

Relationship between Financial Development and Income Inequality for Turkey and Selected Countries with Similar Economy

Zuleyha ARAT^{a*}, Adalet HAZAR^b, Senol BABUSCU^b

^aBaskent University, Department of Banking and Finance, Social Sciences Institute, Turkey

^bBaskent University, Department of International Finance and Banking, Faculty of Commercial Sciences, Turkey

ABSTRACT

Purpose: The study's primary purpose is to investigate the validity of the Financial Kuznets Curve hypothesis for 15 selected upper and middle-income countries in terms of middle and upper-income group countries. In this context: Income inequality using annual data for the period 2002-2018 of 15 countries, including Turkey, Brazil, Belarus, Armenia, Ecuador, Colombia, Costa Rica, Dominican Republic, Georgia, Mexico, Kazakhstan, Paraguay, Peru, Russian Federation and Thailand.

Methodology: The relationship between income inequality and financial development was examined by panel data analysis. At the same time, as in similar studies in the literature, growth, inflation and foreign trade variables, which are among the main variables related to the subject, were also included in the research.

Findings: As a result of the findings, results were obtained that support the inverted-U hypothesis between income inequality and financial development.

ARTICLE INFO

Keywords:
Income Inequality, Financial Development, Panel Data, Analysis, Financial Kuznets Curve, Income inequality

*Corresponding author:
zuleyhaarat86@gmail.com
(Zuleyha ARAT)

Article history:
Received : 10.12.2021
Revised : 05.01.2022
Accepted : 21.03.2022

DOI:
<https://doi.org/10.51410/jcgirm.9.1.1>

1. INTRODUCTION

The financial system has an important place in Turkey and the world. With globalization, financial crises have also started to globalize, which has given rise to making more sound investments in the financial sector, improving regulations, and taking measures to sustain the system's functioning. Increasing direct consumption and investment expenditures through credit expansion, one of the most popular tools of today's economic policies, contributes to the natural increase in national income. On the other hand, reaching broader masses due to the increase in product diversity and the financial literacy in the financial sector reinforces the importance and contribution of the financial system to the economy. Moreover, crisis periods, the last global financial crisis, and macroeconomic instabilities have increased the interest in the link between finance-growth-inequality-poverty.

Therefore, it is essential to consider the connection between financial sector development, income inequality, and poverty alleviation. Financial systems play a potentially important role in equalizing economic opportunities and reducing disparities in the literature. However, if a particular segment is advantageous to the poor in terms of access to financial services, financial development may not reduce income inequality.

The study aims to examine the effect of financial development and growth on income inequality, in other words, to investigate whether it contributes to poverty alleviation from the perspective of countries with insufficient capital accumulation and to make policy recommendations in line with the analysis. The non-linear effects of financial development and growth along with income inequality were also analyzed in the study. In addition, the study aims to examine the relations between inflation and foreign trade, which are other variables, and income inequality.

2. LITERATURE REVIEW

It is possible to classify the studies in the literature on income inequality and its impact on poverty alleviation into three groups in general.

2.1. Studies Arguing the Reducing Effect of Financial Development on Income Inequality

Banerjee and Newman (1993) highlight that those countries with larger financial market imperfections, such as information asymmetries and transaction costs limiting finance access, are much more exposed to income inequality. In other words, there is a potential for a negative relationship between financial sector development and income inequality. According to this point of view, finance reduces poverty by improving access to finance and increasing economic growth.

With panel data analysis, Clarke et al. (2003) examined the relationship between financial development and income inequality for 91 countries in the 1960-1995 period. It has been found that as the level of economic development increases, inequality decreases.

Clarke et al. (2006) examined the relationship between financial development and income inequality in 83 countries between 1960 and 1995. As a result, it was concluded that economic development reduces income inequality.

In their study, Beck et al. (2007) stated that financial development reduces income inequality by causing the income of the poorest quintile to increase disproportionately. They also found that financial products are strongly associated with poverty reduction.

Kappel (2010) examined the effects of financial development on income inequality and poverty with panel data analysis for high and low-income countries. The results obtained in the study show that

income inequality and poverty are reduced not only through developed credit markets but also through more developed stock markets.

Kpodar and Singh (2011) analyzed 47 emerging economies between 1984 and 2008. They found that when institutions are weak, bank-based financial systems are better at reducing poverty, but as institutions develop, market-based economic approaches become more effective for this purpose.

Abosedra et al. (2015) analyzed the links between financial development and poverty reduction in Egypt using data from Q1 in 1975 to Q4 in 2011. As a result, they found that economic development reduces poverty when financial growth is achieved by using domestic loans given to the private sector as a tool.

2.2. Studies Arguing the Nonlinear Relationship between Financial Development and Income Inequality

Greenwood and Jovanovic (1990) found a non-linear relationship, as fewer people can access the market early in financial development. Still, the advantages can be enjoyed by including more people in the system in line with economic growth. They concluded an inverted U-shaped curve of income inequality and financial intermediation development.

Galor and Zeira (1993) modelled an economy in which human capital accumulated due to financial development; Thus, they state that income distribution can be improved under certain conditions.

Galor and Moav (2004) state that in the early stages of the industrial revolution, in which growth was shaped under the influence of physical capital, inequality encouraged growth by collecting funds from individuals with a tendency to save. However, it has been argued that the transformation from physical capital accumulation to human capital accumulation ensured equality and reduced the destructive effect of credit restrictions on human capital accumulation and contributed to growth.

Batuo et al. (2010) investigated financial development and income inequality for 22 African countries from 1990 to 2004 using the Generalized Moments method. The results obtained confirm the inverted-U relationship.

Uddin et al. (2014) investigated the short- and long-term dynamic relationships between financial development, economic growth, and poverty alleviation in Bangladesh with quarterly data from 1975 to 2011. They argued that financial product has a poverty-alleviating effect, but the relationship is not linear.

Park and Shin (2015) examined financial development and income inequality for 162 Asian countries from 1960 to 2011 with panel data analysis. The results suggest that economic development improves income inequality until it reaches a certain level, but financial growth increases income inequality

after a certain point. Contrary to the "Financial Kuznets Curve Theory", they found a U-shaped relationship between the variables.

In the study conducted by Argun (2016), the relationship between financial development and income inequality for the developing countries between 1989 and 2013 was investigated by panel data analysis. The results obtained are in parallel with the inverted-U relationship.

Destek et al. (2017) examined the "Financial Kuznets Curve Hypothesis" from 1977 to 2013 in Turkey with the ARDL bounds test approach and VECM Granger causality method. The findings indicated that the inverted-U hypothesis could explain the relationship between income inequality and financial development.

Younsi and Bechtini (2018) investigated the relationship between income inequality and per capita income, financial development and inflation in Brazil, India, Russia, China, and South Africa (BRICS) from 1995 to 2015 with panel data analysis and tested them with POLS and GMM estimators. The results support the Financial Kuznets Hypothesis.

Bittencourt et al. (2019) investigated the relationship between income inequality and financial development variables for 50 states in the USA from 1976 to 2011 using a fixed effect estimator. They divided states into two groups: above-average inequality and below-average inequality. It has been found that the increase in financial development is having an increasing impact on above-average income inequality situations, and an inverted U-shaped relationship exists for below-average income inequality situations.

Yılmaz Kuscuoglu and Cicek (2021) analyzed the relationship between financial development and income inequality for Turkey in the 1987-2017 period using the ARDL bounds test. The results support the Financial Kuznets Curve Hypothesis.

2.3. The Study Arguing the Effect of Financial Development on Increasing Income Inequality

Sethi et al. (2021) examined the relationship between income inequality, globalization, and financial development in India from 1980 to 2014 with the ARDL bounds test. It has been concluded that globalization and economic development increase income inequality. Therefore, it is recommended to provide access to financial services, create fair employment opportunities and improve the quality of education against the adverse effects of income inequality.

3. METHOD

The model is established to investigate the relationships between income inequality, per capita national income, the square of per capita income, financial development, the rate of economic growth, inflation, and foreign trade by using the annual data from 2002 to 2018 for 15 selected upper-

middle-income countries: Turkey, Brazil, Belarus, Armenia, Ecuador, Colombia, Costa Rica, Dominican Republic, Georgia, Mexico, Kazakhstan, Paraguay, Peru, Russian Federation, and Thailand; is shown below with equation 1.

$$GN_{it} = \gamma_0 + \gamma_1 Y_{it} + \gamma_2 F_{it}^2 + \gamma_3 I_{it} + \gamma_4 TR_{it} \tag{1}$$

In equation one above: "i" refers to the relevant unit, "T" refers to the applicable period, GN_{it} refers to the income inequality, "F" refers to the financial development, "Y" refers to the per capita income, "I," refers to the inflation rate, and "T.R." refers to the foreign trade. The 15 countries in the upper and middle-income groups in the equation are shown with the unit dimension "i" and the time dimension of 17 years with "t".

Income inequality, per capita income, financial development, inflation, and foreign trade data, which are the selected variables of 45 developing countries for analysis, were examined. Countries lacking data for the 2002-2018 period were not included in the data study.

The variables in the data set are as follows: Income inequality was measured with the Gini coefficient, and the data were obtained from the World Bank (WDI) database. The Gini coefficient measures the degree to which income distribution (or consumption expenditure) among individuals or households in an economy deviates from a perfectly even distribution. The income per capita variable is given in dollars. The financial development variable was measured by the ratio of domestic loans given to the private sector by banks in GDP, and the data were taken from WDI. Inflation was calculated as the GDP deflator (annual %) and foreign trade data as the GDP ratio of the sum of exports and imports of goods and services, measured as a share of gross domestic product. Inflation and foreign trade data are also obtained from the WDI database. The empirical analysis was performed using the Stata program.

Panel data is based on two basic approaches, fixed and random effects estimators. The Hausman test will decide whether the model is fixed or random (Hausman, 1978). In addition, panel data provides advantages in the information set, a variable amount, degree of freedom and efficiency (Baltagi, 2005).

The established model is as shown in the formula 2 below.:

$$GN_{it} = \gamma_0 + \gamma_1 Y_{it} + \gamma_2 Y_{it}^2 + \gamma_3 F_{it} + \gamma_4 F_{it}^2 + \gamma_5 I_{it} + \gamma_6 TR_{it} + u_i + \epsilon_t + \xi_{it} \tag{2}$$

i= 1,... ,15 t=1,... , 17

The F-test analyzes the choice between the pooled OLS and the fixed effects estimator. The Hausman Test decides which one is valid by applying constant and random estimators. While the random-effects model allows time-invariant variables to be added, fixed effects include these.

The Hausman test examines the relationship of error terms with the independent variable. Suppose the null hypothesis that there is no relationship between the error terms and the independent variable

cannot be rejected. In that case, the random effect is modelled, and if it is left, the modelling is based on the fixed effect estimation (Hausman, 1978).

4. FINDINGS

In the 2002-2018 period, panel data analysis was conducted in 15 countries among the upper and middle-income groups. Income inequality is the dependent variable, and GDP per capita, financial development, inflation, and foreign trade are explanatory variables. The choice between the pooled OLS and the fixed effects estimator was made with the F-test. As a result, the fixed-effects model was chosen. The selection between the fixed-effects model and the random-effects model was created using the Hausman Test. As a result of the Hausman test, it was decided to use the fixed effects estimator.

Table 1: F-Test Results

	F-Test
Statistics Value (14,234)	225,52
Probability Value	0,0000

According to Table 1, as a result of the F-statistics test applied to the selection between the pooled OLS and the fixed effects model, the null hypothesis of "the constant term of the models is the same for all cross-section units" was rejected. Therefore, it has been determined that the fixed-effects model will achieve more consistent results.

Table 2: Hausman Test Results

	Hausman Test
Chi-squared Value	151,30
Probability Value	0,0000

Variables were estimated using two separate panel data models, fixed effects and random effects. According to the Hausman test, it was concluded that the null hypothesis of "the random effects estimator is more suitable" was rejected; thus, the fixed effects model was more consistent and efficient. Hausman test results are shown in Table 2.

In the 2002-2018 period, 15 countries in the upper and middle-income groups were examined, and the fixed effects model estimation was analyzed in terms of varying variance, autocorrelation, and inter-unit correlation, whether they carried the basic assumptions statistically. The variable variance problem was tested with the Wald test and is given in Table 3. For varying variance/heteroskedasticity, the null hypothesis of "No Varying Variance" was rejected. Therefore, it was concluded that there is a problem of different variance in the fixed-effects model.

Table 3: Wald Test Results

	Heteroscedasticity
Adapted Wald Test	613,19
Probability Value	0,0000

To check whether there is an autocorrelation problem in the fixed effects model, the Durbin Watson Test (Bhargava et al. 1982) and the LBI Test (Baltagi & Wu, 1999) were applied, and the results are given in Table 4 below. As a result, the null hypothesis of "no autocorrelation" was rejected. Therefore, it was concluded that there is an autocorrelation problem in the fixed-effects model.

Table 4: Durbin Watson and LBI Test Results

	Autocorrelation
DW	0,8203
LBI	0,9977

The Breush Pagan LM Test was used to determine the correlation problem between units in the fixed effects model, and the results are given in Table 5. The null hypothesis of "There is no correlation between units" was rejected. Thus, it was concluded that there is a correlation problem between units in the fixed-effects model.

Table 5: Breusch Pagan Test Results

	Breusch-Pagan LM
Statistics Value	257,4049
Probability Value	0,0000

Based on the fundamental assumption tests, it was found that varying variance, autocorrelation, and inter-unit correlation problems existed. Therefore, the model was estimated by Driscoll-Kraay (Driscoll & Kraay, 1995; Driscoll & Kraay, 1998), which was developed against the deviation caused by the violation of these three assumptions (Hoechle, 2007).

The Driscoll-Kraay model estimation for the 15 countries in the upper and middle-income group for the 2002-2018 period is presented in Table 6.

The study conducted for 15 developing countries for the 2002-2018 period, shown in Table 6, when per capita income increases by 1 unit, income inequality decreases by 0.002 units. As the square of per capita income increases, income inequality increases. Contrary to Kuznets's inverted-U hypothesis (Kuznets, 1955), a U-shaped relationship was found between growth and income inequality for the selected countries in the relevant period.

It has been found that there is a positive and statistically significant relationship between financial development measured by the GDP ratio of domestic loans given to the private sector by banks and

income inequality measured by the Gini Coefficient indicator. It is supposed that a 1 unit increase in financial development will increase income inequality by 0.067 units.

Table 6: Driscoll-Kraay Model Estimation Results

Variable	Coefficients	t statistic	p> t
C*	47,440	73,34	0,000
Y*	-0,002	-10,68	0,000
Y²*	0,000	7,65	0,000
F**	0,067	2,36	0,031
F²**	-0,001	-2,89	0,011
I	0,013	1,18	0,254
TR	0,018	0,96	0,350
R-squared	0,462	Prob (F-statistic)	0,000(109,67)

*, ** and *** indicate that the relevant variable is statistically significant at the 1%, 5% and 10% level, respectively.

A negative and statistically significant relationship was found between the square of the financial development variable and income inequality. In this context, a 1-unit increase in economic development should reduce income inequality by 0.001 units. The study obtained results that support the Financial Kuznets Curve hypothesis.

For the 2002-2018 period, no statistically significant relationship could be found between income inequality and inflation for 15 countries in the upper and middle-income categories.

For the 2002-2018 period, a statistically significant relationship between income inequality and foreign trade for 15 countries in the upper and middle-income categories could not be determined.

5. CONCLUSION

In the study, upper-middle-income groups were examined in Turkey, Brazil, Belarus, Armenia, Ecuador, Colombia, Costa Rica, Dominican Republic, Georgia, Mexico, Kazakhstan, Paraguay, Peru, Russian Federation, and Thailand. Annual data for these countries from 2002 to 2018 was examined, where income inequality was the dependent variable, and the explanatory variables of GDP per capita, financial development, inflation, and foreign trade were analyzed with the fixed-effect model using panel data analysis. The model was estimated by the Driscoll-Kraay method since the established model deviated from the basic assumptions of varying variance, autocorrelation, and correlation between units. This article is an empirical study that aims to contribute to the existing literature by considering the relationship between financial development and economic growth in selected developing countries.

The linear and non-linear relationships between income inequality and financial development have been the subject of theoretical research. Therefore, it is possible to collect the findings obtained in the studies in three different groups. Some studies argue the reducing effect of financial development on income inequality; other studies claim the non-linear relationship between economic growth and income inequality, and other studies argue the impact of financial development on increasing income inequality.

The literature is quite diverse and rich with the effect of the country, period, and other factors examined. Legal, political, social, and economic conditions and preferential policies affect income inequality, financial development, and the relationship between the two variables. In some studies, it has been argued that policies that support the access of firms and individuals to financial services in developing countries may increase inequality. Also, financial access cannot spread to the base of the benefits of the implemented economic reforms of specific interest groups (Claessens & Perotti, 2007). They find other parameters that weaken and strengthen the relationship between the two variables based on other studies. Among these, regulations made with human capital, legal regulations [Park & Shin (2018)] or government intervention and tax and social transfer (Clarke, 1992) can undoubtedly differentiate the sensitivity and direction of the relationship between the variables in terms of practices. Some studies find that inequality cannot be a prerequisite for growth (Clarke, 1992) and that providing access to financial services for small firms and the poor will support growth (Demirguc-Kunt et al. 2008). As financial markets become more sophisticated, new investment opportunities can reduce inequality, and the empirical relationship between financial development and low-income inequality is driven by economic literacy (Prete, 2013).

According to the findings obtained in this study, the works of Greenwood and Jovanovic (1990) and others [Batuo et al. (2010), Younsi and Bechtini (2018), Bittencourt et al. (2019)] are supported. In addition, a non-linear, inverted-U-shaped relationship was found between financial development and income inequality for selected developing countries for the 2002-2018 period. In other words, results that support the Financial Kuznets Hypothesis have been reached. While the increase in financial development in the early stages of economic growth in developing countries is a factor that increases income inequality, the increase in financial development after financial development reaches a certain level has a reducing effect on income inequality. Contrary to the committed relationship, the findings differ from the study that advocates a U-shaped relationship (Park & Shin, 2015).

Income inequality deteriorates as the developing countries' access to financial resources and their ability to provide funds increase. However, after the economic development reaches a certain level, due to the expansion and diversification of the service network and the meeting of more economical units with capital, results supporting that this situation can reduce income inequality have been found. When financial markets operate effectively, the value created by directing funds to productive areas

and the ease of access to resources will bring income inequality to an optimal level and offer growth and development opportunities.

Based on the results obtained in the study conducted for 15 countries in the upper and middle-income group, it has been revealed that one of the critical issues to be considered to reduce income inequality is the rate of increase in the GDP ratio of loans given to the private sector by banks, which are used as an indicator of financial development. Policymakers should consider the increasing income inequality effect of unconventional monetary policies that increase domestic demand with credit easing.

While examining credit expansion and income distribution, the strength of the relationship between the two variables may differ on the specific policies of each country. Such factors as; applied tax policy, social transfers, rights granted to human capital, sufficient institutional infrastructure, education level, and trust in the financial system may affect the flexibility of the relationship. As a result of the findings, the effect of credit expansion on increasing income inequality in the early stage of financial development in developing countries has been determined. To minimize this effect, several steps can be taken:

- increasing the level of financial literacy and raising awareness in this direction;
- expanding access to complete information about financial instruments;
- simplified interfaces that facilitate digital and technological adaptation appealing to all ages and socio-cultural segments;
- policies that support equal opportunity in resource allocation and income inequality created by financial development.

It is seen that extending the credit expansion in a way to cover the population with limited access to capital with preferential policies targeting technology and human capital for the productive sectors in the project may reduce the negative impact of the level of financial development on the income distribution. In addition, the increase in welfare that can be brought about by the multiplier effect potential of the capital accumulation spreading to the base should not be ignored. After forming the polarization between the low-income and high-income groups, specific policies can be implemented to regulate the income distribution, which can have possible costs and returns. Policies that ensure controlled income distribution by taking necessary precautions early can also have potential costs and benefits. Choosing one of these two alternatives can play an essential role in the socio-economic structure of developing countries.

REFERENCES

Abosedra, S., Shahbaz, M., Nawaz, K. (2015), "Modelling causality between financial deepening and poverty reduction in Egypt", *Soc. Indic. Res.*, p. 1-15.

Argun, A. (2016), "Gelişmekte olan ülkelerde finansal gelişme ve gelir eşitsizliği", İstanbul Üniversitesi, Sosyal Bilimler Dergisi, 40(1), p. 61-74.

Baltagi, B. (2005), "Econometric analysis of panel data", John Wiley & Sons.

Baltagi, B.H. and Wu, P.X. (1999), Unequally spaced panel data regressions with AR (1) disturbances. *Econometric theory*, 15(6), pp.814-823.

Banerjee, A., & Newman, A. (1993), "Occupational Choice and the process of development", *Journal of Political Economy*, 101(2), p. 274-298

Batuo, M., Guidi, F. & Mlambo, K. (2010), "Financial development and income inequality: Evidence from African Countries", MPRA, p. 1-27.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007), "Finance, inequality and the poor", *J. Econ. Growth*, 12(1), p. 27-49.

Bhargava, A., Franzini, L. and Narendranathan, W. (1982), Serial correlation and the fixed effects model. *The Review of Economic Studies*, 49(4), pp.533-549.

Bittencourt, M., Chang, S., Gupta, R., & Miller, S. (2019), "Does financial development affect income inequality in the U.S. States?", *Journal of Policy Modeling*, 41(6), p. 1043-1056.

Claessens, S., & Perotti, E. (2007), "Finance and inequality: Channels and evidence", *Journal of Comparative Economics*, 35(2), p. 748-773.

Clarke, G.R. (1992), "More evidence on income distribution and growth", *World Bank Policy Research Working Papers* 1064.

Clarke, G.R., Xu, L.C., & Zou, H. (2003), "Finance and income inequality: Test of alternative theories", *World Bank Policy Research Working Papers* 2984.

Clarke, G.R., Xu, L.C., & Zou, H. (2006), "Finance and income inequality: What do the data tell us?", *South. Econ. J.*, 72(3), p. 578-596.

Demirguc Kunt, A., Beck, T., & Honohan, P. (2008), "Finance for all?: Policies and pitfalls in expanding access", *World Bank Publication*.

Destek, M., Okumuş, İ., & Manga, M. (2017), "Türkiye’de finansal gelişim ve gelir dağılımı ilişkisi: finansal kuznets eğrisi", *Doğuş Üniversitesi Dergisi*, 18(2), p.153-165.

Driscoll, J. & Kraay, A. (1995), "Spatial correlations in panel data, the world bank policy research department", *Policy Research Working Paper*, No: 1553.

Driscoll, J. & Kraay, A. (1998), "Consistent covariance matrix estimation with spatially dependent data", *Review of Economics and Statistics*, 80, p. 549-560.

Galor, O., & Moav, O. (2004), "From physical to human capital accumulation: Inequality and the process of development", *Review of Economic Studies*, 71(4), p. 1001-1026.

Galor, O., & Zeira, J. (1993), "Income distribution and macroeconomics", *The Review of Economic Studies*, 1, p. 35-52.

Greenwood, J., & Jovanovic, B. (1990), "Financial development, growth, and the distribution of income", *Journal of Political Economy*, 98(5), Pt. 1, p. 1076-1107.

Hausman, J. (1978), "Specification tests in econometrics", *Econometrica*, 46, p. 1251-1271.

Hoechle, D. (2007), "Robust standard errors for panel regressions with cross-sectional dependence", *Stata J.*, 7, p. 281-312.

Kappel, V. (2010), "The effects of financial development on income inequality and poverty", CER-ETH —Center of Economic Research.

Kpodar, K., & Singh, R. (2011), "Does Financial Structure Matter for Poverty? Evidence From Developing Countries", The World Bank.

Kuznets, S. (1955), "Economic growth and income inequality", *American Economic Review*, 45(1), p. 1-28.

Park, D. & Shin K. (2015), "Economic growth, financial development and income inequality", *Asian Development Bank Economics Working Paper Series*, (441).

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

Sethi, P., Bhattacharjee S., Chakrabarti D. & Tiwari C. (2021), "The impact of globalization and financial development on India's income inequality", *Journal of Policy Modeling*, 43(3), p. 639-656.

Uddin, G., Shahbaz, M., Arouri, M., & Teulon, F. (2014), "Financial development and poverty reduction nexus: a cointegration and causality analysis in Bangladesh", *Econ. Model.*, 36, p. 405-412.

Yılmaz Kuşçuoğlu Ş. & Çiçek M. (2021), "Financial development and income inequality relationship: analyzing financial Kuznets curve with ARDL boundary test in Turkey", *International Journal of Scientific and Technological Research.*, 7(1).

Younsi, M. & Bechtini, M. (2018), "Economic growth, financial development and income inequality in BRICS countries: Evidence from Panel Granger Causality Tests", *MPRA Paper No. 85182*.