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Financial Inclusion and Income Inequality: Empirical Evidence from Transition Economies

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Abstract

Using data from 22 transition economies over the period of 2005 to 2015, this paper uses a two-stage least squares model and two different financial inclusion index to investigate the impact of financial inclusion on income inequality. We find that there is a negative relationship between financial inclusion and income inequality in these transition economies. The paper also suggests some policy recommendations to reduce income inequality through developing financial inclusion.

Keywords: Financial inclusion; income inequality; transition economies.

JEL code: A1.

1. Introduction

Financial inclusion is considered as a critical factor that contributes to the reduction of income imbalance. Since the 1970s, there have been several researches discussing the impact of on economic growth and income inequality. At that time, financial inclusion was presented as single sectors: types of financial services or financial access. Later, the concept of financial inclusion has been become popular and defined as the state of easy and voluntary access to basic financial services (savings accounts, types of deposit, credit and money advice) at a suitable fee to all society. It is reported that more than 70% of the total world population lacks access to basic banking services (Sehrawat and Giri, 2016). According to the World Bank (2018), financial inclusion is a key enabler in reducing poverty and boosting prosperity. As a result, it is expected that financial inclusion would help reduce poverty and then income inequality. However, when some countries become richer, the gap between the poor and the rich is not narrower. This raises the question of whether financial inclusion could really help reduce income inequality through wider access to finance for different groups of people.

There are several researches on the impact of financial inclusion on income inequality. Especially, when the relationship between financial growth and income inequality has been proven by many researchers from many countries, the solutions to reduce income inequality have been more and more concentrated on. There are many questions put at three levels, such as country, economic group and worldwide, that look at whether financial inclusion affects income distribution. Clearly, if the role of financial inclusion were proved, it would be very meaningful for countries to directly reduce inequality in incomes.

Transition economies are defined as a group of countries that are on the process of transformation from planned economies into market economies. Transition economies have included the economies of Central and Eastern European (CEE) and the Baltics that are closely approaching membership of the European Union, some countries of Commonwealth Independent States (CIS) and some in Asia. Although all of them have the differences in growth rates, region and geographical location, they all have similarities in the transition process. In a transition process, they are faced with many changes such as liberalization, macroeconomic stabilization, restructuring and privatization and institutional reforms, where financial development is a major term. Keane and Prasad (2002) emphasize that income inequality plays an important role in transition economies and suggest that inequality-reducing redistribution can enhance growth. The International Monetary Fund (2000) reports that inequality in incomes has increased, not surprisingly, over the process of transition. Thus, to support this process, this paper aims to examine the impact of financial inclusion on income inequality that will provide significant policy recommendations to this economic group.

There are 6 sections in this paper. Section 1 is the introduction; section 2 presents the literature review which suggests some important gaps. Section 3 describes the empirical model. Section 4 shows data. Section 5 prodives empirical results and discussion. Section 6 discusses the implications of the results.

2. Literature review

Financial inclusion allows financial services to be spread to the concept of 'unbanked' and it is an integral dimension of financial development (Kim, 2015). Recently, more and more researchers are concerned about the impact of financial inclusion on income inequality. There are studies, both directly and indirectly, that explore this topic in different research contexts.

Chattopadhyay (2011), Chithra and Selvam (2013), and Michael and Sharon (2014) ran an Ordinary Least Squares (OLS) model in India and Nigeria and they all concluded that the higher the income distribution, the higher the financial inclusion, for both the individual level and state level. Using the same approach, Arora (2010) not only used data from banking branches, but also collected from 3 dimensions of financial inclusion, including outreach, cost and ease of transaction. He confirms that low financial access will increase the external financing constraint that prevents the expansion of firms and income inequality. Meanwhile, Park and Mercado (2015) did another study on 37 developing countries using an OLS model, and they suggest that emphasis on rule of law, primary education completion and growth in banks will also reduce the GINI coefficient.

The above studies, however, do not consider rural/urban variables, gender or people with disabilities to calculate a financial inclusion index and examine its impact on income inequality. Montfort et al. (2016) contributed to filling this research gap by finding that, using panel data and the generalized method of moments (GMM) in Sub-Saharan Africa, financial inclusion for men and women significantly reduced income inequality. In the same year, Sehrawat and Giri (2016) divided their research scope into rural and urban areas in Asia's developing countries. They conclude that financial reforms contribute to the reduction of the rural-urban field. Moreover, instead of using a GINI coefficient to present income inequality, these studies use the ratio between agricultural and industrial value-added as a share of gross domestic product (GDP) to present the rural area's income inequality.

There are some other studies applying methods different from UNDP's approach and Euclidean distance, but these still draw the same conclusion that financial inclusion has a negative impact on income inequality. Karpowicz (2014) used cross-sectional data of 942 institutions in Colombia. This paper presented a financial inclusion index through 3 dimensions (Access, Depth and Efficiency) and principal component analysis (PCA) is applied to calculate the index. The importance of financial literacy is emphasized to estimate financial inclusion. The conclusion is that the development of a financial market will result in more benefits for constrained workers.

Unlike the above, there are also some papers that did not mention financial inclusion directly. Sehrawat and Giri (2015), Kapingura (2017) mentioned financial inclusion as an integral dimension of financial development and suggested its negative influence on the gap between poor and rich. Both used time series with autoregressive distributed lag bound testing co-integration. Moreover, both found that the trade variable captures the impact of trade openness on income inequality. The only difference is that Sehrawat and Giri (2015) used an additional error correction model for short

run dynamics and presented a financial inclusion index via financial deepening while Kapingura (2017) used the private-domestic sector and automated teller machines (ATMs) as a measure of index.

Burgess and Pande (2005) in India and Karlan and Zinman (2006) in South Africa mentioned financial inclusion through *expansion of bank branches and access* would lead to a statistically significant decline in income inequality. All three researches used panel data and emphasized that deregulation would narrow the income disparity by disproportionately supporting the poor instead of damaging the rich.

Beck et al. (2007) mentioned FI through expansion of bank branches would lead to a reduction in income inequality in their study in the United States (US). Utilizing the Weibul hazard model, they collected data for the 31 years of bank deregulation from 1976 to 2006 and for 48 sections. The conclusion is that the deregulation of banks noticeably decreased disparity of income by pushing the lower-class workers' incomes higher. Also in the US, Hogarth et al. (2005) did a survey on 4449 households for 4 years. Using a logistic regression model, their paper emphasized that the positive change in bank account ownership, a proxy of financial inclusion, could bring low-to-moderate-income families into the financial mainstream.

Motonishi (2006), Brune et al. (2011), and Chen and Jin (2017) indirectly mentioned financial inclusion via financial services. Applying secondary data of households in China, Chen and Jin (2017) used the credit use of households to emphasize its impact on socioeconomic characteristics such as household income and net worth. On the other hand, Brune et al. (2011) and Motonishi (2006) used a survey method in rural Malawi and Thailand respectively.

There are some studies that included both developing and developed countries in their data pool. Sarma (2008) used UNDP's approach to calculate a financial inclusion index through three basic dimensions of financial inclusion − accessibility, availability and usage of banking services. Honohan (2008) did a study on 160 countries by collecting banking information, Monetary Financial Institution (MFI) account numbers, banking depth and GDP growth rate as well, plus data from household surveys for a smaller set of countries. Using OLS and adding single probit regression, Demirguc-Kunt and Klapper (2013) exploited demand-side information through The Gallup World Poll survey of 148 countries, while Camara and Tuesta (2014) applied two-stage PCA including both supply-side and demand-side information. Both conclude that the influence of financial inclusion on the disparity of income is negative.

Despite the numerous studies on this topic, there are some gaps suitable for this research. First, very few studies have been carried out in the context of transition economies, which have had rapid growth. Second, this paper will explore the difference in the GINI index between high- and low-income countries and high- and low-fragility countries. The method to calculate a financial inclusion index has also been a controversial topic. Different methods have brought out different results. Thus, this paper will include both popular approaches (UNDP and PCA) to measure a financial inclusion index.

3. Empirical model

The empirical model used in this research follows Rojas-Suarez (2010) and Beck et al. (2007). There are 2 estimated models and the more suitable model are chosen as follows.

(1) $GINI_{i,t} = \beta_0 + \beta_1 FII_{i,t} + \beta_2 RULE_{i,t} + \beta_3 log\_GDPpc_{i,t} + \beta_4 UN_{i,t} + \beta_5 DOMCRE_{i,t} + \beta_6 DumINC_{i,t} + \beta_7 DumFRA_{i,t} + \varepsilon_{i,t}$

(2) $log\_GINI_{i,t} = \beta_0 + \beta_1 log\_FII_{i,t} + \beta_2 RULE_{i,t} + \beta_3 log\_GDPpc_{i,t} + \beta_4 UN_{i,t} + \beta_5 DOMCRE_{i,t} + \beta_6 DumINCi_{,t} + \beta_7 DumFRA_{i,t} + \varepsilon_{i,t}$

The dependent variable is income inequality, which is presented through the Gini index (GINI). Independent variables include financial inclusion and other variables.

In terms of a financial inclusion index, it will be calculated based on the following two methods. First, we follow Sarma (2008)'s approach which identified a financial inclusion index by using a multidimensional approach of indexing similar to UNDP's approach used for human development index (HDI) calculation. This method is easy to calculate and understand. There are four main factors: ATM per 100,000 adults, commercial bank branches per 100,000 adults, borrowers from commercial banks per 1,000 adults and depositors with commercial banks per 1,000 adults. The banking services' availability as a dimension of financial inclusion is represented by the first two factors while the last three represent usage as another financial inclusion dimension.

The dimension index is calculated as follows:

$$di = \frac{A_i - m_i}{M_i - m_i}$$

Where: A_i is Actual value of dimension i; m_i is the value of dimension i at minimum; M_i is the value of dimension i at maximum.

The index will be normalized inverse of Euclidean distance of point d_i in (1). The formula is given by:

$$FIIi = 1 - \frac{\sqrt{(1-d_1)^2 + (1-d_2)^2 + \ldots + (1-d_i)^2}}{\sqrt{n}}$$

The financial inclusion index has a range from 0 to 1 where 1 represents the highest financial inclusion index and vice versa.

Second, we use Demirguc-Kunt and Klapper's (2013) approach. The financial inclusion index would be estimated by four dimensions that are similar to these under Sarma's approach. It is easy to make the comparison between the two methods of financial inclusion index calculation. Using the World Bank's global findex, World Bank data, the four dimensions are: ATM per 100,000 adults, commercial bank branches per 100,000 adults, borrowers from commercial banks per 1,000 adults, depositors with commercial banks per 1,000 adults. The four components will be calculated and weighted under a PCA approach and the financial inclusion index will be valued following the formula:

$$FI_i = \omega_1 Y_i^1 + \omega_2 Y_i^2 + \omega_3 Y_i^3 + \omega_4 Y_i^4 + e_i$$

Where: i denotes the country and $Y_i^1, Y_i^2, Y_i^3, Y_i^4$ capture the four dimensions respectively.

The result of PCA will be shown in the Appendix. Accordingly, the weighted values of four dimensions are similarly equal. It means the important extent of the four dimensions is the same to explain the financial inclusion index.

In terms of the conditioning information, there are 6 explanatory variables. Firstly, RULE

(Rule of law) captures the awareness of the extent to which agents have reliance on and stand for the rules of society, especially the quality of contract implementation, property rights and the probability of crime and violence. GDPpc (GDP per capita) is the proxy that represents growth of the economy. This variable will be represented under a logarithm in the model. UN (Unemployment) captures the labor force situation. DOMCRE (Ratio of domestic credit to the private sector as % of GDP) is the best measure for financial depth. Additionally, there are *2* dummy variables which stand for high- and low- fragility transition countries and high- and low-income countries. Specifically, national non-performing loans each year are compared to the median value of the world to sort the high- and low-fragility countries that if they were lower, the country would be high-fragility in that year. Meanwhile, if the GDP-per-capita value compared to the median value of the world were lower, the country would be classed as 'low-income' (Kim, 2015).

In this paper, panel regression is chosen to capture the impact of the financial inclusion index on income inequality. The regression includes pooled OLS, fixed effects and random effects. With the problem of endogeneity, 2SLS estimation is chosen to solve it. 2SLS uses an instrumental variable to deal with endogenous issues. In this case, the lag of financial indicators that include the lag of the financial inclusion index and the lag of GDPpc are applied as instrumental variables in the model. Model (1) is chosen to run 2SLS.

4. Data

There are 22 countries with transition economies and data will be collected over an 11-year period between 2005 and 2015 (Appendix). Data for all of variables will be collected from the World Bank Database including World Development Indicators, the Global Financial Database, World Governance Indicators, the International Monetary Fund (IMF) and some national reports.

5. Empirical results

5.1. Descriptive analysis

Table 1 shows the descriptive statistics of both dependent and independent variables. Accordingly, the lowest value of GINI is recorded

Table 1: Descriptive statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
GINI	242	35.511	6.964	16.640	62.071
FII	242	.208	.140	.009	.638
FIIpca	242	.262	.221	.012	.910
Log_GDPpc	242	8.082	.879	5.821	9.681
RULE	242	-.570	.456	-1.37	.710
UN	242	10.593	8.240	.102	37.312
DOMCRE	242	42.920	27.065	5.874	152.552
DumFRA	242	.814	.390	0	1
DumINC	242	.095	.294	0	1

at 16.64 and its highest value is at 62,071 in Botswana in 2005. Meanwhile, the financial inclusion index under the 2 approaches has the most noticeable difference in maximum value. This is 0.638 in Russia (2014) and 0.910 in Croatia (2015) under Sarma's and PCA's approach respectively.

Figure 1 suggests different relationship between financial inclusion index and the GINI coefficient when financial inclusion index is computed by two methods. Financial inclusion index calculated by PCA seems to have negative relationship with GINI coefficient, while the upward trend line showing that a higher financial inclusion index calculated by Sarma's approach will lead to a higher GINI coefficient. A negative relationship implies that if financial inclusion improves, income inequality declines in transition economies.

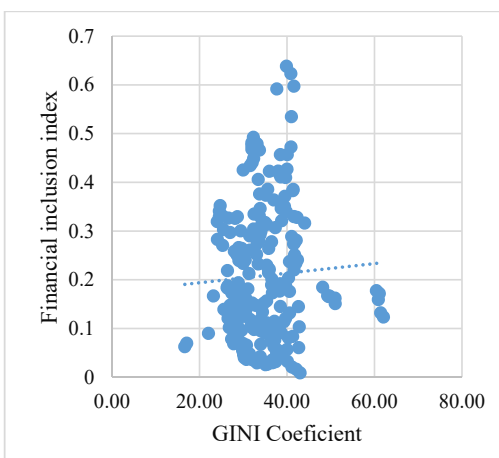
5.2. Empirical results and discussion

The models have been estimated by pooled OLS, fixed effects and random effects and their diagnostic tests including the F-test and the Hausman test have also been done. However, the expected signs and the significant results are not as expected, and the problem of endogeneity has not been solved. By using 2SLS estimation, the lag variables were applied as the instrumental variables and the estimated result is expressed in Table 2.

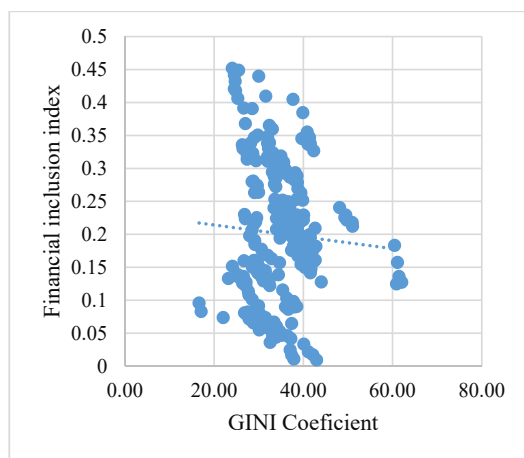
The Sargan statistic tests and weak identification test (Cragg-Donald Wald F statistic) show that there are no specification errors as the P-values are all above the significant level in terms of the Sargan test and the F-statistic value is higher than all critical values in terms of the Cragg-Donald test (Table 3).

By dealing with the problem of endogene-

Figure 1: Correlation between the financial inclusion index and the GINI index



FII calculated by Sarma's approach



FII calculated by PCA

Source: Authors' calculations based on data from world development indicators of World Bank.

Table 2: Empirical results of 2SLS model

Model	**(a)**	**(b)**
Dep.Var	**GINI**	
FII	-18.316	- 9.655
	(0.000)***	(0.017)**
Log_GDPpc	-.896	-1.594
	(0.093)*	(0.012)**
RULE	9.724	10.608
	(0.000)***	(0.000)***
UN	.113	.054
	(0.027)**	(0.357)
DOMCRE	.081	.012
	(0.000)***	(0.446)
DumFRA	- 4.497	- 4.007
	(0.000)***	(0.005)***
DumINC	- 2.099	-4.238
	(0.205)	(0.028)**
Constant	51.335	57.990
	(0.000)***	(0.000)***

Note:
- *Values in brackets are t-stat. ***, **, and * refer to significant at p<0.01, p<0.05, and p<0.10, respectively.*
- *Model (a) refers to model with FII calculated by PCA's approach*
- *Model (b) refers to model with FII calculated by Sarma's approach*
- *Instrumental variables include l.FII, l.log_GDPpc*

ity, the estimated result is very different under a 2LSL approach in comparison to the normal panel regressions. More interestingly, by using a different financial inclusion calculation approach, there are some differences in the results between the two estimations.

Firstly, the financial inclusion index is found to be negatively significant towards the GINI index in both models. At a significance level of 5%, when the financial inclusion index increases by 1 unit, the GINI index will decrease by 18.316 and 9.655 unit in model (a) and (b) respectively, ceteris paribus. Using a different approach to calculate the financial inclusion index as a proxy of financial inclusion development, the result is significant in both cases. This result is supported by Kim (2015), Park and Mercado (2015), Sehrawat and Giri (2015) and Kapingura (2017). Interestingly, the financial inclusion index under the PCA approach shows an even more significant impact on income inequality reduction. In this paper, a financial inclusion index is represented through some indicators of bank accounts and bank services. Although these indicators cannot cover and measure fully the value of financial inclusion development, it is still one of the most suitable proxies to represent a financial inclusion index. The result proved the core role of financial inclusion in balancing income distribution on the statistical side as expected by the hypothesis and matches the theory.

The logarithm GDPpc variable is found to significantly reduce the GINI index at a 5%

Table 3: Statistical tests

Test	Model	
	(a)	(b)
Cragg-Donald Wald F statistic		
Statistic value	2307.026	2746.844
Critical values:		
10% Maximal IV size	19.93	19.93
15% Maximal IV size	11.59	11.59
20% Maximal IV size	8.75	8.75
25% Maximal IV size	7.25	7.25
Sargan statistic		
Statistic value	0.374	2.046
P-value	0.541	0.153

level of significance in the model (b). This means that when the GDP-per-capita increases by one percentage point, it leads to a decrease by 1.594 units of the GINI index, assuming others remain constant. Adversely, GDP-per-capita is not found significant at a 5% level of significance in terms of model (a) although it has the same sign as expected and is significant at a 10% level of significance. By contrast, RULE has a positively significant impact on the GINI index in both models at a 5% level of significance. Ceteris paribus, when the rule of law index rises by an additional unit, the GINI index will also increase 9.724 units and 10.608 units in terms of model (a) and model (b) respectively. Similarly, UN also has a positively significant effect on the GINI index at a 5% level of significance in model (a). It implies that a 1-point percentage increase in the unemployment rate will raise 0.113 units in the GINI index. Differently, it has no impact on the GINI index in terms of model (b). This result also happens in the case of the DOMCRE variable that is only found significant in model (a). Holding the other things equal, an additional unit increase in domestic credit to the private sector (% of GDP) will rise 0.081 units in the GINI index.

For dummy variables, DumFRA has negative significance at a 5% significance level in both models. It means that the low-fragile countries have lower 4.5 and 4 GINI indexes in model (a) and (b) respectively in comparison to the high-fragile countries. Differently, DumINC has an impact on the GINI index in model (b) only. It implies that the high-income countries have lower GINI indexes than low-income countries by 4.238.

6. Policy recommendations

Based on the empirical findings, this paper provides policy suggestions to reduce income inequality in transition economies. Firstly, the success of financial inclusion development and income inequality reduction depends mostly on financial improvement in rural areas. By proving the convenience of using financial services and teaching people how to use basic services are ways to improve the population's literacy and increase financial penetration into rural areas. These are the first steps to help them be-

come actively responsible for their own financial management.

Secondly, it would be better to consider expanding some banking services. The poor will be served with basic services such as payment transfer, savings, etc., which also decrease the cost of using the service. Thirdly, institutions should impose free costs in some cases of using financial services for the poor. It may bring less benefit for the institutions in the short-term, but it will encourage usage among the poor. In the long-term, the larger the spread of financial service becomes, the more profits institutions can gain.

APPENDIX

Appendix A: List of transition countries

Table 4: List of transition economies

CEE (Central and Eastern European economies)	CIS (Common wealth of Independent States)		Sub- Saharan Africa	Asia
Albania	Armenia	Kyrgyz Republic	Botswana	China
Croatia	Azerbaijan	Moldova		Cambodia
Macedonia	Belarus	Russia		Laos
Bosnia and Herzegovina	Georgia	Tajikistan		Vietnam
Serbia	Kazakhstan	Ukraine		Mongolia
				Iran

Source: IMF (2000)

Appendix B: PCA result

Table 5: FII under PCA

Component	Proportion	Variables	Comp 1	Weighted value
Comp 1	0.608	ATM	0.573	0.292
Comp 2	0.209	Branches	0.467	0.237
Comp 3	0.209	Borrowers	0.577	0.294
Comp 4	0.029	Depositors	0.347	0.177
1.Principal components / correlations			2.Principal components	

Where: ATM: ATM per 100,000 adults; Branches: commercial bank branches per 100,000 adults; Borrowers: borrowers from commercial banks per 1,000 adults; Depositors: depositors with commercial banks per 1,000 adults
Source: The authors' calculation using Stata.

References

Arora, R.U. (2010), *Financial access in South Asia*, retrieved on April 19th 2018 , from <https:// editorialexpress.com/cgi- bin/conference/download.cgi?db_name=ACE10&paper_id=98>.

Beck, T., Demirgüç-Kunt, A. and Levine, R. (2007), 'Finance, inequality and the poor', *Journal of Economic Growth*, 12(1), 27-49.

Brune, L., Gine, X., Goldberg, J. and Yang, D. (2011), 'Commitments to save: A field experiment in rural Malawi', *Policy Research Working Paper 5748*, World Bank, Washington D.C.

Burgess, R. and Pande, R. (2005), 'Do rural banks matter? Evidence from the Indian Social Banking experiment', *American Economic Review*, 95(3), 780-795.

Camara, N. and Tuesta, D. (2014), 'Measuring financial inclusion: A multidimensional index', *Working Paper No 14/26*, BBVA.

Chattopadhyay, S.K. (2011), 'Financial inclusion in India: A case-study of West Bengal', *MPRA Paper No. 34269*, Munich Personal RePEc Archive.

Chen, Z. and Jin, M. (2017), 'Financial inclusion in China: Use of Credit', *Journal of Family and Economic Issues*, 38(4), 528-540.

Chithra, N. and Selvam, M. (2013), *Determinants of financial inclusion: An empirical study on the inter-state variations in India*, retrieved on April 19th 2018, from <http://dx.doi.org/10.2139/ssrn.2296096>.

Demirgüç-Kunt, A. and Klapper, L. (2013), 'Measuring financial inclusion: Explaining variation in use of financial services across and within countries', *Brookings Papers on Economic Activity*, 44(1), 279-340.

Gjoni, E. (2015), 'Innovation in the banking sector', presentation at *the conference of Innovation in the banking sector*, Tirana, May 14th 2015.

Hogarth, J., Anguelov, C. and Lee, J. (2005), 'Who has a bank account? Exploring changes over time 1989-2001', *Journal of Family and Economic Issues*, 26(1), 7-30.

Hogel, L., Mansouri, K., Jain, I., Wuppalapati, S., Xu, A. and Patkai, V. (2013), *Financial inclusion investment landscape: Indonesia and Vietnam*, The Business School for the World, 18.

Honohan, P. (2008), 'Cross-country variation in household access to financial services', *Journal of Banking & Finance*, 32(11), 2493-2500.

International Monetary Fund (2000), *Transition economies: An IMF perspective on progress and prospects*, retrieved on December 7th 2017, from <https://www.imf.org/external/np/exr/ib/2000/110300.htm>.

Kapingura, F.M. (2017), 'Financial sector development and income inequality in South Africa', *African Journal of Economic and Management Studies*, 8(4), 420-432.

Karlan, D. and Zinman, J. (2006), 'Expanding credit access: Using randomized supply decisions to estimate the impacts', *Review of Financial Studies*, 23(1), 433-464.

Karpowicz, I. (2014), 'Financial inclusion, growth and inequality: A model application to Colombia', *IMF Working Papers*, 14(166), 1-32.

Keane, M. and Prasad, E. (2002), 'Inequality, transfers, and growth: New evidence from the economic transition in Poland', *Review of Economics and Statistics*, 84(2), 324-341.

Kim, J.H. (2015), 'A study on the effect of financial inclusion on the relationship between income inequality and economic growth', *Emerging Markets Finance and Trade*, 52(2), 498-512.

Lyman, T., Staschen, S. and Tomilova, O. (2013), *Landscaping report: Financial inclusion in Russia*, retrieved on 19th April 2018, from <http://www.cgap.org/publications/landscaping-report-financial-inclusion-russia>.

Michael, O. and Sharon, O. (2014), 'Financial system, financial inclusion and economic development in Nigeria', *International Journal of Management Sciences*, 2(3), 139-148.

Montfort, M., Cui, L., Jidoud, A., Newiak, M. and Radzewicz-Bak, B. (2016), *Financial development in Sub-Saharan Africa: Promoting inclusive and sustainable growth*, International Monetary Fund.

Motonishi, T. (2006), 'Why has income inequality in Thailand increased?: An analysis using surveys from 1975 to 1998', *Japan and the World Economy*, 18(4), 464-487.

Park, C.Y. and Mercado, R.V. (2015), 'Financial inclusion, poverty, and income inequality in developing

Asia', *ADB economics working paper series No. 426*, Asian Development Bank.

Rojas-Suarez, L. (2010), 'Access to financial services in emerging powers: Facts, obstacles and recommendations', *Perspectives on Global Development 2010: Shifting Wealth*, OECD, March 2010.

Sarma, M. (2008), 'Index of financial inclusion', *Working Paper No. 215*, Indian council for research on international economic relations.

SBV (2017), *Promoting Financial Inclusion in Viet Nam*, Hanoi, Vietnam.

Sehrawat, M. and Giri, A. (2015), 'Financial development and income inequality in India: an application of ARDL approach', *International Journal of Social Economics*, 42(1), 64-81.

Sehrawat, M. and Giri, A. (2016), 'Panel data analysis of financial development, economic growth and rural-urban income inequality', *International Journal of Social Economics*, 43(10), 998-1015.

Sparreboom, P. and Duflos, E. (2012), 'Financial inclusion in the people's Republic of China: An analysis of existing research and public data', *China Papers on Inclusiveness*, 7, 11-64.

Wiesiolek, P. and Tymoczko, D. (2014), 'The evolution of banking sectors in Central and Eastern Europe', *BIS Paper*, 83, 313-323.

World Bank (2016), *Russian Federation − Financial sector assessment program: Technical note − financial inclusion*, World Bank Group, Washington, D.C.

World Bank (2018), *New report analyzes China's Impressive trajectory toward universal financial inclusion*, retrieved on 19th April 2018, from <https://www.worldbank.org/en/news/feature/2018/02/09/new-report-analyzes-china-impressive-trajectory-toward-universal-financial-inclusion>.