Fiscal Decentralization and access to Social Services in Pakistan: Exploring the Role of Corruption

Yasir Karim[1], Abdul Basit Awan[2], Umme Farwa[3], Amna Khan[4]

[1] Head of Department, Department of Economics, Islamabad Model Postgraduate College of Commerce H8/4 Islamabad, Pakistan. Email: dryasirkarim777@gmail.com
[2] M.Phil. Scholar, Department of Economics, Bahauddin Zakariya University Multan, Pakistan.
  Email abdulbasit.pbc@gmail.com
[3] M.Phil. Scholar, Department of Economics, University of Agriculture Faisalabad, Pakistan.
  Email: ummefarwa509@gmail.com
[4] M.Phil. Scholar, Department of Economics, University of Lahore Sargodha campus, Pakistan.
  Email: amna75947@gmail.com

ARTICLE INFO	ABSTRACT
	The present study looks at how accessibility to water and sanitation (social services) are affected by fiscal decentralization during the years 1980–2020 by incorporating the role of corruption in Pakistan using an ARDL Bounds testing approach. Two indicators, including revenue and expenditure decentralization, are employed to precisely capture the essence of fiscal decentralization. The Corruption Perception Index is used to quantify corruption. The empirical results indicate that decentralization of revenue and expenditures has a growing impact on social service access. The study offers proof that corruption not only impairs access to social services but also lessens the benefits of fiscal decentralization on that access. To achieve the desired effects of fiscal decentralization, the policy framework needs to take particular actions, such as increasing accountability and transparency to reduce corruption and enhance the quality of institutions.

Corresponding Author's Email: dryasirkarim777@gmail.com

1.   Introduction

The provision of drinking water and sanitary facilities are two of the most essential needs of people. They are regarded as essential components of a high quality of life. In a similar vein, access to sanitary facilities and clean water affects how well people are treated in a country. In addition, the demand for an approach to pure water and sanitation has expanded due to the massive growth in the human population in developing countries (Hanim, 2018). One of the major issues Pakistan faces is the lack of access to basic services like water and sanitation. Due to this children's health and well-being are significantly impacted by inadequate sanitation facilities Even though Pakistan has made great strides in increasing sanitation, 25 million people still practice open defecation (Organization & UNICEF, 2017).

Currently, 36 percent of the population of Pakistan has access to safe drinking water while 66 percent is depending upon contaminated water (Bank, 2018). Moreover, it is estimated that around 53,000 Pakistani children under five die annually from diarrhea due to poor water and sanitation (UNDP, 2020). Due to their ineffective delivery of fundamental social services, central governments have lost people's trust over the past few decades. It is thought that fiscal decentralization could boost efficiency in the delivery of social services. It is based on the observation that local administrations, as compared to central ones, are better informed and aware of local requirements and community preferences regarding public goods. Additionally, the economic rivalry between the various levels of government encourages the effective delivery of public goods despite financial and revenue constraints (Oates, 1999, 2005). Furthermore, it is widely acknowledged that the government has a crucial role to play in implementing a resource allocation policy that prioritizes the welfare of the less fortunate while also promoting the

development of social services in Pakistan. The provision of improved and sufficient social services holds utmost importance in ensuring the overall well-being and progress of society.

Fiscal decentralization refers to the processes whereby the central government transfers authority to lower tiers of government to collect taxes, spend money, and correct resource and community need imbalances. Fiscal decentralization is the transfer of financial decision-making authority to lower tiers of government (Akai & Sakata, 2002). Many nations have started the fiscal decentralization process as a useful policy instrument to increase the accessibility of clean water and sanitation, especially in remote areas. The complexity of the political, economic, and social systems in developing countries makes it difficult for central governments to successfully address the problem of delivering social services.

During the past three decades, there has been an increase in the decentralization of public service delivery, notably in developing economies (World Bank, 2001). The necessity for fiscal decentralization was exacerbated by the unsatisfactory accountability of central governments and their antiquated system of providing public services. In addition, policymakers and implanting authorities believe that ineffective central government execution and control systems, along with inadequate knowledge of local needs, particularly in developing economies, have led to the emergence of cost-padding activities and corruption (Bardhan & Mookherjee, 1999). Nevertheless, fiscal decentralization increases the effectiveness of local public service delivery by holding local politicians and bureaucrats accountable to local taxpayers and voters (De Vries, 2000).

Decentralization is frequently accompanied by the main worry that local governments might not operate effectively due to the lack of accountability of local officials (Alfada, 2019; Arends, 2020; Fisman & Gatti, 2002; Prud'Homme, 1995). The second-generation theory of fiscal decentralization, by Qian and Weingast (1997) made a key contribution by suggesting that the self-interest of federal authorities frequently does not coincide with the demand of people of that area. This approach coincides with the reality that municipal elections are rarely competitive and that politicians focus less on enhancing the delivery of social services to their constituents after winning elections. They end up being incapable in this way. Decentralization in this case runs the risk of lowering accountability and effectiveness in the provision of social services.

Macroeconomic instability, ineffective social sector delivery, and widening regional income inequality were three concerns connected with fiscal decentralization (Prud'Homme, 1995; Rodríguez-Pose & Gill, 2005). Fiscal decentralization also carries a lesser-known danger of local corruption in addition to the problems already outlined. These effects could be the result of the predominance of "fiscal illusion," which makes it more difficult to oversee or hold a particular level of government accountable in comparison to the federal government (Kyriacou & Roca-Sagalés, 2011). The fiscal decentralization process was initiated in the 1970s in Pakistan, and the process is currently developing and getting better. The focus of this study is to check the effect of fiscal decentralization to raise the quality of services like clean water and sanitation and how corruption undermines those benefits in Pakistan when it comes to the fact of access to clean water and sanitation.

2. Literature Review

Globally extensive research has been made in the field of fiscal decentralization and its impact on access to social services [King and Ozler (1998), Faguet (2004), Foster and Rosenzweig (2001), Galasso and Ravallion (2005), Habibi et al. (2003), Alderman (2002), Eskeland and Filmer (2000), Kraay, Zoido-Lobaton, and Kaufmann (2002), Barankay and Lockwood (2007), Ahmed (2015), Bikam, Rapodile, and Chakwizira (2015), and Hanim (2018)] following studies argued that fiscal decentralization has a positive impact on public service delivery in terms of access to social services. Some others have pointed out inefficiencies in the provision of social services e.g. Prud'Homme (1995), Tanzi and Davoodi (2000), Bardhan and Mookherjee (2006), Alfada (2019), and Arends (2020). Decentralization can have positive impacts, but only if certain requirements are met, as noted by Galiani, Gertler, and Schargrodsky (2008). These include the ability to overcome knowledge gaps and heterogeneous preferences, as well as better local engagement and provider accountability. Therefore, if local populations have no say and are subject to corruption or if local governments cannot run public services efficiently, decentralization may not improve social indices and may even cause them to worsen (Bardhan & Mookherjee, 2006).

Fisman and Gatti (2002) looked into the connection between fiscal decentralization and how much rent is extracted by private parties. The findings of the cross-country investigation showed a strong adverse relationship between fiscal decentralization and corruption. According to Tanzi and Davoodi (2000), decentralization can have positive effects if budgeting, tax administration, and expenditure management systems are efficient. The institutions that give central governments the ability to shift resources to regional governments while guaranteeing resource effectiveness are deemed to be more crucial, per the study. The lack of these factors causes more corruption at the local level than at the national level.

Fiscal decentralization, the scope of social services, and the degree of effectiveness and equity in the delivery were the main areas of focus for Bardhan and Mookherjee (2006). A significant worry and barrier to the effectiveness of decentralization in enhancing access to social services is the degree of local control and corruption. The study also found a compromise between local governments' propensity to be captured by local elites as a result of decentralization and the central delivery system's allocation distortion produced by unchecked and corrupt bureaucrats.

van Dijk (2007) investigated Ghana's level of basic social services like water and sanitation as well as the impact of fiscal decentralization. The study concludes that to increase access to essential social services, decentralization reforms, and local accountability are necessary. To increase access to vital social services like water and sanitation, it is also recommended that subnational governments be given leadership, consultative, and oversight roles in the design of decentralization reforms.

Bikam et al. (2015) conducted research in South Africa to determine how the Municipal Infrastructure Grant (MIG) affected the impact of fiscal decentralization on the supply and delivery of social services such as water and sanitation. According to the findings of the study, localities that are lacking in resources have a difficult time utilizing MIG to solve water and sanitation infrastructure deficiencies. The study also found that an efficient resource allocation system can increase the ability of local governments to perform social services.

Evia Salas (2018) investigated the effect that fiscal decentralization has on essential social services such as access to clean water and sanitation facilities throughout the decade beginning in the year 2000. According to some estimates, the process of decentralization in Bolivia has not led to an increase in citizens' access to improved water and sanitation systems. According to the findings of the study, people who are not living in poverty are more likely to benefit from the prospective advantages offered by decentralization than those who are already struggling to make ends meet.

Hanim (2018) conducts an analysis of the availability of drinking water in Indonesia at various points in time by examining the disparities in accessibility to potable water that existed between areas both before and during the age of decentralization. According to the findings of the study, the era of decentralization did not result in an increase in the coverage of drinking water due to local bureaucratic inefficiencies.

According to Alfada (2019), fiscal decentralization has increased corruption in local governments, hence restricting the amount of social services that are available to Indonesian citizens. The projected results revealed that the degree of fiscal decentralization, on both the income and spending sides, is what is creating a rise in the number of corruption cases in subnational governments. This was proved by the fact that both the revenue and expenditure sides were taken into consideration. It is possible that a lack of human capital, a lack of openness and accountability, and a growing reliance on federal financing by subnational governments are all factors that contribute to the spread of corruption.

Furthermore, it is not at all certain that the benefits of fiscal decentralization are achieved. Even the most developed economies are having difficulty achieving decentralization's benefits and are actively engaged in decentralization procedures. However, insufficient local administrative and operational capabilities, budgetary restrictions, and accountability are the main causes of fiscal decentralization's inefficiency (Arends, 2020).

Even while there is enough study on fiscal decentralization and access to social services, little has been written about the effect of corruption in decentralized economies. However, only a small number of studies have examined the impact of fiscal decentralization access to social amenities, particularly water and sanitation in the case of Pakistan. The current study will add to the body of knowledge by examining the role of corruption during Pakistan's period of decentralization using fresh data and estimating fiscal decentralization through expenditure and revenue decentralization

3. Status of fiscal decentralization, Social Services, and Corruption in Pakistan

Pakistan has been striving towards fiscal decentralization since it declared independence. National Finance Commission (NFC) awards have begun the process of transferring federal funds to state and local governments. Over the past 40 years, statistics show a growth in fiscal decentralization (income and expenditure). Corruption is sadly ubiquitous in Pakistan, encompassing power, money, and political abuse (Javaid, 2010). Corruption is defined as the misuse of authority for personal gain. Corruption studies show that over the past four decades, the average corruption perception score in Pakistan has increased. Access to water and sanitation has improved over the past four decades, with fiscal decentralization. According to available historical statistics. Table 1 shows that between 2010-2019, the percentage of people who have access to clean water climbed from 21.29 to 60.63 percent, while the percentage of people who have access to clean toilets increased from 72.30 to 90.21 percent.

In this study, the level of revenue decentralization is determined by making a comparison between the revenues collected by local governments and those collected by the federal governments. In a manner analogous to this, the degree of decentralization of expenditures has been measured by calculating the ratio of the amount spent by subnational governments to the amount spent by the federal government. The perception of corruption index takes into account many forms of financial corruption that occur inside the political system. These forms of corruption include nepotism, favoritism, job reservations, and bribes. On a scale that ranges from one to six, the level of corruption can range anywhere from one (the least corrupt) to six (the most corrupt).

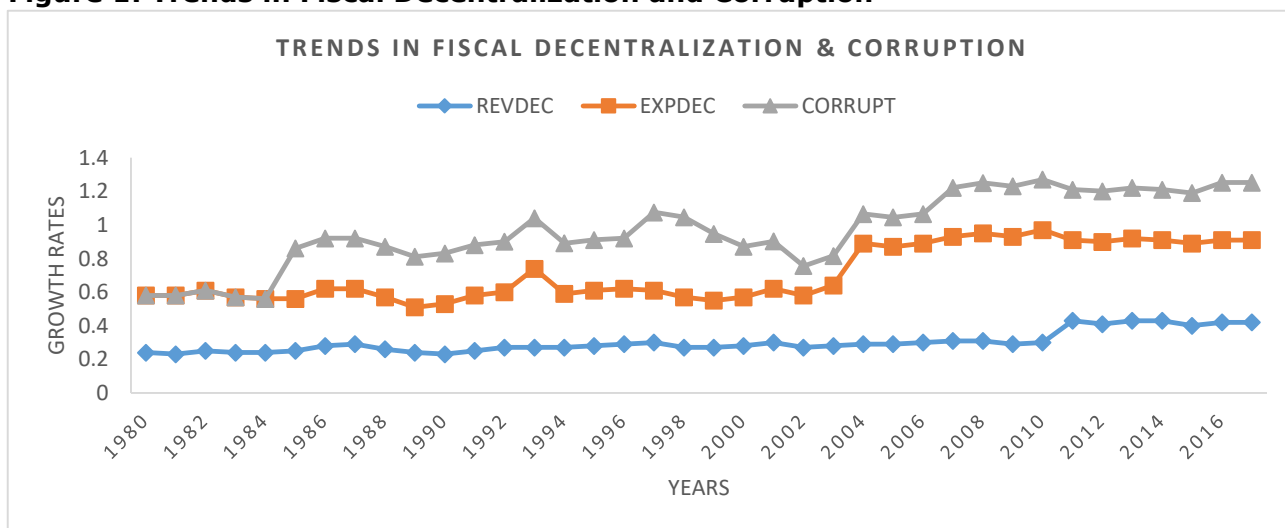**Figure 1: Trends in Fiscal Decentralization and Corruption**

Table 1: Profile of Fiscal Decentralization, Social Services, and Corruption in Pakistan

| Decades | Fiscal Decentralization | | Provision of Social Services | | Corruption (Corruption Perception Index) |
	Revenue Decentralization	Expenditure Decentralization	Water (Percentage)	Sanitation (Percentage)	
1980-89	0.25	0.33	21.29	72.30	1.50
1990-99	0.27	0.33	27.88	87.3	2.24
2000-2009	0.29	0.49	44.96	89.5	1.74
2010-2018	0.35	0.51	60.63	90.21	2.0

Source: The data has been taken from Pakistan Economic Survey [FBS (Various issues)] and estimated for the decades by the authors.

4. Sources of Data, variables, and Methodology

The specification form of the models for fiscal decentralization and the social services (access to sanitation and water) incorporation of corruption is given as:

$$SANITATION = f(EXPDEC, EXPDEC * CORPT, GSTB, GDPG, POPG, FRAID, CORPT) \qquad (1)$$
$$SANITATION = f(REVDEC, REVDEC * CORPT, GSTB, GDPG, POPG, FRAID, CORPT) \qquad (2)$$
$$WATER = f(EXPDEC, EXPDEC * CORPT, GSTB, GDPG, POPG, FRAID, CORPT) \qquad (3)$$
$$WATER = f(REVDEC, REVDEC * CORPT, GSTB, GDPG, POPG, FRAID, CORPT) \qquad (4)$$

Comprehensive and authentic research requires a transparent and reliable data set. The data from 1980 to 2020 is used to examine the influence of fiscal decentralization and corruption on the availability and provision of social services in Pakistan. The data was gathered from plenty of sources, i.e., World Development Indicators, Pakistan Statistical Year Book (PBS Various Issues), International Country Risk Guide (ICRG 2020), and Economic Survey of Pakistan (FBS Various issues). Table 2 gives a quick overview of the variables, their measurement, and data source.

Table 2: Description of Variables and Measurements

Description of variables	Measuring units	Source of data
EXPDEC: Expenditure decentralization	Decentralization of expenditures (ED) is quantified by dividing total government expenditures (PE) by total government expenditures (PE) minus defense spending (DE) and debt service (IE). The formula for EXPDEC= PE/PE+FE-(DE+IE)	Pakistan Economic Survey (FBS Various issues) (Calculations are made by the researcher)
REVDEC: Revenue decentralization	To determine the level of revenue decentralization (RD), we divide the sum of federal (FR) and provincial (PR) revenues by the sum of sub-national (SN) government revenues minus grants in aid. The formula for REVDEC= PR-grant in aid/FR+PR	Pakistan Economic Survey (FBS Various issues) (Calculation made by the researcher from the data set)
GSTB: Government stability	Government stability exhibits the government's capacity of the government to carry through the declared programs and policies as well as its propensity to remain in power. Government stability is the combination of three components (government unity, legislative strength, and popular support), each of which has the highest score of four points (representing very low danger) and the lowest score of zero points (representing very high risk)	International Country Risk Guide (ICRG 2020)
GDPG: GDP growth rate	Annual GDP growth rate	Pakistan Economic Survey (FBS Various issues)
POPG: Population growth rate	The annual percentage of population growth rate	Pakistan Economic Survey (FBS Various issues)
FRAID: Foreign aid	Annual total aid received from donor agencies and countries by Pakistan in million Dollars	Pakistan Statistical Year Book (Various issues)
CORPT: Corruption index	The index includes financial corruption within the political system like nepotism, favor for favors, job reservations, and bribes. The index ranges from 1 to 6, 1 indicates a low level of corruption while 6 indicates high levels of corruption.	International Country Risk Guide (ICRG 2020)
EXPDEC*CORPT	An interaction term of expenditure decentralization and corruption	Pakistan Economic Survey (FBS Various issues) (Calculation made by the researcher from the data set)
REVDEC*CORPT	An interaction term of revenue decentralization and corruption	Pakistan Economic Survey (FBS Various issues) (Calculation made by the researcher from the data set)
WATER: Water availability	Percentage of the population having access to clean water	World Development Indicators (World Bank 2020)
SANITATION: Sanitation facility	Percentage of the population having access to sanitation facility	World Development Indicators (World Bank 2020)

Dickey and Fuller (1981) and Phillips and Perron (1988) tests are used for testing the level of stationarity. To look into the long-term relationship (When stationarity results are mixed, such as I (0) and I (1) or even (I), Autoregressive Distributed Lag (ARDL) technique is regarded as suitable for empirical analysis. This method also solves the problem of variable endogeneity.

The Autoregressive Distributed Lag technique provides better long-term results while removing all errors. As a result, it is regarded as a suitable estimating technique for both short and long-term estimation.

5. Econometric Issues
5.1. Correlation
The correlation matrixes are expressed in Table 3. The analysis has found a positive correlation among most of the variables. However, the variables like Corruption, foreign aid, and Population growth are negatively related to Water and Sanitation, while all other variables are positively related to Water and Sanitation.

Table 3: Correlation Matrix

	Water	Sanitation	Revdec	Expdec	Corpt	Gstb	Fraid	Gdpg	Popg
Water	1								
Sanitation	0.7724	1							
Revdec	0.5311	0.8270	1						
Expdec	0.5705	0.7423	O.4477	1					
Corpt	-0.1614	-0.0714	0.0767	-0.2561	1				
Gstb	0.1987	0.1674	0.0144	-0.0523	0.0926	1			
Fraid	-0.5627	-0.6647	0.5695	0.4452	0.1761	-0.1365	1		
Gdpg	0.3762	0.3048	-0.2743	-0.0354	-0.2822	-0.0567	-0.3243	1	
Popg	-0.6282	-0.6289	-0.6785	-0.6449	-0.0239	-0.3217	-0.5815	0.3903	1

Table 4 displays the outcomes of the stationarity tests. Both LSANITATION and GDPG have been demonstrated to be integrated of order I (0). Both the Augmented Dickey-Fuller test and the Phillips-Perron test statistics indicate that the remaining variables are integrated at I(1).

Table 4: Unit Root Analysis

Variables	ADF Test			Phillips−Perron test		
	level Intercept	1st difference Intercept	Conclusion	Level Intercept	1st difference Intercept	Conclusion
LSANITATION	-4.4078 0.0024	-	I(0)	-3.9125 0.0051	-3.9021 0.0051	I(0)
LWATER	-	-2.9858 0.0564	I(1)	-	-0.3071 0.0457	I(1)
EXPDEC	−	−7.08184 0.00000	I(1)	−	−7.24291 0.0000	I(1)
REVDEC	−	-6.72654 0.00000	I(1)	−	−6.74459 0.0000	I(1)
GSTBL	−	−5.16748 0.0002	I(1)	−	−5.16910 0.0002	I(1)
CORPT	−	-5.1568 0.0004	I(1)	−	-5.1015 0.0005	I(1)
GDPG	-4.3765 0.0022	−	I(0)		-13.1959 0.0000	I(0)
POPG	−	-3.7225 -0.0117	I(1)	−	-3.6187 0.0105	I(1)
REVDEC*CORPT	−	-7.7654 0.0000	I(1)	−	-7.7765 0.0000	I(1)
EXPDEC*CORPT	−	-5.1406 0.0004	I(1)	−	-6.8441 0.0000	I(1)
FRAID	-	-6.9844 0.0000	I(1)	-	-7.3620 0.0000	I(1)

5.2. Bound Test
The Bound Test is used to determine the long-run relationship. The F-statistic values for the WATER and SANITATION models are 4.326 and 5.718, respectively. At 1%, both are statistically significant. Critical values for the upper boundaries are 3.154 and 4.582. As a result, the F-statistic values for both models (water and sanitation) are more than the upper bound critical values, indicating that co-integration in the models exists.

5.3. Results of ARDL Estimation
Tables 5 and 6 demonstrate the ARDL results for long and shortrun for expenditure decentralization, respectively.

Table 5: Long run Results with Expenditure Decentralization

Variables	Water Coefficient	Prob	Sanitation Coefficient	Prob
EXPDEC	0.121284	0.0061	0.033344	0.0107
EXPDEC*CORPT	-0.026069	0.8648	-0.014221	0.0107
GSTB	0.010472	0.0000	0.000645	0.0199
GDPG	0.009023	0.0174	-0.006400	0.1175
POPG	-0.099159	0.0346	0.000363	0.0084
CORPT	-0.022312	0.0610	-0.000058	0.0016
FRAID	-0.000007	0.0550	-0.000002	0.5564
C	0.928965	0.0000	1.936154	0.00001

Table 6: Short-run Results of Expenditure Decentralization

Variables	Water Coefficient	Prob	Sanitation Coefficient	Prob
D(EXPDEC)	-0.016814	0.2458	0.005001	0.2312
D(EXPDEC*CORPT)	-0.006402	0.8495	-0.022625	0.0384
D(GSTBL)	0.000652	0.4589	0.000684	0.0095
D(GDPG)	0.000499	0.3352	0.000166	0.4752
D(POPG)	-0.025779	0.0503	-0.000023	0.9814
D(CORPT)	-0.006257	0.1123	0.002760	0.0648
D(FRAID)	-0.000003	0.1545	-0.000002	0.0625
ECM(−1)	-0.261279	0.0002	-0.406034	0.00001

Tables 5 and 6 provide the long-run and short-run estimates of chosen variables for the effects of expenditure decentralization on water and sanitation, respectively. The findings demonstrate that decentralization of spending raises the standard of social services (including water and sanitation). The findings suggest that more money might be set aside for social services in Pakistan if provinces are given more discretion over their expenditures. In the literature (Ahmed, 2015; Bikam et al., 2015; Hanim, 2018), expenditure decentralization (also known as fiscal decentralization) has been shown to have favorable effects.

Corruption is another crucial factor in the analysis. Coefficients of corruption show that when corruption increases, access to social services decreases (by 0.02 percentage points for water and 0.0005 percentage points for sanitation),. Numerous research (Arends, 2020; Bardhan & Mookherjee, 2006; Tanzi, 1995; van Dijk, 2007) have found results that are consistent with these findings. The stability of the government is another key factor, and improvements in it should speed up the implementation of government programs and policies. According to the government stability coefficient, access to social services increases by 0.01 and 0.02 percentage points for water and sanitation, respectively, for every unit rise in government stability.

The relationship between expenditure decentralization and corruption shows how decentralization of expenditure in the presence of corruption affects access to social services. It implies that a rise in corruption reduces the benefits of expenditure decentralization on social service access. According to the estimates, the impact of expenditure decentralization for access to water and sanitation has decreased by 0.02 and 0.01 percentage points, respectively, in the presence of corruption. Prud'Homme (1995), Bardhan and Mookherjee (2006), Fisman and Gatti (2002), and Arends (2020) all concur with the findings.

The gross domestic product (GDP) growth rate was used as a control variable in the study. The findings, which are backed conceptually and empirically, show that raising a nation's GDP enhances access to social services. The fact that population growth outpaces resource growth, lowering per capita resource availability and making it more challenging for governments to meet society's social service needs, is explained by the fact that the population growth coefficient has a negative influence on access to both social services.

Foreign aid is also a control variable in the estimation and the analysis has shown negative but insignificant results on both access to water and sanitation, theoretically, the results are strange but explained because misuse of foreign aid and the element of corruption can be the reason for such results in case of Pakistan. Short-run results given in Table 6 show that ECM_{t-1} - 0.25 and -0.39 confirms the convergences towards long-run equilibrium.

5.4. Bound Test

The F-statistic values for the WATER and SANITATION models are 5.213 and 6.345, respectively. At 1%, both are statistically significant. Critical values for the upper boundaries are 4.384 and 3.602. As a result, the F-statistic values for both models (for revenue decentralization and social services i.e. water and sanitation) are more than the upper bound critical values, indicating that co-integration in the models exists.

5.5. Results of ARDL Estimation

Tables 5 and 6 demonstrate the ARDL outcomes for the long and short run for revenue decentralization, respectively.

Table 7: Long run Results Revenue Decentralization

Variables	Water Coefficient	Prob	Sanitation Coefficient	Prob
REVDEC	0.2811054	0.0804	0.005544	0.0515
REVDEC*CORPT	-0.032065	0.0050	-0.280405	0.2154
GSTBL	0.015123	0.0003	0.001236	0.0562
CORPT	-0.002531	0.0980	-0.0018725	0.7014
GDPG	0.007725	0.0845	0.000349	0.0814
POPG	-0.225859	0.0040	-0.009083	0.1515
FRAID	-0.000013	0.0350	-0.000004	0.0899
C	0.570102	0.0142	1.956354	0.0001

Table 8: Short run Results Revenue Decentralization

Variables	Water Coefficient	Prob	Sanitation Coefficient	Prob
D(REVDEC)	0.062686	0.06830	0.001765	0.7945
D(REVDEC*CORPT)	0.007133	0.9822	-0.097456	0.2977
D(GSTBL)	0.001668	0.0721	-0.000053	0.8630
D(CORPT)	-0.000560	0.0200	0.003430	0.1039
D(GDPG)	0.000415	0.6428	-0.000091	0.5800
D(POPG)	0.050315	0.0041	-0.002978	0.2767
D(FRAID)	-0.000004	0.0515	0.00002	0.0500
ECM(-1)	-0.232154	0.0003	-0.368514	0.0001

The effect that decentralization of revenue has on access to water and sanitation is illustrated in tables 7 and 8. In the case of Pakistan, data over a longer period of time reveal that revenue decentralization leads to an increase in access to water and sanitation. According to the coefficients of revenue decentralization that are presented in Table 7, an increase of one unit in revenue decentralization results in an increase of 0.27 and 0.004 percentage points, respectively, in access to water and sanitation. It shows that transferring funds from the federal government to the provinces strengthens their financial standing and allows them to fund social service providing programs. The findings are consistent with the studies (Ahmed, 2015; Bikam et al., 2015; Hanim, 2018).

Both social services, such as water and sanitation, have been negatively impacted by the coefficient of corruption. The findings are similar to those of models with expenditure decentralization (Alfada, 2019; Arends, 2020). Similar to the findings that were reported in the instance of expenditure decentralization models (Alfada, 2019; Arends, 2020), the coefficient of corruption has been proven to have a detrimental influence on social services as well as water and sanitation systems. As a consequence, the interaction term (revenue decentralization and corruption) indicates the effect of revenue decentralization through corruption on access to social services. Additionally, it implies that in the presence of corruption, an increase in revenue decentralization will lead to a reduction in the positive impact that fiscal decentralization has on access to social services.

Theoretically and empirically, other control factors like GDP growth, population growth, and foreign aid have similar effects to those of expenditure decentralization models for social service access. Table 9 displays the short-run results, and the ECMt-1 values of -0.22 and -0.35 support the convergence toward long-run equilibrium.

6. Conclusion and Policy Implications

The ARDL method was used to estimate the results of the study, which attempted to estimate the impact of fiscal decentralization (through revenue and expenditure decentralization) and corruption on access to social services (Access to water and sanitation specifically) in the case of Pakistan from 1980 to 2020. According to the findings, decentralizing revenue and expenditures has a positive impact on the population of Pakistan's access to social services, which is a positive development that should be encouraged.

The findings showed that corruption not only adversely affects the availability of clean water and sanitation but also diminished the beneficial effects of fiscal decentralization on access to social services in Pakistan. Moreover, stable political conditions will also improve access to social services.

There are some suggestions for new policies that could be implemented to enhance the decentralized fiscal mechanism that governs access to social services. According to the findings of the study, both revenue and spending decentralization can have a favorable effect on the delivery of social services, hence it is important to promote them both. However concerning the role of corruption and its interaction with fiscal decentralization, By raising the standard of institutions, corruption can be decreased at the provincial and federal levels with a great deal of accountability and openness.

Furthermore, accountability in the use of foreign aid is needed to achieve the desired outcomes along with control of the population. Policies for sustainable economic growth are necessary for improving the level of income of the country and all this will improve the financial position of the central and provincial governments which will then be able to spend more on the availability of social services in Pakistan.

References

Ahmed, M. (2015). The political economy of decentralisation and access to pro-poor social services delivery in Pakistan. *The Pakistan Development Review*, 471-484.

Akai, N., & Sakata, M. (2002). Fiscal decentralization contributes to economic growth: evidence from state-level cross-section data for the United States. *Journal of urban economics, 52*(1), 93-108. doi:https://doi.org/10.1016/S0094-1190(02)00018-9

Alderman, H. (2002). Do local officials know something we don't? Decentralization of targeted transfers in Albania. *Journal of public economics, 83*(3), 375-404. doi:https://doi.org/10.1016/S0047-2727(00)00145-6

Alfada, A. (2019). Does fiscal decentralization encourage corruption in local governments? Evidence from Indonesia. *Journal of Risk and Financial Management, 12*(3), 118. doi:https://doi.org/10.3390/jrfm12030118

Arends, H. (2020). The Dangers of Fiscal Decentralization and Public Service Delivery: a Review of Arguments. *Politische Vierteljahresschrift, 61*(3).

Bank, W. (2018). *World development report 2019: The changing nature of work*: The World Bank.

Barankay, I., & Lockwood, B. (2007). Decentralization and the productive efficiency of government: Evidence from Swiss cantons. *Journal of public economics, 91*(5-6), 1197-1218. doi:https://doi.org/10.1016/j.jpubeco.2006.11.006

Bardhan, P., & Mookherjee, D. (1999). Relative capture of local and central governments: An essay in the political economy of decentralization.

Bardhan, P., & Mookherjee, D. (2006). Decentralisation and accountability in infrastructure delivery in developing countries. *The Economic Journal, 116*(508), 101-127. doi:https://doi.org/10.1111/j.1468-0297.2006.01049.x

Bikam, P., Rapodile, D., & Chakwizira, J. (2015). Can fiscal decentralization address water and sanitation infrastructure backlogs in South Africa: the case study of municipal infrastructure grant in Mahikeng and Thulamela local municipalities. *International Journal, 10*.

De Vries, M. S. (2000). The rise and fall of decentralization: A comparative analysis of arguments and practices in European countries. *European journal of political research, 38*(2), 193-224. doi:https://doi.org/10.1111/1475-6765.00532

Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: journal of the Econometric Society*, 1057-1072. doi:https://doi.org/10.2307/1912517

Eskeland, G., & Filmer, D. (2000). Does decentralization improve learning? Autonomy and parental participation in Argentine schools. *Washington, DC, United States: World Bank. Mimeographed document*.

Evia Salas, P. E. (2018). *The Effect of Government Transfers on Poverty and Inequality.* Universitäts-und Landesbibliothek Bonn,

Faguet, J.-P. (2004). Does decentralization increase government responsiveness to local needs?: Evidence from Bolivia. *Journal of public economics, 88*(3-4), 867-893. doi:https://doi.org/10.1016/S0047-2727(02)00185-8

Fisman, R., & Gatti, R. (2002). Decentralization and corruption: evidence across countries. *Journal of public economics, 83*(3), 325-345. doi:https://doi.org/10.1016/S0047-2727(00)00158-4

Foster, A. D., & Rosenzweig, M. R. (2001). Democratization, decentralization and the distribution of local public goods in a poor rural economy.

Galasso, E., & Ravallion, M. (2005). Decentralized targeting of an antipoverty program. *Journal of public economics, 89*(4), 705-727. doi:https://doi.org/10.1016/j.jpubeco.2003.01.002

Galiani, S., Gertler, P., & Schargrodsky, E. (2008). School decentralization: Helping the good get better, but leaving the poor behind. *Journal of public economics, 92*(10-11), 2106-2120. doi:https://doi.org/10.1016/j.jpubeco.2008.05.004

Habibi, N., Huang, C., Miranda, D., Murillo, V., Ranis, G., Sarkar, M., & Stewart, F. (2003). Decentralization and human development in Argentina. *Journal of Human Development, 4*(1), 73-101. doi:https://doi.org/10.1080/1464988032000051496

Hanim, W. (2018). the Implementation of Drinking Water Supply System in Decentralization Era. *Trikonomika, 17*(2), 59-64. doi:https://doi.org/10.23969/trikonomika.v17i2.1434

Javaid, U. (2010). Corruption and its deep impact on good governance in Pakistan. *Pakistan Economic and Social Review*, 123-134.

King, E., & Ozler, B. (1998). What's decentralization got to do with learning? The case of Nicaragua's school autonomy reform. *Development Economics Research Group, Working Paper Series on Impact Evaluation of Education Reforms, 9*, 278200-1099079877269.

Kraay, A., Zoido-Lobaton, P., & Kaufmann, D. (2002). *Governance matters II: Updated indicators for 2000–01*: The World Bank.

Kyriacou, A. P., & Roca-Sagalés, O. (2011). Fiscal and political decentralization and government quality. *Environment and Planning C: Government and Policy, 29*(2), 204-223. doi:https://doi.org/10.1068/c1016r

Oates, W. E. (1999). An essay on fiscal federalism. *Journal of economic literature, 37*(3), 1120-1149. doi:https://doi.org/10.1257/jel.37.3.1120

Oates, W. E. (2005). Toward a second-generation theory of fiscal federalism. *International tax and public finance, 12*, 349-373.

Organization, W. H., & UNICEF. (2017). *Annual report 2016: intervention and implementation research*. Retrieved from

Phillips, P. C., & Perron, P. (1988). Testing for a unit root in time series regression. *biometrika, 75*(2), 335-346. doi:https://doi.org/10.1093/biomet/75.2.335

Prud'Homme, R. (1995). The dangers of decentralization. *The world bank research observer, 10*(2), 201-220. doi:https://doi.org/10.1093/wbro/10.2.201

Qian, Y., & Weingast, B. R. (1997). Federalism as a commitment to preserving market incentives. *Journal of Economic perspectives, 11*(4), 83-92.

Rodríguez-Pose, A., & Gill, N. (2005). On the 'economic dividend'of devolution. *Regional studies, 39*(4), 405-420. doi:https://doi.org/10.1080/00343400500128390

Tanzi, V. (1995). *Fiscal federalism and decentralization: A review of some efficiency and macroeconomic aspects*: World Bank Washington^ eD. CDC.

Tanzi, V., & Davoodi, H. R. (2000). Corruption, growth, and public finances.

van Dijk, M. P. (2007). Decentralization and basic services provision: water and sanitation in Ghana. *Journal of International Development*, 1-24.