A Comprehensive Analysis of the Economic Development and Income Gap

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Abstract: The third wave of global economic integration is advancing at an unprecedented speed. At the same time, there is intense debate among people about the impact of globalization on the economy, society, environment, and other aspects. One of the core issues of debate is the impact of globalization on income disparities between countries. Many people believe that the rules of globalization are beneficial to rich countries by sacrificing the interests of the third world, exacerbating inequality between countries and exacerbating poverty. This article uses literature review and case analysis methods, and panel data to study the impact of globalization on income inequality between countries through a regression based inequality decomposition framework. This paper will start with theoretical analysis and then test these theories with empirical data. Our goal is to provide a comprehensive perspective to understand the interaction between these two important economic variables and to look for possible equilibrium strategies.

Keywords: Economic development, income gap, economic impact

1.   Introduction

In theory, the impact of globalization on inequality within and between countries is uncertain, depending on the specific situation of each country and the content involved in globalization [1]. Different theories have been proposed regarding the impact of globalization on inequality. Wade categorizes these theories into three categories: neoclassical economic growth theory, endogenous economic growth theory, and sociologist dependency theory. The neoclassical economic growth theory suggests that in the long run, the income and productivity levels of each country will eventually converge, mainly due to the flow of international capital[2]. The endogenous economic growth theory suggests that due to the increase in returns on technological innovation offsetting the decrease in marginal returns on capital, income levels in various countries are more likely to diverge rather than converge. Finally, the dependency theory suggests that developing countries benefit less from economic integration due to their limited access to international markets and narrow export capabilities. Correspondingly, globalization cannot bring about absolute convergence.

Under the current diversified theoretical expectations, analyzing the true impact of globalization on inequality has largely become an empirical issue. The existing literature mainly estimates the impact of globalization on inequality through the following methods, in order to explore the relationship between globalization and inequality. (1) In cross-border or time series regression, introducing different measures of globalization as independent variables into the regression model

[3]; (2) Estimating various inequality indicators using income and population data, and decomposing the overall inequality into "between countries" and "within countries" using traditional decomposition methods [4]; (3) Using longer historical data to analyze the income of countries around the world and linking inequality to the degree of globalization in different periods, in order to observe the impact of globalization on income distribution [5].

So far, the existing literature has not formed a consistent view. In addition, early research did not use cross-border data to quantify the relative contribution of globalization and other variables to inequality between countries. Based on this, this article attempts to fill the gap in existing literature by answering three questions. Firstly, in the global context, what is the relationship between globalization and inequality, that is, has openness worsened or reduced transnational inequality? Secondly, what is the actual contribution of globalization to the inequality between countries? Thirdly, has the contribution of globalization to transnational inequality increased or decreased?

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This article will adopt a new decomposition method that combines regression equations with the Shapley value decomposition method, which can help identify the determining factors of inequality and estimate their absolute and relative contributions to total inequality.

2. Theoretical Analysis of Economic Development and Income Gap

2.1. Economic Development and Productivity

Economic development is usually accompanied by an increase in productivity, which leads to a general increase in wages, thereby narrowing the income gap.Economic development and productivity are the two core elements that drive social progress[6]. Economic development is not only about GDP growth, but also encompasses progress in various aspects such as optimizing industrial structure, technological innovation, and expanding employment. Productivity reflects human ability to transform nature and meet social needs, and its improvement can drive economic development to a higher stage[7].

In the process of economic development, the improvement of productivity is crucial. By introducing advanced technology, improving the quality of workers, and optimizing resource allocation, production efficiency can be continuously improved, promoting sustained and healthy economic development[8]. At the same time, economic development also provides a material foundation and market space for the improvement of productivity, and the two mutually promote and jointly promote social progress.

HoThis paperver, This paper should also recognize that economic development and productivity improvement are not an overnight process. This paper need the joint efforts of the government, enterprises, and all sectors of society to continuously promote economic development and productivity improvement through measures such as deepening reform, expanding opening up, and strengthening innovation, in order to achieve comprehensive social progress and common prosperity for the people[9].

2.2. Economic Development and Inequality

Economic development and inequality are two closely connected phenomena in contemporary society. With the rapid growth of the economy, the material This paperalth of society continues to accumulate, and people's living standards generally improve. HoThis paperver, economic development has also brought about an exacerbation of inequality issues.

On the one hand, economic development promotes the flow and allocation of resources, enabling some people to seize opportunities and achieve a leap in This paperalth and status. On the other hand, due to inequalities in education, opportunities, and resource allocation, many people still live in poverty and hardship. This inequality is not only reflected in the widening This paperalth gap, but also in the development differences betThis paperen urban and rural areas and regions[10].

Therefore, while pursuing economic development, This paper must pay close attention to the issue of inequality, strive to build a fair and reasonable social system, and provide equal development opportunities for everyone. Only in this way can This paper truly achieve sustainable economic development social harmony and stability.

3. Empirical Analysis

3.1. Data Source

This study used the 2006- -2022data included in the World Bank World Development Index. System means, the values are obtained from the comprehensive database of Freedom HouseTable 1 presents the basic statistical values for the data. The degree and range of change This paperre evident for all variables. For example, the average per-capita real income for all countries in 2000 was $9,217, with the loThis paperst in Malawi $ $552 and the highest in Norway $32,228. As can be seen from Figure 5, there was a positive correlation betThis paperen transnational per capita real income and openness in 2022. Per capita income and education level This paperre also positively correlated [11].

Table 1: Summary of the statistics in [12]

variable	mean value	standard deviation	least value;	crest value;
2006				
Actual GDP per capita	6827.70	6864.30	512.22	23919.18
Trade per capita (at a constant price of a hundred dollars)	24.71	39.57	0.40	239.26
FDI per capita (with a constant price of US $100)	0.38	0.89	-1.36	5.15
Material capital per capita (at a constant price of 100 dollars)	1424.29	2104.62	15.54	8380.67
Adult literacy rate (percentage)	71.66	25.64	9.56	99.00
Life expectancy (years)	63.50	10.47	40.65	77.65
Population burden rate	0.75	0.19	0.41	1.13
Inflation rate of goods is (%)	170.18	1305.11	-1.81	11749.64
System index	1.73	0.77	1	3
2000				
Actual GDP per capita (Adjusted PPP)	9217.11	9475.17	551.61	32227.57
Trade per capita (at a constant price of a hundred dollars)	49.20	91.28	0.24	621.85
FDI per capita (with a constant price of US $100)	5.16	11.30	-0.31	61.58
Material capital per capita (at a constant price of 100 dollars)	2060.73	3013.97	12.28	12162.06
Adult literacy rate (percentage)	80.10	21.08	15.95	99.31
Life expectancy (years)	65.63	12.87	37.97	81.07

Table 1: (continued).

Population burden rate	0.66	0.17	0.41	1.05
rate of inflation (%)	7.55	13.98	-3.84	96.09
System index	1.61	0.71	1	3

3.2. Estimated Results

This paper estimate the income determination function with a model combining two Box-Cox and Box-TidThis paperll transformations, which has great flexibility and can minimize the model setting error. The model form is as follows:

+ Fixed effect + year dummy variable + u

Where represents real income per capita (adjusted PPP),Mean income determinants (discussed in the previous section),To transform the parameters,For residual terms.

In Equation (3),。According to the Robine rule, when λ and θ tend to 0, respectively,'limit is limit is[13]. therefore, ,andthe income determination function is semi-logarithmic form, standard linear function form, and double logarithmic form, respectively.When the transformation parameters andare both-1, the relevant variables become their own derivatives. obvious;when and take 0,1,1 or no restrictions, different combinations of and formed 16 different models。besides,,butand when any values can be taken,This paper can again obtain an extended Box-Cox model。This paper will fit all 17 models with data and select the models based on the commonly used likelihood ratio (LR) test. The final selected model corresponds to and has no limitations (1). In terms of fitting, the model fits the data very This paperll (see Table 2). The LR statistical value is highly significant for all variables, and the square of the correlation coefficient betThis paperen the actual and estimated values is 0.96. The symbols of all estimated coefficients in Table 2 match the expected values,

Most are significant at the 1% significance level. The material capital and human capital, represented by the total per capita material capital and adult literacy rate, respectively, have a significant positive impact on income. It is interesting that the coefficient of adult literacy rate is slightly higher than the coefficient of per capita material capital, indicating the importance of education in promoting economic growth. An increase in life expectancy can increase income, while a high population burden rate leads to a decrease in income due to its implied loThis paperr labor participation rate.

The two variables that this article particularly focuses on, namely per capita trade and per capita net FDI, both have a significant positive impact on income, indicating that openness can promote income growth and supporting the view that economic integration can promote economic growth. The coefficients of almost all country dummy variables are significant at the 1% or 5% significance level, indicating the importance of geographic location and other fixed effects of specific countries (i.e. other factors that are still uncontrollable in our equations). HoThis paperver, the inflation rate and institutional index are not significant. Although many people have emphasized the importance of institutions in recent literature. HoThis paperver, Gwartney et al. obtained similar results to ours when studying the impact of institutions on economic growth [14].

To test the robustness of the estimation results, This paper used different combinations of control variables and additional variables (such as the ratio of public expenditure to GDP, adult male or female literacy rate, and institutional indices provided by Freedom Network) included in Table 2 to estimate multiple extended income functions. HoThis paperver, no such function has changed the empirical relationship betThis paperen globalization indicators and per capita income.

On the other hand, This paper also noticed the potential endogeneity betThis paperen income and globalization indicators in the model. Neglecting the causal relationship betThis paperen income and openness can lead to biased and inconsistent estimates. To solve this problem, This paper use instrumental variable (IV) technique. Generally speaking, the selection of instrumental variables is a difficult task. Here, This paper select instrumental variables that people often use and find to be effective, including those constructed based on gravity models and lagged values or their means of per capita trade quotas . As for FDI, real exchange rates or lagged GDI can be used as tools . This paper uses the average of the lagged values of per capita trade volume and per capita FDI over three periods as tools, and estimate the income determination function using the Box Cox method. The results are shown in Table 2.

Table 2: Estimation results of the income determination function [14]

| variable | OLS | | IV | Technique |
	Estimated value	p-value	Estimated value	p-value
Per capita material capital	0.0403	0.000	0.0423	0.000
Per capita trade	0.1092	0.000	0.1218	0.000
per capita FDI	0.0018	0.013	0.0072	0.000
adult literacy rate	0.0692	0.000	0.0705	0.000
Life expectations	0.1035	0.000	0.1166	0.019
Population burden rate	-0.2808	0.000	-0.2335	0.000
inflation	0.0000	0.264	0.0000	0.462
System index	-0.0123	0.200	0.0133	0.877

So far, This paper have put the 81 countries together. But the income levels and other characteristics of these countries vary greatly. For example, the per capita income of the richest countries is 50-60 times higher than that of the poor countries. Based on the above decomposition results, one cannot judge whether the contribution of various factors to inequality is the same within different income groups. In addition, globalization is likely to be different in different income groups. From a government policy perspective, it is also necessary to identify the factors that influence the income divergence within the income groups, in order to help those poor countries catch up with the higher-income countries in their groups, or even to cross them from the low-income group to the high-income group.

According to the World Bank's classification criteria, This paper divided the sample into two groups: the first group includes middle-and low-income countries; the second group includes middle-high and high-income countries. In our sample, there This paperre 46 and 35 countries included in the first and second groups, respectively. As before, This paper still estimated the income determination function for each group using the Box-Cox method and then decomposed the inequality with the estimation model. Table 4 presents the estimated results for the income functions of the two income groups. In both income groups, both per capita material capital and per capita trade had a significant positive effect on income, whereas per capita FDI was only significant in high-income countries. Curiously, despite the theoretical importance of adult literacy, This paper did not find it as a significant factor in determining income in the low-and middle-income groups. The inflation rate was not significant in the estimates for both income groups, while the institutional index was significant only significant at the 10% significance level in the low income group.

Table 3: Estimation results of the income determination function of the two income groups

variable	Middle-and high-income and high-income group countries		high-Low-income and middle-income-group countries	
	Estimated value	p-value	Estimated value	P-value
Per capita material capital	0.0121	0.000	0.0462	0.000
Per capita trade	0.0472	0.000	0.1362	0.000
per capita FDI	0.0014	0.005	0.0078	0.652
adult literacy rate	0.1906	0.000	0.0450	0.158
Life expectations	0.0037	0.857	0.1863	0.000
Population burden rate	-0.3350	0.000	-0.3505	0.000
inflation	-0.0000	0.766	0.0000	0.398
System index	0.0097	0.549	-0.0212	0.085
θ	0.3642	0.000	0.1621	0.040
Sample volume	595		782	
Log likelihood values	873.48		755.72	
LR chi²	2836.37		3133.54	
Pnob.>chi2	0.000		0.000	

The trade-off between fairness and Efficiency: How should This paper balance economic development and income equity? This is an important policy issue.

Policy intervention: Governments can influence income inequality through tax and policies while encouraging economic development.

4. Conclusion

The center of this paper is quantifying the contribution of globalization to transnational inequality. This paper found that both trade and FDI contribute positively to per capita income. Material capital and human capital, geographical attributes and demographic characteristics are some other important income determinants. Our estimation results are robust and seriously address the endogeneity problem. Our important findings also include: (1) geography, trade quotas and material capital are the main contributors to income inequality; adult literacy, population burden, life expectancy and FDI are folloThis paperd. (2) Trade and FDI make positive contributions to inequality, although the share of the former is much higher than the latter.(3) The absolute and relative contributions of trade and FDI to inequalities have been rising steadily.

The increase in the absolute or relative contribution of trade and FDI to inequality shows the fact that the importance of global trade and FDI is rising. HoThis paperver, our study shows that poor countries do not gain as much from the process of globalization as rich countries, especially as trade contributes considerably to income across borders. More importantly, when This paper divide all countries into two groups (i. e., high and high income groups; low and low income groups), these globalization indicators promote income divergence within each income group. The results also show that betThis paperen rich countries, material capital is much more important than openness itself to unequal contributions, with trade becoming the determinant of inequality betThis paperen low-and middle-income groups. Finally, This paper also found a slightly loThis paperr income inequality in 2022 in the high income group than in 2006, but the opposite was true in the low income group.

In conclusion, the study shows that globalization has a positive impact on per capita income. HoThis paperver, due to the differences in the process and speed of globalization and adapting to the changes in the international market environment, globalization plays an important role in causing

inequality. Therefore, in addition to increasing domestic investment and increasing public spending such as health and education grants, developing countries must implement enhanced export strategies and attract foreign investors by improving the efficiency of public institutions as This paperll as the investment environment.

Only when the international trade system becomes more equitable will the benefits from trade become equal. This calls for concerted action by the international community to ensure that poor countries become equal and effective players in the multilateral trading system and the global economy. This paper believe that the most important step is to abolish subsidies for agricultural products from developed countries and the reduction of tariffs on manufactured goods from developing countries. Further, providing technical assistance and capacity-building for low-income countries are also necessary to strengthen institutional building and promote trade and investment activities.

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