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| **Globalization and Income Inequality** |
| A Panel Data Analysis of Developed and Developing Countries |
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## ABSTRACT

## A large volume of econometric literature has studied the impact of economic globalisation on income inequality around the world. However, reported econometric estimates vary substantially which makes it difficult to draw valid conclusions. This paper investigates the impact of globalization on income distribution. The panel data econometric techniques have been used to investigate the impact of globalization on income inequality. Panel data of developing countries and developed countries over the period of 2000-2018 have been used to examine income inequality index and the index of globalization . According to my results I obtain I conclude that globalisation has a (small-to-moderate) positive impact on income inequality in developing countries and negative(small) impact on developed countries .

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## Introduction

Throughout history, mankind has been curious about developments in each region all aspects of life so far. Recently, there has been a rapid development in technology for this development to be made much easier than before. In On the other hand, depending on the World Bank (2011), these developments have led to a decline in poverty, all over the world. On the other hand, it is also suggested that although it is improved at higher levels of living, there has been a growing trend for incomeinequality over the past two decades, globally. In other words, it is emphasized that the rich have it there has always been more benefit from these developments than for the poor, especially in developing lands countries. The income gap between rich and poor, which has been growing steadily two decades ago, he warned researchers to take action and seek lessreasons for this fact. According to Kuznets (1955), basically, there was a transformed U-shaped relationship.between growth and inequality. In other words, in the early stages of growth, inequality existsit is expected to rise to a high point somewhere in the middle, and later, it should havethey are slowly declining and the growth is growing at its highest levels. However,recent trends in income inequality have shown that not only low-income countries, but also middle- and middle-income countries are experiencing a sharp rise in income inequality is due to national policies or economic factors such as global trade. So, more recently, the driving force behind income inequality has become is back on the agenda and needs careful analysis by investigators as well. Although the trend is the same it is expected to be driven by many different aspects of development and national symbols, it It would be wise to analyze a closely related and powerful analysis that may have been in the works in all countries around the world. One of these styles is represented by a word called Entertain globalization 'referred to as integration is the integration of the world economy into the global economy. The main reason why global selection has been chosen is to be analyzed as one of the most important drivers of inequality in developing countries that in the 1980s and early 1990s, most countries now facing increasing inequality, it also enjoys higher economic integration and its social and political characteristics. If these two changes, which went together, means a causal relationship within, in

which one can expect globalization to lead rising inequality among developing countries. An important distinction in that study is that the term globalization is not just considered to beeconomic but also social and politic as some of the African and Asian countries do not engage in economic integration while they do take part in social globalization. It is crucial to note that most of the studies, as they will

be discussed more in detail in the next section, focus only on economic globalization and search for the links in between exports plus imports & inequality ,foreign direct investment & inequality, assets plus liabilities & inequality, and so on. However, in this paper, the term called globalization is not separated from its social and political dimensions since the study aims to define globalization on a broader perspective and reach reliable, strong and unbiased results in this context. In order to be able to understand whether the existence of higher globalization and rising inequality at the same period has been just a coincidence or not, one should carefully define each term taking every aspect into account. For this purpose, the next two sub-sections take a deeper look into the two aspects of development, globalization and income inequality, respectively.

* **GLOBALIZATION**

The most widely accepted definition of globalization in the context of economic ―economics integration of the world into the global economy‖. More recently, however, that has been the case global economic trade may not include the word globalization and all aspects of it. In accordance with Dreher et al. (2008), as well as economic factors, globalization also occurs socially as well politics. Therefore, the authors suggest that globalization should be defined as the strengthening the global economy, political, cultural, social and technological communication leading to the establishment of national structures and international integration of economic, political and social processes at the international level ’. Moreover, in reality, trade liberalization mostly meets not only economically (especially to make it private as well Law reduction) but also social policies as defined by Lindert and Willion (2001). In addition, both Atkinson (1997) and Friedman (1999) state that social factors are effective and should be considered in the analysis of the relationship between globalization and income inequality. In

addition to these studies, Mills and Blossfeld (2005) defines global trade as related to the four structural changes; international market performance and depreciation of economic activity limits, fierce competition for taxes between countries, is on the rise global communication through new information and communication technologies (ICTs), with growing importance and market instability. In light of these lessons too strong evidence, one should question the meanings used in previous studies that only practice account for global economic factors while leaving out the possibility as social and political which should affect simultaneously

## INCOME DISTRIBUTION

## To start with, the global income distribution is the distribution of per capita income among the individuals in the world. It may be decomposed into the distribution of average income per capita between countries (the between-country distribution of income) and the distribution of income per capita within countries (the within-country distribution of income) as suggested by Cornia (2003). In this study, the main interest is on the inequality in between countries. In the economics context, inequality measures the disparity between a percentage of population and the percentage of resources (such as income) received by that population. As the disparity increases, inequality is expected to rise.

## According to Lindert and Williamson (2001), the two key components of world inequality – between and within country inequalities – must be taken into account cautiously. Most of the studies in the literature reveal that more than half of the total income variation is explained by the between-country distribution of income. For instance, using Theil coefficient, Sala-i-Martin (2002) shows that between-country inequality accounted for 76% to 71% of total global inequality for the years 1970 and 1998, respectively. Besides, the author further explains that the difference comes from the fact that while within-country inequality depends much on factor prices, between-country inequality depends more on per capita incomes. Therefore, the two parts of world income inequality should be analyzed separately. As it has also been mentioned before, over the last two decades, the world income distribution has become much more unequal. (Galbraith and Kum 2005) indicate that in the recent era of globalization, there are strong findings to believe that inequality did in fact rise in most of the world (but not everywhere). Some of the developing countries experienced rising within-country inequality, while some others have been able to reverse this trend. However, between-country inequality has been rising continuously among the developing countries.

## According to Sala-i-Martin (2002), considering the opposing trends in within-country inequality and the empirical evidence of rising world income inequality shown by researchers, world income inequality has been mainly driven by between-country inequality via widening income gaps between countries. In the same line with this argument, Berry et al. (1991), Maddison (1995), Pritchett (1997), Prados (2000), Bourguignon and Morrison (2000), Ward (2000), 10 Lindert and Williamson (2001) also argue that world income inequality has risen over the past two centuries (between 1820 - 2000) and this rise has been driven by inequality between countries

## The present study investigates the impact of globalization on income distribution. It is hypothesized that increased globalization contributes to the growing inequality in both developing and developed countries. The panel data econometric techniques have been used to investigate the same. Panel data of developing countries and developed countries over the period of 2000-2020 have been used to examine income inequality index and the index of globalization

The paper is organised as follows: section 2 briefly summarises the existing literature, section 3 provides data analysis, methodology and results and section 4 includes conclusion and limitations.

* **Literature Review**
* In this section, first of all, information over the related studies which analyze the relationship between globalization and income inequality is provided. Though all aspects of development are interrelated to each other and should be analyzed together to get a better understanding of general trends, for the purpose of this study, the main focus is only on the relationship between globalization and income inequality, ignoring growth and poverty
* The cointegration techniques were used by **Borjas and Ramey** (1994) to investigate the causal

effects between income inequality and various explanatory variables for the United States. They concluded that durable goods trade deficit as a percentage of GDP is the only explanatory variable that follows a significant long-term trend to income inequality. The study suggests that there is a positive relationship between inequality and globalization using trade as a proxy to globalization.

* The theoretical analysis of the possible impact of trade on income inequality by **Marjit, Beladi** and **Chakrabarti (2004)** focuses on the gap between skilled and unskilled labor in a small developing economy. The analysis suggests that there is a strong decline in the relative income of unskilled labor if there is an improvement in the terms of trade
* the standard Heckscher-Ohlin trade model, the **Stolper Samuelson theorem** predicts that economic globalisation will narrow income disparities within developing countries (**Stolper and Samuelson 1941**). Trade openness will benefit a country’s relatively abundant production factor because trade specialisation typically favours sectors that are intensive in the abundant factor. Compared with the rest of the world, developing countries typically have a comparative advantage in the relatively abundant factor of unskilled labour. Therefore, according to the Stolper-Samuelson theorem, international trade will increase demand for unskilled workers in developing countries which will push up their real wages and lead to a decrease in within-country income inequality. For advanced countries, the prediction is the opposite, as trade openness will increase income inequality by raising the real return to abundant skilled labour and by lowering the real rate of return to relatively scarce unskilled labour
* **Bergh and Nilsson (2011)** examined the relationship between income inequality and globalization within the country by adding several control variables and controlling for potential endogeneity using GMM. In the North economic, economic freedom led to increased inequality; whereas social globalization South is an important factor in the The study also found that political, legal and monetary globalizations do not tend to increase inequality
* **Zhou et al. (2011)** analyzed the impact of globalization on income inequality in 60 developed, developing and transitional countries in 2000 and found that globalization can either alleviate or worsen the income inequality. The most empirical evidence is controversial and inconclus

## Methodology and Results

* **Data Selection and Limitations**

The hypothesis of positive relationship between globalization and income inequality is investigated by observing historical variations in the economic and social indicators for a panel of 31 developed countries and 53 developing countries over time period 2000 to 2018. The analysis uses three explanatory variables (globalization, education level and urbanization level) to model potential variations in income inequality using three distinct panel data modelling techniques.

The functional form of the model is given as:

**𝐺𝑖𝑛𝑖𝑖𝑡= 𝐹(𝐺𝑖𝑡,𝐸𝑖t,𝑈𝑖𝑡) -----------------------------------------------------------------------------------------------** (1)

Where *i* refers to country, and *t* refers to year. The description and source of other indicators is given below:

***Giniit*** refers to Gini coefficient for measuring income inequality. Data for Gini coefficient has been taken from World Development Indicators, issued by the World Bank. It is worth noting that data for Gini coefficient includes considerable amount of missing values. Zhou et al. (2011), in their cross sectional study, chose the nearest value of year 2000 as a proxy. However, this study replaces missing values by moving-average of 9 years. For instance a missing value in 1990 is replaced by average Gini coefficient for that country over the period 1986-1994.

* + - * ***Git*** refers to the KOF index of globalization. Data for KOF Index has been taken from KOF swiss institute. However, this data is available until the year 2017.
      * ***Eit*** refers to the education index for measuring education level and ***Uit*** refers to urbanization index, measured as a percentage of population living in urban areas. Data for both indicators have been collected from data library of Human Development Report (UNDP, 2011).
* In contradiction to Zhou et al. (2011), this study proposes KOF index as an indicator of globalization instead of Kearney Index, on the grounds of superiority of KOF. The A.T. Kearney index categorizes globalization into four dimensions; economic integration, personal contact, technological activity and political engagement. However, it has certain drawbacks associated with it. For instance, Kearney Index, available for only 64 countries, allocates equal weights to all variables and hence creates a bias against the larger countries, meaning thereby that the smaller countries have a tendency to take higher rank. On the other hand, the KOF index allocates relative weights to 24 variables from economic, political and social dimensions of globalization, and provides data for 208 countries.

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## Modelling

This section provides three different models for analysis of pooled data. Results drawn from different models allow to build a more concrete and rigorous analysis by comparing same indicators under different dynamics.

## Basic Linear Model (Pooled OLS)

The basic linear model for the study can be devised as:

**𝐺𝑖𝑛𝑖𝑖𝑡=𝛽0+ 𝛽1.𝐺𝑖𝑡+𝛽2.𝐸𝑖𝑡+𝛽3.𝑈𝑖𝑡+𝛾𝑖+𝜀𝑖𝑡 ----------------------------** (2)

Where 𝜸𝒊 captures the effect of time invariant country-specific factors that might influence Gini coefficient, such as geographic and demographic dynamics. 𝜺𝒊𝒕 is the idiosyncratic error term that represents factors that vary across both time and country.

## Fixed Effects Model

The Fixed Effects model for functional form given in equation (1), is derived by differencing the variable with its time-demeaned component. It can be represented as:

**𝐺𝑖𝑛𝑖𝑖𝑡−𝐺𝑖𝑛𝑖 𝑖=𝛽1.(𝐺𝑖𝑡−𝐺 𝑖)+ 𝛽2.(𝐸𝑖𝑡−𝐸 𝑖)+𝛽3.(𝑈𝑖𝑡−𝑈 𝑖)+(𝜀𝑖𝑡−𝜀 𝑖) ----------------------------------------(3)**

Where the model is more consistent due to elimination of the country-specific time-invariant effect (𝛾𝑖)

## Random Effects Model

This model requires quasi-demeaning of the variables, such that the unobserved effect is not completely eliminated from the model, but its impact is reduced to a certain extent, in order to get better estimates for the longitudinal data. The model is formed as:

**𝐺𝑖𝑛𝑖𝑖𝑡−𝜃.𝐺𝑖𝑛𝑖 𝑖)=(𝛽0−𝜃.𝛽0)+𝛽1.(𝐺𝑖𝑡−𝜃.𝐺 𝑖)+ 𝛽2.(𝐸𝑖𝑡−𝜃.𝐸 𝑖)+𝛽3.(𝑈𝑖𝑡−𝜃.𝑈 𝑖) + (𝜀𝑖𝑡−𝜃.𝜀 𝑖)--------------** (4)

Where 𝜽 the coefficient for quasi-demeaning estimated through GLS transformation1.

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**Results**

## Table-1 Estimation Result for developed countries

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| --- | --- | --- | --- |
| **Model** | **KOF**  **Index** | **Education Index** | **Urbanization Index** |
| **Basic**  **Linear** | -0.13842\*\*  (0.02783) | -0.35579\*\*  (0.78884) | -0.025310\*\*  (0.012981) |
| **Fixed Effects** | -0.0242\*\*  (0.01626) | -0.84921  (0.67678) | 0.06419  (0.03275) |
| **Random**  **Effects** | -0.02234\*\*  (0.01598) | -0.80681\*\*  (0.66503) | 0.0361  (0.028) |
|  |  |  |  |
| **\*\* Variable is significant at 5 percent level of significance** | | | |

**Table – 2** Estimation Result for developingcountries

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **KOF**  **Index** | **Education Index** | **Urbanization Index** |
| **Basic**  **Linear** | 0.084901 (0.03245) | -23.06471\*\*  (0.13346) | 0.161773\*\*  (0.015891) |
| **Fixed Effects** | 0.18672\*\*  (0.01815) | -8.031252 (0.03418) | -0.102705 (0.030014) |
| **Random**  **Effects** | 0.173767\*\*  (0.01757) | -14.47034\*\*  (0.03416) | 0.053290  (0.026942) |
|  |  |  |  |
| **\*\* Variable is significant at 5 percent level of significance** | | | |

Table 1 and Table 2 represents estimation results for equation (2), (3) and (4) . A simultaneous analysis

of results from various models helps in drawing a coherent and comprehensive analysis by comparing

the dynamics of explanatory variables on the dependant variable, under each model.

Regardless of the magnitude of coefficients, their signs provide some very surprising results. It is interesting to observe that the coefficient of KOF Index, indicator for globalization, is inversly related to Gini coefficient in all four models in developed countries , and also highly significant in each model. This result reject the hypothesis of this study which suggests that an increase in globalization, ceteris paribus, leads to a certain incline in inequality in the target group of countries. But in developing countries the coefficient of KOF Index, indicator for globalization, is positivly related to Gini coefficient in all four models in developed countries , and also highly significant in each model. This result accept the hypothesis Another interesting result to observe is the inverse relationship between education index and inequality in both developing and developed countries. Though, education was used as a control variable, yet its estimate provides some very intuitive results. It suggests that, over the period of history for the target group of countries, there has been a negative causation between education and income inequality, meaning thereby, an increase in the level of education is bound to reduce the income gap between the rich and the poor. Contrary to globalization and education, urbanization does not seem to have a considerable impact on income inequality, and is regarded insignificant in all models except pooled-OLS, therefore the magnitudes and signs for this coefficient are irrelevant for discussion

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## Discussion and Conclusion

The causal effect of globalization on income inequality has been an issue of significant interest in development economics. Various studies in this issue have yielded conflicting results. This paper lays its focus on more recent literature, more specifically the results presented in Zhou et al. (2011) that suggest existence of an inverse relationship between globalization and income inequality. However, this paper has identified several limitations in their analysis; most notably the fact that their study is based on a cross sectional data, while globalization and income inequality are matters pertaining significantly to variations over time.

This paper therefore puts forward a more coherent empirical analysis by implying various econometric techniques on a panel of 53 developing countries and 31 developed countries over a time period of 18 years. This analysis supports a positive relationship between globalization and income inequality in developing countries and negative relationship in developed countries, suggesting that an increase in globalization would lead to a worsening of income distribution in developing countries and reduce income inequality in developed countries , a direct contradiction of the result obtained by Zhou et al. (2011).

Banerjee and Linstead (2001, abstract) have gone to the extent of calling the rhetoric of ‘one world, many peoples’, to be connected with the development of First World countries only, and completely disassociated with the developing nations. Our study sets an empirical evidence for such claims made by these theorists by negating the positive role of globalization in reducing inequality, especially in the case of developing economies.

**Limitations**

The most significant limitation is unfortunately the lack of quality data over inequality. This point is underlined by almost each and every researcher in the literature. However, as it is not possible to collect nation-wide income data individually, national representatives are the ones who should be taking care of this fact. However, except World Bank, there is almost no reliable source for inequality data. Frankly, World Bank data is also criticized and suggested to be biased somehow by several authors. Due to the lack of data and need for a long period dataset, income and consumption surveys are mixed with each other as done by Deininger and Squire (1996).

Besides the low quality of data, there are also limitations related to the time period. Actually, it has been aimed to conduct research covering the period since the beginning of twentieth century until 2020, a period of 100 years which is quite enough to observe the changes in inequality. Nevertheless, due to the lack of availability of quality data, time period is also limited to the years between 1990 and 2018

One last limitation is the lack of country coverage from the poorest countries as there are no available data for those countries. In this context, especially the poor are the main focus of the study. However, the government of these countries generally does not collect data regularly. Therefore, those poor countries, which indeed have been intended to be included in the study, are left out of the analysis..

# References

**Benchmark Paper:**

Atif, Srivastav, Sauytbekova and Arachchige(2012). ‘Globalization and Income.

Inequality: A Panel Data Analysis of 68 Countries’.

# <https://www.econstor.eu/bitstream/10419/65664/3/Atif_Globalization_Inequality.pdf>

**Other Helpful Resources:**

Dreher, A 2006, ‘Does Globalization Affect Growth? Evidence from a new

Indexof Globalization’, *Applied Economics,* vol. 38 no. 10, pp. 1091-1110.

Marjit, S, Beladi, H, & Chakrabarti, A, 2004, ‘Trade and Wage inequality in

Developing Countries’, *Economic Inquiry*, vol. 42 no. 2, pp. 295-303.

OECD 2005, ‘OECD Handbook on Economic Globalization Indicators’, pp. 11, viewed

3rd October 2012, <http://www.realinstitutoelcano.org/materiales/docs/OCDE_handbook.pdf>

UNDP 2012, ‘Human Development Report 2011,, *Data and Indices*, viewed 04

October 2012, <http://hdr.undp.org/en/statistics/>

World Bank 2012, ‘World Development Indicators’, viewed 24 September

2012, <http://databank.worldbank.org/ddp/home.do>

Zhou, L, Biswas, B, Bowles, T, & Saunders, PJ 2011, ‘Impact of globalization on Income

Distribution Inequality in 60 countries’, *Global Economy Journal*, vol. 11 no. 1, pp. 1-18,