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Examining the Influence of Urban-Rural Public Service Equalization on the Income Gap through a Human Capital Perspective

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Abstract: This study investigates the impact of enhancement of equity in public services on urban-rural economic divide from a human capital perspective. By employing panel data from 31 provinces (autonomous regions and municipalities directly) in China from 2012 to 2021, the empirical results demonstrate that Urban-Rural Public Service Equalization significantly narrows urban-rural economic divide. Human capital acts as a mediator between Urban-Rural Public Service Equalization and income disparities. By promoting human capital accumulation among rural residents, Urban-rural economic divide enhance their labor productivity and, consequently, reduce income disparities. Based on these findings, this study proposes recommendations to further promote the urban-rural economic divide and optimize resource allocation, aiming to achieve coordinated urban-rural development and income equality.

Keywords: Urban-Rural Economic Divide; Human Capital; Rural-Urban Income Inequality; Mediation Effect

1. Introduction

As globalization and urbanization accelerate, the urban-rural economic divide has become a major socioeconomic challenge worldwide. China, in particular, has experienced a widening urban-rural income gap, which not only hinders sustainable economic growth but also threatens social equity and stability. Urban-Rural Public Service Equalization is a policy tool designed to narrow this gap. However, the effectiveness of implementing such policies varies significantly across different regions, particularly in terms of human capital accumulation and utilization efficiency, which may exacerbate income disparities. Therefore, exploring the impact of Urban-Rural Public Service equalization on urban-rural economic divide from a human capital perspective can not only evaluate the effectiveness of urban-rural economic divide policies but also provide new theoretical and empirical foundations for achieving coordinated urban-rural economic and social development.

Existing literature has examined the impact of the Urban-Rural Public Service Equalization on urban-rural economic divide from various perspectives, focusing mainly on the theoretical basis of urban-rural economic divide, its role in human capital accumulation, and the effects and limitations of policy practices. Urban-rural economic divide is an important means of achieving social equity. By providing equal access to education, healthcare, and social security, it can improve the quality of life and development opportunities for rural residents, enhance their competitiveness in the labor market, and thus narrow urban-rural economic divide [1]. Studies have shown that equalizing educational resources enhances the career potential of rural youth, while equalizing healthcare resources improves the health status of rural residents and, in turn, increases labor productivity [2]. Furthermore, human capital theory posits that education, skills, and health are key determinants of individual income levels. However, due to the relative scarcity of educational and healthcare resources in rural areas, rural residents have limited human capital accumulation, which restricts their labor earning capacity [3,4]. While economic divides between urban and rural areas can foster human capital growth in rural regions and help reduce income disparities., its actual effects vary across regions due to multiple factors such as inadequate infrastructure, limited access to information, and social network constraints [5]. Overall, studies generally agree that urban-rural economic divide can narrow urban-rural

economic divide by enhancing human capital, but its effectiveness is constrained by regional economic development levels and policy implementation strength. Further research on its mechanisms can help evaluate policy effectiveness and provide theoretical basis for future policy adjustments.

This paper empirically examines the impact of the Urban-Rural Public Service Equalization on urban-rural economic divide from a human capital perspective. The paper is structured as follows: Section 1 introduces the research background, literature review, and the overall framework of the study; Section 2 presents the theoretical analysis and research hypotheses, constructing an analytical framework for the impact of Urban-Rural Public Service Equalization on urban-rural economic divide based on human capital theory; Section 3 describes the research design, including data sources, variable selection, and model specification; Section 4 presents and discusses the main findings of the study; and Section 5 concludes the paper by summarizing the main findings and providing policy implications for Urban-Rural Public Service Equalization and narrowing income gap.

2. Theoretical Framework and Hypotheses

The process by which Urban-Rural Public Service Equalization impacts the urban-rural economic divide is complex and multifaceted. By improving educational opportunities, providing quality schools and educational resources, rural residents can acquire better education, enhance their employment competitiveness, and thus increase their income. Equalizing medical insurance can improve medical conditions in rural areas, reduce medical expenses, and mitigate the risk of falling into poverty due to illness, thereby helping rural residents accumulate wealth and increase their income. Improvements in infrastructure can promote rural economic development, create more job opportunities, and increase residents' income sources. In addition, a well-developed social security system can provide risk protection and welfare benefits, increasing rural residents' stability and income security. These factors interact with each other, gradually narrowing the disparity in income and access to fundamental public services between urban and rural areas., and promoting balanced urban-rural development. Based on this, we propose Hypothesis 1:

Hypothesis 1: Public Service Equalization helps narrow the economic divide between urban and rural areas.

The gap in basic public services between urban and rural areas plays a substantial role in shaping and widening the economic divide between these regions. This gap involves education, employment, social security, and other aspects, directly affecting people's human capital accumulation and income levels. In rural areas, due to the lagging of basic public services, rural residents face multiple challenges, which limit their development and income growth opportunities. First, education is one of the most important gaps between rural and urban areas. The lack of educational resources in rural areas leads to relatively underdeveloped teaching staff and educational facilities in rural schools. In contrast, urban areas have better schools and more abundant educational resources, providing urban residents with higher-quality education. This educational gap leads to limited accumulation of knowledge and skills among rural residents, restricting their opportunities to obtain high-paying jobs. Second, the difference in employment opportunities is also an important factor contributing to urban-rural economic divide. Urban areas, due to the concentration of industrial development and economic activities, have more job opportunities compared to rural areas. Urban residents can choose a wider variety of jobs, including high-skilled and high-income positions. However, employment opportunities in rural areas are mainly concentrated in agriculture and traditional industries, with lower wages. Rural residents have limited employment choices and it is difficult to obtain high-paying jobs, which further widens urban-rural economic divide. In addition, the imperfection of the social security system also affects urban-rural economic divide. The social security level in rural areas remains relatively low with lower coverage rates in areas such as old-age insurance, medical insurance, and unemployment insurance. This makes rural residents lack effective protection when facing risks and unexpected events, increasing financial risks and income instability. In contrast, urban residents can enjoy better social security benefits, reducing financial pressure and providing a more stable environment for their human capital accumulation.

In summary, disparities in basic public services between urban and rural areas directly impact people's human capital accumulation and income levels by affecting educational opportunities, employment opportunities, and social security. The lack of quality educational resources and employment opportunities limits the development and income growth of rural residents, while the lack of a sound social security system increases their risks and uncertainties. Therefore, to narrow urban-rural economic divide, comprehensive policy measures need to be taken, including providing quality educational resources, promoting rural economic development, improving employment opportunities, and strengthening the social security system, to ensure that urban and rural residents can enjoy equal access to basic public services, improve their human capital levels, and thus achieve more equitable and sustainable development. Based on the above analysis.

Hypothesis 2: Public Service Equalization narrows the urban-rural economic gap by fostering human capital development in rural areas.

3. Research Design

3.1 Measurement of Public Service Equalization in Urban and Rural Areas

(1) Construction of the Indicator System. Existing studies primarily select public service indicators based on process theory [6], expenditure theory [7], equity theory [8], and systems theory [9,10], under the premise that urban and rural residents enjoy equal access to basic public services. However, urban and rural residents have different needs for basic public services. For example, urban residents have a greater need for rapid transportation, while rural residents have a greater need for stable electricity, communication, and other basic facilities. Therefore, based on the five categories of education, healthcare, infrastructure, culture, and social security, this study further categorizes the five types of indicators to account for the differing needs of urban and rural residents. The detailed indicator system is presented in Table 1.

The first part is urban basic public services. The study selects the number of hospital beds per 1,000 people and the number of health technicians per 1,000 people to measure urban medical and health services; the proportion of illiterate population aged 15 and above and educational fiscal expenditure to measure urban educational services; the number of county-level cultural institutions and the frequency of providing public cultural services to measure urban public cultural services; To measure urban infrastructure, indicators such as park green space per capita and urban road area per capita can be used; social security employment expenditure and the urban registered unemployment rate reflect the situation of urban labor and employment security.

The second part focuses on rural basic public services. Considering data availability, this study uses the proportion of the illiterate population aged 15 and above and the average years of schooling in rural areas to assess educational services in these regions; the number of village clinics and the number of village clinic staff per 1,000 agricultural population to measure rural medical services; the number of township cultural stations and the frequency of public cultural services to measure rural cultural services; rural electricity consumption, effective irrigated area, and the area of natural protected areas to measure rural infrastructure construction; minimum living allowances and the rural labor force to measure labor employment and social security.

(2) Data Source. This study primarily utilizes panel data from 31 provinces (autonomous regions and municipalities directly under the Central Government) in China from 2012 to 2021 to analyze the coupling coordination relationship between urban-rural basic urban-rural economic divide and common prosperity. data on rural basic public services primarily comes from the China Rural Statistical Yearbook (2013－2022), while data on urban basic public services is mainly sourced from the China Statistical Yearbook (2013－2022).

Table 1. Indicator System for Equalization of Basic Public Services in Urban and Rural Areas

Primary indicator	Secondary indicator		Tertiary indicator	Weight
Equalization of basic public	Urban basic public	Educational Services	Percentage of illiterate population over 15 years of age (%)	
			Education expenditure (100 million yuan)	

services	service	Medical and Health	Health and medical beds per 1,000 persons (piece)	
			Health technicians per 1,000 population (person)	
		Cultural service	Number of county-level cultural centers	
			Times of public cultural services (times)	
		Infrastructure	Park green area per capita (square meter)	
			Urban road area per capita (square meter)	
		Social security	Expenditure on social and employment security (100 million yuan)	
			Urban registered unemployment rate (%)	
	Rural basic public service	Educational Services	Percentage of illiterate population over 15 years of age (%)	
			Rural educational attainment (years)	
		Medical and Health	Number of village clinics (Unit)	
			Number of Village Clinic Staff per Thousand Agricultural Population (person)	
		Cultural service	Number of Township Cultural Center Institutions (Unit)	
			Times of public cultural services (times)	
		Infrastructure	Rural electricity consumption (billion kilowatts)	
			Effective irrigated area (thousand hectares)	
		Social security	Minimum living security expenditure (10,000 yuan)	
			Rural labor force population (10,000 persons)	

(3) Research Method. Weight is an indicator that reflects the importance of an index and is the premise and foundation for coupling model measurement. Weight measurement methods are generally divided into subjective and objective methods. Among them, the Delphi method [11] is a common subjective method, and the entropy weight method [12] is an objective method. The Delphi method is based on a comprehensive understanding of the research object and its relationships, and the rationality of the weights depends on the experts' experience and accuracy in judging the problem. The coupling of urban-rural basic urban-rural economic divide and common prosperity involves multidimensional indicators, with diverse content and complex quantitative relationships. It is difficult to truly reflect the importance of different indicators based on subjective judgment, while the entropy weight method is based on the discussion of the quantitative relationship between different indicators and can effectively avoid the shortcomings of subjective weighting methods that are greatly influenced by experience. The calculation steps of the entropy weight method are as follows:

(1) Select n evaluation projects and m indicators, where x_{ij} represents the value of the jth indicator of the ith evaluation project. (i=1,2…,

n; j=1, 2, …, m)

(2) Dimensionless processing of indicators. The specific methods are as follows:

Positive indicators:

$$x_{ij}^{'} = \left[\frac{x_{ij} - \min(x_{1j}, x_{2j}, ..., x_{nj})}{\max(x_{1j}, x_{2j}, ..., x_{nj}) - \min(x_{1j}, x_{2j}, ..., x_{nj})} \right] \times 100 \quad (1)$$

Negative indicators:

$$x_{ij}^{'} = \left[\frac{\max(x_{1j}, x_{2j}, ..., x_{nj}) - x_{ij}}{\max(x_{1j}, x_{2j}, ..., x_{nj}) - \min(x_{1j}, x_{2j}, ..., x_{nj})} \right] \times 100 \quad (2)$$

Therefore, $x_{ij}^{'}$ represents the value of the jth indicator for the ith project. (i=1, 2…, n; j=1, 2, …, m). For convenience, we still denote the data as $x_{ij}^{'} = x_{ij}$.

(3) Calculate the proportion of the j th project in the i th indicator:

$$p_{ij} = \frac{X_{ij}}{\sum_{i=1}^{n} X_{ij}} \quad , (i = 1, 2..., n, j = 1, 2..., m) \quad (3)$$

(4) Calculate the entropy value of the j th indicator:

$$e_j = -k \sum_{i=1}^{n} p_{ij} \ln(p_{ij}) \quad (4)$$

Where, $k > 0$, $k = 1/\ln(n)$,

(5) Calculate the coefficient of variation for the j th indicator. For the j th indicator, the greater the difference in indicator values, the greater the impact on the evaluation of the alternatives, and

the smaller the entropy. The coefficient of variation is defined as:

$$g_j = \frac{1-e_j}{m-E_e} \quad (5)$$

Where: $E_e = \sum_{j=1}^{m} e_j$, $0 \le g_i \le 1$,

(6) Weighted value:

$$w_j = \frac{g_j}{\sum_{j=1}^{m} g_j} \quad (1 \le j \le m) \quad (6)$$

3.2 Mediation Model Specification
3.2.1 Baseline regression model.
the empirical analysis focuses on the impact of urban-rural basic urban-rural economic divide on urban-rural economic divide. The baseline regression model is constructed as follows:

$$dsal_{it} = \alpha_0 + \alpha_1 serv_{it} + controls + \lambda_t + \theta_t + \varepsilon_{it} \quad (7)$$

Variable Interpretation in the Model:
(1) Urban-rural Income Gap (dsal): The urban-rural economic divide is assessed by examining the per capita disposable income levels of urban and rural residents across each province and city.
(2) Level of urban-rural basic urban-rural economic divide (serv): Derived from the measurement results assessing the fundamental disparity between urban and rural economies.
(3) Control variable: Urbanization rate (urb): Urbanization promotes the integration of urban and rural factors, thereby narrowing urban-rural economic divide. the measurement is based on the ratio of the urban population to the region's total population. Regional economic development (pgdp): Economic conditions determines the income level of a region and is an important factor affecting income inequality. Labor force structure (eld): The labor force structure determines the industries or sectors that people can enter and is a macroeconomic environmental factor that causes income inequality. Resident pressure level (rfy): With the advent of an aging population, the dependency ratio of the working-age population will increase, directly affecting income levels. Level of general public service fiscal expenditure (zhic): Measures the level of local government fiscal input.
3.2.2 Mediation effect model.
To analyze the main mechanism through which basic urban-rural economic divide affects urban-rural economic divide, this paper constructs a mediation effect model:

$$pedu_{it} = \alpha_2 + bserv_{it} + \chi_2 urb_{it} + \delta_2 czhi_{it} + \kappa_2 pgdp_{it} + \varsigma_2 eld_{it} + \varphi_2 rfy_{it} + \varepsilon_2 \quad (8)$$

$$dsal_{it} = \alpha_3 + a'serv_{it} + cpedu_{it} + \chi_3 urb_{it} + \delta_3 czhi_{it} + \kappa_3 pgdp_{it} + \varsigma_3 eld_{it} + \varphi_3 rfy_{it} + \varepsilon_3 \quad (9)$$

Where, Human capital level (pedu). Unequal investment in basic public services between urban and rural areas increases the gap in human capital levels between urban and rural areas, leading to unequal opportunities for rural areas to obtain educational resources, and widening the gap in employment starting points and treatment between urban and rural residents, affecting coordinated urban-rural development. The average years of education is selected as a proxy variable.
3.2.3 Data sources and descriptive statistics.
This paper utilizes panel data from 31 provinces (including municipalities and autonomous regions) in China from 2012 to 2022 to examine how the equalization index affects the urban-rural economic divide. the equalization index is calculated as described in the previous section. The data for other indicators are mainly sourced from the National Bureau of Statistics. Descriptive statistics are shown in Table 2. There are significant differences in the equalization index among regions. While the maximum value is 2.5 times the minimum, showing some improvement, the extent remains modest. Additionally, equalization levels in the central and western regions still lag behind those in the eastern region. The maximum value of urban-rural economic divide is 1.97 times the minimum value, indicating that the gap between urban and rural areas still exists. Therefore, the government should take measures to alleviate the dual economic structure between urban and rural areas and promote the new journey of common prosperity.

Table 2. Descriptive Statistics of Key Variables

Variable Name	Variable Code	Observed Value	Average	Standard deviation	Minimum Value	Maximum Value
Urban-rural equality in	serv	310	0.188	0.168	0.4	1

basic public services						
Per capita fiscal revenue	czs	310	7.22	1.05	4.10	10.10
Urban-rural income gap	dsal	310	2.565	0.373	1.842	3.646
Gini coefficient of Urban-rural income	gni	310	0.296	0.083	0.290	0.542
Average years of education	pedu	310	9.119	1.126	4.22	12.681
Urbanization rate	urb	310	58.591	12.792	22.75	89.6
Fiscal expenditure on public services	zhic	310	4833858.7	3024826.2	614428	18895300
GDP per capita	pgdp	310	59413.984	29023.869	9030.6	183980
Population aging	eld	310	0.109	0.028	0.05	0.188
Dependency ratio	rfy	310	38.636	7.184	21.18	57.787

4. Empirical Analysis

4.1 Analysis of The Degree of Equal Access to Basic Public Services in Urban and Rural Areas

This paper measures the level of equalization between urban and rural areas in 31 provinces (autonomous regions and municipalities directly under the Central Government) in China, and constructs a time series chart of Urban-Rural Public Service Equalization between Urban and Rural Areas (Figure 1). The general trend shows that the average basic urban-rural economic divide in China has risen from 1.684 to 1.895. indicating that over the past 10 years, the level of basic public service development in urban areas has been higher than that in rural areas, and the gap between urban and rural areas has been gradually widening. Specifically, from 2012 to 2013, the equalization level increased, which can be attributed to the "new urbanization" strategy. Since the implementation of the new urbanization strategy in 2007, a large number of rural populations have migrated to urban areas. To meet the basic public service needs of the urbanized population, various regions have increased their investment in infrastructure, education, medical care, culture, and other areas, leading to rapid development of basic public services in urban areas. From 2013 to 2017, the equalization level fluctuated downward, and in 2017, the equalization level reached its lowest point in the past 10 years. The root cause of this fluctuating trend lies in the cyclical ebb and flow of urban and rural development policies, mainly manifested in the periodic alternation and lagging effects of the "new urbanization

strategy" and the "new rural construction strategy". For example, the rapid rebound in the equalization level in 2016 was a reflection of the release of the new urbanization strategy plan in 2014 and the lagging effect of new urbanization, while the rapid decline in the equalization level in 2017 was the result of the lagging policy impact of the "new rural construction strategy" and the concept of "beautiful countryside". From 2018 to 2021, the equalization level entered an upward phase. During this stage, the concept of "new urbanization" shifted to "urbanization of people", and the strategic perspective shifted from large and medium-sized cities to county-based urbanization. Therefore, during this stage, the level of basic public services in urban areas has recovered rapidly. However, with the replacement of the new rural construction strategy by the more comprehensive "rural revitalization strategy" in 2017, Rural development has ushered in a new period of opportunity, so the urban-rural gap has not rapidly expanded but instead has shown a gradual upward trend.
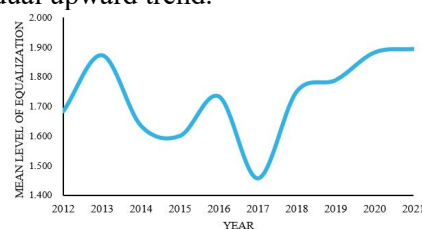

Figure 1. Progress in Equalizing Urban-Rural Public Service in China (2012-2021)

4.2 Impact of Equalization of Basic Public Services between Urban and Rural Areas on Urban-rural Income Gap

(1) Benchmark Regression Analysis. A sound

system of basic public services can ensure that urban and rural residents enjoy a roughly equal level and capacity of basic public services, and it is also an important policy measure to further narrow urban-rural economic divide. Based on provincial panel data from 2012 to 2021, we mainly use a fixed effects model, which fixes both individual effects and time effects, to conduct a regression analysis of the impact of the equalization of basic public services on urban-rural economic divide, as shown in Table 3. The results show that the equalization index is significantly negative, indicating that an increase in the equalization index will significantly narrow urban-rural economic divide. The improvement in the level of equalization of basic public services in a region means that residents have enhanced access to public services and their livelihoods are better guaranteed, which is a major path to narrowing urban-rural economic divide. The equalization of basic public services is an important

redistribution method to address income inequality between groups, between urban and rural areas, and between regions, and it mainly manifests in the following way: government, market, and other diverse entities change the production factors of different regions, such as material capital, labor quality, human capital, and technology, thereby affecting regional economic development and, in turn, affecting income distribution between groups, between urban and rural areas, and between regions. Therefore, it is still necessary to improve the level of basic public services, vigorously promote the equalization of basic public services, and tilt towards rural areas, underdeveloped regions, and vulnerable social groups, especially increasing the access of these groups to basic education and health care resources, improving the living standards of these groups, and narrowing the income gap between urban and rural areas. This verifies hypothesis 1.

Table 3. Benchmark Regression of Urban-Rural Public Service Equalization and Urban-rural Income Gap

Variable Code	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
serv	-0.011*** (-13.11)	-0.018*** (-13.48)	-0.017*** (-12.48)	-0.02*** (-8.25)	-0.01*** (-6.71)	-0.016*** (-5.31)
urb		0.26 (2.6)	0.15 (1.37)	0.16(0.141)	0.059(0.51)	0.04 (0.42)
zhic			-0.01*** (-2.08)	-0.01*** (-2.33)	-0.01** (-1.72)	-0.01** (-1.74)
pgdp				-0.01 (1.41)	0.01 (1.32)	0.012 (1.24)
eld					-2.47*** (-3.77)	-2.9*** (-3.26)
rfy						-2.47*** (0.32)
Individual Effects	Control	Control	Control	Control	Control	Control
Time effect	Control	Control	Control	Control	Control	Control
F	171.87	90.92	62.7	47.68	42.63	35.44
R2	0.356	0.367	0.374	0.376	0.40	0.4
N	310	310	310	310	310	310

(2) Heterogeneity Analysis. China's economy has entered a stage of high-quality development, and there are significant differences in the level of economic development among different regions, which further leads to significant differences in the input of basic public services and the capacity for resource allocation among regions, and thus leads to heterogeneity in the accessibility of basic public services across urban and rural areas within regions, which further affects urban-rural economic divide. Based on this, considering the regional

differences in basic public services, firstly, we consider the heterogeneity caused by spatial geographic location. We divide the 31 provinces and cities in China into eastern, central, and western regions ①. Subsample regressions are shown in models 7-9 of Table 4. The results show that the impact of the equalization index on urban-rural economic divide has significant regional heterogeneity. The equalization index in all regions reduces urban-rural economic divide, but the reduction effect is most significant in the central region, followed by the

western region, and the eastern region has the weakest effect. The main reason is that the eastern region has faster economic development, and has greater investment in basic public services and resource allocation.

(3) Robustness Test. To verify the reliability of the above model, we conduct robustness test. First, we construct an alternative variable for urban-rural economic divide. Using the Gini coefficient between urban and rural areas as an alternative variable for urban-rural economic divide, the results are shown in Model 10 of Table 5. Basic urban-rural economic divide is still significantly negative, and the regression results are consistent with the baseline regression results, indicating that the selected model is robust. Second, we construct an alternative variable for the equalization of basic public services. Using per capita fiscal revenue as an alternative variable for Public Service Equalization, we estimate panel regression, and the results are shown in Model 11. The equalization of basic public services is shown to narrow urban-rural economic divide, again indicating the robustness of the model results. Third, we change the sample period and

estimate using the 2017-2021 sample, and the results are shown in Model 12. The coefficient of the variable is negative, which is basically consistent with the baseline regression results.

Table 4. Heterogeneous Effects of Urban-Rural Public Service Equalization on Urban-rural Income Gap

Variable Code	Model 7 East	Model 8 Middle	Model 9 West
serv	-0.026***(-6.38)	-0.024***(-5.35)	-0.05***(-6.61)
urb	-0.07(-1.59)	-0.197(0.97)	-0.01(-0.15)
zhic	0.04(1.36)	0.02**(2.06)	0.01(1.09)
pgdp	-0.04**(-1.87)	0.012(1.29)	-0.25(-1.52)
eld	-2.45***(-3.36)	-1.1(-1.19)	-0.41(-0.32)
rfy	0.01***(1.18)	-2.47***(0.32)	0.002(0.62)
Individual Effects	Control	Control	Control
Time effect	Control	Control	Control
F	61.4	55.04	9.8
R2	0.79	0.81	0.85
N	110	90	110

Table 5. Heterogeneous Regression of Equalization of Basic Public Services between Urban and Rural Areas and Urban-rural Income Gap

Variable Code	Model 10 Replace the explained variable	Model 11 Replace the explanatory variable	Model 12 Year 2017-2021
serv	-0.022***(-10.25)		-0.05***(-6.61)
czs		-0.018***(-9.21)	
urb	-0.17(-1.54)	-0.08(-0.25)	-0.05(-1.34)
zhic	-0.04**(-2.12)	-0.02(-1.83)	0.001**(0.09)
pgdp	-0.02(-1.87)	0.012(1.29)	-0.03(-1.11)
eld	-2.5***(-3.71)	-2.32(-3.421)	-1.25**(-1.98)
rfy	0.02(0.33)	0.01(0.42)	0.001(0.62)
Individual Effects	Control	Control	Control
Time effect	Control	Control	Control
F	85.4	92.5	119.67
R2	0.37	0.36	0.85
N	310	310	115

4.3 Mediation Effect Test

The above analysis shows that with the improvement of the level of basic public services in a region, the ability of rural areas, underdeveloped areas, and the bottom of society to obtain educational resources will be improved, which will further promote human capital accumulation and enhance their income-earning capacity, thereby narrowing

urban-rural economic divide. The equalization of basic public services also helps to reduce the outflow of high-quality labor force and inhibits the widening of the income gap. By introducing human capital as a mediating variable into the model of the impact of basic public services on urban-rural economic divide, the mediation effect results are shown in Table 6. In Model 15, the equalization of basic public services significantly promotes human capital

accumulation. Enhancing basic public services improves rural residents' access to education, healthcare, social security, and other resources, thereby raising human capital levels in these areas and helping to bridge the educational gap between urban and rural communities. According to the endogenous growth theory,

human capital is an important driving force for economic growth. The improvement of the level of equal access to basic public services further narrows urban-rural economic divide by narrowing the gap in educational inequality. This verifies hypothesis 2.

fTable 6. Mediation Effect Test of Urban-Rural Public Service Equalization and Urban-rural Income Gap

Variable Code	Model 13 Dv-iv	Model 14 Med-iv	Model 15 Dv- (iv, med)
serv	-0.016*** (-5.31)	-0.07*** (-13.07)	-0.018*** (-4.72)
pedu			-0.023** (0.8)
urb	0.049 (0.42)	0.185 (0.81)	0.049 (0.38)
zhic	-0.001** (-1.74)	0.001 (0.8)	-0.001** (-1.77)
pgdp	-0.001 (-1.24)	-0.006*** (-3.08)	0.001 (1.36)
eld	-2.09*** (-3.26)	-2.09*** (-3.26)	-3.02*** (-3.34)
rfy	0.001 (0.74)	-0.001*** (-2.43)	0.001 (0.43)
sober test	0.434***(z=2.749)		
Goodman-1	0.434***(z=2.749)		
Goodman-2	0.434***(z=2.73)		
Indirect effect	0.434***(z=2.749)		
Direct effect	1.21***(z=3.63)		
Total Effect	1.65***(z=5.41)		

5. Conclusion and Discussion

This study examines how equalizing Urban-Rural Public Services affects the economic divide between them, focusing on the perspective of human capital. Through empirical analysis, the following main conclusions are drawn:

First, the urban-rural economic divide significantly narrows urban-rural economic divide. The regression analysis based on provincial panel data shows that with the improvement of the level of Urban-Rural Public Service Equalization, the urban-rural income gap has been significantly narrowed. This conclusion verifies the theoretical hypothesis that the urban-rural economic divide such as education, medical care, and infrastructure can effectively improve the accumulation of human capital in rural areas, thereby enhancing their competitiveness in the labor market, increasing income levels, and narrowing the income gap with urban residents.

Second, human capital plays an important mediating role between the Urban-Rural Public Service Equalization and the income gap. The study found that the urban-rural economic divide significantly promotes the accumulation of human capital in rural areas, especially in education and medical care, which further narrows urban-rural economic divide. Specifically, rural residents, by obtaining better educational opportunities and medical care, can improve their labor productivity, increase employment opportunities and income levels. In addition, the improvement of public services has also reduced the outflow of high-quality labor force from rural areas, enabling rural areas to retain more high-quality talents, thereby promoting local economic development and narrowing the income gap between urban and rural areas.

Furthermore, the actual effects of urban-rural economic divide vary significantly across different regions. The influence of the urban-rural economic divide on narrowing the income gap varies significantly across regions: it is most pronounced in the central region,

followed by the western region, while the effect is relatively weaker in the eastern region. This difference may be related to the level of economic development, the capacity for public resource allocation, and the intensity of policy implementation in different regions. Due to the mature economic development in the eastern region, the urban-rural income gap remains relatively narrow. and the role of urban-rural economic divide in improving the income gap is relatively weak; In the central and western regions, particularly the central region, the imbalance in urban-rural development has made urban-rural economic divide policies more effective in narrowing the income gap.

While this study provides empirical evidence supporting the positive correlation between urban-rural economic divide and reduced urban-rural income disparity, there remain certain limitations. For example, updating the data and providing a more nuanced analysis of regional disparities could further enhance the findings. Future research may delve deeper into the long-term effects of various urban-rural economic divide policies on income inequality and explore the implications of emerging policies like digital services.

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