trade reforms and its impact on the direction of change of revenue is ambiguous because of its dependence on the productivity of 'trade tax revenues'. By using the data of twenty five years, the paper first establishes the productivity of 'trade tax revenues' in Pakistan, then by an econometric analysis exploration of the relationship between trade revenues and trade liberalization in Pakistan is done. It was observed through our analysis that there is high productivity of trade tax revenues, further, our results show a positive and significant relationship between trade liberalization and collection of trade tax revenue. To support this relationship, a second test of Granger's causality is also performed which confirm the causal relationship between trade tax revenues and trade liberalization. It was suggested that supportive macroeconomic policies are prerequisite for successful trade liberalization.

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#### Introduction:-

With the changing of time, economists are very strongly referring economic development to international trade and feel a strong international trade become an integral part of economic development. The world is rapidly transforming into a global village. Trade has contributed to this transformation more significantly than any other factor. In fact, the high economic, social, cultural, political, human and intellectual integration witnessed in the world in the recent past is due to trade among its different countries. Further, trade has contributed much more to the development of the world economies than any other factor. Thus, trade and development go hand in hand and therefore the strategies adopted in the case of the former have a strong bearing on the latter.

After second world war many trade related agreements took place and the most important problem which had been faced by developed as well developing countries are different international trade taxes. GATT tried to overcome the issue of trade tax and by encouraging the elimination of both qualitative and quantitative restrictions, it facilitate free trade activities. After some time it replaced by WTO and the concept of trade liberalization has become a common strategy for trade policy among countries. And this trade liberalization is accepted greatly by developing as well as developed countries and is further enhanced by the way of globalization.

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A number of market-oriented moves have surged during the last couple of decades in the world. In the wake of these moves, the global trend has also witnessed the liberalization of the capital account, foreign exchange, credit, domestic consumption and trade in different countries. However, the area which has received unprecedented emphasis in various economies is trade liberalization. Trade liberalization denotes the reduction in barriers to the movement of goods and services in international trade. In the words of Bhagwati and Krueger, "any policy which reduces the anti-export bias will lead towards liberalization of trade". A new explanation by Edwards (1993) describes a liberal trade regime as one in which all trade distortions including import tariffs and export subsidies are completely eliminated. Globalization is a relatively new concept in the social sciences and is acquiring a critical importance for the academic as well as the political agenda of the twenty-first century. In social theory the universalizing tendencies and transnational structural transformations bound up with globalization.

Other than benefits, some costs are also associated with trade liberalization. A substantial problem arising from reducing trade barriers in the wake of trade liberalization is the loss in tariff revenue that accounts for 10-20 percent of government revenue in developing countries [B.Yasmin ,Z.Jehan, M.A.Ch (2003)]. If tariffs are reduced or eliminated, these countries will have to impose large increases in other taxes in order to keep their budgets in line, causing some economic distortions.

Economists have different argument about the effect of trade liberalization on the productivity of trade tax revenue, so the relationship of trade tax revenue and trade liberalization is ambiguous. The higher tariff stimulate importer for seeking exemptions so it may affect the productivity of tax system. the lower tariff in some areas become a cause to increase in the tax base by lowering the marginal benefit to avoid taxation, hence liberalization leads to rise in revenue (Prithett and Sethi (1994)). So this is not always the case that the reduction of tariff due to liberalization leads to the reduction in revenue.

In case of developing economies, where the large portion of government revenue is based on the collection of tariff and other international trade taxes, trade liberalization proves a negative impact on revenue collection, according to Keen and Ligthart (1999), Fiscal problems will arise when trade restrictions drop below their revenue-maximizing level of around 10 percent to 15 percent. In these countries, the collection of direct taxes is very poor. After the trade liberalization, the tax system also failed to overcome this collection problem. So the revenue collections by government become lower than before trade liberalization.

Pakistan has made significant efforts in liberalizing its trade regime during the last two decades. The maximum tariff rate had declined from 225 percent in 1990-91 to 45 percent by 1996-97. It was further reduced to a maximum tariff rate of 25 percent (barring automobile sector) during fiscal year 2007-08. The average tariff rate stood at just 6 percent in fiscal year 2007-08 as compared to 65 percent in 1990-91. The number of tariff slabs was reduced from 13 to 4 during same period. Quantitative import restrictions have already been eliminated except those relating to security, health religious and cultural concerns. The number of statutory orders that exempted certain industries from import duties was phased out by June, 2004 and import duties on 4000 items were reduced. Import liberalization measures were adopted for agricultural and petroleum products. Restrictions on agriculture exports were also removed.

A sound fiscal position is vital for achieving macroeconomic stability, which is increasingly recognized as being critical for sustained economic growth and poverty reduction. The sooner Pakistan improves its fiscal position by making sharp fiscal adjustments, the lesser the price is likely to pay for its fiscal indiscipline. A sharp fiscal adjustment can reduce large external current account imbalances, restore the confidence of global investors, ease financing constraints, support growth and contain inflation. Pakistan's fiscal policy position remained focused on sustained economic growth in unison with declining debt services, alleviating poverty and investing in physical and human infrastructure. During the last 17 years, tax-to-GDP and hence revenue-to-GDP ratios have shown a declining trend, owing mainly the structural deficiencies in the tax collection system (Economic Survey, 2008). The combined result of such characteristics is the low and stagnant tax-to-GDP-ratio, which represents the country's fiscal effort, has remained stagnant in the neighborhood of 12 to 14 percent over the last three decades. (ibid.). Along with the reduction of tariff and non-tariff barriers for liberalizing the trade, the government has initiated successive reforms in tax system since 1990. Induced largely by trade liberalization, the customs collection declined sharply over the past decade, but rose sharply from FY2002-03 because of higher imports. As a share of GDP, customs collection declined from 55% during 1990-91 to 25% during 2007-08. With the rationalization of import tariff regime in the country whereby the average tariff rates have come down from 55% in 1995 to 17 percent in

2004 have obviously influenced the volume of international trade in the economy (Schuler (2004)) Such a large slippage on the fiscal side has already caused severe macroeconomic imbalances. The hard-earned macroeconomic stability underpinned by fiscal discipline appears to have been lost and Pakistan is likely to pay a heavy price in terms of deceleration in growth and investment, reversal in poverty trends, widening of current account deficit, rise in public and external debt, depletion of foreign exchange reserves and mounting pressures on the exchange rate.

This paper try to evaluate the implications of the process of trade liberalization on revenue generation from trade restrictions. The paper focused on quantitative restriction in form of tariff but at the same time it also focused on the theoretical explanation of the effect of trade liberalization on trade tax revenue by hypothesizing the crucial fact that the trade liberalization leads to a significant affect in trade tax revenue.

### **Overview of Relevant Literature:-**

By the emergence of WTO and then introduction of trade liberalization, most of the developing countries were attracting toward it, to see their dream come true to be industrialized nation. Trade liberalization may help them a lot, but we intended to see the fiscal impact of trade liberalization, in Pakistan which can better analyze with the help of research experience done in other countries.

**Tanzi (1989)** hypothesized a several wide-ranging issue to check the relationship of different macro economics variables, he also included inflation, exchange rate and most prominently tax revenues. He observe there is often an inverse relationship between a country's tax revenue and real level of its exchange rate, he is of the view that overvaluation has a direct effect by suppressing import and export bases measured in domestic currency term. This in turn reduces the collection of international trade taxes and sales and excise taxes, which are usually levied upon domestic and imported consumption. On other hand he also concludes that, the tax collection method is different in different countries. It is therefore not possible to generalize about the effect of changes in trade liberalization and the surrounding macroeconomic environment on tax revenues without examining the structure of the different components of revenues and the importance of each different component in the total.

**Reisen (1990) and Seade (1990)**, formulate hypotheses on similar issues and tested the relationship of tax revenue and exchange rate, they also found an inverse relationship between them,

**A. Matlanyaneand Harmse (2002)**, highlight the implications of trade liberalization on international trade tax revenue and the macroeconomic implications thereof in the context of the **South African economy**. It follows quantitative restrictions in the form of tariffs for liberalizing trade in South Africa.. By using econometrics techniques, it is estimated that customs revenue highly influenced by trade liberalization. It was suggested that Government should couple the liberalization polices with other macroeconomic policies such as exchange rate liberalization that would woThe main focus of the paper is on quantitative restrictions in the form of tariffs. Customs revenue is used as a measure of trade tax revenue. The estimation results show that customs revenue is highly productive. In addition, trade liberalization has a significant influence on customs revenue and that an increase in imports may lead to a reduction in trade tax revenue. On the other hand the results suggest that supportive macroeconomic policies.

**Ali Zafar(2005)** World Bank Policy Research Working , observed that **Niger** has suffered major fluctuations in revenue since the 1970s. The revenue/GDP ratio has fallen from 14 percent in 1980 to 10.6 percent in 2002. Using data collected during several operational missions, this study finds that the principal reasons for low revenue mobilization are: the adverse fiscal impact of trade liberalization, the defiscalization of agriculture in the 1970s, the collapse of the uranium boom in the 1980s, and the poor record of the VAT in mobilizing revenue. The large reduction in tariffs during the 1980s and 1990s in the context of structural adjustment programs and West African regional integration initiatives had adverse effects on trade tax revenue during the period 1980-2003. However, higher import levels after 1994 succeeded in partially mitigating the revenue losses. The experience of Niger demonstrates that without accompanying macroeconomic policies, parallel improvements in tax and customs administration, and success in mobilizing domestic taxes, most notably the VAT, trade reform can have adverse fiscal consequences.

**Dutta D, and Ahmad N (2006)** by using the data of 1973-1995, they empirically analyze the relationship of trade liberalization and industrial growth in **Pakistan**, with this relationship, they also analyze the impact of trade liberalization and revenue collection of a country, in this context, they use two method for empirical analysis, the

Co-integration analysis and error correction modeling have been used. It is suggested that there exists a unique long run relationship among the aggregate growth function on industrial value added and its major determinants of the real capital stock, the labor force, real exports the import tariff collection rate and the secondary school enrolment ratio.

**Bushra Yasmin, Zainab Jehan, Muhammad Ali Chaudhary (2006)**, empirically analyzed how trade liberalization has affected economic development in **Pakistan**. Its effects have been examined with respect to four measures of economic development: per capita GDP, income inequality, poverty and employment over the period from 1960-2003. The analysis shows that, over the study period, trade liberalization has not affected all the chosen indicators of development uniformly. It has affected employment positively but per capita GDP and income distribution negatively. However, it has not affected poverty in any way. The obvious message is that trade liberalization has not affected all the indicators of development favorably in Pakistan. It thus implies the need of a cautious move towards liberalization. The focus of trade liberalization should be to bring about improvement in the performance of mediating factors and to focus exports on labor-intensive products.

**An IMF working Paper (2006)**, "Fiscal Implications of Multilateral Tariff Cuts" The paper contributes to the discussion about the revenue implications of trade reform by assessing the approximate fiscal revenue impact of different liberalization formulae under consideration in multilateral trade negotiations for a group of low- and middle-income countries. The study applies a linear optimization framework to data for bound tariffs, applied tariffs, and imports at the HS-6 digit level for 58 developing countries, and simulates results for different sets of import demand elasticities and developing country "flexibilities." While only a small number of countries face a significant impact, results point toward the need for complementary fiscal measures in the countries most affected by revenue loss.

**Joseph Pelzman and Amir Shoham(2007)** focusing on the experience of the **Israeli economy** in the twenty year period (1984-2005) where Israel undertook both major tariff liberalization and a related domestic tax reform, with no reversion to border taxes. The Israeli experience highlights the initial budget revenue concerns associated with tariff liberalization, and quickly moves the issue away from border tax substitutes to domestic issues concerning enforcement. By de-linking the two issues the paper demonstrates that it is feasible to successfully tackling both external and internal tax reforms. Furthermore, it demonstrates that it is possible not to fall into the trap of looking at border taxes as a cure for internal high costs of tax revenue. The appropriate prescription for other developing or newly industrialized countries is to de-link the two tax issues, focus on the collection side of the domestic tax structure while at the same time reducing local taxes and broadening the tax base.

**Panel Data** very broadly covers the relationship of trade liberalization and revenue effect, in fact the trade liberalization impact in panel data analysis helps us to examine the policies of different countries in order to adopt trade liberalization and other countries can learn from their experience.

**Khattry and Rao (2002)** investigate the issue of fiscal impact and trade liberalization, on the basis of the data of 1970-1998 from 84 countries, by applying the fixed effect model, they conclude that with trade liberalization, lower and middle income countries had experienced lower fiscal income as a result of fall in trade related tariff and income and trade liberalization is negatively correlated with total tax revenue and international trade tax revenue.

**Agbeyegbe T, Stotsky J, and WoldeMariami (2004)** on the basis of empirical evidence find out the relationship of trade liberalization, exchange rates and tax revenue. By using the panel data of 22 African countries of the period of 1980-1996, they try to check this relationship, for this purpose they use Generalized Method of Moment Method. They prove a sensitive and negative relationship between trade liberalization and tax revenue. According to them in general, trade liberalization is not strongly linked to aggregate tax revenue, it is basically linked with higher income tax revenue. They suggest that to adopt trade liberalization, the countries should be careful to apply some macro economic policies to preserve the overall revenue yield.

By using the data from 125 countries, **Baunsgaard and Keen (2004)** give their point of view about the relationship of trade liberalization with tariff revenue, they find that after trade liberalization middle-income countries had been able to recover between 35 and 55 cents per dollar of income from lost trade income, whereas lowest income countries had recovered basically none.

**Methodology:-**

Econometric methods of analysis are used to achieve the above objectives. The following equation, adapted from the work of Osoro (1993) is estimated using the method of ordinary least squares to determine the productivity of trade tax revenue;

$$\ln T = \ln \phi + \alpha \ln Y + \mu \dots \dots \dots (1)$$

Where **T = customs revenue**

**Y = GDP**

**α ..= a measure of revenue productivity/ tax buoyancy**

In order to test the main hypotheses, trade revenue is specified as a function of the import base, the exchange rate, the average tariff rate and a dummy variable representing trade liberalization. The specific equation to be estimated is;

$$\ln TR = \gamma_0 + \gamma_1 \ln M + \gamma_2 \ln w + \gamma_3 Lib + \gamma_4 r + \eta \dots \dots \dots (2)$$

Where **TR** is customs revenue as a percentage of GDP,

**M:** is imports as a percentage of GDP representing the import base,

**W :** is the exchange rate,

**Lib:** is a variable for trade liberalization which is calculated as import duties as percentage of total imports.

and **TR :** is the average overall tariff rate and □

**η :** is the error term.

The import GDP ratio is included in this equation to isolate the effect of trade liberalization on international trade, which can then be related to the effect on revenue, while the exchange rate is used to represent the macroeconomic effects of this policy. The tariff reform Liberalization and the average tariff rate will then indicate the direct effect of the reduction in the average tariffs on trade tax revenue.

**Estimation Techniques and data:-**

Ordinary least squares is used to estimate the productivity of trade tax revenue and to establish the effect of trade liberalization on tariff revenue. The equations are estimated in linear logarithmic form. The exchange rate is expressed as Rupee per US dollar. This means that an increase in the exchange rate represents a depreciation of the Rupee. Customs revenue is used as a proxy for international trade tax revenue. Because of data efficiencies, the overall average tariff rate was calculated from the series on customs revenue and that of the value of imports. Although not all imports are subject to trade restrictions, this measure gives an ideal of the average tariff based on all import commodities. Annual time series data ranging from 1971 to 2007 has been used.

**Estimation Results:-**

This section presents and discusses the estimation results of the above equations.

**Table 1:-**Dependent Variable: LOG(CUSTOM)

Variable	Coefficient	t.statistics
C	2.059167	1.684347*
LOG(GDP_RS_)	0.802002	17.97399**
R-squared=0.902252	F-statistic=323.0642	Prob(F-statistic)= 0.000000

\*Sig at 10% level of significance \*\*sig at 1% level of significance

**Table: 1** shows the estimation results of the productivity of trade tax revenue. The results exhibit a good fit of 90 percent. The coefficient of GDP is positive and significant as expected a priori. This implies that a rise in output will lead to an increase in international trade tax revenue. A one percent increase in output will increase customs revenue by approximately 10 percent. This coefficient also shows that tax revenue is highly responsive to changes in output. This relationship is significant at 1% level of significance. On other hand the overall model is also highly significant, which can be analyzing by the value of F-statistics. The overall model presents a good and significant picture of data.

**Table2:-**Dependent Variable: LOG (TR)

Variable	Coefficient	t.statistics
C	-3.634763	8.808166***
LOG(M)	0.484176	2.238925***
LOG(W)	-0.030953	1.018211
LIB	2.357378	2.476208***
TAR	18.19182	3.380701***
<b>R-squared=0.978407</b>	<b>F-statistic=362.4953</b>	<b>Prob(F-statistic)=0.0000</b>

\*\*\*sig at 1% level of significance

The estimation results of the determinants of import and trade tax revenues are shown in Table2. The dependent variable in this regression is customs revenue as a percentage of GDP. The coefficient of the exchange rate is negative but not significant. This result has two implications. Firstly, it means that when the depreciates takes pace in the currency, the volume of imports falls and hence leads to a loss of trade tax revenue. Secondly however, the fact that this coefficient is not significant in statistical terms implies that the value of imports rises in Dollar terms and partially makes up for the loss in revenue resulting from lower trade taxes. The coefficient of the import-GDP ratio is positive and significant at 1 percent level of significance. A one percent increase in the import-GDP ratio results in a increase in customs revenue- GDP ratio by approximately 0.48 percent. This indicates that even if the volume and value of imports increase (by a higher proportion than GDP) as a result of trade liberalization, import tax revenue actually has increased. This could imply that although a combination of lower tariffs and the depreciation of the current depreciation of the local currency may increase imports both in terms of volume and value, the effect of these two factors on revenue as well.

The relationship of imports as a percentage of GDP with trade Liberalization is positive and significant at 1% level of significance. This states that by the increase in the volume of imports there is an increase in the trade tax revenues of a country. On other hand the relationship of trade liberalization and trade tax revenue is positive and highly significant at 1% level of significance. The coefficient of the average tariff rate is positive and significant as expected. This confirms the hypothesis that a reduction in the tariff rates results in a significant loss of customs revenue as indicated by the coefficient of the import GDP ratio. The coefficient liberalization is positive , indicates the positive impact of trade liberalization in Pakistan economy, implies that with the trade liberalization , there is more increase in revenue and economy as well the fiscal implication of the liberalization have positive impacts as well. This implies that liberalization policies have been able to significantly affect international trade tax revenue in short as well as in long run.

Two main conclusions can be drawn from this analysis. Firstly trade liberalization in the form of tariff reforms has not reduced trade tax revenue significantly. Secondly, macroeconomic policies that support the prevailing macroeconomic environment can significantly facilitate successful trade liberalization. In this regard, the government can take advantage of the depreciation of the Rupee to increase exports and thus the fiscal implication of liberalization is positive.

**Granger’s causality Test:-**

Granger causality test has also been performing to check the causal relationship trade liberalization and Trade tax revenue

$$TR_t = \alpha LIB_{t-1} + \beta TR_{t-j}$$

$$LIB_t = \lambda TR_{t-i} + \gamma LIB_{t-j}$$

For this purpose upto two lags of both variables has been taken and with one lag we got the result that trade liberalization has a strong causal effect on Trade tax revenue but on other hand trade tax revenues has no casual effect on trade liberalization. So it is concluded that trade liberalization has a strong causal effect on trade tax revenue which is significant at 1% level of significance.

**Table 3:-** Granger causality with lag “1”

Regression	Granger causality test
LIB on TR	12.2742* (0.00134)**
TR on LIB	1.61558* (0.21260)**

\* F-value \*\* Probability value

From the Granger's causality test the causal relationship of trade liberalization and trade tax revenue has been proved at one lag and it indicate that the direction of causality is from trade liberalization to trade tax revues

**Table 4:-** Granger causality with lag "2"

Regression	Granger causality test
LIB on TR	8.18624* (0.00146)**
TR on LIB	6.71527* (0.00389)**

\* F-value \*\* Probability value

From the Granger's Causality test, the relationship between trade tax and trade liberalization has been proved from table 4 which basically indicates two way causal relationships between these two variables. So by the results it is conclude that the trade liberalization has a causal effect on trade tax revenues but at the same time the trade tax revenues also has a causal effect on trade liberalization.

### Concluding Remarks:-

This paper set out to establish the effect of trade reform on government revenue. This task is executed by an econometric analysis of the determinants of trade tax revenue. From the analysis, it can be concluded that trade liberalization in Pakistan has led to a significant improvement in trade tax revenue in both short as well in long run. Even, given the significant positive effect of the import-GDP ratio on customs revenue, it is imperative for government to couple the liberalization policies with other macroeconomic policies such as exchange rate liberalization that would work to mitigate budgetary pressures. One of the important conclusions that can be drawn from the analysis is therefore that a sound macroeconomic policy environment can significantly facilitate successful trade liberalization. In this particular case, prudent exchange rate policies are crucial. Taking advantage of the depreciation of the Rupee by increasing import earnings could ensure enough earnings from imports to offset the loss in revenue from trade taxes due to lower taxes. The results for Pakistan economy are quite different from many developing countries. Granger causality supports the argument that the trade tax revenue has increased by the trade liberalization mainly because of tax reforms initiative from Federal Board of Revenue and growth of GDP during the period. This relationship encourages liberalization policies accompanied by macroeconomic policies to increase GDP and economic growth in the economy.

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