Globalization on Global Wealth Inequality
An Econometric Perspective

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List of Acronyms

DC	Developed countries
FDI	Foreign Direct Investment
FE	Fixed Effects
FO	Foreign owned
FTA	Free Trade Agreements
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
GVC	Global Value Chain
HOS	Heckscher-Ohlin-Samuelson
ICT	Information and Communication Technology
IMF	International Monetary Fund
LDC	Less developed countries
MNC	Multinational Corporations
NS-HOS	North-South Heckscher-Ohlin-Samuelson Model
NST	North-South Trade
NW	National Wealth
ODA	Official Development Assistance
OLS	Ordinary Least Squares
PCA	Principal Component Analysis
PPP	Purchasing Power Parity
RE	Random Effects
RTA	Regional Trade Agreements
TO	Trade Openness
WB	World Bank
WIDER	World Institute for Development Economics Research
WST	World System Theory
WTO	World Trade Organization

Abstract

This paper aims to investigate the complex relationship between globalization and wealth inequality between nations, using a comprehensive dataset spanning from 2000 to 2022, sourced from the World Bank, the International Monetary Fund, World Trade Organization. By quantified wealth inequality through Theil Index, while globalization is measured using an aggregate index constructed via Principal Component Analysis (PCA), capturing dimensions such as trade openness, FDI inflows, number of trade agreements, and technological integration. Employing robust econometrics models-Pooled Ordinary Least Squares (OLS), Fixed Effects (FE), Random Effects (RE), and System Generalized Method of Moments (GMM)-this study provides an in-depth analysis of the impact of globalization on wealth distribution across countries. The results provide not an insight on a global scale but also divided into two types of markets, contributing to the academic discourse of global wealth inequality, while offering insights that could inform policies aimed at fostering a more equitable and just global economic system.

Relevance to Development Studies

The study on globalization and its impact on wealth inequality between countries holds a close relevance to the field of development studies. As globalization continues to reshape the global economic landscape, constantly shifting the global order, it is imperative to understand it to provide informed policies that promote inclusive and sustainable development. The time of accumulating wealth has passed, and now it is time for wealth to make a return on its own. Wealth, unlike income as a flow, it is a stock, which encapsulate the ownership of assets and resources, having a long-term implication for social mobility, economic stability, and political power. Analysing this issue through a development lens allows scholars and policymakers to assess how global economic integration may exacerbate or mitigate structural disparities across countries.

Keywords

Globalization; PCA; wealth inequality, Theil Index, GMM.

Chapter 1 Introduction

Globalization, like any complex phenomenon, elicits both praise and critique. Advocates celebrate its role in fostering innovation, economic expansion, and even societal equity (Bhagwati, 2004). There are vigorous debates surrounding this topic in explaining the impact that it has on the life of people around the world. While globalization accelerated economic growth and development in numerous countries, on other, concerns and critiques were raised as its role in exacerbating disparities in not just income but wealth distribution on a worldwide scale (Stiglitz, 2002).

Post World War II, nations embarked on a path of globalization, embracing an internationalized market by reducing tariffs, opening borders to diverse trade, and welcoming migrants. The foundational theories of earlier economists remained largely unchallenged until the introduction of the Heckscher-Ohlin-Samuelson (HOS) model, or "trade theory," sparked rigorous critique and empirical scrutiny (Krugman, 1995). Proponents of globalization argue that it redistributes income, potentially narrowing inequality in developing nations by increasing overall prosperity and facilitating participation in global value chains (GVCs) (Baldwin, 2012). The GVC framework posits that countries capable of advancing up the value chain stand to gain wealth and reduce domestic disparities (Gereffi, Humphrey and Sturgeon, 2005).

Karl Marx, however, presented a fundamentally different perspective, asserting that beneath its apparent advantages, capitalism perpetuates inequality through mechanisms such as unequal value transfers inherent in free trade (Marx, 1867). Marx's legacy inspired subsequent theories, including Dependency Theory, championed by Raúl Prebisch and Hans Singer (Prebisch, 1950; Singer, 1950), and Immanuel Wallerstein's World-System Theory (WST). These theories highlight a global economic structure comprising core and peripheral nations, where resources flow from the latter to the former, exacerbating global inequalities (Wallerstein, 1974).

In 1955, famous economist Simon Kutznets showed that the traditional view of the relationship between economic growth and inequality was flawed and proposed an alternative perspective. He was among the first to discover the now known as the "inverted U" hypothesis (Kutznets, 1955). This hypothesis is explained as follows: inequality increases in the early stages of development due to a significant shift of the workers from low-income agricultural sectors to higher-income industrial sectors, leading to an unequal distribution of income. Inequality continues to rise, forming the upward slope of the "U", until the economy reaches later, more advanced stages of development. At that point, when policies and solutions are created an applied, alongside the increase in income for low-income workers in urban and rural areas, inequality begins to decline, reversing the earlier phases of economic development

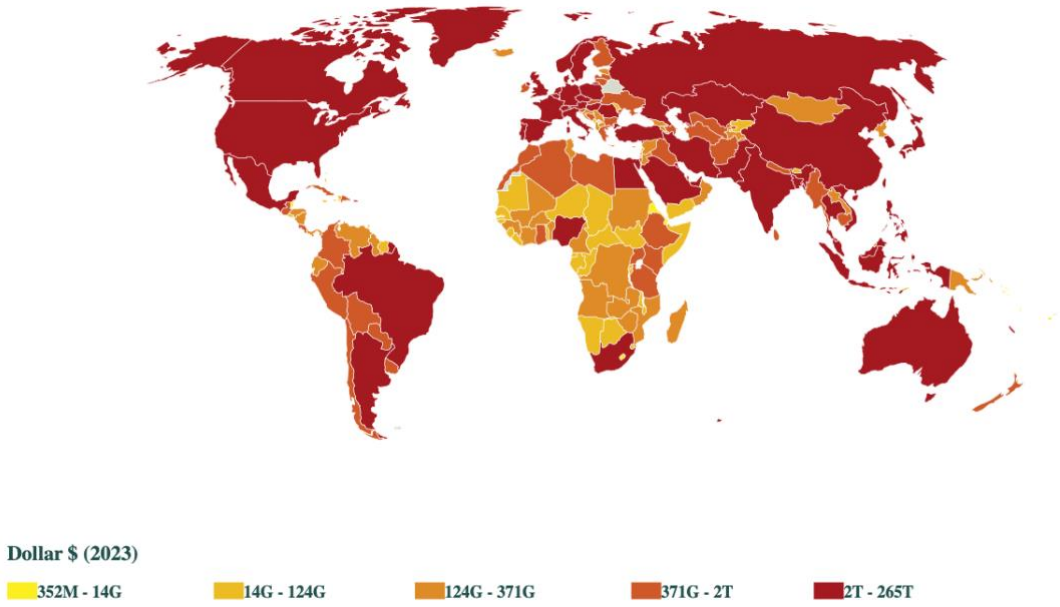
From this theory, it can be interfered that nations may experience a stage where inequality hit its maximum before redistribution becomes essential during economic development. Supporting Kutznets' theory, Nicholas Kaldor also noted that economic prosperity is challenging to achieve without a certain degree of inequality (Kaldor, 1957). Since then, numerous empirical studies have been conducted to evaluate this theory. However, they may primarily focus on income inequality within countries, regions, or globally. Research on wealth inequality, in my view, remains limited and lacks sufficient exploration.

Some effective solutions to reduce inequality was later proposed by a British economist - Tony Atkinson, who introduced a program to redistribute income within the European

Nations by changing tax, spend, employment, etc. (Atkinson, 2015). Although his project proved effective in reducing immediate income inequality, it did not have a positive impact on wealth inequality. The big issue with wealth inequality is, that wealth accumulation occurs over a long period of time and even across generations, potentially creating barriers that shield asset owners from economic instabilities. This may even allow them to grow disproportionately stronger, leading to social instability and exacerbating inequality, regardless of whether income disparities are narrowed (Piketty, 2014).

To create policies that help reduce the gap between the rich and poor, policymakers often focus on income redistribution through taxes and social welfare. However, as mentioned in the previous paragraphs, addressing wealth inequality is significantly much more challenging. The inequality is believed to be reduced through the use of property taxes, inheritance taxes, and policies that ensure fair opportunities for individuals to build wealth. Therefore, understanding and analyzing national wealth is crucial for identifying who owns wealth and how much they own. This understanding is highly essential for developing more equitable policies, especially in the current era of globalization, where inequality is increasing on a global scale (Alvaredo et al., 2018; Stiglitz, 2012).

Figure 1
Wealth distribution across the globe



Source: WID

Figure 1 displays a map illustrating the distribution of wealth among countries worldwide in 2023, measured in market value (in USD). Five colors, ranging from light yellow to dark red, represent the wealth levels of the nations. Light yellow indicates countries with the lowest wealth levels (below $14 billion), followed by darker yellow for countries with wealth below $124 billion. Next is orange, representing countries with wealth below $371 billion, and reddish orange for major developed nations with wealth below $2 trillion. Finally, dark red represents the wealthiest countries with wealth exceeding $2 trillion.

According to this map, Africa and some small island nations are the poorest nations. Some Asian countries, Eastern European nations, and parts of Latin America are more developed but still fall into the developing category. Moving up, orange and reddish areas are concentrated in the Middle East and South America. The dark red areas, representing the wealthiest countries, are concentrated in developed regions such as North America, Europe, and parts of Asia. This figure clearly illustrates global wealth disparity, with a stark contrast between undeveloped nations (countries in Africa) and nations, that dominate global wealth (the U.S, China, Germany).

This thesis aims to understand the relationship between globalization and wealth inequality and see how globalization affects wealth inequality. It seeks to make a meaningful contribution by filling an important gap in the literature. Rather than relying on the basic descriptions, it dives deeper in the issue by using detailed econometric analysis. By doing so, the research will advance understanding of the mechanisms through which globalization influences wealth distribution among nations, contributing to the field of international economics and development studies and providing the bigger picture of how globalization shapes wealth distribution. Looking at this relationship from an economic perspective helps us reach clearer, evidence-based conclusions, which are essential for creating solutions that truly make a difference. For social- and political angle, the study of wealth inequality is essential because it directly affects social stability and political unity. When wealth is unevenly distributed, it could lead to heightened social tensions, weaken trust in government institutions, and greater political polarization, making it an urgent issue in today's interconnected world. The findings in this research could possibly provide some critical insights for policymakers and international organizations on how globalization, when

uncontrolled, can widen economic gaps. Conversely, it could also reveal how globalization, when managed strategically, can be leveraged to reduce disparities and support more inclusive and sustainable economic growth.

The practical goal of this study lies in supporting policymakers in developing better regulations and policies, especially in the context of trade and financial regulation. By focusing on the impact of globalization on wealth inequality and exploring both its positive and negative effects, the study can help crafting practical strategies that not only boost economic growth but also work toward reducing inequality. For example, understanding the specific effects of trade and financial globalization-as highlighted by studies form the IMF (2017,2021) and scholars such as Milanović (2005) and Jaumotte and Osorio Buitron (2015)- can help guide decisions on regulating capital flows or negotiate trade agreements that benefit a wider segment of the population. The research emphasizes the need for globalization to create fairer wealth distribution rather than disproportionately benefiting the wealthy. In doing so, it aligns with Sustainable Development Goal 10 (SDG 10), which focuses on reducing inequality within and between countries. As the United Nations (2024) stresses, addressing inequality is key to building a fair society where everyone has equal opportunities to succeed.

The study, however, does have its limitations. One significant challenge stems from the limitations of the available data. The wealth inequality database has only been around since 1995, and it wasn't updated to include global coverage until 2015. This limited historical data and timeframe makes it a significant challenge for conducting long-term empirical studies. Additionally, the paper focuses on the Theil Index as a measure of wealth inequality. While this is currently the most reliable proxy for comparing inequality between countries, it may not capture all nuances of the issue. For globalization, the study uses Principal Component Analysis to analyze four key dimensions: trade openness, foreign direct investment (FDI), the number of trade agreements, and technological integration. Finally, because of the study's scope, it may not provide a fully comprehensive perspective on long-term trends. Furthermore, certain aspects serve as proxies for globalization rather than fully capturing its complexity, given the myriad variables associated with wealth. Nevertheless, it provides valuable insights into the relationship between trade, financial dynamics, and wealth inequality among nations. It also sets the stage for future research, encouraging deeper exploration of wealth inequality across multiple dimensions. Overall, this study contributes to the scholarly discourse on these topics and suggests avenues for further investigation.

The structure of the paper is as follows: Chapter 2 offers a comprehensive review of the theoretical and empirical frameworks addressing the relationship between globalization and inequality, presenting contrasting perspectives from neoclassical economists and Marxian theories. Chapter 3 details the methodology, justifying the selection of variables, describing the data collection process, and explaining the rationale behind the chosen econometric techniques for estimation. Chapter 4 presents the results and provides a thorough discussion of the findings, going from an overall result to the results of different kind of market. Finally, Chapter 5 concludes the study, summarizing key insights, highlighting the limitations, and offering policy recommendations.

Chapter 2 Reviewing of the literature

Economists and researchers worldwide have long acknowledged the intersection of globalization and inequality. While a large body of literature and numerous empirical investigations have been heavily focused on income inequality, offering a rich array of theories and findings, the examination of wealth inequality in the context of globalization remains comparatively miniscule. Wealth inequality, distinct from income inequality, encompasses disparities in asset ownership and long-term economic stability, making it a crucial factor in understanding global economic disparities. This chapter seeks to systematically summarize the existing literature and key empirical findings on the topic. By providing a comprehensive overview of the theoretical frameworks and empirical evidence, it also aims to shine light on the gaps that this thesis will address, particularly the complex and multifaceted connections between globalization and wealth inequality.

2.1 Theoretical Framework

Diverse viewpoints are presented in the scholarly literature examining the relationship between inequality and globalization. For the purposes of this study, globalization is defined as the process through which countries grow more interdependent and interconnected, marked by the transnational movement of people, capital, information, goods, and services (Bhagwati, 2004). Global economic dynamics are shaped by a variety of important factors, including trade liberalization, foreign direct investment (FDI), financial integration, and technology breakthroughs.

Unlikely to income disparity, wealth inequality describes the unequal distribution of resources and assets among people or groups within a community or between countries. In comparison with income, wealth, which includes financial assets, real estate, and inheritances, tends to be distributed more unevenly and more resilient to transitory shifts in the economy (Piketty, 2014).

Given conflicting views on theory, the connection between globalization and wealth inequality is a hotly debated issue. There are two main schools of thought that have a significant influence on the discussion of the subject. The first view, which is mainstream and direct, primarily focuses on income and aligns with neoclassical trade theory, including the Heckscher-Ohlin-Samuelson (HOS) model, positing a positive view on globalization as trade liberalization leads to an equalization of factor prices, in theory, should reduce income and wealth disparities between nations (Samuelson, 1948). Furthermore, the convergence theory contends that poorer nations will experience faster economic growth than wealthier ones, closing the inequality gap (Barro, 2000).

In contrast, another perspective emerges as balanced, given a different view, starting with the dependency theory, pioneered by Raúl Prebisch, and other heterodox economic theories influenced by Karl Marx's ideas, such as the world system theory by sociologist Immanuel Wallerstein. Rather than viewing global trade as a chain of value creation, these theories interpret free trade as a mechanism for transferring value between nations. Consequently, the relationship between globalization and inequality is viewed through a more pessimistic lens. Moreover, these theories encompass broader dimensions beyond purely monetary considerations, including social, political, environmental, and other multifaceted aspects.

2.1.1 Globalization and Inequality: Neoclassical school of thoughts

Neoclassical economists uphold the assumption that leaving markets unregulated enhances efficiency in resource allocation. The freer flow of products and services around the world is one of the main ways that the rise of globalization, which is made possible by lower trade barriers, is seen to increase economic efficiency. According to the Heckscher-Ohlin-Samuelson (HOS) model, which relies on Ricardo's theory of comparative advantage, countries need to focus on their most productive industries (Samuelson, 1948). All parties involved supposedly gain from this specialization's promotion of general economic progress. Critics counter that this expansion would exacerbate wealth gaps by favoring capital owners and skilled workers disproportionately (Mankiw, 2016).

Neoclassical economists respond to these worries by suggesting that although temporary disparity could result, long-term patterns show a decrease in inequality as manufacturing grows. This viewpoint is consistent with Simon Kuznets' hypothesis of an inverted U-shaped curve, which holds that during the early stages of development, wealth is concentrated among the privileged few, but that economic and social growth eventually gives rise to more fair wealth distribution. This historical pattern has been observed in many developing countries that participate in global markets, emphasizing the necessity of policy interventions in changing wealth and income distribution to be more equitable.

Moreover, neoclassical economists support the trickle-down effect—in alignment with Kuznets' theory—where wealth building finally helps lower classes by means of job creation and enhanced social welfare programs (Barro, 2000). They believe that some degree of disparity is required for economic development as without it progress is unlikely to continue (Galor, 2011). Globalization makes labor more mobile, which enables people to search for greater opportunities and perhaps improve their standard of living (Bhagwati, 2004). But this movement also widens the gap between countries, because talented workers usually head for richer nations.

The hypothesis of convergence is also invoked by neoclassical theory, which postulates to promote fair distribution (Stiglitz, 2012) that when developing economies catch up, global inequality would eventually decrease as poorer nations can grow more quickly than affluent ones (Barro, 1992). This viewpoint backs up the idea that, although a short-term worry, inequality can eventually go away with continued economic growth and legislative measures meant.

The complicated framework of neoclassical economics holds that globalization and market efficiency propel economic expansion, but with consequences for inequality. Through long-term economic and social mechanisms, the theoretical foundations show a trajectory where early discrepancies may give way to more fair outcomes. In order to maximize the benefits of globalization while reducing its negative impacts on the distribution of wealth worldwide, policy interventions are essential in determining this course towards a more equitable and just society (Acemoglu et al., 2006).

2.1.2 Globalization and Inequality: Marxist school of thoughts

The Marxist perspective viewed globalization as a force that further enhance the global wealth inequality, showing the contradiction within the concept of capitalism. While capitalist sees globalization fostering equitable trade, but under the Marxist view, it is a mechanism use for extracting surplus value from poorer nations. Immanuel Wallerstein (1974) had developed the concept to show the unequal exchange idea known as World-Systems Theory, suggesting a global economy is divided into a wealthy core and an impoverished periphery. With the core exploiting the periphery for things such as raw materials and cheap labor, pushing the boundary of global inequality on a systemic scale much further. This perspective

also views multinational corporations and affluent nations are much more well-off from global capital flows, while the actual manufacturing workers in developing countries are being underpaid and undergoing exploitative conditions (Harvey, 2005).

With the expansion of capitalist markets through the process of globalization, it furthers intensifies the exploitation characteristics of labor and resources, widening divider between the middle class and the working class. As capitalist prioritizes profit over everything else, they tend to strip the immobile workers of their privileges to minimize the cost. In other words, from a Marxists point of view, it can be seen as a global commodification of labor, where the true manufacturing workers are being alienated from the fruits of their labor, deepening wealth inequality. The main objective of capitalism, as they saw, is to maximize profit and minimizing cost, suppressing wages and maintaining poor working conditions.

Piketty (2014) injects some of his view that under globalization, capital accumulation allows the wealthy to amass disproportionate returns, which in turn concentrate more wealth and lessening social equity. While the Marxist critique does not disagree with the fact that globalization may offer economic opportunities, but fundamentally it creates and deepening the existing inequalities by reinforcing the capitalist class structures (Harvey, 2005). The critique highlights the need for a transformative political action to mediate the already existing systemic injustices within capitalism itself. Monopolies and oligopolies fasten this process, creating a division and worsening social divisions (Merton, 1968).

With the coming of financial products came the rise of global financialization, the exploitation does not stop at just tangible goods but also prioritize financial returns over the real needs of the economy and the rights of workers (Lapavitsas, 2013). This phenomenon perpetuates the "Matthew effect," where the rich keep on being richer and the poor keeps on being poorer (Merton, 1968). Without any intervention, Marxists argue that globalization will just keep on separating the rich and the poor further, solidifying the global wealth inequality and social classification.

Marxist-inspired thinkers often use dependency theory as the backbone of their arguments, positing that developing nations remain underdeveloped in order to serve the interests of the wealthy nations (Frank, 1967). The global structure within the economy is maintaining inequality on purpose by exploiting natural resources and cheap labor from developing regions, continuously enhancing dependency and impoverishment (Amin, 1976). With the global value chain, as richer countries outsourcing their production to peripheral regions with lower labor costs, the dependency theory is further solidified. This practice confines developing nations to only low-value-added segments of the global economy without a chance to move up the chain, hindering genuine development (Foster, 2007).

To sum up the Marxist critiques on globalization, they saw it as a system that exacerbates wealth inequality on a global scale by prioritizing profit over the well-being and the right of the workers, perpetuating global exploitation. Emphasizing the critical need for a significant intervention, as globalization will continue to reinforce and deepening the existing inequalities, concentrating wealth in the hands of a few whiles ignoring the majority. This analysis the need and important of a transformative political and economic strategies, addressing the systemic injustice inherent in the existing global capitalism and encourage genuine for a global development and equal society (Hobsbawn, 2011).

2.2 Empirical Studies

There are numerous studies have investigated the complex relationship between globalization and inequality, yet the findings are rather shown as inconsistent, using different variables and methodologies. The mix of results can be accounted for a variable of factors

such as geographic contexts, political environments, and varying analytical approaches. This section is attempting to categorizes the existing research into several main methodologies.

Firstly, a large proportion of the studies employ a descriptive analysis in order to examine the multifaceted interplay between globalization and wealth inequality. These analyses often hesitate form singling out specific variables, but rather taking into consideration multiple factors that have influence on the relationship. However, the majority of the results from these studies suggests a positive correlation between globalization and wealth inequality. This conclusion is backed by a wide scope of observation, with some studies focusing on specific, individual nations. For example, Keister and Moller's (2000) study with the United States as the subject from 1980 to 1990, suggest that even though it is an economic powerhouse but also shows signs of profound wealth inequality. Similarly, Wahiba's (2013) study on Tunisia from 1984 to 2011, a parallel rise in wealth inequality and globalization as the country is becoming a part of the global value chains.

On the other hand, other studies narrow their scope to specific aspects of variables. Notably, research frequently use trade openness as a key measurement for globalization and metrics like Gini coefficient for income inequality. Mahesh's (2016) study, utilizing data form four BRIC countries between the year 1991 and 2013, by utilizing the system GMM to reveal a positive relationship between trade openness and income inequality, which in turn supporting Marxist critiques on capitalism systematic flaw. However, Calderon and Chong's (2001) analysis of 102 countries from 1960 to 1995 shows support for neoclassical economic thought, with the increase of trade openness comes the reduction in income inequality. Moreover, Milanovic's (2002) broad-ranging study from 1985 to 2002, shows mixed outcomes regarding the relationship between globalization and inequality depending on the country of interest. These dissimilar findings highlight the complexity of the global economic interactions and the nuanced impacts on inequality.

Despite these number of different approaches, a notable gap can be drawn from the existing literature, concerning wealth inequality as a whole and between nations, in specific. Many studies predominantly focus on income inequality within a single nation rather than shifting their focus to wealth inequality, not to mention wealth inequality between developed and developing countries. This oversight limits the comprehensive understanding of globalization's role in facilitating capitalist exploitation of developing nations in the least. Economists must expand their focus beyond the national borders to fully capture the global wealth disparities, sneaking a peek into the systemic issues inherent in globalization.

It can be noticed that evident in theoretical and descriptive papers shows support Marxist school of thought, whereas papers that utilizing data tend to favor the neoclassical school of thought. This contrast has sparked a controversial debate that shows no signs of resolution. While most studies focus heavily on income inequality over wealth inequality, or on a international scale, it leaves a void in proving whether globalization is a tool that capitalist use to exploit poorer and weaker nations. It is crucial for economists not only to focus on disparities within nations but also between them. Numerous researchers have sought to define and establish the relationship between globalization and wealth inequality. As many have noted, income represents a flow whereas wealth represents a stock; over time, returns on capital can surpass income, leading to societal and national class disparities. In light of these dynamics, there is a growing imperative to shift academic focus from income to wealth, a sentiment echoed by the Nobel Committee in Economic Sciences (2024). However, disparities persist due to various factors, preventing poorer countries from closing the gap with wealthier nations, including differential returns on capital.

Table 1

Summary of Empirical Research Papers

Study	Effects	Scope of research	Globalization indicator	Inequality indicator	Findings	Outlets
Aitken, Harrison, and Lipsey (1996)	(+)	Developing countries (1980s)	FDI	Income distribution	FDI led to higher wages for workers employed in these FO firms compared to domestically owned firms. However, the increase was not uniformly distributed resulting in high wage inequality.	Journal of International Economics
Harrison (1996)	(m)	Developing countries (1960-1987)	Trade openness	Income distribution	Trade openness associated with economic growth but the impact on income distribution is mixed and varies significantly across different countries. It is not uniform and depend on many factors.	Journal of Development Economics
Feenstra & Hanson (1997)	(+)	Mexico (1979-1988)	FDI	Income inequality	FDI contributed to increased demand for skilled labour, led to higher wages for more educated and skilled workers. Wage gap between skilled and unskilled widened.	Journal of International Economics
Barro (2000)	(-)	Cross-country analysis (1960-1990)	Trade openness	Gini coefficient	Trade openness reduce inequality in poorer countries. Wealthier countries experienced a less pronounced or even neutral impact. Suggesting it can have a beneficial effect on reducing inequality as it provides economic growth and new opportunities.	Journal of Economic Growth

Milanović (2005)	(+)	Global (1988-1993)	Global income distribution	Gini coefficient	Globalization contributed to rising global income inequality in middle-income countries, particularly in Asia. Many poorer nations continued to benefit disproportionately from globalization.	Princeton: Princeton University Press
Goldberg and Pavcnik (2007)	(m)	Developing countires (1980s-1990s)	Trade liberalization	Income inequality	Trade liberalization had different effects across countries. In some case help improve the standard of living, but simultaneously widening the wage gap between skilled and unskilled workers.	Journal of Economic Literature
Jaumotte, Lall, and Papageorgiou (2013)	(m)	Advanced & developing economies (1981-2003)	Trade & financial globalization	Gini coefficient	Trade reduced inequality; financial increased inequality.	IMF Economic Review
Bergh and Nilsson (2014)	(-)	Developing countries (1970-2005)	Economic globalization index	Gini coefficient	Economic globalization reduced income inequality in developing countries. However, the benefits are not automatic and depend on the specific economic and social contexts of each country.	World Development
Jaumotte and Osorio Buitron (2015)	(m)	Advanced economies (1980-2010)	Trade & financial globalization	Gini coefficient	Trade integration can have equalizing effects, financial globalization tended to exacerbate income inequality, benefitting the wealthy, widening the income gap.	IMF Staff Discussion Note
Milanović (2016)	(m)	Global (1988-2008)	Global income distribution	Gini coefficient	Globalizaiton benefited middle class in emerging economies but increased inequality within countries.	Cambridge: Harvard University Press

Dollar (2016)	(-)	Developing countries (1980-2010)	Trade & investment openness	Gini coefficient	Globalization reduced poverty and inequality in developing countries.	World Bank Research Observer
Choi (2016)	(-)	Developing countries (1990-2013)	Trade openness	Gini coefficient	Trade openness reduced income inequality in developing countries. Under the right economic conditions, trade openness can contribute to more equitable economic outcomes.	Journal of International Trade & Economic Development
IMF (2017)	(m)	Global (1980-2014)	Trade & financial globalization	Gini coefficient	Trade reduced inequality, however, financial increased inequality through mechanisms such as capital market liberalization and cross-border financial flows, tended to benefit wealthier individuals.	Fiscal Monitor: Tackling Inequality
Dorn, Schmieder, and Spletzer (2018)	(+)	US (1990-2010)	Import competition	Income inequality	Import competition contributed to wage polarization and increase inequality.	American Economic Journal: Applied Economics
Helpman (2018)	(m)	Global (1990-2010)	Trade & offshoring	Wage inequality	Trade & offshoring had complex effects on wage inequality, differ by country and sector.	Cambridge: Harvard University Press
Bergh and Nilsson (2018)	(-)	Developing countries (1970-2010)	Economic globalization index	Gini coefficient	Economic globalization associated with reduced income inequality.	Journal of Globalization and Development
Chancel and Piketty (2019)	(+)	Global (1980-2016)	Global income distribution	Gini coefficient	Globalization contributed to rising income inequality within countries.	Review of Income and Wealth
Milanović (2019)	(m)	Global (1988-2013)	Global income distribution	Gini coefficient	Globalization increase income growth for middle classes in emerging markets	Cambridge: Harvard University Press

					but also increased inequality within countries.	
Autor, Dorn, and Hanson (2020)	(+)	US (1990-2010)	Import competition from China	Wage inequality	Import competition led to job losses and increase wage inequality in affected regions.	Journal of Economic Perspectives
World Bank (2020)	(m)	Global (1990-2015)	Trade & financial globalization	Gini coefficient	Trade globalization reduced inequality; financial globalization increased inequality.	Washington, D.C.: World Bank
IMF (2021)	(m)	Global (1980-2019)	Trade & financial globalization	Gini coefficient	Globalization tends to disproportionately benefit wealthier individuals and capital owners, as it often leads to greater returns on financial investments and access to international markets for the affluent.	IMF Policy Paper

Note: (+): positive correlation; (-): negative correlation; (m): mix results.

Source: Author's compile

These studies span from the 1960s to 2021, highlighting a mixed and often contradictory effects of globalization, as observed in various regions and economic contexts. This duality in findings reinforces the theoretical perspectives of both neoclassical economists, who emphasize the potential benefits of globalization, and Marxian critics, who warn of its capacity to exacerbate structural inequalities.

From the neoclassical perspective, several studies support the notions that globalization can promote economic growth and reduce inequality, especially in developing countries. For instant, Barro (2000) study suggest that trade openness is negatively correlated to inequality in poorer nations, showing support and alignment with neoclassical view that free trade enhance and facilitates resource allocation efficiently, lifting disadvantaged population. Or the studies conducted by Dollar (2016) and Choi (2016) demonstrate that trade and investment openness help to lower poverty and closing the inequality gap in developing regions, while reflecting trickle-down effect belief, where global integration can foster prosperity that will eventually benefits all layers of the society. Bergh and Nilsson (2014, 2018) show similar findings, as a developing economy become more globally integrated, income inequality is being affected negatively, further bolstering the argument of market liberalization can help reduce inequality over time.

On the opposite side, there are studies show support for Marxian critique on globalization. These studies, however, focusing on mechanisms such as foreign direct investment (FDI) and import competition, which deepen existing inequalities. Studies such as Aitken, Harrison, and Lipsey (1996) and Feenstra and Hanson (1997) observe that FDI increases wage inequality by boosting demand for skilled labor, leading to a greater income separation. They aligned with Marxian argument, with globalization, comes the concentration of benefits for the capital owners and skilled workers while taking advantage of the lower skilled laborers and propel it further. Moreover, the studies focusing on financial globalization, such as those by Jaumotte, Lall, and Papageorgiou (2013) and the IMF (2017, 2021), reveal that while trade globalization can reduce inequality, financial globalization tends to increase it, as wealth becomes concentrated among the global financial elite. This supports the Marxian view that globalization primarily serves the interests of capital, exacerbating wealth concentration and undermining social equity.

Both schools of thought struggle to provide a definitive explanation for the complex and varied impacts of globalization on inequality, making the overall narrative indecisive. As neoclassical generally see globalization as a force for reducing inequality between nations, the same cannot be said for its impact on inequality within nations, which is context dependent. While Marxist schools of thought mostly consist of theoretical and descriptive analysis, which does not show a striking counterbalance for neoclassical massive output. The indecisiveness is the gap that this study intended to fill in.

Critically reflecting on these insights, this study aims to bridge the gap between these two theoretical frameworks by empirically testing their claims. Despite the extensive academic focus on the relationship between globalization an economic inequality, there is a notable lack of empirical research specially examine wealth inequality using rigorous econometrics methodologies. Most studies in the existing literature have concentrated heavily on income inequality, employing various econometric techniques to analyse how globalization impacts income distribution across and within countries. However, fundamentally, wealth inequality is much more different and often more persistent, as can be seen from the 2008 financial crisis, it can be accumulated and compound over generations, with a diversified portfolio, less risks are being taken, amplifying a long term affect where income inequality cannot capture fully (Piketty, 2014).

When addressing wealth inequality using quantitative methods proved to be challenging and problematic given the significant role that wealth plays, determining economic stability,

access to opportunities, and social mobility. The distinction between income, a flow of resources earned over a specific period of time, and wealth, a stock of accumulated assets, such as real estates, financial investments, and inherited wealth is very important. Wealth can provide a soft landing against many macro-economic shocks while providing many opportunities for the holder in the future, such as education or business ventures. And with the concentrate wealth, it can further perpetuate the economic boost for advantage for generations to come, which contributing further to the widening of the social hierarchies (Zucman, 2015).

This study seeks to fill in the gap left by previous studies by employing advanced econometrics techniques, especially the System Generalized Method of Moments (GMM). By using a robust econometric framework, the author aims to examine the relationship of globalization and wealth inequality between developed and developing countries, with a more nuanced method than descriptive analysis, while accounting for endogeneity and unobserved heterogeneity. Once again, by focusing on wealth rather than income, this research aims to fully expose the mechanisms of globalization can be used as a tool to enhance or mitigate wealth concentration between nations.

Chapter 3 Methodology

3.1 Data Collection

As noted previously, the interest in wealth accumulation emerged in the 17th century among economists such as Adam Smith, David Ricardo, and Karl Marx. However, during this period, the focus remained largely theoretical. It was not until the 1950s that scholars like Richard Stone introduced the concept of a national account. Subsequently, in the late 1990s, the UN's System of National Accounts (SNA) mandated the adoption of the SNA 1993 by most developed nations to publish annual national balance sheet data. This standard has since been consistently updated, becoming a norm by the early 2000s, with ongoing updates extended to emerging markets (unstats.un.org, n.d.). The component variables for globalization and the control variables are predominantly available form the World Bank and the International Monetary Fund, covering data from 1970 to 2023 for 267 countries and regions globally. However, over time, certain financial and geopolitical events have led to the formation of new countries and the unavailability of comprehensive data from some regions. Consequently, the dataset used for analysis was constrained to 167 countries from 2000 to 2022, representing the most recent and complete set of data available for a robust and consistent examination. This narrower scope enabled a thorough panel data analysis, capturing the dynamic interplay between globalization and wealth inequality (see Appendix 1).

Table 2

Summary of Variables

Variable	Dimension	Indicator	Unit	Source
Dependent	Wealth inequality	Theil T Index (National Wealth)	USD	WID
Independent	Globalization	Trade openness	% of GDP	WB
		Foreign Direct Investment	% of GDP	WB
		Trade Agreements	Number of agreements	WTO
		Internet Users	% of population	WB
		Personal Remittances	% of GDP	WB
Control	Governance	Regulation Quality	%	WB
	Demographics	Age Dependency ratio	% of population	WB
	Urbanization	Urbanization	%	WB

3.1.1 Dependent Variable

Wealth inequality often reveals deeper and more persistent disparities than income inequality. As stated, income is a flow of in a period time, it means that income can be fluctuate significantly in a certain amount of time based many factors, such as economic cycles, employment rate, or government policies. Wealth on the other hand, tends to be much more resilient, stable and concentrated, which in turn provide a safety net and being a key for

opportunities to those who possess it, not just in monetary term but also in term of education, healthcare, and more importantly implications for political influence and societal stability. And with the unequal distribution of wealth, means the unequal distribution of all the other factors, while the individual that sacrificed their materials and labors are unable to inherent their products, having a far-reaching consequence for economic growth and social cohesion (Saez and Zucman, 2016).

Thomas Piketty argues that wealth accumulation has significant implications for the understanding of economic inequality, his framework suggests that when the return on capital outgrew the rate of economic growth, means that the country in question is having it return on investment rather than production, while not everyone is having the same wealth at the baseline, which in turn widening the wealth inequality gap (Piketty, 2014). This study attempts to explore how globalization will interact with this dynamic, potentially accelerating wealth concentration in well off countries that is highly integrated within the global value chain while robbing and confining less developed nations. With globalization facilitates the leeway for capital and creates new opportunities for wealth creation, already existing inequality might as well be reinforced, as ones with wealth already accumulated are positioned with a wide portfolio, lessen the risk and maximized the benefits of global economic trends. That is the reason the dependent variable is using the author own calculated Theil index, with the use of national wealth, as it is a fundamental indicators used for studying wealth inequality.

The source for collecting national wealth indicator is the World Inequality Database (WID), as they monitor it with the goal of providing a comprehensive understanding and a database for studying economic inequality. Scholars like Thomas Piketty and Gabriel Zucman, has emphasized that tracking wealth concentration is essential for understanding the mechanism that is systematically creating inequality so that adequate policies can be implemented, as wealth have a long term and generational effect on a global scale, it cannot simply overlook. (Piketty, 2014; Zucman, 2015).

3.1.2 Independent Variables

For every econometric analysis, there must be independent variables in order to measure their impact on the dependent variable. As this study is attempting to understanding the relationship of globalization and wealth inequality between nations, the independent variables are being chosen in order to represent globalization, consisting of trade openness, foreign direct investment (FDI), internet users ratio, the number of trade agreements, and personal remittances. These indicators together collectively provide a comprehensive characteristic of globalization by fully capturing its economic, technological, and social dimensions. As these aspects are being selected, there are literatures supporting they are rooted deeply with globalization, where they show multiple natural aspects.

Beginning with trade as a percentage of GDP, as mentioned, it is a widely applied indicator of economic openness and a core dimension of globalization. It shows how a nation is engaged and deeply integrated within the international markets through by measuring it export and import. It is a fundamental component, showing the country easiness in accessing to larger markets and pushing its own economic growth through their comparative advantage (Rodrik, 1999). As a percentage of GDP, this variable can capture to which extent does an economy participate in the global value chain, with a high percentage means that they are deeply integrated. The dataset was collected from the World Bank public database.

Secondly, foreign direct investment (FDI) is the representation of cross-border investment flows, a long-term commitment and interest of a foreign entities in a domestic enterprises. Apart from trade liberalization, FDI is also a crucial aspect of globalization, by

showing commitment, FDI does not only bring capital but also new technologies, managerial skills, and access to international markets. Apart from that, it also shows the economic influence of international entities in those domestic nations, such as creating jobs for the local and productivity gains (Borensztein et al., 1998). There are studies shows the relationship of FDI associating with inequality within the host country, depending on how it is distributed, and which country is the host. This dataset was collected from the World Bank public database.

Thirdly, the ratio of internet users on population serves as a proxy for technological globalization, where internet access enables individual and business engaging in the global digital economy, facilitates a worldwide and instant connectiveness not only within border but also outside of it (Chinn and Fairlie, 2007). Information is a crucial resource and with the help of the internet, it helps closing the gaps in some cases, but also create challenges in other. The ratio serves as a proxy for the technological aspect of globalization, which does have a transformative effect on economies and societies as a whole. This dataset was collected from the World Bank public database.

Fourthly, the number of trade agreements that a country is participating in shows their commitment to integrate into the global value chain, as they lower trade barriers while also promoting economic integration. Trade agreements, including not just free trade agreements (FTAs) but also regional trade agreements (RTAs), by lowering their tariffs, and other trade restriction, they can help push the flow of goods, services, and investment across borders (Bairer and Bergstrand, 2007). For the institutional aspect of globalization, the number of trade agreements is being utilized, indicating to which extent does a country's economy are willing to participate in the vast network of flows. This dataset was collected from the World Trade Organization public database.

Finally, personal remittances is an important indicator of being the social aspect of globalization, as it represent financial transfer from worker in an international environment to their family back home, directly supporting their households and the local economies (Adams and Page, 2005). These payments provide another if not the only source of income for families in developing countries, reducing not only poverty but also stabilize the economy. However, global inequality can also be reflected through this indicator, as these flow from wealthier countries contribute to the uneven economic development. This dataset was collected form the World Bank public database.

3.1.3 Control Variables

The thesis includes various control variables to account for factors related to governance, demographics, and urbanization that impact wealth inequality. Specifically, it considers regulation quality, the age dependency ratio, and urbanization. These variables are crucial as they not only reflect the effects of the primary variable under investigation but also help moderate the scale and direction of wealth inequality, contributing to a more thorough and reliable analysis.

Firstly, regulation quality reflects a government's capacity to design and enforce effective policies and regulations that support economic growth and stability. A strong regulatory framework can promote transparency, while minimize corruption, and enabling efficient market operations, which can play a significant role in reducing wealth inequality. On the other hand, poor regulatory systems often seem to intensify inequality by enabling wealth concentration among elites through monopolistic practices, rent-seeking, and inconsistent law enforcement (Kaufmann et al., 2010). The dataset was collected from the World Bank public database.

Secondly, the age dependency ratio shows the number of people who are not working (those under 15 and over 64) compared to those who are working (ages 15 to 64). This measure is important because it helps to provide a general understanding of the economic pressure on the working population. A high age dependency ratio can increase wealth inequality since fewer people are earning while more rely on them for support (Bloom and Williamson, 1998). In countries with older populations or many young dependents, resources may not be shared fairly, and economic growth can slow down, making inequality much worse. This dataset was collected from the World Bank public database.

Thirdly is urbanization, which refers to the growing proportion of people living in cities, it plays an important role in shaping wealth inequality. While cities often offer more economic opportunities, better infrastructure, and greater access to education and healthcare, which can support wealth creation. However, when urbanization happens too quickly or unevenly, it can worsen wealth gaps. Economic growth may be concentrated in cities, leaving rural areas behind (Satterthwaite, 2010). Even within urban areas, wealth is often unevenly spread, with large differences between wealthy neighborhoods and informal settlements. This dataset was collected from the World Bank public database.

3.2 Econometric Estimation

3.2.1 The indices

To gain a deeper understanding of the relationship between globalization and wealth inequality across nations, researchers rely on the use of indices, which aggregate multiple dimensions of globalization into a single, comprehensive measure. The methodology allows for a more nuanced and multifaceted analysis of how the various interconnected aspects of globalization collectively influence patterns of wealth distribution on a global scale. By employing these indices, it becomes possible to account for a wide range of economic, social, and technological factors that are inherently tied to globalization, including but not limited to trade openness, the inflow and outflow of foreign direct investment (FDI), the ongoing expanding and implementation of trade agreements, the increasing levels of internet penetration across regions, and the flows of remittances between nations. These elements, when considered together, provide a framework for examining the complex and dynamic interactions between globalization and the unequal distribution of wealth, which may otherwise be overlooked if analysed separately or in isolation, that is why Theil index is being use as dependent variable and Globalization index as independent variable.

3.2.1.1 Theil Index

The main goal of this thesis is to examine how globalization affects wealth inequality, with a focus on the disparities that exist between nations. By using the Theil Index, a well-established measure of economic inequality within the family of generalized entropy indices, is the optimal indicator to use. This index is particularly suitable for analyzing wealth distribution due to its sensitivity to differences across the entire range of wealth, from the richest to the poorest. Unlike other measures of inequality, the Theil Index provides a more detailed perspective on how wealth is either concentrated or spread out among various segments of a population or between countries (Theil, 1967).

Additionally, the Theil Index is highly valuable for making international comparisons due to its unique ability to break down inequality into within-group and between-group components. This feature makes it possible to examine inequality not just within individual countries but also between nations, providing insights into how globalization might affect wealth distribution differently on a global scale (Conceição and Ferreira, 2000). As mentioned

before, by using national wealth as the foundation for its calculations, the index focuses on structural and long-term aspects of inequality, rather than temporary income changes making the Theil Index, with its adaptable and detailed features, an academically sound tool for exploring the complex connection between globalization and wealth inequality across countries. The Theil Index is available in two forms: Theil T (1) and Theil L (2). While both types use principles from information theory to analyze disparities in income or wealth distribution, though each captures inequality in a slightly different way.:

$$T = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{y_i}{\mu}\right)\ln\left(\frac{y_i}{\mu}\right) \qquad (1)$$

where *T* is the Theil Index, starting from 0 showing perfect equality, all the way to infinity, with the higher the number the more inequality it gets. *N* is the total number of observations, meaning in this context is the number of countries within the sample. γ_i represent the wealth indicators, or national wealth of each nation, and μ as the mean of γ, or in this case is the wealth per capita of each country. With type (1) as an equation with a more sensitivity to disparities at the top end of the distribution. It gives greater weight to higher variables, making it particularly useful when analyzing how wealth or income concentration among the wealthy affects overall inequality.

While with Theil L (2), it is more sensitive to disparities at the bottom end of the distribution. It places greater emphasis on low incomes, making it much more useful when the study is aiming for studying how poverty and low earnings contribute to overall inequality.

$$T = \frac{1}{N}\sum_{i=1}^{N}\ln\left(\frac{y_i}{\mu}\right) \qquad (2)$$

To specific the model, the main goal of this study is aiming to understand how globalization is making it impact on the wealth distribution among nations around the globe, making Theil T (1) a more suitable choice to use as a proxy for wealth inequality rather than Theil L (2). Calculated with y as the national wealth of the observed nations, μ as the average national wealth of the sample within a single time period, and N as the number of countries within the sample, where the calculation is being performed the author.

3.2.1.2 Globalization Index

To analyse the relationship between globalization and wealth inequality between nations, the author utilizes a globalization index using the Principal Component Analysis (PCA). The reason as for why employing PCA lies in the complex, multidimensional nature of globalization, consisting of many aspects and dimensions such as: economic, technological, and social aspects that are often highly correlated. By combining variables, PCA synthesizes these dimensions into a single and comprehensive index, making this approach effectively reduces the complexity of the data while retaining the most critical information, consisting of four steps: standardize the data, construct the covariance matrix, find eigenvalues and eigenvectors, and finally compute the principal components.

The PCA is particularly suited for this study because it transforms correlated variables into a set of uncorrelated principal components, thereby addressing issues of multicollinearity that can compromise the reliability of econometric analysis. As stated by Jolliffe (2002), PCA is regarded as a powerful method for dimensionality reduction while still preserving essential features of the data with minimal information loss. This characteristic is crucial for accurately capturing the multifaced nature of globalization. Additionally, Filmer and Pritchett (2001) had already showcased the effectiveness of PCA when constructing indices from

socioeconomic variables, emphasizing its utility in measuring complex constructs like globalization. Similarly, PCA was applied by Dreher (2006) to develop a globalization index, showcasing its capability to integrate diverse dimensions into a statistically sound and comprehensive measure.

3.2.2 Model Design

The empirical analysis was conducted using a panel data regression with 167 countries in the dataset, spanning from 2000 to 2022, while employing econometric research techniques like the GMM. These techniques are considered, from past studies and literatures, the most effective for examining and understanding the relationship between economic factors, as they integrate not just statistical but also mathematical theories to transform abstract concepts into quantifiable metrics where the results is simple for interpretation (John, 2021).

As stated multiple time, the primary objective of this thesis is to investigate the impact of globalization on wealth inequality between nations, the study begins by employing a linear regression model, with the Theil index of national wealth as the dependent variable. The Theil index, as mentioned, is a widely accepted measure of inequality, capturing disparities in wealth distribution both within and between countries. For robustness, the Theil index is calculated from national wealth data from WID, and analysed across two types of market, identified by the IMF, emerging/developing markets and advanced markets, to observe variations in inequality dynamics. Theil T were chosen to show the disparities in wealth.

$$T_{it} = \alpha + \beta_1 Global\ Index + \gamma X_{it} + \delta_t + \pi_i + \varepsilon_{it}$$

In this context, T denotes the Theil T, which serves as an indicator of wealth inequality between nations for country i at time t. An interaction term Globalization Index is incorporated to evaluate the hypothesis that "globalization is correlated with wealth inequality". Almas Heshmati (2006) supports the use of PCA for the independent variable in the model, which is used to aggregate the correlated variables into a single index, as it effectively captures the multifaceted nature of globalization, reducing dimensionality while preserving the most significant components of the data. The primary coefficients of interest, β_1 and β_2, capture the average effects of trade globalization and financial globalization on the wealth-to-income ratio. If these coefficients are statistically significant, they indicate the extent to which globalization influences wealth inequality. A significant result would suggest that globalization contributes to the widening of wealth inequality.

To mitigate potential omitted variable bias, vectors of time-varying controls at the country level are incorporated, including regulatory quality, age dependency ratio, and urbanization. Furthermore, year-fixed effects (δ_t) are also included to account for any common shocks impacting all countries such as the financial crisis in 2008, while country-level fixed effects (π_i) are employed to control for potential time-invariant, country-specific unobserved factors such as traditional practices or geography.

3.2.3 Pooled OLS and FE Estimation

The study employs a series of econometric models in order to investigate the relationship between globalization and wealth inequality, which begins with Pooled Ordinary Least Squares (OLS) testing for the initially proposed model, then Fixed Effects (FE), and Random Effects (RE). The process involves carefully selecting and testing the appropriate model while cross checking with previous studies and literatures, to addressing potential econometric issues to ensure reliable and valid inferences.

The analysis begins with estimating the model using Pooled OLS, which assumes that the data can be combined without considering for unobserved heterogeneity across

countries. However, as Pooled OLS may lead to a biased estimates if country-specific characteristics that affect wealth inequality are not being accounted for. In order to address this, both Fixed Effects (FE) and Random (RE) models are being used. The FE model controls for unobserved heterogeneity by differencing out time-invariant country-specific factors, making it suitable for data where these characteristics are corelated with the independent variables. The RE model, on the other hand, assumes that unobserved country-specific effects are uncorrelated with the independent variables, making it more efficient if this assumption holds (Wooldridge, 2010).

After running the initial regressions, a series of post-estimation test are performed. Variance Inflation Factors (VIF) are calculated to check for multicollinearity among the independent variables, and the results show acceptable VIF values (all<5), indicating that multicollinearity is not a concern. However, further diagnostic tests reveal the presence of heteroskedasticity, by performing Breusch-Pagan test, and autocorrelation through the Wooldridge test for autocorrelation in panel data. These violations of classical regression assumptions necessitate adjustments to the model. To address heteroskedasticity and autocorrelation, robust standard errors are applied. Using robust standard errors help correct for these issues, ensuring that the estimated coefficients remain unbiased, and the inference is valid (White, 1980).

Despite the advantages of the FE model in controlling for unobserved heterogeneity, it is ultimately not chosen as the final model. To further refine the model, an even more robust approach, such as System Generalized Method of Moments (GMM), is considered to address potential endogeneity concerns. Endogeneity arises when there a two-way causal relationship or omitted variable bias. In the context of globalization, while trade openness appears to be well-captured over the study period (2000 to 2022) which contain 2008 financial crises and the COVID19 pandemic, free capital flows might pose an endogeneity issue. Specially, capital flows can influence wealth inequality, but at the same time, existing levels of inequality can affect the attractiveness of a country for foreign investment, creating a feedback loop (Rodrik, 1998). Therefore, this study employs the system GMM to take a step further in measuring globalization impact on wealth inequality between nations.

3.2.4 System Generalized Method of Moments Estimation

In examining the relationship of globalization and wealth inequality between nations, one of the major econometric challenges is dealing with potential endogeneity. Endogeneity can arise due to reverse causality (where inequality influences globalization measures) or omitted variable bias. This study uses the System Generalized Method of Moments (System GMM) in its two-step form, which is a method that is widely recognized for handling dynamic data models with any potential endogeneity, particularly in the context of globalization and economic development research.

System GMM is an important method when there is a need to address endogeneity, which is a common concern in globalization studies. Variables like trade openness and FDI can be both the causes and may be the consequences of wealth inequality. For instance, high inequality can attract or deter FDI, depending on factors like labor costs and market stability (Rodrik, 1998). By using the past values of these variables as instruments, System GMM can help to mitigate for this simultaneity bias, ensuring a more reliable estimate. While the mentioned persistence of wealth inequality requires a dynamic modeling approach, which is effectively captured through the addition of the lagged dependent variable. Normal static models such as Pooled OLS or FE or RE are unable to sufficiently capture these dynamics, leading to an unwanted biased result. System GMM accounts for the path dependency of inequality, acknowledging that the past wealth inequality can have an effect on the current wealth inequality and also in the future (Arellano and Bover, 1995). Instead of one step, the

robust two-step estimation method can adjusts for both heteroskedasticity and serial correlation in the error terms. Given that globalization processes and wealth inequality data often exhibit these characteristics, the robust estimation approach is essential for obtaining valid inferences (Windmeijer, 2005).

Given the problem with potential endogeneity, the study employs the two-step GMM to estimate the relationship of globalization on wealth inequality between countries, the model is specified as follows:

$$T_{it} = \alpha + \beta_1 National\ Wealth_{i,t-2} + \beta_2 Global\ Index + \beta_4 X_{it} + \tau_t + \varepsilon_{it}$$

where $National\ Wealth_{i,t-2}$ is the national wealth from two years prior to the current observation. Despite the effectiveness of GMM estimators in addressing endogeneity, challenges remain, particularly in finite samples. One of the primary concerns is the potential for instrument proliferation, as the number of instruments can increase rapidly with the time dimension of the panel, often in a quadratic fashion (Baltagi, 2008: 143). Although there is limited consensus in the literature about how many instruments constitute 'too many' (Stock and Watson, 2011: 451), it is generally acknowledged that an excessive number of instruments can weaken the Hansen test of overidentifying restrictions and lead to biased parameter estimates. Studies have shown that reducing the instrument count can mitage such biases and improve the reliability of the two-step GMM estimator (Arellano and Bond, 1991; Hansen, 1982). Consequently, this paper adopts a conservative approach by restricting the lag range used for instrument generation and employing a collapsed instrument matrix to maintain model validity and efficiency (Stock and Watson, 2011: 462).

Chapter 4 Results and Discussion

4.1 Descriptive Statistics

By excluding missing data during the collection process, the analysis was conducted using 3,841 observations for wealth inequality and 3,326 observations for the globalization index. For further examination, the data that was categorized into two markets following the IMF classification: emerging/developing markets and advanced markets, comprising 3,013 and 828 observations, respectively.

Table 3

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
TheilT	3,841	-2.411525	0.0816046	-2.607349	-2.29775
gl_index	3,326	-3.57E-10	1.226993	-5.554744	12.94499
RQ	3,836	-0.0403252	0.9961231	-2.386736	2.221292
AD	3,841	61.0195	18.76288	16.17202	111.4765
Urb	3,841	58.5264	22.55326	8.246	100

Source: Author's calculation

The table provides descriptive statistics for the variables used in the study, summarizing key characteristics. The Theil T Index (TheilT), representing wealth inequality, has 3,841 observations with a mean of -2.4155 and a standard deviation of 0.0816, indicating that the values are relatively clustered around the mean, due to a logarithmic transformation off national wealth. The Globalization Index (gl_index), constructed using Principal Component Analysis, has 3,326 observations and the main close to zero (-3.57E-10), reflecting a centered PCA. It shows significant variability with a standard deviation of 1.227 and a wide range from -5.5547 to 12.9945, indicating diverse globalization levels across countries and years. Regulation Quality (RQ), with 3,836 observations, has a mean of -0.0403 and a standard deviation of 0.9961, suggesting a balanced distribution around the mean but with notable differences in governance effectiveness, ranging from -2.3867 to 2.2213. The Age Dependency Ratio (AD) has 3,841 observations, averaging 61.02 with a standard deviation of 18.76, indicating demographic variability across countries, with ratios spanning from 16.172 to 111.477. Finally, Urbanization (Urb), which measures the percentage of the population that is living in urban instead of rural areas, has a total of 3,841 observations, with a mean of 58.53, and a standard deviation of 22.55, showing a wide range from 8.246 to 100, highlighting some countries only has around 8% of urbanization while other are fully 100% urbanized. These statistics illustrate the diversity and variability of the data used to explore the impact of globalization and wealth inequality between nations.

Table 4

Wealth Distribution

Percentile Ratios	**p90/p10**	**p90/p50**	**p10/p50**	**p75/p25**	
All obs	273.899	22.185	0.081	19.733	
GE & Gini	**GE(-1)**	**GE(0)**	**GE(1)**	**GE(2)**	**Gini**
All obs	58.75202	2.46285	2.04984	9.39832	0.87695
Atkinson Indices	**A(0.5)**	**A(1)**	**A(2)**		
All obs	0.68961	0.91481	0.99156		
Within-Group GE	**GE(-1)**	**GE(0)**	**GE(1)**	**GE(2)**	
All obs	58.56973	2.27071	1.83152	9.12936	
Between-Group GE	**GE(-1)**	**GE(0)**	**GE(1)**	**GE(2)**	

All obs	0.18229	0.19214	0.21832	0.26897	
Within-Group A	**A(0.5)**	**A(1)**	**A(2)**		
All obs	0.59781	0.83244	0.96206		
Between-Group A	**A(0.5)**	**A(1)**	**A(2)**		
All obs	0.22823	0.49158	0.77761		
Subgroup Summary					
Markets	**Population Share**	**Mean**	**Relative Mean**	**Income Share**	**log(Mean)**
1	0.21579	7.67E+12	2.39817	0.51751	29.66801
2	0.78421	1.97E+12	0.61526	0.48249	28.3076
Subgroup GE & Gini					
Markets	**GE(-1)**	**GE(0)**	**GE(1)**	**GE(2)**	**Gini**
1	7.41486	1.39363	1.08541	2.18544	0.73106
2	45.42816	2.51206	2.63178	21.6167	0.90336
Subgroup Atkinson Indices					
Markets	**A(0.5)**	**A(1)**	**A(2)**		
1	0.46312	0.75183	0.93683		
2	0.74228	0.9189	0.98911		

Source: Author's calculation

These statistics presents an in-depth examination of wealth inequality using various metrics, including a percentile ratio, a Generalized Entropy (GE) index, Gini coefficients, and Atkinson indices, with a focus on two market groups of developed and developing. The percentile ratios show a profound disparity: the wealth of the 90th percentile is nearly 274 times greater than that of the 10th percentile, which vividly underscores the vast economic gap between the wealthiest and the poorest segments, in other words, the wealth inequality is very wide. Similarly, the p90/p50 ratio of 22.185 and the p75/25 ratio of 19.733 reveal considerable imbalances in wealth even within more relative segments of the distribution, suggesting that economic benefits are not equitably shared throughout nations.

The generalized entropy indices provide further evidence of extreme inequality. GE(-1), which places more weight on disparities among the poorest, is notably, high at 58.75202, indicating sever deprivation among eh lower end of the wealth distribution. GE(0) (equivalent to the Theil Index) and GE(1) highlight significant overall inequality, with values of 2.46285 and 2.04984, respectively, suggesting a widespread unevenness in wealth allocation. GE(2), which is more sensitive to wealth concentration at the top, reaches 9.39832, demonstrating the pronounced accumulation of wealth among the richest. The Gini coefficient of 0.87685 confirms this extreme inequality, approaching the upper limit of 1, which indicates perfect inequality where all wealth would be held by a several wealthy countries.

The Atkinson indices provide additional insights into societal attitudes toward inequality. With A(0.5) at 0.68961, the index reflects a significant loss in potential welfare if society places moderate aversion to inequality. This loss becomes even more pronounced with higher inequality aversion, as A(1) reaches 0.91481, and A(2), which places heavy weight on the poorest, nearly maxes out at 0.99156. These values underscore the societal cost of inequality and suggest that any redistributive efforts could lead to substantial welfare gains.

Regarding the analysis by market groups, it reveals stark contrasts. The advances countries, which comprises of only 21.58% of the population, has a mean wealth of approximately 7.67 trillion and a relative mean of 2.39817, meaning that wealth is significantly above the overall average for this subgroup. The Gini coefficient for them is 0.73106, indicating substantial inequality, although it is less severe when compared to emerging and developing markets. Conversely, on the other spectrum, representing 78.42% of the population, has a mean wealth of around 1.97 trillion, substantially lower than the advanced economies. The relative mean of 0.61526 indicates a wealth level well below the overall

average, and the Gini coefficient of 0.90336 highlights severe wealth concentration. This suggests that while advanced economies enjoy higher overall wealth with significant inequality, emerging markets suffers from even more extreme wealth disparities.

The within-group inequality measures, GE_W(a), reinforce these findings. GE_W(0) at 2.27071 and GE_W(1) at 1.83152 indicate that substantial disparities exist within both markets, reflecting the unequal distribution of wealth even among countries with similar economic classifications. In contrast, the between-group inequality, GE_B(a), shows relatively low values, such as 0.19214 for GE(0), implying that the wealth differences between the two markets contribute less to overall inequality compared to the disparities within each market. This suggests that while there is some inequality between economically different groups, the most significant disparities occur within the individual market categories.

The Atkinson indices for each subgroup further illustrates this contrast. Advanced markets has an Atkinson index A(0.5) of 0.46312, reflecting moderate inequality aversion, while A(2) rises to 0.93683, indicating that even in wealthier markets, there are significant welfare losses due to inequality. Emerging markets, however, shows even higher inequality aversion measures, with A(0.5) at 0.74228 and A(2) at 0.98911, suggesting near-total inequality aversion where wealth concentration is particularly pronounced.

Table 5
Pairwise Correlations Matrix

	TheilT	gl_index	RQ	AD	Urb
TheilT	1				
gl_index	0.022	1			
RQ	0.0013	0.6239	1		
AD	-0.1054	-0.4294	-0.5429	1	
Urb	0.0472	0.4577	0.565	-0.5921	1

Source: Author's calculation

The pairwise correlation matrix shows the relationships between the key variables. TheilT, a measure of wealth inequality, exhibits a very weak positive correlation with the globalization index, which is not statically significant. This suggests that globalization, as measured in this study, does not have a straightforward linear association with wealth inequality. Regulation quality similarly shows an almost negligible and non-significant correlation with TheiltT, indicating little direct impact on wealth inequality. However, the age dependency ratio is negative correlated with TheilT in a statistically significant manner, suggesting that countries with higher rage dependency ratios tend to experience slightly lower levels of wealth inequality.

The globalization index is strongly and positively correlated with regulation quality, highlighting that countries with better governance and regulatory frameworks are typically more integrate into the global economy. Conversely, the index has a significant negative correlation with age dependency, indicating that more globalized nations tend to have lower age dependency ratios, likely reflecting more favorable demographic conditions. Urbanization displays a positive and significant correlations with both the globalization index and regulation quality, suggesting that highly urbanized countries are often more globalized and possess higher regulatory standards. On the other hand, urbanization is negative and significantly correlated with age dependency, implying that urbanized regions generally have lower proportion of dependents relative to the working-age population.

4.2 Globalization and Wealth Inequality

After conducting a comprehensive econometric analysis using various models, this section presents the results of the process. The findings are divided into two major sections: one that examines the relationship between globalization and wealth inequality on a global scale, and

another that delves into a more nuanced analysis, focusing separately on two distinct types of markets-namely, emerging and developing markets, and advanced economies. This divisions allows for a more granular understanding of how globalization impacts wealth distribution differently across various economic contexts.

4.2.1 Global analysis

The first part of the analysis addresses the overall effects of globalization on wealth inequality across all countries included in the dataset, spanning the years from 2000 to 2022. This section leverages models such as Ordinary Least Squares (OLS), Fixed Effects (FE), and the more robust Generalized Method of Moments (GMM) to provide a comprehensive assessment. This section is crucial because it captures the overarching patterns and provides empirical evidence on whether globalization in inherently unequal in its distribution of economic benefits or if it can, under certain conditions, lead to a more equitable sharing of wealth.

Table 6

Global analysis

Theil and Globalization			
	(1)	**(2)**	**(3)**
	OLS	**FE**	**GMM**
VARIABLES		**TheilT**	
L.NW			0
			(0)
gl_index	0.00268**	0.0247***	0.00324***
	(0.00122)	(0.00861)	(0.00119)
RQ	-0.0126***	-0.000310	-0.0102***
	(0.00195)	(0.0338)	(0.00161)
AD	-0.000515***	-0.00491***	-0.000363***
	(9.66e-05)	(0.000645)	(8.90e-05)
Urb	0.000211**	0.00487***	0.000122*
	(8.40e-05)	(0.000903)	(6.52e-05)
Observations	3,326	3,326	3,202
R-squared	0.019	0.179	
Number of Country_id		158	158

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's calculation

Table 6 provides a detailed examination of the relationship between globalization and wealth inequality using three econometric models: Pooled OLS, FE, and Sytem GMM. The dependent variable Theil Index (TheilT), measures wealth inequality, while key independent variable include lagged nationl wealth (L.NW), globalization index (gl_index), regulation quality (RQ), age dependency ratio (AD), and urbanization (Urb). The lagged national wealth, shows no significant effect in the GMM model, suggesting that once endogeneity is addressed, previous levels of national wealth do not significantly influence current inequality. These results could imply that the persistence of wealth inequality is less driven by past wealth accumulation and more influenced by other contemporaneous factors, aligning with Piketty's (2014) argument that structural economic forces, rather than historical wealth, drive modern inequality.

The gl_index, which captures globalization's intensity, is positively and significantly associated with wealth inequality across all models. In the OLS model, the coefficient is 0.00268, indicating a modest but statistically significant effect. This effect becomes considerably stronger in the FE model, with a coefficient of 0.0247, suggesting that within-country variations in globalization have a pronounced impact on wealth inequality. The GMM model, which accounts for potential endogeneity, reports a coefficient of 0.00324, confirming the robust positive relationship between globalization and inequality. Aligning

with the findings of Milanović (2016), who notes that globalization tends to favour capital owners and skilled labour in wealthier nations, exacerbating wealth disparities between and within countries. The consistent significance across models underscores the pervasive influence of globalization on economic stratification.

Regarding the control variables, regulation quality shows a negative relationship with wealth inequality in both the OLS and GMM models, suggesting that higher regulatory quality reduces wealth disparities. The results show supports for the arguments made by Stiglitz (2012), who emphasizes that strong institutions and effective governance are essential in ensuring that the benefits of globalization are distributed more equitably. However, the insignificance of regulation quality in the FE model indicates that within-country variations in regulatory quality may not have as clear an impact, potentially because of entrenched structural inequalities that are not easily mitigated by regulatory reforms. This suggests a nuanced role for governance, where cross-country differences in regulation matter than temporal changes within a single country.

The age dependency ratio consistently has a significant negative impact on wealth inequality from the OLS model to the FE model to the system GMM model, the same as regulation quality. The results imply that higher age dependency ratios are associated with lower wealth inequality, maybe because societies with more dependents may have economic structures that prioritize redistribution and social safety nets, as suggested by Bloom and Williamson (1998) in their study on demographic transitions, or most widely seen in the EU. This could reflect the redistributive pressures that come from aging populations, which help to moderate wealth disparities.

Urbanization is the one that shows complex relationship with wealth inequality. The OLS model indicates a positive and statically significant coefficient, suggesting that greater urbanization correlates with increased inequality. This effect becomes substantially larger in the FE model, indicating that urbanization has a pronounced impact on wealth disparities within countries over time. The persistent significance in the GMM model, although smaller, implies that urbanization remains a factor even though endogeneity has been taken into account aligning with the idea posited by Davis and Henderson (2003), suggesting that urbanization can lead to a greater economic opportunities while also exacerbate inequality due to unequal accessibility to resources and employment.

4.2.2 Subgroup analysis

The second part of the section is focused on a more divided view, understanding that globalization does not affect all economies in the same way. To make things clearer and more specific, the analysis is being split into two main groups: emerging and developing markets, and advanced economies. In the emerging and developing markets, problems such as weaker rules, unstable economies, and structural issues can make the negative effects of globalization on wealth inequality are much worse. On the other hand, advanced economies, which usually have stronger institutions and more varied industries, might see a kind different result. These economies often gain from globalization through things like new investments, better technology, and easier accessibility to the global markets.

Table 7

GMM Estimation

Theil and Globalization

	Emerging/Developing GMM	**Advanced GMM**
VARIABLES	**TheilT**	
L.NW	0	0**
	(0)	(0)
gl_index	0.00398**	0.00996***

	(0.00164)	(0.00294)
RQ	-0.0110***	0.00293
	(0.00206)	(0.00432)
AD	-0.000354***	-0.000502
	(9.97e-05)	(0.000335)
Urb	0.000116	0.000411*
	(7.27e-05)	(0.000216)
Observations	**2,416**	**786**
Number of Country_id	**122**	**36**

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Author's calculation

Table 7 presents the results from two GMM estimations, which are designed to handle any potential endogeneity issues that may arise when measuring the relationship between globalization and wealth inequality. The analysis uses two different sets of observations, where the first model is using the data from 2,416 observations across 122 countries (emerging) and the second model is using a more limited set of 786 observations across 36 countries, we can also that there are a lot of countries are being keep on a low value added part of the global value chain.

When it comes to emerging and developing markets, the lagged national wealth is not statistically significant, indicating that prior national wealth levels do not have a clear predictive power on current wealth inequality within these economies, it might be due to there are no wealth to begin with. This may reflect the economic volatility and structural changes that are characteristic of these types of markets, where wealth accumulation is subject to more unpredictable shifts compared to the advanced economies. On the other hand, a statistically significant coefficient for lagged national wealth are shown when it comes to advanced economies, suggesting that the historical wealth plays a much more important role when influencing the present-day inequality. This finding aligns with theories such as of Piketty's (2014) argument that wealth in advanced economies tends to accumulate and compound over time, reinforcing existing inequality.

The globalization index exhibits a strong and positive relationship with wealth inequality in both models, however the effect can be seen much more clearly in advanced economies. While in the emerging markets, the coefficient is only at 0.00398, indicating that globalization contributes to rising wealth disparities, however it is much smaller when compared to advanced economies, where the coefficient increases up to 0.00996. This disparity highlights the dual edge nature of globalization: where it can open up markets and creates opportunities for growth, it can also disproportionally benefit those with existing wealth and access to global markets, particularly in developed nations. Milanović (2016) research seems to be in support of this view, where globalization often exacerbates inequality by favoring capital over labor and concentrating gains among the wealthiest segments of society, especially in high-income countries, where return on capital is much higher than economic growth.

Regulation quality has a significant and negative impact on wealth inequality in emerging markets, suggesting that better governance and regulatory frameworks are crucial in mitigating wealth disparities, as their institutions are not well equipped with the proper regulation suitable to the domestic society. This underscores Stiglitz's (2012) assertion once again, that strong institutions are essential in ensuring that the benefits of globalization are distributed more equitably. In advanced economies, however, the coefficient for it is not significant, indicating that regulatory quality might have less direct or more complex relationship with wealth inequality in these contexts, as wealth are being diversified outside of the country rather than being monitored by institution from within the country.

In emerging markets, the age dependency ratio is found to have a significant negative relationship with wealth inequality, suggesting that a larger share of dependents might results in a fairer distribution of wealth, as there might be a system such as family-based support

system where families often share their resources with each other. This could reflect the redistributive pressures in economies with younger populations. In advanced economies, the coefficient is negative also, but not significant, suggesting that demographic factors might not play a crucial role in shaping wealth inequality where social safety nets and pension system are more robust, as discussed by Bloom and Williamson (1998).

Lastly, urbanization shows a mixed impact. In emerging markets, the coefficient is not significant, implying that urbanization does not have a substantial effect on wealth inequality. However, in advanced economies, urbanization has a positive and marginally significant impact, indicating that as countries become more urbanized, wealth disparities may wide. This aligns with Davis and Henderson's (2003) findings that urbanization can lead to economic growth but also increase inequality, particularly in developed countries where urban areas often have stark wealth divisions.

4.3 Discussion

By comparing the two tables reveal critical differences in how globalization affect wealth inequality based on a country's level of economic development. In emerging markets, globalization's impact on inequality is significant but can be mitigated through effective regulatory frameworks. This highlights the importance of governance in shaping economic outcomes and supports the argument that policy interventions are crucial for ensuring that globalization does not disproportionately benefit the wealthy. On a global scale, with the robust positive effect of globalization emphasizes the need for policies that address its importance of institutional strength in ensuring that globalization contributes to inclusive economic growth.

From the neoclassical point of view, the positive and highly significant coefficient for the globalization index aligns with the argument that globalization fosters economic growth and efficiency, but with certain short-term trade-offs. Neoclassical economists emphasize the role of globalization in enhancing market efficiency by facilitating trade, FDI, and the diffusion of technology. These mechanisms are thought to drive productivity and increase overall economic welfare (Bhagwati, 2004). However, the neoclassical model also acknowledges that the benefits of globalization are not distributed uniformly across societies. The GMM results suggest that while globalization raises national wealth and integrates economies into GVCs, it simultaneously exacerbates wealth inequality. This could be explained by globalization increase the returns to capital more than the returns to labour, especially benefiting those who are already wealth or have access to international markets, a pattern supported by research from Barro (2000).

From a Marxist standpoint, the GMM results, particularly the positive relationship between the globalization index and wealth inequality, underscore the structural critiques of globalization. Marxist theory suggests that globalization is fuelled by capitalist interests, aiming to increase their own profits and accumulate capital as much as possible, most of the time at the cost of labour and marginalized communities (Harvey, 2005). The significant influence of globalization on wealth inequality supports the idea that global economic integration mainly serves the capitalist class, strengthening the already existing hierarchies and widening economic inequalities. This view was shown in Wallerstein's World System Theory, which explains how wealthier core nations exploit the peripheral countries by extracting their resources and wealth through any means possible, further entrenching global inequality (Wallerstein, 1974).

The GMM analysis offers strong empirical evidence when attempting to understanding the effects of globalization on wealth inequality through both neoclassical and Marxist perspectives. The neoclassical view focuses on how institutions and policies can reduce

inequality, while the Marxist approach emphasizes the structural and exploitative aspects of globalization. Together, these perspectives provide important insights, highlighting the complex relationship between globalization and wealth distribution and the need for diverse policy strategies to address inequality effectively.

Chapter 5 Conclusion

This study examines the complex link between globalization and wealth inequality across countries. Using econometric models like Ordinary Least Squares (OLS), Fixed Effects (FE), and System Generalized Method of Moments (GMM), it analyzes a detailed global dataset to uncover key patterns. The findings reveal a strong positive connection between globalization, measured by a composite index, and wealth inequality, captured through the Theil index. In other words, while globalization drives economic growth and fosters global connections, it also seems to widen wealth gaps both within and between nations. The results remain consistent across models, with the System GMM approach confirming their reliability by addressing potential biases like endogeneity. These findings highlight a critical aspect of globalization: although it creates opportunities for growth, it disproportionately benefits capital owners, multinational corporations, and highly skilled workers, further entrenching existing inequalities.

The Ordinary Least Squares (OLS) method serves as a baseline, providing a starting point for analyzing how globalization impacts wealth inequality. While useful for initial insights, OLS has its shortcomings, because it can't account for hidden factors that vary across countries or deal with issues like reverse causation, which may skew its results. The FE model addresses some of these limitations by controlling for unobserved, time-invariant characteristics specific to each country. To address these gaps, the Fixed Effects (FE) model comes into play. By focusing on changes within each country over time, it filters out the influence of unchanging country-specific traits, offering a clearer picture of how shifts in globalization relate to wealth inequality. However, even the FE model has its limits. It doesn't handle reverse causality or account for factors that change over time and may also influence wealth inequality. To tackle these more complex challenges, the System Generalized Method of Moments (GMM) model is used. This approach is particularly effective for dynamic panel data, where relationships can evolve and interact. By leveraging instrumental variables, the two-step GMM method addresses endogeneity, ensuring that the results aren't distorted by feedback loops or omitted variables. This is especially critical in globalization research, where the connections between globalization and inequality often run both ways.

However, this study, like any research, has its limitations. One of the biggest challenges is the quality and availability of data. While I drew from comprehensive sources such as the World Inequality Database (WID) and reports from international organizations, gaps and inconsistencies still exist, especially for developing and low-income countries. These data gaps make it difficult to fully capture globalization's impact on wealth inequality, leaving some regions underrepresented in the analysis. Another limitation is that it does not explore the exploitative side of globalization, which is a key focus of Marxist theories. Some issues like unfair labor practices, overuse of natural resources, and the imbalance of power between rich and poor countries are not thoroughly examined in the analysis. Also, the study does not consider environmental issues, such as the impact of climate change and the loss of natural resources. These factors are becoming more and more important in the discussions about globalization, as environmental damage often makes economic inequalities worse, especially in areas that are already struggling (for example sub-Saharan Africa). Unfortunately, this important angle is not included in the current research.

To avoid the negative impacts globalization has had on wealth inequality, several corrective measures are suggested. First, governments ought to engage in tightening their regulatory policies to equally distribute the wealth benefits accrued from globalization. This includes protecting workers, holding businesses accountable, and employing a more progressive tax system that will more efficiently redistribute income. Financial regulators

should also deal with other regulatory policies and laws that permit the rich to conceal their financial resources, hence decreasing the overall wealth held by a narrow class. More developed economies should also reduce their tariffs and quotas when importing from less developed economies.

Second, in order to prepare workers for the demands of a globalized economy, investments in education and skill development are highly recommended. Reducing the skills gap, particularly in developing nations, will allow more people to work in high-value industries, lessen income and wealth gaps, and stop brain drain. Additionally, policies should support inclusive economic growth, emphasizing local sectors and small and medium-sized businesses (SMEs) that can spur innovation and job creation at the local level.

Third, for the reason to guarantee fair trade practices and lessen economic exploitation, international collaboration is essential. While international organizations should enforce regulations against exploitative behavior by multinational firms, developing nations should negotiate trade agreements that preserve their domestic industries and people. Financial assistance and debt reduction can also promote economic stability in areas that are at risk by acting as a buffer against the disruptive impacts of changes in international markets.

In the end, it is necessary that economic policies take environmental factors into mind. Initiatives for sustainable development, such investments in green energy and climate adaptation projects, could mitigate the adverse impacts of globalization on the environment while opening new economic opportunities. Since pollution and wealth inequality are becoming more intertwined, they cannot be handled separately.

In conclusion, globalization has major challenges in the form of worsening wealth inequality even while it has unquestionable advantages in terms of economic growth and technical innovation.

Appendices

Appendix I

List of countries in the sample data

Country	Country Code
Afghanistan	AFG
Albania	ALB
Algeria	DZA
Angola	AGO
Argentina	ARG
Armenia	ARM
Australia	AUS
Austria	AUT
Azerbaijan	AZE
Bahamas	BHS
Bahrain	BHR
Bangladesh	BGD
Barbados	BRB
Belgium	BEL
Belize	BLZ
Benin	BEN
Bhutan	BTN
Bolivia	BOL
Bosnia and Herzegovina	BIH
Botswana	BWA
Brazil	BRA
Brunei	BRN
Bulgaria	BGR
Burkina Faso	BFA
Burundi	BDI
Cabo Verde	CPV
Cambodia	KHM
Cameroon	CMR
Canada	CAN
Chad	TCD
Chile	CHL
China	CHN
Colombia	COL
Comoros	COM
Costa Rica	CRI
Cote d'Ivoire	CIV
Croatia	HRV

Country	Country Code
Cuba	CUB
Cyprus	CYP
Czechia	CZE
Denmark	DNK
Djibouti	DJI
Dominican Republic	DOM
DR Congo	COD
Ecuador	ECU
Egypt	EGY
El Salvador	SLV
Equatorial Guinea	GNQ
Eritrea	ERI
Estonia	EST
Ethiopia	ETH
Finland	FIN
France	FRA
Gabon	GAB
Gambia	GMB
Georgia	GEO
Germany	DEU
Ghana	GHA
Greece	GRC
Guatemala	GTM
Guinea	GIN
Guinea-Bissau	GNB
Guyana	GUY
Haiti	HTI
Honduras	HND
Hong Kong SAR	HKG
Hungary	HUN
Iceland	ISL
India	IND
Indonesia	IDN
Iran	IRN
Iraq	IRQ
Ireland	IRL

Country	Country Code
Israel	ISR
Italy	ITA
Jamaica	JAM
Japan	JPN
Jordan	JOR
Kazakhstan	KAZ
Kenya	KEN
Kuwait	KWT
Kyrgyzstan	KGZ
Lao PDR	LAO
Latvia	LVA
Lebanon	LBN
Lesotho	LSO
Liberia	LBR
Libya	LBY
Lithuania	LTU
Luxembourg	LUX
Macao	MAC
Madagascar	MDG
Malawi	MWI
Malaysia	MYS
Maldives	MDV
Mali	MLI
Malta	MLT
Mauritania	MRT
Mauritius	MUS
Mexico	MEX
Moldova	MDA
Mongolia	MNG
Montenegro	MNE
Morocco	MAR
Mozambique	MOZ
Myanmar	MMR
Namibia	NAM
Nepal	NPL
Netherlands	NLD
New Zealand	NZL

Country	Country Code
Nicaragua	NIC
Niger	NER
Nigeria	NGA
North Macedonia	MKD
Norway	NOR
Oman	OMN
Pakistan	PAK
Panama	PAN
Papua New Guinea	PNG
Paraguay	PRY
Peru	PER
Philippines	PHL
Poland	POL
Portugal	PRT
Qatar	QAT
Republic of the Congo	COG
Russian Federation	RUS
Rwanda	RWA
Sao Tome and Principe	STP

Country	Country Code
Saudi Arabia	SAU
Senegal	SEN
Serbia	SRB
Seychelles	SYC
Sierra Leone	SLE
Singapore	SGP
Slovak Republic	SVK
Slovenia	SVN
Somalia	SOM
South Africa	ZAF
South Korea	KOR
Spain	ESP
Sri Lanka	LKA
Sudan	SDN
Suriname	SUR
Sweden	SWE
Switzerland	CHE
Syrian Arab Republic	SYR
Tajikistan	TJK
Tanzania	TZA

Country	Country Code
Thailand	THA
Togo	TGO
Trinidad and Tobago	TTO
Tunisia	TUN
Turkey	TUR
Turkmenistan	TKM
Uganda	UGA
Ukraine	UKR
United Arab Emirates	ARE
United Kingdom	GBR
United States	USA
Uruguay	URY
Uzbekistan	UZB
Venezuela	VEN
Vietnam	VNM
Yemen	YEM
Zambia	ZMB
Zimbabwe	ZWE

References

Acemoglu, D., Johnson, S., and Robinson, J.A. (2006) 'Institutions as a Fundamental Cause of Long-Run Growth', in Aghion, P. and Durlauf, S.N. (eds) *Handbook of Economic Growth* vol. 1A, pp. 385–472. Amsterdam: Elsevier. DOI: 10.1016/S1574-0684(05)01006-3.

Adams, R.H. and Page, J. (2005) 'Do International Migration and Remittances Reduce Poverty in Developing Countries?', *World Development* 33(10): 1645–1669. DOI: 10.1016/j.worlddev.2005.05.004.

Aitken, B., Harrison, A. and Lipsey, R. (1996) 'Wages and Foreign Ownership: A Comparative Study of Mexico, Venezuela, and the United States', *Journal of International Economics* 40(3–4): 345–371. DOI: 10.1016/0022-1996(95)01410-1.

Amin, S. (1976) *Unequal Development: An Essay on the Social Formations of Peripheral Capitalism.* New York: Monthly Review Press.

Arellano, M. and 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. DOI: 10.2307/2297968.

Arellano, M. and Bover, O. (1995) 'Another Look at the Instrumental Variable Estimation of Error-Components Models', *Journal of Econometrics* 68(1): 29-51. DOI: 10.1016/0304-4076(94)01642-D

Atkinson, A.B. (2015) *Inequality: What Can Be Done?* Cambridge: Harvard University Press.

Autor, D.H., Dorn, D. and Hanson, G.H. (2016) 'The China Shock: Learning from Labor-market Adjustment to Large Changes in Trade', *Annual Review of Economics* 8: 205–240. DOI: 10.1146/annurev-economics-080315-015041.

Autor, D.H., Dorn, D. and Hanson, G.H. (2020) 'Import Competition and the Great U.S. Employment Sag of the 2000s', *Journal of Economic Perspectives* 34(1): 163–184. DOI: 10.1257/jep.34.1.163.

Alvaredo, F., Chancel, L., Piketty, T., Saez, E., and Zucman, G. (2018) *World Inequality Report 2018* Cambridge: Harvard University Press.

Baier, S.L. and Bergstrand, J.H. (2007) 'Do Free Trade Agreements Actually Increase Members' International Trade?', *Journal of International Economics* 71(1): 72–95. DOI: 10.1016/j.jinteco.2006.02.005.

Baldwin, R. (2012) *Global Supply Chains: Why They Emerged, Why They Matter, and Where They Are Going.* CTEI Working Papers.

Baltagi, B.H. (2008) *Econometric Analysis of Panel Data*, 4th ed. Chichester: Wiley.

Barro, R.J. (2000), 'Inequality and Growth in a Panel of Countries', *Journal of Economic Growth* 5(1): 5–32. DOI: 10.1023/A:1009850119329.

Barro, R.J. and Sala-i-Martin, X. (1992) 'Convergence', *Journal of Political Economy* 100(2): 223–251. DOI: 10.1086/261816.

Bergh, A. and Nilsson, T. (2014) 'Is Globalization Reducing Absolute Poverty?', *World Development* 62: 42–61. DOI: 10.1016/j.worlddev.2014.04.007.

Bergh, A., Nilsson, T. and Waldenström, D. (2018) *Sick of Inequality? An Introduction to the Relationship Between Inequality and Health*. Berlin: Springer.

Bhagwati, J. (2004) *In Defense of Globalization.* Oxford: Oxford University Press.

Bloom, D.E. and Williamson, J.G. (1998) 'Demographic Transitions and Economic Miracles in Emerging Asia', *The World Bank Economic Review* 12(3): 419–455. DOI: 10.1093/wber/12.3.419.

Borensztein, E., De Gregorio, J. and Lee, J.W. (1998) 'How Does Foreign Direct Investment Affect Economic Growth?', *Journal of International Economics* 45(1): 115–135. DOI: 10.1016/S0022-1996(97)00033-0.

Calderon, C. and Chong, A. (2001) 'External Sector and Income Inequality in Developing Countries', *Economics Letters* 71(1): 85–91. DOI: 10.1016/S0165-1765(01)00374-3.

Chancel, L. and Piketty, T. (2019) 'Global Income Inequality, 1980-2016: The Elephant Curve Revisited', *Review of Income and Wealth* 65(4): 671–694.

Chinn, M.D. and Fairlie, R.W. (2007) 'The Determinants of the Global Digital Divide: A Cross-Country Analysis of Computer and Internet Penetration', *Oxford Economic Papers* 59(1): 16–44. DOI: 10.1093/oep/gpl024.

Choi, C. (2016) 'Does Openness Aggravate or Alleviate Inequality?', *Journal of International Trade & Economic Development* 25(8): 1066–1086.

Conceição, P. and Ferreira, P. (2000) 'The Young Person's Guide to the Theil Index: Suggesting Intuitive Interpretations and Exploring Analytical Applications', *UTIP Working Paper*, 14.

Davis, D. R., and Henderson, J. V. (2003) 'Evidence on the Political Economy of the Urbanization Process', *Journal of Urban Economics* 53(1), 98-125. DOI: 10.1016/S0094-1190(02)00504-1.

Dollar, D. (2016) 'Globalization, Poverty, and Inequality since 1980', *World Bank Research Observer* 31(2): 158–182.

Dorn, D., Schmieder, J.F. and Spletzer, J.R. (2018) 'Importing Inequality: The Impact of Globalization on U.S. Wage Structure', *American Economic Journal: Applied Economics* 10(4): 190–214.

Dreher, A. (2006) 'Does Globalization Affect Growth? Evidence from a New Index of Globalization', *Applied Economics* 38(10): 1091–1110. DOI: 10.1080/00036840500392078.

Dreher, A. and Gaston, N. (2008) 'Has Globalization Increased Inequality?', *Review of International Economics* 16(3): 516–536. DOI: 10.1111/j.1467-9396.2008.00743.x.

Feenstra, R.C. and Hanson, G.H. (1997) 'Foreign Direct Investment and Relative Wages: Evidence from Mexico's Maquiladoras', *Journal of International Economics* 42(3–4): 371–393. DOI: 10.1016/S0022-1996(96)01475-4.

Filmer, D. and Pritchett, L.H. (2001) 'Estimating Wealth Effects Without Expenditure Data – or Tears: An Application to Educational Enrollments in States of India', *Demography* 38(1): 115–132. DOI: 10.1353/dem.2001.0003.

Foster, J.B. (2007) *The Great Financial Crisis: Causes and Consequences*. New York: Monthly Review Press.

Frank, A.G. (1967) *Capitalism and Underdevelopment in Latin America*. New York: Monthly Review Press.

Furceri, D. and Loungani, P. (2015) 'Capital Account Liberalization and Inequality', *IMF Working Paper* 15/243.

Galor, O. (2011) *Unified Growth Theory*. Princeton: Princeton University Press.

Gereffi, G., Humphrey, J. and Sturgeon, T. (2005) 'The Governance of Global Value Chains', *Review of International Political Economy* 12(1): 78-104. DOI: 10.1080/09692290500049805.

Goldberg, P.K. and Pavcnik, N. (2007) 'Distributional Effects of Globalization in Developing Countries', *Journal of Economic Literature* 45(1): 39–82. DOI: 10.1257/jel.45.1.39.

Hansen, L.P. (1982) 'Large Sample Properties of Generalized Method of Moments Estimators', *Econometrica* 50(4): 1029-1054. DOI: 10.2307/1912775.

Harvey, D. (2005) *A Brief History of Neoliberalism*. Oxford: Oxford University Press.

Helpman, E. (2018) *Globalization and Inequality*. Cambridge: Harvard University Press.

Harrison, A. (1996) 'Openness and Growth: A Time-series, Cross-country Analysis for Developing Countries', *Journal of Development Economics* 48(2): 419–447. DOI: 10.1016/0304-3878(95)00042-9.

Heshmati, A. (2006) 'The World Distribution of Income and Income Inequality: A Review of the Economic Literature', *Journal of World-Systems Research* 12(1): 60–91. DOI:10.5195/jwsr.2006.372.

Hobsbawn, E.J. (2011) *How to Change the World: Reflections on Marx and Marxism*. New Haven: Yale University Press.

International Monetary Fund (IMF) (2017) *Fiscal Monitor: Tackling Inequality*. Washington, D.C.: International Monetary Fund.

International Monetary Fund (IMF) (2021) *Inequality and Fiscal Policy: A Comparative Analysis. IMF Policy Paper*, April 2021.

Jaumotte, F., Lall, S. and Papageorgiou, C. (2013) 'Rising Income Inequality: Technology, or Trade and Financial Globalization?', *IMF Economic Review* 61(2): 271–309. DOI: 10.1057/imfer.2013.7.

Jaumotte, F. and Osorio Buitron, C. (2015) 'Inequality and Labor Market Institutions', *IMF Staff Discussion Note* 15/14.

John, A. (2021) *Econometric Methods and Applications*. London: Sage Publications.

Jolliffe, I.T. (2002) *Principal Component Analysis*, 2nd edn. New York: Springer.

Kaldor, N. (1957) 'A Model of Economic Growth', *The Economic Journal* 67(268): 591–624. DOI: 10.2307/2227704.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2010) 'The Worldwide Governance Indicators: Methodology and Analytical Issues', *World Bank Policy Research Working Paper* No. 5430. Washington, DC: World Bank.

Keister, L.A. and Moller, S. (2000) 'Wealth Inequality in the United States: A Descriptive Analysis from 1980 to 1990', *American Sociological Review* 65(1): 63–95. DOI: 10.1146/annurev.soc.26.1.63.

Krugman, P. (1995) *Development, Geography, and Economic Theory*. Cambridge: MIT Press.

Kuznets, S. (1955) 'Economic Growth and Income Inequality', *American Economic Review* 45(1): 1–28.

Lapavitsas, C. (2013) *Profiting Without Producing: How Finance Exploits Us All*. London: Verso Books.

Mahesh, R. (2016) 'Trade Openness and Income Inequality: Evidence from BRIC Countries', *Journal of Economic Studies* 43(4): 502–521.

Mankiw, N.G. (2016) *Principles of Economics*, 8th edn, Boston: Cengage Learning.

Marx, K. (1867) *Capital: Critique of Political Economy, Volume 1*. Hamburg: Otto Meissner.

Merton, R.K. (1968) 'The Matthew Effect in Science', *Science* 159(3810): 56–63. DOI: 10.1126/science.159.3810.56.

Milanović, B. (2005) *Worlds Apart: Measuring International and Global Inequality*. Princeton: Princeton University Press.

Milanović, B. (2016) *Global Inequality: A New Approach for the Age of Globalization*. Cambridge: Harvard University Press.

Milanović, B. (2019) *Capitalism, Alone: The Future of the System That Rules the World*. Cambridge: Harvard University Press.

Ohlin, B. (1933) *Interregional and International Trade*. Cambridge: Harvard University Press.

Piketty, T. (2014) *Capital in the Twenty-First Century*. Cambridge: Harvard University Press.

Prebisch, R. (1950) *The Economic Development of Latin America and Its Principal Problems*. United Nations Department of Economic Affairs.

Ricardo, D. (1817) *On the Principles of Political Economy and Taxation*. John Murray.

Rodrik, D. (1998) 'Who Needs Capital-Account Convertibility?', *Essays in International Finance* 207: 55-65.

Rodrik, D. (1999) *The New Global Economy and Developing Countries: Making Openness Work*. Washington, DC: Overseas Development Council.

Saez, E. and Zucman, G. (2016) 'Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data', *Quarterly Journal of Economics* 131(2): 519–578. DOI: 10.1093/qje/qjw004.

Samuelson, P.A. (1948) 'International Trade and the Equalisation of Factor Prices', *The Economic Journal*, 58(230): 163–184. DOI: 10.2307/2225933.

Satterthwaite, D. (2010) 'Urbanization and Its Implications for Food and Farming', *Philosophical Transactions of the Royal Society B: Biological Sciences* 365(1554): 2809–2820. DOI: 10.1098/rstb.2010.0136.

Singer, H.W. (1950) 'The Distribution of Gains between Investing and Borrowing Countries', *The American Economic Review* 40(2): 473–485.

Smith, A. (1776) *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: W. Strahan and T. Cadell.

Stiglitz, J.E. (2002) *Globalization and Its Discontents*. New York: W.W. Norton & Company.

Stiglitz, J.E. (2012) *The Price of Inequality: How Today's Divided Society Endangers Our Future*. New York: W.W. Norton & Company.

Stock, J.H. and Watson, M.W. (2011) *Introduction to Econometrics*, 3rd ed. Boston: Pearson.

Sweezy, P.M. (1966) *Monopoly Capital: An Essay on the American Economic and Social Order*. New York: Monthly Review Press.

Theil, H. (1967) *Economics and Information Theory*. Amsterdam: North-Holland Publishing Company.

United Nations (2024) *Sustainable Development Goals Report*. United Nations Publications.

Wahiba, N.F. (2013) 'Wealth Inequality and Economic Globalization in Tunisia: An Analysis from 1984 to 2011', *Journal of Development Studies* 49(4): 478–492.

Wallerstein, I. (1974) *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. Academic Press.

White, H. (1980) 'A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity', *Econometrica* 48(4): 817-838. DOI: 10.2407/1912934

Windmeijer, F. (2005) 'A Finite Sample Correction for the Variance of Linear Efficient Two-step GMM Estimators', *Journal of Econometrics* 126(1): 25-51. DOI: 10.1016/j.jeconom.2004.02.005

Wooldridge, J.M (2010) *Econometric Analysis of Cross Section and Panel Data*, 2nd ed. Cambridge: MIT Press.

World Bank (2020) *Trading for Development in the Age of Global Value Chains*. World Development Report. Washington, D.C.: World Bank.

Zucman, G. (2015) *The Hidden Wealth of Nations: The Scourge of Tax Havens*. Chicago: University of Chicago Press.