

査読論文

Globalization, Income Inequality and Poverty: Theory and Empirics

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Abstract

This paper examines the effects of globalization including international trade and financial integration on income distribution and poverty. It reviews a large number of current theoretical and empirical studies about how globalization affects income inequality and poverty. In particular, the complex nexus among globalization, growth, income distribution, and poverty is investigated. Most empirical studies report complicated and frequently conditional relationships between globalization, inequality and poverty. This study also investigates the effects of globalization on inequality and poverty, using cross-country regressions. It finds that financial globalization increases income inequality and poverty in general, while there is a conditional relationship between trade openness and inequality and poverty.

Keywords

Globalization, International Trade, Financial Integration, Income Inequality, Poverty

JEL Classification

D31, D63, F15, F36, O15

I. Introduction

Globalization, an integration of economic activities in the world through the development of international trade and investment, is certainly one of the most important

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trends in the current global economy. International organizations and many economists argue that globalization promotes economic growth and poverty reduction. However, there is a widespread critic that economic performances of globalization are disappointing. It is argued that the growth effects of globalization are not evident though international trade may be better than financial globalization. Recently, the effect of globalization on income inequality has caught attention of many researchers. There is a growing concern that globalization may worsen income distribution and hinder poverty alleviation. Given the debates, it is crucial to develop more extensive and comprehensive analysis about the effects of globalization on income inequality and poverty.

This paper examines how globalization affects income distribution and poverty by reviewing current studies and conducting empirical tests. First, we investigate the development of globalization and discuss how international trade and financial globalization affect growth and inequality. We emphasize the complex relationship between globalization and inequality, and also the impact of globalization on the growth-inequality-poverty nexus. Next, we present a survey of recent empirical studies, which will demonstrate that globalization and income inequality have complex and conditional relationship. Finally, we conduct empirical tests on globalization, income inequality and poverty. The empirical analysis examines the effects of trade openness and international financial integration on long-run income inequality and poverty across countries.

This study has several academic contributions. First, an extensive review about globalization and its effects on income inequality is important to better understanding of benefits and costs of globalization. Second, our empirical analysis using new globalization variables verifies a conditional and a complex relationship between globalization and inequality argued by several theories. It gives us important policy implications and helps developing countries to consider proper measures to maximize benefits of globalization and minimize its costs. This paper is organized as follows. Section II examines the development of globalization and its effects on inequality and poverty. Section III reviews a number of empirical studies on globalization and income distribution. Section IV presents results of cross-country regressions about the effects of globalization on income inequality and poverty. Section V summarizes the paper and concludes.

II. The Development of Globalization and Income Inequality

1. Globalization and its Development

Globalization means the phenomenon of the integration of national economies in the global level by the development of international movements of factors of production including goods, services, capital and labor. First, economic activities became global along with the rapid growth of international trade. The share of total global exports out of world GDP rose constantly from about 12% in the early 1970s to about 20% in the early 1980s, and up to some 25% in around 2000 due to the progress of international trade liberalization such as the establishment of the WTO regime. International investment started to grow after the late 1970s with the backdrop of capital account liberalization in developed countries, and grew much more after the 1990s when foreign direct investment (FDI) grew fast. The share of international investment out of world GDP jumped from 3-6% in the mid-1990s to about 16% in the mid-2000s. Lane and Milesi-Ferretti (2006) estimate the total stock of external assets and liability out of GDP in developed countries became more than 300% in 2004, while the share in developing countries was about half of that because of stagnation after the 1990s. We should note that short-term international capital movement, not linked with real transactions but with financial gains, skyrocketed after the 1980s. Breakup of the Bretton Woods system, the growth of multinational companies and international production, and financial sector development were important backgrounds for financial globalization.¹

This wave of globalization has been based on the progress of transportation technology, and that of information and communication technology. Active economic opening policy in developed and developing countries, however, played a crucial role, too. Many countries made efforts to lower tariff and non-tariff barriers with several rounds of international trade talks. Capital controls were lifted in developed countries starting from the 1970s, and financial liberalization and opening policy was introduced by developing countries after the 1980s following the Washington Consensus. Financial crises and structural restructuring programs in developing countries promoted this even further. Companies actively developed into multinational ones in order to increase profitability, pursuing new markets and factors of production. Thus, the global economy has become more integrated as technological progress, global operation of capital, and active economic opening have interacted.

There are hot debates on the benefits and costs of globalization. Most economists and

international organizations have argued that globalization spurs growth and reduces poverty (Fischer, 2003). But critics emphasize that the effects of globalization on growth are not significant. In fact, there is no empirical evidence for growth effects of financial globalization because of negative effects related to financial instability and foreign exchange rate appreciation (Kose et al., 2006; Rodrik and Subramanian, 2009). The evidence for the growth effects of international trade appears to be stronger, but the effect of trade liberalization is not so evident (Berg and Krueger, 2003; Rodriguez and Rodrik, 2000). Moreover, globalization may do harm to income inequality and poverty through several channels including the volatile movements of international financial capital (Birdsall, 2005). The criticism gained further momentum after the 2007-8 global financial crisis. This calls for more extensive analysis about the negative effects of globalization on income inequality and poverty.

2. Globalization and Income Inequality

Recently, the effects of globalization on income inequality became an important issue and caught many scholars' attention. This reflects the reality that income inequality and relative poverty became worse in most countries after the 1980s. In developed countries, the concern about the negative effects of international trade and capital movements on income distribution emerged starting from the 1980s, when the wage gap widened rapidly with rising skill premium. Many developed countries including the US experienced an increase in Gini coefficients after then. This appears to be consistent with the Heckscher-Ohlin theorem that international trade would lower the share of workers in advanced countries where capital goods are relatively abundant. Although most argue that the impacts of technological progress were much larger (Klein, 1997), the effects of globalization on inequality could be considerable since technological progress could be affected by international competition and globalization, called defensive technological innovation (Wood, 1994). Globalization could worsen income inequality more as production process is divided and some part is transferred to foreign countries by outsourcing (Feenstra, 1999). Besides, threat effects associated with factory transfer could weaken workers' bargaining power (Burke and Epstein, 2001). Neoliberal economic policy such as labor market flexibilization and reduction of social welfare along with globalization has contributed to rising income inequality (Cornia and Kiski, 2001). The inequality effects of financial globalization in developed countries are also likely to be negative because they usually export capital and financialization is negatively associated with income

distribution.

Developing countries have suffered from persistent poverty and rising inequality along with globalization, which refutes the simple neoclassical trade theory. Income inequality became more serious along with globalization and the stagnation of growth in most African and Latin American countries after the 1980s. This was outstanding in transition countries in the 1990s when they went through the big bang style economic transition. Income inequality in East Asia had been lower despite the growth of exports but it has been recently on the rise, especially after the 1997 financial crisis (Jomo, 2006). China has also experienced the widening gap among income groups although it achieved rapid growth after the 1980s.

Several theoretical explanations have been presented about rising income inequality in developing countries together with globalization (Goldberg and Pavcnik, 2007). First, developing countries are facing fierce international competition with other countries after the 1980s when almost all countries started to participate in the globalization process. This makes the results predicted by international trade theory not hold (Wood, 1999).² Others focus on the differences in initial endowments related with global outsourcing and trade for intermediate goods. Relatively high-skilled and richer workers in developing countries produce goods that were produced by low-skilled workers in developed countries before. Then, the growth of international trade and outsourcing could worsen the situation of low-skilled workers in developed countries, while it could do opposite to high-skilled workers in developing countries, leading to rising income inequality in both countries (Feenstra and Hanson, 2003; Feenstra, 2007). More FDI and more import of capital goods in developing countries generate the same result since these are related with production that needs relatively high-skilled workers. Moreover, developing country governments protected vulnerable industries with mainly low-skilled workers, and thus liberalization and opening may exert negative effects on these poor workers (Hanson and Harrison, 1999).

Financial globalization and international capital movements could also affect income distribution in developing countries negatively. Financial opening in developing countries frequently led to financial instability due to volatile short-term capital movements. Income inequality and poverty usually became worse following the financial crises. FDI may be related with rising inequality through outflow of profits, repression of workers, and dualization of industries (Tsai, 1995). Efforts of developing countries to attract FDI may cause so-called the 'race to the bottom' to deteriorate workers' conditions. Besides, reduction in fiscal spending along with the structural reform depressed spending for

public education and health, doing harm to the poor (Chossudovsky, 1997). Deregulation of the labor market with the neoliberal reform increased the unemployed and the share of irregular workers, leading to a rise in wage inequality (Rama, 2003). All these arguments demonstrate possibilities that the globalization could increase income inequality in developing countries. But the effects of globalization on income distribution could be conditional since the negative effects may vary depending on several conditions and absorptive capacity.

3. Globalization and Poverty

When we study the poverty effects of globalization, we should understand the effects of globalization on both growth and inequality, and the effect of inequality on growth. Recent studies about the relationship between inequality and growth provide important implications about the role of globalization in the growth-distribution-poverty nexus. While Kuznets reported the inverted-U shape relationship between economic growth and income inequality, examining the effects of industrialization on distribution (Kuznets, 1955), many recently shed light on the impacts of inequality on growth. They emphasize that unequal distribution could do harm to economic growth through several channels (Aghion et al., 1999). The political economy position claims that high income inequality could cause social conflicts and political instability, thereby depressing investment and growth (Alesina and Perotti, 1996). Studies from the New Keynesian perspective state that unequal wealth distribution deters economic growth since the poor cannot provide enough education for kids, facing financial markets failures due to asymmetric information. Income inequality could be also harmful to economic growth by aggravating macroeconomic instability and constraining the capacity of the government to manage the economy (Rodrik, 1999). Lastly, inequality concentrates wealth and power on a small number of elite groups, hence hindering the development of inclusive institutions that could encourage economic growth (World Bank, 2005). Empirical studies have supported the negative growth effects of inequality in income or assets (Deininger and Squire 1998). While recent studies using panel data presents opposite results and non-linear relationship (Forbes, 2000; Barro, 2000)³, serious inequality is certainly associated with lower long-run economic growth.

If inequality hinders economic growth significantly, it does not only increase poverty directly but also worsens it indirectly, which provides the basis for the arguments for 'pro-poor growth' or 'inclusive growth' (Lopez, 2004). In this regard, globalization could exert intricate effects on the interrelationship among inequality, growth and poverty. If

globalization worsens income inequality to a great extent while its direct growth effects are limited, it could reduce growth potential and hence even increase poverty in the long run.⁴ However, for example, if financial globalization contributes to financial development, financing constraints could be eased and the negative effects of inequality on growth could become smaller (Harrison et al., 2004). Globalization could also discipline the government and limit corruption, and check negative side effects of inequality on growth. This suggests that we should consider the complicated interactions and interrelationships among globalization, inequality and growth, in examining the effects of globalization on poverty.

In fact, the ground for the argument that globalization alleviates poverty in developing countries is not strong. Poverty is still rampant in many developing countries after the development of globalization though the number of people under the absolute poverty continuously fell (Chen and Ravallion, 2007). The share of population living under \$1 a day in the world decreased from about 30% in 1981 to 18% in 2004. However, the progress was driven by only Asia, while it is from 11% to 9% in Latin America and Caribbean, 42% to 41% in Sub-Saharan Africa, and 0.7% to 0.9% in Eastern Europe and Central Asia over the same period. This is because poverty reflects growth and distribution as well, and globalization did not just lead to poverty reduction because of the complex globalization-growth-inequality nexus. A study concludes that globalization does not simply solve poverty problem, indicating that there is high possibility that globalization could alleviate poverty only if complementary policies including the development of human capital and infrastructure, and macroeconomic stability were implemented (Harrison, 2007). Others also underscore the complex poverty effects of globalization related with interactions of globalization, growth and inequality (Nissanke and Thorbecke, 2006).

III. Empirical studies on Globalization and Inequality

1. Single Country Study

There are various empirical studies which examine the effects of globalization on income inequality. Some conduct cross-country and panel regressions, while others make use of industry-level or regional data, or time-series data. It is common that Gini coefficients or wage inequality are regressed on de facto globalization variables such as trade openness and foreign investment or de jure variables such as tariff and capital account openness. Indeed, most empirical studies report that the relationship between globalization and income distribution is complex and, in particular, conditional.

Many studies to investigate individual developing countries find that the progress of globalization and rising income inequality occurred simultaneously. For instance, a decrease in poverty was smaller in regions where import was more open than other regions in India (Topalova, 2005). Wage inequality and poverty rose higher in industries where tariff became relatively lower and demand for skilled workers grew larger in Columbia (Goldberg and Pavcnik, 2005; Attansio et al., 2004). In Mexico, there was more demand for skilled white collar workers in industries that imported capital goods along with trade liberalization (Harrison and Hanson, 1999). A study using time-series data also reports that FDI made income distribution more unequal in Latin America (te Velde, 2003). However, there are also different results. The increase in poverty in regions where the level of globalization, measured by export and FDI, was higher was much smaller than others in Mexico (Hanson, 2007).⁵ In Poland, wage inequality became less in industries in which tariff fell larger as non-skilled workers' wage rose faster (Goh and Javorcik, 2007). Several studies on Latin American countries argue that financial liberalization and the export of high tech products worsened income distribution, while trade liberalization did not (Behrman et al., 2003). Ferreira et al. (2008) report that trade liberalization appears to have made a significant contribution towards a reduction in wage inequality in Brazil unlike other Latin American countries.⁶

In developed countries such as the US, there is limited evidence that international trade raised wage inequality in comparison with the large impact of technological progress. However, the debate is ongoing since its measurement is difficult and the total effects of globalization on wage inequality could be larger in reality (Feenstra, 2000; 2007). More recent studies focus on wage inequality within same industries since the neoclassical model cannot fully explain the reality that wage inequality rose in the same sector and both developed and developing countries experienced rising inequality (Harrison et al., 2011).⁷ Helpman et al. (2012) present the result that international trade and reduction in trade costs have a sizeable effect on wage inequality across firms in Brazil based on the model with firm-level heterogeneity. Akerman et al. (2013) also verify this finding that wage differences between firms is a new mechanism through which trade can affect wage inequality in Sweden. The workers' wage share is relatively lower in industries facing more globalization in terms of import exposure in the US where many are concerned about the recent decline of the wage share (Elsby et al., 2013). It should be, however, noted that it is not easy to generalize the causal relationship from globalization to inequality using studies on one country.

2. Cross-Country Empirical Study

Empirical studies using cross-country data may be more relevant to deriving general conclusion. An empirical study on the inequality effect of trade reports that the share of the poor 20% out of GDP became smaller along with more trade opening (Weller and Hersh, 2002). Epifani and Garcia (2008) find that more international trade increased wage inequality in both developed and developing countries, associated with intra-industry trade, because of the economy of scale in skill-intensive sector. However, many studies also report conditional results. For example, Milanovic (2005) finds that income of the rich increases more than that of the middle class and the poor in developing countries as trade and FDI out of GDP rise, while it is opposite in middle income and rich countries. This suggests that distributional effects of globalization differ across the income level of countries, supported by findings of other studies (Lundberg and Squire, 2003; Barro, 2000). A study using international comparison of wage and tariff demonstrates a fall in tariff widens the wage gap across jobs and industries more in poorer countries (Milanovic and Squire, 2005).⁸ The conditional effect of international trade on income inequality is also found in Hamori and Hashiguchi (2012), which reports trade openness is positively related with inequality but its effect on inequality decreases as a country grows. Bergh and Nilsson (2010) find that freedom of international trade is positively associated with income inequality and its effect is bigger in rich countries. Majeed (2013) also reports a conditional relationship that international trade reduces inequality more significantly in relatively richer developing countries. The reason for this threshold effect of may be because institutional and financial development and better human capital along with growth could offset the negative effects of globalization (Harrison, 2007).

Several studies focus on the differences in factor endowments and technology in empirical examinations of the distributional effects of international trade. Some find that more international trade worsens income distribution in countries that depend on mineral resources more and have more skilled workers (Perry and Olareaga, 2006). Others report that the increase in the factor content of net export, expressed in terms of labor, increases income inequality in poorer countries (Bensidoun et al., 2011). A study using tariffs, factor endowment and education data, reports that trade liberalization is associated with a rise in inequality in countries well-endowed in skilled workers, and those with workers that have a very low education level (Gourdon et al., 2008). Meanwhile, Meschi and Vivarelli (2009) find that trade with high income countries worsens income inequality in developing countries, especially in middle-income countries, because of skill-biased nature of new

technology.

The impacts of financial globalization including FDI on income inequality have been studied extensively in the recent period. Many cross-country empirical studies find that FDI increases income inequality after controlling for other factors such as the Kuznets curve effect (Reuveny and Quan, 2003; Choi, 2006; Basu and Guariglia, 2007; Macdonald and Majeed, 2010). More recently, Figini and Gorg (2011) find that FDI and income inequality have inverted-U shaped relationships. A study by IMF economists finds that the FDI stock increases inequality, but the effects of FDI are small (Jaumotte et al., 2013). Herzer et al. (2012) report that FDI contributed to the widening income gaps in five Latin American countries, using the panel cointegration technique. Several studies recently find the effects of financial globalization conditional and heterogeneous across countries. Deng and Lin (2013) report that FDI raises inequality in richer countries where human capital is abundant, while it does not in low-income countries. In contrast, Wu and Hsu (2012) find that FDI is harmful to income distribution in host countries with low levels of absorptive capacity such as infrastructure. Cellik and Basdas (2010) also report different effects of FDI on income inequality across different country groups. The inequality effects could be different between Greenfield FDI and M&A FDI as Zhuang and Griffith (2013) report only the former is significant. There is, however, a study to argue that FDI decreases inequality, such as Bussman et al. (2005). Another cross-country study reports that globalization explains only 15% of the variance in income inequality and FDI is weakly negatively related with inequality (Adams, 2008).

Meanwhile, other studies focus on the effect of globalization on the wage share out of GDP. A study reports that the wage share was lower in countries that promoted financial opening (Jayadev, 2007). Harrison (2002) finds that the increase in trade volume and exchange rate crises reduce the wage share, while capital controls increase it. Diwan (2001) also reports that the wage share falls as capital market opening results in economic instability. Income inequality indeed tends to rise in most developing countries after stock market opening (Das and Mohaparta, 2003). Reduction in fiscal spending, macroeconomic instability, and weakening of workers' power could be all negative to income distribution, associated with financial opening. In sum, empirical studies suggest that financial globalization could affect income distribution negatively, together with conditional effects.

IV. Globalization, Income Distribution and Poverty: Empirical Analysis

1. Model Specification and Data

This chapter empirically investigates the effects of globalization on long-run income inequality and poverty across countries, using cross-country regressions. We use all country sample for inequality regressions, and lower middle and low income country sample for poverty regressions. The inequality regressions use data from 1976 to 2004, while the poverty regressions cover the period from 1990 to 2004, due to the data availability. As for methodology, we simply employ the cross-country OLS (Ordinary Least Squares) models. Panel regressions may be better at addressing joint endogeneity and demonstrating time-varying effects. The Gini coefficients data from the WDI (World Development Indicators), however, are limited in terms of observation and their cross-country difference is much more outstanding than its changes within countries, which justifies the OLS method.

As a dependent variable, the Gini coefficient is used to measure income inequality. Various data on the Gini coefficients are available. Deininger and Squire (1996) first developed a cross-country dataset of the Gini coefficients by collecting a large number of individual studies, covering many countries and long periods although data quality varies. Several following studies use the high quality data of this dataset. Another dataset called the WIID (World Income Inequality Database) created by the WIDER (World Institute for Development Economics Research) added more data from newer studies after the late 1990s. In spite of these developments, international comparison using these datasets is not easy due to differences in measurement and methodology in individual studies. The World Development Indicators after 2007 report the Gini coefficient data based on the Povcal database of the World Bank. Careful efforts were made for consistent international comparison in making this data (Chen and Ravallion, 2007). Some recent studies utilize this dataset, such as Jaumotte et al. (2013), and we also use this dataset in our study.

There are many studies that examine the inequality effects of globalization as we reviewed. Following previous studies, we set up specifications for cross-country regressions, controlling for the Kuznets' curve effects first, and including other factors relevant for income inequality. In an attempt to reflect Kuznets' inverted-U hypothesis between the growth level and inequality, we include the natural log of GDP per capita measured by constant 2000 dollars, and its square term. We add two de facto globalization variables such as the trade openness variable measured by the value of export and import divided by GDP, and the financial integration indicator measured by the stock of total external asset

and liability divided by GDP from Lane and Milesi-Ferretti (2006). Trade openness is the most commonly used variables for globalization in other studies (Milanovic and Squire, 2005; Epifani and Garcia, 2008). This study is the first to use the financial integration variable as a proxy for financial globalization in inequality regressions. We believe that financial integration is better at reflecting the overall effects of financial globalization including several forms of international investments. Since other studies usually use the FDI variable, we also check the results using the FDI stock variable from the same source (Basu and Guariglia, 2007; Deng and Lin, 2013).

As for other controlling variables, we first include the level of education measured by the secondary school enrollment ratio, which is thought to be related with income inequality. We also add the socialist country dummy since those countries tend to have lower inequality historically. Easterly (2007) finds that crop endowment explains income inequality to a large extent. Following this, a variable to represent the abundance of land suitable for wheat relative to that for sugarcane is also added. Private credit and democracy variables are added to test robustness of results following previous studies (Beck et al., 2007; Reuveny and Quan, 2003). We use the average values of all variables for the whole period in the cross-sectional regressions.⁹ Table 1 presents explanation of variables used in this study and their sources in detail.

Table 1. Variable Definitions and Data Sources

Variables	Definitions	Data sources
Gini	Gini coefficients	World Development Indicators (2012)
GDPPC	Log of real per capita GDP, in 2000 US \$	World Development Indicators (2012)
TRADE	Trade openness: (Export + Import) / GDP	World Development Indicators (2012)
FININT	Financial integration: (total foreign liability + foreign assets) / GDP	Lane and Milesi-Peretti (2006)
EDU	Education: secondary school enrollment ratio	World Bank
SO	Former socialist country dummy	Author's calculation
WHEAT-SUGAR	The ratio of wheat crop compared with sugar crop	Easterly (2007)
CRED	Private credit / GDP	World Bank
DEMO	Democracy index	Polity IV dataset
SSA	Sub-Saharan African country dummy	World Bank
Absolute Poverty	The share of population to spend less than \$2 per day	World Development Indicators (2012)

The hypothesis of our empirical model for inequality is that international trade and

financial globalization exert direct and conditional effects as well on income inequality. Taking other studies into account, we may well think financial globalization would unconditionally increase income inequality while international trade would decrease income inequality under several conditions such as better education. In order to test the threshold effects of globalization, we add the interaction terms of globalization variables and the level of education or growth in the regression model. The following equations demonstrate specifications for our regressions.

$$\text{Gini}_i = a + b \cdot \text{GDPPC}_i + c \cdot \text{GDPPC}_i^2 + d \cdot \text{TRADE}_i + e \cdot \text{FININT}_i + f \cdot \text{Condition}_i + g \cdot X_i + h \cdot \text{TRADE}_i \cdot \text{Condition}_i + i \cdot \text{FININT}_i \cdot \text{Condition}_i + u_i$$

where GDPPC_i is the level of growth, TRADE_i is trade openness, FININT_i is financial integration, Condition_i is condition variables and X_i are other control variables.

The empirical model for poverty uses the absolute poverty indicator and globalization variables. The share of people who consume less than \$2 per day from the World Development Indicators is the dependent variable to measure absolute poverty. It should be noted that poverty is interrelated with economic growth and income inequality in a complex way. Furthermore, poverty in itself may affect economic growth because of the possibility of poverty trap. Therefore, establishing a good specification for poverty is difficult because of endogeneity and reverse causality. Hence, we simply attempt to test the poverty effects of globalization by regressing absolute poverty on globalization variables, after controlling for the level of growth and inequality since they are two most important variables to determine poverty. This is meaningful in that it could demonstrate which variables including globalization affect the level of poverty across countries. We also include interaction terms of globalization and the level of growth or education to test threshold effects. The following equation is to demonstrate the specification for poverty regressions.

$$\text{Absolute Poverty}_i = a + b \cdot \text{GDPPC}_i + c \cdot \text{Gini}_i + d \cdot \text{TRADE}_i + e \cdot \text{FININT}_i + f \cdot \text{Condition}_i + g \cdot X_i + h \cdot \text{TRADE}_i \cdot \text{Condition}_i + i \cdot \text{FININT}_i \cdot \text{Condition}_i + u_i$$

where variables are same to the former model.

2. Empirical Results

(1) Globalization and Income Inequality

First, we conduct cross-country regressions to examine the relationship between on globalization and income inequality. Table 2 reports the regression results of the effects of globalization on inequality in the period 1976-2004. The t-ratios are reported in parentheses and all the coefficients are estimated using heteroscedasticity robust estimations to address heteroscedasticity.

Table 2. Globalization and Income Inequality (1976-2004)

Dependent variable: Gini coefficient

<i>Indep</i>	1	2	3	4	5	6
GDPPC	24.05*** (4.15)	37.89*** (6.80)	36.52*** (7.18)	35.19*** (6.37)	36.05*** (5.65)	36.82*** (6.55)
GDPPC ²	-1.69*** (-4.49)	-2.39*** (-6.93)	-2.42*** (-7.67)	-2.27*** (-6.39)	-2.34*** (-6.35)	-2.44*** (-6.70)
TRADE	-0.05 (-1.38)	-0.03 (-1.30)	-0.01 (-0.64)	-0.05* (-1.74)	-0.05* (-1.76)	-0.05 (-1.56)
FININT	0.02*** (3.82)	0.02*** (3.60)	0.01*** (2.83)	0.02*** (2.94)	0.02*** (2.97)	0.02*** (2.93)
EDU		-8.30*** (-4.98)	-3.64* (-1.96)	-3.62* (-1.96)	-3.77** (-2.05)	-4.11** (-2.24)
SO			-11.45*** (-5.06)	-6.42*** (-2.75)	-5.79** (-2.36)	-5.80** (-2.35)
WHEAT-SUGAR				-13.25*** (-3.08)	-13.16*** (-3.06)	-12.60*** (-2.86)
CRED					0.02 (0.71)	0.03 (0.94)
DEMO						0.23 (1.18)
R-Squared	0.20	0.35	0.49	0.58	0.58	0.59
Obs.	118	118	118	100	99	98

Note:

1) Coefficients for constants are not reported.

2) White heteroskedasticity-consistent standard errors and covariance reported.

3) t-value in parentheses. statistical significance: ***: 99%, **: 95%, *: 90%

4) For variables, see Table 1.

5) Luxemburg is excluded as an outlier.

First, the results demonstrate that there is a strong Kuznets' inverted-U curve relationship between economic growth and income inequality. The coefficient of the squared

term of the GDP per capita variable is significantly negative while that of the GDP per capita variable is significantly positive. This suggests that income inequality rises when poor countries grow up to some threshold level, and inequality falls after that level. This finding is understandable since we use cross-sectional regressions to demonstrate long-run results, while studies using panel regressions report mixed results (Majeed, 2013; Zhuang and Griffith, 2013). Second, other control variables enter the equations significantly. More education reduces income inequality, and socialist countries tend to be more equal than other countries. The variable to demonstrate the relative land abundance for wheat and sugar is also negatively significant, suggesting that countries that have comparative natural advantage for wheat production are more equal. However, neither financial development measured by private credit nor the extent of democracy is significant after including other variables in the model.

Most importantly, concerning globalization variables, financial integration measured by stocks of total foreign liability and assets out of GDP is very significantly positive to income inequality in all models. This implies that as countries financially integrate into the world economy more, income inequality rises. It must be related with the negative effects of FDI, financial instability, and other channels we discussed on income inequality.¹⁰ Even when we control for other exogenous variables by including socialist dummy and crop endowment, those results are still robust. This finding is generally consistent with other empirical studies to find the significant inequality effects of FDI (Basu and Guariglia, 2007; Macdonald and Majeed, 2010), but it is associated with more far-reaching effects of financial opening and various international investments. In contrast to financial globalization, international trade is negative in all models but it is not so significant. Thus, the effect of international trade to improve income distribution across countries appears to be weak compared with another study (Jaumotte et al., 2013).

When we examine threshold effects of globalization on income inequality in Table 3, we find that international trade exerts those effects associated with the level of education. The interaction term of trade openness and education is significantly negative in the model 1. This suggests that more international trade lowers income inequality in countries with the higher level of secondary school enrollment. It is because the benefit of international trade can spread more broadly in a country where more people have high human capital. The threshold effect associated with education is still significant after controlling for more exogenous control variables such as crop endowment. This finding is consistent with other empirical studies that report that international trade is conditionally associated

with inequality (Milanovic, 2005; Hamori and Hashiguchi, 2012; Majeed, 2013). However, the conditional effect is not found when we test financial integration, different from Wu and Hsu (2012). The level of GDP per capita does not enter significantly as a condition variable as model 3 and 4 demonstrate. In sum, our findings in the regressions for the Gini coefficients highlight the independent and conditional effects of globalization on long-run income inequality across countries.¹¹

Table 3. Globalization and Income Inequality: Threshold Effects (1976-2004)

Dependent variable: Gini coefficient

<i>Indep</i>	1	2	3	4	5	6
GDPPC	32.18*** (5.54)	38.32*** (6.80)	37.89*** (6.74)	37.95*** (6.79)	32.92*** (6.11)	31.61*** (5.23)
GDPPC ²	-2.04*** (-5.72)	-2.42*** (-6.86)	-2.37*** (-6.93)	-2.40*** (-6.86)	-2.19*** (-6.55)	-2.05*** (-5.28)
TRADE	0.60*** (3.27)	-0.03 (1.24)	0.00 (0.02)	-0.02 (-1.29)	0.398** (2.51)	0.30* (1.69)
FININT	0.02*** (4.43)	-0.01 (-0.17)	0.02** (3.48)	0.02 (0.41)	0.02*** (3.40)	0.02*** (3.45)
EDU	0.02 (0.20)	-9.15*** (-4.52)	-8.48*** (-4.48)	-8.31*** (-5.01)	1.72 (0.61)	0.89 (0.32)
SO					-10.32*** (-4.65)	-5.68** (-2.50)
WHEAT-SUGAR						-12.37*** (-2.90)
TRADE *EDU	-0.15*** (-3.54)				-0.10** (-2.61)	-0.08** (-2.13)
FININT *EDU		0.01 (0.15)				
TRADE *GDPPC			-0.00 (-0.26)			
FININT *GDPPC				0.00 (0.11)		
R-Squared	0.40	0.35	0.35	0.35	0.51	0.56
Obs.	118	118	118	118	118	100

Note: *ibid.*

(2) Globalization and Poverty

In this section, we examine how globalization affects absolute poverty. We use the share of population spending less than \$2 per day, called the poverty headcount ratio, from the WDI as a dependent variable. We use the sample of low income and lower middle

income countries where absolute poverty is serious. As we discussed, our specification controls the level of economic growth, income inequality measured by the Gini coefficient and other factors such as education. While we use the same globalization variables to the former regressions, we use the data after 1990 because of data availability.

Table 4. Globalization and Poverty (1990-2004)

Dependent variable: ratio of population living under \$2 a day						
<i>Indep</i>	1	2	3	4	5	6
GDPPC	-18.97*** (-12.29)	-20.25*** (-13.18)	-16.92*** (-7.34)	-16.37*** (-7.07)	-27.00*** (-8.70)	-21.49*** (-5.51)
TRADE	-0.22*** (-4.73)	-0.16** (-3.64)	-0.12** (-2.50)	-0.13** (-2.77)	-0.93** (-2.38)	-0.17*** (-3.49)
FININT	0.10*** (4.20)	0.07*** (2.87)	0.06** (1.99)	0.06* (1.97)	0.07** (2.42)	0.01 (0.04)
GINI		0.68*** (4.34)	0.58*** (3.51)	0.49*** (3.30)	0.71*** (4.96)	0.67*** (4.22)
EDU			-8.24** (-2.40)	-5.06 (-1.31)		
SSA				8.28* (1.70)		
TRADE *GDPPC					0.10** (2.10)	
FININT *GDPPC						0.01 (0.32)
R-squared	0.70	0.75	0.76	0.77	0.76	0.75
Obs.	85	85	85	85	85	85

Note:

1) Low and lower middle income countries sample only.

Table 4 demonstrates regression results. The level of growth is naturally negative to absolute poverty as Dollar and Kraay (2002) report. They also report that growth reduces poverty proportionally but there is no significant direct effect of international trade on poverty. However, we find that international trade is significantly negative, controlling for the level of growth, while financial integration is significantly positive to absolute poverty. This suggests that the effects of globalization on poverty are different between international trade and financial globalization. More trade can lower poverty even taking its effect on growth into account, while more financial opening and foreign investments increase poverty. The result is almost same when we use the stock of FDI

liability variable instead of the financial integration variable. This suggests that FDI plays an important role in increasing poverty in developing countries which do not own much foreign assets. Our findings are consistent with those of Santarelli and Figini (2004) that international trade decreases the absolute poverty rate while FDI increases it. The result is, however, in contrast with Macdonald and Majeed (2010) that find both FDI and trade openness increase poverty in developing countries, particularly more so in countries with underdeveloped financial markets.

We find that the effect of income inequality is also significant to the headcount poverty ratio since more unequal countries have more poor people. Both trade openness and financial globalization are still significant to poverty after controlling for the level of growth and the Gini coefficient. Thus, globalization influences poverty directly as well as indirectly through growth and income inequality. The secondary school enrollment is negatively significant since more education lowers absolute poverty. The dummy for Sub-Saharan African countries is positive, but not highly significant. Even when we add these controls, globalization variables are still significant with opposite signs. This suggests that the effect of international trade to lower poverty and that of financial integration to increase poverty appear to be robust. Including other variables does not change this result.

Finally, we test whether there are threshold effects of globalization on poverty by including interaction variables. When we interact the trade openness variable and the level of growth, we find the interaction variable significantly positive. This suggests the effect of international trade to reduce poverty is larger in poorer developing countries after controlling for the level of growth and inequality. The result becomes weaker when we include other control variables such as the secondary school enrollment ratio.¹² We do not find significant threshold effects of financial globalization, either using financial integration or the FDI stock. Overall, these results are same when we use the share of population to spend less than \$1 per day. Although we should be careful in interpreting these results because of potential endogeneity, our empirical examinations find important effects of international trade and financial globalization on inequality and poverty, and the threshold effects of international trade.

V. Conclusions

Along with the development of international trade and financial globalization after the 1980s, there have been a large number of studies to examine the complex effects of

globalization on growth, inequality and poverty. In particular, a concern is recently growing about potentially negative impacts of globalization on income inequality as inequality has been rising in both developed and developing countries. This paper first presents an extensive review of theoretical and empirical studies about the effects of globalization on income inequality and poverty. Next, it conducts a cross-country empirical examination on the effects of globalization on them.

As to economic growth, many have argued that globalization promotes economic growth. However, historical experiences and empirical studies demonstrate that the growth effects of globalization, especially financial globalization, are not robust. Globalization may worsen income inequality through several channels. The growth of outsourcing, expansion in trade of intermediate goods and rapid increase in FDI could increase income inequality in advanced countries. Globalization could make income inequality higher in developing countries too, through several mechanisms including the difference in initial endowment and detrimental effects of financial instability. However, it should be noted that distributional effects of globalization may not be uniform, but depend on several conditions. Better education and other institutional efforts may minimize negative effects of globalization and maximize its positive effects. In fact, many empirical studies report threshold effects of globalization on income inequality. We should also take complex relationships and interactions among globalization, growth, and income inequality into account when studying the effects of globalization on poverty.

In empirical examination, we present evidence of the different effects of international trade and financial globalization on long-run inequality and poverty across countries. Using cross-country regressions for inequality and poverty, we find that financial integration exert significantly negative effects on income inequality and poverty. We also find that more international trade improves income distribution and poverty, showing threshold effects associated with the level of education and growth. Our findings underscores the efforts of governments to manage the process of globalization effectively and to establish desirable conditions so that they minimize negative effects of globalization.

Notes

- 1 The amount of foreign exchange transactions in the global foreign exchange markets increased very rapidly from about 15 billion dollars in 1973, to 880 billion dollars in 1992, and 1.4 trillion dollars in 1995. This amount is more than 100 times larger than the amount of transactions from international trade.

- 2 This could be a reason that income distribution did not become unequal in East Asian countries that achieved economic growth thanks to export promotion. Developing countries that promoted export promotion after the 1980s probably faced different situation.
- 3 Most empirical studies using panel data use short 5 year averaged data. However, results from panel regressions and cross-section regressions are sometimes different. It should be noted that there are limitations in these empirical studies because of complex endogeneity.
- 4 For the detrimental effects of income inequality on the poor and the poverty rate, see Ravallion (2005).
- 5 Topalova (2005) also reports similar results using export and FDI, while it finds opposite results when it uses regional tariff rates as a variable of trade opening.
- 6 The effects of globalization on income distribution in developing countries differ depending on the contexts and policies in each country. Goldberg and Pavcnik (2007), however, conclude that reality refutes naïve belief that trade liberalization and international trade would help the poor.
- 7 Harrison et al. (2011) presents an extensive review about new studies on how trade can affect income inequality, overcoming the limitations of the traditional Heckscher-Ohlin theory. They include within industry effects due to heterogeneous firms, the effects of offshoring of tasks, effects on incomplete contracting, and the effects of labor-market frictions.
- 8 This refutes the conclusion of the study of the World Bank that international trade benefits all income groups (Dollar and Kraay, 2002). They argue that growth of average income increases income of bottom quintile proportionally and international trade does not affect relative income of the poor.
- 9 We also test the model using the natural log of GDP at the initial period rather than its average, taking possible endogeneity into account. The overall results do not change although the sample number becomes smaller.
- 10 When we use the stock of FDI liability instead of financial integration, we find that it also increases income inequality similar to many other studies.
- 11 We also tested the effects of globalization by dividing samples into developed and developing countries. The results are qualitatively similar in the sample of developing countries though the Kuznets effect is a bit weaker. Also, when we use the Gini coefficients from the WIID database version 2b instead of WDI, overall results do not change qualitatively.
- 12 The interaction term of trade openness and the secondary school enrollment ratio is also

positive and significant at about the 90% significance level though it is not reported. The country with less human capital appears to have more poverty reduction along with more international trade, same as the case of the level of growth.

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