Economic Development and Income Inequality in the Context of Common Prosperity—— Based on China's Interprovincial Panel Data

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Abstract: This paper is used China's inter-provincial panel data from 2000 to 2019 to establish an OLS econometric regression model. It is empirically studied the impact of China's economic development on the income gap of residents in the past two decades. After controlling for other explanatory variables, the study found a significant positive linear correlation between economic growth and resident income inequality. It is basically in line with the actual situation of our country. In addition, this paper is put forward some practical measures for the government to curb the deterioration of residents' income gap based on the regression results of the model, such as improving residents' public education level and increasing public budget expenditure to strengthen local infrastructure construction. It is pointed out that the most critical work is to change the current unreasonable income distribution system.

1. Introduction

General Secretary Jin-Ping Xi emphasized at the tenth meeting of the Central Finance and Economics Committee chaired on August 17 that common prosperity is the essential requirement of socialism and an essential feature of Chinese-style modernization. Over the past 40 years of reform and opening-up, China's economy has grown at an average rate of 9.5%. In 2010, its total GDP reached the second largest in the world. It is known as a "Chinese-style development miracle." (Xiao-Ling Yuan, 2019). However, with the increase of economic strength, the economic structure is gradually unbalanced, the income gap between residents is gradually widening, and the inequality situation is becoming more and more serious. According to data from the National Bureau of Statistics, the Gini coefficient of per capita disposable income of national residents reached the highest point of 0.491 in 2008. It has shown a downward trend since 2009 and dropped to 0.468 in 2020, but it is still higher than the international warning line of 0.4.

This paper selects the panel data of five provinces from 2000 to 2020 and studies the relationship between economic development and residents' income inequality under the background of common prosperity in the country based on multiple regression analysis. Based on promoting the continuous improvement of the country's economic strength, it suggests further reducing residents' income gap. The suggestion on residents' income gap provides a theoretical reference for the Central Committee of the Communist Party of the country to formulate the strategy of common prosperity.

2. Literature Review

Judging from the existing literature, many scholars at home and abroad have researched the relationship between economic development and inequality, but there is still no conclusion about what kind of relationship exists between the two.

Ming Xu and Chang-Geng Liu (2015) conducted an empirical analysis of China's inter-provincial panel data from 1978 to 2010. They established a fixed utility model, generalized least squares method, and autocorrelation model to illustrate the improvement of regional economic development level, which effectively reduced the income gap of urban and rural residents. Jing-Ming Liu and Mei-Jing Zhu (2020) believed that economic growth does not necessarily lead to an increase in income

inequality first and then a decrease. On the contrary, economic growth and the improvement of marketization have the social function of reducing income inequality. Md. Rabiul Islam and Mark McGillivray (2020) collected panel data of 45 sample countries published by Credit Suisse from 2000 to 2012. The system GMM is used to estimate the relationship between wealth inequality and economic growth. The results are shown that wealth inequality is negatively correlated with cross-country economic growth.

However, some scholars still support Kuznets' inverted U-shaped hypothesis. It is argued that there is a nonlinear relationship between economic growth and income inequality. Ya-Zhou Fan and Yin-Yan Shu (2013) collected the indicator data from 1978 to 2010 based on the China Statistical Yearbook, used a smooth transfer model to study, and tested many factors that may be the transfer variables of the relationship between income inequality and economic growth. The conclusion shows that the relationship between income inequality and economic growth in China conforms to Kuznets' inverted U-shaped curve. Xiao-Hui Rao and Jin-Qiu Liao (2009) believe that the impact of my country's urban-rural income gap on economic growth is obviously asymmetric with nonlinear transfer dynamics. Mehmet Balcilar (2021) and others collected sample data from 63 countries from 1991 to 2017. The study found an inverted U-shaped relationship between income inequality and economic growth. The impact of income inequality on economic growth is positive when the average threshold of the Gini coefficient is 35.92, and if it exceeds this threshold, it has a negative impact on economic growth.

There are still many deficiencies in the research on the relationship between economic development and income inequality at home and abroad. It is necessary to conduct multi-faceted and more profound research. First of all, most of the domestic and foreign studies on this issue are based on Kuznets' inverted U-shaped curve and debate whether it conforms to the nonlinear relationship. Secondly, most of the existing studies focus on the single or two-way causal relationship between income disparity and economic growth, and there is no detailed and in-depth research on its impact mechanism. Thirdly, it is inevitable that different scholars deal with the indicators differently, which affects the robustness of the regression results to a certain extent.

Based on the above analysis, this paper draws on previous research experience, uses per capita GDP as a variable to measure the level of economic development, uses the Gini coefficient as an explained variable to represent the level of residents' income inequality, and introduces some control variables to express economic level. Based on the "China Statistical Yearbook" indicator data in the past 20 years, this paper establishes a regression fitting model of economic development and residents' income gap. In the context of common prosperity, this paper analyzes the impact of China's economic development after entering a new era on the country's income inequality.

3. Empirical Research

3.1 Model and Variable Description

In order to analyze the impact of economic development on income inequality, we build an econometric model, which considers clustered robust standard errors, and a double fixed-effect model:

$$\ln\mathrm{Gini}_t = \beta_0 + \beta_1 \ln\mathrm{GDP}_{\mathrm{pert}} + \beta_2 \ln X_t + \varepsilon_t \quad (1)$$

In the above formula, t represents time, Gini is the Gini coefficient, which is used to measure the degree of income inequality, and is used as the explained variable; $\mathrm{GDP}_{\mathrm{per}}$ is the per capita GDP, which is used as the core explanatory variable to measure the level of economic development; X is a set of control variables, and it is expressed by the registered unemployment rate of urban workers, the proportion of non-state-owned economic workers in the total number of employees, and the proportion of foreign trade in GDP. ε_t is a random error term (Qun-Li Sun, 2014). The data used in the quantitative analysis of this paper come from 2000 to 2020 "China Statistical Yearbook" and "Statistical Yearbook" of five provinces, including Shandong, Sichuan, Jiangsu, Liaoning, Guangxi. See Table 1 for variable definitions.

Table 1 Variable definition table

Variable	Variable Definitions	Indicator Description
Gini	Gini coefficient	The income inequality of residents
GDP_{per}	GDP per capita (100 million yuan)	Economic development
employ	The registered unemployment rate of urban workers(%)	Resident employment level
FAI	The proportion of non-state-owned economy employees to the total number of employees(%)	Degree of denationalization
trade	Foreign trade as a percentage of GDP(%)	level of trade openness
enroll	Number of students enrolled in primary schools, ordinary middle schools, and ordinary institutions of higher learning (10,000 people)	Social education level
govsize	General public budget expenditure as a percentage of GDP(%)	Size of government

Due to the lack of data in several years of some indicators in the Statistical Yearbook, this paper uses methods to estimate, such as grey forecasting and mean replacement.

3.2 Empirical Results and Analysis

The regression results of the model are shown in Table 2. The econometric model results show that when the control variables are gradually introduced into the model, the regression coefficient of per capita GDP in the model to the Gini coefficient is always positive and significant at the 1% significance level. The income gap between residents will increase significantly with economic development.

Table 2 The regression results of the effect of economic development on income inequality

lnGini	(1)	(2)	(3)	(4)	(5)
$lnGDP_{per}$	0.323 (12.960) ***	0.338 (8.790) ***	0.280 (6.900) ***	0.218 (5.330) ***	0.222 (3.890) ***
lnemploy	0.072 (0.660)	0.079 (0.720)	0.088 (0.840)	-0.048 (-0.460)	-0.048 (-0.460)
lnFAI		-0.056 (-0.510)	-0.036 (-0.350)	0.126 (1.210)	0.120 (1.050)
lntrade			0.095 (3.320) ***	0.092 (3.490) ***	0.089 (2.020) **
lnenroll				-0.172 (-3.990) ***	-0.175 (-3.130) ***
lngovsize					-0.009 (-0.110)
_cons	-4.862 (-14.220) ***	-4.806 (-13.350) ***	-4.600 (-13.210) ***	-3.473 (-8.090) ***	-3.439 (-6.400) ***
Observations	100	100	100	100	100
Adj.R^2	0.671	0.669	0.700	0.741	0.738
F statistic	102.050	67.600	58.780	57.600	47.500

Note: ***, **, * indicate significance at the 1%, 5%, and 10% significance levels, respectively, and the numbers in parentheses are the values of the t sta

In addition, the empirical results also show that with the improvement of residents' employment level, social education level, and the scale of government expenditure, the income gap between

residents will gradually narrow; at the same time, with the improvement of the level of denationalization and trade openness, the level of resident income inequality will gradually increase.

3.3 Robustness Test

To verify the robustness of the regression results of the above regression model, the registered unemployment rate of urban workers, which is represented the employment level of residents in the original model, is replaced with the ratio of the number of employees in the primary and secondary industries to the total number of employees. The ratio of foreign trade volume to GDP, indicating trade openness, is replaced with the ratio of trade export volume to GDP. The conclusion shows (regression results omitted) the new regression results are consistent with the regression results of the original model. The core explanatory variable GDP per capita coefficient is still significantly positive at the 1% significance level, and the sign of the regression coefficient of each variable has not changed. It is proved that the regression results of the original model are robust (Chao Lian, 2021).

3.4 Heterogeneity Analysis

By averaging the GDP data of Shandong, Sichuan, Liaoning, Jiangsu, and Guangxi provinces from 2019 to 2020, it is found that the average values of Shandong and Jiangsu provinces are close, and Sichuan, Liaoning, and Guangxi provinces are close. Therefore, we take Shandong and Jiangsu provinces as one group and Sichuan, Liaoning, and Guangxi provinces, and it is performed regressions on the two groups, respectively.

The two-part regression (regression results slightly) shows that the core explanatory variable per capita GDP is always significant at the 1% significance level. The regression coefficient of Shandong Province and Jiangsu Province group 0.32 is greater than the coefficient of Sichuan, Liaoning, Guangxi Province group 0.28. This result is basically in line with theoretical expectations, indicating that in regions with relatively high GDP, that is, relatively developed economies, economic development has a more obvious role in promoting income inequality.

3.5 Expansion Analysis

In this paper, considering the availability of indicator data, we have drawn on previous research experience and define the proportion of social security expenditure in GDP as a measure of social welfare (Bao-Qin Li, 2021). The original model is expanded to analyze the impact of economic development on social welfare, and the following regression model is established:

$$\ln\text{Security}_t = \beta_0 + \beta_1 \ln\text{GDP}_{\text{pert}} + \beta_2 \ln X_t + \varepsilon_t \quad (2)$$

In the above formula, Security represents the proportion of social security expenditure in GDP, which is used as the explained variable. The meaning of the remaining variables is the same as that of the original model.

The results are shown (regression results slightly) that there is a positive correlation between per capita GDP and social security expenditure, and it is significant at the 1% significance level, that is, with the gradual development of the economy, the level of social welfare will continue to increase, which is consistent with reality. Since the founding of the People's Republic of China, more than 70 years have passed. China's economy has undergone earth-shaking changes. The two goals of building a moderately prosperous society in an all-around way and winning the battle against poverty have been achieved. The welfare level of the Chinese people has been greatly improved, and people's lives have been strongly guaranteed.

4. Conclusion and Suggestion

4.1 Conclusion

Based on previous research experience, this paper conducts regression fitting and strict econometric test on the relationship between income inequality and economic development level in China in the past two decades. It draws the following conclusions: Firstly, through OLS econometric regression

analysis on the Chinese inter-provincial panel data of five provinces from 2000 to 2019, it is found that after controlling for the five factors of residents' employment level, non-nationalization level, trade openness level, residents' education level, and government size, Under the circumstance, the relationship between residents' income inequality and economic development shows a significant positive linear correlation. To a certain extent, the improvement of the level of economic development will bring about the deterioration of residents' income inequality. Secondly, the article conducts a robustness test, heterogeneity, and expansion analysis of the original model utilizing variable addition, variable transformation, data grouping, etc., which proves that the original model has good regression characteristics.

4.2 Policy Suggestions

In the 40 years of reform and opening up, although China's economy has made remarkable achievements, the income gap between residents was gradually increasing. Through the analysis of five control variables in this paper, the impetus of economic growth on residents' income gap can be restrained by measures such as residents' employment, residents' education, and the scale of government spending. Therefore, the government can improve the level of residents' employment by improving the level of residents' public education, adopt appropriate foreign trade policies according to the region's actual situation, and increase public budget expenditures to strengthen local infrastructure construction or take other measures. It is of great significance for effectively controlling residents' income gap while benefiting its economic construction. However, the most important thing is to change the current income distribution system that is incompatible with the level of economic development and solve the factors that cause the widening income gap between residents from the root cause.

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