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Article TAX GAP DETREMINANTS IN PAKISTAN

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Keywords: Tax collection, types of taxes, tax to GDP ratio, inflation, trade openness, tax revenue, system of taxation

Received: 28th February, 2022 Accepted: 18th March, 2022 Published: 31st March, 2022 Abstract: This study discusses the factors affecting the revenue generation in Pakistan. Time series data is used from the period between 1996 to 2020. Total tax to GDP ratio is taken as dependent variable and agriculture and manufacturing sectors to define the tax base, inflation, per capita income and trade openness as economic variables. Corruption and government effectiveness are taken as social variables. ADF and ARDL techniques were applied in this study and bound test and long-run cointegration were measured among variables. Results reflect strong nexus among all economic variables with tax revenue in short-run. Tax base is also highly significant with tax collection. Only corruption appears insignificant in short-run. In longrun only corruption and inflation show insignificant relationship with total tax to GDP ratio. Findings suggests that government should take measures to increase the tax base and improve the tax system that is itself a hurdle in tax compliance.



INTRODUCTION

For the past many years, the economy of Pakistan has been facing instability. Pakistan's expenditure always exceeds the revenue that leads to fluctuations in its economic growth. Other issues of inflation, public debt, low tax to GDP ratio adds fuel to fire. Its low tax to GDP ratio and too much reliance on International Monetary Fund (IMF) compels the country's policy making bodies to retrench public spending on development projects. There are numerous factors contributing to this situation, one of them is the grave issues in taxation system of the country.

Taxes are the apparatus to support socio-economic policies of a country. Progressive tax policies ensure the redistribution of resources and to provide economic justice by enhancing vertical equity, while regressive taxes restrain growth. These types of taxes widen the gap between rich and poor.

Tax Structure of Pakistan

Pakistan's revenue is collected from both from direct and indirect taxes but indirect taxes have more contribution. Indirect taxes are of the nature that are imposed irrespective of the ability to pay that tax, it makes them regressive. If these are imposed on basic needs of life they become more regressive.

a. **Sales Tax:** This type comes under category of indirect taxes. Sales tax has proved to have been highly elastic to GDP in Pakistan. By the year 2019-20, this type played a crucial part in revenue determination by rendering the share of 39.9%. Sales tax is charged on imports, goods and services. As per report issued by Federal Board of Revenue (FBR) of Pakistan, the major derivers of sales tax were petroleum and oil products contributing about 32.6% in total sales tax collection during the financial year 2019-20. On the other hand, as per the said report, custom duty embodied a share of 25% in indirect taxes.

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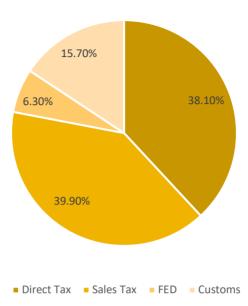


Figure 1: Representation of Tax Collection (Source: FBR Annual Performance Report FY 2019-20)

- b. Withholding Tax: This type of tax is imposed on payments and salaries of workers paid by companies. It is applied on salaries, property, dividend income, interest, phone bills, goods and services, traded goods, banking transactions, 3G and 4G cellular services etc. Tax is refunded on the end of the year if you are tax filler. Application of withholding tax in Pakistan for the financial year 2019-20 is detailed as under:
 - For annual salary up to PKR 600,000: no withholding tax.
 - For annual salary that exceeds PKR 600,000 and up-to PKR 1200,000: withholding tax will be 5% on the amount above PKR 600,000.
 - For annual salary that exceeds PKR 1,200,000 and up-to PKR 1,800,000: withholding tax will be PKR 30,000 with 10% on the amount above PKR 1,200,000.

Also, as per tax policies of Pakistan, tax filler will be liable to pay tax on utilizing services as transport, hotel, IT services, training services, car rental etc. equal to 3% of the gross amount whereas for non-tax filler, this tax is 6%.

Regressive Nature of Withholding Taxes

Withholding tax comes under direct taxes, but bears a regressive nature as there is a chance of tax incidence. Only tax payers are encumbered by government tax enhancing policies as salaried people and industries that further widen the inequalities. Such types of taxes restrain SMEs to regularize their business. They are similar to indirect taxes as if any firm or individual paying fixed percentage of withholding tax on imports commodities but later sell the commodity at higher price, s/he earns more profit as compared to the withholding tax, then it's not necessary for them to become a filer. That fixed percentage is independent of the income level.

As per report issued by FBR, withholding tax has a lion share in tax generation in Pakistan. It has multiple integrant in which telephone bills and bank interest were making biggest slice of the cake.

Exemptions and Sectors Share

Agriculture sector exemption form taxes does not ensure the benefits to be transfer to the consumers. Proclaimed exemptions in 2013-14 were PKR 447 B, comprising 2% of the GDP (Ahmed et al 2015). As per report issued by the State Bank of Pakistan (2018), agriculture sector added 19.2% to GDP but only 0.6% to revenue generation. On the other hand, industrial sector added 20.9% to GDP but taxed heavily and added 69.6% share in tax revenue. Such kind of selected exemptions deform production efficiencies that result in inequality. As per report issued by FBR in 2021, agriculture income gap was reported as PKR 69.5 B.

Trust Deficit

Sustainable Development Policy Institute (SDPI) study proclaimed that 71% of people in Pakistan having capability of paying taxes do not contribute because of trust deficit about utilization of revenue for their welfare. When authorities failed to provide prerequisite to the subjects, it leaves no room of moral support for laying taxes (Ahmed et al, 2016).

Tax Base and Non-Compliance

Tax compliance is willingness of an individual in accordance with the tax laws and administration without the application of enforcement activity (James and Alley, 1999). Tax dodging is linked with extreme tax rate – when paying taxes will be costly people will prefer tax avoidance. When to be an avaricious have exoneration, then how white-collar will have incentive? According to FBR, number of fillers were 2.19 million in 2019-20 that are far below the employed labor force of 71 million in 2020. Now its active filler list has slightly increased up to 2.8 million in 2022. Tax collection was recorded 11% of GDP that was comparatively low to Pakistan tax collection capacity. Tax amnesty schemes are introduced to increase tax net.

Administrative Failures

Pakistani tax system is prey of red tape, regularity failures in tax compliance, inconvenient and lengthy procedure that create hurdles for tax compliance. Manual procedure of registration, documentation, erroneous spending of public goods, malpractice in audit cause failure in recognition of public needs. Deficiency of human resource exacerbate managerial hardships towards staff for tax collection. Tax payer and auditors involves in extortion under the guise of obscure laws. If organization becomes persistent on corruption, they consider it a regular practice.

Problems in Customs and Excise Duties

Pakistan has inflated custom duty on every import and export product in contrast to EAP "EAST ASIA & PACIFIC". Custom duty inclusion with regulatory duty firm has to face enlarged cost. Ultimate impact surge the local price, even exemption on import of raw material has not helped. Biggish firm avails elude on taxes. Pakistan is implying more tariff on 4G against 2G which this is the example of diversification that intricate the system and leads to misreporting their imports. Textile, automobiles, apparel are enjoying safeguard against agriculture sector. The higher rate of custom duty will pernicious the export resoluteness. Manufacturing territory deploying more input has diversified impact because it has to face more input tariff. In time of pandemic, Pakistan has adjourned import duty on 61 end-most commodities that resulted in increased prosperousness of indigenous industries. Tax escalation and preferential shielding, twofold the negative impacts of import tariff. It highly hits small business.

Government Effectiveness

Government effectiveness has a great role in revenue collecting and spending activities. It is about how efficiently government is performing its role towards civil service, welfare enhancement, designing policies and ensuring its credibility among subjects. It has a set of criteria as government plans for infrastructure development, tackling market inefficiencies, got sustainable development projects, budget allocation for health and education sector, transparent administration system, broad tax base, increasing tax compliers, effective fiscal and monetary policies to sustain the long-run growth. It is measured by using government effectiveness index created by Daniel Kauffman from WORLD BANK institute. Having score from -2.5 to +2.5.-2.5 is considered week and +2.5 is strong.

Pakistan is facing revenue gap instead of having high potential to collect revenue. Because of low tax to GDP ratio, Pakistan has to rely on external debt that makes the problem worst for its economy. There are several factors and problems in the system that are creating hurdles in tax collection. In view of this, we, the authors began this study bearing the following research questions in scope:

- 1. Does tax base determine tax to GDP ratio in short and long time period?
- 2. To what extent economic variables affect tax to GDP in short and long run?
- 3. Does social variable affect tax to GDP ratio in short and long run?

LITERATURE REVIEW

Widmalm (2001) examined firstly tax structure role in economic growth by different tax share by considering 23 OECD country's data from the period between 1965 to 1990; secondly growth effects of progressivity. Study encompasses taxes on goods and services, taxes on personal income, property, wage, taxation, tax on corporate income. Growth determinant were taken as log of per capita GDP, investment to GDP ratio of both private and public sector and population growth rate. The investment control variables as export to GDP ratio, variability of inflation rate. Findings revealed that tax progressivity is bad for economic growth, moreover personal income is

negatively correlated to economic growth and other taxes have significant correlation with economic growth. Farooq et al, (2006) attempted to study the determinants of tax buoyancy. Their study used the determinants as public debt, volume of trade, share of agriculture in taxes, CPI, money supply. Data was taken from the period between 1980 to 2004. Cointegration test was used to explain long-run relationship. Study claimed that income per capita cannot be used as primary indicator to check tax buoyancy because of income inequalities. Buoyancy rate were proved significant for GDP, money supply and trade level. Gupta (2007) investigated the impact of structural and institutional variables performance by constructing separate index revenue performance indices for low, middle and high-income countries. Results ascertained that GDP per capita has strong impact in revenue generation in high income countries while, weaker impact in low and middle-income countries. For low-income countries, about 1% increase in foreign aid surged revenue performance by 0.11% but for high and middle-income countries foreign debt was insignificant. Structural factors proved significant for all income groups. Corruption and political stability have strong significance on revenue in case of low and middle-income developing countries. Imam and Jacobs (2007) conducted a study to bring light corruption involvement with different nature of taxes in the Middle East by using data from the period between 1995-2003 for 11 taxes. Corrupt activities create hurdles in revenue formation. Study highlighted multiple form of corruption by taking into account administrative failures, unclear laws, deficiency of qualitative authorities, and breakdown of management. Study used generalized method of moments (GMM). Agriculture sector was making inverse relationship with tax accumulation. Not at all but mostly trade taxes were deleterious by corruption. Ejaz and Ahmed (2010) studied systematic and structural variables causing flaws in tax revenue using panel data for 25 developing countries from the period between 1995-2005. Their study takes the variables of per capita income, trade openness, sectors share in GDP, inflation. It used generalized method of moments (GMM) for estimation and concluded that corruption has detrimental impact on tax revenue. Structural variables also have remarkable relation with tax revenue. Patoli et al (2012) examined sensitivity of direct and indirect tax collection by the change of price of goods. Data from the period between 2000 to 2010 was used. OLS and ANOVA were applied. Results portrayed a direct link between inflation and both, direct and indirect taxes. Regression analysis was made for every tax separately. Change in inflation by 1% brought the change of 85% in direct taxes and 81% in indirect taxes revenue. Saqib et al (2014) explored how Pakistan tax structure was determined by its economic agents as investment, consumption, human resources, public spending on education, health and defense, price expansion. Study classified these variables into three different models. ARDL and Johensen Cointegration approaches were applied. Results exhibited different relationship among variables. Inflation, public spending, labor force, investment provide a positive contributor to GDP. Interest rate and taxes leaved negative impact on consumption and investment. Findings suggested that the Pakistani taxation system is not favorable to boost economic agents. Ahmed et al (2016) used data from the period between 1975 to 2012 to find out factors contributing to tax revenue in Pakistan. It encompasses socio-economic perspective as tax net, business cycle, government tenure, submissiveness to the taxes law. Augmented Dickey Fuller (ADF), Philips Perron (PP) and Auto Regressive Distributed Lagged Model were used. Variables yielding inverse relationship with tax revenue were agriculture sector matriculation, form of government. However, GDP per capita and urbanization were positively influencing. Islam and Siddique (2017) apprehended the rationale of low tax to GDP ratio considering twenty-seven developing countries data from the period between 2000 to 2014. Investigation incorporated the variables capital inflows, per capita income, trade openness and corruption, tax base as exogenous variable. Study has applied multiple tests as chow- pool ability test, Sargan test, Random coefficient model. Findings revealed strong nexus between tax base and tax revenue. 1% increase in trade openness and capital inflow showed 4% surge in tax collection. Inflation caused evasion from tax compliance. Per capita income proved most significant determinant. Corruption demonstrates no involvement in tax collection. Ahmed et al (2018) analyzed how indirect taxes influence the economic expansion in Pakistan. Study used data from the period between 1974 to 2010. Pakistan generate revenue from most of its revenue from indirect taxes. Study used physical and human capital and inflation rate as an exogenous variable. ARDL and ECM approaches were used. Results reflected a strong bonding of indirect taxes and physical capital role in Pakistan economy growth. However, indirect taxes were negatively influencing the economy while physical capital was positively influencing the economy. About 1% supplement in indirect taxes pushed back growth by 1.68% in long run. Munir and Sultan (2018) focused on how taxes influence economic expansion by considering data from the period between 1976 to 2014 specifically in Pakistani context. Study inquired stability of data by Philips Perron and Augmented Dickey Fuller tests. Indirect taxes were broken down into sales tax, trade tax, and surcharges taxes. Results claimed that direct taxes are beneficial for economic expansion in long run. Sales tax were responsible to enhance growth in long run. However, indirect taxes as sales tax leaved negative impact on economy in short run. Indirect taxes were more accountable towards growth in contrast to direct taxes in long run. Among indirect taxes sales tax was 16%, trade taxes were 10% responsible in GDP growth. Shoukat et al (2020) inspected the influence of corporate taxes on economic projects and actions in Pakistan using data from the period between 1990 to 2019. Economic activities were measured as government and house-hold spending, GDP growth. Ordinary least square methodology was used to derive results. The study found that government spending was highly attached by corporate taxes, on the other hand cooperate taxes were negatively influencing GDP growth and house-hold sector. Corporate taxes were increasing the cost associated to production, that's why 1% increase in COR tax decreased the GDP by 3%. Duho et al (2020) analyzed data from the total of 100 countries; 53 from Africa and 47 from Asia from the period between 2012 to 2018 to study the determinants of government effectiveness. Study used panel-corrected standard error regression. Government effectiveness was taken as dependent variable and press freedom index, political constraint index, and size of government, voice and accountability, regularity quality, GDP per capita were taken as independent variables. Study also found convergence of countries to government effectiveness. Study concluded that Asia achieved better results than Africa for all variables except press freedom and accountability. Corruption and press freedom index was positively affecting government effectiveness. Political constraint index found to be negatively affecting government effectiveness.

Aman Ullah et al (2020) studied countenance of corruption, from constitutional, social, monetary sides. Study utilized system thinking approach that deals with how system is inter-connected and how it works in the context of Pakistan. In depth interview of 155 stakeholders in hierarchal order were interrogated in Islamabad in the year 2015. A questionnaire was based on various dimensions of corruption. Study used thematic analysis. Derived conclusions were abuse of authority of officials, unjust apparatus of institutions, substandard performance of government, weak foundations of rule of law, hampered procedure of justice by bribery and inflation leads to corruption. Study of Hassan et al (2021) sheds light on lack of submissiveness towards tax laws in southern Punjab region of Pakistan and their linkage with other factors. Behavior was accessed in ambiance of different theories. Quantitative study was carried with 435 respondents. Study discussed social, institutional and financial background. The exogenous variable interpreting the study purpose were simplicity of taxes submissiveness, tax morale, tax rate, insight of transparency. Structural equation modeling was used. Results indicated that simplicity of system, government spending for welfare of tax payer, fair system provide incentive to become a tax compliant. Government should focus on the needs of tax payers.

METHODOLOGY

Description of Variables

This study is comprised of socio-economic variables responsible for low tax revenue. The study deals with time series data from the period between 1996 to 2020 on total tax to GDP ratio. Total tax to GDP ratio is taken here as a dependent variable.

a. Trade Openness

It is defined as freedom for international trade with no or minimum tariff. It shows compliance of foreign investors in hosting countries. It is total sum of imports and exports to GDP. It provides innovation and new markets in economy. It is measured here as trade (% of GDP)

b. Corruption

Corruption is the counterblow yields by other derelict in system. It is the misuse of jurisdiction. Tax payer and auditors involves in extortion under the guise of obscure laws. Insufficiency o sanctions is another way to escape. It is measured by worldwide governance indicator, using estimate of governance with the range of -2.5 to +2.5.

c. Government Effectiveness

It is about performance of government towards its responsibilities. It is also measured by worldwide governance indicators.

d. Inflation

It is defined as such increase in prices of goods and services that results in downturn in economic activities and purchasing power of economy. Ultimately it increases cost of living. It is measured here as consumer price annual %.

e. Per Capita GDP

It is defined as GDP divided by whole population. It is economic yield per person. Here it is measured by GDP per capita (current US\$)

f. Agriculture Sector

This sector is used here to define tax base. This sector is related to food production. It is here measured as agriculture, fishing, forestry value add % of GDP.

g. Manufacturing Sector

Manufacturing sector is also used here as tax base. This sector is related to industries as automobiles, petroleum and oil, furniture etc. It is measured by manufacturing value added % of GDP.

Model Specification

This equation is structure as:

 $TTG = \beta_0 + \beta_1 LnAGR + \beta_2 LnMAN + \beta_3 GE + \beta_4 COR + \beta_5 LnCPI + \beta_6 LnPCI + \beta_7 LnTO + \epsilon$

Variables	Symbols	Description	Data Source
Agriculture Sector	AGR	Agriculture, forestry value added % GDP	WDI
Manufacturing Sector	MAN	Manufacturing value added % of GDP	WDI
Total Tax to GDP Ratio	TTG	Total tax to GDP	State Bank of Pakistan
Trade Openness	TO	Trade % of GDP	WDI
Corruption	COR	Estimate of governance	Worldwide Governance Index
Government Effectiveness	GE	Estimate	Worldwide Governance Index
Per Capita GDP	PCI	GDP per capita (current US\$)	WDI
Inflation	CPI	Consumer price annual %	WDI

Table 1: Detail of Variables

RESULTS

Root Test:

Unit root test is applied here to verify stationarity of data. ADF test is applied, according to that if our series depicts unit root, we will accept null hypothesis, on the other hand if series does not depict unit root test means series is stationary, so we will reject null hypothesis. All the variables were checked at level and at first difference.

Variables	t-Statistics	Results
LnAGR	-4.69*** 0.001	At 1 st Difference
LnMAN	-4.85*** 0.00	At 1 st Difference
LnPCI	-3.92*** 0.02	At 1 st Difference
LnCPI	-4.92*** 0.000	At 1 st Difference
LnTO	-4.80*** 0.000	At 1 st Difference
COR	-2.98** 0.05	At Level Stationary
GE	-3.39*** 0.02	At 1 st Difference
LnTTG	-5.11*** 0.000	At 1 st Difference

Table 2: ADF Results

Results reveals that only corruption is stationary at level. So we will reject null hypothesis for corruption and accept null hypothesis for rest of the variables at level. At first difference all variables were stationary except corruption. At first difference we reject null hypothesis for all variables except corruption.

At level and at first difference critical values are -3.7, -2.99, -2.63 for 1%, 5%, 10% level. *depicts significant at 1% level, ** shows significant at 5% level, *** shows significant at 10% level. We will apply ARDL approach.

ARDL Model

ARDL is applied to find out link among variables about to be significant or insignificant. This methodology is utilized when some variables are stationary at level and some at first difference. It eliminates collinearity problem.

Dependent Variable	Total Tax to GDP Ratio		
Independent Variables	Coefficient	P-Value	
LNAGR	-1.16	0.01	
LNMAN	0.88	0.001	
GE	-0.39	0.01	
COR	-0.019	0.86	
LNCPI	-0.08	0.02	
LNPCI	-0.13	0.03	
LNTO	-0.65	0.008	

Table 3: Short-Run Coefficients

 $R^2 = 0.92$ ADJUSTED $R^2 = 0.82$

Results depict that, except corruption, all exogenous variables are significant in short-run and affecting tax revenue in Pakistan. These are the strong factors to determine revenue collection. Agriculture sector is negatively related to tax revenue because tax exemptions in the sector minimizes the tax collection. It brings about 1.16% decline in tax collection. On the other hand, manufacturing sector is highly taxed in the country which is why it is positively related to tax revenue and contributing about 0.88%. Trade openness is significant but negatively related to tax collection in Pakistan. This is because of the reason that in Pakistan trade taxes are very high and only big industries avail tax exemption. Therefore, in Pakistani complex tax structure, trade sector is not contributing well in tax collection. Corruption is negatively related to tax to GDP ratio.

About 1% increase in corruption is responsible of 0.01 decline in the total tax collection in short run. Per capita income is significant and negatively related to tax collection in Pakistan. Tax evasion is usually on direct taxes as property tax, personnel income tax in Pakistan. Authorities do not want to reveal their assets which is why in Pakistan, increase in per capita income does not increase tax revenue. Results are similar to the study Amin et al (2014). Inflation proved significant and negatively related to tax revenue.

About 1% increase in inflation leads to 0.08% decline in tax to GDP ratio. R² shows model is a good fit and also adjusted R² is low as compared to the R². Independent variables are aggregately defining the 92% of dependent variable.

Test Statistics	Value	K
F-Statistics	5.108	7
Significance	I (0)	I (1)
10%	2.03	3.13
5%	2.32	3.5
2.5%	2.6	3.84
1%	2.96	4.26

Table 4: Results of Bound Test

Results shows that f-statistics is greater than lower and upper bound, at all levels whether it would be 10%, 5%, 2.5%, 1%. It shows variables are strongly related in long run. At all these levels we will refutes the null hypothesis on no long-run cointegration.

2022	

Dependent Variable	Total Tax to GDP Ratio		
Independent Variables	Coefficient	P-Value	
LnAGR	-4.77	0.01	
LnMAN	2.57	0.002	
GE	-0.87	0.05	
COR	-0.04	0.86	
LnCPI	-0.19	0.08	
LnPCI	-0.31	0.05	
LnTO	-2.51	0.002	

Table 5: ARDL Long-Run Results

Results are similar for agriculture and manufacturing sector, per capita income, trade openness, and government effectiveness, corruption as for short-run time period. Only corruption and inflation are insignificant in long-run. Corruption is negatively related to tax to GDP ratio, 1% increase in corruption decline the tax revenue by 0.04 and 1% increase in inflation by 1% decrease the tax revenue by 0.19% in long time period. Corruption proved insignificant for both in long and short run. These findings are similar with the study done by Islam and Siddique (2017) for 23 developing countries including Pakistan. The reasons behind is the fact that corruption is about the system's problem and every tax response is different to corruption. Also, the study done by Imam and Jacobs (2007) in the Middle East for different taxes have also findings that all taxes have no significance with corruption except trade taxes and also that inflation has no impact on tax to GDP ratio. In Pakistani context, whole taxes are not effected by corruption, because in Pakistan, more taxes are collected through indirect taxes that everyone have to pay, and people in general do not want to pay the tax on their personal income.

Test Statistics	Total Tax to GDP Ratio	
Heteroscedasticity	F-Statistics Prob Chi-Square	1.28 0.9
Normality Test	Jarque-Bera Prob	0.88 0.64

Table 6: Results of Diagnostic Test

In normality test, null hypothesis states that disturbances are normally distributed. In this study, probability value exceeds 0.05 so null hypothesis can be accepted. Also, in heteroscedasticity test, probability chi square is more than 0.05 so it means there is no heteroscedasticity.

CONCLUSION

Study discloses the factors causing tax gap and low tax revenue in Pakistan. Agriculture and manufacturing sectors are taken as tax base and inflation, trade openness, per capita income are taken as economic variables affecting tax to GDP ratio in the country. Government effectiveness and control of corruption these two variables are taken as social variables to determine their role in low tax revenue. Tax base is proved to be a strong determinant in tax revenue generation, both in long and short-run. About 1% growth in manufacturing sectors causes 2.57% increase in tax revenue, while about 1% growth in manufacturing sector leads to 4.77% downfall in tax collection because of tax exemptions in agriculture sector. For economic variables, inflation is negatively affecting tax to GDP ratio, both in short term and long-term. About 1% increase in inflation influences 0.08% tax revenue in short-run. Trade openness is also significant as a determinant of low tax revenue, but negatively related in Pakistan because of high tariff rate in the country in short and long-time period. Per capita income is also significant for tax revenue. For the social side variables, government effectiveness is significant with revenue collection. Because it is necessary to remove trust deficit issue, make tax compliance system simple. But unfortunately for many years in Pakistan, the government has been unable to create trust and facilitate the tax payer. The Pakistani government is always more focused on increasing tax rate instead of tax buoyancy. Corruption proved insignificant towards total tax to GDP because corruption hits every form of taxes invariably.

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