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Investigating the Nexus between Fiscal Decentralization, Social Development and Economic Growth in Pakistan

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January 2020

School of Social Sciences and Humanities (S³H)
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Sector H-12, Islamabad, Pakistan

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Abstract

Fiscal decentralization involves the devolution of responsibilities from the central government to provincial governments that can improve the supply of public goods and services. Decentralization comprises of expenditure assignments and revenue generation. This study examines the fiscal decentralization, social development and economic growth nexus in Pakistan by employing annual data for the period 1980 to 2018. The analysis is twofold. In the first part, causal relationship between the above-mentioned variables is examined and the results show that fiscal decentralization Granger causes social development and economic growth in the long run. Later, we find the impact of fiscal decentralization on the social development and economic growth by employing Johansen Cointegration and Error Correction Model. The results show that expenditure decentralization negatively affects economic growth while revenue decentralization has a positive impact. However, social development is positively affected by both components of decentralization. The Error Correction Model indicates that private investment negatively affects economic growth and positively affect social development. The results show a positive and significant role of social indicators like education, health and law and order on economic growth. The negative impact of expenditure decentralization highlights the administrative incapacity of provincial governments in designing optimal policies and development planning in the country.

Keywords: Fiscal Decentralization, Economic Growth, Social Development.

JEL Classification: H70. H77. O47

1. Introduction

There is a drive towards policy reform in many developed and developing countries to enhance the efficiency of the public sector. As the economy grows, people demand improved quality of public goods and services. The policy for public service delivery has evolved over the years that shifted from fiscal centralization to fiscal decentralization. Decentralization can be defined as a way of the distribution of powers from national to subnational levels of government where they independently operate and coordinate. Dyck (1996) viewed decentralization as the distribution of power to different levels of government with complete independence and no subordination. Fiscal decentralization involves the devolution of tax and nontax revenue generation responsibilities, public expenditures assignment and administrative responsibilities to lower levels of governments. Decentralization help getting the preferences of local communities and their participation in devising strategies for the provision of goods effectively (Oates, 1999). The economic theory of expenditure assignment illustrates that the public services, institutions and the infrastructure required for its provision were best suited to decentralized governments as compared to centralized governments (Bird and Bahl, 2013). Fiscal decentralization was adopted as a policy reform to ameliorate the competence of the public sector by creating competition among subnational governments resulting in accountability and efficient provision of services, thereby stimulating economic growth (Bahl and Linn, 1992; Bardhan and Mookherjee, 1998; Rodriguez and Ezcurra, 2010).

The main features of fiscal decentralization were to enhance the allocative efficiency and productive efficiency for the efficient allocation of goods and services (Musgrave, 1959; Martinez and McNab, 2003). The allocative efficiency of public goods and services through fiscal decentralization was greater than the centralization because the subnational governments can be successful in improving the living standards of local communities by the satisfaction of individual preferences. The productive efficiency was also greater through decentralization because the subnational governments were aware of local needs, were experienced and were successful in the public provision at a cheaper cost. The decentralized provision of public goods and services are better than centralized provision because one shoe does not fit all, implying that centralized provision is efficient for those services whose benefit does not extends to all and have economies of scale such as defense, foreign affairs, national infrastructure and monetary policy tools, whereas services for local citizens should be provided by local governments because they can maintain quality and quantity according to the preferences of community efficiently (Tiebout, 1956; Panizza, 1999; Kalirajan and Otsuka, 2012).

Another favorable outcome of decentralization was the vertical and horizontal fiscal competition that can limit the predatory incentives (Buchanan *et al.*, 1980). Bird and Smart (2002) stated that to provide services effectively, the competent authorities require clear directives, ample resources and the power to take decisions. Therefore, by decentralization, the central government empowers the subnational governments to allocate resources efficiently, improve the living standards of people and distribute the workload (Gordin, 2004). On the other hand, there were some reservations about the outcome of this policy from financial point of view that if decentralization is carried out poorly and implemented without a clear mandate then can be harmful for the economy (Rodden *et al.*, 2003; Von Hagen *et al.*, 2000; Prud'Homme 1995; Tanzi 1995).

To analyze the debate that whether the efficiency of sub-national government or centralized government in the provision of public goods is better, an empirical analysis is performed to examine the relationship between Human development and fiscal decentralization. The time series analysis using Johansen co-integration and Vector Error Correction Model (VECM) revealed that fiscal decentralization has a positive relation with human development, indicating that the decentralized provision is better, and decentralization is promoting human capital development (Rashid, 2012; Mehmood *et al.*, 2010).

The relationship between fiscal decentralization and economic growth for developing economies, developed economies, the world and the United States of America was analyzed by using Barro's endogenous growth model. The empirical analysis revealed that there is a negative relationship for developing economies but insignificant for developed and world. The results also indicated that there is a positive relationship for the United States of America (Davoodi and Zou, 1998; Xie *et al.*, 1999).

The relationship between fiscal decentralization and economic growth was analyzed empirically for Pakistan by following the endogenous growth model (Iqbal *et al.*, 2012; Shahid and Ali, 2015) and the neoclassical growth model (Faridi, 2011). The empirical analysis showed that there is a negative relationship between expenditure decentralization and economic growth whereas there is a positive association between revenue decentralization and economic growth.

Social indicators are the numerical values that represent the well-being and welfare of individuals in a society. Social indicators are used to analyze the progress of a country in terms of social and economic development. The social indicators include education, health, income equality, lower corruption, lower crime and environment that are considered instrumental in economic growth and development. The Millennium Development Goals (MDG) and Sustainable Development Goals

(SDG) highlight the importance of health and education in development and asserts that they play an important role in improving the quality of life. Health and education guarantee better economic prospects for individuals that benefit the state through increased human capital. The existence of imperfections and resulting externalities associated with public expenditures make it necessary to implement fiscal policies for better allocation of public resources and better provision of public services. Higher expenditure on these sectors is not enough to remedy the shortcomings, rather goals and targets need to be set along with effective policy reforms. The substandard outcomes emerging because of poor management of public spending are common in developing economies (McNicoll, 2003).

Fiscal decentralization was considered instrumental in promoting the welfare and standard of living of poor and an analysis was performed to view the outcome of this policy in India. The results from the fixed-effect model implied that fiscal decentralization has a positive effect on the standard of living of people in all states. The impact of decentralization on social variables like health and education was also positive but varied from state to state. The overall impact of decentralization on economic growth was positive (Kiran, 2005).

It is evident from the analysis of literature that this policy reform has been helpful for growth in many developed economies and this study intends to find the causal relationship between fiscal decentralization, social indicators and economic growth in Pakistan. This study also intends to find the impact of fiscal decentralization on economic development and economic growth in Pakistan. To carry out the analysis, education, health, law and order and social development indexes comprising of various indicators are constructed. The analysis is carried out in two parts, firstly; the causal relationship between fiscal decentralization, social development, and economic growth is studied and secondly; growth and development model are developed employing fiscal decentralization and other relevant variables. The results imply that fiscal decentralization is causing social development and economic growth in the long run. Also, fiscal decentralization has a positive and significant impact on economic development, whereas there is a positive impact of revenue decentralization on economic growth and a negative impact of expenditure decentralization on economic growth.

The rest of the paper is arranged as follows. Section 2 gives an overview of Pakistan's economy. Section 3 comprises a theoretical framework and section 4 explains the model and variables. Section 5 discusses the methodology and results and section 6 concludes the results.

2. An Overview of Pakistan's Economy

The necessity for decentralization was realized because of discrepancies in the revenue generation ability and expenditure requirements among federal and provincial governments. Therefore, intergovernmental transfers play an important role in decentralization. It was observed that the expenditure requirements of provinces were way more than the revenue generation capacity. The revenue generation capacity of the federal government is much greater than the provincial governments. The greater revenue generation capacity of the federal government results from the economies of scale. The federal government possesses experience and competency in collecting revenues that make them more efficient and less costly. To overcome the financial mismatch between revenues and expenditures, receipts from the federal government i.e. intergovernmental transfers were carried out.

Table 1. Average Federal and Provincial Fiscal Operations in Pakistan (Rs. Billions)

Year	Federal Revenue	Federal Expenditure	Provincial Revenue	Provincial Expenditures
1980-1989	80.52470	69.18060	14.69180	36.72910
1990-1999	304.0416	283.1373	30.51350	136.9972
2000-2009	944.6442	811.2176	129.9056	420.4868
2010-2018	2732.869	2376.608	222.9113	1429.918

Source: Economic Survey of Pakistan.

It is evident from Table 1 that there is a substantial increase in the expenditure decentralization, but very low revenue decentralization as major revenue collection assignment remained under federal authority. Jaffery and Sadaqat (2006) elaborated the resource distribution mechanism in two stages. In the first phase, National Finance Commission (NFC) give award after the consensus on distribution mechanism between the central and provincial governments. In the second phase, Provincial Finance Commission (PFC) assigns funds to respective local governments. The resources are distributed through vertical transfers and horizontal transfers. In vertical resource distribution resources are transferred from central government to divisible pool. Whereas in horizontal resource distribution, resources are transferred from divisible pool to provinces under the selected criteria, which in most of the earlier awards has been the population of the respective province.

a. Post-1973 Decentralization

In 1973, new constitution of Pakistan was implemented, and the central government needed to constitute National Finance Commission (NFC) every five years. The commission was assigned the

task to examine the distribution criteria and to make the distribution process smooth and acceptable. The first NFC award was given in 1974 and in this award, the resource pool comprised of export duty on cotton, income tax, and sales tax. The resource distribution between center and provinces was 20 percent and 80 percent. Population was the sole criterion for horizontal distribution. The resource share of Punjab was 60.24 percent, the share of Sindh was 22.50 percent, the share of Khyber Pakhtun Khwa (KPK) province was 13.39 percent and Balochistan's share was 3.86 percent.

The second NFC award was constituted in 1979 and the resource distribution criteria remained the same i.e. 20 percent for the center and 80 percent for provinces. The population remained the resource distribution criteria between the provinces. After the population census of 1981, the distribution of shares was changed because of changes in population. As a result, the share of Punjab became 57.97 percent, Sindh 23.34 percent, Balochistan 5.30 percent and KPK 13.39. In 1985 the third NFC could not achieve consensus in the resource distribution criteria and failed to recommend any solution, resulting in the failure of third NFC award.

The fourth NFC award was given in 1990. This award holds importance as it was a success after a period of 11 years. Under this award, more duties and taxes were included in the divisible pool. The resource sharing criteria between central and provincial government remained 20 percent and 80 percent. The population remained the criterion for resource distribution. The provincial shares under this award were Punjab 57.88 percent, Sindh 23.28 percent, KPK 13.54 percent and Balochistan 5.30 percent respectively.

The fifth NFC award was given in 1997. The divisible pool expanded by the addition of more duties and taxes. The divisible pool comprised of income tax, sale tax, export duty, customs duty, excise duty and other taxes collected by the central government. Another feature of this award was that royalties on oil and gas were shifted to provinces. There were also incentives for matching grants for the provinces. The resource distribution criterion between center and provinces was changed from 20:80 to 62.5: 37.5. The share of Punjab was 57.88 percent, Sindh 23.28 percent, Balochistan 5.30 percent, and KPK 13.54 percent. Under this award, KPK received Rs 3.31billion of grant for five years and Baluchistan received Rs 4.08 billion for five years.

The sixth NFC constituted in 2000 but was not able to give award due to lack of consensus between federal and provincial governments as provinces were demanding 50 percent share of the divisible pool and federal government was insisting on 45 percent. The duration of the award completed without any success.

The 7th NFC award was constituted as a result of the 18th amendment in the constitution of 1973, holds great importance in the fiscal decentralization in Pakistan. The 18th amendment comprised of profound changes in the institutional and fiscal framework. At the institutional front, 17 ministries were devolved from the federal government to the provincial governments as illustrated in Table 2.

Table 2. Devolution of Ministries from Federal to Provincial Governments

Sr.no	Name of Ministry	Sr.no	Name of Ministry
1	Food and agriculture	10	Culture
2	Health	11	Labor and manpower
3	Education	12	Minorities
4	Environment	13	Tourism
5	Youth affairs	14	Women development
6	Social welfare and special education	15	Special initiatives
7	Population welfare	16	Local government and rural development
8	Sports	17	Zakat
9	Livestock and dairy		

There has been a significant change in the fiscal side also, comprising of revenue generation and expenditure assignments because of the devolution of ministries to the provincial governments. To meet the expenditure requirements of provincial governments in this regard, the provincial governments were given more autonomy to generate own revenues and become self-sustainable. The taxes under federal and provincial jurisdiction in the light of the 18th amendment is shown in Table 3.

Table 3. Taxes under Federal and Provincial Jurisdictions in Pakistan

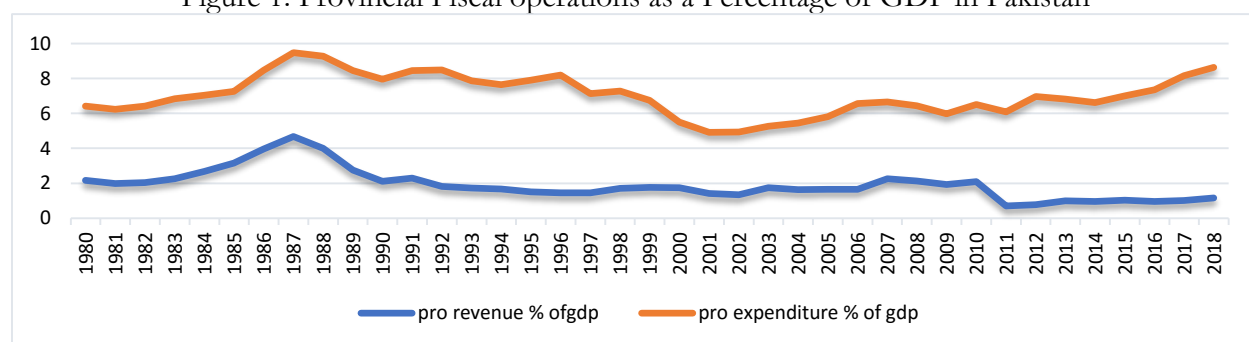
Government	Direct Taxes	Indirect Taxes
Federal Government	<ul style="list-style-type: none"> • Income tax excluding agricultural income. • Property tax • Wealth tax • Corporate tax • Capital value tax • Air travel tax 	<ul style="list-style-type: none"> • Custom duty • Sales tax • Excise duty • Gas and Petroleum surcharges • Foreign travel tax
Provincial Government	<ul style="list-style-type: none"> • Land revenue tax • Immoveable property tax • Capital gain tax • Agriculture income tax • Value-added tax on services 	<ul style="list-style-type: none"> • Sales tax on services • Entertainment tax • Vehicle tax • Stamp duty • Electricity duty • Excise duty on cotton • Arms license fee • Toll tax • Zakat

The most important outcome of the 7th NFC award was the change in the vertical distribution and horizontal distribution from the divisible pool. Under this award provincial share was increased to 57.5 percent in 2009. The divisible pool comprises export duty, customs duty, excise duty, sale tax, income tax, wealth tax, capital tax and other taxes collected by the central government. The criteria for resource distribution were changed from the only population to multiple indicators like 82 percent weight for population, 10.3 percent for poverty and backwardness, 5 percent for revenue generation and 2.7 percent for inverse population density. In this award Punjab's share became 51.74 percent, Sindh's share became 24.55 percent, KPK's share became 14.62 and Balochistan's share increased to 9.09 percent. The consolidated resource pool distribution through various NFC awards are given in Table 4.

Provinces	1 st NFC Award	2 nd NFC Award	3 rd NFC Award	4 th NFC Award	5 th NFC Award	6 th NFC Award	7 th NFC Award
Punjab	60.25	57.97	57.97	57.88	57.88	57.88	51.74
Sindh	22.50	23.34	23.34	23.28	23.28	23.28	24.55
KPK	13.39	13.39	13.39	13.54	13.54	13.54	14.62
Balochistan	3.860	5.300	5.300	5.300	5.300	5.300	9.090

On the other hand, the constitution of 1973 states that the establishment of local governments is the responsibility of the provinces. The constitution allows the federal government to empower provincial governments and allows provincial governments to empower local governments. Unfortunately, the local governments were only empowered during the period of military dictatorship without any protection from the provincial governments and failed. The system of fiscal decentralization is ambiguous in Pakistan because provincial governments have large expenditure assignments of almost 8.6 percent of GDP in 2018 whereas the revenue of provinces was only 1.2 percent of GDP in 2018. However, the expenditure assignments and tax revenue in 1980 were 6.4 percent of GDP and 2.1 percent of GDP as shown in Figure 1.

Figure 1. Provincial Fiscal operations as a Percentage of GDP in Pakistan



The figure shows the low tax decentralization in Pakistan. The provinces have the autonomy to impose taxes but are incompetent to collect taxes, increase the tax base and set tax rates. After national analysis, it is important to observe the revenue generation capacity of provinces to determine the self-sustainability of provinces. The own source tax revenues of provinces are given in Table 5.

Table 5. Tax Revenue of Provinces as Percentage of Total Provincial Tax Revenues

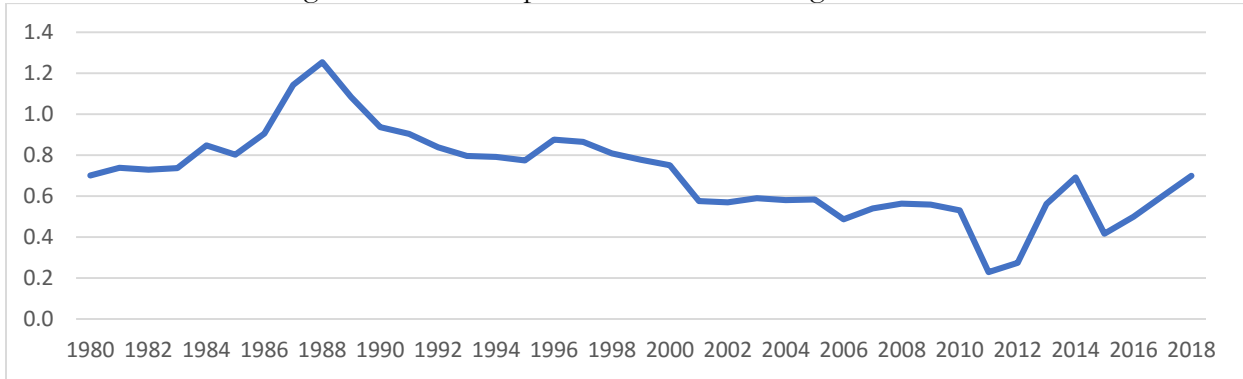
Year	Punjab	Sindh	KPK	Balochistan
2011	50.4	42.6	5.4	1.5
2012	39.3	56.3	3.4	1.0
2013	51.3	45.2	2.7	0.7
2014	50.8	41.6	6.1	1.5
2015	47.6	45.6	5.5	1.3
2016	50.5	43.4	4.6	1.5
2017	48.3	44.9	4.9	1.9
2018	49.2	43.9	4.6	2.3

The above table illustrates that Punjab has the largest own-source tax revenues, Sindh is second in collecting taxes, KPK is third in collecting taxes and Balochistan has the lowest own source tax revenues. Rodden *et al.* (2003) suggested that the responsibilities of national and subnational governments should be defined clearly to get benefitted from decentralization.

b. Social Indicators in Pakistan

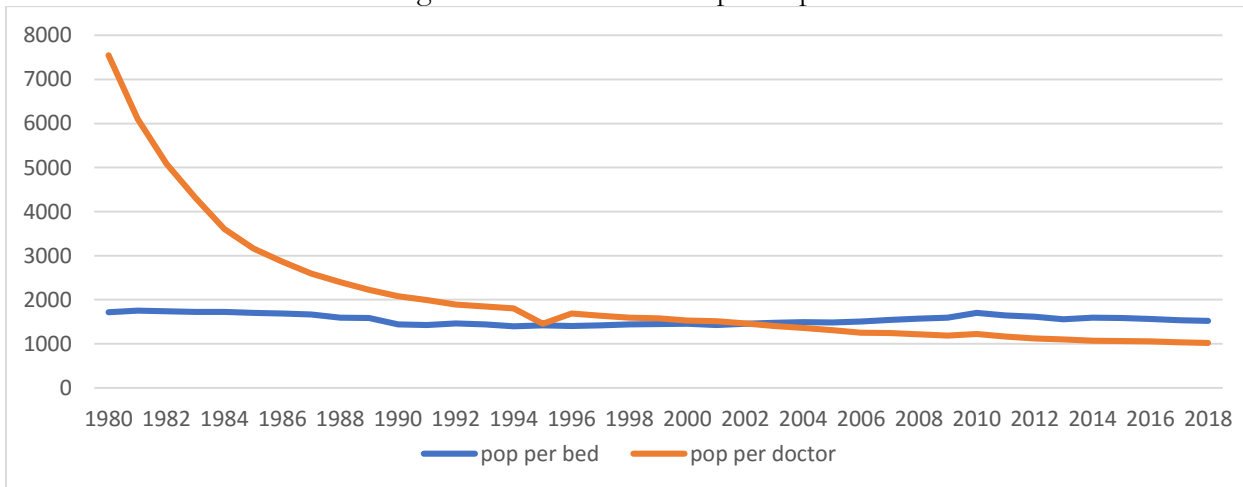
Historically it was believed that economic growth is the only important factor represented by growth in GDP. But over time it was realized that the development of the social sector is also very important and contributes a lot in the process of economic growth and development. The social sector's performance is an important tool to measure the welfare and wellbeing of an economy. It is also used to analyze the quality of life, the standard of living and satisfaction of community through better provision of public goods and services. Bajwa (2016) expressed the importance of the social sector as, a robust social sector placing the state of education, health, income and employment from the perception of universal access, suitability, service delivery, and efficiency are prerequisites to promote an equitable and sustainable process of economic development. The indicators for the social sector comprise of health, education, income equality, law and order, crime rate and environment. The health sector is one of the most important components of the social sector. The expenditure on the health sector in Pakistan is illustrated in Figure 2.

Figure 2. Health Expenditure as a Percentage of GDP in Pakistan



The expenditure on the health sector has fluctuated over time because of which the performance of the sector has not reached the desired level. The health expenditure as a percentage of GDP was 0.7 percent in 1980 and it is 0.7 percent in 2018. The budget assigned to the health sector in Pakistan is way below than most of the other developing nations. However, indicators from the health sector have improved over time. The population per doctor has decreased indicating that the medical personnel has increased over time more than the increase in population. The population per bed has remained almost the same indicating that the population growth and hospital space have increased at the same rate as shown in Figure 3.

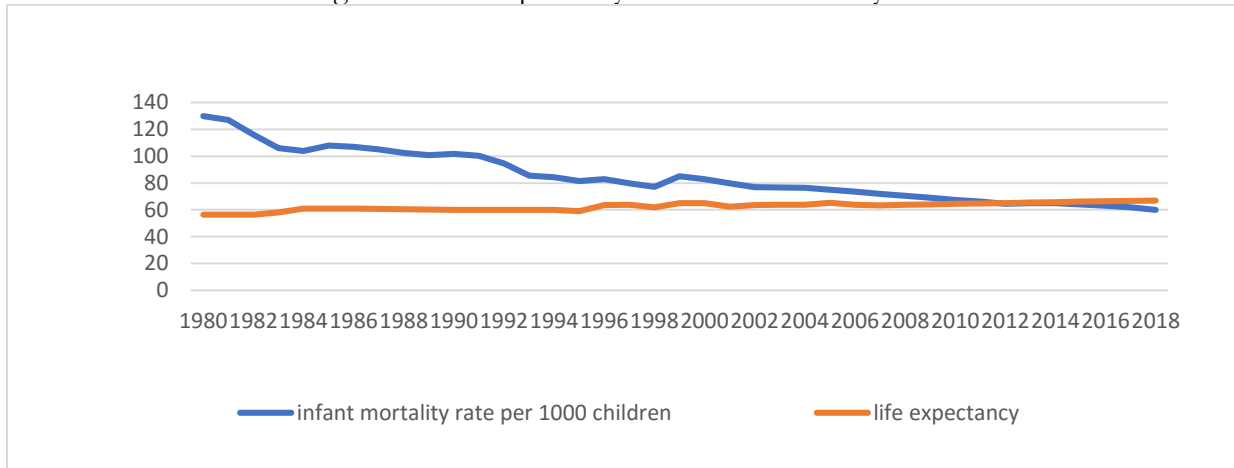
Figure 3. Health Facilities per Population in Pakistan



The population per bed in 1980 was 1716 and in 2018 is 1520 which indicates that there is little improvement. However, there is a significant improvement in the indicator population per doctor as the population per doctor in 1980 was 7549 and in 2018 is 1018. On the other hand, there has been a significant reduction in the infant mortality rate. The infant mortality rate (per 1000 children) in 1980

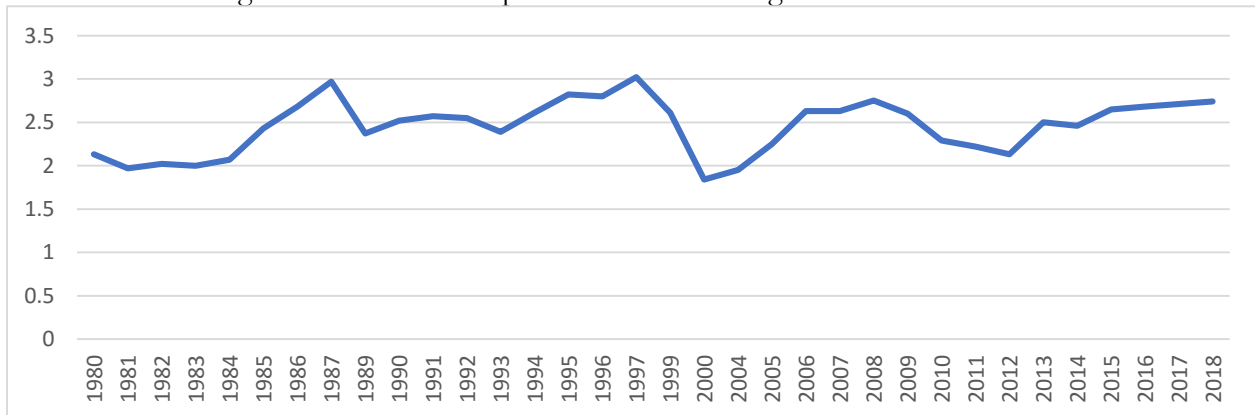
was 130 and in 2018 are 67. However, life expectancy has improved a little over the years. The life expectancy in 1980 was 56.5 and in 2018 is 67 as shown in Figure 4.

Figure 4. Life Expectancy and Infant Mortality Rate in Pakistan



The second important component of the social sector is education. The public expenditure on the education sector in Pakistan is the lowest among the developing economies. As a result, the performance of this sector is not up to satisfaction. The education expenditure as a percentage of GDP in 1980 was 2.13 and in 2018 are 2.74 as shown in Figure 5.

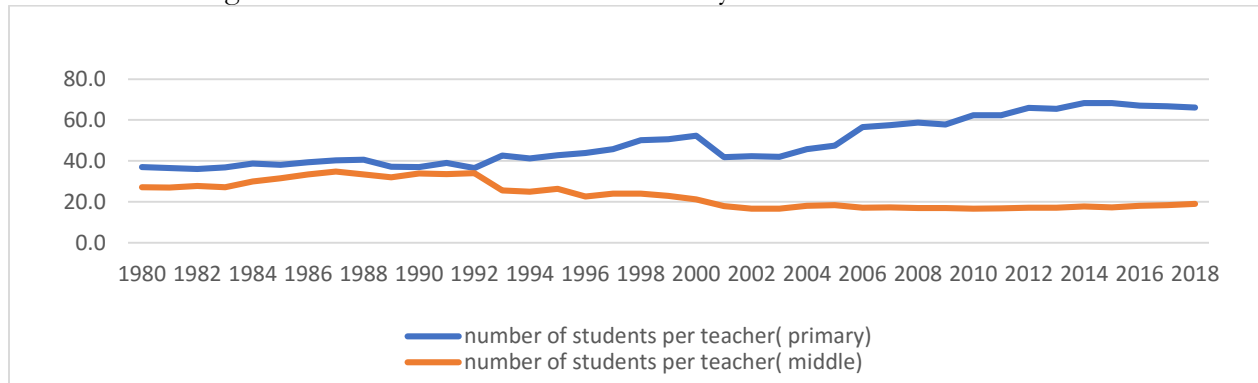
Figure 5. Education Expenditure as Percentage of GDP in Pakistan



Health and education sector have always been a provincial subject. But unfortunately, the federal and provincial governments have not paid any attention to the improvement of this sector that can easily be comprehended from the budget allocated to the education sector. The student-teacher ratio at the primary level has increased tremendously over the years representing that the number of teachers has not increased for the increase in students. The number of students per teacher at the primary level in 1980 was 37 and in 2018 are 66. On the other hand, the student-teacher ratio at the

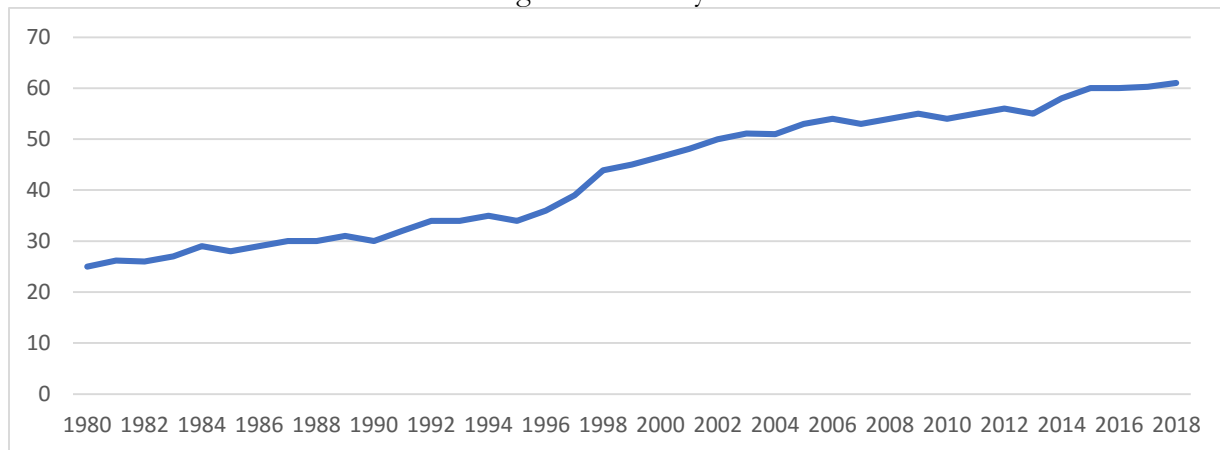
middle level has decreased not because of the increase in teachers but a decrease in enrollment at the middle level. The number of students per teacher at the middle level in 1980 was 27 and in 2018 are 19 as illustrated in Figure 6.

Figure 6. Student-Teacher Ratio at Primary and Middle School Level in Pakistan



However, the literacy rate has increased over the years representing the improvement in the education sector but still, it is less than many developing economies. The literacy rate in 1980 was 25 and in 2018 are 61 as shown in Figure 7.

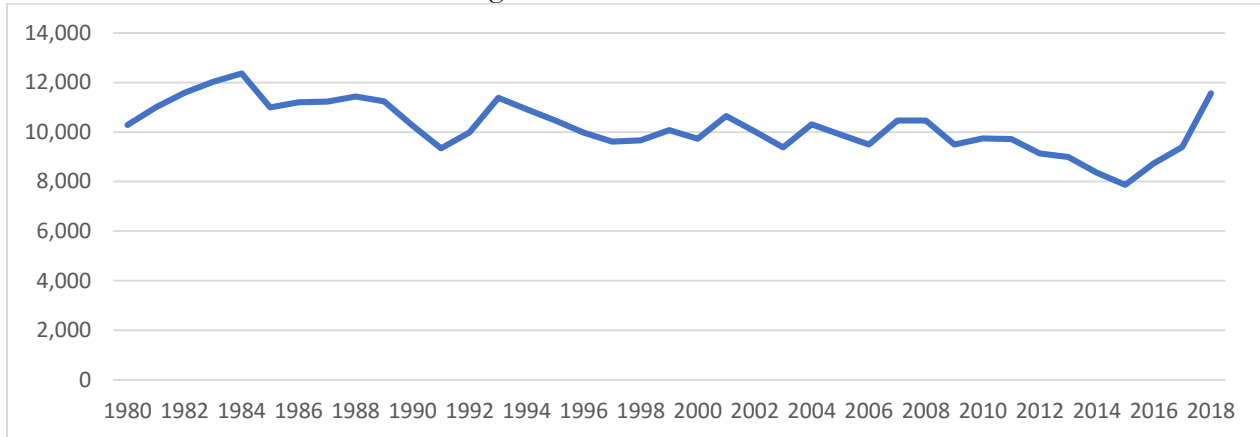
Figure 7. Literacy Rate in Pakistan



Another component of the social sector includes law and order that plays a very important role in the development of a society. Crime and violence are much more than a criminal justice problem; they have far greater implications in terms of their impact on human decisions, and their effect on the overall economic performance of a country. The traffic violations have increased a little but considering the increase in population, we can say that there is an improvement in the performance

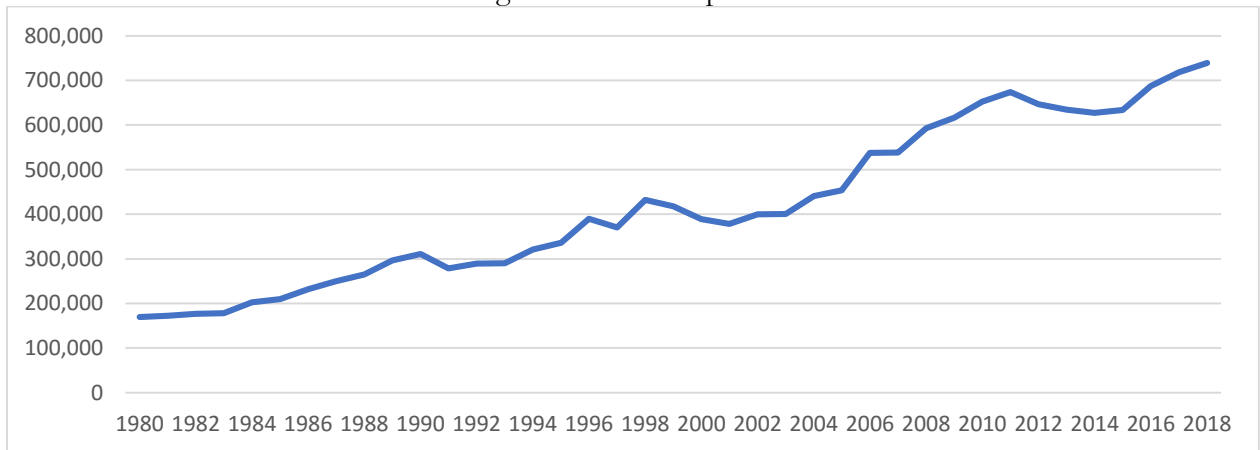
of traffic police. The number of traffic violations in 1980 was 10,284 and in 2018 are 11,571. The trends of traffic violations are shown in Figure 8.

Figure 8. Traffic Violations in Pakistan



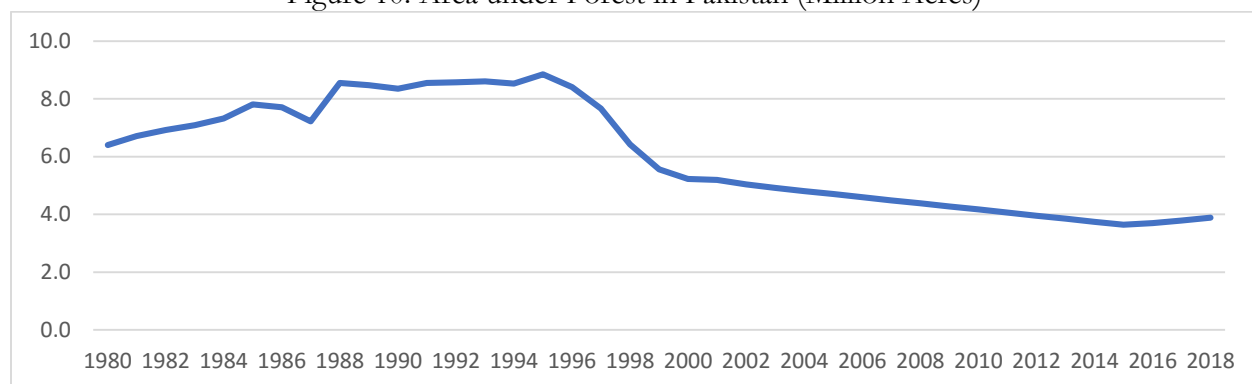
On the other hand, there is an increasing trend of crime indicating the poor performance of concerned authority. The number of crimes reported in 1980 was 169,285 and in 2018 are 738,964 as shown in Figure 9.

Figure 9. Crime Reported in Pakistan



The environment is another important social indicator having a huge impact on the sustainability of economic growth and development. The area under forest has decreased tremendously over the years to meet the needs of a growing population contributing to global warming. The area under forest (million acres) in 1980 was 6.4 and in 2018 is 3.9 as shown in Figure 10.

Figure 10. Area under Forest in Pakistan (Million Acres)



3. Theoretical Framework

The fiscal decentralization is devolution of power and responsibilities to lower levels of government. The lower level of government is closer to the people who have information regarding preferences, needs and cost differences that results in the better allocation of resources. The better allocation of resources implies more focus towards providing necessities demanded by local communities and improving social indicators i.e. better health and education facilities, lower crime and traffic violations and lower-income inequality in the provinces. The transfer of responsibilities to provinces puts pressure on sub-national governments to perform better in the provision of public goods and services otherwise won't be given another chance. This pressure creates competition within the province and with other provinces. The competition then enhances transparency and accountability. The overall governance improves resulting in developing trust among the citizens towards the government and encourages people to participate in the decision-making process and ultimately contribute towards economic growth and development. It is evident from the policy discussions that monetary decentralization is an important tool to improve the provision of public goods and services through better governance, transparency, and accountability. This policy can help improve the social indicators i.e. health, education, income equality, and crime through improved governance and efficient institutions.

The endogenous growth model of Barro (1990) is followed to study the relationship between decentralization and economic growth. The model is extended by assuming that there are two levels of government i.e. federal and provincial. The Cobb Douglas production function is used which consist of two inputs i.e. private capital and public spending as shown below;

$$y = f(k, g) \quad \dots (1)$$

3.1 Empirical Model and Data

To find the impact of fiscal decentralization on social development and the impact of fiscal decentralization on economic growth, we specify the model following Mehmood and Sadiq (2010) and Davoodi and Zou (1998) as follows

$$SDI_t = \alpha + \alpha_1 ED_t + \alpha_2 RD_t + \alpha_3 PINV_t + \alpha_4 Dum1_t + \alpha_5 DUM * ED_t + \mu_t \quad \dots (2)$$

$$LGDP_t = \beta + \beta_1 ED_t + \beta_2 RD_t + \beta_3 PINV_t + \beta_4 HEA_t + \beta_5 LAO_t + \beta_6 EDU_t + \beta_7 Dum1_t + \beta_8 DUM * ED_t + U_t \quad \dots (3)$$

The dependent variable SDI^1 is the social development index. Whereas, the dependent variable $LGDP$ is the log of gross domestic product at current prices in local the currency unit. The reason behind taking GDP in log form instead of growth rate is to overcome statistical issues because all the right-hand side variables are I (1). ED is expenditure decentralization taken as a ratio of provincial expenditure to total expenditure minus defense spending and debt payments, which are considered to centralized affairs. RD is revenue decentralization; another indicator of fiscal decentralization is taken as a ratio of provincial revenues to total revenues. $PINV$ is the private gross fixed capital formation as a percentage of GDP . HEA^2 is the health index. EDU^3 is the education index. LAO^4 is law and order. $Dum 1$ is the dummy variable added to overcome the structural break issue of expenditure decentralization variable because from 1996 to 2009 the share of the federal government in the divisible pool was 62.5 and share of the provincial government was 37.5 making it centralized. $Dum*ED$ is the slope dummy added in the model to overcome structural break problems making the slope of expenditure decentralization variable different in the first half and second half. The data of the mentioned variables are from 1980 to 2018. The data is taken from 50 Years of Pakistan Volume1-4, Pakistan Economic Survey, and Pakistan Statistical Year Book.

¹ SDI comprises of health, education, law and order and environment indicators.

² HEA comprising of life expectancy, infant mortality rate (per thousand births), population per bed and population per doctor.

³ EDU comprising of enrolment in primary education, number of students per teacher in primary education, enrolment in middle school education, number of students per teacher in middle education and literacy rate.

⁴ LAO comprising of number of crimes reported and number of traffic violations.

The construction of Indices is given in the appendix at the end of paper.

4. Methodology, Results, and Discussion

The analysis begins with the unit root test. It is considered important for time series data to be stationary for robust analysis otherwise non-stationary data may produce significant but spurious results. From unit root analysis it can be observed that all variables are non-stationary at the level and becomes stationary at first difference implying that all the variables are cointegrated at first order. Therefore, Johansen Cointegration and Vector Error Correction Model (VECM) is applied to find the causal relationship, short-run and long-run relationship between fiscal decentralization, social development, and economic growth.

Table 6. Results of the Augmented Dickey-Fuller Test for Stationarity

Variables	Stationarity at Level		Stationarity at First Difference		
	Intercept	Trend	Intercept	Trend	Result
LGDP	-1.017	-2.080	-7.054	-7.096	I (1)
ED	-2.546	-2.557	-7.257	-7.237	I (1)
RD	-1.524	-1.940	-5.484	-5.593	I (1)
EDU	-0.238	-1.443	-4.474	-4.681	I (1)
HEA	-1.298	-1.385	-5.558	-5.603	I (1)
PINV	-2.011	-2.386	-7.252	-7.140	I (1)
LAO	-2.871	-2.740	-4.968	-4.793	I (1)
SDI	-2.142	-2.071	-4.937	-4.892	I (1)

Note: the critical value at 5% with intercept is -2.94 and with the trend is -3.54.

a. Identifying Causal Relationship

To examine the causal relationship between fiscal decentralization i.e. expenditure decentralization and revenue decentralization with the economic growth and between fiscal decentralization and social development, VECM is employed because of the existence of cointegration. The result of the causal relationship is illustrated in Table 7.

The results from the VECM causality test imply that ED and RD Granger cause LGDP in the long run as indicated by t-statistics. On the other hand, LGDP does not Granger cause ED and RD in the long run. Furthermore, ED and RD Granger cause SDI in the long run. However, SDI Granger causes ED, but SDI does not Granger cause RD in the long run.

Table 7. Result of VECM Causality Test

Causality	t-statistics
ED Granger cause LGDP	2.36
RD Granger cause LGDP	3.61
LGDP Granger cause ED	0.86
LGDP Granger cause RD	0.99
ED Granger cause SDI	4.87
RD Granger cause SDI	1.95
SDI Granger cause ED	4.54
SDI Granger cause RD	1.42

b. Model 1 Johansen Cointegration and VECM

The first step is to run the unrestricted Vector Auto-Regressive (VAR) model to determine the appropriate lag length and the criterion used is Schwarz information Criteria (SIC). To analyze the impact of fiscal decentralization on social development Johansen cointegration test is performed to examine the long-run relationship. The result is shown in Table 8.

Table 8. Result of Johansen Test for Cointegration

Rank	Trace Statistic	Max Eigenvalue Statistic
r = 0	74.439*	37.160*
r = 1	37.278	23.470

Note: * indicates significance at 5%.

After the existence of long-run relationship as indicated by the Johansen cointegration test, next step is to run the vector error correction model. The result of the long-run relationship is shown in Table 9.

Table 9. Result of VECM and Long-Run Relationship

Dependent Variable: SDI		
Variable	Coefficient	
C	58.521	
ED	0.937*	
RD	1.733***	
PINV	5.348*	
DUM1	-3.240***	
DUM*ED	0.047***	

Note: *, **& *** represents significance at 1%, 5% & 10%.

The results indicate that expenditure decentralization, revenue decentralization, and private investment have a positive and significant impact on social development in the long run. The short-run relationship is depicted in the Table 10.

Table 10. Result of VECM and Short-Run Relationship

Dependent Variable = D(SDI)	
Variable	Coefficient
C	1.346
D (SDI (-1))	0.051
D (ED (-1))	-0.115
D (RD (-1))	0.412
D (PINV (-1))	2.113**
ECT (-1)	- 0.689**
R squared	0.461
F- statistic	3.548

Note: *, **& *** represents significance at 1%, 5% & 10%.

The short-run analysis indicates that expenditure decentralization and revenue decentralization have an insignificant impact on social development in the short run whereas; private investment has a positive and significant impact on social development in the short run. The result also indicates that the error-correcting vector is negative and significant implying that the system will converge towards long-run equilibrium with the speed of 68 percent annually. After VECM it is important to check the stability of the model through diagnostic tests. Firstly, the serial correlation test is performed to check whether variables in the model are dependent on their lags. The result of the serial correlation test is shown in Table 11.

Table 11. Result of Serial Correlation Test

Breusch – Godfrey Serial Correlation LM Test			
F-statistic	0.117	Prob. f(2,27)	0.890
Obs.*R-squared	0.318	Prob. Chi-square (2)	0.853

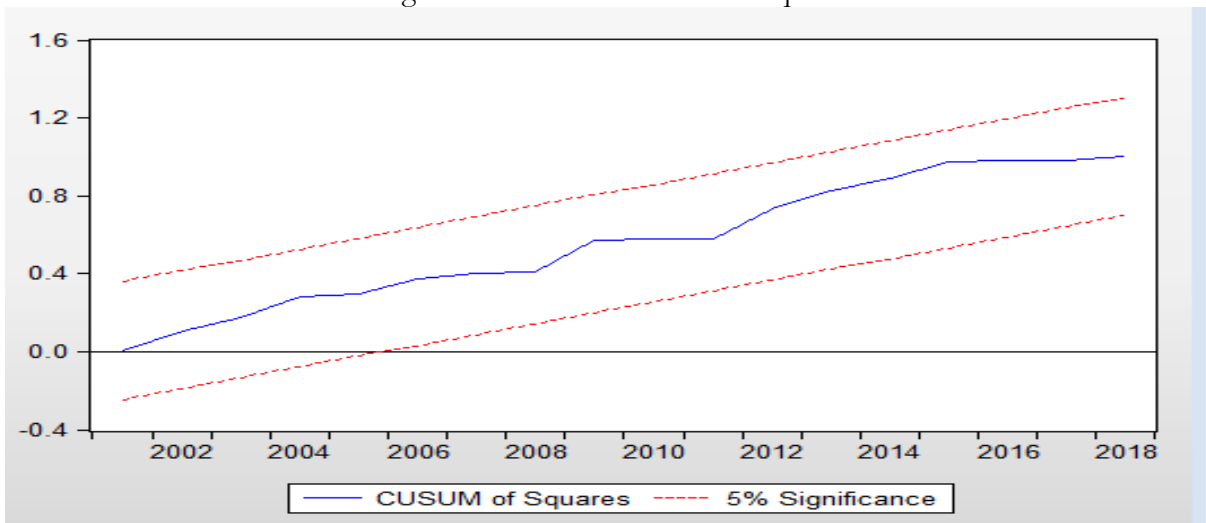
The serial correlation test indicates that there is no serial correlation by accepting the null hypothesis of no serial correlation and the results are robust. The next test performed is a heteroskedasticity test to check whether variance from the regression line is the same or not. The result of the heteroskedasticity test is shown in Table 12.

Table 12. Result of Heteroskedasticity Test

Breusch Pagan Godfrey Test			
F-statistic	0.609	Prob. f(10,26)	0.791
Obs.*R-squared	7.028	Prob .Chi-square (10)	0.722

The test indicates that there is homoskedasticity in the model indicating that all the explanatory variables have the same variation from the regression line and the model is robust. Another diagnostic test Cusum of Square is performed, and the result is shown in Figure 5.1. The Cusum of square test also indicates that the results are robust.

Figure 11. Result of Cusum of Square Test



c. Model 2 Johansen Cointegration and VECM

To analyze whether the variables are cointegrated or there is a long-run relationship among the variables Johansen cointegration test is applied. The results are shown in Table 13.

Table 13. Result of Johansen Test for Cointegration

Rank	Trace Statistic	Max Eigenvalue Statistic
$r = 0$	86.328*	67.720*
$r = 1$	63.607	50.607

Note: * indicates significance at 5%.

The result from the Johansen cointegration test implies that there is one cointegrating equation or there exists a long-run relationship among the variables. When the variables are cointegrated then the next step is to run VECM and if the variables are not cointegrated then the VAR model. In our

case, there is cointegration so VECM is carried out and the results of long-run relationships from VECM are illustrated in Table 14.

Table 14. Result of VECM and Long-Run Relationship

Dependent Variable: LGDP	
Variable	Coefficient
C	-30.660
ED	-0.490*
RD	1.538*
PINV	-1.087**
EDU	0.202***
HEA	0.141***
LAO	0.398*
DUM1	4.166*
DUM*ED	-0.290*

Note: *, **& *** represents significance at 1%, 5% & 10%.

The results from the VECM long-run relationship indicate that there is a negative impact of expenditure decentralization on economic growth and a positive impact of revenue decentralization on economic growth. The education, law and order, and health also have a positive impact on economic growth in the long run, whereas private investment has a negative and significant impact on economic growth. The significance of the interaction dummy indicates that the slope of expenditure decentralization is not the same throughout the time. The significance of dum1 indicates that the period when centralization was high expenditure decentralization had a positive impact on economic growth. The short-run relationship is depicted in Table 15.

The short-run results imply that there is an insignificant relationship between economic growth and all the independent variables indicating that growth is a long-term phenomenon. The results of VECM indicate that the error correction term is negative and significant implying that there is a long-run relationship between fiscal decentralization and economic growth. The speed of adjustment of 85 percent implies that the previous shocks will be adjusted by 85 percent annually and the system will converge towards long-run equilibrium in one year. After VECM it is important to check the stability of the model through diagnostic tests. Firstly, the serial correlation test is performed to check whether variables in the model are dependent on their lags. The result of the serial correlation test is shown in Table 16.

Table 15. Results of VECM and Short-Run Relationship

Dependent Variable = D(LGDP)	
Variable	Coefficient
C	0.128*
D (LGDP (-1))	0.023
D (ED (-1))	- 0.001
D (RD (-1))	0.011
D (PINV (-1))	- 0.019
D (EDU (-1))	- 0.004
D (HEA (-1))	0.010
D (LAO (-1))	0.002
ECT (-1)	- 0.852**
R squared	0.583
F- statistic	3.641

Note: *, **& *** represents significance at 1%, 5% & 10%.

Table 16. Result of Serial Correlation Test

Breusch – Godfrey Serial Correlation LM Test			
F-statistic	1.009	Prob. f(2,24)	0.379
Obs.*R-squared	2.871	Prob. Chi-square (2)	0.237

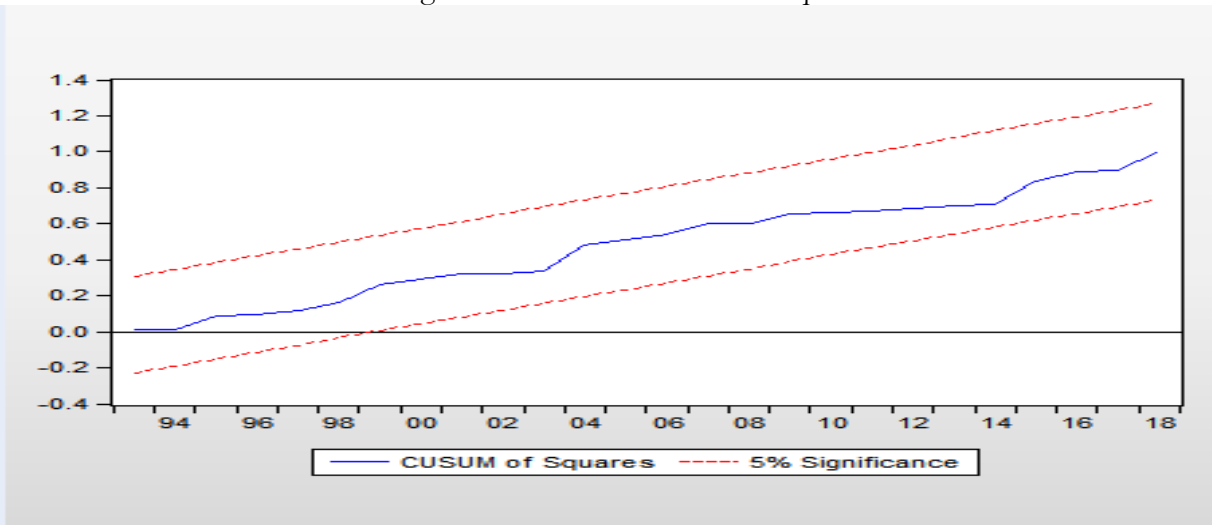
The result of the serial correlation test implies that there is no serial correlation among the variables and the results are robust. The next test performed is a heteroskedasticity test to check whether variance from the regression line is the same or not. The result of the heteroskedasticity test is shown in Table 17.

Table 17. Result of Heteroskedasticity Test

Breusch Pagan Godfrey Test			
F-statistic	0.685	Prob. f(18,18)	0.784
Obs.*R-squared	15.046	Prob. Chi-square (18)	0.658

The test indicates that there is homoskedasticity in the model indicating that all the explanatory variables have the same variation from the regression line and the model is robust. Another diagnostic test Cusum of Square is performed, and the result is shown in Figure 12. The Cusum of square test also indicates that the results are robust.

Figure 12. Result of Cusum of Square Test



The empirical analysis indicates that fiscal decentralization i.e. expenditure and revenue decentralization cause social development in the long run whereas social development only causes expenditure decentralization in the long run. Similarly, fiscal decentralization i.e. expenditure and revenue decentralization cause economic growth in the long run but not the other way around.

The expenditure decentralization is found to have a positive and significant impact on social development but has a negative and significant impact on economic growth in the long run. The relationship between fiscal decentralization i.e. expenditure decentralization is negative with economic growth contradict the objective of fiscal decentralization. There are number of reasons behind this negative relation. Firstly, the process of devolution was carried out without taking into consideration the competencies and framework of institutions. The objective was to transfer powers and responsibilities from the central government to the provincial government and then to the local governments. But unfortunately, the local level of governments was constituted mostly in the military regime and left neglected later by democratic governments. This negligence resulted in only two working levels of government. Secondly, high expenditure decentralization and low revenue decentralization make the provincial governments dependent on the transfers from the federal government and make them lethargic to generate own sources of revenues resulting in inefficient allocation of resources. Thirdly high non-productive expenditures i.e. current expenditures and low development expenditures contribute highly to retard economic growth. The spending at the provincial level is governed by the benefits of local citizens having spillover of externalities resulting in the mobility of human capital to better localities and leaving other localities underdeveloped. On

the other hand, the results imply that revenue decentralization has a positive and significant impact on the social development and economic growth implying higher revenues generated by provincial governments make more resources available at their disposal to be allocated in productive activities enhancing the output and employment.

The impact of private investment on social development is positive and significant whereas on economic growth is negative and significant in the long run. This negative impact contradicts with the literature indicating that higher investment prompts higher growth. The reason behind this negative relationship is that private investment is carried out in sectors like real estate and financial instruments rather than investing in manufacturing and production activities that increase the output and provide employment opportunities.

The results imply that education and health have a positive and significant impact on economic growth indicating that better health and education increase the human capital that increases the efficiency and total labor productivity ultimately contributing towards economic growth. The results also indicate that law and order have a positive and significant impact on economic growth implying that a peaceful and stable environment will promote economic activities resulting in economic growth.

5. Conclusion and Recommendations

This study is focused on the implications of expenditure decentralization and revenue decentralization on social development and economic growth in Pakistan for the period of 1980 to 2018. The study objectives are two folds. Firstly, it carries out causal analysis among the decentralization, social development, and economic growth. The results reveal that expenditure decentralization and revenue decentralization causes social development and economic growth. Secondly, the study examines the co-integration between the variables and estimates the error correction model. The empirical analysis indicates a positive and significant impact of revenue decentralization and expenditure decentralization on social development. The empirical analysis also indicates a positive and significant relationship between revenue decentralization and economic growth while there is a negative and significant relationship between expenditure decentralization and economic growth. The negative association of expenditure decentralization with economic growth results from unsatisfactory governance, corruption, low physical and human capital, political instability, macroeconomic instability, and poor law and order situation in Pakistan. It can be concluded that up till now, Pakistan has not achieved decentralization in its true form.

Furthermore, the revenue decentralization i.e. the revenue-generating capacity of provincial governments should be enhanced, and the tax base should be expanded so that the federal and provincial governments can become self-sustained to meet the financial needs. The reason behind this is the lack of provincial governments' ability to mobilize their resources and increase the own-source revenues. The private investment has a negative association with economic growth. The health, education and law and order have a positive impact on economic growth. Keeping in view the results following policy recommendations are in order;

- Fiscal decentralization implies the transfer of power and responsibilities to the lower level of government. Although powers have transferred to the provincial governments, steps should be taken to establish competent local governments and further transfer powers with a clear mandate to local authorities for better allocation of resources.
- Expenditure decentralization can achieve the desired objectives with improvement in the administrative capacity of the provincial and local governments. This can be done by initiating programs and training to enhance the capabilities and skills of relevant authorities.
- The revenue generation capacity of provincial governments needs to increase to make the provinces self-sustainable by taking steps to broaden the tax base.
- A policy is only effective if it is implemented properly keeping in view that the associated institutions are competent enough to carry out the responsibilities. The initiatives taken by the government to empower provinces to achieve the desired objectives crucially depend on the institutional framework which requires legal, technological and administrative reforms.
- With power comes responsibility and accountability. The institutions responsible for accountability both at the federal and the provincial level needs to be reformed with better physical and human capital along with the technological up-gradation.
- Human capital is considered a key factor to promote economic growth. The provincial governments should take steps to improve health and education services in the region to promote growth because these services have always been the provincial responsibility.

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