Does an Empirical Relationship Exist between Financial Development and Economic Growth in SAARC Countries?

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Abstract

Economic theories suggest that a sound and efficient financial system promotes economic growth by fostering efficient allocation of resources. This paper aims to investigate the theoretical prediction about the relationship between financial development and economic growth in SAARC countries. Generalized Method of Moment (GMM) has been applied on panel data of five SAARC countries covering the period from 1984 to 2016 to test the hypothesized relationship. As an empirical proxy for economic growth, the study uses annual percentage growth rate of GDP per capita. The study employs four different indicators of financial development based on domestic credit provided by the financial sector institutions of respective economies. Results reveal notable positive effect of financial development on economic growth in SAARC countries, after controlling the time-constant country-specific effect and the effects of potential bias induced by simultaneity. Thus, empirical findings are consistent with the theories that predict a significant positive role of financial development on the economic growth of a country.

1. Introduction

Financial liberalization process has been started in SAARC countries at the beginning of 1990's (Bekaert et al., 2001). In this study, the SAARC countries - Bangladesh, India, Nepal, Pakistan, and Sri Lanka have been chosen on the basis of similarity of proxies of financial development and availability of balanced panel data. This region is important as aggregate net flows to this region have increased since the mid-1980's (Hussain and Jun, 1992). Moreover, private capital flows to South Asia have more than doubled since 2000 (GDF, 2006). SAARC countries have many similarities with respect to the stage of economic progress and indices or proxies of financial development (Akhmat et al., 2013). Giventhe findings of empirical research, a joint policy effort

could strengthen financial ties that will contribute towards fostering the economic growth of the SAARC countries.

There is a strong relationship between financial development and economic growth that has occupied the minds of economists ranging from Smith to Schumpeter (Wadud, 2005). Nonetheless, the channels and the direction of causality have remained unresolved in both theory and empirics in economics (FitzGerald, 2006). In that case, the financial sector development differs across countries for different degrees of financial intermediation, rule and enforcement of law, and other endogenous as well exogenous reasons (Uyanga and Suruga, 2008). Robinson (1979) predicts that a bi-directional relationship between financial development and economic growth may exist in the economy. In his view, the higher likelihood of growth may lead to the financial sector development in an economy.

Economies of scale have been allowed by a larger financial system due to the incurrence of significant fixed costs behind the operation of financial intermediaries persuading those intermediaries to facilitate the provision of adequate funds for investment activities (Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991; FitzGerald, 2006).With the expansion of financial system, the task of accumulation of resources that were scattered throughout the economy accelerates rapidly, increasing the availability of funds for entrepreneurial investment. Thus, a well-developed financial system may drive to an improved ability to undertake large-scale investment projects that may contribute towards fostering economic expansion of any country (Hansson and Jonung, 1997).

The demand for financial intermediation has been created by economic growth and hence the financial system will grow in response to economic development. Moreover, Barro (1991), Sala-i-Martin (1994), Beck et al. (2000), Beck and Levine (2002) investigate and analyse the relationship between financial development and economic growth along with the relationship between financial development and the sources of growth based on private saving rates, physical capital accumulation, and total factor productivity.

The aim of this study is to assess whether an empirical relationship exists between financial development and economic growth in SAARC countries. Therefore, this study will apply GMM estimation technique to test the long-run equilibrium relationship between financial development and economic growth. With the topic, this paper will be organized as follows: Section 2 gives an overview of the relationship between financial development and economic growth, Section 3 presents data and methodology, Section 4 discusses the estimated results and Section 5 concludes the paper.

2. Literature on Financial Development and Growth

Many empirical studies attribute the sources of economic growth to social and economic factors like educational attainment, institutional development, factor accumulation, foreign direct investment scenario, savings pattern, government consumption pattern, investment level, situation of resource endowments, and level of financial sophistication. The relationship between financial sector development and economic growth has long been an interest for economists (Uyanga and Suruga, 2008). De Gregoria and Guidotti (1995) found that financial development leads to improved growth performance. Rousseau and Wachtel (1998) examined the causal relationship between finance and growth in the United States, the United Kingdom, Canada, Norway, and Sweden over the 1870 to 1929 period. Their test for Granger-causality demonstrated that financial

development causes economic growth. A study by Galetovic (1996) reports no causal relationship between financial development and economic growth.

Bank-based and capital-market-based financial systems as well as the effectiveness of government policies in the two systems may have implications concerning the issue of whether financial deepening has the ability to promote economic growth. A close link exists between banks and industries in a bank-based financial system. Companies' reliance on bank loan is the dominant characteristic of a bank-based financial system (Wadud, 2005). Thus, the bank plays a significant role in the process of economic development. The key features of the capital market-based financial system is the existence of highly developed capital markets where banks have relatively less involvement in the allocation of funds.

A bank-based financial system encourages long-term finance that is dedicated to long-term productive investment that reduces speculative activities. Thus, a bank-based financial system promotes financial stability and helps implement economic policies successfully. In a bank-based financial system, fiscal and industrial capitals are so related that speculative finance cannot influence real economic activity as it does in a capital-market-based financial system. A Bank-based financial system may help implement expansionary monetary and industrial policy, given the relationship between financial and industrial firms (Arestis et al., 2001).

In developing economies, finance may not be merely concurrent with development, as first shown by Goldsmith (1969); financial development may cause economic growth (Khan, 1999). However, financial liberalisation and financial repression influence economic growth. Financial liberalisation is characterised by market- determined interest rates that are attractive for surplus units. The abolition of directed credit programs improves the quality of investment. A higher market determined rate of returns could be earned through investment projects. Thus in a liberalised financial system, financial development and economic growth are positively associated with the direction of causality running from financial development to economic growth. Even though financial panics and recessions are critical issues, the finance-growth link goes beyond the relationship between finance and shorter-term fluctuations (Levine, 1997). On the contrary, the characteristic of a repressed financial system is that the government artificially keeps real interest rates lower. The quality of investment reduces because of the limited amount of loanable funds rationed under government directives (directed credit programs and concessionary lending rates). Both the quality and quantity of investment reduce, which in turn affect economic growth. However, in a repressed financial system, financial deepening may not be as effective in promoting economic growth as in a liberalized system. Thus, it seems that the relationship between financial development and economic growth must be stronger under liberalised economies than under repressed economies (Arestis et al., 2001).

3. Data and Methodology

3.1 Analytical Framework

In this study, we consider a dynamic panel model for five SAARC countries where the growth rate of per capita GDP is a function of its lagged value, financial development indicators and a set of variables which are shown to be systematically associated with growth in past research studies. For the purpose of this study, the economic model of growth can be written as:

Growth in per capital GDP = f (Lagged GDP, Financial development indicators, Control variables)

As an empirical proxy for economic growth we use annual percentage growth rate of GDP per capita. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

We use four different indicators of financial development:

i. Domestic credit to private sector by banks (% of GDP)

Our first and most important proxy of financial development is total amount of domestic credit provided by banks to the private sector divided by GDP. Domestic credit to private sector by banks refers to financial resources provided to the private sector by banks (deposit taking institutions except central banks) through loans, purchases of non-equity securities, and trade credits and other accounts receivable that establish a claim for repayment. This variable isolates bank credit to the private sector and therefore excludes credits by development banks and loans to the government and public enterprises. Beck and Levine (2004) claim that although it is not clear how and to what extent bank credits reduce information and transaction costs, this measure is an improvement upon other common measures like the ratio of M2 to GDP. However, in order to make sure that our results are not sensitive to alternative measures, we use three other closely related proxies of financial development.

ii. Domestic credit to private sector (% of GDP)

Our second proxy is domestic credit to private sector as a share of GDP, which is defined as the financial resources provided to the private sector by financial intermediaries including both banking and non-banking financial institutions in the form of loans, purchases of non-equity securities, and trade credits and other accounts receivable, which establish a claim for repayment. The financial intermediaries include monetary authorities and deposit money banks, as well as other financial institutions (including corporations that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other financial institutions are finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies.

iii. Domestic credit provided by financial sector (% of GDP)

Our third proxy is domestic credit provided by the financial sector expressed as a percentage of GDP. Domestic credit provided by financial sector includes all credit to both private and public sectors on a gross basis, with the exception of credit to the central government, which is net. The financial sector includes monetary authorities and deposit money banks, as well as other financial corporations. Examples of other financial corporations are finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies.

iv. Money and quasi money (% of GDP)

The fourth and final proxy that we use is money and quasi money deflated by GDP. Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2.

To assess the strength of the relationship between financial development and growth, we control for other potential determinants of growth in our regressions. We include log of the initial per

capital real GDP to control for convergence and secondary school enrolment ratio to control for human capital accumulation (Beck and Levine, 2004). In addition to these variables, we include consumer price inflation, government consumption expenditure, net inflow of foreign direct investment, financial openness index, exports and imports. Government consumption expenditure, foreign direct investment, exports and imports are expressed as a percentage of GDP.

3.2 Data

This study investigates the relationship between financial development and economic growth in five SAARC countries, namely, Bangladesh, India, Nepal, Pakistan, and Sri Lanka. The data for the five countries are collected from the World Bank's (2015) World Development Indicators database while financial openness index is obtained from Chinn-Ito's database (2006) for the years 1984 to 2016.

This section provides summary statistics on dependent, independent and control variables used in the study. Table 1, Panel A presents descriptive statistics on the growth indicator (per capita GDP growth rate), four financial development indicators such as domestic credit to private sector by banks as a percentage of GDP, domestic credit to private sector as a percentage of GDP, domestic credit provided by the financial sector as a percentage of GDP and the M2 as a percentage of GDP, along with other determinants of growth that are controlled for in our regression model. It can be observed from Panel A that the mean annual per capita GDP growth rate in five SAARC countries over the sample period is moderate at 3.10 percent with a wide variation as evidenced by negative growth rate of -5.21 percent to very high growth rate of 9.17 percent. The first indicator of financial development (domestic credit to private sector by banks) suggests that the amount of credit given to private sector by banks represents 25 percent of GDP on average.

Table 1: Summary statistics

Panel A: Descriptive statistics

Variable	Obs.	Mean	SD	Min	Max
GDP per capita growth	165	3.0958	2.325	-5.206	9.171
Log of initial per capita GDP	160	24.385	1.602	21.630	28.030
Domestic credit by bank	165	25.001	10.383	5.771	58.775
Domestic credit to private sector	165	25.172	10.397	5.771	59.178
Domestic credit by financial sector	165	42.821	12.994	16.639	75.888
Money and quasi money	165	41.777	13.896	14.197	80.663
Inflation in consumer price	158	8.712	4.241	1.481	26.145
Government consumption	165	9.5281	3.026	4.136	17.611
Human capital, schooling	124	42.548	18.447	16.505	99.390
FDI net inflow	161	0.6731	0.734	-0.098	3.668
Remittances to GDP	152	5.357	4.499	0.7298	24.957
Financial openness	165	-1.029	0.567	-1.875	1.111
Export to GDP	165	16.564	8.551	3.280	39.016
Import to GDP	165	24.204	10.896	6.860	54.799

Table 1 continued

Panel B: Correlation matrix of the alternatives of financial development indicator

	Domestic credit to private sector by banks	Domestic credit to private sector	Domestic credit by financial sector	Money and Quasi money
GDP per capita growth				
Domestic credit to private sector by banks	1.000			
Domestic credit to private sector	0.899	1.000		
Domestic credit by financial sector	0.848	0.849	1.000	
Money and Quasi money	0.908	0.910	0.864	1.000

The mean value of the second indicator (domestic credit to private sector) is slightly higher than the first indicator because it includes credit to private sector by non-banking financial institutions in addition to banks. The Third indicator, which includes all credit to both private and public sector distributed by the financial sector, suggests that on average financial sector grants credits amounting to 42.82 percent when expressed as a percentage of GDP. The result also shows that money and quasi money comprises 41.78 percent of GDP on average. All indicators of financial development exhibit substantial cross-country variation which will allow us to recognize any impact that financial development might have on the economic growth of a country.

Panel B of Table 1 presents Pearson correlation coefficients between economic growth indicator and bank development indicators. The result indicates that there are significant positive correlations between per capita GDP growth rate and four alternative measures of financial development. Moreover, all the indicators of financial development are highly correlated with each other implying that all indicators can be used as suitable proxies for financial development. We focus on banking sector development as a measure of financial development because SAARC countries' financial system is heavily dominated by the banking sector due to the absence of a well-functioning and efficient capital market.

3.3 Empirical Specification

In this study, panel data model of five SAARC countries has been considered where the growth rate of per capita GDP is a function of financial development indicators, log of initial GDP per capita and a set of variables that are shown to be systematically associated with growth in past research studies (Barro, 1991; Sala-i-Martin, 1994; Beck et al., 2000; Beck and Levine, 2002).

As an empirical proxy for economic growth, this paper uses annual percentage growth rate of GDP per capita. Following the research objective, this study firstly applies the generalized least squares (GLS) estimation. A linear econometric model for economic growth (Barro, 1991; Sala-i-Martin, 1994; Beck et al., 2000; Beck and Levine, 2002) is specified for the GLS:

$$G_{i,t} = \alpha + \beta FD_{i,t} + \delta_j X_{i,t} + v_{i,t} + \varepsilon_{i,t} \qquad (1)$$

Here, we use Domestic credit to private sector by banks as a ratio of GDP, Domestic credit to private sector as a ratio of GDP, Domestic credit provided by financial sector as a ratio of GDP,

and Money and quasi-money as a ratio of GDP as the closely related indicators of financial development with a view to keeping our results insensitive to alternative measures. However, this model suffers from endogeneity bias that might arise from perceived bi-directional relationship between financial development and economic growth. To address this issue, the study also uses GMM estimators developed by Holtz-Eakin et al. (1988), Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998) with a view to examine the effect of banking sector development on the economic growth in a dynamic panel data set of five SAARC countries for the period from 1984 to 2016. The study sets up the following specification for cross-country dynamic panel data analysis (Barro, 1991; Sala-i-Martin, 1994; Beck et al., 2000; Beck and Levine, 2002):

$$G_{i,t} = \alpha G_{i,t-1} + \beta FD_{i,t} + \delta_j X_{i,t} + v_{i,t} + \varepsilon_{i,t} \tag{2}$$

In equation (2) above, $G_{i,t}$ is the per capita growth in GDP, $G_{i,t-1}$ is its lagged value, $FD_{i,t}$ is a set of indicators of financial development, $X_{i,t}$ is a matrix of the control variables that are presumed to affect economic growth, $v_{i,t}$ is the unobserved country-specific effect and $\varepsilon_{i,t}$ is the error term. The subscript *i* denotes country, the subscript *t* represents time and the subscript *j* means the different parameters for the control variables. Estimating equation (2) using simple panel data methods invokes several econometrics problems such as bank development variable, which is assumed to be endogenous, may be correlated with the error term, time-invariant country characteristics may be correlated with the explanatory variables or the presence of lagged dependent variable may give rise to autocorrelation. In order to eliminate the country-specific effect, Arellano and Bond (1991) propose a differencing transformation of equation (2):

$$\Delta G_{i,t} = \alpha \Delta G_{i,t-1} + \beta \Delta FD_{i,t} + \delta \Delta X_{i,t} + \Delta \varepsilon_{i,t} \tag{3}$$

However, there may be a serious statistical drawback with this differenced estimator. It has been well documented that the first difference GMM estimator as suggested by Arellano and Bond (1991) can have poor finite sample properties in terms of bias and precision for the highly persistent series, since lagged levels of the explanatory variables are regarded as weak instruments for endogenous difference in the first-differenced equation when the series are persistent. This suggests that the first-differenced GMM estimates are seriously biased. To overcome the shortcomings associated with the differenced estimator, we use the system GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998).

The matrix of control variables includes the log of the initial GDP per capita (at constant 2005 $US), inflation measured by consumer price index, the share of government consumption expenditure to GDP, the level of human capital, the share of net FDI inflow to GDP, the share of remittances to GDP, the financial openness index, the proportion of exports to GDP, and the share of imports in GDP. Since the initial level of income could capture the heterogeneity of a country's technological progress (Sala-i-Martin, 1994), the log of the initial per capita real GDP is included to control for the convergence of the growth model. Besides, the share of government consumption to GDP variable is included to capture the size of the government expenditure that could be associated with macroeconomic instability and economic inefficiency in developing countries (Bekaert et al., 2006). The level of human capital measured by the secondary school enrollment ratio is also included to control for the human capital accumulation in the country (Beck and Levine, 2002). Besides, Li and Liu (2004) demonstrate a strong balanced association between FDI and economic growth in both developed and developing countries. Furthermore, the remittances ratio to GDP is included to control the effect of external private financial capital on output growth (Aggarwal et al., 2011). The financial openness index is included to capture the impact of the global financial system on output growth, while the other two variables such as exports to GDP,

and imports to GDP are controlled for to capture the effect of the trade openness (Beck and Levine, 2002) on the economic growth.

4. Results and Discussion

4.1 Random effect GLS regression

Table 2 presents the results of random effect GLS estimation of economic growth on financial development indicators and a set of control variables shown to be associated with economic growth. This work applies both fixed effect and random effect GLS estimation on panel data set to provide preliminary evidence on the empirical relationship between financial development and economic growth. Afterwards, this study reports only the results of random effect estimation because the Hausman specification test fails to reject the null hypothesis of no systematic difference in the coefficient estimates of the fixed effect and random effect models. In addition, due to the presence of heteroskedasticity in balanced panel dataset based on the white test result, robust standard errors have been used in the presented estimation.

In each of the regression, the dependent variable is the per capita GDP growth rate. The regressions include four alternative indicators of financial development individually. Each regression controls for the effect of initial per capita GDP, inflation by consumer price, level of human capital accumulation, the share of government consumption to GDP, the share of foreign direct investment (FDI) to GDP, financial openness, the share of remittances to GDP, the share of imports to GDP, and the share of exports to GDP. The random effect GLS regression results exhibit a strong positive association between financial development and economic growth. All the indicators of financial development enter each of the four regressions (m1, m2, m3, and m4) significantly at 1 percent significance level. Column m3 of Table 2 shows that, the rate of output growth is increased by about 0.09 unit due to a one unit increase in the share of overall gross domestic credit provided by financial sector to GDP while the effects of other variables are held fixed. Although the magnitude of the coefficient for the financial development on output growth, 0.07, is slightly smaller while the M2 is used as the alternative measurement of financial development in column m4, the positive and significant relationship between financial development and the economic growth still exist.

While the results indicate that financial development is significantly associated with economic growth for a sample of SAARC countries, however, these findings should not be viewed as compelling evidence in favour of our prediction because this work does not consider the endogenous nature of financial development and do not control for resulting simultaneity bias in preliminary analysis. However, the results suggest an economically meaningful relationship between financial development and economic growth.

Table 2: Cross-country random effect GLS estimation. Dependent variable is GDP per capita growth

	(m1)	(m2)	(m3)	(m4)
Independent variables				
Domestic credit by Bank	0.114***			
Domestic credit to private sector		0.117***		
Domestic credit by financial sector			0.093***	
Money and Quasi money (M2)				0.065***
Log of Initial per capita GDP	-0.076	-0.078	-0.274	-0.138

	(m1)	(m2)	(m3)	(m4)
Inflation in consumer price	0.026	0.029	-0.005	0.031
Government consumption	-0.006	-0.006	-0.098***	-0.011
Human capital, Schooling	0.028	0.029	0.051**	0.041
Financial openness	1.032**	1.043**	0.801***	0.729**
FDI net inflow	-0.028	-0.034	0.14	0.092
Remittances to GDP	-0.075**	-0.081**	-0.054	-0.06
Export to GDP	0.137***	0.137***	0.128**	0.109*
Import to GDP	-0.124***	-0.125***	-0.146***	-0.114**
Constant	3.145	3.113	7.064	4.004
Observations	99	99	99	99
Number of countries	5	5	5	5
R Squared	0.4164	0.4215	0.3886	0.3663

Note: "***" denotes *significance at 1% level*, "**" denotes *significance at 5 % level* and "*" denotes *significance at 10 % level*.

4.2 System Generalized Method of Moment (GMM)

The results reported in Table 3 are consistent with the prediction that financial development has significant impact on the economic growth of SAARC countries after controlling for potential simultaneity bias, omitted variables or unobserved country-specific effect. Beck and Levine (2002) note that the system estimator offers gains in both consistency and efficiency. Table 3 presents the results of the one-step system GMM estimator with standard errors reported in parentheses. We apply one-step system GMM estimator for small samples and calculate white heteroskedasticity-consistent robust standard errors to overcome the homoskedastic error problem in the one-step system estimator.

The financial development indicators enter positively and significantly at the 1 percent level in all four-regression specifications (m5, m6, m7 and m8) using the one-step estimator. The coefficients on Domestic credit by the bank and Domestic credit to the private sector are considerably similar in magnitude (0.079 and 0.081, respectively as reported in column m1 and m2). This is expected because of very high correlation between these two proxies of financial development. Column m4 shows that the coefficient on money and quasi money is 0.041, the lowest among all coefficients. Being a relatively indirect proxy of financial development, money and quasi money has the lowest correlation with economic growth among all the proxies of financial development. So, this result is also in line with expectation. Nevertheless, the coefficient on Domestic credit provided by the financial sector is 0.060, which is higher than the coefficient on money and quasi-money but lower than the coefficients on first two proxies.

The results of Table 3 also show a significant and positive effect of the level of human capital on economic growth, meaning that the economic growth will be enhanced due to an increment in the level of human capital in SAARC countries. Among all other control variables, the coefficients for the financial openness and the share of export to GDP are positive and highly significant in all the regressions irrespective of the use of alternative measurement of the financial development. This suggests that a country's economic growth will increase while its financial exposure is expanded to the world, or the total amount of export is increased.

Table 3: Cross-country system GMM estimation. Dependent variable is GDP per capita growth

	(m5)	(m6)	(m7)	(m8)
Independent variable				
Lag of dependent variable	0.283	0.276	0.297*	0.329**
Domestic credit by Bank	0.079***			
Domestic credit to private sector		0.081***		
Domestic credit by financial sector			0.060***	
Money and Quasi money				0.041***
Log of Initial per capita GDP	-0.236	-0.234	-0.364	-0.286
Inflation in consumer price	0.073	0.073	0.053	0.080
Government consumption	-0.005	-0.005	-0.064**	-0.006
Human capital, schooling	0.034*	0.034*	0.049***	0.042**
Financial openness	0.776***	0.785***	0.604**	0.529***
FDI net inflow	-0.137	-0.135	-0.024	-0.077
Remittances to GDP	-0.043	-0.047	-0.029	-0.027
Export to GDP	0.143***	0.142***	0.128***	0.122***
Import to GDP	-0.146***	-0.146***	-0.154***	-0.138***
Constant	6.473	6.377	9.004	7.171
Observations	99	99	99	99
Number of countries	5	5	5	5
AR(1) p-value	0.080	0.080	0.090	0.071
AR(2) p-value	0.403	0.411	0.527	0.385
Sargan p-value	0.299	0.288	0.323	0.303
Hansen p-value	1.000	1.000	1.000	1.000
Instruments	92	92	92	92

Note: The estimation method is one step System GMM. "***" denotes *significance at 1% level*, "**" denotes *significance at 5 % level* and "*" denotes *significance at 10 % level*.

On the other hand, the share of import to GDP is significantly and negatively associated with the rate of output growth in all the regressions, because import creates excessive pressure on economic growth through affecting the production structure of a country. The regression in column m7 of Table 3 also shows a significantly negative effect on growth from the ratio of government consumption to GDP. It suggests that a greater volume of non-productive government spending reduces the growth rate from a given starting value of GDP.

All other control variables included in the system GMM estimation do not appear to be significantly associated with the rate of economic growth. Yet, the favourable result of two specification tests lends credibility to the presented model as well as to the documented results. The Arellano-Bond test for first and second order autocorrelation indicates that this model can reject the null hypothesis of no autocorrelation in the first order as expected. In addition, this model cannot reject the null hypothesis of no second-order serial correlation in the differenced error term. The Sargan test of adequacy and exogeneity of the instrument suggests that instruments are adequate in this study.

5. Conclusions

Economic theories predict that a well-developed financial system improves mobilization of resources, however, ensures an efficient allocation of resources and thus promotes faster economic growth. This work examines this conjecture using a panel of five SAARC countries over the period 1984-2016 by applying the system GMM techniques developed for dynamic panel data models. This study employs four different proxies of financial development and finds that all four indicators of financial development are significantly positively associated with economic growth after controlling for other potential determinants of growth. Each financial development indicator enters significantly in the system panel growth regressions that take into account the effect of potential endogeneity and remove the time-invariant country-specific effect. Thus, the findings are consistent with the theories that predict a significant positive role of financial development in the process of economic growth. One of the innovative features of this study is the use of a highly sophisticated econometric technique in examining whether financial development matters for growth in SAARC countries. In addition, this study control for biases induced by simultaneity, reverse causation, and unobserved country effects by using instrumental variables that extract the exogenous component of financial development.

In this paper we use different indicators of bank development as reasonable proxies for financial development of a country. Banks and other financial intermediaries are important components of a country's financial system. Another vital component of financial system is the stock market which also plays a pivotal role in capital accumulation and allocation process. Theory provides conflicting predictions about the independent and joint role of banks and stock market in the growth process. Therefore, omitting stock market development makes it difficult to assess whether banks and stock markets each have a separate impact on economic growth or whether the positive relationship between bank development and growth holds after controlling for stock market development (Beck and Levine, 2004). Hence, examining the effect of bank development and stock market development simultaneously on the economic growth of a country provides an excellent avenue for future research.

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