

COMMUNITY HEALTH, QUALITY EDUCATION AND POVERTY REDUCTION: HOW IMPORTANT THE FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH ARE IN PAKISTAN?

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ARTICLE INFO	ABSTRACT
<p><i>Article History:</i> Received: January, 2021 Revised: April, 2021 Accepted: May, 2021 Available Online: June, 2021</p> <hr/> <p><i>Keywords:</i> Poverty, Health, Education, Sustainable development, financial development, Economic growth, Pakistan</p> <hr/> <p><i>JEL Classification:</i> I15, I25, H51, H52</p>	<p><i>The main focus of the study is to investigate the strength of binding between financial development, economic growth and sustainable development goals (SDGs) including community health, education and poverty reduction for Pakistan. The autoregressive distributed lag approach was used to analyze the relationship among the variables using data ranging from 1972 to 2018. The empirical evidences showed a joint collision of financial development and economic growth on SDGs i.e., infant mortality, life expectancy, quality education and poverty reduction. Similarly, SDGs and economic growth together cause the accomplishment of financial development. The attainment of SDGs such as increased private per capita consumption expenditure, enrollment at primary and secondary level and low infant mortality rate and life expectancy along with economic growth showed its impact on the financial development for Pakistan.</i></p>

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1. INTRODUCTION

The sustainable development agenda was presented in United Nations General Assembly on 25 September, 2015 that contains the new sets of development goals that has to be achieved till 2030 and is known as sustainable development goals (SDGs). The sustainable agenda comprises of 17 goals that do not clearly target financial enclosure but better contact to financial services is an important factor that plays its role to achieve many of them (Cheng, Wang & Xiong, 2021; Klapper, El-Zoghbi & Hess, 2016). The study highlighted the three main goals of development that are poverty reduction, quality education and better facilities of community health. These three developmental goals are discussed below in detail. The first goal of the sustainable development is to eliminate poverty far and wide.

In Pakistan the Ministry of Planning, Development and Reform with the help of Household Integrated Economic Survey checks the poverty level in the country that is based on household consumption approach. The poverty line in Pakistan is based on the intake of the calories and the standard set is intake of 2350 calories per person per day. The consumption approach basically deals with the provision of basic needs i.e. food, shelter and clothing therefore; it excludes other factors like health, education, freedom, empowerment, social wellbeing etc (Akhter and Daly, 2009; Akhter, Liu & Daly, 2010; Idrees and Baig, 2017; Rehman, Khan & Charfeddine, 2020). According to the World Bank data the poverty level in 2001 was 64.3 percent which dropped down to 50.4 percent in 2005. In 2010 the situation got much better as according to poverty headcount it is around 36.8 percent. The factors that are responsible for poverty reduction in Pakistan are increased share of social safety net programs introduced by government like BISP (Benazir Income Support Program), enhanced sustaining agricultural product prices that reduced the poverty headcount based on consumption in rural areas, high quality seeds for crop that increased the agricultural products and high level of managed remittances that results are improved export policies. Due to these measures the poverty level further dropped down to 24.3 percent in 2015 (World Bank, 2020). The target for 2020, to reduce the poverty level as measured by headcount ratio is 13 percent of total population.

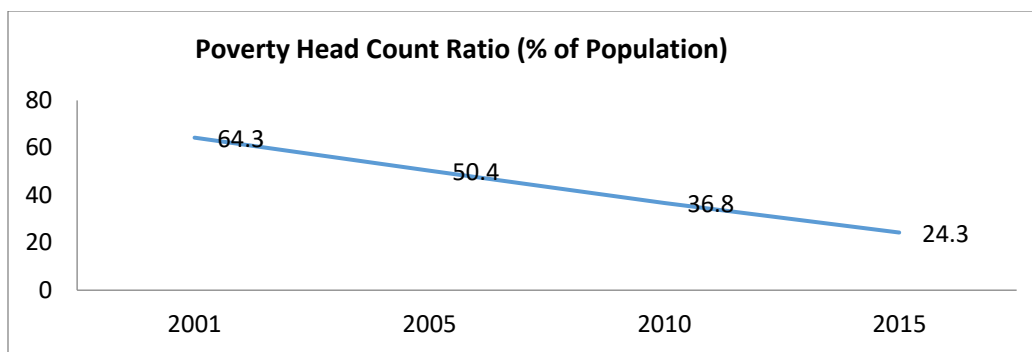


Figure 1: Level of Poverty as a percentage of total population, Source: World Development Indicators (2020)

The second goal of sustainable development is ensuring well-being with healthy lives of all citizens (Atilgan, Kilic, & Ertugral, 2017). Health is an important target of sustainable development goals because it maintains the human capital which is very important for sustainable economic growth (Dincer and Yuksel, 2019; Idrees and Baig, 2017; Lin, Ling, Lin & Liang, 2021). Throughout the history of Pakistan, the health care facilities were below average that caused a serious loss of human capital. The poor health care facilities in the country are because of the limited expenditure on health care industry for the past 60 years. The government of Pakistan increased GNP expenditures from 0.5 % to 0.8 % for the year 1970 to 2007 (GoP, 2015).

For fiscal year 2006-2007 the total health care expenditure that is made by the government is 0.6 % of GNP, which shows the poor performance of the country in the field of health care as compared to the other developing countries. The people of the rural areas also lack the primary health services which worsened the condition to extreme level (Lu, 2010). The infant mortality rate in 2000 was 85 per 1000 lives and life expectancy was about 62 years which showed an improvement in 2006 where infant mortality rate decreased to 77 per thousand lives and life expectancy increased to 65 years. This was a positive change for the health care industry and also for the growth of the country because healthy citizens lead to an efficient human capital (Economic Survey of Pakistan, 2013). As depicted by the data the infant mortality further dropped down to 62 percent while life expectancy improved to 67 percent in 2015. The situation was more encouraging in 2018 as the infant mortality worsened to 57 percent with slight increase in expected life of the community (WDI, 2020).

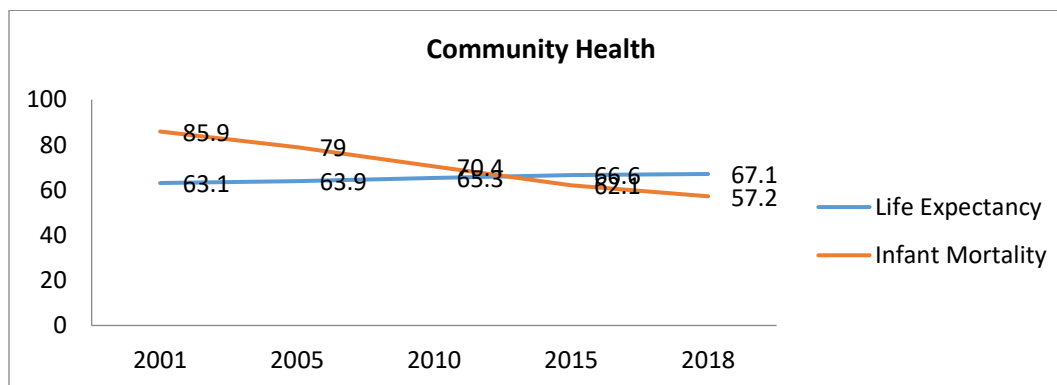


Figure 2: Community Health (Life Expectancy in years, Infant Mortality in percent), Source: World Development Indicators (2020)

Third goal of sustainable economic development is to ensure quality of education not only at primary level but also at secondary and higher level as well. According to Asif, Shah & Shabir (2014), education is very much important to develop a nation and to improve the level of social and moral values, so we must provide the quality education to all citizens at all level. Over the Millennium Development Goal (MGD) period, Pakistan has shown some advancement. Considering both increase in recruitment and population growth, there are more than 20% greater number of kids in elementary school in 2012 than in year 1999. About 35% of the school going age children is out of school. The ratio of girls is higher than the boys that are not attending any school and about 42 percent of population over the age of ten years are illiterate (Farooq, 2015). To achieve the SDGs the government of Pakistan is focusing on education

because the key challenges are health, education and economic development (Khan, Ahmed & Jan, 2012; Lin et al., 2021). The poor quality of education and illiteracy are the root causes of other economic and social evils (Keho, 2016). Therefore, the key concern of the government at the moment is to substantially improve the quality of education to uplift the society in all fields of life and economy (Asif et al., 2014).

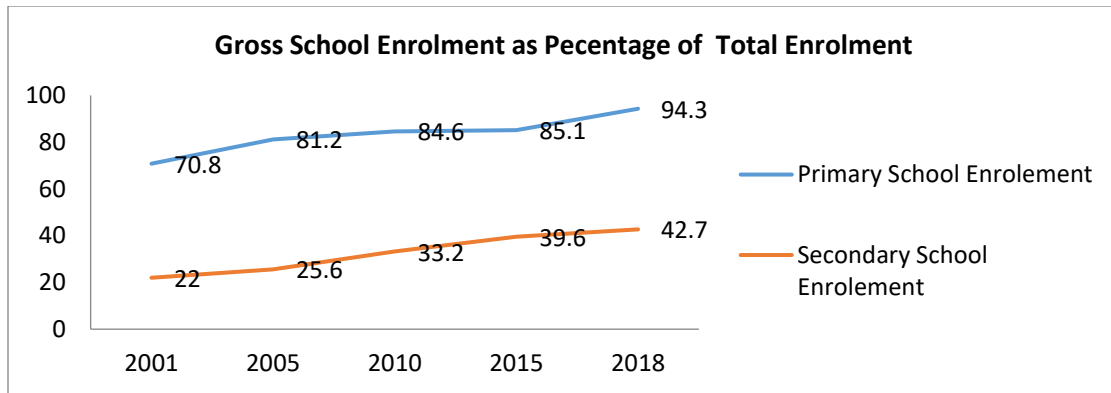


Figure 3: Gross Primary and Secondary School Enrolment as a Percentage of Total Enrolment, Source: World Development Indicators (2020)

The above-mentioned facts about the poverty, health, education and their relationship with financial development and economic drifted the researchers to explore and figure out the hidden evidences, so that the policy maker can plan for a better and more secure future of the society. In this research it is tried to find the important relationship among the different variables and to answer the question that why and how these relationships are significant to be explored. Thus, based on these goals of sustainable development, the purpose of this study is finding the link between financial development, economic growth and SDGs i.e., poverty reduction, community health and quality education in Pakistan. In next section of the paper a detailed review of the literature is presented to understand the need and importance of the SDGs, financial development and economic growth.

2. REVIEW OF LITERATURE

An agreement to enhance the fair and sustainable growth all over the world, the domestic and regional growth of the financial sector development in Asia was desired (Park, 2011). Financial development involves both financial expansion and financial intensification in it (Ahmed, Kousar, Pervaiz & Ramos-Requena, 2020; Pradhan and Gunashekar, 2013). Financial expansions primarily illustrate the extended functions of institutions along with the augmentation of the financial institutions whereas financial intensification is the ratio of the increase in financial assets to income (Cheng et al., 2021; Clarke, Xu & Zou, 2006). The studies (Claessens and Feijen, 2006; Sehrawat and Giri, 2014; Shahbaz and Islam, 2011; Skaden, 2000) in development and social economics have models that had shown the straight association between economic growth and financial growth. Economic growth is essentially the progress from a weak and low-income economy to strong and high income economy (Azra, Khan, Ahmed & Jan, 2012). Levine (1997, 1999) described the key channels through which financial services are impacting the economic growth: savings recruitment, resource distribution, risk supervision, management monitoring and trade facilitation. Financial system plays a very pivotal role and is continuously providing the resources to real economy that guide to better public health and economic development (Anwar, Shabir & Hussain, 2011; Khan, Ahmed & Bibi, 2018; Grigoli and Kapsoli, 2018; Lin et al., 2021).

Furthermore, financial institutions are capable to endorse activities that are in favor of society (Ibrahiem, 2020; Moldovan, 2015) like providing basic and advanced education to the citizens, providing better health facilities to the community, providing employment opportunities to uplift the society and providing basic necessities for a standard living. In continuation, Levine (1997) further stated that the association between financial enlargement, economic expansion and the effect of the financial expansion on the poverty reduction are combined. Moldovan (2015) observed the connection between sustainable development indicators and financial system of the five developing Eastern European countries that showed a weak or no correlation between the sustainable development indicator and financial system. Like Jeanneney and Kpodar (2011) and Kirkpartick (2000), he also considered poverty reduction and education, public health, renewable energy and employment status as the sustainable development indicators. The reasons he provided for such unfavorable relationship was the weak financial system of the selected countries due to

which they have very minute capacity to promote economic growth. Secondly the sustainable development along with the economic growth also requires the interest by the financial companies to endorse sustainability but due to the risk associated with it, the financial sector of these countries had not played their part in achieving the short-term goals that lead to long term strategies.

Ahmed and Hasnu (2009) used the ADF, OLS and Granger causality test to explore the relationship between financial development and economic growth in Pakistan and found bi-directional causality between financial development and economic growth. Similarly, Khan, Qayyum & Sheikh (2005) explored the relationship between financial development and economic growth in Pakistan and found long run association among financial deepening, real interest rate and GDP growth of the country. Rehman et al. (2020) investigated the non-linear relationship between financial development and economic growth while Zhu, Asimakopoulos & Kim (2020) and Aluko & Ibrahim (2020) found the threshold level of financial development. From the above-mentioned literature it is evident that financial system has ability to foster economic growth and sustainable development. Financial system accumulates and mobilize saving and investment first and then provide opportunity to allocate scarce resources efficiently, provide regulations for environmental protection, generate socially responsible investment and allocate resources for public health, education and social uplift and economic well-being of the society. Thus, keeping in mind, the sustainable development goals for Pakistan, the purpose of the study is to investigate the link between community health, provision of education and poverty reduction as SDGs, financial development and economic growth. The secondary objective of the study is to investigate the causal relationship among SDGs, financial development and economic growth.

3. RESEARCH METHODOLOGY

To investigate the relationship among the variables, current study adopted the autoregressive distributed lag (ARDL) bound testing approach to analyze relationship both in short run and long run between sustainable development goals including poverty reduction, quality education, better health, financial development, and economic growth in Pakistan. The ARDL co-integration technique is widely used by the researchers due to its charming features that it works on a small-time span data, applicable on mixed order of integration and provides upper and lower bounds at different level of significance to take decision whether co-integration among the variables exist or not. Furthermore, to check the causality among the variables Granger causality test is applied. The main model to analyze the relationship between SDGs, financial developments, and economic growth are.

$$\Delta \ln FD_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln FD_{t-i} + \sum_{j=0}^k \beta_{2j} \Delta \ln Y_{t-j} + \sum_{u=0}^m \beta_{3u} \Delta \ln SDG_{t-u} + \beta_4 \ln Y_{t-1} + \beta_5 \ln FD_{t-1} + \beta_6 \ln SDG_{t-1} + \epsilon_{t1}$$

$$\Delta \ln SDG_t = \alpha_0 + \sum_{u=1}^m \alpha_{1u} \Delta \ln SDG_{t-u} + \sum_{i=0}^n \alpha_{2i} \Delta \ln FD_{t-1} + \sum_{j=0}^k \alpha_{3j} \Delta \ln Y_{t-j} + \alpha_4 \ln Y_{t-1} + \alpha_5 \ln Y_{t-1} + \alpha_6 \ln FD_{t-1} + \alpha_7 \ln SDG_{t-1} + \epsilon_{t2}$$

$$\Delta \ln Y_t = \delta_0 + \sum_{u=1}^m \delta_{1u} \Delta \ln Y_{t-u} + \sum_{i=0}^n \delta_{2i} \Delta \ln FD_{t-i} + \sum_{j=0}^k \delta_{3j} \Delta \ln SDG_{t-j} + \delta_4 \ln Y_{t-1} + \delta_5 \ln FD_{t-1} + \delta_6 \ln SDG_{t-1} + \epsilon_{t3}$$

Δ is first difference operator, ϵ_{t1} and ϵ_{t2} are mutually uncorrelated white noise residuals, FD_t is indicator of financial development, SDG is particular target of sustainable development goals, Y_t is indicator for economic growth, N , m , k are optimum lag length of financial development, SDGs and economic growth. β_4 , β_5 , β_6 , α_4 , α_5 , α_6 , δ_4 , δ_5 , δ_6 are used to determine co integration and long run relationship between financial development, SDGs and economic growth. To assess the causality among financial development, economic growth and SDGs following sub models will be followed.

$$\begin{aligned} \Delta \ln FD_t &= \beta_0 + \sum_{i=1}^p \beta_{1i} \Delta \ln FD_{t-i} + \sum_{j=0}^q \beta_{2j} \Delta \ln Y_{t-j} + \sum_{u=0}^r \beta_{3u} \ln SDG_{t-u} + \beta_4 ECT_{t-1} + \epsilon_{t1} \\ \Delta \ln SDG_t &= \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta \ln SDG_{t-i} + \sum_{j=0}^q \alpha_{2j} \Delta \ln FD_{t-j} + \sum_{u=1}^r \alpha_{3u} \Delta \ln Y_{t-u} + \alpha_5 ECT_{t-1} + v_t \\ \Delta \ln Y_t &= \delta_0 + \sum_{i=0}^p \delta_{1i} \Delta \ln Y_{t-i} + \sum_{j=1}^q \delta_{2j} \Delta \ln FD_{t-j} + \sum_{u=1}^r \delta_{3u} \Delta \ln SDG_{t-u} + \delta_6 ECT_{t-1} + \mu_t \end{aligned}$$

The financial development is measured by ratio of broad money to GDP (M3/GDP) and ratio of credit to private sector to GDP (PC/GDP), while sustainable development is measured by private per capita consumption expenditure (PCE, poverty), infant mortality rate (IM, health), life expectancy rate (LE, health), enrollment at primary level (PE, education), enrollment at secondary level (SE, education) and economic growth is measured as GDP growth (Y). The data for this research is extracted from State Bank of Pakistan and World Development Indicators ranging from 1972 to 2018 and the model is adopted from Akinboade and Kinfack (2015).

4. EMPIRICAL RESULTS

To perform autoregressive distributed lag model, the necessary condition is to verify the stationarity of the variables. The stationarity of the variables is achieved through ADF test. The results for ADF test are shown in table 1 below.

Table 1: Augmented Dickey Fuller Test

Variables	At Level		At 1 st Difference		Conclusion
	Constant	Constant & trend	Constant	Constant & trend	
LM3/GDP	-1.94	-5.84	-7.29***	-7.09***	I(1)
LPC/GDP	-1.84	-1.92	-4.88***	-4.90***	I(1)
LY	-5.78	-6.46	-11.36***	-11.17***	I(1)
LPCE	-0.86	-2.53	-6.67***	-6.60***	I(1)
LPE	-1.06	-1.51	-5.85***	-4.67***	I(1)
LSE	-0.35	-3.92	-9.76***	-9.67***	I(1)
LIM	2.87	-0.24	-1.83**	-3.55***	I(1)
LLE	-3.51	-2.23	-5.22***	-5.78***	I(1)

***, ** represents that all the series are integrated at 1% and 5% level of significance respectively

The results indicated that all the series are non-stationary at level and stationary at first difference, while no series is integrated at order more than one. The results of ADF test suggest that when all the series are integrated of order one or a combination of order one and level, one can use the ARDL bound test approach to cointegration. Thus, study applied bound testing approach to estimate the following results as presented in table 2.

Table 2: ARDL Bound Test for Co-integration

Dep. Variable	Ind. Variable	Max Lag Length	LM test	Wald F- stat
LM3/GDP	LY, LPCE	(2,2,2)	0.74	8.13***
LM3/GDP	LY,LPE	(2,2,2)	0.95	7.51***
LM3/GDP	LY,LSE	(2,2,2)	0.46	6.80***
LM3/GDP	LY,LIM	(2,2,2)	0.86	12.29***
LM3/GDP	LY,LLE	(2,2,2)	0.12	6.18***
LPC/GDP	LY,LPCE	(3,3,3)	0.99	1.58
LPC/GDP	LY,LPE	(4,4,4)	0.75	1.55
LPC/GDP	LY,LSE	(2,2,2)	0.17	1.68
LPC/GDP	LY,LIM	(2,2,2)	0.92	2.25
LPC/GDP	LY, LLE	(2,2,2)	0.53	8.65***
		Critical Value	Lower Bounds	Upper Bounds
		1%	4.13	5.00
		5%	3.10	3.87
		10%	2.63	3.35

*** show that results significant at 1% level of significance

The table explains the lag lengths and results for the serial correlation and Wald test results for each model. The value of the Wald tests is less than the lower bound of the critical value at 5% and 10%. This depicts that no co-integration exists among the variables. The value greater than the upper bound of the critical test depicts that co-integration among the variables exists. If this value lies between the upper and lower bound, this shows that not enough evidence is present for Co-integration. The F-stats value for the broad money to GDP, economic growth and private per capita consumption expenditure is 8.13 at lag 2 which is higher than the critical value at 5% and 10% so this indicates the co-integration among the variables. Similarly, there exists co-integration among financial development (broad money to GDP ratio), economic growth, enrolment at primary level (Wald F-7.51), enrolment at secondary level (Wald F-6.80), infant mortality (Wald F-12.29) and life expectancy (Wald F- 6.18). Also there exists a co-integration among financial development (private consumption to GDP ratio), economic growth and life expectancy as the Wald F statistic is 8.65.

It is quite meaningful to find the short run relationship among the variables when there exists a long run cointegration among the variables. The results of error correction model for short run are shown in table 3 below. The results are evident that there exists a long run convergence towards equilibrium more than 50% annually in each model except for the last model in which private sector credit to GDP ratio is the dependent variable.

Table 3: Results for Error Correction Mechanism (ECM)

Dependent variable	Independent Variable	Coefficient of ECM	T-Stats
LM3/GDP	LY,LPCE	-0.59	-5.93
LM3/GDP	LY, LPE	-0.53	-5.72
LM3/GDP	LY, LSE	-0.61	-5.43
LM3/GDP	LY, LIM	-0.69	-7.31
LM3/GDP	LY, LLE	-0.71	-6.45
LPC/GDP	LY, LLE	-0.33	-6.12

Our second model analyzes the combined impact of the financial development and economic growth on Sustainable Development Goals. The results are presented in table 4 below.

Table 4: ARDL Bound Test for Co-integration

Dependent Variable	Independent Variable	Lag length	LM test	F-stats
LPCE	LY,LM3	(4,4,4)	0.49	1.68
LPCE	LY,LPC	(2,2,2)	0.90	1.60
LPE	LY,LM3	(2,2,2)	0.81	5.58***
LPE	LY,LPC	(4,4,4)	0.80	5.27***
LSE	LY,LM3	(3,3,3)	0.19	3.92**
LSE	LY,LPC	(4,4,4)	0.64	1.86
LIM	LY,LM3	(4,4,4)	0.09	2.26
LIM	LY,LPC	(3,3,3)	0.07	1.54
LLE	LY,LM3	(4,4,4)	0.53	15.73***
LLE	LY,LPC	(4,4,4)	0.09	7.88***

*** show that results significant at 1% level of significance, ** show that results significant at 5% level of significance

The results in table 4 represents that there exists a long run relationship among enrolment to primary education, economic growth and broad money (Wald F- 5.58), among enrolment to primary education, economic growth and credit to private sector (Wald F- 5.27), among enrolment to secondary education, economic growth and broad money (Wald F- 3.92), among life expectancy, economic growth and financial development (Wald F- 15.73 and 7.88). Thus it is concluded that the cointegration exists between financial development, economic growth, education and health while there is no evidence of cointegration estimated for poverty.

The results of ECM are given in table 5 below. It is evident from results the speed of adjustment towards equilibrium is very much slow i.e. 4%, 1% and 0.1% when dependent variables are education (PE) and health (LE). The speed of adjustment is 23% for enrolment in secondary education and the convergence towards stability is very much high for life expectancy when independent variables are economic growth and credit to the private sector.

Table 5: Results for Error Correction Mechanism (ECM)

Dependent Variable	Independent Variable	Coefficients of ECM	T-stats
LPE	LY,LM3	-0.04	-4.90
LPE	LY,LPC	-0.01	-4.77
LSE	LY,LM3	-0.23	-4.14
LLE	LY,LM3	-0.001	-8.29
LLE	LY,LPC	-6.36	-5.92

The results of Granger causality shows that there exists cause and effect relationship among the variables for Pakistan. The causality is one way among private per capita consumption expenditure and broad money to GDP, infant mortality and broad money to GDP, primary education and broad money to GDP, primary education and GDP growth, broad money to GDP and secondary education, GDP growth and domestic credit to private sector and secondary education and domestic credit to private sector. In Pakistan financial development is causing economic growth and playing its role in attaining SDGs like other developing countries.

5. CONCLUSION OF THE STUDY

Current study examines the relationship among community health, education and poverty reduction; jointly taken as sustainable development goals, financial development and economic growth for Pakistan. The study used autoregressive distributed lag approach for estimation by using data from 1972 to 2018. The relationship was examined by using the two indicators of financial development that are broad money to GDP and domestic credit to private sector, five indicators for SDGs that are private per capita consumption expenditure used to measure the poverty, enrollment at primary level and enrollment at secondary level for education and infant mortality rate and life expectancy for health and GDP growth to measure economic growth for Pakistan. Financial development and economic growth jointly cause the attainment of the SDGs. Similarly SDGs and economic growth jointly cause the attainment of financial development.

The long run relationship exists between the private per capita consumption expenditure, economic growth and M3/GDP, between primary and secondary education, economic growth and M3/GDP and also among the infant mortality rate, life expectancy, economic growth and M3/GDP. The enrollment at the secondary level is increasing but due to the existing unemployment rate in the country it is negatively impacting the economic growth. The high unemployment rate decreases the growth rate because the economy lacks the ability to employ the useful human capital that exerts negative pressure on economy. Attaining SDGs by increasing the private per capita consumption and by increasing the enrollment rate at educational institutes and controlling health problems along with the economic growth jointly cause financial sector development in Pakistan. Financial development is attained jointly by economic growth and SDGs. The policy makers must consider the importance of SDGs especially related to health and education. The consumption on health and education will bring definite improvement in the economic wellbeing of the country as more investment on health and schooling will bring greater changes in life expectancy, neonate mortality and life style of the community.

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