Inequality-Growth Analysis

Lane Wofford
lanedwofford@gmail.com
June 2023

Objective Statement

Analyze the relationship between income inequality and economic growth using quantitative analysis.

Exploratory Research

Definitions

Gini Coefficient: A statistical measure of income inequality. It ranges from 0 to 1, where 0 represents perfect equality (all individuals have the same income) and 1 represents maximum inequality (one individual has all the income).

Economic Growth: Refers to an increase in the production and consumption of goods and services in an economy over a specified period. It is commonly measured by changes in the (inflation adjusted) Gross Domestic Product (GDP).

Income Inequality: Refers to the distribution of income among individuals or households in a given population. It is typically measured using the Gini coefficient.

Kuznets Curve: An economic theory that suggests income inequality initially increases during the early stages of economic development and then decreases as a country achieves higher levels of industrialization and modernization.

Trickle-Down Economics: An economic theory that argues that reducing taxes and regulations for the wealthy and businesses will benefit society as a whole. The belief is that the resulting economic growth and prosperity will eventually "trickle down" to benefit all individuals.

Inclusive Growth: Refers to a pattern of economic development that ensures the benefits of growth are shared equitably among all segments of society. It aims to reduce poverty, inequality, and social exclusion while fostering sustainable economic progress.

Lit Review

Trends in Income Inequality and its Impact on Economic Growth: This study by the OECD found that income inequality has a negative and statistically significant impact on subsequent growth. The gap between low-income households and the rest of the population matters most. The study also found evidence for human capital as a channel through which inequality may affect growth. Increased income disparities depress skills development among individuals with poorer parental education background.

Relations Between Income Inequality, Economic Growth and Poverty Threshold: New Evidences From EU Countries Panels: This study confirmed the Kuznets hypothesis that

income inequality tends to increase with early economic development and tends to decrease when a country reaches a certain level of development.

"Rising Income Inequality: Technology, or Trade and Financial Globalization?": This paper examines the relationship between the rapid pace of trade and financial globalization and the rise in income inequality. The study reports that technological progress has a greater impact on inequality than globalization. The conclusion states that technological progress mainly benefits the top 20% income earners of the population. However, export growth benefits the lowest 4 quintiles and hurts the top 20%. Increased access to education also reduces income inequality overall.

Data Collection

Data for this study was gathered from the World Bank's World Development Indicators database, accessible at https://databank.worldbank.org/source/world-development-indicators#. This database offers reliable socio-economic data from countries worldwide, including indicators on income inequality and economic growth.

To ensure a comprehensive understanding of the link between income inequality and economic growth, a diverse mix of countries from different regions and income levels was selected:

United States: Included due to its large economy and well-documented income inequality, providing insights into dynamics of a highly unequal economy.

Brazil: Selected as a middle-income country facing significant income inequality challenges, offering an important case study for examining the relationship between income inequality and economic development.

China: Chosen for its remarkable economic growth and persistent income disparities, particularly in the context of the urban-rural divide.

Sweden: Included to provide a contrasting perspective, as a high-income country known for its egalitarian policies and relatively low income inequality.

By studying these four countries, this analysis encompasses a diverse range of income levels, geographical regions, and policy contexts, ensuring a comprehensive understanding of the relationship between income inequality and economic growth.

Data Cleaning

More digestible year format: The year format was modified to make it easier to understand and analyze.

Deletion of years with little inequality data: Years with insufficient inequality data were excluded from the analysis.

Formatting as numbers: The data was converted into a numerical format for further analysis.

Interpolation for Brazil and China: In the case of five null values, interpolation was used to estimate the missing values. This was done to increase the sample size (n) for the scatter plot analysis. Without interpolation, the sample size would have been only 10 or less for each country. The interpolation involved taking the average of the two adjacent numbers to estimate the missing values. This approach was chosen because the Gini coefficient generally exhibits a trend over time.

After these steps were taken, the data was suitable for analysis and visualization.

Results and Conclusion

This analysis found a divergence in the relationship between income inequality and economic growth in the countries studied. While the US and Sweden showed a positive correlation between the Gini index and real GDP per capita, Brazil and China exhibited a negative correlation.

This difference potentially reflects the unique economic contexts of each country. For instance, the high income inequality in the US may stem from historical economic policies and a cultural emphasis on individual wealth accumulation. In contrast, Sweden's low income inequality may reflect its long-standing egalitarian policies and cultural values of societal equality.

In Brazil, the negative relationship between income inequality and economic growth presents an interesting avenue for policy. Based on the literature review, a potential policy focus on enhancing access to quality education could foster inclusive economic growth in Brazil.

Meanwhile, China's pattern aligns with the Kuznets Curve hypothesis, indicating a transitional phase. Given China's rapid economic growth and unique social and economic landscape, this transition could have significant implications for its future inequality trends and policy.

While this study provides a comprehensive analysis of the relationship between income inequality and economic growth in the selected countries, it's worth noting its limitations and the potential for future research. Future studies could consider other factors that contribute to income inequality, such as tax policies and social programs, and could also incorporate other measures of income inequality, such as decile ratios. Additionally, a more in-depth examination of country-specific variations could yield more insight. As economies continue to evolve, ongoing study of these relationships will remain crucial.