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Financial Inclusion and Economic Growth: Evidence in Asia

Mohd Razuan bin Abd Hishamuddin[1*], Rozita @Uji Mohammed[1], and Imbarine Bujang[1]
[1]Faculty of Business Administration, Universiti Teknologi Mara (UiTM), Sabah, Malaysia

*** Corresponding author's email:**
razuan_95@yahoo.com

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ABSTRACT

The importance of an inclusive financial system in countries had been highlighted in the policy circle and is the priority in many countries especially in developed countries. Financial inclusion is a provision of suitable, affordable and quality of financial services to all segments contributing towards balance economic growth and development. In this research, the study on financial inclusion and economic growth is pursued. Therefore, the main objective of this paper is to investigate the impact of financial inclusion towards the economic growth in the Asian countries. The sample data for this paper is using developing countries, frontier market and developed countries in the Asian region. In order to achieve the research objective, the researchers will be using the OLS regression model and FE/RE regression modal in the static panel data as the methodology with 7 years of time period. Moreover, there will also be analysis using the Panel ARDL in term of long-run relationship and short-run relationship. Thus, the general findings, the researchers suggest that having inclusive financial system have significant to reduce the income inequality and help to bust up the economic growth of the countries in the Asian region. Furthermore, the mediating of income inequality has influenced the relationship between financial inclusion and economic growth.

INTRODUCTION

The aim of financial inclusion is to help boost economic growth and reduce inequality in the country by helping the unbanked population to have the access to financial services or facilities. This will help the unbanked population to improve their living styles which also automatically lead the general development of economic. Moreover, financial inclusion also can help to burst up the government revenues and strengthen up the social safety nets. Furthermore, the financial inclusion has large section of attention among the researchers, policymakers and bankers. The policymakers around the world have set together in difference types of forum to discuss about the financial inclusion and suggest having more financially effective inclusive system.

During the past decade, there are several researchers or previous studies have able to establish strong links between financial access and service on banking and economic growth or development Demirgüç-Kunt & Klapper, 2012; Honohan, 2004)the focus shifts from growth to other aspects of economic prosperity and from financial depth to multidimensional measures of financial development. This paper reviews the evolution of the literature and contributes by (i. Empirical evidence points out a different result between high income and low income about the financial services where there is a greater number of bank branches and accounts are more observed in high income countries compare to the low- and middle-income countries categories. These studies have pointed out that financial inclusion improve the growth of the countries, but they also recommend that financial inclusion not reduce the poor in the country.

LITERATURE REVIEW

In the plethora of researches have argued the theory of finance-growth nexus that discusses about the financial inclusion impact towards the economic growth of the countries. According to Mohan (2006), who had studied on economic growth, financial deepening and financial inclusion, had highlighted the importance of financial deepening and inclusion in the growth of countries. The research found that the function of financial inclusion is to strengthen the financial deepening and to provide resources to the banks in order to expand more credit delivery and financial inclusion also will be able to help in accelerating the economic growth of the countries. Moreover, Kpodar and Andrianaivo (2011) done the research topic on ICT, financial inclusion and growth evidence from African countries. In this research, they wanted to investigate the financial inclusion as one of the channels that influenced the economic growth and the result stated that the development of mobile phones consolidating the impact of financial inclusion on economic growth especially in the countries where the mobile financial services are implemented.

Furthermore, Abiola, Adegboye, and Alexander (2015) published a paper about financial inclusion and economic growth in Nigeria. This paper was about the determinants of FI and its impact on the growth in Nigeria country using ordinary least square regression as a model to analyse data. They found that financial inclusion has a significant impact in determining the production and capital per worker, which means it had an impact towards the level of output in the country's economy. Next, Adeola and Evans (2017) is doing research on the financial inclusion, financial development and economic diversification in Nigeria. They wanted to examine the impact of both financial inclusion and development on the economic diversification by using FMOLS approach with the time period from year 1981 until 2014 in Nigeria. From the result, financial access and financial usage that was used as representative of the financial inclusion indicators which had positive relationship towards GDP which means that the financial inclusion had contributed significantly towards the diversification in Nigeria country economy.

Based on the research written by Lenka and Sharma (2017), financial inclusion is important part in the economic growth because financial inclusion does not only assure the financial development sector but it is also spreads the affordable services in financial to the improvement of society group. This paper will to examine the impact of financial inclusion on economic growth in India with the time period of data started from year 1980 until 2014. This paper also will use the ARDL approach and ECM approach to see the relationship of both variable and find out that financial inclusion has impact toward the economic growth in India for the long run and short run relationship. Furthermore, Norris et al. (2015) established a tractable micro and founded the general equilibrium model with the heterogeneous agents in order to scrutinise the implications of the policy of the financial deepening and inclusion toward the GDP and income inequality in developing countries. This paper will take into consideration on the three types of variables to represent the financial inclusion such as access, depth, and intermediation efficiency. As for the results, the model indicated that each of the variable that representing financial inclusion would have a differential impact toward GDP that is representing of the economic growth of the countries.

Kim (2016) made a study on the financial inclusion impact toward the relationship between income inequality and economics growth especially focusing on the highest fragility countries. He found that reducing in income inequality through the financial inclusion will be able to change the relationship from negative to positive relationship between income inequality and economic growth which means the financial inclusion also distributed to bust up the economic growth automatically.

DATA AND METHODOLOGY

Our sample involve of panel data for 22 developing countries and 4 frontier market countries and 8 developed countries in Asia over the period 2010 – 2018 (8 years). All data are collected from World Bank Development Indicators (Demirgüç-Kunt, & Klapper, 2012). The unemployment rates (UNEMP), Inflation rate (INF), Population rate (POP) are the economic indicators or control variables chosen by this study.

The independent variables which is financial inclusion variables consists of Automated Teller Machine (ATM) per 100,000 adults and Bank Branch per 100,000 adults. While the dependent variables of this studies are economic growth which represented by Gross Domestic Product (GDP).

Table 1 Summary of statistics data

Variables	Countries	Mean	Std Dev	Min	Max	Skewness	Kurtosis
GDP	Developing	5.4182	3.4661	0.0590	26.0500	1.760362	10.89781
	Frontier	6.1407	3.2285	1.2430	17.2910	1.4204	5.9803
	Developed	3.7216	3.3649	0.1150	19.5920	0.6823	11.6189
X1	Developing	21.1687	19.2764	0.6161	87.3130	1.631751	5.80313
	Frontier	16.6596	8.0386	4.7860	31.5220	0.5398	3.1489
	Developed	92.6472	76.7064	35.4810	288.6320	1.8208	4.8596
X2	Developing	10.5474	7.4884	1.6167	32.4667	0.980447	3.24540
	Frontier	20.6715	20.6603	2.5616	65.8291	1.0715	3.4778
	Developed	18.1227	7.5171	8.5152	34.1400	0.7615	3.7328
UNEMP	Developing	4.3368	5.4441	0.1600	30.6000	3.372171	14.81942
	Frontier	3.5731	1.6691	0.6500	7.2400	0.2828	4.5830
	Developed	0.8846	0.9500	-2.1037	1.9574	-1.8527	5.8164
INF	Developing	3.7750	2.8940	0.0930	13.5000	0.917363	3.41643
	Frontier	9.0150	3.8953	2.5290	17.0550	0.4997	4.3566
	Developed	3.0141	3.7530	0.0520	20.1810	0.2023	13.6357
POP	Developing	15.2080	37.7080	2.0470	13.9090	1.724247	8.68075
	Frontier	7.4807	7.2407	2.7126	1.9708	0.5447	7.7545
	Developed	2.2380	2.5169	1.1800	11.2207	1.6170	4.9957

Table 1 compares the data statistics analysis for different types of countries in Asia with the period 2010 – 2018 (8 years). It compares the sources of financial inclusion and economic indicators among these countries. As seen at table 1, the developing countries shows better performance in bursting up the economic development compare to the frontier market and developed countries as measure by the annual growth rate in the GDP. This have indicated that even most of developed countries have better technologies and better life-styles but failed to growth up more in the economic growth. Next in term of financial inclusion facilities represent by ATM per 100,000 adults showing that the developed countries have established well on build more automated teller machine in the countries compare to the developing countries and frontier market. Meanwhile for the Bank Branch per 100,000 adults showing that the frontier market countries have more types of difference of Bank Branch been built in that countries compare to the developing and developed countries in Asia.

In the term of economic indicator of unemployment rate, the developed countries have the lowest mean of 0.8846 per cent of unemployment rate compared to other difference types of countries. This means that the developed countries have manage well and utilize the labour for the economic development. Similar with the inflation rate variable, the developed countries have 3.0141 per cent of inflation rate which means that the government in the developed countries have manages well to overcome the problem of inflation in those countries. Meanwhile, the population rate show that developing countries become the highest number of mean by 15.2080 compare to frontier and developed countries.

Empirical modal

In order to analysis the impact of financial inclusion toward economic growth, the following model was used:

$$Y_{it} = \beta 0 + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 UNEMP_{it} + \beta_4 INF_{it} + \beta_5 POP_{it+} U_{it} \quad (1)$$

Equation 1 uses for analysis the data by using the static panel data analysis. Where y represents the economic growth, in the *i* cross – section data for the countries at time *t*. The independent variables are X1 (ATM per 100,000 adults), X2 (Bank Branch per 100,000 adults), UNEMP (unemployment rate), INF (inflation rate), POP (population rate).

In addition, this study uses few panel units root test to investigate the order of integration of the variables. Therefore, this study adopts the most reliable and been used by previous studies which are Leven – Lin & Chu (2002), Im Pesaran Shin (2005) and Breitung (2000).

EMPIRICAL RESULT

Panel Unit Root Tests

The analysis begins with the examination of stationary of each types of data for the difference group of countries in Asia. Therefore Table 2, Table 3 and Table 4 present the panel unit root test for developing countries, frontier market countries and developed countries in the Asia. As can be seen in Table 2, there are only three variables that are GDP, X1 and INF significance at level stages or means that these variables do not exhibit unit roots. However, at the level stage shows that X2, UNEMP and POP have exhibit of unit roots. In order to solve this problem, this study have conduct first order difference or second order difference to make sure that the variables will be stationary variable to been analysis.

Meanwhile Table 3 is the result of unit root test for the frontier market countries in Asia. As been seen from Table 3, all the variables are non-stationary at the level stage. Therefore, first order difference had been conducted to make the variable become stationary. However, for the population rate variable still non-stationary data until second order difference.

Furthermore Table 4 stated the result of unit root test for the developed countries in Asia. Most of variable are stationary at the level stage but for the variables such as unemployment rate and population rate need to conduct first order difference to made both variables become stationary data.

Table 2 Result of unit root test for developing countries

	LLC	IPS	Breitung
GDP			
At Level	0.0001 ***	0.0001 ***	0.1704
X1			
At level	0.0001 ***	0.0036 ***	0. 1878
X2			
At level	0.0001 ***	0.0872	0.4309
1st difference	0.0001 ***	0.0001 ***	0.0003 ***
UNEMP			
At level	0.0001 ***	0.8646	0.9710
1st difference	0.0001 ***	0.0094 ***	0.0044 **
INF			
At level	0.0001 ***	0.1996	0.0385 ***
POP			
At level	0.0001 ***	1.0000	1.0000
1st difference	0.001 ***	1.0000	1.0000
2nd difference	0.0001 ***	0.0024 ***	0.9753

Notes: Economic Growth (GDP), ATM per 100,000 adults (X1), Bank Branch per 100,000 adults (X2), Unemployment Rate (UNEMP), Inflation Rate (INF), Total Population (POP). ** denotes as significance at the level 5% and *** denotes as significance at level 1%

Table 3 Result of unit root test for frontier countries

	LLC	IPS	Breitung
GDP			
At level	0.0249 ***	0.4163	0.1578
1st difference	0.0221 ***	0.0301 ***	0.0229 ***
X1			
At level	0.0048 ***	0.5582	0.3194
1st difference	0.0001 ***	0.1020	0.0167 ***
X2			
At level	0.0375 ***	0.4723	0.1255
1st difference	0.0001 ***	0.0299 ***	0.0217 ***
UNEMP			
At level	0.0686	0.1534	0.3586
1st difference	0.0001 ***	0.0296 ***	0.1204
INF			
At level	0.0004 ***	0.5073	0.4590
1st difference	0.0247 ***	0.0572 ***	0.0321 ***
POP			
At level	0.0001 ***	1.0000	1.000
1st difference	0.0001 ***	0.4252	0.6035
2nd difference	0.0001 ***	0.0398 ***	0.8860

Notes: Economic Growth (GDP), ATM per 100,000 adults (X1), Bank Branch per 100,000 adults (X2), Unemployment Rate (UNEMP), Inflation Rate (INF), Total Population (POP). ** denotes as significance at the level 5% and *** denotes as significance at level 1%

Table 4 Result of unit root test for developed countries

	LLC	IPS	Breitung
GDP			
At level	0.0001 ***	0.0004 ***	0.3595
X1			
At level	0.0001 ***	0.0238 ***	0.2015
X2			
At level	0.0001 ***	0.0333 ***	0.2570
UNEMP			
At level	0.0256 ***	0.5041	0.8174
1st difference	0.0001 ***	0.0071 ***	0.0682
INF			
At level	0.0001 ***	0.1521	0.0290 ***
POP			0.8543
At level	0.0001 ***	0.3415	0.9123
1st difference	0.0001 ***	0.0080 ***	0.8543

Notes: Economic Growth (GDP), ATM per 100,000 adults (X1), Bank Branch per 100,000 adults (X2), Unemployment Rate (UNEMP), Inflation Rate (INF), Total Population (POP). ** denotes as significance at the level 5% and *** denotes as significance at level 1%

Result of the Impact of Financial Inclusion towards Economic Growth

Based on the estimation output in Table 5 by using the fixed regression with robust for the developing countries in Asia, both of independent variable that is significant with different level. The X1 (ATM per 100,000 adults) is found a positive relationship of 0.2841% and have significance at 99% of the confidence level. Meanwhile, X2 (Bank Branch per 100,000 adults) is found a positive relationship of

0.2042% and have significance at 90% of the confidence level. Zooming to the control variable, the unemployment rate is the only variable that found to have significance at 90% of the confidence level. The unemployment rate was found to has a negative relationship with −1.4468 toward the economic growth in the developing countries. Meanwhile, for the inflation rate and population rate have a negative relationship with −0.1954 and −0.8900 which also have not significant.

Meanwhile for the frontier market counties, the regression also will be corrected by the robust technique due to the existing of heteroskedasticity. Both of independent variable found have significance at 99% of confidence level. Whereby, the coefficient for X1 (0.4212) and X2 (0.4756) have a positive impact on economic growth. Zooming to the control variable, the coefficient for the control variables which is the unemployment rate (−0.6070), inflation rate (−0.4930) and population rate (−0.8610) shown that these data will have a negative impact toward GDP and only population rate will not have a significant level for the control variable.

Finally, the regression on the impact of financial inclusion toward the economic growth for developed countries in Asia will be based on the pooled OLS after robust where the p-value of BPLM is more than 0.05 and there is existing of heteroskedasticity problem. for the independent variable, the X2 found have significance at 99% of the confidence level. The regression stated that the coefficient of X1 (−0.0007) and X2 (−0.0966) will have a negative relationship. Moving toward the control variable, only the inflation rate did not have significance toward economic growth. The coefficient for the control variable for the unemployment rate (5.4876) and inflation rate (0.0318) will have positive relationship toward the GDP but the coefficient data of population rate (−1.1745) is positive relationship toward the GDP.

Table 5 Result for impact of financial inclusion toward the economic growth in Asia countries

Variable	Developing Countries	Frontier Market Countries	Developed Countries
X1	0.2841861 *** (0.0811848)	0.4211776 *** (0.1522642)	−0.0006897 (0.002065)
DX2	0.2041811 * (0.1115798)	0.4756316 *** (0.1946576	−0.096631 *** 0.0283283
DLNUNEMP	−1.44689 * (0.7917563)	−0.6069508 * (0.345135)	5.487588 *** (2.190153)
INF	−0.1954419 (0.1542653)	−0.4929617 *** (0.1966291)	0.0318885 (0.0685096)
D2DPOP	−0.890007 (0.130306)	−0.8610007 (0.387006)	−1.174468 *** (0.5880932)
CONSTANT	−.1501838 (2.024149)	−0.0707485 (0.1605685)	4.776998 *** (0.9059451)
BPLM TEST	0.0001	1.000	1.0000
HAUSMAN TEST	0.0001	–	–
R-SQUARED	0.1834	0.9301	0.4035
ADJ R-SQUARED	–	0.9106	0.3438
F-STATISTIC	0.0004	0.0001	0.0001
NO OBSERVATION	132	24	56
MODIFIED WALD	0.0001	0.0001	0.0001
WOOLDRIDGE	0.0479	0.1078	0.4208

*Notes: Economic Growth (GDP), ATM per 100,000 adults (X1), Bank Branch per 100,000 adults (X2), Unemployment Rate (UNEMP), Inflation Rate (INF), Total Population (POP), The value in the parenthesis is standard errors. ***, **, and * indicate significant at 1%, 5% and 10% significance levels, respectively.*

CONCLUSION

The purpose of this study is to investigate the impact of financial inclusion toward the economic growth in the developing, frontier market, and developing in the Asia countries. For the developing countries and frontier market countries, we find that there is a positive impact of financial inclusion toward the economic growth. This means that Automated Teller Machine and Bank Branch as the financial inclusion variables can help these countries to burst up the economic development. However, for the developed countries, we find that there is a negative impact of financial inclusion toward the economic growth which means if the government of these countries will more Automated Teller Machine or Bank Branch will lead to reduce of their economic development. Thus, the findings in this paper suggest that each of countries should improve their financial inclusion policy system in order to burst up the economic growth such as provides more advances technology in financial institution system and increase more on the financial institution services that can be access by everyone. Additionally, this study concludes that effective types of financial inclusion can be an important item that and burst up the economic growth in the different types of countries in the world especially in the Asia region.

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