

The Impact of Globalization on Income Inequality across the Globe

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ABSTRACT

Companies outsource low-skilled jobs to countries to reduce production costs and increase revenue. However, through practices such as globalization, the distribution of income between the top 1% of the population and the bottom half of the population continues to widen. By taking data from the World Bank, and creating models using both linear and polynomial regression in the NumPy python module, economists can analyze certain countries' economic failure and others' success. Countries that are heavily indebted are the most negatively impacted by globalization, while countries with strong economies see positive growth.

Keywords: *globalization, income inequality, economy, trade*

INTRODUCTION

Globalization can be broadly defined as a practice in which a company develops its international presence and begins to produce or operate on an international scale (Fernando, 2022). Several companies outsource to other countries for a variety of reasons, including cheaper production costs, higher profit margins, and lower cost of raw materials (Hayes, 2021). This paper will first analyze the past research on the following topic to determine the reasons for the discrepancies in their results. In addition, a new model using World Bank data will be presented, with future indicators indicating whether certain countries are experiencing the negative effects of globalization.

LITERATURE REVIEW

Many groups of researchers studying different parts of the world are trying to ascertain the correlation between globalization rates and income inequality. Contradictory results have often been reported about the correlation between these two concepts; in order to calculate this, we use the Gini Index, a method of identifying the income distribution across the salary quintiles. The most widely referenced theorem in identifying this relationship, the Stolper-Samuelson theorem, as a part of the Heckscher-Ohlin trade theory, states that with constant returns to scale, a rise in the price of a good will increase the return of the most intensive factor (Stolper & Samuelson, 1941). By opening a country to trade, the price of goods will shift, and likely change the income distribution, which may be predicted by the use of the Stolper-Samuelson theorem (McDonald, 2020).

The Stolper-Samuelson theorem, in simple terminology, states that there will be winners and losers in the international trade market (Hoyos, 2017). When the demand for labor in a developing country goes up, the wage subsequently rises as well (Lin, 2011). Consequently, the income inequality in that nation will go down, due to unskilled workers being paid higher rates. However, when the theorem is applied to fully developed, advanced nations, when labor reduces due to outsourcing, and the demand for capital increases, the price of capital will go up, but wage rates drop (Slaughter & Swagel, 1997). This response leads to an increase in income inequality because unskilled workers no longer have the benefits they had before (Heimberger, 2020). Furthermore, the specialization of countries in the production of certain products, whether it be luxury textiles, aircraft vehicles, or electronics, targets labor from the skilled worker population; this leaves unskilled workers to lose their jobs and salaries, thus widening the income inequality gap further. Through foreign direct investment, resources are allocated where the prices are cheapest and the cost of production is lowest. Investment is sent to the countries such as Indonesia and Vietnam due to cheaper costs, whereas workers in higher-income countries are at a higher risk of unemployment and relative poverty.

Income inequality through globalization can occur due to a rise in trade-to-GDP ratios, as countries will trade with each other based on the volume and cost of trade (Heakal, 2022). When a country has a comparative advantage in producing a product, it signifies that it has a smaller opportunity cost than its trading partners. By basing trade on the comparative advantage — that many countries do today — even though they gain from this process, it leads to a rise in relative poverty (Maskin, 2007). By importing products elsewhere internationally, the demand for domestic products will decrease, leading to a fall in unemployment, and salaries for those in the industry. In Russia, the national income share of the top 1% of the population went from 11% in 1980, to 20% in 2015. Similarly, in India, it went from 6% in 1982 to 22% in 2013. In China, this figure went from 6% in 1978 to 14% in 2015 (“*Do Globalisation and World Trade Fuel Inequality?*”, 2018).

Furthermore, globalization has also been found to increase the gap in income due to multinational corporations increasing payouts between companies’ executives and shareholders (Frick, 2016). In addition to this, such corporations may also practice legal forms of tax evasion. By doing so, the revenue for public service and welfare systems is undercut, which means this money is not distributed to lower-income families. In 2017, the UK government predicted that nearly as much as 5.8 billion euros in corporate taxes were avoided by multinational corporations (“*Inequality and Poverty*”, 2022).

MATERIALS AND METHODS

To better understand the correlation between income inequality and globalization, it's important to identify how these two groups of data relate to each other. To do this, data collected by the World Bank was used, which has already been thoroughly reviewed and verified. Using the Gini Index (which as previously stated, is an indicator of income inequality), and Trade (% of GDP), it is possible to find whether there is a relationship between these two quantitative entities. The data collected includes the country name, and the value, whether it was the Gini Index or Trade (% percentage of GDP). While several countries had several years of data collected, only the most recent data was used for this research. Before analysis, the data were placed side by side to identify whether there were any missing fields for specific countries, and those data points were omitted from the final results. To find this correlation, the set was plotted, with the Gini Index on the Y-Axis, and the Trade (% of GDP) on the X-Axis.

Because Globalization is such a broad topic with many factors that play a significant part in the grand scheme of world trade, the data collected helps identify a trend that may be refined through further research and studies. Applying linear regression to the data set present may indicate whether the relationship between income inequality and globalization is representative of the concerned country's economic standpoints. This data was separated into different categories in order to better analyze the results, based on specific characteristics. These sections included least developed countries, most developed countries, and heavily indebted countries (poorest). The results can then be separated into three categories: a positive correlation, a negative correlation, and no correlation.

In order to further identify whether there was a deeper connection between these two variables, polynomial regression with several degrees was tested using the matplotlib python module, and the NumPy module. After using the linspace method in the NumPy module, a polynomial equation was shown displaying the best fit for the data points entered. These modules allow the user to utilize high-performance multidimensional array objects, while simultaneously providing tools to work with these arrays as well.

RESULTS

Each individual data point seen through the graphs below represents a specific country’s Trade (in % of GDP), and its respective Gini Index. In order to identify these exact values, data from The WorldBank under these titles should be used.



Figure 1: A visualization of data plotted from all countries included in the set.

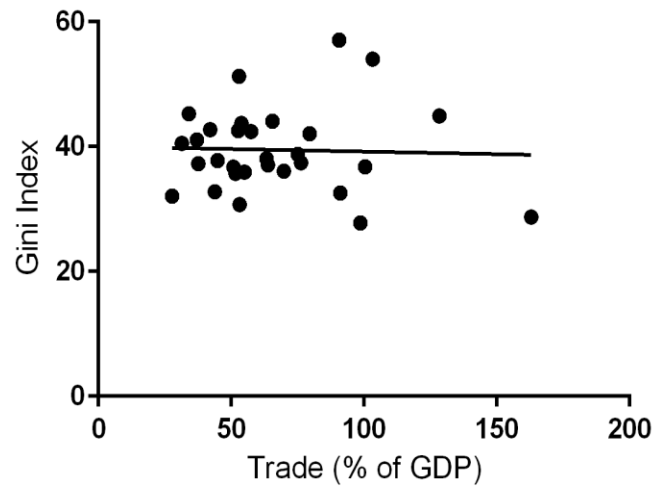


Figure 2: Data split to visualize the least developed countries (according to the United Nations) depicting a neutral correlation between the Gini Index and Trade in Percentage of GDP.

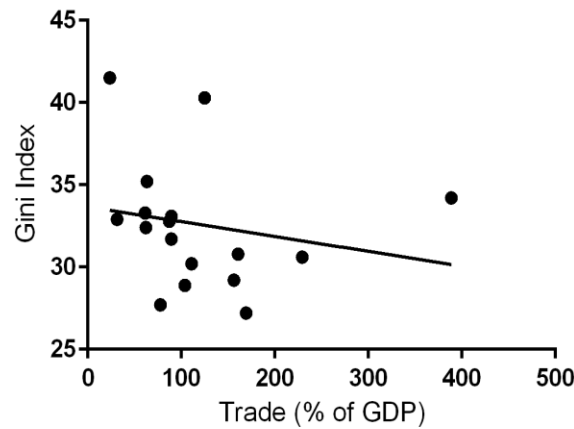


Figure 3: Data split to visualize the countries with the most developed economies according to the United Nations, depicting a positive correlation trending downwards between the Gini Index and Trade (% of GDP).

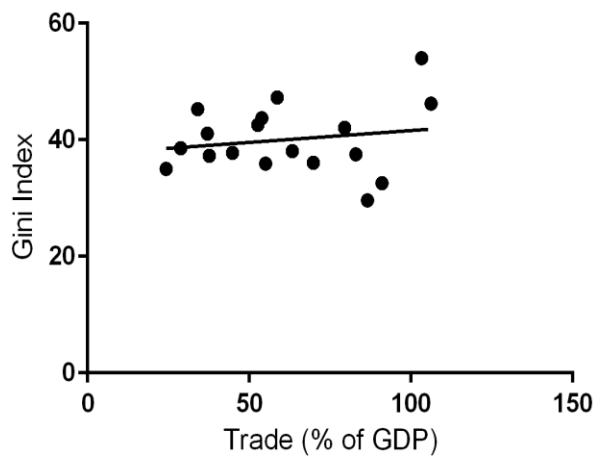


Figure 4: Data split to visualize heavily indebted poor countries (as of December 2018), according to the United Nations, depicting a positive correlation trending upwards between the Gini Index and Trade (% of GDP)

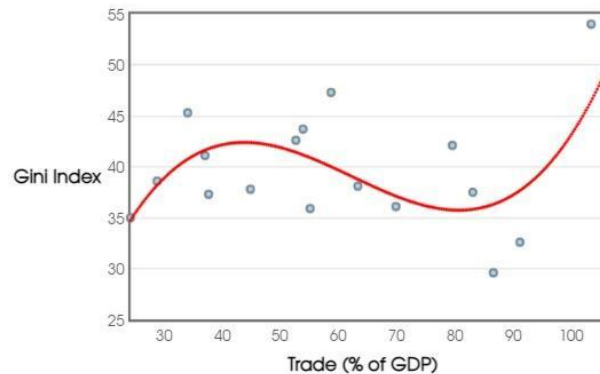


Figure 5: Polynomial regression using the matplotlib module depicting the relationship between the Gini Index and Trade of heavily indebted poor countries (as of December 2018).

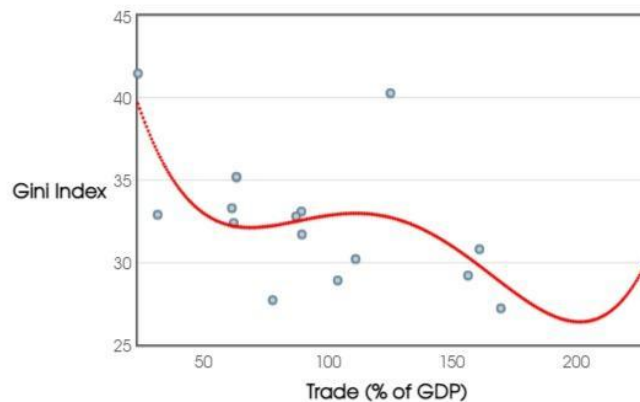


Figure 6: Polynomial regression calculated using the matplotlib module depicting the relationship of the Gini Index and Trade of developed economies.

DISCUSSION

The results indicate that heavily indebted or extremely poor countries (Figure 4 and Figure 5) seem to be facing the greatest impact with regard to the relationship between Trade (% of GDP) and the Gini Index. However, countries with developed and stable economies (Figure 3 and Figure 6) seem to have the opposite effect. While it's important to understand the possible effects or meaning these results indicate, it must be noted that these results were compiled and analyzed using two datasets from the World Bank, and may not be a comprehensive summation of this multifaceted problem.

In Figure 4 and Figure 5, where heavily indebted countries show a high Gini Index when trade makes up a large portion of their gross domestic product, it serves as a potential indicator that globalization does, in fact, increase income inequality in those areas. Owing to the strenuous circumstances of that region during the time itself, globalization may only contribute to making the problem worse. However, when looking at countries with developed economies such as the United States and Canada, the positive correlation displayed may indicate that globalization seems to reduce income inequality. People in the poorer countries are becoming poorer, while those in more advanced countries are experiencing increased income.

CONCLUSIONS

It can be observed that globalization does affect income inequality (which can be derived from polynomial and linear regression models), but the specific extent to which globalization begins to have an impact should be revealed through further research. As seen through this research, income inequality is widening the gap between the rich and the poor,

and several factors are at play. By analyzing what's causing the rich to become richer, and those in poverty to lose access to vital resources, solutions to worldwide problems like homelessness and world hunger may present themselves. By effectively allocating resources to address these problems, whether through social welfare programs or new public housing programs, troubled countries may be able to rebuild their economies with new approaches.

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