Globalization and Income Inequality: Does the Level of Financial Development Matter?

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This paper examines the impact of globalization on income inequality in a panel of 78 developed and developing countries over 2002–2015. Moreover, the indirect effect of financial development in the link between globalization and income inequality is also analyzed by incorporating the interaction term between globalization and financial development. The empirical evidence based on the first-difference generalized method of moments (difference GMM) estimator suggested by Arellano and Bond (1991) and the system GMM estimator proposed by Arellano and Bover (1995) shows that globalization tends to worsen income inequality. However, the magnitude of the impact of globalization on income inequality is decreased with higher levels of financial development. These findings suggest that a higher level of financial development results in equal income distribution in a globalized world. As a policy implication, policymakers should improve the level of financial development to mitigate the adverse effects of globalization on income distribution.

Keywords: Globalization, Financial Development, Income Inequality, GMM.
JEL Classification: C23, E24, F62

1 Introduction

Rising income inequality across most countries over the years has created a lot of concerns among economists and policymakers in both developed and developing countries. Previous studies have found that income inequality negatively affects economic growth and its sustainability (Ostry et al., 2014; Berg and Ostry, 2013). Higher inequality can reduce growth by lowering labor productivity through decreasing the ability of lower-income households to stay healthy and accumulate physical and human capital (Galor and Moav, 2004; Aghion et al., 1999). Unequal income distribution can also decrease aggregate demand and reduce growth because higher-income groups have a higher marginal propensity to consume than middle- and lower-income groups (Carvalho and Rezai, 2016). Some scholars argue that income inequality affects growth by rising financial instability. Higher inequality could be

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associated with the global financial crisis by intensifying leverage, overextension of credit, and a relaxation in mortgage-underwriting standards (Rajan, 2011), and allowing lobbyists to push for financial deregulation (Acemoglu, 2011). Inequality may also damage trust and social cohesion and thus is also associated with conflicts, which discourage investment (Bardhan, 2005).

Due to the negative consequences of income inequality on economic growth, understanding the roots of inequality is important for implementing suitable policies that can allow for a more equalized society. In the literature, besides other factors[1], globalization is viewed as an essential possible factor that can affect inequality (Asteriou et al., 2014). The fast rise of globalization over the decades has given rise to increasing debate about its implications for inequality and the distribution of income within and between countries. Accordingly, the first objective of the present paper is to empirically examine the impact of globalization on income inequality in a panel of 78 developed and developing countries. Moreover, in an attempt to fill the gap and contribute to the current empirical literature, we analyze the impact of globalization on inequality through the financial development channel. In other words, we explore whether there exists an indirect channel via financial development in the globalization–inequality nexus by suggesting that the level of financial development also matters in shaping the link between globalization and income inequality[2]. Therefore, the second objective of this study is to examine the role of financial development in the link between globalization and income inequality.

To estimate the objectives outlined above, we adopt the first difference generalized method of moments (GMM) estimator suggested by Arellano and Bond (1991) and system-GMM estimator proposed by Arellano and Bover (1995). The main key findings reveal that income inequality has been worsened in a globalized world. Moreover, the negative impact of globalization on the distribution of income is lower in countries with higher levels of financial development. The rest of the paper is structured as follows. Section 2 reviews the related literature. Section 3 explains the econometric method and the data employed. Section 4 presents the empirical results, and the final section concludes.

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[1] These factors are reviewed in section 2.
[2] The importance of financial development in the link between globalization and income inequality is reviewed in section 2.4.

2 Literature Review

In the literature, the relationship between globalization and income inequality is of both directions. Some scholars argue that globalization through trade liberalization and increased financial integration has improved overall incomes, in relative and absolute terms, narrowing the inequality gap worldwide (See Mills (2009) for a critical review). The others claim that, even though globalization raises income, the benefits are not equally distributed, leading to a rise in inequality, both within and between countries (Beck et al., 2007; Dollar and Kraay, 2004; Goldberg and Pavcnik, 2007). The theoretical and empirical literature on the link between globalization on income inequality can be classified as follows:

2.1 Trade and Inequality

There is no definite theoretical conclusion on the relationship between trade openness and inequality as it depends on relative factor abundance and productivity differences across countries, and the extent to which individuals obtain income from wages or capital (IMF, 2015). The empirical evidence surveyed by Winters et al. (2004) demonstrated that the outcome of trade liberalization on inequality depends on many factors related to trade reform measures, institutions, and other country-specific factors. Kraay (2006) and Goldberg-Koujianou and Pavcnik (2007) found a definite link between trade openness and inequality. Foellmi and Oechslin (2010) show that trade widens income inequality because wealthy entrepreneurs invest more and benefit more from globalization, and less wealthy entrepreneurs lose due to the resulting increase in the capital rental rate. Ju and Wei (2011) derive an exciting result that trade liberalization generates unemployed capital and, hence, reduces the aggregate income of a labor-abundant country with a weak financial institution.

On the contrary, trade openness was associated with a reduction in inequality from a panel of 51 developed and developing countries over the period 1981–2003 (Asteriou, et al. 2014). Cross-section evidence by Wu and Hsu (2012) suggests an equalizing effect of international trade on income distribution. Jalil (2012), using five alternative measures of openness for the period 1952–2009, found the existence of a non-linear relationship between trade openness and inequality in China. It is concluded that although inequality is rising with the increase of trade openness, it falls after a certain critical point.

2.2 Financial Globalization and Inequality

Financial globalization through FDI, capital account openness and stock market capitalization has been the driving force of inequality. As Firms invest abroad, a shift from higher wages in the manufacturing and industrial sector in more industrialized countries will be replaced by comparatively lower average wages in service sector jobs, thereby resulting in increased inequality. Conversely, globalization decreases the level of inequality in many developing economies via the growth in industrialization, new employment possibilities, and an increase in wages for lower-skilled labor-intensive workers (Mills, 2009). On the other hand, as evidenced by Acharyya (2011) since the relatively high-skill intensive inward FDI for a less advanced country could be relatively low-skill-intensive outward FDI for the developed economy, there will be an increase in the demand for skilled labor in both countries, resulting in increased inequality. In their review on the impact of FDI on inequality in developing countries, Harrison and Rodríguez-Clare (2010) reported that FDI inducing higher inequalities because workers in foreign firms are paid higher wages due to higher productivity. Wu and Hsu (2012) used a cross-sectional dataset of 54 countries over the period 1980–2005 and an endogenous threshold regime model and found that FDI is likely to increase income inequality in those host countries with low levels of absorptive capacity. Similar results were obtained by the International Monetary Fund (2007a,b) about the role of financial globalization (mainly FDI) in rising income inequality as measured by either the Gini coefficient or the quintiles' income shares.

Greater capital account liberalization may increase access to financial resources for the poor, inducing the incomes of the poor to grow faster than average per capita GDP growth, which reduces inequality (Beck et al., 2007). However, recent empirical studies have suggested financial liberalization can be a source of inequality (Denk, 2015; Denk and Cazenave-Lacroutz, 2015; Brei et al., 2016). It is argued that a growing financial sector by facilitating access to investment products for the rich raises inequality. The very high wages in the financial industry is another source of growing inequality. Recent work by Furceri and Loungani (2015) and Furceri et al. (2019) suggests that capital account liberalization has led to a significant increase in inequality, especially in countries with low financial depth and inclusion. Asteriou et al. (2014) argued that greater capital account liberalization harms low-income people by exposing poor people to a likelihood of financial crises, especially when the quality of financial institutions is terrible.

Financial liberalization can also facilitate efficient international allocation of capital and promote international risk sharing. At the same time, increased financial flows, particularly FDI and portfolio flows have been shown to increase income inequality in both advanced and emerging market economies (Freeman 2010). Erauskin and Turnovsky (2019) described that financial liberalization increases the returns to investing abroad or reduce the costs of borrowing from abroad. Lowering the cost of investing abroad tends to divert resources from the domestic economy, reducing employment, raising the wage, reducing the return to domestic capital, resulting in more income inequality. In contrast, reducing the cost of borrowing stimulates the domestic economy, rising employment, reducing the real wage, increasing the return to capital, and increasing inequality.

2.3 Other Links to Inequality

Other factors, such as technological change, education, and employment, are essential in explaining inequalities. The introduction of new technologies in a country, for example, by investing in Information and Communication Technologies (ICT), creates a shift in demand from lower-skilled workers to a more qualified knowledge-based labor force (Brown and Cambell, 2002). Stimulating R&D investment and increasing patent protection may increase income inequality by raising the return on assets (Chu, 2010). Regarding the link between education and inequality, greater access to education would be expected to reduce income inequality as a more significant share of the population may be engaged in high-skill activities. In developing countries, a move away from the agricultural sector to the industry is expected to improve the distribution of income by increasing the income of low-earning groups. Similarly, an increase in the relative productivity of agriculture is expected to reduce income disparities by increasing the income of those employed in this sector (Asteriou, et al. 2014).

2.4 The Role of Financial Development in the Link between Globalization and Inequality

There are numerous theoretical and empirical studies investigating the relationship between globalization and financial development. This idea was pioneered by Mishkin (2009), who argued globalization affects financial development by promoting the quality of institutions. He states that "One of the most powerful weapons for stimulating institutional development is globalization". These institutions, which include property rights, the efficient legal system, eliminating corruption, quality of financial information,

corporate governance, and prudential regulation and supervision of the banking system, are essential in promoting financial development. Better institutions enable a country to allocate capital to the most productive uses. Globalizing the domestic financial system by opening the domestic financial markets to foreign capital directly increases access to capital and lowers its cost for those with productive investments to make.

Moreover, it can promote reforms to the financial system that improve its functioning. Trade liberalization, as another driver of globalization, can weaken the political power of entrenched business interests that might otherwise block institutional reforms, a point that is emphasized by Rajan and Zingales (2003). Free trade also promotes financial development by reducing corruption that may create as a result of high tariffs. Importers have incentives to pay customs officials to look the other way when the importers avoid tariffs by smuggling in goods. Law and Azman- Saini (2012) verified the hypothesis put forward by Mishkin (2009) and found that globalization is a crucial factor in promoting institutional reforms, and these sound institutions are essential in promoting financial development. It is also revealed by García (2012) that globalization leads to financial development.

As an alternative and possibly complementary hypothesis, Rajan and Zingales (2003) argued that trade openness and capital inflows, as two main drivers of globalization, will simultaneously promote financial development. Law (2009) showed that trade openness and foreign capital inflows are contributing factors to financial development, especially in countries where institutional quality is excellent. Shahbaz and Rahman (2012) also note that foreign direct investment and imports promote economic growth that leads to financial development.

On the other hand, there has been a recent growing interest in the importance of financial development as a means to reduce income inequality. In the literature, there are two linear hypotheses that explain the link between financial development and income inequality: the inequality widening hypothesis and the inequality-narrowing hypothesis. The inequality-widening hypothesis states that financial development might benefit the rich and well connected while excluding the poor, especially when institutional quality in society is weak. This hypothesis claims that the rich can offer collateral and are more likely to repay a loan (Rajan and Zingales, 2003). The poor, who do not enjoy this benefit, might find it difficult to obtain loans even when financial markets are well developed; thus, this might worsen income inequality. Kunieda et al. (2014) discover that financial integration worsens income inequality by benefiting the most privileged. Hazari & Mohan (2015)

find that capital accumulation results in wage reduction and welfare loss of the vulnerable group. Furceri and Loungani (2015) study the impact of capital account openness on inequality and find that liberalizing domestic financial systems can aggravate income inequality. In a recent study, Kunieda et al. (2018) find that financial liberalization can hurt income inequality both within and across countries.

The inequality-narrowing hypothesis puts forward the idea that when the financial sector grows, the poor, who were previously excluded from obtaining loans, might gain access (Beck et al. 2007; Clarke et al. 2006; Hamori and Hashiguchi 2012; Jalil and Feridun 2011; Mookerjee and Kalipioni 2010). Galor and Zeira (1993) argue that financial development accumulates human capital; thus, income distribution can improve. Claessens and Perotti (2007) and Demirguc-Kunt et al. (2008) find evidence supporting the importance of access to finance in reducing poverty and inequality.

According to the above discussion on the impact of globalization on financial development and the subsequent impact of financial development on income inequality, we hypothesize that globalization may have an indirect effect on income inequality via financial development. To test this hypothesis, we include relevant financial development variables as an indicator variable in the link between globalization and income inequality. Therefore, this study contributes to the existing literature by examining the impact of globalization on income inequality via financial development. To the best of our knowledge, there is no single study in existence that adequately covers the linkages among these variables.

3 Empirical Approach and Data

3.1 Empirical Model
To test the role of globalization in income inequality, we specify the following log-linear equation proposed by Baltagi et al. (2009) in the use of a panel data framework.

$$lnGINI_{it} = \beta_0 + \beta_1 lnGLOB_{it} + \beta_2 lnGDPC_{it} + \beta_3 lnHC_{it} + \beta_4 lnINF_{it} + \beta_5 lnFD_{it} + \varepsilon_{it} \qquad (1)$$

where GINI is an indicator of income inequality, GLOB is globalization, GDPC is the real income per capita, HC is human capital, INF is inflation rate, FD is financial development, ε is the error term, ln is natural logarithm, and the subscripts i and t represents country and time, respectively. The control

variables are included in the inequality equation based on the literature survey. For example, greater economic development, which is proxied by GDPC, tends to improve the income distribution (Agnello et al. 2012; Gimet and Lagoarde-Segot 2011; Kuštepeli 2006; Mookerjee and Kalipioni 2010). We control for human capital or educational attainment because these factors have been found to affect income inequality (Ang 2010; Beck et al. 2007; Huggett et al. 2006). Inflation has been found to increase income inequality (Ang 2010; Beck et al. 2007; Dobson and Ramlogan-Dobson 2010; Hamori and Hashiguchi 2012). Thus, the coefficients β_2 and β_3 are expected to be less than zero, whereas the coefficient of β_4 is expected to be greater than zero.

To analyze the effect of globalization on income inequality through the financial development channel, Equation (1) is extended to incorporate the interaction term between globalization and financial development. Therefore the empirical model is as follows:

$$lnGINI_{it} = \beta_0 + \beta_1 lnGLOB_{it} + \beta_2 lnGDPC_{it} + \beta_3 lnHC_{it} + \beta_4 lnINF_{it} + \beta_5 lnFD_{it} + \beta_6[lnGLOB_{it} \times lnFD_{it}] + \varepsilon_{it} \qquad (2)$$

If β_6 is negative and statistically significant, and GLOB alone is significantly positive, then this supports the view that globalization has an indirect effect on income inequality via financial development such that financial development decreases the magnitude of the impact of globalization on income inequality.

3.2 Estimation Method
To estimate (1) and (2) we adopt the generalized method of moments (GMM) estimator suggested by Arellano and Bond (1991). The GMM method tackles the problems of country-specific effects or any time-invariant country-specific variable by taking the first differences of (1) and (2). Then, to resolve the resulting correlation between lagged dependent variable and disturbance terms after first differencing, Arellano and Bond (1991) suggest the use of instrumental variables. Namely, the differenced lagged dependent variables and other endogenous variables can be instrumented with their lags in levels, lagged two or more periods while the exogenous variables can serve as their instruments. The method is known as the first-difference GMM estimator, and it can be either a one-step GMM estimator or a two-step GMM estimator. The one-step GMM estimator assumes independent error terms and homoskedastic error variances across countries and times. Meanwhile, the second-step GMM estimator uses the residuals of the first-step estimation to construct a

consistent variance-covariance matrix when the assumptions of independence and homoscedasticity do not hold.

A central problem with the first-difference GMM estimator, however, is its neglect of potential information in the level relationship and the relations between the levels and the first differences (Ahn and Schmidt, 1995). Moreover, as noted by Blundell and Bond (1998), the level variables are weak instruments for their first differences if they exhibit persistence. Arellano and Bover (1995) suggest addressing these problems by estimating the level and first-difference regressions as a system, which is known as a system-GMM estimator. In the estimation, the level regression is instrumented with lagged first-differenced variables while the first-differenced regression instrumented with lagged level variables. As pointed out by Blundell and Bond (1998), the system GMM estimator provides an improvement over the first difference GMM estimator when the dependent variable is highly persistent with the autoregressive term close to unity and the number of periods is small. In light of these econometric issues, we adopt the two-step system GMM in the analysis. Still, the results from the two-step first-difference GMM are also reported for comparison.

The consistency of the GMM estimator depends on two specification tests, Sargan over-identifying restrictions, and a serial correlation test in disturbances (Arellano and Bond, 1991). To test the overall validity of the instruments, we use Sargan over-identifying restrictions in the estimation process. Failure to reject the null of the Sargan test would imply that the instruments are valid, and the model is correctly specified. To test the serial correlation in disturbances, one should reject the null of the absence of first-order serial correlation (AR1) and not the absence of second-order serial correlation (AR2), respectively.

3.3 Data
To estimate Equations (1) and (2), the sample consists of annual cross-country observations for 78 developed and developing countries over the 2002–2015 period based on the availability of data. The income inequality, or Gini coefficient indicator (GINI) is obtained from the Standardized World Income Inequality Database (SWIID) created by Solt (2016). The SWIID provides comparable Gini indexes of net income inequality based on disposable household income.

The globalization (GLOB) indicator employed in the analysis is the economic globalization index constructed by Dreher (2006) from the KOF website (updated in 2016: http://globalization.kof.ethz.ch/). The index (ranges

from 0 to 100) is a weighted average of two indices: (1) actual flows of trade and capital and (2) restrictions on trade and capital. The actual flows are; trade, foreign direct investment, portfolio investment, and income payments to foreign nationals (all variables are expressed as a percentage of GDP). The restrictions include hidden import barriers, mean tariff rates, taxes on international trade, and capital account restrictions. Among the studies that employed this globalization index are Bergh and Nilsson (2010), Villaverde and Maza (2011), Lalountas et al. (2011), Samimi et al. (2012).

In terms of financial development, we focus on banking sector development. This variable is measured by domestic credit to the private sector (expressed as a percentage of GDP). We focus on the banking sector since, as argued by Gimet and Lagoarde-Segot (2011), the banking sector seems to exert a stronger influence on income inequality than does the stock market. The data set for this banking sector development indicator is obtained from the World Development Indicators (WDI), World Bank. Annual data on real GDP (gross domestic product) per capita based on purchasing power parity (PPP) are from the WDI. The inflation rate as measured by the consumer price index is also from the WDI. Human capital is measured by the gross enrolment ratio that is the ratio of total secondary enrolment, regardless of age, to the population of the age group that officially corresponds to secondary education. This data set is also retrieved from the WDI. Table 1 presents the list of countries, descriptive statistics, and correlations among the variables.

Table 1

Descriptive Statistics and Correlations of Variables

	GINI	GLOB	FD	GDPC	HC	INF
Descriptive statistics						
Mean	36.666	64.724	67.778	20096.440	84.878	5.437
Standard deviation	8.638	17.300	48.734	16555.430	27.749	6.106
Minimum	21.311	19.620	1.620	610.893	10.422	-3.286
Maximum	59.659	99.150	219.282	96711.050	163.101	54.915
Correlations						
GINI	1.000					
GLOB	-0.520	1.000				
FD	-0.336	0.522	1.000			
GDPC	-0.616	0.690	0.607	1.000		
HC	-0.464	0.727	0.581	0.693	1.000	
INF	0.192	-0.402	-0.412	-0.325	-0.299	1.000

Notes: (1) List of countries: Australia, Austria, Bangladesh, Belgium, Bolivia, Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Finland, France, Germany, Ghana, Greece, Guatemala, Honduras, Hungary, India, Indonesia, Iran, Iceland, Ireland, Italy, Japan, Jordan, Latvia, Lithuania, Luxembourg, Madagascar, Malawi, Malta, Malaysia, Mali, Mexico, Netherlands, New Zealand, Nigeria, Norway, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russian Federation, Senegal, Sierra Leone, Slovak Republic, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, Tunisia, Turkey, Uganda, Ukraine, United Kingdom, United States, Uruguay, Venezuela.
(2) GINI: Gini index, GLOB: globalization index, FD: financial development, GDPC: real GDP per capita, HC: human capital, INF: inflation.

4 Empirical Results

Table 2 contains the results for the specifications without and with the interaction between globalization and financial development, i.e., model (1) and model (2), estimated using both first-difference GMM and system GMM estimators. The specification tests reported in both tables suggest the appropriateness of the GMM estimators. The Sargan test does not reject the over-identification restrictions, suggesting that we have valid instruments. Moreover, the serial correlation test fails to reject the null of no second-order autocorrelation while it rejects the null of no first-order autocorrelation. Accordingly, the residuals of the level equation (before differencing) do not suffer from the autocorrelation problems.

The results from estimating the baseline specification without the interaction term between globalization and financial development, i.e., model (1), as given in columns (a) and (b) of Table 2 indicate that globalization has

a positive and statistically significant impact on income inequality. In other words, income inequality has been worsened in a globalized world. However, the results from estimating the extended specification with the interaction term between globalization and financial development, as given in columns (c) and (d) of Table 2, show that the coefficient of the interaction term is negative and statistically significant. It indicates that globalization has an indirect effect on income inequality via financial development. Moreover, since the coefficient of this interaction term is negative, higher levels of financial development will decrease the magnitude of the impact of globalization on income inequality. In other words, the adverse effects of globalization on the distribution of income is lower in countries with higher levels of financial development. The empirical results demonstrate that even though the values of the estimated coefficients vary depending on the estimation technique, the overall results from alternative techniques are qualitatively very similar.

The estimated coefficients of controlled variables included in the specifications indicate real GDP per capita improve the distribution of income in line with the findings of Agnello et al. 2012; Gimet and Lagoarde-Segot 2011; Kuştepeli 2006; Mookerjee and Kalipioni 2010. Inflation has been found to increase income inequality. This result is consistent with the findings of Ang 2010; Beck et al. 2007; Dobson and Ramlogan-Dobson 2010; Hamori and Hashiguchi 2012. The estimated coefficient of human capital or educational attainment is positive and statistically significant in all specifications except in model 2 (model with interaction term) when estimated using difference GMM. This finding indicates that human capital or educational attainment tends to worsen income inequality. One explanation for this puzzle is that return to education decreases with the level of schooling (Psacharopoulos and Patrinos, 2004).

Table 2

Estimation results

	Model 1 without interaction		Model 2 with interaction	
	Difference GMM	System GMM	Difference GMM	System GMM
	(a)	(b)	(c)	(d)
lnGLOB	0.019***	0.053***	0.070***	0.177***
	(0.01)	(0.002)	(0.006)	(0.008)
lnFD	-0.006***	0.003***	0.058***	0.160***
	(0.001)	(0.001)	(0.008)	(0.010)
lnGLOB × lnFD	-	-	-0.016***	-0.038***
			(0.002)	(0.003)
lnGDPC	-0.036***	-0.032***	-0.034***	-0.027***
	(0.003)	(0.002)	(0.002)	(0.002)
lnHC	0.006***	0.024***	0.002	0.007**
	(0.002)	(0.003)	(0.002)	(0.003)
lnINF	0.001***	0.001***	0.001***	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)
constant	1.268***	0.353***	1.042***	-0.135***
	(0.024)	(0.028)	(0.036)	(0.020)
Sargan test: pvalue	0.3371	0.743	0.381	0.6799
AR1: p-value	0.004	0.001	0.004	0.001
AR2: p-value	0.181	0.084	0.191	0.087

Notes: Numbers in parentheses are standard errors. ** and *** denote significance at 5% and 1% levels, respectively.

5 Conclusion

Using data from a panel of 78 developed and developing countries covering 2002-2015, this study examines the direct effect of globalization on income inequality and the indirect effect via financial development in the link between globalization and income inequality. In particular, we aim to evaluate the indirect impact of globalization on income inequality via financial development by incorporating an interaction term in the regression of globalization on income inequality. The empirical approach is based on employing the first-difference generalized method of moments (GMM) estimator suggested by Arellano and Bond (1991) and the system-GMM estimator proposed by Arellano and Bover (1995). The empirical results indicate that globalization has worsened income inequality. However, by incorporating financial development in the link between globalization and income inequality, the results demonstrate that the magnitude of the impact of globalization on income inequality is decreased with higher levels of financial

development. In other words, the negative impact of globalization on the distribution of income is lower in countries with higher levels of financial development. As a result, financial development is essential in mitigating the adverse effects of globalization on income inequality. In terms of policy implications, policymakers should improve the level of financial development to explore the benefits of globalization in reducing income inequality.

References

Acemoglu, D. (2011, January 7). *Thoughts On Inequality And The Financial Crisis.* Paper presented at the American Economic Association Annual Meeting, Denver.

Acharyya, R. (2011). A Note on Quantitative Trade Restrictions, Income Effects, and Wage Inequality. *Economic modeling, 28*(6), 2628-2633.

Aghion, P., Caroli, E., & Garcia-Penalosa, C. (1999). Inequality and Economic Growth: The Perspective of the New Growth Theories. *Journal of Economic Literature, 37*(4), 1615-1660.

Agnello, L., Mallick, S. K., & Sousa, R. M. (2012). Financial Reforms And Income Inequality. *Economics Letters, 116*(3), 583-587.

Ahn, S. C., & Schmidt, P. (1995). Efficient Estimation of Models for Dynamic Panel Data. *Journal of econometrics, 68*(1), 5-27.

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies, 58*(2), 277-297.

Arellano, M., & Bover, O. (1995). Another Look at the Instrumental Variable Estimation of Error Components Models. *Journal of econometrics, 68*(1), 29-51.

Asteriou, D., Dimelis, S., & Moudatsou, A. (2014). Globalization and Income Inequality: A Panel Data Econometric Approach for the EU27 Countries. *Economic Modeling, 36*, 592-599.

Baltagi, B. H., Demetriades, P. O., & Law, S. H. (2009). Financial Development and Openness: Evidence from Panel Data. *Journal of Development Economics, 89*(2), 285-296.

Bardhan, P. K. (2005). *Scarcity, Conflicts, and Cooperation: Essays in the Political and Institutional Economics of Development*. Cambridge, Massachusetts: MIT Press.

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

Brei, M., Ferriand, G., & Gambacorta, L. (2016). *Financial Structure and Income Inequality*, unpublished BIS.

Berg, A. G., & Osrty, J. D. (2013). Inequality And Unsustainable Growth: Two Sides of the Same Coin? *International Organisations Research Journal, 8*(4), 77-99.

Bergh, A., & Nilsson, T. (2010). Do Liberalization and Globalization Increase Income Inequality? *European Journal of political economy, 26*(4), 488-505.

Blundell, R., & Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of econometrics,* 87(1), 115-143.

Brown, C., & Campbell, B. A. (2002). The Impact of Technological Change on Work and Wages. *Industrial Relations: A Journal of Economy and Society,* 41(1), 1-33.

Carvalho, L., & Rezai, A. (2016). Personal Income Inequality and Aggregate Demand. *Cambridge Journal of Economics,* 40(2), 491-505.

Chu, A. C. (2010). Effects of Patent Policy on Income and Consumption Inequality in an R&D Growth Model. *Southern Economic Journal,* 77(2), 336-350.

Claessens, S., & Perotti, E. (2007). Finance and Inequality: Channels and Evidence. *Journal of Comparative Economics,* 35(4), 748-773.

Dabla-Norris, M. E., Kochhar, M. K., Suphaphiphat, M. N., Ricka, M. F., & Tsounta, E. (2015). Causes and Consequences of Income Inequality: A Global Perspective. *IMF Staff Discussion Note 15/13*: International Monetary Fund.

Demirguc-Kunt, A., Beck, T., & Honohan, P. (2008). Finance for All: Policies and Pitfalls in Expanding Access. *World Bank Publications,* 259–267.

Denk, O. (2015). Financial Sector Pay and Labour Income Inequality: Evidence from Europe. *OECD Economics Department Working Papers* No. 1225, Paris, OECD Publishing.

Denk, O., & Cazenave-Lacroutz, A. (2015). Household Finance and Income Inequality in the Euro Area. *OECD Economics Department Working Papers* No. 1226, Paris, OECD Publishing.

Dobson, S., & Ramlogan-Dobson, C. (2010). Is There a Trade-Off between Income Inequality and Corruption? Evidence from Latin America. *Economics Letters,* 107(2), 102-104.

Dollar, D., & Kraay, A. (2004). Trade, Growth, and Poverty. *The Economic Journal,* 114(493), F22-F49.

Dreher, A. (2006). Does Globalization Affect Growth? Evidence from a New Index of Globalization. *Applied Economics,* 38(10), 1091-1110.

Erauskin, I., & Turnovsky, S. J. (2019). International Financial Integration and Income Inequality in a Stochastically Growing Economy. *Journal of International Economics*, 119, 55-74.

Foellmi, R., & Oechslin, M. (2010). Market Imperfections, Wealth Inequality, and the Distribution of Trade Gains. *Journal of International Economics,* 81(1), 15-25.

Freeman, R. (2010). *Does Inequality Increase Economic Output? In Controversies About Inequality*. Stanford, CA: Stanford University Press.

Furceri, D., & Loungani, P. (2015). Capital Account Liberalization and Inequality. *IMF working paper* 15/243, International Monetary Fund.

Furceri, D., Loungani, P., & Ostry, J. D. (2019). The Aggregate and Distributional Effects of Financial Globalization: Evidence from Macro and Sectoral Data. *Journal of Money, Credit, and Banking,* 51, 163-198.

Galor, O., & Moav, O. (2004). From Physical to Human Capital Accumulation: Inequality and the Process of Development. *The Review of Economic Studies,* 71(4), 1001-1026.

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

García, E. D. T. (2012). *Financial Globalization and Financial Development in Transition Countries*. National Research University Higher School of Economics, Moscow.

Gimet, C., & Lagoarde-Segot, T. (2011). A Closer Look at Financial Development and Income Distribution. *Journal of Banking & Finance,* 35(7), 1698-1713.

Goldberg, P. K., & Pavcnik, N. (2007). Distributional Effects of Globalization in Developing Countries. *Journal of Economic Literature,* 45(1), 39-82.

Hamori, S., & Hashiguchi, Y. (2012). The Effect of Financial Deepening on Inequality: Some International Evidence. *Journal of Asian Economics,* 23(4), 353-359.

Harrison, A., & Rodríguez-Clare, A. (2010). Trade, Foreign Investment, and Industrial Policy for Developing Countries. *handbook of development economics,* 5, 4039-4214.

Hazari, B., & Mohan, V. (2015). Social Exclusion, Capital Accumulation, and Inequality. *International Review of Economics & Finance,* 39, 371-375.

Huggett, M., Ventura, G., & Yaron, A. (2006). Human Capital and Earnings Distribution Dynamics. *Journal of Monetary Economics,* 53(2), 265-290.

International Monetary Fund. (2007a). *World Economic Outlook*, Chapter 4: Globalization and Inequality, Washington DC. 31–65.

International Monetary Fund. (2007b). *Reaping the Benefits of Financial Globalization*. www.imf.org/extrenal/np/res/docs/2007/0607.htm.

Jalil, A. (2012). Modeling Income Inequality and Openness in the Framework of the Kuznets Curve: New Evidence from China. *Economic modeling,* 29(2), 309-315.

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

Ju, J., & Wei, S. J. (2011). When is the Quality of the Financial System a Source of Comparative Advantage? *Journal of International Economics,* 84(2), 178-187.

Kraay, A. (2006). When is Growth Pro-Poor? Evidence from a Panel of Countries. *Journal of development economics,* 80(1), 198-227.

Kunieda, T., Okada, K., & Shibata, A. (2014). Finance and Inequality: How Does Globalization Change Their Relationship? *Macroeconomic Dynamics,* 18(5), 1091-1128.

Kunieda, T., Nishimura, K., & Shibata A. (2018). Specializations, Financial Constraints, and Income Distribution. *International Review of Economics & Finance,* 56, 3-14.

Kuştepeli, Y. (2006). Income Inequality, Growth, and the Enlargement of the European Union. *Emerging Markets Finance and Trade,* 42(6), 77-88.

Lalountas, D. A., Manolas, G. A., & Vavouras, I. S. (2011). Corruption, Globalization, and Development: How are These Three Phenomena Related? *Journal of Policy Modeling,* 33(4), 636-648.

Law, S. H. (2009). Trade Openness, Capital Flows, and Financial Development in Developing Economies. *International Economic Journal.* 23(3), 409–26.

Law, S. H., & Azman-Saini, W. N. W. (2012). Institutional Quality, Governance, and Financial Development. *Economics of Governance,* 13(3), 217–36.

Mills, M. (2009). Globalization and Inequality. *European Sociological Review,* 25(1), 1-8.

Mishkin, F. S. (2009). Globalization and Financial Development. *Journal of Development Economics,* 89(2), 164-169.

Mookerjee, R., & Kalipioni, P. (2010). Availability of Financial Services and Income Inequality: The Evidence from Many Countries. *Emerging Markets Review,* 11(4), 404-408.

Ostry, M. J. D., Berg, M. A., & Tsangarides, M. C. G. (2014). Redistribution, Inequality, and Growth, *IMF Staff Discussion Note 14/02*. Washington: International Monetary Fund.

Psacharopoulos, G., & Patrinos, H. A. (2004). Returns to Investment in Education: a Further Update. *Education Economics,* 12(2), 111-134.

Rajan, R. G. (2011). *Fault lines: How hidden fractures still threaten the world economy*. princeton University press.

Rajan, R. G., & Zingales, L. (2003). The Great Reversals: The Politics of Financial Development in the Twentieth Century. *Journal of Financial Economics,* 69(1), 5-50.

Samimi, A. J., Ghaderi, S., Hosseinzadeh, R., & Nademi, Y. (2012). Openness and Inflation: New Empirical Panel Data Evidence. *Economics Letters,* 117(3), 573-577.

Shahbaz, M., & Rahman, M. M. (2012). The Dynamic of Financial Development, Imports, Foreign Direct Investment, and Economic Growth. *Glob Bus Rev,* 13, 201–219.

Villaverde, J., & Maza, A. (2011). Globalization, Growth, and Convergence. *The World Economy,* 34(6), 952-971.

Wu, J. Y., & Hsu, C. C. (2012). Foreign Direct Investment and Income Inequality: Does the Relationship Vary with Absorptive Capacity? *Economic Modeling,* 29(6), 2183-2189.