

Research on the Impact Mechanism of Urbanization to Narrow the Urban-Rural Income Gap: Empirical Analysis based on China's Provincial Data

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Abstract

Does urbanization and industrial structure widen or narrow the urban-rural income gap? What role does China's economic development play in the relationship between the three? In order to solve these two problems, the industrial structure and economic development are integrated into the analysis framework of urbanization and urban-rural income gap. Through the construction of an adjusted intermediary effect model, based on China's inter provincial panel data from 1999 to 2020, the impact mechanism between the three is empirically studied. The results show that urbanization directly reduces the urban-rural income gap on the one hand, and indirectly reduces the urban-rural income gap by promoting the rationalization of industrial structure on the other hand; Economic development has further strengthened the direct and indirect effects of urbanization on narrowing the urban-rural income gap. In view of this, this paper finds that the current urbanization and economic development have formed a good mutual promotion relationship. Therefore, in order to narrow the urban-rural income gap, we should continue to promote the urbanization process and vigorously develop the economy.

Keywords

Urban-rural Income Gap; Urbanization; Industrial Structure; Economic Development.

1. Introduction

The Fifth Plenary Session of the 19th Central Committee of the CPC for the first time put forward the goal of achieving more tangible and substantial progress for the common prosperity of all people. As one of the long-term goals of socialist modernization in 2035, narrowing the regional development gap and achieving common prosperity has become a hot topic of current national and social concern. However, the problem of income distribution in China is still serious. According to statistics, the Gini coefficient of Chinese residents' income was 0.479 in 2003, which has been increasing year by year since then. It began to fluctuate and decline after reaching the highest value of 0.491 in 2008. By 2020, the Gini coefficient of Chinese residents' income had dropped to 0.465, still higher than the national warning line of 0.4. Under the background of urban-rural dual structure, the urban-rural income gap is the main reason for the expansion of China's income gap[1]. Although the growth rate of rural residents' disposable income has been higher than that of urban residents since 2014, the urban-rural income gap is still widening, and the income gap will increase from 17037 yuan in 2014 to 26703 yuan in 2020.

Since the reform and opening up, after more than 40 years of development, China has made remarkable achievements in the process of urbanization. China's urbanization rate has increased from 17.92% in 1978 to 63.89% in 2020. In addition, China's industrial structure has also undergone tremendous changes. Generally speaking, the level of income distribution is a result of industrial structure and its evolution[2]. Therefore, it is of practical significance to

deeply analyze the mechanism of urbanization and industrial structure adjustment on urban-rural income gap.

The research on urban-rural income gap is relatively rich. A large number of studies show that urbanization and industrial structure are important factors affecting urban-rural income gap. However, few literatures have conducted in-depth and systematic studies on how urbanization and industrial structure affect the urban-rural income gap based on the dual perspectives of urbanization and economic development. The interaction mechanism between urbanization, industrial structure and urban-rural income gap needs further study.

Therefore, on the basis of the above research, this paper introduces the research framework of traditional urbanization and urban-rural income gap at the same time through the construction of an adjusted intermediary effect model, and deeply analyzes the impact mechanism of urbanization on urban-rural income gap.

The results of this study show that urbanization directly reduces the urban-rural income gap on the one hand, and indirectly reduces the urban-rural income gap by promoting the rationalization of industrial structure on the other hand; Economic development has further strengthened the direct and indirect effects of urbanization on narrowing the urban-rural income gap; From the perspective of regional heterogeneity, economic development has a significant regulatory role in narrowing the urban-rural income gap in the central and western regions, while it is not obvious for the eastern regions.

The marginal contribution of this paper lies in: First, based on the dual perspectives of urbanization and economic development, this paper systematically investigates the impact mechanism of urbanization on urban-rural income gap, and puts forward the corresponding hypothesis, which enriches the research on urban-rural income gap; Secondly, this paper empirically tests the direct impact of urbanization on urban-rural income gap, and the indirect impact of urbanization on urban-rural income gap through the impact of industrial structure, using the inter provincial panel data of China from 1999 to 2020, which makes a useful supplement to the existing literature; Third, this paper overcame the possible defects of the traditional interactive item test, built a mediation effect model with regulation, and further empirically tested the regulatory effect of economic development in the process of urbanization - industrial structure - urban-rural income gap transmission.

The rest of this paper is arranged as follows: The second part is methodology, the third part is results and discussion, and the last four parts are main conclusions.

2. Methodology

2.1. Model Setting

The purpose of intermediary effect analysis is to explore how independent variables affect dependent variables[3]. The text tries to empirically test the influence mechanism of urbanization on urban-rural income gap on the basis of building a model of mediated effects. The methods of intermediary effect test mainly include sequential test, Sobel test, Bootstrap test and MCMC test, among which sequential test is the most widely used method. The sequential test method has the highest reliability despite its low test power. Therefore, this paper will use the sequential test method to test whether the rationalization of industrial structure is the intermediary variable of urbanization affecting the urban-rural income gap. In addition, it will also test the regulatory effect of the level of economic development in this process. The inspection of this paper is divided into the following two stages.

The first stage is to test whether the proposed intermediary variable has a mediation effect between the core explanatory variable and the explained variable. The model is set to:

$$Y = a_1 + b_1X_1 + \sum_{i=2}^n \theta_i X_i + \varepsilon_1 \quad (1)$$

$$M = a_2 + b_2X_1 + \sum_{i=2}^n \theta_i X_i + \varepsilon_2 \quad (2)$$

$$Y = a_3 + b_3X_1 + \sum_{i=2}^n \theta_i X_i + c_3M + \varepsilon_3 \quad (3)$$

Where, Y represents the explained variable, X_1 represents the core explanatory variable, X_i ($i = 2, 3 \dots, n$) represents the control variable, M represents the intermediate variable, and, a_i , b_i , c_i and θ_i ($i = 1, 2, 3 \dots, n$) represent the corresponding estimation parameters. Equation (1) tests whether the core explanatory variable has a significant impact on the explained variable, Equation (2) tests whether the core explanatory variable has a significant impact on the intermediate variable, and Equation (3) tests whether the intermediate variable has a significant impact on the explained variable after controlling the impact of the core explanatory variable. If the coefficients, and are significant at the same time, it indicates that the intermediary effect exists. Where, if the coefficient is not significant, it means that the mediation effect is complete mediation, otherwise it is partial mediation.

After the first stage tests that there is a mediation effect, the second stage tests that whether the mediation effect is regulated. The mode is set to:

$$Y = a_4 + b_4X_1 + \sum_{i=2}^n \theta_i X_i + d_4U + \beta_4UX + \varepsilon_4 \quad (4)$$

$$M = a_5 + b_5X_1 + \sum_{i=2}^n \theta_i X_i + d_5U + \beta_5UX + \varepsilon_5 \quad (5)$$

$$Y = a_6 + b_6X_1 + \sum_{i=2}^n \theta_i X_i + c_6M + \delta_6UM + d_6U + \beta_6UX + \varepsilon_6 \quad (6)$$

Where, U represents the adjustment variable, UX and UM respectively represent the interaction items between the adjustment variable, the core explanatory variable and intermediary variable, and d_i , β_i , δ_i ($i = 4, 5, 6$) are the corresponding parameters. Equation (4) tests whether the regulating variable has a regulating effect on the direct path, and equation (5) and equation (6) respectively test whether the regulating variable has a regulating effect on the first half and second half of the intermediate process. If the coefficient is significant and at least one of and is significant, it means that the mediation effect is regulated by the regulating variable U.

2.2. Variable Definition and Data Source

2.2.1. Explained Variable: Urban-rural Income Gap (Y)

At present, most of the indicators used to measure the urban-rural income gap in the literature mainly include the following three indicators: urban-rural income ratio, Gini coefficient and Theil index. Some scholars pointed out that although the urban-rural consumption ratio is simple and feasible, the urban-rural population factor has not been taken into account[4]. In view of the fact that the Gini Index is sensitive to changes in the middle part and the Theil index is sensitive to changes at both ends, it is more in line with China's reality. Therefore, this paper uses the Theil index of urban and rural consumption to measure the urban-rural consumption gap. The formula for calculating the Theil index of urban-rural income gap is as follows:

$$Y = \alpha \ln(\rho_c/\rho) + (1 - \alpha) \ln(\rho_r/\rho)$$

Wherein, α represents the ratio of the total income of urban population to the total income of urban and rural population, ρ_c and ρ_r represents the per capita output value of urban and rural areas respectively, and ρ represents the total per capita output value.

2.2.2. Core Explanatory Variable: Urbanization Rate (X1)

Urbanization is the core explanatory variable of this paper. At present, most of the literature uses the ratio of urban permanent population to the total population to express the urbanization rate, while some literature uses the ratio of agricultural output value to the total output value to express the urbanization rate. Since this paper focuses on explaining the impact of urbanization on the urban-rural income gap from the changes in the urban and rural

structure of population in the process of urbanization, the ratio of urban permanent population to the total population is selected to measure the urbanization rate.

2.2.3. Intermediate Variable: Industrial Structure Change (M)

At present, the academic research on industrial structure adjustment is mainly measured from two dimensions, namely, industrial structure upgrading and industrial structure rationalization. The former is mainly measured by the ratio of the output value of the tertiary industry to the total output value, while the latter is mainly measured by the Thiel index of the industrial structure. In view of the fact that this study focuses on analyzing whether the impact of industrial employment structure brought by urbanization is conducive to alleviating the dislocation between industrial employment structure and production structure, this paper chooses industrial structure rationalization to measure the change of industrial structure. The formula for calculating the Thiel index of industrial structure rationalization is as follows:

$$M = \sum_{i=1}^3 \gamma_i \ln(\gamma_i/\sigma_i)$$

Wherein, γ_i represents the ratio of output value of industry i to total output value, and σ_i represents the ratio of employment number of industry i to total employment number.

2.2.4. Adjustment Variable: Economic Development Level (U)

Referring to previous relevant studies, this paper selects the capita GDP as an indicator to measure the level of local economic development. This indicator is used to explore the regulatory effect of economic development level on urbanization, industrial structure and urban-rural income gap.

2.2.5. Control Variables

Referring to previous relevant studies, this paper selects the degree of government control X_2 , the degree of economic openness X_3 , the level of financial development X_4 and the level of social investment X_5 as the control variables to measure the economic characteristics of different regions. The names and definitions of variables are shown in Table 1.

Table 1. Variable Definition

Variable	Name	Definition
Y	urban-rural income gap	Theil index
X_1	urbanization rate	urban population accounts for the total population
X_2	government control	Government fiscal expenditure accounts for GDP
X_3	economic openness	import and export volume accounting for GDP
X_4	level of financial development	Financial industry output value accounts for GDP
X_5	level of social investment	Investment in social fixed assets in GDP
M	industrial structure change	Thiel index of industrial structure change
U	economic development level	capita GDP

The above indicators are from the database of China Economic Network, and some missing values are supplemented by the corresponding indicators in the provincial statistical yearbooks. As the industrial output value is affected by price factors, the industrial output value shall be reduced.

2.3. Research Assumptions

There are three views on the research of urbanization and urban-rural income gap. First, urbanization has expanded the urban-rural income gap. In theory, after the government implements the priority development strategy of heavy industry, the development of capital

intensive industries will lead to a relative decline in urban employment demand, while the scale returns of land existence will decline. The inability of rural residents to effectively transfer to cities means that rural income will decrease and urban and rural income will expand[5]. Second, urbanization has narrowed the urban-rural income gap. To what extent the urban-rural income gap in China is determined by factor allocation and urbanization, it is found that the difference in factor allocation has widened the income gap, while urbanization has narrowed the income gap[1]. Urbanization helps to narrow the income gap between urban and rural areas[6- 7]. Third, urbanization is not the main reason for the urban-rural income gap. Based on the research on the relationship between urbanization and urban-rural income gap in Qinghai, China, it is found that there is a long-term equilibrium relationship between urbanization and urban-rural income gap, but it is not the main reason for increasing urban-rural income inequality[8].

In addition, some studies believe that urbanization has a non-linear relationship with the urban-rural income gap. A country's economic development will go through three periods: in the first period, inequality will expand, in the second period, it will become stable, and in the third period, inequality will decrease[2]. This has been confirmed by previous studies, which found that there is a threshold in the relationship between urbanization and urban-rural income gap, that is, the regions where the urbanization level is higher than the threshold show a reduction of income gap[9].

Due to the dislocation of labor time and production time in agricultural production, agricultural labor is only concentrated in busy farming periods, and a lot of time is not fully utilized in the entire agricultural production cycle. In order to pursue more income, it is normal for farmers to become part-time workers. The development of urbanization has created more employment opportunities, which is conducive to the transfer of agricultural surplus labor to cities, increasing farmers' income and narrowing the urban-rural income gap. Based on this, this paper proposes hypothesis 1.

Hypothesis 1: Urbanization contributes to narrowing the urban-rural income gap.

Existing research has confirmed that urbanization will have an impact on the industrial structure. Urbanization can promote the coordinated development of modern service industry, bring about agglomeration effect, and thus promote the upgrading of industrial structure[10]. The process of urbanization can promote industrial division and reorganization, promote the agglomeration of modern industrial elements, and drive the change of industrial structure[11]. Existing research has confirmed that urbanization will have an impact on the industrial structure. From the perspective of the history of economic development, the large-scale urbanization and industrialization led to the gathering of industrial departments and their employees in the city, expanding the size of the city. With the expansion of urban scale, urbanization has played its scale effect and agglomeration effect, promoting industrial development, especially the development of service industry, and also providing a lot of employment opportunities. Therefore, urbanization can affect the industrial structure and employment structure. In addition, the agglomeration of production factors and improvement of infrastructure triggered by urbanization have stimulated enterprise competition and innovation promotion, improved market mechanism and optimized industrial structure[12-13]. Based on this, this paper proposes hypothesis 2.

Hypothesis 2: Urbanization contributes to the rationalization of industrial structure.

Some studies have analyzed the relationship between industrial upgrading and income gap in China from 1980 to 2001, and found that rural poverty can be alleviated through the continuous increase of the output value of the primary industry, so as to effectively curb the further widening of the income gap between urban and rural residents[14]. As time goes on, people's behavioral tendencies and technological levels will also change. The rise of new industries will break the existing industrial distribution pattern. However, different emerging industries have

different effects on economic development and income distribution, leading to changes in the distribution pattern and relative income[15]. Rationalization of industrial structure refers to the process in which the ratio of employment to output value of non-agricultural industry and agricultural industry is close to the ratio of urban population to rural population, in which the labor force of various industries can be maximized. At present, the rural labor force is surplus while the urban labor force tends to be saturated. The rationalization of the industrial structure helps to release the rural surplus labor force, improve the rural labor productivity, and thus improve the income level of rural residents and narrow the urban-rural income gap. Based on this, this paper proposes hypothesis 3.

Hypothesis 3: Rationalization of industrial structure helps to narrow the urban-rural income gap.

Based on the above hypothetical analysis, urbanization may have such an impact mechanism, which indirectly affects the urban-rural income gap by acting on the industrial structure. Based on this, this paper proposes hypothesis 4.

Hypothesis 4: Industrial structure plays a part of intermediary effect between urbanization and urban-rural income gap.

According to the Kuznets hypothesis, the income gap will show an inverted U-shaped relationship with economic development, which will expand first and then narrow. Therefore, the current expansion of China's income gap is only temporary. The theory of "center periphery" shows that when the urban economy tends to flourish, the positive externality spillover effect of its economic development becomes more obvious, which can drive and improve the economic growth of the surrounding areas[12- 16]. At the same time, the increase of economic aggregate will produce a "trickle down effect", which can also improve the income level of rural residents, reduce the incidence of poverty and narrow the income gap[17]. Based on this, this paper proposes Hypothesis 5 and Hypothesis 6.

Hypothesis 5: Economic development further strengthens the role of urbanization in narrowing the urban-rural income gap.

Hypothesis 6: Economic development will adjust the intermediary effect of industrial structure between urbanization and urban-rural income gap.

3. Results and Discussion

3.1. Descriptive Statistics

Table 2. Descriptive Statistics of Variables

Variables	Mean	Std. Dev.	Min	Max
Y	0.116	0.059	0.009	0.323
X1	0.452	0.089	0.276	0.837
M	0.487	0.170	0.149	0.941
U	5.941	15.890	0.013	207.670
X2	1.023	3.131	0.001	43.301
X3	2.024	8.296	0.000	154.929
X4	0.365	1.467	0.000	25.262
X5	3.020	7.987	0.001	83.631

The size of the Theil index reflects the size of the internal difference. The larger the index, the greater the internal difference. On the contrary, the smaller the internal difference. It can be seen from Table 2 that in the sample period, the overall urban-rural income gap in China is not large, and the Theil index is 0.116, which remains at a low level. However, the Theil index of

some provinces is as high as 0.323, indicating that there is a serious income imbalance. On the whole, China's urbanization rate is still low, at 45.2%, and still lags far behind 80% of the western developed countries. The urbanization rate of some provinces has reached the level of developed countries, while that of some provinces is less than 30%. In addition, during the sample period, China's industrial structure and economic development level also have a huge gap between provinces, which also reflects the imbalance of development between provinces in China.

3.2. Regression Analysis of Intermediary Effect

By regressing the models (1), (2) and (3) in turn, we can judge whether the rationalization of industrial structure acts as an intermediary variable between urbanization and rural income gap. The stepwise regression results are shown in Table 3:

Table 3. Regression results of intermediary effect test

Model	(1)		(2)		(3)	
	FE	RE	FE	RE	FE	RE
X1	-0.106*** (0.012)	-0.120*** (0.011)	0.298*** (0.028)	0.313*** (0.027)	-0.071*** (0.012)	-0.080*** (0.012)
X2	0.001 (0.002)	0.001 (0.002)	-0.001 (0.006)	-0.001 (0.006)	0.001 (0.002)	0.001 (0.002)
X3	0.001* (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001* (0.001)	0.001 (0.001)
X4	-0.008* (0.005)	-0.007 (0.005)	0.000 (0.011)	-0.001 (0.011)	-0.008* (0.004)	-0.006 (0.005)
X5	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.001)	0.001 (0.001)	-0.000 (0.000)	0.000 (0.000)
M					-0.117*** (0.017)	-0.160*** (0.016)
_cons	0.170*** (0.006)	0.176*** (0.008)	-0.390*** (0.013)	-0.397*** (0.022)	0.124*** (0.008)	0.118*** (0.009)
Hausman	29.34***		13.50**		47.25***	
N	591	591	591	591	591	591
R2	0.150		0.188		0.217	

Note: "***", "**" and "*" respectively mean significant at 10%, 5% and 1% significance levels, the same below.

The Hausman test results show that the three equations reject the original hypothesis at least at the 5% significance level and believe that the fixed effect model should be used. It can be seen from Table 3 that the coefficient of x in the three models is significant at the 1% significance level. In model (1), the coefficient of x is significantly negative, indicating that the promotion of urbanization has narrowed the urban-rural income gap. Hypothesis 1 is valid. In model (2), the coefficient of x is significantly positive, indicating that the promotion of urbanization has promoted the rationalization of the industrial structure. Hypothesis 2 is valid. In model (3), the coefficient of m1 is significantly negative at the significance level of 1%, indicating that the rationalization of industrial structure helps to narrow the urban-rural income gap. Hypothesis 3 is valid. Since Hypothesis 1, 2 and 3 are established at the same time, it shows that the intermediary effect of industrial structure rationalization between urbanization and urban-rural income gap exists. In addition, the coefficient of x in model (3) is significant, which shows that the intermediary effect is part of the intermediary effect. Hypothesis 4 is established.

3.3. Regulation Effect Analysis

To further study the impact mechanism of urbanization and industrial structure on urban-rural income gap under the influence of economic development level, the economic development level is introduced into the above intermediary effect model for analysis. The empirical results are shown in Table 4:

Table 4. Stepwise regression results of introducing regulatory variables

Model	(4)		(5)		(6)	
	FE	RE	FE	RE	FE	RE
X1	-0.090*** (0.011)	-0.102*** (0.011)	0.283*** (0.028)	0.297*** (0.028)	-0.066*** (0.012)	-0.074*** (0.012)
U	0.002*** (0.000)	0.002*** (0.000)	-0.001** (0.000)	-0.001** (0.000)	-0.000 (0.001)	-0.000 (0.001)
UX	-0.004*** (0.001)	-0.004*** (0.001)	0.004** (0.002)	0.004** (0.002)	-0.002 (0.001)	-0.002 (0.001)
X2	0.002 (0.002)	0.002 (0.002)	-0.001 (0.006)	-0.002 (0.006)	0.002 (0.002)	0.002 (0.002)
X3	0.001* (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001* (0.001)	0.001 (0.001)
X4	-0.009** (0.004)	-0.008* (0.004)	0.000 (0.011)	-0.001 (0.011)	-0.009** (0.004)	-0.007 (0.004)
X5	-0.000 (0.000)	-0.000 (0.000)	0.001 (0.001)	0.001 (0.001)	-0.000 (0.000)	-0.000 (0.000)
M					-0.092*** (0.017)	-0.137*** (0.016)
UM					-0.003** (0.001)	-0.003* (0.001)
_cons	0.162*** (0.005)	0.168*** (0.008)	-0.385*** (0.013)	-0.392*** (0.023)	0.128*** (0.008)	0.120*** (0.009)
Hausman	27.19***		13.48*		52.87***	
N	591	591	591	591	591	591
R2	0.242		0.199		0.304	

It can be seen from Table 4 that the coefficient, symbol and significance of each variable have little change after the introduction of regulating variables. In model (4), the interaction term UX coefficient is significantly negative at the 1% significance level and has the same sign as the X1 coefficient, indicating that economic development plays a negative role in regulating urbanization and urban-rural income gap, that is, with the improvement of economic development level, the role of urbanization process in narrowing urban-rural income gap is strengthened. Hypothesis 5 is true. In model (5), the interaction term UX coefficient is significantly positive at the 5% significance level and has the same sign as the X1 coefficient, indicating that economic development positively regulates the impact of urbanization on the rationalization of industrial structure, that is, the improvement of economic development level will further promote the role of urbanization in promoting the rationalization of industrial structure. In the model (6), the interactive term UM coefficient is significantly negative at the 1% significance level and has the same sign as the X1 coefficient, indicating that economic development negatively regulates the impact of industrial structure rationalization on the urban-rural income gap, that is, the higher the level of economic development, the stronger the

inhibitory effect of industrial structure on the expansion of urban-rural income gap. Based on the above analysis, it shows that the level of economic development plays a regulatory role in the intermediary effect of urbanization and urban-rural income gap. Hypothesis 6 is valid. It is worth noting that in model (1), the main effect of economic development is positive, but the interaction effect is negative and the impact of the interaction effect is stronger than the main effect. It shows that although the improvement of economic development level will expand the urban-rural income gap, the overall effect of economic development will narrow the urban-rural income gap. In addition, the impact coefficient of economic development on the rationalization of industrial structure is negative, but the interaction effect is positive and the absolute value is greater than its main effect, indicating that economic development is not conducive to the rationalization of industrial structure, while the linkage with urbanization is conducive to the rationalization of industrial structure.

3.4. Robustness Test

In order to avoid statistical errors caused by variable selection, we will replace the dependent variable with the traditional indicator to measure the urban-rural income gap - urban-rural income ratio, and test whether the replacement of variables has a greater impact on the research results. The regression results after replacing variables are shown in Table 5 and Table 6.

Table 5. Regression results of intermediary effect of urban-rural income ratio

Model	(7)		(8)		(9)	
	FE	RE	FE	RE	FE	RE
X1	-0.657*** (0.134)	-0.772*** (0.131)	0.298*** (0.028)	0.313*** (0.027)	-0.224 (0.140)	-0.263* (0.137)
X2	0.012 (0.027)	0.013 (0.027)	-0.001 (0.006)	-0.001 (0.006)	0.011 (0.026)	0.008 (0.026)
X3	0.014** (0.007)	0.012* (0.007)	0.000 (0.001)	0.001 (0.001)	0.015** (0.007)	0.012* (0.007)
X4	-0.100* (0.054)	-0.086 (0.055)	0.000 (0.011)	-0.001 (0.011)	-0.099* (0.051)	-0.079 (0.052)
X5	0.000 (0.005)	-0.000 (0.005)	0.000 (0.001)	0.001 (0.001)	0.001 (0.005)	0.001 (0.005)
M					-1.452*** (0.194)	-1.817*** (0.181)
_cons	3.167*** (0.064)	3.223*** (0.094)	-0.390*** (0.013)	-0.397*** (0.022)	2.601*** (0.097)	2.530*** (0.105)
Hausman	24.25***		13.50**		36.37***	
N	591	591	591	591	591	591
R2	0.054		0.188		0.141	

Table 6. Stepwise regression results after variable replacement

Model	(10)		(11)		(12)	
	FE	RE	FE	RE	FE	RE
X1	-0.474*** (0.129)	-0.569*** (0.127)	0.283*** (0.028)	0.297*** (0.028)	-0.181 (0.136)	-0.205 (0.134)
U	0.019*** (0.002)	0.019*** (0.002)	-0.001** (0.000)	-0.001** (0.000)	-0.007 (0.009)	-0.005 (0.009)
UX	-0.048*** (0.007)	-0.046*** (0.007)	0.004** (0.002)	0.004** (0.002)	-0.015 (0.012)	-0.015 (0.012)

X2	0.021 (0.025)	0.021 (0.026)	-0.001 (0.006)	-0.002 (0.006)	0.020 (0.024)	0.017 (0.025)
X3	0.013* (0.007)	0.011* (0.007)	0.000 (0.001)	0.001 (0.001)	0.013** (0.006)	0.011* (0.006)
X4	-0.105** (0.051)	-0.094* (0.051)	0.000 (0.011)	-0.001 (0.011)	-0.104** (0.048)	-0.086* (0.049)
X5	-0.002 (0.005)	-0.002 (0.005)	0.001 (0.001)	0.001 (0.001)	-0.001 (0.005)	-0.001 (0.005)
M					-1.137*** (0.196)	-1.523*** (0.185)
UM					-0.044** (0.016)	-0.039** (0.016)
_cons	3.081*** (0.061)	3.125*** (0.094)	-0.385*** (0.013)	-0.392*** (0.023)	2.652*** (0.096)	2.564*** (0.105)
Hausman	21.60***		13.48*		52.87***	
N	591	591	591	591	591	591
R2	0.164		0.199		0.245	

As shown in Table 5 and Table 6, after replacing the dependent variables, the coefficients, symbols and significance of each variable have not changed significantly, and the assumptions are still valid. Therefore, it can be considered that the research results in this paper are robust.

4. Conclusion

Through the above analysis, this paper draws the following conclusions:

First, in the context of promoting new urbanization, the development of urbanization has effectively narrowed the urban-rural income gap; Second, the new urbanization has promoted the adjustment of industrial structure, making it tend to rationalize; Thirdly, this paper finds that there is an impact mechanism of "urbanization - industrial structure optimization - urban-rural income gap" in the new urbanization, which shows that on the one hand, urbanization directly reduces the urban-rural income gap, on the other hand, it indirectly reduces the urban-rural income gap by promoting the rationalization of industrial structure; Fourth, economic development has further strengthened the direct and indirect effects of urbanization on narrowing the urban-rural income gap, while weakening the expansion effect of economic development itself on the urban-rural income gap. Fifth, this paper also finds that although the current government expenditure is positively related to the urban-rural income gap, it has not had a significant impact on the urban-rural income gap, and the development of the financial industry is conducive to narrowing the urban-rural income gap.

Based on the above research conclusions, this paper gets the following policy implications:

First of all, the development of urbanization is conducive to the rationalization of the industrial structure and the narrowing of the urban-rural income gap. We should continue to promote the development of urbanization. Secondly, economic development should be linked with urbanization. In addition, new urbanization and economic development have formed a sound mechanism, both of which are conducive to narrowing the urban-rural income gap. We should continue to accelerate the process of urbanization, promote the rational adjustment of industrial structure, and then narrow the urban-rural income gap. At the same time, we should do a good job in economic development and urbanization, and narrow the overall urban-rural income distribution gap.

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