



Effects of Financial Inclusion on Economic Growth and Economic Development in Six Asian Countries

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Abstract

A comprehensive financial plan is a prerequisite for both developed and developing nations, as every nation has to enhance economic growth and economic development at the same time. This study analyzes the impacts of financial inclusion on economic growth and economic development in six Asian countries. Time series data from 1997 to 2016 is used for empirical analysis. Data is collected from the Central Banks of selected countries, World Bank and IMF databases. Gross domestic product, human development index, credit to private Sector, and income inequality, loan to rural areas, broad money, and foreign direct investment are selected indicators for the study. Panel methodologies are used for empirical analysis. The results of the study show that financial inclusion has a deep-rooted impact on economic growth as well as economic development in the case of selected Asian countries. The study recommends that strong financial inclusion can be helpful for poverty reduction in developing countries.

Keywords: Financial Inclusion, Economic Growth and Development

JEL Codes: P34, O43

I. Introduction

Financial inclusion means everyone have simply access to helpful, cheap financial product and services delivered in an exceedingly accountable and proper means like savings, payments, credit and insurance. Start towards broader financial inclusion is to possess access to account that permits individuals to deposit cash and to send and receive payments. World Bank group's Universal financial Access initiative 2020 is making certain that folks worldwide have access to transaction account as it will function as entree of alternative financial and monetary services (World Bank). Beck et. al., (2004) discovered that "In countries with developed financial intermediaries, the incomes of the poorest quintile grow quicker than average gross domestic product per capita, financial gain difference falls faster, mortality reductions are larger and kid enrollment in primary faculties increase". Moreover, financial gain inequalities are additional rife in economies wherever larger phase of population is denied access to money services. Thorat (2008) emphasized the role, money inclusion will play in reducing poorness and difference and in generation of productive employment in an exceedingly country. It's explicit that "Financial inclusion means that creating money services out there to poor, giving them credit facilities that suit their desires and generate self-employment opportunities for them. Empirical proof confirms that countries with an oversized proportion of their population excluded from financial system show high poorness ratios and high disparity." Several empirical studies have established the link between financial sector development, economic process and reduction in poorness and disparity. Previous studies highlighted the relationship between finance and growth, though the issue of direction of causality is more difficult to determine. Many studies mention that immature and underdeveloped nations have demographic factors for exclusion in the financial framework (Kalsom, 2016). Kunt and Peria (2010) assessed that the stability, efficiency and outreach of the banking system, using aggregate, bank-level, and survey data. So, this study focuses on depth, size, access, intermediation, growth and development indicators of financial inclusion. The advancement of financial inclusion will lead economies towards growth and development (Hannig and Jansen, 2010). This study analyzes the relationship between financial inclusion and poverty reduction and economic growth and development in the case of Asian countries.

II. Literature Review

Raichoudhury (2016) estimated the connection between financial inclusion and human development or advancement crosswise over nations and utilize multidimensional way to build an index of financial inclusion which was similar to the index of Sarma (2012). The outcome demonstrated that there was a positive connection among human advancement and monetary incorporation. Along these lines, the nations should take budgetary consideration as the greater goal for the improvement of the economy and the general public. Malkawi et al., (2012) investigated the relationship between economic improvement and financial development in United Arab Emirates from 1974 to 2008. The results of the research demonstrated that there was a negative and factually huge relationship between economic growth indicators and financial development in the case of UAE. Results indicated a bi-directional causality between financial development and economic development in the case of UAE.

Hathroubi (2016) aimed to provide the measurement of financial inclusion in the case of Saudi Arabia, during the period of 1980-2013. The outcomes recommended that money related consideration and human advancement last were decisive and exceptionally connected to each other and Per capita pay, GDP, the share of the rural population and share of women adult population were contrarily corresponded to financial inclusion. Mbutor and Uba (2013) explored the effect of financial inclusion on monetary policy in the vicinity of 1980 and 2012. The coefficient of the total deposit and credits by country business bank offices demonstrated that ascent in a prologue to business managing an accounting exercise in the rural areas would attach inflation to drop. However, the greatness of the coefficient was minor and insignificant. Nonetheless, the negative indication of the coefficient of provincial branch advances and advances demonstrates that further increments in the introduction to business banks in the rural areas will be the hint of something to look forward to for money related strategy in Nigeria going ahead. Arora and Rashmi (2012) examine the connection between financial development and human capital in 21 nations of developing Asia. The results of this research demonstrated that a significant negative connection exists among many related improvement proxy by M2/GDP and pupil-teacher ratio and a solid positive connection exists between physical access to banks and expected a long time of tutoring. Further, financial improvement and educational advancement indices demonstrated no reasonable connection with the chose nation's financial and educational sector improvement.

Sehrawat and Giri (2015) inspected the connection between financial development and income inequality in India utilizing yearly information from 1982-2012. The co-integration test affirmed a long run connection between financial improvement and income inequality in India. The ARDL test recommends that financial development,

economic growth, inflation heightened the income inequality in both long run and short run. Notwithstanding, exchange receptiveness decreases the hole amongst rich and poor in India. Research suggested that present prescribe for fitting financial and economy related changes focusing on financial inclusion to diminish income imbalance in India.

Bruhn and Love (2009) investigated the result of giving financial services to low-pay people with entrepreneurial movement, income, saving accounts and employment and wage earners. The outcomes demonstrated that the opening of Banco Azteca coordinated to bring of 7.6 percent up in the number of casual entrepreneurs. Add up to business was enhanced, by 1.4 percent, and normal salary went up by around 7 percent. They proposed that by giving money related administrations to poor, it could create extra financial action. Park & Mercado (2015) investigated Financial Inclusion, Poverty, and Income Inequality in Developing Asia: Results demonstrated that per capita income, lead of law, and demographic characteristics essentially influence money related incorporation in developing Asia. Moreover, they located that financial inclusion essentially lessens neediness and poorness and results also confirmed that it brings down income inequality.

Ene and Inemesit (2015) checked the effect of micro financing in elevating incorporation from 1990 to 2014. For this purpose ordinary least square method and unit root test was conducted and their discoveries demonstrated that little deposit amount had a constructive and noteworthy association with saving account opened by rural residents, though, Microfinance financing cost had pessimistic impact on advances and advances got by country people and furthermore demonstrated that Micro-Finance Banks essentially contribute in the development of Small and Medium Enterprises. Proposals were made to Government should open the branches close to rural areas. Along these lines, the fiscally barred people could undoubtedly get to the money related items or administrations. Onaolapo (2015) investigated the thirty years of extricated information on the impacts of financial inclusion on the economic growth of Nigeria from 1982 to 2012. , the general results of the regression research demonstrated that comprehensive Bank financial deed fundamentally impacted poverty diminishment yet marginally decided economic development and Financial Intermediation. The investigation had a few limitations and just watched the connection between money related considerations on Nigerian Economic development; featuring the parts of financial inclusion like loaning, methods for installment and investment window had been insignificant along these lines giving a decent establishment to pending research's to review this issue in bigger angle.

Safdar (2014) looked at the long run connection between financial deepening and GDP as a proxy for economic growth in Pakistan with comprehensive of foreign direct investment and inflation (INF) secured the time traverse of 1975 to 2012. The consequences of a VECM demonstrated the presence of short run relationship among factors and blunder rectification displayed for GDP and FD demonstrated the modification impact back towards long run. At last, the Granger causality test demonstrated the unidirectional relationship among factors. The paper recommended that Pakistan needs all around creating and stable money related structure to bring financial specialists' certainty and remote direct interest in the economy. Zaman et al., (2012) inspected the effect of financial indicators on human development in Pakistan by utilizing yearly information from 1975 - 2010. Results showed that causality keeps running from monetary indicators for human capital aside from credit to private part yet not the other way around. Financial indicators were nearly connected with financial development and human improvement in Pakistan. Nonetheless, fluctuation decay research demonstrates that among all the financial indicators or factors, wide cash supply (M2) had applied the biggest commitment to changes in human capital. Akhmat et al., (2010) explored the connection between economic growth and financial development. Variables used in the study were broad money supply, credit to the private sector (CPS) and bank deposit liabilities. The results of panel co-integration found that there was a long-run connection between finance related improvement markers and economic growth in human advancement in SAARC locale.

III. Theoretical Background and the Model

III.I. Financial Intermediation Theory

Financial intermediation is a procedure in which institution borrows money from surplus units as deposit funds and then lends these funds to deficit units. This concept was drafted by Gurley and Shaw (1960). Theory of financial intermediation depends on the informational asymmetry and the agency theory. The presence of financial intermediation is classified by these elements: high cost of exchange or transaction, absence of complete information in helpful time; and the strategy for control and regulation method. Bisignano (1998) and Leland and Pyle (1977) mention that financial intermediaries can be recognized by four criteria: first their primary classes of liabilities (deposits) are defining for a fixed amount which is not linked to the performance of a portfolio. Second the deposits

are ordinarily short term and of a significantly shorter term than financial intermediation assets. Third a high extent of their liabilities is chequeable. Fourth the liabilities and resources are generally not transferable. The most imperative commitment of financial intermediation is an enduring stream of assets from surplus to deficiency units. So, Poor people can also use formal financial intermediaries like banks. The financial market can pave the way for provision of varieties of financial products and services that suite the economic status of the poor.

III.II. The Model

The main aim of this study is to find out the impacts of financial inclusion on economic growth and economic development in the case of some selected Asian countries. Following the previous studies Ali (2011), Ali (2015), Onaolapo (2015), Ali (2018), Ali et al. (2016), Ali and Bibi (2017), Ali and Ahmad (2014), Ali and Audi (2016), Ali and Audi (2018), Ali and Rehman (2015), Ali and Zulfiqar (2018): the model of this study will come as:

Financial Inclusion and Economic Growth

$$Y_{it} = \beta_0 + \beta_1 X_{it1} + \beta_2 X_{it2} + \beta_3 X_{it3} + \beta_4 X_{it4} + \beta_5 X_{it5} + \beta_6 X_{it6} + \mu_t \longrightarrow \text{eq. 1}$$

In general, this model is an enhancement from Ighodaro and Oriakhi (2011) which describes financial development in terms of Loan-to-Deposit ratio and Broad Money income only.

Where, Economic Growth is measured with help of GDP

X_1 = Ratio of Credit to Private Sector to GDP

X_2 = No. of bank Branches

X_3 = Loan to Rural Areas to total Loan

X_4 = Ratio of Broad money to GDP (M2)

X_5 = Foreign Direct Investment

X_6 = Gini-coefficient (INE)

t = time period

i = i th Asian country

β_0 = Constant

μ_t = Error Term

Financial Inclusion and Economic Development

$$Z_{it} = \beta_0 + \beta_1 A_{it1} + \beta_2 A_{it2} + \beta_3 A_{it3} + \beta_4 A_{it4} + \beta_5 A_{it5} + \beta_6 A_{it6} + \beta_7 A_{it7} + \mu_t \longrightarrow \text{eq. 2}$$

Where, Economic Development is measured with help of HDI

A_1 = Ratio of Credit to Private Sector to GDP

A_2 = No. of Bank branches

A_3 = Loan to Rural Areas to total Loan

A_4 = Ratio of Broad money to GDP (M2)

A_5 = Foreign Direct Investment

A_6 = Gini-coefficient (INE)

A_7 = GDP

β_0 = Constant

μ_t = Error Term

IV. Research Methodology

This uses panel data from 1997 to 2016 for empirical analysis. Most of the data are taken from World Development Indicator (WDI), International Monetary Fund (IMF) database and from different issues of Annual Statistical Bulletin and published reports of Central Bank of selected countries. Secondary data are most creditable source of data as these data sets are generated by specialized institutions of the country (White, 2010). The main reason behind this time selection is that because financial inclusion started in early 2000. The sample size is comprised of scheduled banks in six Asian countries (Pakistan, India, China, Sri-Lanka, Bangladesh and Malaysia). The main reasons to choose these countries is the economic dimensions of these countries are almost same. Mugenda (1999) mentioned that data must be cleaned, coded and legitimate, before the final analysis. This study embraces an econometric model for examining and testing the significance of the variables. The focus of this study is to determine whether financial inclusion improves economic growth or development in specified economies. The excel software will be utilized to change the factors into a reasonable format for analysis and statistical tool for data analysis (E-Views, SPSS and STATA) are used to analyze the quantitative information.

IV.I. Pooled OLS Regression Model

All coefficients and intercepts are supposed to be same in space and time. The measurements of the pooled information are ignored, when data or information is pooled and a Pooled ordinary least squares regression model is run. Here it is supposed that all coefficients are steady or constant crosswise over time and people, we expect that there is neither significant country, nor noteworthy temporal impacts, we could pool all of the information and run ordinary least squares (OLS) regression model.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \mu_t \longrightarrow \text{eq. 3}$$

For second model:

$$Z = \beta_0 + \beta_1 A_1 + \beta_2 A_2 + \beta_3 A_3 + \beta_4 A_4 + \beta_5 A_5 + \beta_6 A_6 + \beta_7 A_7 + \mu_t \longrightarrow \text{eq. 4}$$

IV.II. Fixed Effect Model

The fixed effects model has steady slopes. The fixed effect model shows that are the incline in coefficients are consistent, however the intercept fluctuates over the individual / nation and also time. In the event that these are measurably significant, there is no motivation to pool (Gujarati, 2003). To consider the individuality or independence of every nation, country or cross-sectional unit, intercept is differed by utilizing dummy variable for fixed effects. Dummy for Pakistan is utilized as a comparison.

A fixed effect models for cross segment (intercept or individual)

$$Y = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \alpha_4 D_{4i} + \alpha_5 D_{5i} + \alpha_6 D_{6i} + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \mu_t \longrightarrow \text{eq. 5}$$

Second Model

$$Z = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \alpha_4 D_{4i} + \alpha_5 D_{5i} + \alpha_6 D_{6i} + \beta_1 A_1 + \beta_2 A_2 + \beta_3 A_3 + \beta_4 A_4 + \beta_5 A_5 + \beta_6 A_6 + \beta_7 A_7 + \mu_t \longrightarrow \text{eq. 6}$$

Where $D_{2i} = 1$ if the data fits to cross-section 2 (India), 0 otherwise; $D_{3i} = 1$ if the data goes with cross-section 3 (Sri-Lanka), 0 otherwise. Likewise tracks in the similar methods for all cross-sections or groups. $D_{4i} = 1$ if the data are of cross-section 4 (Bangladesh), 0 otherwise. $D_{5i} = 1$ if the data goes with cross-section 5 (Malaysia), 0 otherwise. $D_{6i} = 1$ if the information belongs to cross-section 6 (China), 0 otherwise. As there are six countries, only five dummies are utilized to avoid the trap of dummy variable (Gujarati, 2003), the dummy for Pakistan is not used. In other words, 1 α symbolizes the intercept of Pakistan and 2 α signifies India, 3 α of Sri-Lanka, 4 α Bangladesh, 5 α Malaysia and 6 α of China, all the intercept coefficients are different from one another and express how ample the intercepts of each states vary from the intercept of Pakistan as Pakistan is the comparison country.

IV.III. Random Effect Model

In the random effects model the intercept is expected to be a random result variable, while the result is a random function of a mean value plus a random error.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \mu_t \text{ eq. 7} \longrightarrow$$

Instead of handling β_{1i} as fixed, it is expected to be a random variable with a mean value of β_0 and the intercept of individual country.

Where ε is a random error with a mean value of zero and variance (σ^2) of the error. And so

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + w_t \text{ eq. 8} \longrightarrow$$

Where, $w_t = \mu_t + \varepsilon$

Second Model

$$Y = \beta_0 + \beta_1 A_1 + \beta_2 A_2 + \beta_3 A_3 + \beta_4 A_4 + \beta_5 A_5 + \beta_6 A_6 + \beta_7 A_7 + w_t \longrightarrow \text{eq. 9}$$

Where, $w_t = \mu_t + \varepsilon$

IV.IV. Hausman test

Hausman test demonstrates that coefficient assessed by random effects model and the fixed effects model are not same. If the P - value is significant, the data support fixed effects and it has insignificant p-value, the data support the random effect model.

H_0 : Random Effect Model is appropriate

H_1 : Fixed Effect Model is appropriate

IV.V. Breusch-Pagan Lagrange Multiplier (LM) Test

The Breusch–Pagan LM statistic is used to check the pooled OLS method is acceptable against the random effects substitute.

H₀: Pooled Regression is appropriate

H₁: Random Effect Model is appropriate

To pick Pooled OLS or REM the Breusch-Pagan test ought to be utilized which has a chi-square dispersion. For Breusch and Pagan LM test, low p-value means rejection of the null hypothesis that the pooled OLS demonstrate is sufficient, rather it goes for the random effects alternative.

IV.VI. Fixed Effects Hypothesis Testing (F-Test)

The pooled regression model is used for comparison. If F test is used for this purpose.

$$F = \frac{\frac{R^2_{Fix} - R^2_{pooled}}{N - 1}}{\frac{1 - R^2_{LSDV}}{(NT - N - K)}}$$

Here T is the total number of observations, N number of cross-sections, and k is the quantity of regressors in the model. If we discover significant improvements in the R², then there is a statistically significant group effect. The hypothesis for F-Test are as follows:

H₀: Pooled OLS Model is appropriate

H₁: Fixed Effect Model is appropriate

The significant p-value will favor the fixed effect model, whereas, the insignificant p - value will favor the Pooled OLS model.

V. Results and Discussion

This part of the thesis is comprised of estimated results and discussion. This study has examined the impact of financial inclusion on economic growth, economic development and poverty reduction in the case of selected Asian countries.

Table 1: Descriptive Statistics

	BNK	CPS	FDI	GDP	HDI	INE	LRA	M2
Mean	8.0546	61.407	1.9742	6.0225	0.6153	38.6971	16.7404	82.9925
Median	7.9225	38.658	1.4505	6.0000	0.5972	35.9000	15.0061	60.2771
Maximum	18.955	156.70	5.1362	14.200	0.7990	49.2000	36.5107	208.306
Minimum	0.0690	15.381	0.0566	-7.4000	0.4370	29.8000	2.67453	25.6338
Std. Dev.	4.7288	43.671	1.3795	2.9183	0.1081	6.73067	10.0094	47.4908
Skewness	-0.0428	0.7471	0.6676	-0.9033	0.0880	0.30030	0.24984	0.83119
Kurtosis	2.8254	1.9291	2.1901	6.6242	1.5957	1.40423	1.56323	2.40866
Jarque-Bera	0.1889	16.897	12.194	81.996	10.014	14.5360	11.5698	15.5662
Probability	0.9098	0.0002	0.0022	0.0000	0.0066	0.00069	0.00307	0.00041
Sum	966.55	7368.8	236.90	722.70	73.844	4643.66	2008.85	9959.10
SumSq.Dev.	2661.1	22695	226.48	1013.4	1.3926	5390.93	11922.4	268389.
Observations	120	120	120	120	120	120	120	120

The estimated results of descriptive statics disclose that gross domestic product, and number of Bank branches are negatively skewed and credit to private sector, foreign direct investment, Human development index income inequality, loan to rural areas and broad money ratio are positively skewed. The results demonstrate all the variables have positive value of Kurtosis.

Table 2: Country wise Descriptive Statistics Pakistan

	BNK	CPS	FDI	GDP	HDI	INE	LRA	M2
Mean	0.0889	22.4805	1.2482	4.1350	0.50110	31.5620	6.8641	49.5901
Median	0.0822	22.5294	0.8390	4.0000	0.5090	31.3850	7.1263	50.1884
Maximum	0.1299	28.7361	3.6683	9.0000	0.5800	33.1200	11.0727	58.8676
Minimum	0.0690	15.3818	0.3828	0.4000	0.4370	29.8000	3.1159	38.5947
Std. Dev.	0.0185	4.6456	0.9770	1.9159	0.0420	1.1491	2.2338	5.3920
Skewness	0.8508	-0.1790	1.4772	0.6122	-0.0500	0.1789	0.1194	-0.4262
Kurtosis	2.5942	1.7145	3.8479	3.9378	1.9122	1.4847	2.4025	2.6744
Jarque-Bera	2.5504	1.4839	7.8735	1.9825	0.9944	2.0200	0.3449	0.6940
Probability	0.2793	0.4761	0.0195	0.3711	0.6082	0.3642	0.8415	0.7067
Sum	1.7799	449.611	24.9655	82.700	10.022	631.240	137.283	991.803
Sum Sq. Dev.	0.0065	410.050	18.1377	69.7455	0.0335	25.0905	94.8100	552.411
Observations	20	20	20	20	20	2	20	20

The estimated results of descriptive statistics disclose that credit to private sector and human development index are negatively skewed and foreign direct investment, gross domestic product, and number of Bank branches, income inequality, loan to rural areas and broad money ratio are positively skewed. The results demonstrate all the variables have positive value of Kurtosis.

Table 3: India

	BNK	CPS	FDI	GDP	HDI	INE	LRA	M2
Mean	9.7750	41.1884	1.5009	6.9700	0.5512	35.9220	23.1393	68.4248
Median	8.9850	45.3972	1.4146	7.3000	0.5510	34.5500	23.3669	71.3792
Maximum	14.000	52.3857	3.6569	10.300	0.6540	46.6000	36.5107	80.1470
Minimum	7.6200	23.8737	0.4790	3.9000	0.4740	30.8200	14.9734	48.1016
Std. Dev.	1.9481	10.8524	0.8145	2.0716	0.0528	5.8952	6.0089	10.8853
Skewness	0.9564	-0.4211	0.8824	-0.1720	0.2071	1.0365	0.4689	-0.6081
Kurtosis	2.7292	1.5394	3.4452	1.8535	1.9437	2.6074	2.2897	1.9751
Jarque-Bera	3.1103	2.3689	2.7609	1.1939	1.0727	3.7096	1.1535	2.1082
Probability	0.2111	0.3059	0.2514	0.5504	0.5848	0.1564	0.5617	0.3485
Sum	195.500	823.769	30.019	139.40	11.025	718.44	462.787	1368.49
Sum Sq. Dev.	72.108	2237.74	12.6058	81.542	0.0530	660.335	686.030	2251.31
Observations	20	20	20	20	20	20	20	20

The estimated results of descriptive statistics disclose that credit to private sector and gross domestic product are negatively skewed and foreign direct investment, number of Bank branches, income inequality, loan to rural areas and broad money ratio are positively skewed. The results demonstrate all the variables have positive value of Kurtosis.

Table 4: Sri Lanka

	BNK	CPS	FDI	GDP	HDI	INE	LRA	M2
Mean	12.7085	32.6077	1.3185	5.3200	0.7110	37.5750	21.5676	41.1822
Median	12.7442	31.7104	1.1575	5.6500	0.7280	36.4000	21.1675	39.3692
Maximum	18.9554	45.9701	2.8495	10.300	0.7880	41.000	31.2347	56.4013
Minimum	7.4554	25.5155	0.8418	-1.9000	0.5240	33.5000	9.5489	32.6085
Std. Dev.	4.5469	4.9216	0.4604	3.1738	0.0641	2.4571	7.5367	5.65790
Skewness	0.1443	1.0369	2.0033	-0.7889	-1.5630	0.0706	-0.2584	1.2216
Kurtosis	1.3289	4.1698	7.1706	3.3663	4.9937	1.7101	1.6525	4.3137
Jarque-Bera	2.3965	4.7244	27.873	2.1866	11.4568	1.4029	1.7356	6.4127
Probability	0.3017	0.0942	0.0000	0.3351	0.0032	0.4958	0.4198	0.0405
Sum	254.170	652.155	26.3709	106.400	14.2219	751.500	431.352	823.645
Sum Sq. Dev.	392.813	460.230	4.0279	191.392	0.07828	114.717	1079.252	608.224
Observations	20	20	20	20	20	20	20	20

The estimated results of descriptive statics disclose that gross domestic product, human development index and loan to rural areas are negatively skewed and foreign direct investment, credit to private sector, number of Bank branches, income inequality and broad money ratio are positively skewed. The results demonstrate all the variables have positive value of Kurtosis.

Table 5: Bangladesh

	BNK	CPS	FDI	GDP	HDI	INE	LRA	M2
Mean	7.0101	31.3499	0.8278	5.92000	0.5199	33.2350	11.3801	48.4823
Median	6.9214	30.2547	0.8398	6.0000	0.5165	33.2000	9.2806	50.3789
Maximum	8.4405	43.9299	1.7354	7.2000	0.5980	33.5000	23.5500	65.8750
Minimum	5.5486	19.9866	0.0955	4.8000	0.4450	33.1000	2.6745	25.6338
Std. Dev.	0.9004	8.8038	0.4763	0.6963	0.0442	0.1308	7.8140	13.3045
Skewness	-0.0380	0.1853	0.2093	-0.0052	0.0874	0.6252	0.4382	-0.4938
Kurtosis	2.0136	1.5469	2.0292	2.0669	1.9194	2.0089	1.7536	2.0711
Jarque-Bera	0.8155	1.8738	0.9312	0.7255	0.9985	2.1217	1.9347	1.5318
Probability	0.6651	0.3918	0.6277	0.6957	0.6069	0.3461	0.3800	0.4648
Sum	140.203	626.999	16.556	118.40	10.3980	664.700	227.603	969.64
Sum Sq. Dev.	15.4042	1472.66	4.3113	9.2120	0.0371	0.3255	1160.13	3363.22
Observations	20	20	20	20	20	20	20	20

The estimated results of descriptive statics disclose that gross domestic product, number of bank branches and broad money ratio are negatively skewed and foreign direct investment, credit to private sector, human development index, income inequality and loan to rural areas are positively skewed. The results demonstrate all the variables have positive value of Kurtosis.

Table 6: Malaysia

	BNK	CPS	FDI	GDP	HDI	INE	LRA	M2
Mean	11.9794	120.372	3.4731	4.5800	0.7494	46.9500	7.8200	130.442
Median	11.6526	119.192	3.4097	5.4500	0.7415	46.3000	7.9000	131.915
Maximum	14.0480	154.892	5.1362	8.7000	0.7990	49.2000	9.4000	140.092
Minimum	10.5146	96.6046	0.0566	-7.4000	0.7060	46.0000	5.5000	119.590
Std. Dev.	1.0793	16.3254	1.3436	3.6082	0.0296	1.2236	1.1358	6.1617
Skewness	0.4972	0.7196	-1.0512	-2.1494	0.1665	1.0188	-0.5347	-0.2353
Kurtosis	2.0751	2.7160	3.9169	7.4206	1.6184	2.3368	2.2749	1.9642
Jarque-Bera	1.5368	1.7933	4.3841	31.685	1.6830	3.8267	1.3912	1.0787
Probability	0.4637	0.4079	0.1116	0.0000	0.4310	0.1475	0.4987	0.5831
Sum	239.588	2407.44	69.4625	91.6000	14.989	939.000	156.40	2608.84
Sum Sq. Dev.	22.1342	5063.88	34.3030	247.372	0.0167	28.4500	24.5120	721.365
Observations	20	20	20	20	20	20	20	20

The estimated results of descriptive statics disclose that gross domestic product, foreign direct investment, loan to rural areas and broad money ratio are negatively skewed and credit to private sector, human development index, income inequality and number of bank branches are positively skewed. The results demonstrate all the variables have positive value of Kurtosis.

Table 7: China

	BNK	CPS	FDI	GDP	HDI	INE	LRA	M2
Mean	6.7656	120.444	3.4765	9.2100	0.6594	46.9390	29.6715	159.833
Median	7.1696	118.067	3.5276	9.1500	0.6655	47.2000	29.6900	152.318
Maximum	8.7827	156.706	4.6003	14.200	0.7480	49.1000	33.9200	208.306
Minimum	4.2547	96.725	1.5229	6.7000	0.5650	43.5600	25.4500	115.245
Std. Dev.	1.3401	16.096	0.8311	1.9207	0.0591	1.5750	2.6316	25.5818
Skewness	-0.4404	0.7800	-0.5923	1.0015	-0.1108	-0.5968	0.0014	0.2383

Kurtosis	2.0010	2.9437	2.8058	3.6322	1.6785	2.5236	1.8102	2.2057
Jarque-Bera	1.4782	2.0308	1.2010	3.6766	1.4962	1.3766	1.1794	0.7150
Probability	0.4775	0.3622	0.5485	0.1590	0.4732	0.5024	0.5544	0.6993
Sum	135.31	2408.89	69.530	184.200	13.189	938.780	593.430	3196.66
Sum Sq. Dev.	34.123	4922.85	13.124	70.098	0.0665	47.1363	131.590	12434.15
Observations	20	20	20	20	20	20	20	20

The estimated results of descriptive statics disclose that number of bank branches, foreign direct investment, human development index and income inequality are negatively skewed and credit to private sector, gross domestic product, loan to rural areas and broad money ratio are positively skewed. The results demonstrate all the variables have positive value of Kurtosis.

Table 8

Covariance Analysis: Ordinary								
Correlation								
Probability	BNK	CPS	FDI	GDP	HDI	INE	LRA	M2
BNK	1.00000							
CPS	0.31010 (0.0006)	1.0000 -----						
FDI	0.17356 (0.0580)	0.7635 (0.000)	1.0000 -----					
GDP	0.09818 (0.2860)	0.2256 (0.013)	0.3908 (0.000)	1.0000 -----				
HDI	0.72620 (0.0000)	0.6304 (0.000)	0.4790 (0.000)	0.0645 (0.483)	1.0000 -----			
INE	0.41607 (0.0000)	0.8880 (0.000)	0.7081 (0.000)	0.2972 (0.001)	0.6968 (0.000)	1.0000 -----		
LRA	0.39723 (0.0000)	0.2516 (0.005)	0.1827 (0.045)	0.4578 (0.000)	0.3519 (0.000)	0.2832 (0.001)	1.0000 -----	
M2	0.17845 (0.0512)	0.9529 (0.000)	0.7280 (0.000)	0.3249 (0.000)	0.5429 (0.000)	0.8291 (0.000)	0.3591 (0.000)	1.0000 -----

The estimated results of the correlation matrix are presented in the table 5.8. The results show that number of bank branches has strong correlation with human development index and have moderate correlation with income inequality and loan to rural areas. Whereas, weak correlation with credit to private sector, broad money, foreign direct investment, and gross domestic product. According to the values given in the table 5.8 credit to private sector has strong correlation with foreign direct investment, income inequality, broad money, and human development index and weak correlation with gross domestic product and loan to rural areas. The results show that foreign direct investment has strong correlation with income inequality and broad money and moderate correlation with gross domestic product and human development index and weak correlation with the loan to rural areas. The values given in the table 5.8 show that gross domestic product has a moderate correlation with the loan to rural areas and broad money and weak correlation with human development index and income inequality. The results explain that human development index has strong correlation with income inequality and a moderate correlation with the loan to rural areas, and broad money. Income inequality has strong correlation with broad money and weak correlation with the loan to rural areas. The loan to rural areas has a moderate correlation with broad money.

Table 9: Model 1 (Financial Inclusion and Economic Growth) Pooled OLS

Dependent Variable: GDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.499944	2.177418	-1.15	0.253

CPS	-.0980626	.0251397	-3.90	0.000
BNK	.0218633	.0673943	0.32	0.746
LRA	.0809068	.0301585	2.68	0.008
M2	.0582394	.0208528	2.79	0.006
FDI	1.076589	.2404342	4.48	0.000
INE	.1564672	.0725157	2.16	0.033

The above results show that credit to the private sector has negative impact on gross domestic product and 1 unit increase in credit to private sector will (-0.980626) unit decrease in gross domestic product and this relationship is significant at 1 percent. The number of branches of banks has an positive impact as p-value is (0.746) and 1 unit increase in number of bank branches will (0.218633) unit increase in gross domestic product but this relationship is insignificant, Loan to rural areas has p-value (0.008) and there is positive relationship between loans to rural areas and GDP which shows that 1 unit increase in loan to rural areas will (0.809063) unit increase in GDP and this relationship is significant at 10 percent. M2 broad money is positively impacting GDP as p-value is (0.006) and 1 unit increase in broad money will (0.582394) unit will increase in GDP and it is significant at 10 percent, foreign direct investment impacts GDP positively as p-value is (0.000) and this relationship is significant at 1 percent and 1 unit increase in foreign direct investment will (1.076589) unit increase in GDP, Income inequality which is measured by Gini- coefficient is positively impacting GDP as p-value is (0.031) and their relationship is significant at 5 percent and 1 unit increase in income inequality will (0.1564672) unit increase in GDP. Additionally, the value of R-squared is 41 percent and adjusted is R-squared 38 percent, these estimates show that variations in independent variables are significantly explained by the dependent variable. The overall results of the study show that financial inclusion has a deep rooted impact on and economic growth the case of Asian Countries. So, we reject the null hypothesis and accept the alternative hypothesis.

Table 10: Fixed effect Least Square Dummy variable

Dependent Variable: GDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.385638	2.380588	-1.42	0.158
CPS	-.0841857	.0244229	-3.45	0.001
BNK	.3458163	.1268226	2.73	0.007
LRA	-.0958407	.0572401	-1.67	0.097
M2	.0512345	.0224333	2.28	0.024
FDI	1.356615	.2248469	6.03	0.000
INE	.1839568	.0723843	2.54	0.642
IND	.5103984	1.095255	0.47	0.259
SRI	-1.687872	1.487963	-1.13	0.367
BAN	.8904892	.9824085	0.91	0.029
MAL	5.325553	2.402699	-2.22	0.404
CHINA	1.699385	2.029299	0.84	0.158

For examining the individuality of every country or cross-sectional unit, intercept is changed by utilizing dummy variable in the case of fixed effects. Pakistan is used as dummy for the comparison of the selected countries. OLS is used for empirical analysis. Low p-value (0.00000) represents the estimation is in favor of the fixed effect otherwise the data favors random effect. The estimated results reveal that we reject the null hypothesis and conclude that the data favor fixed effect estimation procedure. The above results show that credit to the private sector has negative impact on gross domestic product and 1 unit increase in credit to private sector will (-.0841857) unit decrease in gross domestic product and this relationship is significant at 5 percent. The number of branches of banks has an positive impact as p-value is (0.007) and 1 unit increase in number of bank branches will (0.3458136) unit increase in gross domestic product but this relationship is significant at 10 percent, Loan to rural areas has p-value (0.097) and there is negative relationship between loans to rural areas and GDP which shows that 1 unit increase in loan to rural areas will (-.0958407) unit decrease in GDP and this relationship is significant at 10 percent. M2 broad money is positively impacting GDP as p-value is (0.024) and 1 unit increase in broad money will (.0512345) unit will

increase in GDP and it is significant at 10 percent, foreign direct investment impacts GDP positively as p-value is (0.000) and this relationship is significant at 1 percent and 1 unit increase in foreign direct investment will (1.356615) unit increase in GDP, Income inequality which is measured by Gini- coefficient is positively impacting GDP as p-value is (0.642) so, their relationship is insignificant and 1 unit increase in income inequality will (0.1839568) unit increase in GDP. Additionally, the value of R-squared 55 percent and adjusted R-squared 51 percent these estimates show that variations in independent variables are significantly explained by the dependent variable.

Table 11: Random Effect Model

Dependent Variable: GDP				
Variable	Coefficient	Std. Error	Z-Statistic	Prob.
C	-2.499944	.0251397	-1.15	0.251
CPS	-.0980626	.0673943	-3.90	0.000
BNK	.0218633	.0301585	0.32	0.746
LRA	.0809068	.0208528	2.68	0.007
M2	.0582394	.0208528	2.79	0.006
FDI	1.076589	.2404342	4.48	0.000
INE	.1564672	.0725157	2.16	0.031

The above results show that credit to the private sector has negative impact on gross domestic product and 1 unit increase in credit to private sector will (-.0980626) unit decrease in gross domestic product and this relationship is significant at 1 percent. The number of branches of banks has an positive impact as p-value is (0.746) and 1 unit increase in number of bank branches will (0.218633) unit increase in gross domestic product but this relationship is insignificant, Loan to rural areas has p-value (0.008) and there is positive relationship between loans to rural areas and GDP which shows that 1 unit increase in loan to rural areas will (0.809063) unit increase in GDP and this relationship is significant at 10 percent. M2 broad money is positively impacting GDP as p-value is (0.006) and 1 unit increase in broad money will (0.582394) unit will increase in GDP and it is significant at 10 percent, foreign direct investment impacts GDP positively as p-value is (0.000) and this relationship is significant at 1 percent and 1 unit increase in foreign direct investment will (1.076589) unit increase in GDP, Income inequality which is measured by Gini- coefficient is positively impacting GDP as p-value is (0.031) and their relationship is significant at 5 percent and 1 unit increase in income inequality will (0.1564672) unit increase in GDP. Additionally, the value of R-squared is 41 percent and adjusted is R-squared 38 percent, these estimates show that variations in independent variables are significantly explained by the dependent variable. The overall results of the study show that financial inclusion has a deep rooted impact on and economic growth the case of Asian Countries. So, we reject the null hypothesis and accept the alternative hypothesis.

Table 12: Hausman test

	Coefficients			Sqrt (diag (V _b -V _B))
	FE (b)	RE (B)	Difference (b-B)	S.E
CPS	-.0841857	-.0980626	.0138768	.
BNK	.3458163	.0218633	.323953	.1074336
LRA	-.0958407	.0809068	-.1767475	.0486507
M2	.0512345	.0582394	-.0070049	.0082714
FDI	1.356615	1.076589	.2800263	.
INE	.1839568	.1564672	.0274896	.
Prob>chi2				0.9797
Correlated Random Effects - Hausman Test: Test cross-section random effects				
Test Summary			Chi-Sq. d.f.	Prob.
Cross-section random			1.14	0.9797

The results in the above table explain that p-value is 0.9797, this shows that we reject the null hypothesis and conclude that random effect model is appropriate for empirical analysis.

Tabel 13: Bruesch and pagan Lagrangian multiplier test

	Var	sd = sqrt(Var)
GDP	.0093136	.0965072
E	.0001325	.011509
U	0	0
chibar2(01)		
Prob> chibar2 = 1.0000		

The results of Bruesch and Lagrangian multiplier test reveal that p-value is 1.000, so, we cannot reject the null hypothesis and conclude that the pooled regression is appropriate for estimations.

Table 14: Wald test (F-test)

Ind	0
Sri	0
Ban	0
Mal	0
China	0
F(5, 108)	= 7.03
Prob> F	=0.0000

The results of the Wald test show that p-value is 0.000. So, we reject the null hypothesis and conclude that Pooled OLS regression and fixed effect is used for empirical analysis.

Table 15: Specification Test

Spec. Tests	P-Value	Tested	Selection
Hausman	0.0000	Fixed/Random	Random
Breusch-Pagen	1.0000	OLS/Random	OLS
F-Test	0.0000	OLS/Fixed	Fixed

Sometimes, we are unable to decide which test is most appropriate, for this purpose specification test are used. The estimated coefficients and standard errors will be helpful for that and high coefficients and low standard errors have fulfilled the conditions. The results show that the random effect model has a low standard error and is most appropriate in the above test, so we select a random effect model.

Table 16: Model 2 (Financial Inclusion and Economic Development) Pooled OLS

Dependent Variable: HDI				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	.2754143	.0518319	5.31	0.000
CPS	-.0010405	.0006338	-1.64	0.103
BNK	.0137785	.0015957	8.63	0.000
LRA	.0002626	.0007361	0.36	0.722
M2	.0010679	.0005103	2.09	0.039
FDI	.0146941	.0061745	2.38	0.019
INE	.0058322	.0017512	3.33	0.001
GDP	-.0090908	.0022264	-4.08	0.000

The above results show that credit to the private sector has negative impact on gross domestic product and 1 unit increase in credit to private sector will (-.0010405) unit decrease in gross domestic product and this relationship is insignificant. The number of branches of banks has an positive impact as p-value is (0.000) and 1 unit increase in

number of bank branches will (0.0137785) unit increase in gross domestic product but this relationship is significant at 1 percent, Loan to rural areas has p-value (0.722) and there is positive relationship between loans to rural areas and GDP which shows that 1 unit increase in loan to rural areas will (.0002626) unit increase in GDP and this relationship insignificant. M2 broad money is positively impacting GDP as p-value is (0.039) and 1 unit increase in broad money will (.0010679) unit will increase in GDP and it is significant at 5 percent, foreign direct investment impacts GDP positively as p-value is (0.019) and this relationship is significant at 5 percent and 1 unit increase in foreign direct investment will (.0146941) unit increase in GDP, Income inequality which is measured by Gini-coefficient is positively impacting GDP as p-value is (0.001) so, their relationship is significant at 1 percent and 1 unit increase in income inequality will (.0058322) unit increase in GDP. GDP is negatively impacting economic development and this relationship is significant at 1 percent which shows that 1 unit increase in GDP will (-.0090908) unit decrease in economic development. The value of R-squared 76 percent and adjusted R-squared 74 percent these estimates show that variations in independent variables are significantly explained by the dependent variable. The estimated results of the study that financial inclusion has very strong impact on economic development in the case of Asian countries. So, we reject the null hypothesis and accept the alternative hypothesis.

Table 17: Fixed effect Least Square Dummy variable

Dependent Variable: HDI				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	.331316	.0267631	12.38	0.000
CPS	-.0011129	.0002866	-3.88	0.000
BNK	.0035729	.0014604	2.45	0.016
LRA	.0044103	.0006458	6.83	0.000
M2	.0021533	.0002558	8.42	0.000
FDI	-.0007613	.0028959	-0.26	0.793
INE	.0018572	.00083	2.24	0.027
GDP	.0000764	.0010718	0.07	0.943
IND	-.0846461	.0122117	-6.93	0.000
SRI	.117683	.016672	7.06	0.000
BAN	-.0177051	.010984	-1.61	0.110
MAL	.1090274	.0273642	3.98	0.000
CHINA	-.1222541	.0226764	-5.39	0.000

The above results show that credit to the private sector has negative impact on gross domestic product and 1 unit increase in credit to private sector will (-.0011129) unit decrease in gross domestic product and this relationship is significant at 1 percent. The number of branches of banks has an positive impact as p-value is (0.016) and 1 unit increase in number of bank branches will (0.0035729) unit increase in gross domestic product but this relationship is significant at 5 percent, Loan to rural areas has p-value (0.000) and there is positive relationship between loans to rural areas and GDP which shows that 1 unit increase in loan to rural areas will (.0044103) unit increase in GDP and this relationship is significant at 1 percent. M2 broad money is positively impacting GDP as p-value is (0.000) and 1 unit increase in broad money will (.0021533) unit will increase in GDP and it is significant at 1 percent, foreign direct investment impacts GDP positively as p-value is (0.793) and this relationship is insignificant and 1 unit increase in foreign direct investment will (.0007613) unit increase in GDP, Income inequality which is measured by Gini-coefficient is positively impacting GDP as p-value is (0.027) so, their relationship is significant at 5 percent and 1 unit increase in income inequality will (.0018572) unit increase in GDP. GDP is positively impacting economic development and this relationship is insignificant at and also shows that 1 unit increase in GDP will (.0000764) unit decrease in economic development. The estimated R-square is 96percent and adjusted R-square is 95 percent, these estimates reveal that how much variation independent variable are explained by the independent variable. Each country/ cross-sectional unit is also measured individually and the intercept varies for each country. It is assumed that the slope coefficients are still constant across a cross-section (Gujarati, 2003). Pakistan is taken as dummy variable and the intercept of Pakistan is taken for comparison of the selected country. The estimated coefficients of credit to private sector, number of bank branches, loan to rural areas, broad money, income inequality is highly significant, while dummy for countries, Bangladesh and India, Sri-Lanka, Malaysia and China coefficients are significant and dummy for countries, Malaysia, Sri Lanka has a positive relationship with economic development while China, India, Bangladesh has a negative relationship with economic development. The distinction in the intercepts of the countries might be because of the special arrangement or policies of the

Government about the exchange of import and export of products, costs of merchandise in different countries, exchange rate, or economic indicator. This shows that financial inclusion has a deep-rooted impact on economic development in the case of Asian countries and we reject the null hypothesis and accept the alternative hypothesis.

Table 18: Random Effect Model

Dependent Variable: HDI				
Variable	Coefficient	Std. Error	Z-Statistic	Prob.
C	.2754143	.0518319	5.31	0.000
CPS	-.0010405	.0006338	-1.64	0.101
BNK	.0137785	.0015957	8.63	0.000
LRA	.0002626	.0007361	0.36	0.721
M2	.0010679	.0005103	2.09	0.036
FDI	.0146941	.0061745	2.38	0.017
INE	.0058322	.0017512	3.33	0.001
GDP	-.0090908	.0022264	-4.08	0.000

The above results show that credit to the private sector has negative impact on gross domestic product and 1 unit increase in credit to private sector will (-.0010405) unit decrease in gross domestic product and this relationship is insignificant. The number of branches of banks has an positive impact as p-value is (0.000) and 1 unit increase in number of bank branches will (0.0137785) unit increase in gross domestic product but this relationship is significant at 1 percent, Loan to rural areas has p-value (0.722) and there is positive relationship between loans to rural areas and GDP which shows that 1 unit increase in loan to rural areas will (.0002626) unit increase in GDP and this relationship insignificant. M2 broad money is positively impacting GDP as p-value is (0.039) and 1 unit increase in broad money will (.0010679) unit will increase in GDP and it is significant at 5 percent, foreign direct investment impacts GDP positively as p-value is (0.019) and this relationship is significant at 5 percent and 1 unit increase in foreign direct investment will (.0146941) unit increase in GDP, Income inequality which is measured by Gini-coefficient is positively impacting GDP as p-value is 0.001 so, their relationship is significant at 1 percent and 1 unit increase in income inequality will (.0058322) unit increase in GDP. GDP is negatively impacting economic development and this relationship is significant at 1 percent which shows that 1 unit increase in GDP will (-.0090908) unit decrease in economic development. The value of R-squared 76 percent show that 76 percent variations in dependent variable is explained by independent variable.

Table 19: Hausmantest

	Coefficients			Sqrt (diag (V_b-V_B))
	FE (b)	RE (B)	Difference (b-B)	S.E
CPS	-.0011129	-.0002134	-.0008996	.
BNK	.0035729	.0149044	-.0113315	.0004331
LRA	.0044103	.0002578	.0041524	.0001007
M2	.0021533	.0006086	.0015447	
FDI	-.0007613	.0096789	-.0104402	.
INE	.0018572	.0035086	-.0016514	.
GDP	.0000764	-.00623	.0063064	
Prob>chi2				0.0000

The results of the Hausman test reveal that p-value is 0.0000. This show we can reject the null hypothesis and accepts the alternative and conclude that our model is estimated with the help of Random Effect model.

Table 20: Bruesch and pagan Lagrangian multiplier test

H₀ : Constant Variance	
Variables : Fitted values of HDI	
chibar2(01)	= 1.14
Prob> chibar2	= 0.2866

Bruesch and Pagan Lagrangian multiplier have p-value 0.2866 which is insignificant. So, it is concluded that the pooled regression is appropriate for empirical analysis.

Table 21: Wald test (F-test)

Ind	0
Sri	0
Ban	0
Mal	0
China	0
F(5, 107)	= 106.72
Prob> F	=0.0000

Wald test p-value is 0.000. So, we reject the null hypothesis and conclude that fixed effect model is a better choice for estimations.

Table 22: Specification Test

Spec. Tests	P-Value	Tested	Selection
Hausman	0.0000	Fixed/Random	Fixed
Breusch-Pagen	1.0000	OLS/Random	OLS
F-Test	0.0000	OLS/Fixed	Fixed

Most of the test favor for the fixed effect modeling, so this study uses the fixed effect model for empirical analysis.

Table 23: Granger Causality test

Pairwise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Prob.
CPS does not Granger Cause BNK	108	1.04725	0.3546
BNK does not Granger Cause CPS		0.57587	0.5640
FDI does not Granger Cause BNK	108	0.64675	0.5259
BNK does not Granger Cause FDI		0.68504	0.5064
GDP does not Granger Cause BNK	108	0.15780	0.8542
BNK does not Granger Cause GDP		0.55892	0.5736
HDI does not Granger Cause BNK	108	0.20227	0.8172
BNK does not Granger Cause HDI		0.02938	0.9711
INE does not Granger Cause BNK	108	0.13366	0.8750
BNK does not Granger Cause INE		0.50787	0.6033
LRA does not Granger Cause BNK	108	1.86122	0.1607
BNK does not Granger Cause LRA		1.59389	0.2081
M2 does not Granger Cause BNK	108	0.92428	0.4001
BNK does not Granger Cause M2		0.19887	0.8200
FDI does not Granger Cause CPS	108	7.07182	0.0013
CPS does not Granger Cause FDI		9.20635	0.0002
GDP does not Granger Cause CPS	108	4.32956	0.0157
CPS does not Granger Cause GDP		4.53449	0.0130
HDI does not Granger Cause CPS	108	0.29754	0.7433
CPS does not Granger Cause HDI		0.21746	0.8049
INE does not Granger Cause CPS	108	1.42310	0.2457
CPS does not Granger Cause INE		3.61206	0.0305
0LRA does not Granger Cause CPS	108	4.10990	0.0192
CPS does not Granger Cause LRA		0.61752	0.5413
M2 does not Granger Cause CPS	108	9.15970	0.0002
CPS does not Granger Cause M2		0.70628	0.4958

GDP does not Granger Cause FDI	108	0.65617	0.5210
FDI does not Granger Cause GDP		0.65078	0.5238
HDI does not Granger Cause FDI	108	1.34548	0.2650
FDI does not Granger Cause HDI		0.05572	0.9458
INE does not Granger Cause FDI	108	10.6795	6.E-05
FDI does not Granger Cause INE		0.51158	0.6011
LRA does not Granger Cause FDI	108	0.13005	0.8782
FDI does not Granger Cause LRA		0.39222	0.6766
M2 does not Granger Cause FDI	108	6.25013	0.0027
FDI does not Granger Cause M2		5.62665	0.0048
HDI does not Granger Cause GDP	108	1.16368	0.3164
GDP does not Granger Cause HDI		0.58448	0.5592
INE does not Granger Cause GDP	108	2.60453	0.0788
GDP does not Granger Cause INE		0.02786	0.9725
LRA does not Granger Cause GDP	108	6.86440	0.0016
GDP does not Granger Cause LRA		2.01399	0.1387
M2 does not Granger Cause GDP	108	4.08840	0.0196
GDP does not Granger Cause M2		1.98586	0.1425
INE does not Granger Cause HDI	108	0.37498	0.6882
HDI does not Granger Cause INE		1.11923	0.3305
LRA does not Granger Cause HDI	108	1.67637	0.1921
M2 does not Granger Cause HDI	108	0.06673	0.9355
HDI does not Granger Cause M2		0.54460	0.5817
LRA does not Granger Cause INE	108	6.56985	0.0021
INE does not Granger Cause LRA		2.52324	0.0851
M2 does not Granger Cause INE	108	2.34007	0.1014
INE does not Granger Cause M2		0.06761	0.9347
M2 does not Granger Cause LRA	108	0.72461	0.4870
LRA does not Granger Cause M2		1.72124	0.1839

Granger causality test results are presented in the above Table. The results show that credit to private sector does not cause number of bank branches and number of bank branches does not cause credit to private sector. There is no causal relationship among the variables. Foreign direct investment does not cause number of bank branches and number of bank branches does not cause foreign direct investment. GDP does not cause number of bank branches and number of bank branches does not cause GDP. Human development index does not cause number of bank branches and number of bank branches does not cause human development index. As well as, income inequality with number of bank branches and number of bank branches with income inequality does not cause each other. There is no causal relationship among loan to rural areas and number of bank branches or with number of bank branches and loan to rural areas. Broad money does not cause number of bank branches and number of bank branches does not cause broad money. The results show that foreign direct investment has no causal relationship with GDP, income inequality, loan to rural areas and human development index but foreign direct investment does cause broad money and broad money does cause foreign direct investment. There is bidirectional relationship among broad money and foreign direct investment. As well as, income inequality does cause GDP but GDP does not cause income inequality. There is unidirectional relationship among these variables. Results also reveal that loan to rural areas does cause GDP but GDP has no casual effect on loan to rural areas. So, the relation among them is unidirectional. Figures also tell that broad money with GDP has casual relation but GDP does not cause broad money. The relation among them is unidirectional. As, loan to rural areas and income inequality and income inequality and loan to rural areas has bidirectional relationship running among them because the does cause each other.

VI. Conclusions and Policy Recommendations

This study has examined the impact of financial inclusion in economic growth and economic development in the case of selected Asian countries over the period of 1997 to 2016. The data for the selected variables is collected

from World Development Indicator (WDI) and national databases of selected countries. Pakistan, India, China, Sri-Lanka, Bangladesh and Malaysia are selected countries for empirical analysis. Different advance methodologies are used for estimation. Variance of intermediation, financial access, financial depth and size are used for the measurement of financial inclusion. The estimated results of the study show that financial inclusion has a positive and significant impact on economic growth in the case of Asian countries. The results also explain that financial inclusion plays an important role in determining the economic development of Asian countries. The results show that all the indicators have a significant relationship with economic growth. On the basis of estimated results, it is concluded that financial inclusion is necessary for the development and growth as well. In light of the above findings, it is recommended that there is needs to take effective steps enhances financial inclusion and improve the degree development and growth at the same time in the case of Asian economies. There is a need to focus on socially inclusion of excluded or avoided segments by giving them simple, affordable and reasonable access to different financial services. Governments can streamline the procedures for financial services and offer suitable products, run promotions to create awareness about several products, and for small loans the collateral requirement can be waived. An increased access to finance in rural areas, especially for women can be more successful in reducing poverty and raising living standards. Financial inclusion can reduce gender and income disparities, could empower financially excluded segments, women and increases inclusive growth. Finance related establishments can give little advances on subsidized rates to the majority living in remote, immature and unprivileged territories which will help individuals living in these regions to end up a section of financial and economic development process and at the ultimate advantage of this procedure which will enhance the general welfare of the general public. The study also recommends that the government provide relevant structures and the environment for the smooth operation of financial institutions. With an improved operating environment, the financial sector will contribute positively to economic development and it will provide more employment opportunities and make credit easily accessible. Financial sector inclusion plays an important role in economic development. From the findings, financial sector inclusion has a positive correlation with economic growth. Policy makers can play a vital role in developing countries for making methods and creating opportunities of improved access to financial services or alternative facilities by unlocking the economic potentials for the whole population. Leaders of developed or developing countries finally perceive that the comprehensive financial services and system is services are the way to economic growth and the poverty reduction (Chetty, 2013).

References

- Ali, A. (2011). Disaggregated import demand functions of Pakistan; An empirical Analysis. M-Phil Thesis, NCBA&E, Lahore, Pakistan, 1-70.
- Ali, A. (2015). *The impact of macroeconomic instability on social progress: an empirical analysis of Pakistan*. (Doctoral dissertation, National College of Business Administration & Economics Lahore).
- Ali, A. (2018). Issue of Income Inequality Under the Perceptive of Macroeconomic Instability: An Empirical Analysis of Pakistan. *Pakistan Economic and Social Review*, 56(1), 121-155.
- Ali, A. and Bibi, C. (2017). Determinants of Social Progress and its Scenarios under the role of Macroeconomic Instability: Empirics from Pakistan. *Pakistan Economic and Social Review* 55 (2), 505-540.
- Ali, A., & Ahmad, K. (2014). The Impact of Socio-Economic Factors on Life Expectancy in Sultanate of Oman: An Empirical Analysis. *Middle-East Journal of Scientific Research*, 22(2), 218-224.
- Ali, A., & Audi, M. (2016). The Impact of Income Inequality, Environmental Degradation and Globalization on Life Expectancy in Pakistan: An Empirical Analysis. *International Journal of Economics and Empirical Research*, 4 (4), 182-193.
- Ali, A., & Audi, M. (2018). Macroeconomic Environment and Taxes Revenues in Pakistan: An Application of ARDL Approach. *Bulletin of Business and Economics (BBE)*, 7(1), 30-39.
- Ali, A., & Rehman, H. U. (2015). Macroeconomic Instability and Its Impact on Gross Domestic Product: An Empirical Analysis of Pakistan. *Pakistan Economic and Social Review*, 53(2), 285.
- Ali, A., & Zulfqar, K. (2018). An Assessment of Association between Natural Resources Agglomeration and Unemployment in Pakistan. *Pakistan Vision*, 19(1), 110-126.
- Ali, A., Ahmed, F., & Rahman, F. U. (2016). Impact of Government Borrowing on Financial Development (A case study of Pakistan). *Bulletin of Business and Economics (BBE)*, 5(3), 135-143.
- Al-Malkawi, H. A. N., Marashdeh, H. A., & Abdullah, N. (2012). Financial development and economic growth in the UAE: Empirical assessment using ARDL approach to co-integration. *International Journal of Economics and Finance*, 4(5), 105.
- Arora, R. U. (2012). Financial inclusion and human capital in developing Asia: The Australian connection. *Third World Quarterly*, 33(1), 177-197.

Akbar, A. (2019). Effects of Financial Inclusion on Economic Growth and Economic Development in Six Asian Countries. *Bulletin of Business and Economics*, 8(1), 16-33.

- Ayushi R. (2016). Financial Inclusion and Human Development: A Cross Country Analysis, *Asian Journal of Business Research* 6(1), 2463-4522
- Beck, T., Demirguc-Kunt, A., & Levine, R. (2004). Finance, inequality and poverty: Cross-country evidence (World Bank Policy Research Working Paper 3338). *Washington DC: World Bank*.
- Bruhn, M., & Love, I. (2009). *The economic impact of banking the unbanked: evidence from Mexico*. The World Bank D.C.
- Ene, E. E., & Inemesit, U. A. (2015). Impact of Micro finance in Promoting Financial Inclusion in Nigeria. *Journal of Business Theory and Practice*, 3(2), 139.
- Gurley, J.G., & Shaw, E.S., (1960). *Money in a Theory of Finance*. Brookings Institution, Washington,
- Hannig, A., and Jansen, S. (2010). Financial inclusion and financial stability: Current policy issues.
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International New Age International publisher
- Leland, H.E., & Pyle, D.H., (1977). Informational asymmetries, financial structure, and financial intermediation. *Journal of Finance* 32.
- Mbutor, M. O., & Uba, I. A. (2013). The impact of financial inclusion on monetary policy in Nigeria. *Journal of Economics and International Finance*, 5(8), 318-326.
- Onaolapo A. R. (2015). Effects of financial inclusion on the economic growth of Nigeria, *International Journal of Business and Management Review* 3(8), 11-28
- Park, C. Y., & Mercado, R. (2015). Financial inclusion, poverty, and income inequality in developing Asia.
- Saleem, H. (2016). Inclusive finance, growth and socio-economic development in Saudi Arabia, *International Review of Applied Economics* 0099
- Sehrawat, M., & Giri, A. K. (2014). The relationship between financial development indicators and human development in India. *International Journal of Social Economics*, 41(12), 1194-1208.
- Swamy, V. (2012). Bank-based financial intermediation for financial inclusion and inclusive growth.
- Zaman, K., Izhar, Z., Khan, M. M., & Ahmad, M. (2012). RETRACTED: The relationship between financial indicators and human development in Pakistan.