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Financial development and income inequality: An empirical analysis on the emerging market economies

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Abstract. *In developing countries, achieving high economic growth rates with fair income distribution is one of the economic targets in these countries. The effect of financial development on income inequality is examined and discussed in the literature with many empirical practices in line with these objectives.*
The purpose of the study is to test the relationship between income inequality and financial development. Cross-sectional dependence, homogeneity, panel co-integration and panel co-integration estimators were used in the study. The findings of the study confirm that financial development has no significant effect on income inequality for the panel group. However, Brazil, Russia, Greece and Turkey to the conclusion that financial development reduces income inequality has been reached. It is concluded that financial development increases income inequality in Bulgaria, Colombia, Croatia, Hungary, Malaysia, Poland and Romania.
Considering the role of financial development in terms of national economies, improving income distribution will make financial development more significantly as a driving force of economic growth.

Keywords: financial development, income inequality, emerging market, panel LM Bootsrap co-integration.

JEL Classification: N20 D30, E44.

1. Introduction

The impact of financial development on economic growth has been discussed in many studies. Levine (1997), financial structure; financial markets, agreements, and intermediaries affect information acquisition and transaction costs, leading to capital accumulation and technological innovations, and thus economic growth. According to Schumpeter (1912), one of the first economists to emphasize the importance of the financial sector for economic growth, it defended that investors supported the financing of the technology needed for the efficiency of the products at well-functioning financial markets. In addition to contributing to the economic growth of the financial system, the effects are also being investigated in other areas. One of these is the effect of financial development on income distribution.

The issue of income distribution, which is important after the 1990s, is a situation that needs to be considered for countries' economic growth as well as development. Initially, studies have emerged that explain the relationship between income inequality and economic growth. The most important of these is the study of Kuznet (1955). This hypothesis suggested that there is an inverse U-shaped relationship between economic growth and income inequality. Building on the Kuznets' hypothesis, Greenwood and Jovanovic (1990) show how the interaction of financial and economic development can give rise to an inverted u-shaped relationship between income inequality and financial intermediary development. In the Galor and Zeira (1993), Banerjee and Newman (1993) models, the negative linear hypothesis is modeled, which suggests that as the level of financial development increases, income inequality will decrease.

The aim of this study is econometrically investigate the impact of financial development on income inequality on emerging market economies by employing the tools of panel econometrics.

In the first part of the work, the theoretical framework was given. We review the empirical literature on the relationship between income inequality and financial sector development in section 2. The model and data are described in section 3. The results are presented and analyzed in section 4. As a result, it was aimed to draw attention to measures and policies to reduce income inequality in terms of financial system.

2. Theoretical perspectives on finance and inequality

The contribution of the financial system to the economy has been discussed for many years and the widespread view in the literature is that it has a positive effect on the economy. Emphasizing the importance of the financial system, Schumpeter showed the effect of the role of the sector on economic growth by encouraging entrepreneurs who use technology in a well-functioning banking system (Levine, 1997).

Levine (1997) argued that financial markets in many ways contribute positively to economic growth. He states that the financial system provides the tools to direct savings to investment, uses the fund transfer mechanism for this, and this contributes to economic growth. It eliminates the risk of liquidity by reducing the costs of obtaining information

and processing, thereby arguing that it paves the way for technological innovations. This view was supported by many studies (Goldsmith, 1969; McKinnon, 1973; Fry, 1978; Bencivenga and Smith, 1991; King and Levine, 1993a, and King and Levine, 1993b).

On the other hand, many studies have emerged that examine the relation between income inequality which is one of the problems to be solved for economies, and financial development. Studies examining the relationship between financial development and income inequality appeared in the 1990s.

Greenwood and Jovanovic (1990) argued that there is a nonlinear, inverse-U-shaped relationship between financial development and income inequality. According to the hypothesis, the financial sector is not yet fully developed in the early stages of economic development and economic growth is slow. At this stage, the fact that financial intermediaries are low and costly causes the poor to not benefit from the financial system and only the wealthy evaluate the opportunities. Savers are high income individuals. This will increase income inequality at the first stage. Financing savings in the next stage makes the economy strong, and with the realization of economic growth, the income of all individuals increases. With the development of the financial system, increasing savings rates and financial resources will reach all individuals in the society, balancing the income distribution and gradually closing the income inequality.

Galor and Zeira (1993) proposed the linear negative hypothesis. This hypothesis argues that financial development will reduce income inequality. They emphasized that human capital investments are a method to eliminate the income gap between the poor and the rich individual, and this can be achieved through financial intermediaries. According to this model, economies with high income inequality and capital market deficiency will have lower economic growth rates compared to economies with more egalitarian income distribution and income inequality will continue to increase. According to this view, financial development affects economic activities, thus increasing the accumulation of capital, thus enabling economic growth. Economic growth provides a fairer distribution of income. Advocating the same view, Aghion and Bolton (1997) and Bardhan (2000) emphasize the importance of financial development to finance entrepreneurial activities in their studies.

Banerjee and Newman (1993) are one of the other studies arguing that financial development will decrease income inequality. In their studies, it was suggested that the income distribution of the individual was effective in the selection of the profession. In addition, only individuals with capital and heritage can be entrepreneurs; however, it is stated that the poor will not have such an opportunity. Only wealthy individuals can choose jobs that require indivisible investment, and the heritage element is preventing poor individuals from raising funds. The development of the financial intermediation sector can eliminate this inequality.

Another important hypothesis regarding the relationship between financial development and income inequality is the positive linear relationship hypothesis of Rajan and Zingales (2003). According to this hypothesis, even if the financial sector is developed, income inequality will not improve unless there are well-functioning institutions. In the absence of developed institutions, access to loans in the financial system will only be by the high-income segment, and financial sector development will favor rich groups. This will increase

the difference between high and low income groups (Destek et al., 2017, p. 3). It can be said that this hypothesis is less supported throughout the literature. This hypothesis has been put forward based on financial market failures. Due to the injustice of access to credit, the rich individual can provide more opportunities by showing collateral and the poor cannot access these opportunities. This situation leads to an increase in income inequality (Argun, 2016, p. 8).

Researches trying to prove these alleged hypotheses generally admit that the well-developed financial sector contributes to greatly reduce income inequality and promote economic growth by the reverse u hypothesis and linear negative relationship hypotheses (Jalil and Feridun, 2011; Hoi and Hoi, 2013; Nikoloski, 2013; Shahbaz et al., 2014; Zhang and Cheng, 2015; Satti et al., 2015; Koçak and Uzay, 2019; Nguyen et al., 2019).

3. Literature review

Looking at the studies that examine the relationship between financial development and income inequality has a very large place in the literature recently. Because the positive impact of financial development on development is accepted by most researchers, but there are also opposing views. Therefore, the relationship between financial development and income distribution has not been established yet in the clear. The academic studies for examining this relationship have become particularly intense after the 1990s.

The theoretical literature of financial development and income inequality has begun to be examined as a result of hypotheses emerging in the 1990s (Greenwood and Jovanovic, 1990; Banerjee and Newman 1993; Galor and Zeira, 1993) and has become an increasingly popular topic. As a result of the econometric methods and data sets that were available in the following years, this relationship was constantly analyzed with new data and techniques. As a result of the analyzes, these different hypotheses were supported, but there was no consensus on a common result.

As a result of empirical analysis, studies supporting these hypotheses are divided into three groups. Studies in the first group expressed an inverse U-nonlinear relationship between financial development and income inequality (Nikoloski, 2012; Ur-Rehman et al., 2008; Argun, 2016; Younsi and Bechtini, 2018; Koçak and Space, 2019; Nguyen et al., 2019). Studies in the second group argued that this relationship was linear negative (Beck et al., 2007; Law and Tan, 2009; Ang, 2010; Bittencourt, 2008; Kappel, 2010; Mookerjee and Kalipioni, 2010; Jalil and Feridun, 2011; Kim and Lin, 2011; Hamori and Hashiguchi, 2012; Baligh and Piraee, 2013; Prete, 2013; Tiwari et al., 2013; Kunieda, 2014; Law et al., 2014; Sehrawat and Giri, 2016; De Haan and Sturm, 2017). The third group claims to be linear positive (Jauch and Watzka, 2012; Fowowe and Abidoye, 2013).

Some of the empirical studies in the literature are given in Table 1. Econometric methods of these studies, applied period, country groups and data sources expressing income inequality are shown. The data shortage of income inequality has been resolved with new data sources that have emerged recently. One of the data sources shown in the table is called Standardized World Income Inequality Database developed by SWIID Solt (2009). SWIID produces indicators such as gross and net income inequality for 192 countries.

Galbraith and Kum have obtained a data set using a number of econometric and statistical methods. They converted the manufacturing industry wage inequality (UTIP-UNIDO) into the estimated 'Income Inequality-EHII' data set (Estimated Household Income Inequality) that contains more than 3200 observations (Elveren, 2013, p. 5). WIDER-WIID (World Institute for Development Economics Research, 2007) database that was, in turn compiled from a number of sources, including Dinninger and Squire (1996).

Table 1. *Literature on the relationship between financial development and income inequality*

Effect of FD on income inequality	Author / Year	Empirical approach	Scope of investigation and countries	Inequality data
Linear-positive	Fowowe and Abidoye (2012)	Panel OLS, GMM	27 African countries, 1981-2005	WDI
	Jauch and Watzka (2015)	Panel FE, time dummies	138-Developed and developing countries, 1960-2008	SWIID
Linear-negative	Clarke, Xu and Zou (2006)	Cross-country, OLS	83 –Developing and emerging countries, 1960–1995	WIDER
	Beck et al. (2007)	Cross-country, OLS	52 –Developing and emerging countries, 1960–2005	WIDER
	Moorkerjee and Kalipioni (2010)	OLS	70 –Developed and developing countries, 2000-2005	WIDER
	Batuo et al. (2010)	GMM	22 African countries, 1990-2004	WIDER
	Ang (2010)	ECM, ARDL	India, 1951-2004	National Accounts Statistics of the Central Statistical Organisation (India)
	Baligh and Piraee (2013)	ECM, ARDL	İran, 1973-2010	
	Bittencourt (2008)	POLS	Brazil, 1985-1994	IBGE
	Hamori and Hashiguchi (2012)	Panel FE and GMM	126 –Developing and emerging countries, 1963–2002	UTIP
	Law and Tan (2009)	ARDL	Malaysia, 1980-2002	UTIP
	Jalil-Feridun (2011)	ARDL	China, 1978-2006	Ravallion and Chen (2007)
	Shahbaz and Islam (2011)	ARDL, ECM	Pakistan, 1971-2005	Haroon (2005)
Nonlinear-inverted U-shape	Nikoloski (2012)	GMM	52 –Developing and emerging countries, 1962–2006	WIDER
	Ur-Rehman et al. (2008)	OLS	51- Developed and developing countries, 1975-2002	WDI
	Argun (2016)	Unbalanced panel analysis	Developing countries, 1989-2013	WDI
	Destek et al. (2017)	ARDL, VECM	Turkey, 1977-2013	SWIID
	Younsi and Bechtini (2018)	GMM	BRICS, 1995-2015	
	Koçak and Uzay (2019)	FMOLS, DOLS	Turkey	UTIP
	Nguyen et al. (2019)	Unbalanced panel analysis	21 Emerging countries, 1961-2017	SWIID

4. Data and methodology

In this study, a panel data estimation method is used to test the relationship between financial development and income inequality. Our sample includes 16 emerging market economies for the period of 1992-2015. Countries included in the sample are Bulgaria, Colombia, Greece, Hungary, India, Indonesia, Malaysia, Philippines, Russia, Poland, South Africa, and Turkey.

All data are annual and data used for financial development (FD) retrieved from Global Financial Development Database (GFDD). The income inequality (Gini) is obtained from the University of Texas Inequality Project (UTIP) directed by Galbraith and Kum (2005), which is available annually for a group of developed and developing countries for the period 1963-2000. The UTIP has developed a new household income inequality measure, based on data collected by the United Nations Industrial Development Organization (UNIDO).

The model specification will be estimated are as follow:

$$\ln Gini_{it} = \alpha_0 + \alpha_1 \ln FD_{it} + u_{it} \quad (1)$$

$$u_{it} = \mu_{it} + \lambda_t + \nu_{it} \quad (2)$$

Where *i* denotes the each emerging market economies (İ = 1, 2, 3,…, 16) and t denotes the time period (T = 1992-2015). In the equation, μ_i is the unobservable individual effect, $\lambda_t$is unobservable time effect and v_{it} denotes the error term.

Cross-section dependency (CD) tests are used in the literature to transfer the inter-country effects to econometric methods. In the first stage of the analysis for Equation 1, there is a test for cross-section dependency between the series belonging to the cross-section countries. In the case of cross-section dependence between the series, these results in a significant effect on the analysis results obtained (Breusch and Pagan, 1980).

Cross-sectional dependency test (CD), LM test developed by Breusch and Pagan (1980) or CD tests developed by Pesaran (2004) and Pesaran (2008) are being investigated. These tests include differences from the time (T) and the cross-sectional (N) dimension of the panel. Breusch and Pagan (1980) in the LM test T > N, Pasaran (2004) CD test N/T→∞, N > T cases, The CD test developed by Paseran (2004) T→∞ or N→∞, N > T, T > N can be used in both cases. In these three tests, the group mean is zero, the individual average is different from zero, so deviant results occur (Nazlioglu et al., 2011). The deviation is corrected by the addition of variance and mean to LMadj (deviation-corrected LM test) developed by Pesaran et al. (2008). The hypotheses of these tests; *"H_0: There is no cross-sectional dependency, H_1: cross-sectional dependency"*.

On the other hand, it is also important that the coefficients of each country included in Equation 1 are homogeneous. This is the decisive factor in the selection of the following tests. Homogeneity test (HT); the other countries are affected at the same level or at different levels. For this purpose, Slope Homogeneity or Delta ($\tilde{\Delta}$) test developed by Pesaran and Yamagata (2008) was used. This method suggests two different tests according to the size of the sample. While the Δ% test is valid for large samples, the $\Delta\%_{adj}$ test is recommended for small samples. The hypotheses of these tests; *"H_0: $\beta_i = \beta$ (Slope coefficients are homogeneous) and H_1: $\beta_i \neq \beta$ (Slope coefficients are heterogeneous)"*.

5. Empirical findings

The fact that the model includes cross-section dependency makes it necessary to use second-generation tests (taking into account cross-section dependency) to investigate the stationary of the variables. Therefore, in order to investigate the stationarity of the variables, cross-section dependency is taken into consideration by Smith et al. (2004) unit root test was applied and presented in Table 2. Smith et al. (2004) test is based on the unit root test that, methodically developed by IPS (2003). In this test method, the cross-section dependency is modeled with the bootstrap approach and t statistics are obtained by the average of the individual ADF statistics.

Table 2. *Smith et al. (2004) "bootstrap" panel unit root test results*

	Constant		Constant and Trend	
Levels	Statistic	Bootstrap -value	Statistic	Bootstrap p-value
lnFD				
t-bar	-1.791	0.158	-2.518	0.102
WS	-0.874	0.867	-2.485	0.081
lnGini				
t-bar	-2.287**	0.002	-2.285	0.340
WS	-1.701	0.021	-2.090	0.559
First Difference				
lnFD				
t-bar	-5.130*	0.000	-5.189*	0.000
WS	-5.183*	0.000	-5.314*	0.000
lnGini				
t-bar	-5.136*	0.000	-5.457*	0.000
WS	-5.355*	0.000	-5.802*	0.000

Note: The maximum lag length is taken as 1 and the optimal lag lengths are determined by the general-to-specific approach. P-values were obtained from 1000 bootstrap distributions.
*, ** and *** indicates the statistical significance at 1, 5, and 10% levels respectively.

Table 3. *Cross-sectional dependency and homogeneity tests*

Regression model:		
$\boldsymbol{ln\,Gini_{it} = \alpha_i + \beta_{1_i} ln\,FD_{it} + \varepsilon_{it}}$	Statistic	p-value
Cross-section dependency tests:		
LM (BP,1980)	575.979*	0.000
CD_{lm}(Pesaran, 2004)	29.433*	0.000
CD (Pesaran, 2004)	14.974*	0.000
LM_{adj}(PUY, 2008)	34.810*	0.000
Homogeneity tests:		
Δ%	-2.828	0.998
$\Delta\%_{adj}$	-3.024	0.999

The CD test results in Table 3 show that there is a cross-sectional dependence between the panel forming countries. According to these results, an economic shock in one of the countries in the periods discussed also affects other countries or an economic imbalance in other countries affects a single country. Because of these tests, homogeneity estimation and co-integration methods will be used.

Table 4. *Results of LM bootstrap panel co-integration test*

	Constant			Constant and Trend		
Tests	Statistic	Asymptotic p-value	Bootstrap p-value	Statistic	Asymptotic p-value	Bootstrap p-value
LM bootstrap (Ho: co-integration)						
LM_N^+	2.742	0.003	0.701	10.099	0.000	0.000

Note: For non-parametric (PP-type) tests Bartlett kernel and Newey-West automatic band width selection were used.

According to LM bootstrap test results, a co-integration relationship between financial development and income inequality can be mentioned. In the next step, the coefficient estimation can be used by using the co-integration relationship estimators.

In this study, two different estimation methods were used to determine the long-term relationship between income inequality and financial development. These methods are Common Correlated Effects (CCE) and Augmented Mean Group (AMG).

The Monte Carlo study by Pesaran (2006) shows that the cross-sectional dependence of the panel data models should be tested and if any, methods should be used. Common Correlated Effects (CCE) estimators are an estimator that takes into account the dependence between the cross sections of the panel and are developed by Pesaran (2006) (Nazlıoğlu, 2010, p. 101).

Table 5. *The results of panel co-integration estimators*

		CCE		AMG	
		lnfd		*lnfd*	
		Coef.	p-val	Coef.	p-val
1	Brazil	-0,130**	0,013	-0.020	0.199
2	Bulgaria	0.032	0.309	0.086*	0.004
3	Czech Republic	-0.001	0.925	0.005	0.492
4	Colombia	-0.033	0.290	-0.089*	0.000
5	Croatia	-0.001	0.969	0.060*	0.000
6	Greece	-0.053*	0.000	0.011	0.172
7	Hungary	0.011	0.685	0.044*	0.001
8	India	0.021	0.589	0.010	0.508
9	Indonesia	0.152	0.350	0.079	0.568
10	Malaysia	-0.005	0.738	0.014**	0.021
11	Philippines	-0.067	0.298	-0.069	0.256
12	Poland	0.006	0.904	0.028***	0.077
13	Romania	0.134	0.199	0.099*	0.000
14	Russia	-0.097*	0.000	-0.086*	0.000
15	South Africa	-0.019	0.797	-0.025	0.157
16	Turkey	0.008	0.900	-0.085*	0.004
	PANEL RESULTS				
		Coef.	p-val	Coef.	p-val
		-0.002	0.878	0.004	0.792

Note: ***, ** and * indicates the statistical significance at 1, 5, and 10% levels, respectively.

Coefficients obtained from CCE and AMG estimators are presented in Table 5. In CCE estimator, constant term coefficient is statistically insignificant for panel. However the coefficient of slope statistically significant for Brazil, Greece and Russia. It means for Brazil if financial development increase 1%, income inequality would decrease 0.13%.

In AMG estimator, constant term coefficient is statistically insignificant for panel. According to AMG estimator results, slope coefficient statistically significant for Bulgaria, Colombia, Croatia, Hungary, Malaysia, Poland, Romania, Russia and Turkey. Findings confirm that reduce the income inequality of financial development for Colombia, Russia and Turkey.

6. Conclusion

This article examines the effect of financial development on income inequality on emerging market economies during 1992-2015, using Panel Co-integration methods (LM Bootsrap Co-integration, CCE and AMG Estimator).

In this article, cross-sectional dependence, homogeneity, co-integration and co-integration estimators were used for 16 emerging market economies. The findings can be summarized as follows:

Considering the data set and variables used, it is seen that the sample has a homogeneous structure with cross-sectional dependence. It confirms this in the model. The results of the LM bootstrap panel co-integration test show that there is a co-integration relationship between Financial Development (FD) and Income Inequality (Gini). The results obtained in the CCE and AMG estimators used to estimate co-integration coefficient show no significant relationship to the overall panel.

When the individual results for CCE estimator are analyzed, it is seen that the results are negative and significant for Brazil, Greece and Russia, respectively. The rest of the panel is not significant to countries. According to AMG estimator findings shows a significant relationship at different levels for Bulgaria, Colombia, Croatia, Hungary, Malaysia, Poland, Romania, Russia and Turkey, respectively. However, the findings Brazil, confirms that reduce the income inequality of Financial Development for Russia and Turkey. It is concluded that income inequality has increased for other countries.

This study consists of selected emerging market economies whose data are only available. The limitations of this study include the years 1992-2015, Financial Development and Income Inequality variables, as well as the methods described in the methodology section. The data set of the study, variables and estimation methods used can be expanded. At this point, the literature review of the study can be a guide for the researchers.

References

Aghion, P. and Bolton, P., 1997. A theory of trickle-down growth and development. *The Review of Economic Studies*, 64(2), pp. 151-172.

Ang, J.B., 2010. What are the mechanisms linking financial development and economic growth in Malaysia?, *Economic Modelling*, 38, pp. 38-53.

Argun, A.İ., 2016. Gelişmekte Olan Ülkelerde Finansal Gelişme ve Gelir Eşitsizliği. *İstanbul Üniversitesi Sosyal Bilimler Dergisi*, 1, pp. 61-74.

Arora, R.U., 2012. Finance and inequality: A study of Indian states. *Applied Economics*. 44, pp. 4527-4538.

Baligh, N. and Piraee, K., 2013. Financial Development and Income Inequality Relationship in Iran, *Middle-East Journal of Scientific Research* 13(Special Issue of Economics), pp. 56-64.

Banerjee, A.V. and Newman, A.F., 1993. Occupational Choice and the Process of Development. *Journal of Political Economy*, 101(2), pp. 274-298.

Bardhan P., 2000. The nature of institutional impediments to economic development. In A Not-So-Dismal Science: a Broader View of Economies and Societies, ed. OlsonM, KähkönenS, pp. 245-68. New York: Oxford University Press

Batuo, M.E., Guidi, F. and Mlambo, K., 2010. Financial Development and Income Inequality: Evidence from African Countries, *MPRA Paper* No. 25658.

Beck, T., Demirgüç-Kunt, A. and Levine, R., 2007. Finance, Inequality and the Poor. *Journal of Economic Growth*, 12(1), pp. 27-49.

Bencivenga, V. and Smith, B., 1991. Financial Intermediation and Endogenous Growth. *Review of Economic Studies*, 58, pp. 195-209.

Bittencourt, M., 2008. Financial Development and Inequality: Brazil 1985-1994. *Economic Change and Restructuring*, 43(2), pp. 113-130.

Breusch, T. and Pagan, A., 1980. The Lagrange Multiplier Test and its Application to Model Specifications in Econometrics. *Review of Economic Studies*, 47(1), pp. 239-253.

Clarke, G., Xu L.C. and Zou, H., 2006. Finance and Income Inequality: What Do the Data Tell Us?, *Southern Economic Journal*, 72(3), pp. 578-596.

De Haan, J. and Sturm, J.E., 2017. Finance and income inequality: A review and new evidence. *European Journal of Political Economy*, 50, pp. 171-195.

Deininger, K. and Squire, L. 1996. A new development data base. *The World Bank Review,* 10(3), pp. 565-591.

Destek, M.A., Okumuş, İ. and Manga, M., 2017. Türkiye'de Finansal Gelişim ve Gelir Dağılımı İlişkisi: Finansal Kuznets Eğrisi. *Doğuş Üniversitesi Dergisi,* 18 (2), pp. 153-165.

Elveren, A.Y., 2013. Gelir Dağılımı Çalışmaları İçin Bir Alternatif: Texas Üniversitesi Eşitsizlik Projesi Veri Setleri. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 13(2), pp. 35-42.

Fowowe, B. and Abidoye, B., 2013. The effect of financial development on poverty and inequality in African countries. *The Manchester School,* 81(4), pp. 562-585.

Fry, M., 1978. Money, and capital or financial deepening in economic development. *Journal of Money, Credit and Banking*, 10(4), pp. 464-75.

Galbraith, J.K. and Kum, H., 2005. Estimating the inequality of households incomes: Toward a dense and consistent global data set. *Review of Income and Wealth* 51(1), pp. 115-43.

Galor, O. and Zeira, J., 1993, Income Distribution and Macroeconomics. *The Review of Economic Studies*, 60(1), pp. 35-52.

Goldsmith, R.W., 1969. Financial Structure and Development. New Haven: Yale University Press.

Greenwood J. and Jovanovic, B., 1990. Financial Development, Growth, and the Distribution of Income. *Journal of Political Economy*, 98(5), pp. 1076-1107.

Hamori, S. and Hashiguchi, Y., 2012. The effect of financial deepening on inequality: Some international evidence. *Journal of Asian Economics,* 23(4), pp. 353-359.

Hoi, C.M. and Hoi, L.Q., 2013. Financial Development and Income Inequality in Vietnam: An Empirical Analysis. *Bangladesh Journal of Pharmacology*, 8(4), pp. 361-364.

IM, K.S. and Pesaran, M.H. and Shin, Y., 2003. Testing for Unit Roots in Heterogeneous Panels. *Journal of Econometrics*, 115, pp. 53-74.

Jalil, A. and Feridun, M., 2011. Long-run Relationship between Income Inequality and Financial Development in China. *Journal of the Asia Pacific Economy*, 16(2), pp. 202-214.

Jauch, S. and Watzka, S., 2015. Financial development and income inequality: A panel data approach. *Empirical Economics,* 51(1), pp. 291-314.

Kappel, V., 2010. The effects of financial development on income inequality and poverty. Proceedings of the German Development Economics Conference, Hannover, No. 25

Kim, D.H. and Lin, S.C., 2011. Nonlinearity in the financial development–income inequality nexus. *Journal of Comparative Economics*, 39(3), pp. 310-325.

King, R.G. and Levine, R., 1993a. Finance and Growth: Schumpeter Might Be Right. *Quarterly Journal of Economics*, 108 (3), pp. 717-737.

King, R.G. and Levine, R., 1993b. Finance, Entrepreneurship, and Growth: Theory and Evidence. *Journal of Monetary Economics*, 32 (3), pp. 513-542.

Koçak, E. and Uzay, N., 2019. The effect of financial development on income inequality in Turkey: An estimate of the Greenwood-Jovanovic hypothesis. *Review of Economic Perspectives*, 19(4), pp. 319-344.

Kunieda, T., Okada, K. and Shibata, A., 2014. Finance and inequality: How does Kuznets, S. (1955). Economic growth and income inequality. *The American Economic Review*, 45 (1), pp. 1-28.

Kuznets, S., 1955. Economic Growth and Income Inequality. *The American Economic Review*, 45, pp. 1-28.

Law, S.H. and Tan, H.B., 2009. The Role of Financial Development on Income Inequality in Malaysia. *Journal of Economic Development*, 34(2), pp. 153-168.

Law, S.H., Tan, H.B. and Azman-Saini, W.N.W., 2014. Financial development and income inequality at different levels of institutional quality. *Emerging Markets Finance and Trade*, 50(1), pp. 21-33.

Levine, R., 1997. Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature* 35 (2), pp. 688-726.

Mckinnon, R.I., 1973. Money and capital in economic development. Brookings Institution Press.

Mookerjee, R. and Kalipioni, P., 2010. Availability of financial services and income inequality: The evidence from many countries. *Emerging Markets Review,* 11, pp. 404-408.

Nazlıoğlu, Ş., 2010. Makro İktisat Politikalarının Tarım Sektörü Üzerindeki etkileri: Gelişmiş ve Gelişmekte Olan Ülkeler İçin Bir Karşılaştırma, Doktora Tezi, Erciyes Üniversitesi Sosyal Bilimler Enstitüsü, İktisat Anabilim Dalı,Kayseri.

Nazlıoğlu, Ş., Lebe, F. and Kayhan, S., 2011. Nuclear Energy consumption and economic growth in OECD Countries: Cross sectional dependence heterogeneous panel causality analysis. *Energy Policy*, 39, pp. 6615-6621.

Nikoloski, Z., 2013. Financial Sector Development and Inequality: Is there a Financial Kuznets Curve?. *Journal of International Development*, 25, pp. 897-911.

Nguyen, T.C., Vu, T.N., Vo, D.H. and Ha, D.T., 2019. Financial Development and Income Inequality in Emerging Markets: A New Approach. *Journal of Risk and Financial Management*, 12(4), p. 173.

Pesaran, M.H., 2004. General Diagnostic Tests for Cross Section Dependence in Panels. *Cambridge Working Papers in Economics*, 435, pp. 1-39.

Pesaran, M.H., Ullah, A. and Yamagata, T., 2008. A Bias-adjusted Lm Test of Error Cross-Section Independence. *Econometrics Journal*, 11, pp. 105-127.

Pesaran, M.H. and Yamagata, T., 2008. Testing Slope Homogeneity in Large Panels. *Journal of Econometrics*, 142, pp. 50-93.

Pesaran, M.H., 2006. Estimation and Inference in Large Heterogeneous Panels with a Multifactor Error Structure. *Econometrica*, 74, No. 4, pp. 967-1012.

Prete, A.L., 2013. Economic literacy, inequality, and financial development. *Economics Letters*, 118(1), pp. 74-76.

Rajan, R.G. and Zingales, L., 2003. The Great Reversals: The Politics of Financial Development in the Twentieth Century. *Journal of Financial Economics*, 69, pp. 5-50.

Satti, S.L., Mahalik, M.K., Bhattacharya, M. and Shahbaz, M., 2015. Dynamics of Income Inequality, Finance and Trade in Kazakhstan: Empirical Evidence from a New Transition Economy with Policy Prescriptions. *Monash Business School, Department of Economics Discussion Paper*, No. 36/15.

Sehrawat, M. and Giri, A.K., 2016. Financial development, poverty and rural-urban income inequality: evidence from South Asian countries. Quality & Quantity, 50(2), pp. 577-590.

Schumpeter, J.A., 1912. *The theory of economic development: An inquiry into profits, capital, credit, ınterest, and the business cycle.* Cambridge: Harvard University Press.

Shahbaz, M. and Islam, F., 2011. Financial Development and Income Inequality in Pakistan: An Application of ARDL Approach. *Journal of Economic Development*, 36, pp. 35-58.

Shahbaz, M. and Faridul, I., 2012. Financial development and income inequality in Pakistan: An application of ARDL approach, 36(1), pp. 35-58.

Shahbaz, M., Tiwari, A. and Reza, S.J., 2012. Financial Development and Income Inequality: Is there any Financial Kuznets curve in Iran?. MPRA Paper No. 40899.

Shahbaz, M., Loganathan, N. and Tiwari, A.K., Sherafatian-Jahromi, R., 2014. Financial development and income inequality: is there any financial Kuznets curve in Iran?. *Social Indicators Research*, 124(2), pp. 357-382.

Smith, V.S., S. Leybourne, Kim T.H. and Newbold, P., 2004. More powerful panel data unit root tests with an application to mean reversion in real exchange rates. *Journal of Applied Econometrics* 19(2), pp. 147-170.

Solt, F., 2009. Standardizing the world income inequality database. *Social Science Quarterly*, 90(2), pp. 231-242.

Tan, H.-B. and Law, S.-K., 2012. Nonlinear Dynamics of the Finance-Inequality nexus in Developing Countries. *Journal of Economic Inequality*, 9, pp. 1-13.

Tiwari, A.K., Shahbaz, M. and Islam, F., 2013. Does Financial Development Increase Rural-urban Income Inequality? Co-integration Analysis in the Case of Indian Economy. *International Journal of Social Economics*, 40(2), pp. 151-168.

Ur-Rehman, H., Khan, S. and Ahmed, I., 2008. Income Distribution, Growth and Financial Development: A Cross Country Analysis. *Pakistan Economic and Social Review*, 46(1), pp. 1-16.

Younsi, M. and Bechtini, M., 2018. Economic Growth, Financial Development and Income Inequality in BRICS Countries: Evidence from Panel Granger Causality Tests. MPRA Paper No. 85182.

Zhang, Q. and Rongda, C., 2015. Financial Development and Income Inequality in China: An Application of SVAR Approach. *Procedia Computer Science,* 55, pp. 774-781.