Impact of Economic and Financial Factors on Tax Revenue: Evidence From South Asia

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ABSTRACT

Funds are imperative to meet governments' goals. Several economic and financial variables influence these funds and the country's internal revenue generation policy. Only a few studies focus on the impact of economic and financial factors on tax revenue. No research paper has been conducted that considers South Asia for panel study. This paper studies the impact of economic and financial aspects on tax revenue in the case of South Asia for the period from 1980 to 2019. The study uses Panel ARDL and WALD tests to check the specification. The study finds that financial variables impact tax revenue positively. GDP per capita has a long-run positive relationship with tax revenue, whereas per capita income relates negatively in the short run. According to the study's outcomes, financial variables such as M2 (Broad Money), Manufacturing Value Added, and DFPS (Domestic Finance to Private Sector) positively affect tax revenue. Economic variable as GDP per capita has a positive relationship with tax revenue, whereas official development assistance, trade openness, and urbanization negatively affect tax revenue. The study finds that the higher indirect tax causes a negative relationship between tax revenue and national income. It posits that stable financial institutions, equivalence growth, a substantial money market, and a progressive tax system could help the economy generate more rewarding revenue generation activity. Developing countries heavily rely on indirect taxation, which incidents on the poor, creates disparity, enforces regressive taxation, and ultimately, it hampers Economic Growth. Therefore, the paper suggests efficient taxation and a higher portion of direct tax, which could be an effective macroeconomic policy.

Keywords: Tax Revenue, Economic Factors, Financial Factors

INTRODUCTION

Determining factors influencing tax revenue is a vexed question for the economies and an important research question for researchers. Resource mobilization is a prerequisite for economic growth. Fiscal deficit along with

trade deficit are significant constraints faced by developing countries. Economic and financial variables influence Tax revenue (Basheer et al., 2019). Considering the importance of Tax Revenue, there is required to determine variables that affect tax revenue. The impact of economic and financial variables on tax revenue is the topic of the study in this paper. Tax is the fee levied by the government based on defined rules to run its operation and promote the welfare of its citizens.

Few research papers study the research problem, which is the topic of this study. In one of the studies conducted on this topic, the impact of economic and financial variables on tax revenue is estimated with the help of the data of oil-reliant middle eastern countries (Basheer et al., 2019). The paper uses GDP growth rate, Bank Capital to Asset Ratio, Risk Premium on Lending, FDI, and Cash Surplus to measure the impact of economic and financial variables. Although this paper opens doors to determine Tax Revenue, it suffers from the disease, which is the hurdle in its generalization. The hurdle is that the study is conducted on the economies which rely on oil revenue for their budget rather than tax as a source of income. This study chooses the Asian countries to check the link between these macroeconomic factors, which could help to generalize the relationship. This research problem is studied in the other paper in the Sub-Saharan region(Terefe & Teera, 2018), which finds that GDP, Foreign Aid, and Trade Openness positively relate to tax revenue.

In contrast, Urbanization, Inflation, and Official Exchange rates negatively relate to Tax Revenue. The paper finds the positive role of per capita GDP and foreign assistance, whereas the negative part of exchange rate and inflation. The study wishes further studies to explore other determinants of tax revenue by studying the tax system of developing and developed countries. However, the paper itself recommends other studies containing an exhaustive list of determinants for Tax Revenue and mentions its limitation of factors determinant of Tax Revenue. Koch et al. (2005) study the relationship between economic growth and tax revenue in South Africa. However, this research finds a negative association between economic growth and tax revenue from the perspective of the South African economy. The research paper by Ebi (2018) finds that financial stability plays a crucial part in the high Tax to GDP ratio. The article focuses on the economy of Nigeria. Nnyanzi et al. (2018) study the impact of consolidation and stability of financial institutions on tax revenue. The paper studies the relationship of the functional performance of banks and other financial institutions with taxation.

The present study tries to fill the significant gaps in the literature and makes imperative contributions. Chief contributions are mentioned below.

- The impact of economic and financial variables on tax revenue has not been studied in the past (Basheer et al., 2019).

- The present study is unique as it is the first-panel study that focuses upon the South Asian economies to study the relationship of economic and financial variables with tax revenue.

- Earlier research paper studied oil-reliant Gulf economies. Therefore, this paper studies the South Asian economies dependent on tax revenue.

- The paper intends to recommend policies for the economies to manage fiscal deficits without compromising long-term economic growth and financial stability.

The study focuses on the impact of economic and financial factors on tax revenue. The main research questions are as follows.

What is the impact of economic factors on tax revenue?

The paper uses Manufacturing Value Added, Broad Money, and Domestic Finance to Private Sector to measure financial impact. It uses Trade Openness, Urbanization, GDP per capita, and Official Development Assistance to measure economic impact. These variables have been used previously to measure financial and economic implications (Basheer et al., 2019; Asghar & Mehmood, 2017; Cage & Gadenne, 2018; Amoh & Adom, 2017). The paper considers this research problem to recommend a policy to take macroeconomic decisions which maximize the country's revenue and people's welfare.

The research study highlights the important fiscal problem of dealing with the taxation system. Developing economies pay emphasis to revenue generated from the most accessible available source. The source cuases a more significant burden on the poor and raises the country's inflation. This source is indirect taxation. Indirect taxation treats the poor and rich equally. It doesn't promote welfare for the poor. The second significant contribution of the study is the demonstration of the taxation system of developing countries. It highlights that inefficient taxation changes the relationship between economic growth and tax revenue from positive to negative. Inefficient taxation is the tax rate applied to the transactions that hamper business activities and economic development. The tax on certain transactions proves itself to constrain economic growth. This research study demonstrates the relationship of economic and financial factors with tax revenue and gives policy recommendations to economists.

Tax revenue has a long history. In ancient Egypt, taxes were collected in kind of commodities as a proportion of output and labor in the government's agricultural farms and production houses. Taking a different look at the

history of the taxation system, Roman Emperor Augustus made significant restructuring in the taxation system. There is an eternal debate about the incident and proportion of the tax and the government's prerogative to collect it despite its failure to spend it for the welfare of the people. Yet taxes are compulsory as they could help function the public activities owned and used by the public jointly. There is another debate regarding the expansion of government in providing many services, which might be managed commercially through proper regulation (Communism versus Capitalism). There is enough diversity in the taxation system adopted by different countries; however, all of them have shared characteristics in terms of tax categories broadly classified as the tax on income, sales, and corporate income. Industrialized countries have a rich diversity in their taxation system compared to less developed countries.

The U.K. levies higher income tax to contribute to revenues than France, whereas later levies a higher rate on social services like insurance and old-age benefits. The USA does not rely on sales tax as much as it depends on some other OECD countries. Pakistan relies more on sales tax revenue as compared to income tax revenue. Considerable research has been conducted to sort out the nature and scope of the relationship between tax revenue and economic Growth (Marsden, 1983; Koester & Kormendi, 1989; Worlu & Nkoro, 2012). Most developing countries have an overlaping taxation system, which proved detrimental to economic growth and became counterproductive(Hanneman, 1982). Tax revenue depends upon the capacity of individuals and corporations and the government's capability to raise the tax revenue (Eshag, 1983). The tax and government are two inseparable dimensions.

India, Pakistan, and Bangladesh were British colonies until August 1947. India and Pakistan have been republic federal autonomous states since 1947. Bangladesh separated from Pakistan in 1971. The constitution related to taxation started in 1857. The Viceroy of the sub-continent approved the proposal of Sir James Wilson to levy the tax for five years on 24th July 1860. In 1886, the colonial government of India set taxes to meet the expenses of the war with Russia. In 1924, the central board of revenue was established as a body responsible for collecting tax from the people. In 1957, after independence, the government of India launched a national academy of direct taxation. The tax to GDP ratio is lower than first-world economies in developing countries. Among neighboring countries, Bangladesh has significantly reduced its poverty level since 1992 (Ministry of finance, 2016; world bank, 2016); however, Poor infrastructure is the major hurdle in tax collection (Financial Times, 2016; Hassan & Prichard, 2016; New York Times, 2016). State's operational and constitutional arms facilitate tax evasion(Nurunnabi, 2018). Like other developing countries, Bangladesh bears the cost of tax amnesty and has been offered 18 times from 1971 to 2013 (Ibrahim et al., 2017). In 1974, Nepal categorized tax collection into

five heads: industry, agriculture, profession, remuneration, property, etc. Nepal's tax to GDP ratio is 22 percent, which is higher than other south asian countries. Tax havens are territories that could be opted for offshore companies due to their low regulatory rquirements, tax-free economic policies, and banking system, which ensures secrecy. This structure is fatal for developing countries. It requires unique skills, training, and technical assistance to interrogate financial crimes. Manufacturing value added (MVA) is the parameter to measure the contribution of manufacturing throughput to a country's overall economy. MVA has positive impacts on tax revenue, as studied by Muhammad & Ahmed (2010).

Economies need to have resources at their disposal to spend for the welfare and development of their people. However, the world at its general and developing countries especially face the brunt of counterproductive tax policies, which do not increase the wealth of its people, who are the real owners considering resources of the country. This paper discovers economic and financial factors that influence tax revenue and proposes a policy to manipulate these variables to increase tax revenue. This paper considers the case of the South Asian Economies. Various studies appraise the relationship between economic factors and tax revenue; however, most considered tax revenue as an exogenous variable and economic indicators as endogenous variables (Ormaechea & Yoo, 2012; Arnold, 2008; Gale & Samwick, 2014). Other studies check the direction of the relationship otherwise (Basheer et al., 2019; Amjad & Audi, 2018; Cage & Gadenne, 2018; Harahap et al., 2018; Asghar & Mehmood, 2017; Gnangnon, 2016; Castro & Camarillo, 2014; Mahmood & Chaudhary, 2013; Nwosa et al., 2012). However, no research study has focused on the impact of economic and financial factors on tax revenue in South Asian Countries. This research study is unique in studying the effects of economic and financial aspects on tax revenue of the South Asian countries. The exogenous and endogenous variables have a base of interaction in the established theories as 'benefits received theory,' implying tax as the return of government's services to society. The socio-Political theory says that tax focuses on the collective interest rather the interest of any individual. The Ricardian theory states that the public considers tax benefits as debt.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Broad money is the tool to measure the circulation of money in the economy. It has become crucial for today's economies in their taxation policy as, nowadays, tax is collected in the economy's currency and is not contained in kind of commodities in place of money. Tegegne (2021) studies the impact of broad money on real GDP and says that there is a significant short-term positive relationship and no long-term relationship between M2 (Broad Money) and GDP. A rise in broad money M2 causes an increase in inflation in the economy. Inflation creates unrest and discouragement to the

taxpayers. Therefore, they start pursuing methods to hide their tax. Gregorio (1993) finds a negative impact of inflation on tax revenue owing to an inefficiency caused due to inflation. Broad money increases inflation (Nguyen, 2015). Based on the above studies, it could be hypothesized that M2 has a link with tax revenue. Many studies prove the relationship between broad money and tax revenue. Amjad & Audi (2018) surveyed the economic system of Pakistan to find the positive relationship between broad money and tax revenue.

H1: M2 is positively related to tax revenue.

Manufacturing Value Added (MVA) measures the country's manufacturing yield. It shows the industrial strength of the economy. It is the critical financial factor of the economy. There are many studies in the literature that prove the relationship of MVA with Tax Revenue. Cantore et al. (2017) say that manufacturing plays an essential role in economic expansion and employment for any economy. MVA is a critical economic indicator in determining the economic development of any country (Karami, 2019). Amoh & Adom (2017) study determinants of tax revenue in Ghana. The paper finds that MVA has a positive impact on tax revenue along with other factors. Castro & Camarillo (2014) contemplate the effects of social, economical, productive specialization and institutional factors on tax revenue in 34 countries of the Organization for Economic Cooperation and Development (OECD). The paper finds a positive impact of industrial output on Tax Revenue.

H2: MVA is positively associated with tax revenue.

Mamman & Hashim (2013) say that Domestic Finance to Private Sector (DFPS) dramatically influences the economy of any country as it plays the role of enhancing the productivity of real sectors. Thereby, it raises the contribution of real sectors in producing goods and services. Marshal (2015) says a strong link between domestic finance to the private sector and GDP. The financial system of any country has a significant role in determining that country's tax revenue (Ajide & Bankefa, 2017). Marshal et al. (2015) demonstrate the association of domestic financing to the private sector and tax revenue. Isabwa & Mabonga (2020) find a negative relationship between profitability and Non-Performing Loans. Delayed loans are outstanding even after their due date, and they cause degradation in the economy (Bernanke & Gertler, 1995; Basheer et al., 2018). Non-Performing Loans become a reason for the slower growth rate of the economy. Capital Requirement of banks is essential in ensuring financial stability and customer's trust but raising it above a certain level may give rise to credit tightness. Still, Cornett et al. (2011) and Dermine (2013) suggest that interest tax shield gives incentive to companies to go to higher leverage. Higher tax affects financial institutions' financing capacity as they contract its resources. Marshal et al. (2015) study

the impact of financing on the private sector upon economic growth and find a significant positive relationship between domestic funding to the private sector and economic development. Literature also proves that DFPS is used to measure the financial impact.

H3: DFPS is positively related to tax revenue.

Basheer et al. (2019) find that the tax revenue of an economy depends on its GDP and FDI (Foreign Direct Investment). Ali & Audi (2018) conducted a time-series study and found that FDI, inflation rate, and broad money directly relate to tax revenue significantly. Gnangnon (2017) studies the relationship between FDI and tax revenue. Castro & Camarillo (2014) prove a negative relationship between FDI and Tax Revenue. There are few studies in the literature that demonstrate the negative association between GDP growth and Tax Revenue in the specific conditions of the economies(Ebi, 2018). Harahap (2018) studies tax revenue and effective tax rate. The study proves that steady inflation and exchange rate have a positive impact on tax revenue and GDP. Gnangnon (2016) finds trade facilitation had a significant effect on non-resource tax revenue, but GDP has no considerable impact. Velag (2014) finds that inflation rate and GDP are positively associated with tax revenue and unemployment. Mahmood (2013) finds that the share of agricultural income and FDI relate with tax revenue negatively where GDP has direct interaction. Zeng et al. (2013) study the effect of economic factors and tax structure on tax revenue in the case of China. Nwosa et al. (2012) conducted a study and found that exchange rate relates negatively to tax revenue.

In contrast, GDP, trade liberalization, public debt, and labor force relate positively with the explained variable. Pessino & Fenochietto (2010) find that economy and level of education relate positively with tax revenue, but inflation correlates negatively. Yalaman (2019) proves the positive impact of financial inclusion on tax revenue. Egbunike et al. (2018) find a significant effect of tax revenue on GDP growth. Amin et al. (2018) find a positive relationship between personal income tax and economic development in Pakistan and China. In the case of Pakistan, the paper finds a significant and positive relationship between trade openness; however, there is no significant association between trade openness and economic growth in the case of China. Many studies on the relationship between taxation and the positive economic rate of change (Johansson et al., 2008). Certain studies study the effect of tax on the overall financial system(McBride, 2012). Many studies focus on the relationship between tax and state income (Nguyen et al., 2013). Arnold (2008) studies the interaction of tax structure and economic development. This paper finds that property tax and personal tax enforce positively, whereas Corporate Income Tax affects economic development badly. Based on the literature review, it is clear that GDP has a relationship with tax revenue.

H4: GDP is positively related to tax revenue.

Trade openness is an important economic measure. Terefe et al. (2018) find that trade openness impacts tax revenue positively. Other studies claim the relationship between trade openness and tax revenue (Cage & Gadenne, 2018; Asghar & Mehmood, 2017). Gnangnon (2016) conducts a study to prove the association between trade openness and tax revenue. Cage & Gadenne (2018) and Asghar & Mehmood (2017) study trade tax revenue and trade liberalization. Gnangnon (2017) examines FDI as a percentage of GDP and its relationship with Tax Revenue. The paper also finds that trade openness and inflation are associated negatively with non-resource tax revenue.

According to Mawejje & Sebbude (2019), there is a positive association between tax revenue and trade openness, whereas the a negative relationship between tax revenue and the index of corruption perception. Bretscchger & Zurich (2010), Barro (1990), and Hakim & Bujang (2012) examine the impact of taxes on business liberalization and GDP growth. Aamir et al. (2011) study the taxation system in practice in India and Pakistan. This research paper finds that India relies on direct tax to meet its budgetary demands, whereas Pakistan heavily depends on indirect tax to meet its revenue demands. Furthermore, it states that indirect tax creates disparities between the rich and poor classes. Indirect tax inevitably leads to unrest in the lower segment of society. Countries that rely on agriculture income gather lower Tax/GDP ratios than industrial countries.

There are multiple reasons for this fact. There are more individuals with low income, which is not sufficient for tax. Real income could not be measured as the cost is higher. The prices of products also vary so frequently, which creates trouble in calculating taxable income. Those economies that keep their trade open regarding import, export, and individual investment enjoy more Tax to GDP ratio than those that discourage open business and open economy. Higher GDP per Capita has a direct relationship with tax collection. This is the better infrastructure of countries with higher GDP per Capita income as it helps tax collection. Taxes negatively affect business liberlization as multinational companies invest in countries with lower tax rates. It raises their selling price, which damages their ability to compete with domestic companies(Devereux & Maffini, 2007)

H5: Trade Openness is postivelty related to tax revenue.

To understand the impact of financial transactions on tax revenue, in the long run, we need to realize that there is a seeming impact of tax and actual effects of tax borne by the real sufferer. Legal or statutory incidence creates overt impact mainly upon the payers, and economic incidence makes a real impact by curtailing down the real income of the actual sufferer. For

example, indirect tax is considered levying commodity tax forwarded to the consumers by raising prices of those commodities and reducing the consumers' real income. The researchers in the literature have used the above variables to measure the impact of economic and financial factors. Studies have also cited where these variables confirmed their interaction with tax revenue. Based on this literature, this paper tests the hypothesis and runs the study.

There is a trend that Japan and France are increasing their proportion of indirect Taxes (Wen et al., 2020). Suryanto (2018) explains the positive relationship between tax revenue and income disparities. Mahmood & Zahra (2017) and Zafar (2017) examine the factors related to the tax revenue of Pakistan. Rana & Wahid (2016) examine the budget deficit and GDP growth from the perspective of Bangladesh. Artavanis et al. (2016) state that tax evasion is rising. Faccio & Xu (2015) study the impact of tax on capital structure. Association of taxation policy with economic growth and financial indicators is the burning issue of today(Easterly & Rebelo, 1993). Tosun & Abizadeh (2005) demonstrate that taxes influence monitory policy and inflation rate.

Credit risk plays a crucial role in deciding the interest rate on any financing. Chirwa (2001) and Fetai (2015) posit that the increase in interest rate affects the entire economic sector and ultimately damages economic growth. Al-Faris (2002) studies the relationship between capital expenditure and the development of the economy, and the paper finds a positive relationship between them. Arnold et al. (2011) propose a tax structure that could play the role of rehabilitation from crisis and accelerate the economy's growth. For years, the Oil Rich Countries have been providing civic facilities and employment from oil revenue, but it is evident that for every nation, the natural source of income of the country is the tax despite natural resources as natural resources would deplete in the end(Chemingui & Roe, 2008).

DATA AND METHODOLOGY

Pakistan, India, Bangladesh, Maldives, Nepal, and Bhutan have been opted to study the South Asian economies. They are collectively known as SARC countries. The factors data is obtained from Word Bank Data known as world development indicators (WDI). The research study is a causal study having panel data. The study uses panel ARDL to test the hypothesis. The paper uses panel ARDL to test the theory. The paper uses Levin, Lin& Chu test; L.M. Pesaran, and Shin W stat; ADF Fisher Chi-Square; and PP Fisher Chi-Square test to run the unit root test for the exogenous and endogenous variables considering individual intercept, individual intercept, and trend, and None. The panel unit root test finds that the variables are stationary at the level and first difference. It means that the variables have mix level of

stationarity, and no variable included in the model is static at the second difference. To check the specification, the paper uses the wald test.

RESULTS AND DISCUSSION

Descriptive Analysis

Table 1 shows mean of log values of tax revenue equal to 10.15, broad money as a percentage of GDP average value of 51.38, Manufacturing value-added as a percentage of GDP has an average value of 6.30, domestic financing to the private sector as a percentage of GDP has an average value of 29.88, log value of trade openness has an average value of 23.08 whereas trade openness is measured as a sum of imports and exports, Urban population as a percentage of the total population has an average value of 15.58, GDP per capita has an average value of 27.4, and log value of Official development assistance has average value 4.5. These are average values for the South Asian countries involved in the sample. T.R., M2, MVA, DFPS, LNTO, URB, GDPPC, and ODA have the value of skewness as 0.56, 0.40, 0.055, 0.714, 0.196, -0.179, -0.20, and 2.00 respectively. Values of Kurtosis are 3.23, 2.69, 6.02, 2.93, 2.37, 1.55, 1.91, and 4.56 restively, which lies within the range of 2 for skewness and 7 for Kurtosis, and that shows that the variables are normally distributed.

Table 1- Descriptive Statistics

	TR	**M2**	**MVA**	**DFPS**	**LNTO**	**URB**	**GDPPC**	**ODA**
Mean	10.1586	51.3816	6.3043	29.8807	23.0839	15.5852	27.4636	4.5568
Median	9.5223	48.5946	6.1768	25.7533	23.0641	16.2001	27.9936	2.1958
Max	19.8090	97.1688	32.0021	78.8453	27.7945	19.9704	32.9467	30.5772
Min	4.6000	21.4796	-20.9874	4.28637	18.9865	10.9623	21.4431	0.0918
Std. Dev.	2.8209	16.3743	6.1339	15.3690	2.2140	3.0002	3.03245	5.7021
Skewness	0.5682	0.4007	0.0551	0.7149	0.1961	-0.1793	-0.2007	2.0061
Kurtosis	3.2361	2.6908	6.0292	2.9307	2.3780	1.5549	1.9172	4.5631
Obs	180	180	180	180	180	180	180	180

Correlation Analysis

Table no 2 shows that tr has a positive correlation with M2, DFPS, and LNTO, which are 0.46, 0.47, and 0.04 respectively, whereas negative correlation with MVA, URB, GDPPC, and ODA is -0.16, -0.10, -0.01, and -0.18, respectively. There is also no value of correlation coefficient between exogenous variables, which lies in the range of making multicollinearity problem critical.

Table 2- Correlation Matrix

Probability	TR	M2	MVA	DFPS	LNTO	URB	GDPPC	ODA
TR	1.0000							
M2	0.4658	1.0000						

MVA	-0.1668	-0.0476	1.0000					
DFPS	0.4743	0.8193	-0.1035	1.0000				
LNTO	0.0477	0.4762	0.0169	0.4383	1.0000			
URB	-0.1018	0.3079	0.0339	0.2287	0.1131	1.0000		
GDPPC	-0.0187	0.4855	0.0216	0.3928	0.3180	0.2658	1.0000	
ODA	-0.1886	-0.3098	0.0738	-0.4104	-0.3519	-0.2261	-0.2672	1.0000

Wald Test

Table no 3 shows that the explanatory variables are significant to justify the model for T.R. as endogenous variable and economic and financial variables as exogenous variables. The wald test is used to check the model specification. As the results are significant, the null hypothesis is rejected. The variables included in the model are essential to increase the model's strength.

Table 3- Wald Test

Test Statistic	Value	Df	Probability
F-statistic	688.9062	(7, 77)	0.0000
Chi-square	4822.343	7	0.0000
Null Hypothesis: C(1)=C(2)=C(3)=C(4)=C(5)=C(6)=C(7)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(1)		0.065453	0.013008
C(2)		0.009378	0.015021
C(3)		0.212520	0.013609
C(4)		-0.656656	0.234882
C(5)		-9.483884	1.042604
C(6)		1.500722	0.341798
C(7)		-0.180813	0.042463
Restrictions are linear in coefficients.			

Lag Length Criteria

Table 4 shows that lag length according to schwazer is 2, which is minimum and suitable for running the ARDL. The paper opted for a lag length up to 2 based on this criteria.

Table 4- Lag Length Selection

VAR Lag Order Selection Criteria

Endogenous variables: T.R. M2 MANUFACTURING VALUE ADDED DFPS LNTO URB GDPPC ODA
Exogenous variables: C
Sample: 1990 2019
Included observations: 132

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2517.479	NA	5733431.	38.26484	38.43955	38.33584
1	-658.2634	3464.903	8.84e-06	11.06460	12.63703	11.70356

2	-486.9239	298.5460	1.75e-06	9.438241	12.40840*	10.64518*
3	-401.8699	137.8906	1.31e-06	9.119241	13.48712	10.89415
4	-343.3459	87.78594	1.49e-06	9.202211	14.96781	11.54509
5	-265.9846	106.6648	1.33e-06	8.999767	16.16309	11.91061
6	-185.5522	101.1499*	1.17e-06*	8.750790	17.31184	12.22961
7	-112.1514	83.41000	1.23e-06	8.608354	18.56712	12.65514
8	-30.10209	83.29243	1.22e-06	8.334880*	19.69137	12.94964

ARDL LONG RUN SHORT RUN RESULTS

Table no 5 gives the results of the ARDL test. According to long term association, M2 has a significant long-term positive relationship having a coefficient equal to 0.065453, MVA has an insignificant positive relationship with a coefficient equal to 0.009378, DFPS has a significant long-run positive relationship having a coefficient equal to 0.212520, LNTO has significant negative long-run relationship having coefficient equal to -0.656656, URB has significant negative long-run relationship having coefficient equal to -9.483884, GDPPC has significant positive long-run relationship having coefficient equal to 1.500722, and ODA has a significant negative long-run relationship with tax revenue having coefficient equal to -0.180813. M2 has a significant negative short-run relationship, MVA has a significant positive short-run relationship, DFPS has a significant negative short-run relationship, LNTO has a significant positive short-run relationship, URB has a significant positive short-run relationship but negative with one lag, GDPPC has a significant negative short-run relationship, and ODA has a significant negative short-run relationship with tax revenue but positive with one lag.

Table 5-ARDL Results

Dependent Variable: D(T.R.)
Method: ARDL
Sample: 1992 2019
Included observations: 168

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
M2	0.065453	0.013008	5.031657	0.0000
MVA	0.009378	0.015021	0.624325	0.5343
DFPS	0.212520	0.013609	15.61663	0.0000
LNTO	-0.656656	0.234882	-2.795680	0.0065
URB	-9.483884	1.042604	-9.096342	0.0000
GDPPC	1.500722	0.341798	4.390675	0.0000
ODA	-0.180813	0.042463	-4.258183	0.0001
	Short Run Equation			
COINTEQ01	-0.465949	0.192202	-2.424268	0.0177
D(M2)	-0.013449	0.028547	-0.471121	0.6389
D(M2(-1))	-0.032966	0.026771	-1.231418	0.2219
D(MVA)	0.003040	0.011889	0.255683	0.7989

D(MVA(-1))	0.011891	0.013107	0.907204	0.3671
D(DFPS)	-0.032724	0.045798	-0.714530	0.4771
D(DFPS(-1))	-0.055463	0.028518	-1.944865	0.0554
D(LNTO)	0.843392	1.321102	0.638400	0.5251
D(LNTO(-1))	0.687595	0.548077	1.254560	0.2134
D(URB)	118.9403	62.80375	1.893840	0.0620
D(URB(-1))	-95.83103	65.59580	-1.460932	0.1481
D(GDPPC)	-6.138384	2.997543	-2.047805	0.0440
D(GDPPC(-1))	-2.910410	2.559499	-1.137101	0.2590
D(ODA)	-0.002176	0.152246	-0.014292	0.9886
D(ODA(-1))	0.264434	0.208041	1.271066	0.2075
C	57.44996	23.81306	2.412540	0.0182

Mean dependent var	0.134940	S.D. dependent var	0.909902
S.E. of regression	0.647670	Akaike info criterion	1.486886
Sum squared resid	32.29973	Schwarz criterion	3.313967
Log-likelihood	-30.81974	Hannan-Quinn criteria.	2.227689

*Note: p-values and subsequent tests do not account for model selection.

GRANGER CAUSALITY TEST

Table 6 gives the results of Granger causality. It shows that M2 and DFPS granger cause T.R.; however, other exogenous variables do not granger cause T.R.

Table 6- Granger causality

Pairwise Granger Causality Tests

Sample: 1990 2019

Null Hypothesis:	Obs	F-Statistic	Prob.
M2 does not Granger Cause TR	168	13.3197	4.E-06
TR does not Granger Cause M2		1.58892	0.2073
MVA does not Granger Cause TR	168	0.45944	0.6325
TR does not Granger Cause MVA		2.05415	0.1315
DFPS does not Granger Cause TR	168	5.21651	0.0064
TR does not Granger Cause DFPS		0.44485	0.6417
LNTO does not Granger Cause TR	168	0.21434	0.8073
TR does not Granger Cause LNTO		1.42773	0.2428
URB does not Granger Cause TR	168	0.45373	0.6361
TR does not Granger Cause URB		0.38803	0.6790
GDPPC does not Granger Cause TR	168	0.08444	0.9191
TR does not Granger Cause GDPPC		1.07001	0.3454
ODA does not Granger Cause TR	168	2.84702	0.0609
TR does not Granger Cause ODA		0.97289	0.3802

CONCLUSION

This paper is based upon 30 years of panel data from 6 South Asian countries. It proves the long-term positive association of GDPPC (GDP Per Capita) and M2 (Broad Money) with tax revenue; hovwever, other economic factors like URB and ODA have a negative association with tax revenue. Considering the short-term relationship, M2, GDPPC and ODA(Official Development Assistance) negatively affect tax revenue, whereas URB (Urbanization) has a positive relationship with tax revenue. Previous studies also have similar results when testing the relationship between M2, GDP, and tax revenue (Tegegne, 2021; Basheer et al., 2019). ODA has a positive association with one lag. Financial factors like MVA (Manufacturing Value Added) and DFPS (Domestic Finance to Private Sector) have a positive relationship with tax revenue, but LNTO (Log of Trade Openness) has a negative association with tax revenue in the long run. MVA and LNTO have a positive relationship with tax revenue in the short run, but MVA has a negative in the short run.

The negative association with GDPPC owes inefficient taxation due to the negative impact of tax incidents and indirect taxation. Ahmad et al. (2018) also conclude that indirect tax negatively relates to the economy. The negative relationship of M2 implies that over-reliance upon debt from central bank and deposit in current account describes negatively with tax revenue. Population rise may increase taxation temporarily; however, it affects fiscal balance negatively in the long run. Foreign Aid may help temporarily, but it is also not good for fiscal balance in the long run. These results could help developing countries to make their policies considering the impacts of these economic and financial factors.

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