Journal of Social Patterns & Perspectives

Vol. 01 No. 01

Global Patterns of Inequality and Poverty Dynamics: Evidence from Cross-Country Data

Bala Ram Acharya
Associate Professor of Sociology, Padma Kanya Multiple Campus and Tribhuvan University, Kathmandu, Nepal. ORCID ID: https://orcid.org/0009-0000-0125-6663:

Abstract

Inequality and poverty remain critical challenges in global economic development, with persistent disparities across countries despite overall progress in poverty reduction. Understanding their interaction is essential for designing effective policy interventions. This study aims to examine global patterns of inequality and poverty, analyze the relationship between inequality and poverty, and assess their temporal dynamics using cross-country data. The study adopts a quantitative approach based on secondary data covering countries over multiple years. Inequality is measured using the Gini coefficient, Palma ratio, and p90/p10 ratio, while poverty is measured using the poverty headcount ratio. The analysis employs descriptive statistics, trend analysis, Pearson correlation, and an independent sample t-test. The findings reveal significant variation in inequality and poverty across countries. While poverty has declined substantially over time, inequality has remained relatively stable. A moderate positive and statistically significant relationship between inequality and poverty is observed ($r = 0.27$, $p < 0.001$). The t-test results further indicate that countries with higher inequality experience significantly higher poverty levels. The study concludes that economic growth has contributed to poverty reduction but has not ensured equitable income distribution. Addressing inequality through inclusive policies is essential for achieving sustainable poverty reduction and balanced economic development.

Keywords: Inequality, Poverty Dynamics, Cross-Country Analysis, Gini Coefficient, Income Distribution

1. Introduction

The concept of inequality and poverty is primarily an area of concern in the economics discussion in the global arena and particularly in terms of the unequal development of countries. Although there are tremendous gains that have occurred in the past few decades in alleviating poverty, income allocation gaps are still present to date, casting doubts on the inclusivity of economic growth. The existing literature emphasizes the idea that inequality can mediate the success of poverty reduction policies, as the unequal distribution of income can restrain the outcome of economic growth to lower-income populations (Bergstrom and Bergstrom, 2020). Other cross-country studies also show that economic systems, labor relations, and productivity gaps are some of the factors that cause differences in income and inequality among countries (Bick et al., 2018). Additionally, studies comparing multidimensional and income-based measures of poverty also indicate that poverty and inequality are not the same but are interrelated phenomena that need specific policies (Burchi et al., 2019). The interconnection of economic growth, inequality, and poverty has been studied at length as well, with the findings showing that growth is not enough to be equitable (Cerra et al., 2021). The recent events worldwide, including the COVID-19 pandemic, only worsened the disparity in incomes, which once again demonstrates the weakness of the current economic structures (Deaton, 2021). Also, empirical studies of the dynamics of global income indicate the presence of structural inequality processes in the face of an increase in the level of income (Guvenen et al., 2022). There are also cross-country comparisons that show that although some developing economies have been able to grow their income rates fast, convergence between countries is still uneven (Inklaar & Rao, 2017). Likewise, convergence literature claims that structural disparities among economies still do not allow equal advancement in inequality and poverty reduction (Johnson & Papageorgiou, 2020).

Although there has been a lot of research on inequality and poverty, the current literature has a lot of gaps. Most research is confined to a particular region or industry and therefore cannot be generalized to other nations. As an example, sector-specific drivers like tourism are analyzed, and it is emphasized that those alleviate poverty, yet the general trends in the world are not fully reflected (Lagos and Wang, 2023). Equally, the research on the role of economic complexity and human capital can be insightful about inequality, but usually fails to consider direct relationships between poverty processes at a global scale (Lee and Vu, 2020). The recent studies also emphasize the differences between the trends of inequality in developed and developing nations, as the trends all over the world are not homogeneous and need additional comparative analysis (Makhlouf, 2023). Moreover, the research on trade-offs between economic growth, inequality, and environmental sustainability shows that the outcomes of the development are quite complicated, however, they are not always incorporated into a single global framework (Malerba, 2020). Although certain empirical studies have been able to determine a strong relationship between growth, inequality, and poverty, simplified empirical studies are still required to provide direct analysis of the relationships by applying cross-country indicators, which are readily accessible (Marrero and Serven, 2022). Also, current literature tends to prioritize the structural and historical determinants of development outcomes at the expense of presenting few empirical studies on current trends in global inequality based on the standardized indicators (Mayer et al., 2017).

Considering these gaps, a study is required that will present a clear and data-driven evaluation of inequality and poverty based on similar cross-country measures. The proposed study seeks to make a contribution by looking at the world trends in inequality and poverty dynamics in a simple empirical structure without being excessively complex in its modeling efforts. By using cross-country data, it is possible to present a wide comparative view which is vital in determining the trends of development globally. Past studies indicate that territorial and spatial differences are important in economic performance, and thus comparative analysis is important in various settings (Mendez & Santos-Marquez, 2021). Moreover, research on the financial inclusion and microfinance suggests that inequality and poverty may be affected by the availability of financial resources, and institutional factors are important (Miled et al., 2022). Religion and societal norms are also cultural and social determinants that have been found to affect patterns of inequality in different countries (Naveed and Wang, 2018). Moreover, technological and industrial changes, such as the spread of ICT, are also becoming important agents of economic growth and inequality processes (Saba and Ngepah, 2022). Based on these findings, the current research is aimed at defining the visible trends and statistical correlations of inequality and poverty in the international arena. Through descriptive and inferential statistical tools, the study should offer a balanced and empirically based knowledge of the relationship in the interaction between inequality and poverty between countries and across time.

1.1 Research Objectives

To examine global patterns of inequality and poverty using cross-country data.
To analyze the relationship between inequality and poverty through statistical methods.
To assess temporal changes in inequality and poverty to understand their dynamics over time.

2. Methodology

2.1 Research Design

This study will employ quantitative research design to address the question of inequality and poverty trends in the world employing cross country data. The secondary data analysis allows to make a comparative evaluation of the income distribution and poverty levels of countries and time. The research uses a systematic and empirical use of both descriptive and inferential statistics in order to establish patterns, trends, and relationships between inequality and poverty.

2.2 Data Source and Sample

This study used data sources that were a secondary dataset of cross-country indicators of inequality and poverty across a number of countries and years (Singh, 2023). The dataset covers a number of decades of observation of countries, which enables cross-sectional analysis as well as a temporal analysis. The country-year observation is the unit of analysis that helps to analyze both the country-wise variations and the changes across time.

2.3 Variables and Measurement

The research centers on the major variables that are indicators of inequality and poverty. The Gini coefficient is the main measure of inequality, having a value of 0 (perfect equality) to 1 (perfect inequality) but it is complemented by other measures of inequality like the Palma ratio, p90/p10 ratio to reflect income concentration and dispersion. Poverty is calculated by the poverty headcount ratio which is the percentage of the population living below the international poverty line that allows cross-country comparison to be made.

2.4 Analytical Techniques

The analysis uses various statistical methods to accomplish the study objectives. The distribution of inequality and poverty indicators is summarized using descriptive statistics and the trend analysis is used to identify the changes over specific benchmark years to capture the dynamic patterns. Pearson correlation analysis is used to determine the relationship between inequality and poverty and independent sample t-test is used to determine the difference between the degree of poverty in low and high inequality group in terms of median Gini coefficient, which provides both descriptive and inferential information.

3. Results

3.1 Descriptive Statistics of Inequality and Poverty

The descriptive statistics in Table 3.1 show that the degree of inequality and poverty differs enormously across countries, and over time, indicating heterogeneous global economic conditions. The average Gini coefficient is 0.38, which indicates moderate inequality with a range of 0.18 to 0.66, indicating a high level of inequality in income allocation. Correspondingly, the poverty headcount ratio has a large variation between 0.00% and 96.87% with a mean of 11.08% showing a significant disparity in the standards of living among countries. These conclusions are also supported by the Palma ratio and p90/p10 ratio, where the mean values of 1.89 and 7.42 and wide ranges indicate significant income dispersion and concentration among populations.

Table 3.1 Summary Statistics of Key Variables

Variable	Mean	Minimum	Maximum
Gini Coefficient	0.38	0.18	0.66
Poverty Headcount Ratio (%)	11.08	0.00	96.87
Palma Ratio	1.89	0.69	9.68
p90/p10 Ratio	7.42	1.52	36.72

3.2 Temporal Trends in Inequality and Poverty

Table 3.2 shows that inequality and poverty have a temporal development with unique global trends over the years. The Gini coefficient has a moderate trend, decreasing in 1980 to 0.36 in 2010, with a slight rise to 0.39 in 2020, which suggests the presence of constant but comparatively low inequality rates. On the contrary, poverty presents a more significant trend, increasing to 26.30% in 1990 and decreasing significantly to 2.41% in 2020, which confirms significant global achievements in the reduction of poverty. This difference indicates that economic growth has been effective in reducing poverty but has not been equivalent in decreasing inequality.

Table 3.2 Trends in Inequality and Poverty Over Time

Year	Average Gini	Poverty Headcount (%)
1980	0.45	17.09
1990	0.39	26.30
2000	0.39	15.40
2010	0.36	8.45
2020	0.39	2.41

Figure 1 gives a pictorial illustration of the trend of poverty over the years, which shows the general direction and magnitude of change between the years.

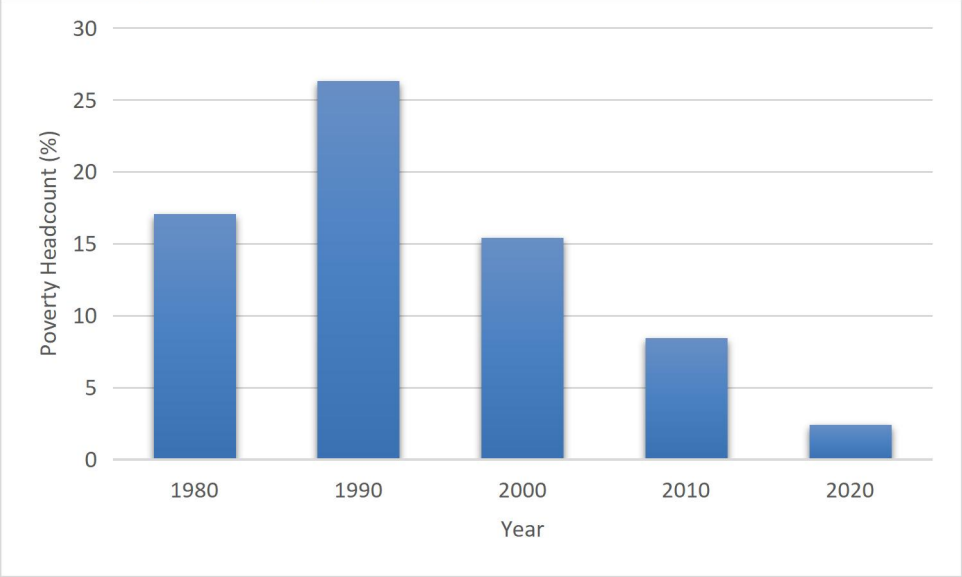

Figure 1. Global Poverty Trends (1980–2020)

The visual trend shows clearly that poverty levels have remained steadily decreasing in the past decades, which means that living conditions across the world have been gradually improving regardless of the structural challenges.

3.3 Cross-Country Variations in Inequality and Poverty

Table 3.3, which compares the countries on a cross-country basis, indicates that there is significant difference in the level of inequality and poverty in the selected countries. Angola is characterized by high inequality and high poverty (31.31%), which implies high structural differences, but Argentina is characterized by high inequality and relatively low poverty (3.03%), which suggests the role of redistribution mechanisms or economic structure. Algeria and Albania have moderate inequality and low poverty rate, which further points to the fact that inequality and poverty do not necessarily go in the same direction and are affected by the institutional and policy aspects.

Table 3.3 Inequality and Poverty Across Selected Countries

Country	Gini	Poverty (%)
Angola	0.49	31.31
Argentina	0.46	3.03

Algeria	0.34	4.16
Albania	0.33	1.58

In Figure 2, the distribution of poverty in the selected countries is given in a comparative perspective showing the variations in their distributions.

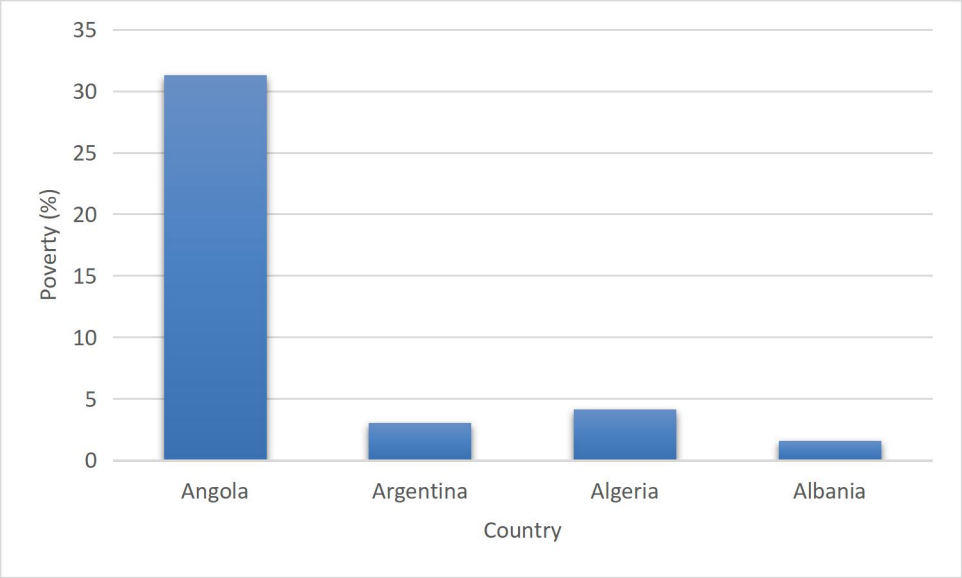

Figure 2. Poverty Levels Across Selected Countries

The comparison shows that there is a great difference in poverty amid nations with diversity in the economic state and development trends.

3.4 Correlation Analysis Between Inequality and Poverty

The analysis of the correlation presented in Table 3.4 shows that there is a statistically significant correlation between inequality and poverty. The correlation coefficient is 0.27 which shows that there is a moderate positive relationship between Gini coefficient and poverty rates in the countries. The correlation is very important ($p < 0.001$), which proves that the greater the inequality, the greater the poverty level, but the middle level of the correlation indicates that there are more socio-economic aspects that impact the poverty results.

Table 3.4 Correlation Results

Variable Pair	Correlation (r)	p-value
Gini vs Poverty	0.27	< 0.001

3.5 Comparative Analysis Using Independent Sample t-Test

The independent sample t -test results, as shown in Table 3.5 reveal that there are significant variations in poverty levels across both low and high inequality groups. The average poverty rate in those countries is 6.45% in low inequality countries and is significantly higher in high inequality countries at 14.05%. The difference between the two is statistically significant, with the t-statistic (-14.39) and p-value ($p < 0.001$), which point to the fact that inequality has a powerful and significant effect on the levels of poverty.

Table 3.5 Group Comparison of Poverty Levels

Group	Mean Poverty (%)
Low Inequality	6.45
High Inequality	14.05
t-value	-14.39
p-value	< 0.001

The distribution of the level of poverty among groups in terms of inequality is depicted in Figure 3 showing a comparative view of the relative disparity of groups.

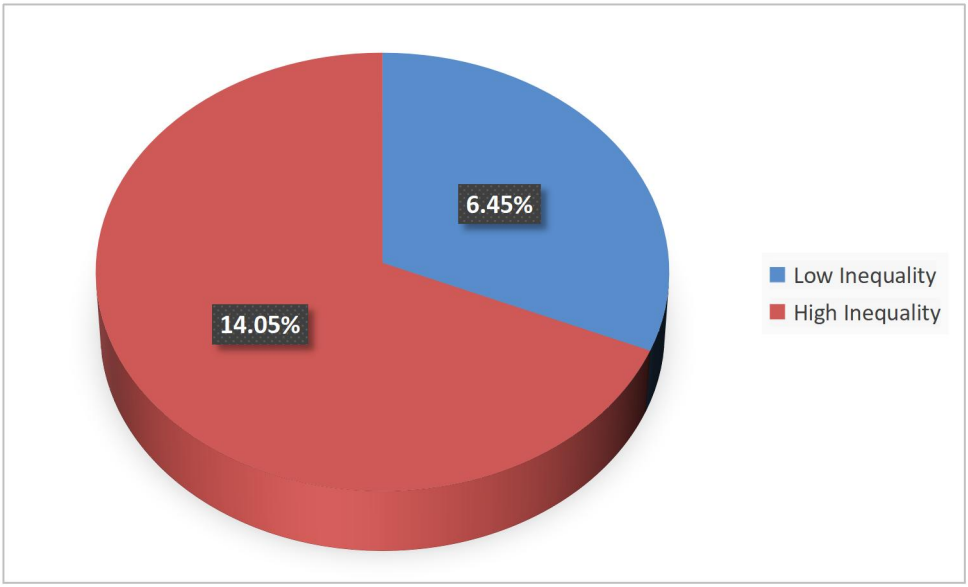

Figure 3. Poverty Distribution by Inequality Groups

The visual comparison reveals that there is a sharp difference between the groups, which implies that increased inequality is correlated with a larger portion of poverty.

3.6 Dynamics of Inequality and Poverty

The dynamic nature of the relationship between inequality and poverty over time, as Table 3.6 indicates, indicates a divergence between the two indicators. The levels of poverty decreased as well by a significant margin of 26.30% in 1990 to 2.41% in 2020, reflecting significant gains in the living standards of the people of the world. The Gini coefficient however was relatively constant with a range of 0.36 to 0.39 implying that economic growth has alleviated poverty but has not resulted in a similar decrease in inequality. This trend is an indication of the continuity of structural inequality in spite of the positive changes in poverty performance.

Table 4.7 Dynamics of Inequality and Poverty Over Time

Year	Gini Coefficient	Poverty Headcount (%)
1990	0.39	26.30
2000	0.39	15.40
2010	0.36	8.45
2020	0.39	2.41

4. Discussion

The findings of the study give valuable information on the dynamics of cross-country inequality and poverty based on cross-country data. The findings show that inequality is still a common attribute among nations, but poverty has reduced over the years. The descriptive statistics show that there is a considerable variation in both inequality and poverty, which has heterogeneity in the economic structures and the level of development. The time series analysis also indicates that despite the fact that poverty rates have reduced significantly, inequality has not been on a steady declining trend. This disparity also indicates that economic growth and development have been useful in alleviating poverty, but have failed to be even in terms of income distribution.

The results of the correlation and t-test provide further support for the correlation between inequality and poverty. The positive and significant correlation is an indication that increased inequality is normally correlated with increased poverty levels. Besides, the t-test ensures that more impoverished countries are those with more inequality than the less impoverished countries. These results underscore the fact that inequality is not just a parallel phenomenon, but it is a key factor in the formation of the outcomes of poverty. Nonetheless, the fact that the correlation is moderate implies that it is not only inequality that can explain poverty and other socio-economic influences like institutional quality, policy frameworks, and economic structure can also affect poverty dynamics.

This study is in line with the current empirical data on the issue of inequality and poverty, which underlines

the interdependence of the two. As an example, Zhang and Naceur (2019) conclude that inequality and poverty are determined by financial development, which can mean that structural economic variables have a considerable impact on the results of income distribution. Similarly, Salotti and Trecroci (2018) show that fiscal policy also has distributional consequences that may either alleviate or increase inequality, therefore indirectly affecting the level of poverty. These findings are similar to the positive correlation between inequality and poverty in this study as they support the notion that policy interventions are important in the simultaneous mitigation of the two problems. Besides, Wietzke (2019) poin ts to the influence of institutional factors like democratization in alleviating poverty, which could be the reason behind the presence of relatively low poverty rates in some countries of the current study despite moderate levels of inequality.

Additional evidence is in the research devoted to structural and demographic variables. Wietzke (2020) focuses on how demographic changes can reduce poverty, indicating that the impact of change in population dynamics can shape the trends of poverty without considering inequality. This can be used to justify the dramatic reduction in poverty that is being experienced in the present study in spite of fairly constant inequality rates. On the same note, Yu and Meng (2022) also emphasize the importance of technological and informational access in determining the outcomes of inequality, that is, other determinants, other than income distribution, influence the disparities. Another significant finding by von Fintel and Orthofer (2020) is that financial inclusion can be used to reduce inequality, which subsequently may affect poverty reduction. All these studies are in line with the results of this study, and it is possible to conclude that the lack of equality and poverty are subject to a complicated interaction of economical, institutional, and demographic factors.

This study has great implications on policymakers and development practitioners. These findings indicate that economic growth is efficient in alleviating poverty but cannot help in inequality. Therefore, there is the need to have the policies of inclusive growth, equitable income distribution, and social protection to ensure that poverty reduction is sustainable. Various actions such as progressive taxation, access to good education and health, and incorporation of finances can be implemented in order to alleviate inequality and hence poverty. The results also emphasize the significance of the need to deal with structural differences among the nations in order to have balanced and inclusive growth.

This study has limitations, even though it has made its contribution. The debate is based on country level data that is excellent in depicting the aggregate trends but not the micro level changes such as household movement into and out of poverty. Besides, the comparability can be affected by the fact that the countries used different data collection methods and standards of measurements. The study is also limited to a small number of variables that are largely the measures of inequality and poverty without taking into consideration the other potential factors such as economic growth, education, or the quality of the institution. These weaknesses imply that the results may be regarded as reflective of general trends other than specific causal associations.

Further studies can be developed on the basis of the current one to include more econometric methods, including panel regression, to analyze causal relationships between inequality and poverty. Therefore, incorporation of other variables like GDP growth, human capital, and governance indicators would offer a better insight into the causes of inequality and poverty. Moreover, the micro level data would also allow examining the household level dynamics of poverty and provide more detailed information on the processes of poverty reduction. Regional comparative studies and policy-oriented analyses would also be useful in the process of identifying context-specific policies to deal with inequality and poverty.

5. Conclusion

The study has explored the dynamics of inequality and poverty patterns across the world through cross-country data, which empirically demonstrated the connection between the level of poverty and the distribution of incomes. The results demonstrate that inequality is a long-term phenomenon in these countries, and the distribution of incomes is rather different. Poverty, on the contrary, has decreased over time, especially since 1990, meaning that there has been a tremendous reduction in the global efforts to reduce poverty. The findings indicate a positive, statistically significant correlation between inequality and poverty and therefore higher rates of inequality are linked to higher rates of poverty. This comparative analysis is also able to confirm the fact that the higher the level of inequality in the country, the higher the level of poverty in the country. Nevertheless, the fact that this relationship is moderate proves that inequality is not the only factor that can be used to explain the dynamics of poverty, and other socio-economic and institutional factors are also significant. The study notes that though the growth in the economy has been successful in alleviating poverty, it has not been effective in terms of equitable

distribution of income. This is why the necessity of implementing policies that foster inclusive growth and deal with structural inequalities should be emphasized. Measures such as enhanced access to education, healthcare, and financial resources and equal fiscal policies can only lead to poverty reduction in a sustainable way. In general, the findings indicate the need to have a balanced solution that would address both inequality and poverty to achieve economic development in the long term and inclusive development.

6. Reference

1. Bergstrom, K., & Bergstrom, K. (2020). The role of inequality for poverty reduction. Open Knowledge Repository: World Bank.
2. Bick, A., Fuchs-Schündeln, N., & Lagakos, D. (2018). How do hours worked vary with income? Cross-country evidence and implications. American Economic Review, 108(1), 170-199.
3. Burchi, F., Malerba, D., Rippin, N., & Montenegro, C. E. (2019). Comparing global trends in multidimensional and income poverty and assessing horizontal inequalities (No. 2/2019). Discussion paper.
4. Cerra, M. V., Lama, M. R., & Loayza, N. (2021). Links between growth, inequality, and poverty: a survey.
5. Deaton, A. (2021). COVID-19 and global income inequality. LSE public policy review, 1(4), 1.
6. Guvenen, F., Pistaferri, L., & Violante, G. L. (2022). Global trends in income inequality and income dynamics: New insights from GRID. Quantitative Economics, 13(4), 1321-1360.
7. Inklaar, R., & Rao, D. P. (2017). Cross-country income levels over time: did the developing world suddenly become much richer?. American Economic Journal: Macroeconomics, 9(1), 265-290.
8. Johnson, P., & Papageorgiou, C. (2020). What remains of cross-country convergence?. Journal of Economic Literature, 58(1), 129-175.
9. Lagos, K., & Wang, Y. (2023). International tourism and poverty alleviation: cross-country evidence using panel quantile fixed effects approach. Journal of Travel Research, 62(6), 1347-1371.
10. Lee, K. K., & Vu, T. V. (2020). Economic complexity, human capital and income inequality: a cross-country analysis. The Japanese Economic Review, 71(4), 695-718.
11. Makhlouf, Y. (2023). Trends in income inequality: evidence from developing and developed countries. Social Indicators Research, 165(1), 213-243.
12. Malerba, D. (2020). The trade-off between poverty reduction and carbon emissions, and the role of economic growth and inequality: an empirical cross-country analysis using a novel indicator. Social Indicators Research, 150(2), 587-615.
13. Marrero, G. A., & Servén, L. (2022). Growth, inequality and poverty: a robust relationship?. Empirical Economics, 63(2), 725-791.
14. Mayer, A., Haas, W., & Wiedenhofer, D. (2017). How countries' resource use history matters for human well-being–an investigation of global patterns in cumulative material flows from 1950 to 2010. Ecological Economics, 134, 1-10.
15. Mendez, C., & Santos-Marquez, F. (2021). Regional convergence and spatial dependence across subnational regions of ASEAN: Evidence from satellite nighttime light data. Regional Science Policy & Practice, 13(6), 1750-1778.
16. Miled, K. B. H., Younsi, M., & Landolsi, M. (2022). Does microfinance program innovation reduce income inequality? Cross-country and panel data analysis. Journal of Innovation and Entrepreneurship, 11(1), 7.
17. Naveed, A., & Wang, C. (2018). Can religion explain cross-country differences in inequality? A global perspective. Social Choice and Welfare, 50(3), 481-518.
18. Saba, C. S., & Ngepah, N. (2022). ICT diffusion, industrialisation and economic growth nexus: An international cross-country analysis. Journal of the Knowledge Economy, 13(3), 2030-2069.
19. Salotti, S., & Trecroci, C. (2018). Cross-country evidence on the distributional impact of fiscal policy. Applied Economics, 50(51), 5521-5542.
20. Utkarsh Singh. (2023). Global poverty and inequality dataset. Kaggle. https://www.kaggle.com/datasets/utkarshx27/global-poverty-and-inequality-dataset
21. Von Fintel, D., & Orthofer, A. (2020). Wealth inequality and financial inclusion: Evidence from South African tax and survey records. Economic Modelling, 91, 568-578.
22. Wietzke, F. B. (2019). Poverty reduction and democratization–new cross-country evidence. Democratization, 26(6), 935-958.
23. Wietzke, F. B. (2020). Poverty, inequality, and fertility: the contribution of demographic change to

global poverty reduction. Population and Development Review, 46(1), 65-99.
24. Yu, J., & Meng, S. (2022). Impacts of the internet on health inequality and healthcare access: a cross-country study. Frontiers in Public Health, 10, 935608.
25. Zhang, R., & Naceur, S. B. (2019). Financial development, inequality, and poverty: Some international evidence. International Review of Economics & Finance, 61, 1-16.