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Research Article

Governance: A Source to Increase Tax Revenue in Pakistan

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Improved governance in any economy indicates government stability, secured law and order, and minimum internal and external conflicts. A higher level of governance may demonstrate the healthy performance of economic activities and tax revenue collection. Hence, it is vital to investigate the relationship between governance and tax revenue collection in any developing country. Therefore, we aim to investigate the impact of governance on tax revenue in Pakistan using control variables inflation and industrial value-added. The Autoregressive Distributive Lag (ARDL) cointegration technique is utilized to find the long- and short-run effects of hypothesized variables on the tax revenue using a period 1976–2019. After employing a cointegration on the hypothesized model, the results expose that government stability, law and order, and internal and external conflicts leave a positive and significant impact on tax revenue in the long and short run. Hence, it is concluded that governance is an essential source in expanding tax revenue in Pakistan. Moreover, industrial value-added and inflation also show positive effects on the tax revenue. On the grounds of these results, it is proposed that the government should make serious efforts to improve governance and industrial activities for better tax revenue collection.

1. Introduction

Tax revenue is a significant source of government spending capacity. A reasonable proportion of tax revenue to the Gross Domestic Product (GDP) ratio is required for a smooth running of the government machinery. Earlier scholars have emphasized the importance of the proportion of tax revenue to GDP. For instance, Kaldor [1] stated that a country needed to collect the tax more than 15% of the GDP. This ratio was observed lower than 15% in Pakistan throughout this study's sample period [2]. Therefore, it seems pertinent to find the main drivers behind such a low tax revenue collection in Pakistan. This lower tax revenue ratio may be stemmed from the weak governance of developing countries [3]. Thus, a positive relationship might be hypothesized in the relationship of governance and tax revenue collection. Bird et al. [3] pointed out supply-side and demand-side factors that influence the tax-to-GDP ratio. The supply-side factors are the economy's capacity to pay tax, and demand-side factors are related to institutional quality. Végh and Gribnau [4] argued that governance is essential for the tax administration, which would help in increasing the tax revenue. Moreover, Ivanyna and von Haldenwang [5] claimed that governance is vital in tax revenue mobilization. Democracy and transparency would help to increase tax revenue even if the tax rates are low. Therefore, there is a dire need to investigate the effect of governance on the tax revenue in Pakistan to have a shred of empirical evidence that how governance is playing its role in this developing country in terms of tax collection.

Governance conveys various meanings ranging from state authority on the management of public goods and services to accountability, transparency, and legitimacy in using power. However, other approaches emphasize some other factors, for instance, a participatory approach in the decision-making process and connection between civil liberties and poverty reduction [6]. Khan [7] talked about two distinct views about the state, which are service delivery and social welfare. The provision of goods and services, which is the state's primary task, demands revenue collection to dispose of these tasks. According to the report of the United Nations [8], governance does not breed itself. Instead, sound public administration leads to good governance. Moreover, public administration and governance are strongly related to each other. Public administration would help in improving equality, justice, efficiency, and effectiveness of public services. Therefore, inefficient public administration cannot lead to good governance. The success in governance stems from public administration's success [8], and governance facilitates any government to collect tax revenue smoothly.

The level of governance is low in the sample period of Pakistan. For instance, the minimum value of the government stability index in Pakistan in the sample period is 2.2 out of a maximum of 12 in 1990, the maximum is 10.8 in the year 2000, and the average of the whole sample period is 6.6. A minimum government stability index score means a very high risk of not staying in office and vice versa. Thus, the average index during the sample period reflects a low level of governance in Pakistan. Another indicator of governance is the law and order index. The maximum value of this index can take 6. The smallest value of 1 corresponds to 1991 in Pakistan whereas the highest goes to 3.9 in 1997 and the average is 2.6. Moreover, internal and external conflicts also matter for a level of governance. Internal conflicts comprise three elements: civil war/group threat, terrorism/political violence, and civil disorder. The highest rating means the absence of internal conflicts and vice versa, and the maximum value of the index is 12. The minimum value that Pakistan takes is 4.4 in 2016, the maximum value is 10.8 in 1994, and the average of the sample period is 6.1. External conflicts include three components: war, cross-border conflict, and foreign pressure, and a maximum index value can be 12. The lowest value of 5.3 is observed in 1985, whereas the highest value of 11.2 is in 1994, and the average of the sample period is 7.8 [9]. All discussed governance indicators reflect a low level of governance in Pakistan.

After discussing the level of governance in Pakistan, it is essential to discuss the tax-to-GDP ratio because governance may play an influential role in determining the tax ratio [1]. The validity of the statement can be substantiated by the tax-to-GDP ratio of developed countries with good governance. For instance, the average tax-to-GDP ratio in Australia, France, and Norway has been observed at 22.19 percent, 21.02 percent, and 24.38 percent, respectively, during 1976–2019 [10], whereas during the same period, the average tax-to-GDP ratio in Pakistan is observed at 12.18 percent, as shown in Figure 1 [2]. A low tax collection leaves less room for the government to take social welfare programs. It may

also increase the debt to GDP ratio and budgetary borrowing, leading to crowding out. This abysmal performance of Pakistan is a constant nuisance for the policymakers, and a better revenue collection may provide reasonable space to the government to improve the welfare of the people.

Literature has corroborated that a higher level of governance and a lower level of corruption may improve the tax revenue collection [11–17]. On the other hand, Mallick [18] corroborated an insignificant relationship between governance and tax collection. Hence, this relationship is not sure and is an empirical question for any country, particularly for developing countries like Pakistan. Therefore, we test the effect of governance on the tax revenue in Pakistan utilizing the maximum available data. For this purpose, we utilize four proxies of governance, i.e., government stability, law and order, and internal conflict and external conflict.

The rest of the study consists of four sections. In Second 2, a relevant literature review has been presented. In Section 3, the data, model, and estimation techniques have been discussed. Section 4 deals with results and interpretations. Section 5 presents the conclusion and possible suggestions.

2. Literature Review

Tax collection is an essential source of revenue to run a country effectively. The literature has investigated the different determinants of tax revenue. For instance, a pioneering study found that income and trade openness positively affected the tax revenue among the other fundamental determinants [19]. Chelliah et al. [20] and Tait et al. [21] found the positive and significant effects of mining and export share on tax collection. Moreover, literature tested the effect of the agriculture sector on tax collection but found a marginal contribution [22–25]. Ansari [26] examined and found that real GDP per capita, size of openness, and demographic conditions explained most tax ratio variations across countries. In a panel of 75 countries, Piancastelli [27] concluded that trade share, manufacturing share, and services share positively affected, and agriculture share showed a negative effect on the tax-to-GDP ratio. Eltony [28] found that GDP was positively related while mining share was negatively related to tax in six oil-producing Arab countries.

Hisali and Ddumba-Ssentamu [29] studied Uganda's economy and found that grants negatively affected the tax, and loans positively affected. The net effect of aid (grants plus loans) was positive. Crivelli and Gupta [30] investigated the impact of conditionality of funded programs on tax performance in the 126 low- and middle-income countries. The results showed a positive impact of such conditionality on tax collection. Such conditionality was found more fruitful for the economies where the tax-to-GDP ratio was relatively low. Kemal [31] discussed the issue from an informal economy perspective and found that a large shadow economy increased tax evasion. Thus, the efforts to collect taxes were severely impeded by the existence of an underground economy. Similarly, Mazhar and Meon [32] found that the shadow economy negatively affected tax revenue in a large panel. Sookram and Saridakis [33] found that external
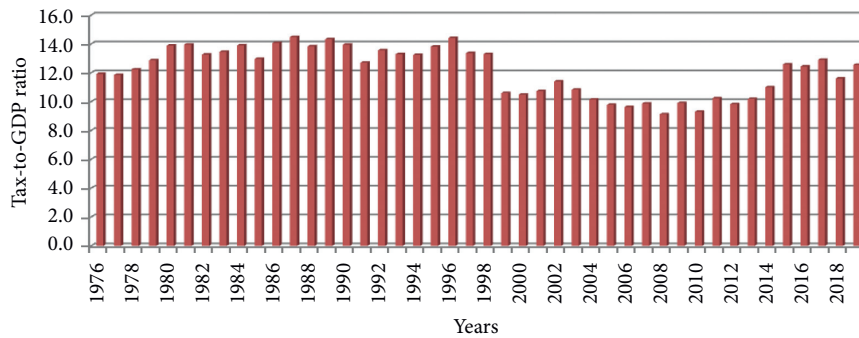
FIGURE 1: Tax-to-GDP ratio.

debt and inflation impeded tax collection, whereas the income improved the tax collection in Trinidad and Tobago. Belinga et al. [34] investigated the income and tax relationship and found that tax buoyancy remained close to one in the short run for the aggregate tax revenue. In contrast, long-term buoyancy exceeded one in half of the sample countries that improved the fiscal ratios. Ghaus and Pasha [35] analyzed the buoyancy of provincial tax revenues and identified that the slow growth in tax collection resulted from the low fiscal effort, increasing exemptions, and tax rates.

An efficient public administration is essential to collect taxes efficiently, which necessitates a requirement of a good quality of governance [8] that may increase tax collection. In a pioneering study, Weiss [36] emphasized some noneconomic determinants of government revenue like cultural homogeneity and representative political system. Bird et al. [3] argued that governance structure was a central variable in tax collection performance. The study found that the high-income countries improved their tax revenue because of improvement in institutional quality. Gupta [37] originated that foreign aid and political stability had a positive impact on revenue performance. However, law and order did not have a significant impact on tax collection. Bird et al. [38] found that population growth, agriculture share, income inequality, and shadow economy reduced the tax collection, whereas the quality of institutions improved the tax collection. Moreover, Melo [39] established that political instability has a negative effect on tax collection in Argentina. Brun et al. [40] found that, due to the low-quality institutions in Africa, IMF programs could not improve the tax collection. Dash and Raja [41] found the significant contribution of governance indicators on revenue collection in Indian states.

Imam and Jacobs [11] investigated the effect of corruption on the tax revenue of Middle East countries using different tax proxies. They found that corruption was responsible for low tax collection in the region. Notably, the tax from international trade was affected most among other sources due to corruption. Hence, they suggested improving governance to increase tax collection in the region. Chaudhry and Munir [42] investigated the determinants of tax revenue in Pakistan. They found the negative effects of income and foreign aid and positive effects of trade

openness, money supply, and external debt on tax revenue. Mawejje [13] investigated a relationship between governance and revenue in resource-abundant economies. The resource abundance negatively affected the non-oil tax revenue, and the effect of oil revenue was negative on the tax revenue. The study suggested that good governance in managing resources would help to mitigate the adverse effects of resource abundance.

Arif and Rawat [14] investigated the governance and tax revenue nexus in emerging economies. They found that reducing corruption and improving governance helped enhance the tax revenue collection and suggested a monetary benefit to tax officers to reduce the corruption level. Epaphra and Massawe [15] investigated 30 African economies from 1996 to 2016 and found that corruption negatively affected the tax revenue. On the other hand, some good governance indicators were found supportive to increase the tax revenue collection. In particular, the governance and trade openness helped to improve the direct and trade taxes. On the other hand, tariff rates reduced the tax collection. Djayasinga and Prasetyo [43] investigated governance and tax obedience nexus and found that some governance indicators helped raise tax obedience. However, the effect of government effectiveness was insignificant.

Sebele-Mpofu [16] argued that government bodies' corruption would reduce tax compliance, and tax revenue mobilization remained weak due to the low level of tax compliance in Zimbabwe. Touchton et al. [17] investigated the local government structure and tax revenue relationship in Brazil. They found that good governance in terms of participatory institutions helped the local governments to raise tax revenues. Mallick [18] investigated the governance, information technology, and tax nexus in India at different government levels. The study corroborated unexpected results that both governance and information technology could not increase the tax revenue. It was because of the reason that most taxpayers avoid the use of information technology for the transaction.

The reviewed literature has signified the importance of governance in the tax revenue collection in the fiscal literature. A comprehensive study is missing in a developing country Pakistan to investigate this critical issue, and this present research tries to fill this gap.

3. Data Source and Model

3.1. Model and Data Source. In the determinants of tax revenue, we focus on the governance indicators such as government stability, law and order, and internal and external conflicts. Moreover, we utilize industrial value-added and inflation in the model for a proxy of expansionary policies. The industrial sector may significantly contribute to tax revenue through direct and indirect taxes. Most tax collection is from indirect taxes in Pakistan, which is included in the products' prices. Besides, Tanzi [44] argued including inflation in the tax model as a proxy of expansionary policy. Moreover, the log forms of variables are considered to obtain efficient estimates [45]. The functional forms are presented below, and details of variables are provided in Table 1. Moreover, data are provided in the supplementary material.

$$
\begin{aligned}
\ln TAXREV_t &= f\left(\ln CPI_t, \ln INDVA_t, GSTAB_t\right), \\
\ln TAXREV_t &= f\left(\ln CPI_t, \ln INDVA_t, LAO_t\right), \\
\ln TAXREV_t &= f\left(\ln CPI_t, \ln INDVA_t, ICONF_t\right), \\
\ln TAXREV_t &= f\left(\ln CPI_t, \ln INDVA_t, EONF_t\right).
\end{aligned}
\tag{1}
$$

In Table 1, $\ln TEXREV_t$ is taken as a proxy for tax collection and measured as tax revenue as a share of GDP. $\ln CPI_t$ is a consumer price index, and it is a proxy for inflation and expansionary policies. $\ln INDVA_t$ is a proxy for industrial contribution in the total income and is measured as industrial value-added as a share of GDP. $GSTAB_t$ is a government stability index and is ranging from 0 to 12. It includes three components: (a) government unity, (b) legislative strength, and (c) popular support to calculate the risk rating for government stability. Each component is assigned the score from 0 to 4, while a score of 0 shows very high risk and a score of 4 represents a very low risk. The increase in the value of the index shows the increase in government stability. It shows a decrease in the risk rating in the government's ability to continue its announced program and stay in office. LAO_t is a law and order index and is ranging from 0 to 6. It includes two components: (a) law refers to the strength and independence of the legal system and (b) order shows the evaluation of the compliance of the act. Each component is assigned a score from 1 to 3, while a score of 1 shows a low rating in terms of the judicial system or shows poor law and order situation, and a score of 3 demonstrates a very high rating in terms of the judicial system, which means

improved law and order situation in the country. $ICONF_t$ is an internal conflict index and is ranging from 0 to 12. It includes three components such as (a) civil war/coup threat, (b) terrorism/political violence, and (c) civil disorder. Each component has a score from 0 to 4. A score of 0 provides evidence of a high internal conflict rate prevalent in any country where the government faces civil wars or any random hostility or violence. A score of 4 discloses the prevalence of no civil wars or violence-related activities in any economy. It shows an absence of internal conflict or an internal conflict-free society. $ECONF_t$ is an external conflict index and is ranging from 0 to 12. It includes three subcomponents such as (a) war, (b) cross-border conflict, and (c) foreign pressures. Each subcomponent ranges from 0 to 4. As a score increases to 4, the risk of external conflict decreases. It shows that the current government is not involved in any cross-border conflict or not facing any foreign pressure. Moreover, the government is not engaged in any war-related activity. However, if a score moves closer to 0, it increases the current government's engagement in external conflicts [9].

3.2. Estimation Strategy. In the estimation strategy, the first step is to verify the unit root problem in our hypothesized variables. We use Ng and Perron's [46] methodology to test stationarity. The presence of a unit root problem will be tested with the following test statistics:

$$
\begin{aligned}
\overline{MZ_a} &= \left(T^{-1}y_T^d - \hat{\lambda}^2\right)\left[2T^{-2}\sum_{t=1}^{T} y_{t-1}^d\right]^{-1}, \\
\overline{MSB} &= \left[\frac{T^{-2}\sum_{t=1}^{T} y_{t-1}^d}{\hat{\lambda}^2}\right]^{1/2}, \\
\overline{MZ_t} &= \overline{MZ_a}\,x\overline{MSB}.
\end{aligned}
\tag{2}
$$

The cointegration between tax revenue and its determinants will be explored using the Autoregressive Distributive Lag (ARDL) test of Pesaran et al. [47]. The calculated value of the F-test via the Wald test will provide evidence of cointegration. After confirming cointegration, long- and short-run parameters would be estimated for the selected ARDL model in equations (3)–(6). Each model is using one proxy of governance at one time.

TABLE 1: Variable and data sources.

Variable representation	Variable construction	Variable names	Data source	Sample period
$\ln TAXREV_t$	ln (tax revenue/ GDP)	Tax revenue as a share of GDP	[2]	1976–2019
$\ln CPI_t$	ln (CPI)	Consumer price index	[10]	1976–2019
$\ln INDVA_t$	ln (INDVA/ GDP)	Industrial value-added as share of GDP	[10]	1976–2019
$GSTAB_t$	Index of government stability	Government stability	[9]	1976–2019
LOA_t	Index of law and order	Law and order	[9]	1976–2019
$ICONF_t$	Index of internal conflict	Internal conflict	[9]	1976–2019
$ECONF_t$	Index of external conflict	External conflict	[9]	1976–2019

$$\Delta \ln TAXREV_t = a_{10} + a_{11}\ln TAXREV_{t-1} + a_{12}\ln CPI_{t-1} + a_{13}\ln INDVA_{t-1} + a_{14}GSTAB_{t-1} + b_{11}\sum_{i=1}^{p}\Delta \ln TAXREV_{t-i}$$
$$+ b_{12}\sum_{i=0}^{p}\Delta \ln CPI_{t-i} + b_{13}\sum_{i=0}^{p}\Delta \ln INDVA_{t-i} + b_{14}\sum_{i=0}^{p}\Delta GSTAB_{t-i} + \xi_1,$$

(3)

$$\Delta \ln TAXREV_t = a_{20} + a_{21}\ln TAXREV_{t-1} + a_{22}\ln CPI_{t-1} + a_{23}\ln INDVA_{t-1} + a_{24}LAO_{t-1} + b_{21}\sum_{i=1}^{p}\Delta \ln TAXREV_{t-i}$$
$$+ b_{22}\sum_{i=0}^{p}\Delta \ln CPI_{t-i} + b_{23}\sum_{i=0}^{p}\Delta \ln INDVA_{t-i} + b_{24}\sum_{i=0}^{p}\Delta LAO_{t-i} + \xi_2,$$

(4)

$$\Delta \ln TAXREV_t = a_{30} + a_{31}\ln TAXREV_{t-1} + a_{32}\ln CPI_{t-1} + a_{33}\ln INDVA_{t-1} + a_{34}ICONF_{t-1} + b_{31}\sum_{i=1}^{p}\Delta \ln TAXREV_{t-i}$$
$$+ b_{32}\sum_{i=0}^{p}\Delta \ln CPI_{t-i} + b_{33}\sum_{i=0}^{p}\Delta \ln INDVA_{t-i} + b_{34}\sum_{i=0}^{p}\Delta ICONF_{t-i} + \xi_3,$$

(5)

$$\Delta \ln TAXREV_t = a_{40} + a_{41}\ln TAXREV_{t-1} + a_{42}\ln CPI_{t-1} + a_{43}\ln INDVA_{t-1} + a_{44}ECONF_{t-1} + b_{41}\sum_{i=1}^{p}\Delta \ln TAXREV_{t-i}$$
$$+ b_{42}\sum_{i=0}^{p}\Delta \ln CPI_{t-i} + b_{43}\sum_{i=0}^{p}\Delta \ln INDVA_{t-i} + b_{44}\sum_{i=0}^{p}\Delta ECONF_{t-i} + \xi_4.$$

(6)

An error correction model would be used to calculate short-run coefficients for the selected ARDL model. The short-run results will also guide the adjustment speed to restore long-run equilibrium from any short-run disequilibrium. Equations (7)–(10) would help us to find short-run effects in the following way:

$$\Delta \ln TAXREV_t = b_{10} + b_{11}\sum_{i=1}^{p}\Delta \ln TAXREV_{t-i} + b_{12}\sum_{i=0}^{p}\Delta \ln CPI_{t-i} + b_{13}\sum_{i=0}^{p}\Delta \ln INDVA_{t-i} + b_{14}\sum_{i=0}^{p}\Delta GSTAB_{t-i} + \lambda_{10}ECM_{t-1} + \delta_1,$$

(7)

$$\Delta \ln TAXREV_t = b_{20} + b_{21}\sum_{i=1}^{p}\Delta \ln TAXREV_{t-i} + b_{22}\sum_{i=0}^{p}\Delta \ln CPI_{t-i} + b_{23}\sum_{i=0}^{p}\Delta \ln INDVA_{t-i} + b_{24}\sum_{i=0}^{p}\Delta LAO_{t-i} + \lambda_{20}ECM_{t-1} + \delta_2,$$

(8)

$$\Delta \ln TAXREV_t = b_{30} + b_{31}\sum_{i=1}^{p}\Delta \ln TAXREV_{t-i} + b_{32}\sum_{i=0}^{p}\Delta \ln CPI_{t-i} + b_{33}\sum_{i=0}^{p}\Delta \ln INDVA_{t-i} + b_{34}\sum_{i=0}^{p}\Delta ICONF_{t-i} + \lambda_{30}ECM_{t-1} + \delta_3,$$

(9)

$$\Delta\ln\text{TAXREV}_t = b_{40} + b_{41}\sum_{i=1}^{P}\Delta\ln\text{TAXREV}_{t-i} + b_{42}\sum_{i=0}^{P}\Delta\ln\text{CPI}_{t-i} + b_{43}\sum_{i=0}^{P}\Delta\ln\text{INDVA}_{t-i} + b_{44}\sum_{i=0}^{P}\Delta\text{ECONF}_{t-i} + \lambda_{40}\text{ECM}_{t-1} + \delta_4.$$

$$(10)$$

Lastly, the stability diagnostic will be tested using a graphical representation of the cumulative sum (CUSUM) and CUSUM square (CUSUMSQ), indicating that the selected ARDL model estimates are stable during the period taken in this study or not. If the estimated values are found within the critical bounds, then the estimates' stability may be ensured.

4. Estimated Results and Discussions

In this part, results and their discussions are presented. At first, we estimate descriptive statistics. Table 2 sheds light upon the descriptive statistics. From the Jarque–Bera test, we may conclude that all the variables have normal distribution except internal conflict.

Afterward, the estimates related to the matrix of variance inflation factor are presented in Table 3. The results confirm the absence of multicollinearity between pairwise explanatory variables as the value of the variance inflation factor is below 10 for all the pairwise explanatory variables.

Table 4 shows the results of MZ_a, MZ_t, MSB, and MPT statistics. These results provide evidence of stationarity or nonstationarity in the selected variables. The results show that government stability, internal conflict, and external conflict are stationary at their level as the Ng–Perron test values are less than its critical value. The rest of the variables are nonstationary at their level because the Ng–Perron test values are larger than their corresponding critical values. At first difference, all the variables are stationary as the calculated statistics in the Ng–Perron unit root test are less than the critical value. Therefore, based on the results reported in Table 4, it is concluded that there is evidence of a mixed order of integration.

In the presence of a unit root problem, estimated results using the ordinary least square method turn to be spurious. Therefore, it is better to apply the cointegration approach as an alternate method to obtain efficient results. Table 5 shows the long-run cointegrating relationships between tax revenue and governance indicators in the presence of control variables because the estimated F-value exceeds critical value at a 5% level of significance in all four models. The diagnostic tests confirm that serial correlation, model misspecification, nonnormality of the error term, and heteroscedasticity problems are absent in the estimated models. Thus, our results are robust.

The error term's mean and variance are witnessed to be stable in all the four models as estimated values are within CUSUM and CUSUMSQ graphs' critical values in Figure 2. Hence, the estimated coefficients for tax revenue functions are stable during the estimated period.

In Table 6, we report long-run coefficients. The short-run coefficients and stability tests are reported in Table 7. In the long run, government stability has a positive effect on tax revenue. The result is quite intuitive and reinforces the conventional wisdom that good governance through government stability can increase the tax collection in Pakistan. Government stability ensures legislative strength, which may protect the people's political, economic, and social rights. On the other hand, government stability gives a signal about the continuity of government policies. It brings confidence to the economic agents, leading to increase economic activities and enhance revenue collection. Further, the law and order variable has a positive and statistically significant effect on tax collection. Law and order represent the authenticity and independence of the legal system and its compliance. In the presence of law and order, economic agents feel accountable for their responsibility as a taxpayer, and law and order boost the economic activities and business confidence. Hence, improving the law and order situation can improve the business environment and tax revenue collection. Conversely, a low level of law and order situation may harm the business confidence. It may be responsible for lower tax collection as Pakistan has been under precarious law and order situation.

The internal and external conflicts have a positive and statistically significant impact on tax revenue. The increasing internal conflict index refers to low internal conflict in terms of civil war, terrorism, political violence, and civil disorder. Therefore, it ensures internal stability and may give a push to economic activities. Hence, it enables the government to collect more tax revenue. Moreover, we find a positive coefficient of external conflict. The increase in the external conflict index reflects a reduction in the risk of wars, cross-border threats, and external pressures. It allows any government to focus solely on its economic policies, increasing economic activities, and tax revenues. Our results corroborate that reducing internal and external conflicts would raise the tax revenue in Pakistan by supporting economic activities in the country. In comparing the coefficients, it can be realized that the magnitude of external conflict is the largest compared to other governance indicators in the long-run results. It realizes a fact of political tension between neighboring countries India and Pakistan. Hence, increasing political tension has the greatest effect on the tax revenue collection in Pakistan. On the other hand, reducing political tension and improving the external conflict index would have a pleasant effect on the tax revenue collection in Pakistan. To sum up, the findings suggest that all governance indicators would play a pivotal role in raising tax collection in Pakistan. On the other hand, lousy governance would result in lower tax revenue collection.

Industrial value-added has a positive relationship with tax revenue. It corroborates that increasing industrial production would have a pleasant effect on tax collection. The increasing industrial activities signal higher-level production, income, jobs, and consumption. Hence, increasing

TABLE 2: Descriptive statistics.

	lnTAXREV$_t$	lnCPI$_t$	lnINDVA$_t$	GSTAB$_t$	LOA$_t$	ICONF$_t$	ECONF$_t$
Mean	1.6608	4.1617	30.7283	0.6354	2.7647	0.5980	0.7525
Standard deviation	0.9670	1.0528	0.9876	0.2198	0.9087	0.1690	0.1439
Skewness	−0.1607	0.1387	−0.4963	0.3787	0.0590	1.3165	0.3060
Kurtosis	1.8046	1.8848	2.3477	2.1395	2.1620	4.1046	2.1948
Jarque–Bera test	2.8093	2.4211	2.5864	2.4091	1.3130	14.9469	1.8752
Probability	0.2455	0.2980	0.2744	0.2998	0.5187	0.0006	0.3916
Sample size	44	44	44	44	44	44	44

TABLE 3: Matrix of variance inflation factor.

Variables	lnCPI$_t$	lnINDVA$_t$	GSTAB$_t$	LOA$_t$	ICONF$_t$	ECONF$_t$
lnCPI$_t$	—	—	—	—	—	—
lnINDVA$_t$	4.2466	—	—	—	—	—
GSTAB$_t$	1.0078	1.0053	—	—	—	—
LOA$_t$	4.1919	1.7448	1.0118	—	—	—
ICONF$_t$	1.0013	1.0269	1.5566	1.0094	—	—
ECONF$_t$	1.7995	1.8323	1.0170	2.1730	1.4096	—

TABLE 4: Unit root test.

Variables	At level			
	MZ$_a$	MZ$_t$	MSB	MPT
lnTAXREV$_t$	−0.4402	−0.2120	0.4815	16.8058
lnCPI$_t$	−0.2785	−0.1224	0.4395	15.5685
lnINDVA$_t$	−0.2388	−0.1951	0.8173	37.3888
GSTAB$_t$	−12.8712**	−2.4710	0.1920	2.1564
LOA$_t$	−2.4451	−0.7776	0.3180	8.4132
ICONF$_t$	−12.0936**	−2.4063	0.1990	2.2303
ECONF$_t$	−7.6982*	−1.9047	0.2474	3.3929
Variables	At first difference			
ΔlnTAXREV$_t$	−20.8584***	−3.2095	0.1539	1.2442
ΔlnCPI$_t$	−12.7289**	−2.5220	0.1981	1.9279
ΔlnINDVA$_t$	−19.8189***	−3.1438	0.1586	1.2509
ΔGSTAB$_t$	−38.2690***	−4.3739	0.1143	0.6415
ΔLOA$_t$	−22.8792***	−3.3792	0.1477	1.0813
ΔICONF$_t$	−31.0108***	−3.9350	0.1269	0.7984
ΔECONF$_t$	−25.6739***	−3.5826	0.1395	0.9553

Note. Symbols "*," "**," and "***" demonstrate stationarity at 10%, 5%, and 1%, respectively.

TABLE 5: ARDL bounds testing approach.

Estimated models	lnTAXREVt = f (lnCPIt, lnINDVAt, GSTABt)	lnTAXREVt = f (lnCPIt, lnINDVAt, LOAt)	lnTAXREVt = f (lnCPIt, lnINDVAt, ICONFt)	lnTAXREVt = f (lnCPIt, lnINDVAt, ECONFt)
Optimal lags	(1, 0, 2, 0)	(1, 0, 2, 0)	(1, 0, 0, 0)	(1, 0, 0, 0)
F-statistics	7.2945**	6.1987**	6.6014**	5.9456**
W-statistics	29.1779**	24.7946**	26.4055**	23.7824**
Significance level	Critical bounds for F-statistics		Critical bounds for W-statistics	
	Lower critical bound	Upper critical bound	Lower critical bound	Upper critical bound
5 per cent	3.4486	4.7653	13.7942	19.0614
10 per cent	2.8625	4.0255	11.4500	16.1019
	Diagnostic tests			
Serial correlation	0.3964 [0.529]	0.8371 [0.360]	1.7832 [0.182]	2.4380 [0.118]
Functional form	0.5551 [0.456]	1.0603 [0.303]	0.0013 [0.971]	0.7241 [0.395]
Normality	3.2374 [0.198]	0.5035 [0.777]	0.4867 [0.784]	0.5234 [0.770]
Heteroscedasticity	1.9956 [0.158]	2.6912 [0.101]	2.4543 [0.117]	2.4948 [0.114]

Note. Symbols "*" and "**" demonstrate the significance level at 10% and 5%, respectively. The values within square brackets represent probability values.

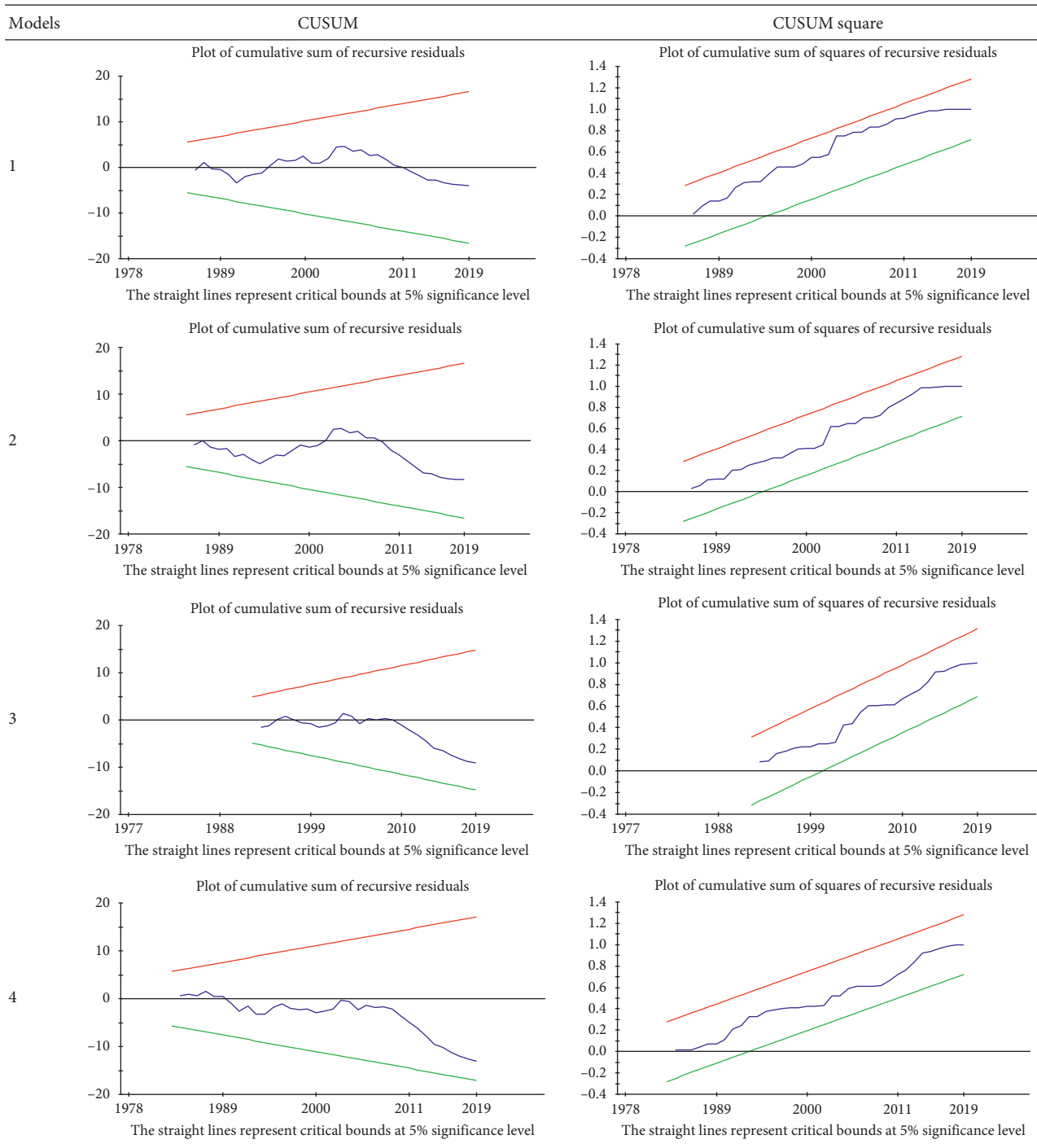| Models	CUSUM	CUSUM square

Figure 2: Stability test for the selected ARDL models.

industrial activities would raise the revenue from both direct and indirect taxes. Moreover, consumer price index (CPI) has a positive effect on tax revenue. CPI is a proxy of expansionary monetary and fiscal policies. Hence, expansionary policies would raise the level of income and would increase the tax collection in response.

In the short run, the negative coefficient of ECT_{t-1} confirms the short-run relationships in all four estimated models. CPI has a positive effect on the tax revenue. Hence,

expansionary policies in the country would have a pleasant effect on the tax revenue collection, even in the short run. The effect of industrial value-added is also found positive in two out of four estimated models. So, increasing industrial activities would also improve the tax collection in the short run. Moreover, the positive coefficients of the four components of governance, i.e., government stability, law and order, internal conflict, and external conflict, reveal that improved governance would contribute positively to the tax

TABLE 6: Long-run coefficients for the selected ARDL model.

Dependent variable: $\ln TAXREV_t$				
Variable	Coefficients	Coefficients	Coefficients	Coefficients
$\ln CPI_t$	0.7078 [0.000]	0.5240 [0.000]	0.7579 [0.000]	0.6711 [0.000]
$\ln INDVA_t$	0.2071 [0.000]	0.3028 [0.000]	0.1556 [0.000]	0.1588 [0.008]
$GSTAB_t$	0.2124 [0.000]	—	—	—
LOA_t	—	0.1028 [0.011]	—	—
$ICONF_t$	—	—	0.3458 [0.005]	—
$ECONF_t$	—	—	—	0.6481 [0.064]
Intercept	−7.7088 [0.000]	−9.9523 [0.000]	−6.3427 [0.000]	−6.2662 [0.000]

The values within square brackets represent probability values.

TABLE 7: Short-run coefficients for the selected ARDL model.

Dependent variable: $\Delta \ln TAXREV_t$				
Variable	Coefficients	Coefficients	Coefficients	Coefficients
$\Delta \ln CPI_t$	0.4321 [0.000]	0.2020 [0.003]	0.2711 [0.001]	0.1670 [0.022]
$\Delta \ln INDVA_t$	0.0098 [0.743]	0.0041 [0.897]	0.0556 [0.011]	0.0395 [0.078]
$\Delta \ln INDVA_{t-1}$	−0.0921 [0.003]	−0.0765 [0.014]	—	—
$\Delta GSTAB_t$	0.1297 [0.001]	—	—	—
ΔLOA_t	—	0.3961 [0.013]	—	—
$\Delta ICONF_t$	—	—	0.1237 [0.004]	—
$\Delta ECONF_t$	—	—	—	0.1614 [0.008]
ECM_{t-1}	−0.6105 [0.000]	−0.3854 [0.000]	−0.3577 [0.000]	−0.2490 [0.009]
Diagnostics				
R^2	0.5588	0.5016	0.3862	0.3685
Adjusted R^2	0.4832	0.4162	0.3216	0.3002
F-statistics	8.8663 [0.000]	7.0458 [0.000]	5.9781 [0.001]	5.39701 [0.002]
Akaike information criterion	86.6056	84.0462	81.9843	79.0734
Schwarz Bayesian criterion	73.5283	70.9643	72.5813	69.7292
DW-statistic	2.1539	2.2505	2.3606	2.4402

The values within square brackets represent probability values.

revenue collection in the short run. In comparing short-run coefficients of governance, the law and order index has the greatest effect on tax revenue. Hence, improving law and order conditions in the country would have a greater immediate effect on the tax revenue collection than other governance indicators.

5. Conclusions and Recommendations

This study has analyzed the effect of governance on tax revenue in Pakistan. The study uses government stability, law and order, internal conflict, and external conflict as proxies of governance. We use industrial value-added and inflation as control variables and data from 1976 to 2019. Estimates are based on the ARDL cointegration technique. The paper contributes to Pakistan's fiscal literature using different proxies of governance as explanatory variables to compare the performance of different governance indicators in tax revenue collection. The long- and short-run coefficients show that all governance indicators have positive and statistically significant effects on tax revenue collection. Thus, the study has reinforced conventional wisdom using scientific methods and corroborated that improving governance by raising accountability, transparency, and legitimacy in the political and

economic process would improve business activities and tax collection. Government stability has a positive effect on the tax revenue. Hence, government stability in terms of unity and legislative support would increase the tax revenue collection. Law and order also show a positive effect on the tax revenue. Therefore, the legal system's strength and its compliance show a sense of responsibility among taxpayers, which may improve the tax collection. Internal conflict has a positive effect on the tax revenue. Hence, reducing the risk of terrorism, civil disorder, and civil war would improve economic activities and tax revenue collection. Moreover, the external conflict also has a positive effect on tax revenue. So, reducing the risk of cross-border conflicts, pressure, and war would improve economic activities and tax collection. After the comprehensive empirical exercise, the hypothesis of a positive relationship between governance and tax revenue is validated in the long and short run in the case of all investigated governance indicators. Hence, theoretical predictions of this relationship are found true in Pakistan's case.

In comparing governance indicators, we find that the external conflict index has a greatest long-run effect on tax revenue than other governance indicators. Hence, solving external conflicts would generate a tremendous tax revenue collection. Pakistan is sharing most of the border with India

and has political conflicts with her. Hence, resolving the external conflicts can raise the tax revenue broadly. In the short-run results, law and order carry the largest effect on the tax revenue. Hence, improving law and order conditions may help generate considerable tax revenue in the short run. Moreover, industrial value-added has a positive effect on the tax revenue. Hence, increasing industrial activities would generate tax revenue in the country. Besides, CPI shows a positive effect on the tax revenue, reflecting the pleasant effects of expansionary policies on the tax revenue. Hence, the continuation of expansionary policies could be fruitful in raising the tax revenue.

The findings suggest that governance is a significant determinant of tax collection in Pakistan. Therefore, Pakistan's government should improve governance by minimizing internal and external conflicts, improving law and order, and ensuring government stability. Remarkably, the external conflict has shown the largest effect. Therefore, Pakistan's government should find ways to improve the political relationship with India to reduce the risk of cross-border conflicts to give a big push to the country's tax revenue collection. Moreover, results also suggest that government should focus on improving the law and order conditions by improving the legislative system and its compliance on an urgent basis, which would help raise the tax revenue in the short run. Moreover, the government should focus on expanding industrial activities to raise tax revenue and should follow the expansionary policies to increase the economic activities, which may generate tax revenue in return. Finally yet importantly, the results also indirectly signify the importance of public administration as an improvement in public administration ameliorates governance quality [8].

This study focuses on a developing country Pakistan for analysis. Hence, this present study contributes empirical evidence in testing the relationship between governance and tax revenue to Pakistan's fiscal literature. However, the economic and political situation of the whole of South Asia is not very different from Pakistan. Hence, future research would explore this issue in a South Asian panel. Moreover, the scope of spatial analysis in the panel may also catch attention, which is ignored in our cases due to the focus on a single country case.

Data Availability

All data are publicly available on the sources mentioned in the data section. Data File.docx is provided as supplementary material, which contains the forms of variables utilized for estimation.

Conflicts of Interest

The authors do not have any conflicts of interest.

Supplementary Materials

Data File.docx is provided as supplementary material, which contains the forms of variables utilized for estimation. (Supplementary Materials)

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