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A Study on the Impact of Financialization of the Economy and the Income Gap between Urban and Rural Residents: Evidence from China

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Abstract: The financialization of the economy is the process of industrial capital moving towards monetization and virtualization, appropriating the value of workers and enriching the capital stock of the rich class through the financial cycle, resulting in income differentiation. This paper uses China's provincial data from 2003 to 2022 to comprehensively evaluate the degree of financialization of the economy and examine its impact on the income gap between urban and rural residents, and finds that: financialization of the economy has curbed the convergence of the income gap between urban and rural residents, and regional heterogeneity is obvious, while expanding the wage income gap and contracting the property income gap; the income gap between urban and rural residents is related to the degree of financialization of the economy in the region, and is also affected by the spillover effect of neighboring regions, called "Club Convergence" Effect. Considering the development of financialization of the economy from a multi-dimensional perspective, relying on the policy-based financial system, deepening inclusive financial services in the countryside, and giving full play to regional advantages will alleviate the income imbalance between urban and rural areas, and benefit people's livelihoods and well-being.

Keywords: Financialization of the Economy; Income Gap between Urban and Rural Residents; Logical Reasoning; Comprehensive Evaluation; Well-Being of People

JEL: D31;G01;R51

I. Introduction

Finance, as an important economic factor in modern economic development, has become one of the main factors affecting income distribution, and the global financial crisis of 2008 has once again made the financialization of the economy an object of discussion and research. The financialization of the economy is derived from the development of finance. In 1993, Kevin Phillips formally defined "financialization" as the systematic separation of the real economy from finance, i.e., the rapid expansion and expansion of the financial sector, which ultimately overrides the real economy and magnifies the effect of financial wealth, which has led to the gradual replacement of the production cycle with the financial cycle as the main path of capital accumulation. This makes the financial cycle gradually replace the production cycle as the main path of capital accumulation (Sweezy, 1997), and makes financial profits the object of public pursuit. Early financialization provided business entities with a source of capital to expand reproduction in order to divide surplus value and collect rents and then get out of the cycle (Panitch and Gindin, 2005); while excessive financialization increased the market dominance of the financial cycle, crowding out investment in production and causing a slowdown in the growth of employment, real wages and consumption in the market (Crotty, 2003). The financialization of the economy has driven high profit incomes in the financial sector, attracting large-scale social capital transfers to the financial sector (Tomaskovic-Devey and Lin, 2011), prompting industrial capital to complete the evolutionary change from monetary to virtual

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capitalization, and a large amount of social capital has formed a strong symbiotic relationship with the real estate and financial sectors, which has led to a direct decline in productive investment, and has also consequently cuts down the labor consumption of hired workers and limits the increase of workers' wages (Michael, 2010). Whether industrial capital relies on the productive transformation of financial capital or industrial capital participates in the financial game directly out of the value cycle, industrial capitalists and the profit-eating class dominate the contraction of the laboring class's share of income in order to safeguard the economy's profit surpluses and their own capital accumulation, with the result being a change in society's functional income structure (Eckhard Hein et al., 2015). The expansion of the wealth effect in turn involves the working class in the strife over financial profits, leading to the direct plunder of the working class's income gains and capital accumulation (Chen, 2020), which will ultimately marginalize the low stock of capital represented by the working class, and ultimately exacerbate the conflict of economic contradictions between classes (Zhang, 2019), and the income distribution has sharply shifted in the direction of favoring capital, making it difficult for working-class families to maintain the existing consumption patterns, while suppressing domestic demand.

Income distribution inequality has long been a shackle on China's high-quality economic development and social justice, with the Gini coefficient for residents at around 0.46 for a long time, and the Gini coefficient for wealth breaking through to 0.5 after 2000, and remaining above 0.7 thereafter, both higher than the international warning line of 0.4. Under the dual economic structure, the difference between the incomes of Chinese urban and rural residents has narrowed from 2.99:1 in 2010 to 2.50:1 in 2021, but the absolute gap is still widening, and the structural imbalance of income continues. There are natural differences in resource endowment, capital scale, industrial structure and comparative advantage between urban and rural areas, so financialization of the economy gives urban and rural industrial cycle of labor value alienation and monetization or capitalization of factors of production, value plundering and appropriation and capital appreciation and accumulation, which provides a driving force for in-depth study of the relationship between financialization of the economy and urban-rural residents' income gap. Therefore, it is worth studying how to effectively explain the connotative laws of financialization of the economy and income distribution in the production chain and relations of production, to think about the role of financialization of the economy in the evolution of China's urban-rural residents' income gap, and to examine how financialization plays a role in the sizeable and functional incomes of urban and rural residents. The relative equality of residents' income is the first sign of reaching common prosperity and an important precondition for realizing high-quality economic development, so this paper traces the theoretical paradigm and the effect law of income distribution inequality caused by the financialization of the economy and refers to the results of the empirical test to explore the solution, which is of great significance to narrow the income gap between urban and rural residents, to prevent financial development from being overheated, to improve the quality of economic development and to promote the common prosperity, and is also of great practical significance value.

II. Literature Review

Relevant studies on the distributional effects of financial activities take neoclassical financial development theory as the research kernel, and these studies focus on digging into the market efficiency of the financialization of the economy, the operation of the system as well as its income distributional effects, and the conclusions are mainly classified into three categories. In the first category, there is a significant Kuznitz curve effect and threshold effect between financial development and income disparity, and scholars represented by Greenwood (1990) find that financial services are more biased toward the rich class in the early stage of financial development; when capital accumulation exceeds the threshold critical value, the poor class begins to enjoy financial benefits, the wealth gap between classes converges, and the overall distribution pattern tends to stabilize (Townsend et al, 2003; Ali, 2012). Yang and Ma (2014) found that the mechanism of financial development on urban-rural income gap in China is characterized by a dynamic inverted U-shape,

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and different sample areas are at different stages of the inverted U-shape process. In the second category, financial activities exacerbate income distribution inequality, Ma and Tian (2017) and Jing et al. (2021) find that financial development inhibits the contraction of the income gap between urban and rural residents, and that this inhibitory effect is most prominent in western China, which is fundamentally due to the greater concentration of indirect financial institutions in the urban sector (Deng and Yu, 2020), and that the low penetration of financial services in rural areas hampers the rural residents from income growth (Wang and Qiu, 2011). In the third category, financial activities help to alleviate the residents' income gap, and the financial system improves the income structure by regulating the financial structure, financial efficiency, and financial scale (Feng et al., 2020; Zhang and Xu, 2020), and Wen et al. (2014) also confirms that increasing the investment in human capital will promote the financial activities to converge the urban-rural income gap, and the regional heterogeneity is significant.

Most of the established studies on the measurement of financialization of the economy are from the perspective of financial development, and specific metrics indicators include the share of returns on financial assets in national wealth (Epstein, 2006), the index of financialization (Zalewsk and Whalen, 2010; Kus, 2012), the share of value added in the FIRE sector (Brandford and Naples 2013), and Mai's indicator, among others. Given that China's financial system is a typical indirect financial system dominated by commercial banks, Wu (2010) and Liu et al. (2013) refer to Mai's indicator to construct the FIR indicator, i.e., the ratio of the level of total market indebtedness to GDP to measure the degree of China's financialization development, but the above measurements are difficult to highlight the capital agglomeration qualities of the economy's financialization and the complexity of its connotations. In contrast to the findings of various studies on the impact of financial activities on income distribution, financialization of the economy is regarded as one of the powerful threats to the equal distribution of income, which spontaneously drives the unequal distribution of income. Tests based on empirical studies have found that the expansionary effect of financialization of the economy on income disparity is obvious. Ye et al (2015) analyzed the effect of financialization of the economy on urban-rural income gap in China by analyzing the effect of financialization of the economy on urban-rural income gap, in general, financialization of the economy has a pulling effect on urban-rural income gap; the pulling effect of financialization in the eastern region is stronger than that in the central and western regions, and the Kuznets effect is obvious in the western region.Golebiowski et al (2016) verified that there is also a significant effect of financialization on income gap in European countries. Huang (2017) sorted out three mechanisms of financialization's impact on income distribution by deducing the Kaleski's theoretical model, i.e., the mechanism of workers' internal division, the mechanism of financial speculation by profit-eaters, and the mechanism of workers' consumption credit.Glauco and Luo (2021) found that income inequality is sensitive to households' financialization, and that the level of households' indebtedness is the main factor that widens the income gap. Wen and Wang (2020), using financial sector expansion and financial labor force expansion as proxies for financialization, find that there is a robust positive correlation between financialization and urban and rural incomes, and that the relationship is heterogeneous across provinces.Alexiou et al (2021), using data from OECD countries, find that only a certain degree of financialization widens income inequality.

The existing literature consistently concludes that "financialization of the economy exacerbates the inequality of income distribution", which gives some theoretical support and reference basis for subsequent studies on the impact of financialization of the economy on the income gap between urban and rural residents, but there is also room for improvement: first, the measurement of the degree of financialization of the economy from the neoclassical theory of financial development is slightly unitary, and the limited indicators can hardly reflect the complexity and multidimensional qualities of financialization of the economy. First, the measurement of the degree of financialization of the economy from the neoclassical financial development theory is a little bit single, and the limited indicators can hardly reflect the complexity and multi-faceted qualities of the development of financialization of the economy, ignoring the role of financial capital accumulation, the rise of

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financial bourgeoisie, and the pan-financialization of the market in the promotion of the development of financialization of the economy. Second, there is a lack of logical discussion on whether the spontaneous distributional effects of financialization of the economy originate from the profit-grabbing class's division of laborers' wage income and crowding out of labor value, and whether total value redistribution occurs. Third, the income gap between urban and rural residents, as one of the realities of China's current inequality in income distribution, is in urgent need of improvement, as few scholars have explored the link between financialization of the economy and the gap between urban and rural residents at a deeper level, and the existing research conclusions have only thought in terms of urban and rural residents' household-size incomes, while ignoring their impact on the functional income structure of urban and rural residents.

To sum up, the possible marginal contributions of this paper are: firstly, combining the financial development theory and the classical theory of political economy, exploring the mechanism of financialization of the economy, and constructing an objective and comprehensive comprehensive evaluation system of the development of financialization of the economy, so as to reflect the actual degree of development of financialization of the economy. Secondly, a logical paradigm of financialization of the economy affecting the urban-rural income gap is sorted out, and empirical tests of financialization of the economy and urban-rural residents' income gap are carried out using panel data, so as to find out the extent of financialization of the economy's influence on the urban-rural residents' income gap, and to enrich the relevant theoretical researches. Thirdly, the persistent widening of the income gap between urban and rural residents and the "de-realization" of the economy have become the key factors hindering the high-quality development of China's economy, and the conclusions of this paper are of reference value for the improvement of residents' incomes, the realization of the common wealth of all the people and the high-quality development of the economy, and they highlight the key problems that must be solved in order to realize the common wealth.

III. Mechanisms and Hypotheses

(I) The Dialectic Between the Financialization of the Economy and Income Distribution

Marx's logic of distribution depends on the distribution of value in the production chain, where workers are paid for the necessary labor they perform during the necessary labor time, and surplus value is produced along with the production of material goods, and after separating the costs of various types of labor, the surplus value is converged into the wealth of the industrial capitalists and their consumption funds. In order to maximize the profit rate, industrial capitalists continue to capture surplus value (industrial profit) by extending the surplus labor time or shortening the necessary labor time, but laborers are only rewarded for their labor during the necessary labor time, so the income disparity between labor and capital is a direct reflection of the conflict between the two. The industrial capital cycle eventually completes the accumulation of surplus value and capital surplus of industrial capitalists, but with the formation of large-scale product markets, industrial profits tend to be balanced, and the existing scale of production is difficult to sustain the pursuit of high profit margins of industrial capitalists, and some industrial capitalists begin to change their identities and monetize their own capital (or borrowing), and at this time, the industrial capital is endowed with financial attributes to the identity of the money capital. Re-enter the industrial cycle, and use financial rent (or lending interest) as the rental compensation, and finally exit the industrial cycle, this process provides a new channel for the expansion of excess capital, financial services and financial capital formed spontaneously, to alleviate the financing constraints of some industrial capitalists, to reduce costs and increase efficiency, and to share risks. Financial services focus on the use of financial capital to solve the problem of intertemporal value storage and claim for future earnings, the borrower of money capital additional capital investment to complete the expansion of reproduction, while money capitalists participate in the distribution of surplus value by virtue of the ownership of money capital, the newborn surplus value is divided into borrowing and lending

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capital, interest, and profits from the production in turn, the new distribution makes the money capital experience the transformation of industrial capital, commodity capital and then to new money capital. The new distribution makes money capital go through the transformation of industrial capital, commodity capital, and then new money capital, and is accompanied by the generation of new value. The industrial cycle has long been dependent on borrowed capital, and financial indebtedness has severely reduced the net profitability of production, so that the rate of surplus value in the industrial cycle can only be maintained by lowering variable costs (labor compensation). Although both borrowers and lenders of money capital complete the accumulation of new value, workers only receive wage income, which, coupled with the fact that the supply of labor in society has long exceeded the demand for labor, has led to a steady decline in the share of labor compensation in the initial distribution (An et al, 2023). In the end, the sizeable income gap between industrial capitalists, money capitalists, and laborers was gradually widened, forming a pattern of triple-division among non-financial enterprises, the financial sector, and the working class.

Based on Marx's theoretical account of "finance capital" in the third volume of Capital, Marxist political economy and the radical political economy school focus on the financialization of the economy from the perspective of capital accumulation (Li and Chen, 2020), which is summed up as an economic phenomenon that combines the monetization, the capitalization of money and the virtualization of capital, and accordingly forms the relations of appropriation of capital and income through these mediums (Chen, 2016). Accordingly, possession relations on capital and income are formed through these mediums (Chen, 2016). The financialization of the economy strips industrial capital from the production chain and undergoes monetization, monetary capitalization and capital virtualization until it is transformed into financialized capital, the mode of social operation transitions from the production cycle to the financial cycle, and market players begin to pay attention to the anticipation and seizure of financial profits, neglecting the physical economic operation and value production, and putting an end to the over-expansion of the financialized capital agglomeration and the integration of the economic development of the hollowing-out and virtualization of the economy (Chen, 2017). Capital for profit is the fundamental driving force of the transformation of the financialization of the economy (Chen, 2018), when the return rate of financial investment is higher than the profit rate of production, financial capital in the financial internal cycle to obtain a large number of proliferation and accumulation, this low-cost high return process attracts a larger scale of functional capital out of the physical production to the financial activities, and the cycle repeats itself, and the economy is "deconcentrated" and "virtualized". As the cycle continues, the "de-realization" of the economy and the virtualization of capital become more and more serious (Chen and Huang, 2020), and the financialization of the economy also becomes more and more inflated. Workers in the financial industry design and produce financial products and services in the value creation process, unlike the entity material value created through the live labor of workers, securities, financial derivatives and forward income claims and other financial products and real estate transactions do not create value, the product comes with speculative attributes, the price expectations and income determination is very flexible, financial investors will be directly invested in the financial transactions of the monetary capital, by buying and selling financial services or products to earn the difference in price, and finally the principal and income together back to their own hands, so as to form a whole set of financial cycle (Sun, 2017). Therefore, the financialization of the economy accelerates financial innovation and financial transactions, promotes the zero-sum game between buyers and sellers, and contributes to the "de-realization" of the economy, and high financial profits become the object of public pursuit, but no longer is the product of the stripping of the new value, which is realized through the transfer of the value and wealth of those who enter the market after the transfer of the value and wealth of the profit-eating class, i.e., the capital capture and value appropriation of the profit-eating class, and the total value of the market is no longer the product of the stripping of the new value. and value appropriation by the profit-eating class, the total value of the market remains unchanged, only the redistribution of existing value. Excessive financialization emphasizes the pursuit, appropriation, accumulation and even domination of money capital, the

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claiming power of money capital and the various certificates of rights by the profit-eating class (or money capitalists), and the financial bourgeoisie, anticipating the pursuit of high yields and high expectations by various market players, has plunged into the "Shilohole" of the competition for profits, relying on its strong market Relying on its powerful market power, it transfers the division of labor value and money capital by creating and trading financial products, hiding the objective fact that financial profits come from the exploitation of value and the appropriation of capital. The working class, whose gaming strength is so different, is left to be "slaughtered" or has no choice but to withdraw from the competition, coupled with the shrinking of the industrial cycle and the squeezing of labor remuneration (Qiao and Liu, 2021), the imbalance in the distribution of functional income is getting worse and worse, forming a distribution pattern in which "the rich are getting richer and the poor are getting poorer and poorer". The distribution pattern of "The rich get richer and the poor get poorer".

(II) Impact of the Financialization of the Economy on the Income Gap Between Urban and Rural Residents

The income gap between urban and rural residents is a distinctive feature of the imbalance in income distribution under the dualistic economic structure. Marx argued from the historical materialist perspective of the social division of labor and the development of productive forces that the separation of urban and rural areas is the result of urban-rural antagonism, and the antagonistic conflict between the urban economic civilization, which takes the industrialization of towns and cities as a spatial carrier, and the agricultural economic civilization, which takes agricultural productivity in the countryside as a spatial carrier, is particularly obvious, and the well-developed system of the division of labor in towns and cities has made rural areas subordinate to the development of towns and cities (Gao, 2018). Within the towns and cities have long relied on a crude economic growth model, with labor-intensive industries dominating urban enterprises to expand reproduction through financial financing channels, absorbing a large amount of rural surplus labor and accelerating the non-agricultural transfer of rural laborers, but the rise in industrial profits has been weak, while the high-return financial and real estate industries have crowded out the profit space of the real economy, and the exodus of functional capital to the financial and real estate industries has made "pan-financialization" of the economy expanded rapidly (Zhou and Zhang, 2022), and the pan-financial industry became the main driving force of economic growth in towns and cities, to the point where the income of urban financial workers was significantly higher than the average wage of manufacturing workers. Although agricultural laborers earn more than traditional agricultural labor compensation for non-agricultural work, they are constrained by their own education, vocational skills and other factors, and have never been able to exceed the urban labor force, and with the rise of capital-intensive industries and knowledge-intensive industries, such as high-end manufacturing and finance, the labor force selection of the key links in the production of the labor force is more stringent and professional, and the matching wage level is higher than that of the traditional labor compensation, so the gap between urban and rural labor force wage income not only persists for a long time, but is also higher than the traditional labor compensation, which is the main driver of urban economic growth. Therefore, the wage income gap between urban and rural areas not only exists for a long time, but is also gradually widening.

The development of the financial and real estate industries has given urban residents more investment choices, and investment consumption by urban households has risen, with medium- and long-term returns enriching the property income of urban households. However, the difference in asset stocks among urban members causes vertical disparities in investment returns, and those with high capital stocks are more sensitive to the fluctuations of the financial system, take greater initiative in investment returns, and are more inclined to market value appropriation and unbalanced allocation of wealth, while on the contrary, ordinary investors are often subject to value exploitation due to price hedging, and have to painfully cut off their meat in order to defend themselves against risks (Zhang and Zhao, 2017). On the contrary, rural residents, their property income mainly comes from savings interest, coupled with the popularization of financial knowledge and financial

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institutions, a small number of rural residents hold securities to supplement their own property income, in addition to the sale of housing, renting, mortgaging and other ways to realize the asset-based income of rural households (Sun and Zhang, 2022), but in the rural residents of the net income accounted for a low percentage of the income, labor income and land operation income are still the main sources of income. The development of moderate financialization not only provides financial support and more investment and financing channels for the optimization and upgrading of rural industries, but also gives rural residents more convenient investment channels to increase the share of property income and help farmers increase their income. It is true that both urban and rural residents have enjoyed certain financial dividends due to the popularization and promotion of financial services, and the difference in property income between the two tends to narrow. Accordingly, this paper puts forward research hypothesis 1 and hypothesis 2:

Hypothesis 1: As the process of financialization of the economy moves forward, the income gap between urban and rural residents is persistently widened.

Hypothesis 2: The development of financialization of the economy has curbed the convergence of the wage income gap between urban and rural residents, but narrowed the property income gap between urban and rural residents.

According to the first law of geography proposed by Waldo Tobler: "Everything is related to everything else, and things in close proximity are more closely related". Similarly, in an environment driven by increasing marginal rewards and imperfect competition in the market, economic activities will undergo spatio-temporal agglomeration, and the financial resources in one region will be clustered or overflowed to its neighboring regions (Wu et al, 2020) in order to improve the efficiency of capital allocation and the profit gained. Financialization of the economy so that industrial capital is no longer dependent on industrial production and turn to the financial cycle, while financial development and innovation to give financial capital agglomeration of strong externalities, accelerating the spatial flow of capital, on the one hand, the effect of financial wealth is no longer limited to a single region and accelerate the transmission of the inter-regional, able to increase the efficiency of the allocation of financial capital in various regions, help to improve the financial development of the inter-regional disparities, on the other hand, the concentration and diffusion of financial capital will inevitably trigger the emergence of different regions and the spread of financial resources. On the other hand, the agglomeration and diffusion of financial capital will certainly trigger capital accumulation and value appropriation between different regions and groups, expanding the inter-regional labor volume differences, especially financial capital and labor in pursuit of high returns and frequent cross-regional mobility and transfers, forming the spatial structural deviation of labor income and spatial and temporal gaps in the total amount of income. Therefore, when administrative regions deregulate the free flow of capital, labor and other factors of production, the correlation between regions is becoming closer and closer, coupled with the financialization of the economy, which makes the financial capital present a heterogeneous aggregation between urban and rural areas, and the differentiation of financial profits between different regions will inevitably lead to the inter-temporal and spatial mobility of financial capital, which will aggravate the spatial imbalance of the evolution of urban and rural income distribution (Wu, 2018), and ultimately form the spatial structure bias of income and total amount of income of each geospatial dependence and spillover of regional financialization of the economy development and urban-rural residents' income gap (Li, 2017). Accordingly, this paper proposes research hypothesis 3:

Hypothesis 3: The financialization of the economy has strong externalities that affect the income gap between urban and rural residents in neighbouring regions through spatial effects.

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IV. Variable, Data and Model

(I) Selection of Variables

1. Explained Variables

In this section, the Theil Index was chosen to measure the income gap between urban and rural residents. The Theil Index is an index proposed by Theil (1967) to measure the income gap between individuals or regions or to measure the degree of inequality. The advantage of this index is that residents can be grouped to discuss the income gap, and the degree of contribution to the overall income gap can be calculated based on the income gap within each group and the income gap between each group. The basic form of the Thiel index is:

$$THEIL = \frac{1}{n}\sum_{i=1}^{n}\frac{y_i}{\bar{y}}ln\frac{y_i}{\bar{y}} \quad (1)$$

where *THEIL* denotes the Thiel index, n is the total number of households, and y_i is the income level of the *ith* family household, and $\bar{y}$ denotes the average of the total income level of the society. The smaller the index, the smaller the difference in income between households, and vice versa, the larger the difference in income between households.

In order to reflect the income gap between urban and rural residents under China's dual economic structure, this paper refers to Wang and Ouyang(2008) and decomposes the Theil Index into the income gap within and between urban and rural groups by replacing the total household income with the income of urban and rural residents, respectively, and introducing the total urban and rural population, at which point the Theil Index not only takes into account the changes in the absolute incomes of urban and rural residents, but also the corresponding changes in the urban-rural population structure. The evolution of the Thiel index takes the form of The evolution of the Thiel index takes the form of:

$$THEIL_{it} = \sum_{j=1}^{2}\frac{w_{ij,t}}{w_{it}}ln\left(\frac{w_{ij,t}/w_{it}}{m_{ij,t}/m_{it}}\right) \quad (2)$$

Where j=1 and j=2 denote urban and rural areas respectively; $w_{ij,t}$ denotes the total income of the residents of urban or rural areas in area i in year t, and w_{it} denotes the total income of the residents of area i in year t; $m_{ij,t}$ denotes the population living in urban or rural areas in area i in year t, and m_{it} denotes the total population living in area i in year t. The larger the Theil Index, the greater the gap between urban and rural residents' income levels; and the opposite, the greater the gap between urban and rural residents' income levels. The larger the Theil Index, the larger the difference in income levels between urban and rural residents, and the opposite is true: the smaller the difference in income levels between urban and rural residents.

2. Explanatory Variable

Combining the above analysis, this paper refers to a multi-dimensional financialization of the economy evaluation index system constructed by Hao and Chen(2019) from four factors, including the degree of monetary capitalization, the degree of capital virtualization, the degree of virtual capital independence and international financialization, and draws on political economy definition from Zhang and Zhang (2015) and analysis of financialization of the economy to construct a comprehensive evaluation of financialization of the economy development index to better reflect the characteristics and evolutionary degree of financialization of the economy development under the characteristics of the financial system with Chinese characteristics (Li et al, 2021).

In this paper, a total of 8 indicators constitute the comprehensive evaluation index (*FINZ*) of the development level of financialization of the economy from four dimensions: capitalization of money, virtualization of capital, power of the profit-grabbing class, and pan-financialization of the market, etc. The specific composition of the indicators, the classification of the indicators, and the calculation of the indicators are shown in Table 1. In order to avoid the estimation error caused by human

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subjective factors, this paper chooses the Entropy Value TOPSIS method to carry out a comprehensive evaluation of the development level of financialization of the economy with objective weighting.

Table 1. Comprehensive Evaluation Index System for the Development Level of Financialization of the Economy.

Target Index	Indicators Ⅰ	Indicators Ⅱ	Measurement	Indicator Properties
Comprehensive evaluation index of the level of development of the financialization of the economy	Capitalization of money	Percentage of loan balances of financial institutions	Loan balance of financial institutions/GDP	+
	Capital virtualization	Percentage of total portfolio transactions	Total portfolio transactions/GDP	+
	The power of the profiteer class	Share of national income from financial rental income of the profit-taking class	(Financial profits of financial corporations + financial profits of non-financial corporations + household financial investment income)/GDP	+
		Percentage of financial employees	Number of financial employees/total employees	+
		Density of financial institutions' business outlets	Number of financial institutions operating/area of area	+
	Pan-financialization of markets	Financial sector expansion	Financial sector value added/GDP	+
		Financialization of commodities	Value added of real estate industry/GDP	+
		Financialization of non-financial corporations	Financial profit of industrial enterprises above scale / total profit of industrial enterprises above scale	+

3. Control Variable

The following control variables are selected for this paper. Quality of economic development, expressed as real per capita GDP of the region at the 2000 price level, to reflect the quality of real economic development. Urbanization level, expressed as the ratio of urban resident population to

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total resident population to reflect the urbanization development process. Government expenditure, measured by the ratio of local government fiscal expenditure to regional GDP. Education investment, represented by the ratio of education expenditure to GDP in each region. Industrial structure, represented by the ratio of value added of secondary and tertiary industries to GDP in each region. Informatization level, represented by the ratio of total post and telecommunications business to GDP in each region. Openness to the outside world, represented by the ratio of total import and export trade to regional GDP expressed in RMB. Inward investment, expressed as the ratio of total foreign direct investment to regional GDP in RMB. Degree of marketization, using the marketization index derived by Fan Gang to reflect the actual degree of marketization development in each region. Inflation, using the regional CPI index to reflect the actual level of inflation in each region. Residents' savings, expressed as the savings rate, i.e. the percentage of savings in total disposable income per capita. Capital stock, reflected by the real market capital stock as a percentage of regional GDP. The explanation of all the variables involved in this paper is shown in Table 2.

Table 2. Variable Selection and Measurement Approach.

Variable	Definition	Description	Measurement
THEIL	Income gap between urban and rural residents	Theil index	Calculated by using the thiel index formula
FINZ	Degree of financialization of the economy	Comprehensive evaluation index of financialization of the economy	The entropy-topsis method was used to calculate the
GDP	Quality of economic development	Real GDP per capita	GDP per capita expressed at the 2000 price level and taking natural logarithms
URBAN	Urbanization level (of a city or town)	Urbanization rate	Urban resident population/total resident population
GOV	Government expenditure	Fiscal expenditure as a percentage	Local government fiscal expenditure/regional GDP with natural logarithm
EDU	Investment in education	Percentage of expenditure on education	Regional education expenditure/regional GDP with natural logarithm
STRUC	Industrial structure	Percentage of industrial value added	Value added of secondary and tertiary industries in the region/regional GDP and take natural logarithm
INFOR	Informatization level	Percentage of total post and telecommunications business	Total regional postal and telecommunication business/regional GDP and take the natural logarithm
TRADE	Open to the outside world	Percentage of total import and export trade	Total import and export trade of each region/regional GDP

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			expressed in RMB and taking natural logarithms
FDI	Foreign investment	Percentage of total FDI	Total FDI/regional GDP expressed in RMB and taking natural logarithms
MARKET	Marketability	Fan marketization index	Calculated using the marketization index derived by fan gang and taking natural logarithms
CPI	Inflation	CPI index	CPI index for each country and take natural logarithm
SAVING	Resident savings	Savings rate	Savings/gross disposable income per capital with natural logarithms
CAPITAL	Capital stock	Percentage of capital stock	Regional real capital stock/regional GDP with natural logarithm

Source: China Statistical Yearbook, Statistical Yearbooks of Provinces (Autonomous Regions and Municipalities Directly under the Central Government), China Population and Employment Statistical Yearbook.

The data in this paper come from the 2003-2022 China Statistical Yearbook and China Financial Yearbook, the Statistical Yearbook and Financial Yearbook of each province (autonomous region and municipality directly under the central government), and the China Population and Employment Statistical Yearbook, and all the observations of the sample variables are computed and organized by the author. Considering that Tibet has a lot of missing data and is not included in the data sample, this paper adopts the panel data of 30 provinces (autonomous regions and municipalities directly under the central government) in mainland China from 2003 to 2022 as the main research sample. The results of the statistical description of each variable are shown in Table 3.

Table 3. Summary statistics.

Variable	Obs.	Mean	St. Dev.	Min	Max
THEIL	600	0.118	0.057	0.020	0.270
FINZ	600	0.082	0.087	0.021	0.805
GDP	600	8.717	0.737	7.102	10.410
URBAN	600	50.180	15.290	24.360	88.890
GOV	600	-1.639	0.435	-2.482	-0.412
EDU	600	1.595	0.267	1.109	2.269
STRUC	600	4.474	0.074	4.236	4.601
INFOR	600	1.623	0.508	0.361	3.159
TRADE	600	-1.677	0.997	-3.427	0.469
FDI	600	0.500	1.083	-4.534	2.794
MARKET	600	1.783	0.327	0.932	2.386

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CPI	600	4.628	0.019	4.588	4.677
SAVING	600	3.159	0.238	2.443	3.579
CAPITAL	600	0.718	0.230	0.343	1.399

(II) Modeling

This part examines the impact of financialization of the economy on the functional income structure of residents and the income gap between urban and rural residents, and then examines the impact of financialization of the economy on the scale income gap and functional income skewness of urban and rural residents. In order to ensure that the variables are smooth and reduce the negative effects of extreme value fluctuations, this part takes the natural logarithm of each variable in the model and performs 1% two-sided tailing, and constructs a benchmark model (3):

$$THEIL_{it} = \alpha_0 + \alpha_1 FINZ_{it} + \sum_j \alpha_j CONTROL_{jit} + \lambda_t + \mu_i + \varepsilon_{it} \quad (3)$$

Where i denotes province, t denotes time, $THEIL_{it}$ denotes the proxy variable for the income gap between urban and rural residents in each region, $FINZ_{it}$ denotes the degree of financialization of the economy in each region, α_1 denotes the degree of influence of the financialization of the economy process on the income gap between urban and rural residents, respectively, $CONTROL_{jit}$ denotes the control variable, α_j denotes the coefficient of influence of control variable, j denotes the jth control variable, λ_t and μ_i denote the time control effect and individual control effect, respectively, ε denotes the model random perturbation term, and α denotes the constant term. λ_{it} and μ_0 represent the time cont*rol* effect and individual control effect respectively, ε denotes the random perturba*tion* term of the model, and α denotes the constant term.

V. Empirical Testing and Discussion

(I) Baseline Regression

Referring to the existing literature and combining the data samples, after passing the Hausman test, this part selects the fixed effect model for estimation. Panel data may have problems such as autocorrelation and heteroskedasticity that lead to inaccurate estimation results, so this paper refers to the treatment of heteroskedasticity and serial correlation in static panel data by Wen and Wang (2020), and this part adopts the FE-SCC model proposed by Driscoll and Kraay (1998) to conduct the baseline regression, so as to effectively avoid heteroskedasticity and serial correlation that may cause the bias in the results to ensure the accuracy and validity of the model estimation results.

Table 4 reports the results of the FE-SCC estimation of the financialization of the economy process on the income gap between urban and rural residents. The results show that for the baseline estimation gradually controlling for other economic factors, financialization of the economy consistently maintains a 1% significant positive effect on the income gap between urban and rural residents, i.e., as the process of financialization of the economy advances and develops, the sizeable income gap between urban and rural residents is also consistently widened by its influence, and Hypothesis 1 is confirmed. The possible reason for this is that the difference in financial development between urban and rural areas generates different feedback mechanisms on the income structure and income scale of urban and rural residents. Specifically, the construction of the financial system in the urban sector is relatively sound, and financial credit and securities provide a variety of financial channels for urban groups to invest and finance and enterprises to expand reproduction, which guarantees the enhancement of the income of urban residents and enables the continuation of urban residents' wage income; with the decline in the marginal profit rate of the production sector, the investment of capital declines, and the high returns in the financial sector drive the acceleration of surplus capital Transfer, resulting in the systematic separation of capital and the real economy, which in turn accelerated the financial penetration and the rise of commodity financialization and economic virtualization, the financial wealth effect is increasing, and ultimately strengthened the ability of

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residents to preserve and increase the value of their assets, and the structure of the residents' income shifted to property income, and the scale of income due to the retention of capital and the financial profits claimed to be raised. On the contrary, the rural sector, due to the relative backwardness of its own financial system construction, financial wealth effect is difficult to form a scale, the rural financial efficiency is weak, so the rural assets are mostly taken from agricultural and non-agricultural labor generated by the accumulation of labor income, the lack of profitable assets, hindering the scale of income, and then the development of economic and financial development of the rural residents of the net income of the wealth effect is limited, and the result is the gap between urban and rural residents of the scale of income. The result is that the income gap between urban and rural residents of scale has little effect.

Table 4. Benchmark Regression.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FINZ	0.170***	0.135***	0.134***	0.135***	0.128***	0.126***	0.151***
	(5.101)	(7.330)	(6.389)	(5.430)	(5.282)	(6.390)	(5.607)
GDP		0.001	0.001	-0.001	0.002	0.002	0.004
		(-0.038)	(-0.057)	(-0.232)	(0.410)	(0.861)	(1.484)
URBAN		-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
		(-3.217)	(-3.232)	(-3.567)	(-2.860)	(-3.498)	(-2.956)
GOV			0.019	0.02	0.029*	0.029**	0.022*
			(1.133)	(1.242)	(1.870)	(2.544)	(1.923)
EDU			-0.006	-0.007	-0.010	-0.011	-0.018***
			(-0.569)	(-0.725)	(-1.134)	(-1.452)	(-2.848)
STRUC				0.023	0.071**	0.071**	0.079**
				(0.549)	(2.084)	(2.095)	(2.073)
INFOR				0.001	0.002	0.001	0.005
				(0.211)	(0.315)	(0.153)	(0.708)
TRADE					-0.015***	-0.015***	-0.014***
					(-15.248)	(-16.255)	(-9.300)
FDI					-0.001	-0.001	-0.001
					(-0.587)	(-0.648)	(-0.915)
MARKET						0.001	0.002
						(0.123)	(0.197)
CPI						0.176***	0.209***
						(3.074)	(3.699)
SAVING							-0.016***
							(-3.135)
CAPITAL							0.018***
							(3.222)
Constant	0.108***	0.159**	0.205**	0.113	-0.132	-0.948***	-1.122***
	(64.452)	(2.625)	(2.228)	(0.439)	(-0.640)	(-5.089)	(-5.810)
Obs.	600	600	600	600	600	600	600
Adjusted R^2	0.764	0.778	0.780	0.780	0.798	0.800	0.808

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Time Fixed Effect	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Province Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*

Note: t-statistics are in parentheses; ***, **, and * denote significance test levels of 1%, 5%, and 10%, respectively.

(II) Endogeneity Test

The FE-SCC fixed effects estimation of the benchmark regression reveals that the positive relationship between the process of financialization of the economy and the income gap between urban and rural residents is significant, but endogeneity problems such as observation errors of the model's proxies, unobservable omitted variables, and other endogeneity problems may cause bias in the model estimation results; therefore, this part of the design of instrumental variable regression analysis is designed to alleviate the bias of regression coefficients of financialization of the economy due to endogeneity problems .

This section takes the share-movement instrumental variable approach to construct *Bartik-IV*, following the approach of Kui et al. (2021).The basic idea behind the construction of the *Bartik-IV* instrumental variable is that it consists of a series of shocks weighted by the share of the exposure, and the initial share composition of the unit of analysis and the overall growth rate are used to simulate the estimates over the years (Bartik, 2009), which is highly correlated with the actual value and uncorrelated with other residual terms, so the *Bartik-IV* instrumental variable can well solve the problem of endogeneity due to omitted variables, reverse causation, etc., effectively overcome the impact of a series of unobservable factors, and avoid biased estimation of regression coefficients of the financialization of the economy in order to obtain a consistent estimation result (Yi, Hsing-Jian, Zhou, Li , 2018). The *Bartik-IV* instrumental variable in this section is constructed from the product of the lagged first-order financialization of the economy index $FINZ_{it\text{-}1}$ and the first-order difference of the financialization of the economy index at that time $\Delta FINZ_{t,t\text{-}1}$, i.e:

$$Bartik\text{-}IV = FINZ_{it-1} \cdot \Delta FINZ_{t,t\text{-}1} \quad (4)$$

In this section, *Bartik-IV* and lagged first order economic gilt index are selected as instrumental variables and two-stage least squares estimation (2SLS) is carried out and the estimation results are shown in Table 5. The estimated coefficients of the instrumental variables in the first stage (columns (8) and (10)) are statistically significant and different from zero, and the estimated coefficients of the economic gold melt index in the second stage (columns (9) and (11)) remain significantly positive, and the results of the non-identification test and the test of weak instrumental variables reject the original hypotheses, which indicate that the instrumental variables are non-identifiable and the possibility of the existence of weak instrumental variables is relatively small, and at the same time the test of instrumental variables over-identification is accepted. Meanwhile, the test of over-identification of instrumental variables accepts the original hypothesis of "instrumental variables are strictly exogenous", and the above tests indicate that the instrumental variables selected in this part are exogenous and effective. Therefore, it can be seen that after considering the endogeneity problem, the development of financialization of the economy still significantly inhibits the convergence of the income gap between urban and rural residents, which means that the conclusion of the baseline regression is basically robust and basically reliable, and further confirms the accuracy of hypothesis 1.

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Table 5. Endogeneity Test.

	Phase I Financialization of the Economy	Phase II Theil Index	Phase I Financialization of the Economy	Phase II Theil Index
	(8)	(9)	(10)	(11)
Bartik-Iv	18.293***		17.747***	
	(5.174)		(5.156)	
L.FINZ	0.885***		0.838***	
	(14.439)		(13.195)	
FINZ		0.213***		0.181***
		(10.181)		(6.855)
Control Variable	*No*	*No*	*Yes*	*Yes*
Obs.	570	570	570	570
Adjusted R^2	0.901	0.784	0.904	0.833
Time Fixed Effect	*Yes*	*Yes*	*Yes*	*Yes*
Province Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Non-Identifiability Test	22.683		29.822	
Weak Instrumental Variables Test	1004.976		536.192	
Over-Identification Test	0.845		0.747	

Note: t-statistics are in parentheses; ***, **, and * denote significance test levels of 1%, 5%, and 10%, respectively.

(III) Robustness Tests

This part conducts robustness tests in the following four aspects, and the test results are shown in Table 6; (1) Replacement of explained variables. In this part, the disposable income ratio of urban and rural residents is selected to measure the income gap between urban and rural residents, and column (12) reports the corresponding test results. (2) Replacement of explanatory variables. This part uses Principal Component Analysis(PCA) to measure the development of financialization of the economy, and column (13) reports the corresponding estimation results. (3) Excluding the sample of municipalities. Column (14) reports the regression results after excluding the municipality sample. (4) Correcting for outliers. In this section, all the explanatory variables and the core explanatory variables are individually 1 percent deflated and completed the estimation, and column (15) reports the corresponding results. Overall, the coefficients of financialization of the economy are all significantly positive, indicating that the effect of financialization of the economy on the income gap between urban and rural residents remains unchanged and the benchmark regression results are robust.

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Table 6. Robustness Test.

	Substitution of Explained Variables	Substitution of Explanatory Variables	Excluding Municipalities	Correcting for Outliers
	(12)	(13)	(14)	(15)
	Ratio Of Disposable Income Of Urban And Rural Residents	Theil Index	Theil Index	Theil Index
FINZ	0.576***		0.176***	0.214***
	(6.215)		(3.181)	(8.812)
FINZ(PCA)		0.007***		
		(7.720)		
Constant	-0.7288	-1.1800***	-0.5709**	-1.2401***
	(-0.753)	(-6.890)	(-2.652)	(-6.804)
Control Variable	*Yes*	*Yes*	*Yes*	*Yes*
Obs.	600	600	520	600
Adjusted R^2	0.752	0.802	0.823	0.808
Time Fixed Effect	*Yes*	*Yes*	*Yes*	*Yes*
Province Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*

Note: t-statistics are in parentheses; ***, **, and * denote significance test levels of 1%, 5%, and 10%, respectively.

(IV) Heterogeneity test

Given that geographic location factors and the quality of the actual economic development of the region may affect the effect of the development of financialization of the economy on the income gap between urban and rural residents, this part examines and tests the heterogeneity of the process of financialization of the economy affecting the income gap between urban and rural residents from the perspective of geographic regions and the quality of economic development, and the results of the test are shown in Table 7.

1. Regional Heterogeneity

China's regional economic development has shown a significant trend of increasing from west to east, and the construction and development of regional financial systems are at different stages due to differences in the quality of economic development. One of the reasons for the disparity between urban and rural financial development is that the heterogeneity of urban-rural dualistic economic development has prompted a large concentration of financial capital in the urban sector, presenting a mismatch of local financial capital and financial speculative markets, and thus financialization of the economy exhibits regional heterogeneity in the urban-rural residents' income gap. Columns (16)-(18) in Table 7 report the estimation results of financialization of the economy on urban-rural residents' income gap in each region, and it can be found that the financialization of the

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economy in the eastern region and the central region still maintains a significant expanding effect on the urban-rural residents' income gap, and the extent of the influence in the central region is larger than that in the eastern region, whereas in the western region, the development of the financialization of the economy has been flipped, and it shows a significant inhibitory effect. Possible reasons are: the eastern and central provinces in the development of the financial industry is more developed, and the eastern region is relatively saturated with financial development, diminishing marginal returns on financial investment, the degree of expansion of the income gap tends to slow down; the central region has become the "front-runner" of the new development, the full utilization of financial resources to achieve the rapid growth of profit income, and there is a structural change in the income of the residents, which is eventually reflected in the income gap. Structural changes, ultimately reflected in the widening of the income gap; western provinces are affected by location factors, resulting in a relative lag in the construction of infrastructure and financial systems, the process of financialization of the economy is in its early stages, the regional economic development of its increasing sensitivity to the urban and rural residents to play a pulling role in the total amount of income, and to promote the convergence of the urban and rural residents of the western region's income gap.

2. Heterogeneity in the Quality of Economic Development

In this section, we refer to the study by Deng and Cao (2022) on the analysis of regional differences in the level of high-quality economic development, which divides the country into regions that are leading in terms of high-quality economic development, regions that are catching up in terms of high-quality economic development, and regions that are lagging behind in terms of high-quality economic development[1] . Compared with the geographic division, the division by the quality of economic development is more conducive to reflecting the "club convergence" effect of regional economic development, and the test results are reported in columns (19)-(21) of Table 7. The results show that the coefficients of the impact of financialization of the economy are positive in both leading and catching-up regions, but the effect of financialization of the economy in catching-up regions is not shown. The possible reasons are: the leading regions are mostly developed provinces in the east, the financial service construction is relatively developed, and the financial speculation activities are more frequent; while the catching-up region contains some provinces in the western region, and the real economic development of these provinces such as infrastructure construction and industrial production cycle is in need of the financial system to promote the role of the financial system in order to be realized, and the financial assets are more involved in the real production rather than in financial speculation, so the distribution of financialization of the economy is not obvious, but there is a potential effect. Therefore, the distributional effect of financialization of the economy is not obvious, but there is a potential expansionary effect. From the test results, it can also be seen that the development of financialization of the economy in the backward regions shows significant inhibition, the construction and popularization of financial services in the backward provinces are relatively lagging behind, and the types of industries are mostly dominated by the primary and secondary industries, which leads to the lack of sensitivity to the development of the financial system between urban and rural areas, therefore, once the financialization of the economy has been promoted, the region's production cycle and investment in assets can help the urban and rural residents to increase their income, and reduce the income disparity between the urban and rural residents. Income gap between urban and rural residents.

[1] Leading regions: Liaoning, Beijing, Tianjin, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong and Jilin; catching up regions: Heilongjiang, Inner Mongolia, Shaanxi, Shanxi, Henan, Anhui, Hunan, Hubei, Jiangxi, Hebei, Hainan, Tibet, Sichuan, Chongqing and Ningxia; lagging regions: Gansu, Qinghai, Xinjiang, Guizhou, Guangxi and Yunnan.

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Table 7. Heterogeneity test.

	Regional Heterogeneity in Geographic Distribution			Regional Heterogeneity in Quality of Economic Development		
	Eastern	Central	Western	Leading	Catching-up	Disadvantaged
	(16)	(17)	(18)	(19)	(20)	(21)
FINZ	0.081***	0.344***	-0.275***	0.085***	0.097	-0.181***
	(4.617)	(5.972)	(-7.277)	(4.002)	(1.318)	(-4.092)
Constant	-0.1	-0.071	-1.692***	-0.05	-0.167	-1.038**
	(-0.123)	(-0.233)	(-12.202)	(-0.075)	(-0.807)	(-3.899)
Control Variable	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Obs.	220	160	220	200	280	120
Adjusted R^2	0.795	0.918	0.939	0.798	0.919	0.953
Time Fixed Effect	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Province Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*

Note: t-statistics are in parentheses; ***, **, and * denote significance test levels of 1%, 5%, and 10%, respectively.

(V) Expanded Analysis

1. Functional Income Gap Test

Examining the effect of financialization of the economy on the functional income gap between urban and rural residents will help to explore the income distribution effect of financialization of the economy and its impact on the income gap between urban and rural residents at a deeper level. This part refers to the Thiel index measurement process described in the previous section, and calculates the wage income Thiel index and the property income Thiel index to measure the wage income gap between urban and rural residents and the property income gap between urban and rural residents respectively, and the test results are shown in Table 8.As can be seen from the estimation results in Table 8, the financialization of the economy shows a significant expansionary effect on the wage income gap between urban and rural residents, which implies that the industrial cycle and the production of value are more This means that the industrial cycle and value production are more easily affected by the process of financialization of the economy, especially when the penetration and spread of financial capital has boosted the prosperity and rise of the financial industry and even the pan-financial industry, which has directly led to the wage income of financial practitioners; at the same time, the monetization and borrowing of industrial capital has compressed the profits of industrial capitalists and the income of laborers, while the non-farm income of rural laborers is still at a low level, so that the wage income gap between urban and rural residents has been widened overall. The income gap between urban and rural residents has thus been widened. On the contrary, the development of financialization of the economy on the property income gap between urban and rural residents is in the opposite direction, showing a significant inhibitory effect, which indicates that financialization of the economy has accelerated the development of the financial industry and the promotion of financial services, and broadened the channels of financial investment for urban and rural residents, especially in the environment of high-speed development of information technology, and the popularization of the Internet has made the financial services more convenient and popular, and alleviated the asymmetric information, which has contributed to the increase of

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financial services between urban and rural residents, and the increase of financial investment channels between urban and rural residents. information asymmetry, prompting the property income of urban and rural residents to be fully accumulated, and ultimately narrowing the property income gap, but the absolute impact of financialization of the economy on the property income gap (0.245) is relatively weaker than the effect on the wage income gap (1.096). In short, the impact of financialization of the economy on the income gap between urban and rural residents does not all stem from the property income gap, and the structural gap in wage income plays a decisive role in the income distribution chain, and the above results verify the establishment of hypothesis 2.

Table 8. Functional Income Gap Test.

	Wage Income Theil Index	Wage Income Theil Index	Property Income Theil Index	Property Income Theil Index
	(22)	(23)	(24)	(25)
FINZ	1.517***	1.096***	-0.345***	-0.245**
	(9.831)	(5.957)	(-10.427)	(-2.090)
Constant	0.314***	0.324	0.218***	4.813***
	(40.341)	(0.098)	(130.440)	(3.502)
Control Variable	*No*	*Yes*	*No*	*Yes*
Obs.	600	600	600	600
Adjusted R^2	0.593	0.689	0.362	0.434
Time Fixed Effect	*Yes*	*Yes*	*Yes*	*Yes*
Province Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*

Note: t-statistics are in parentheses; ***, **, and * denote significance test levels of 1%, 5%, and 10%, respectively.

2. Testing for Spatial Spillover Effects

The external effects of financial development promote the inter-temporal flow of financial resources, which in turn improves the asset allocation efficiency of the financial cycle, and also provides space for the monopolistic accumulation of financial capital and the plundering and appropriation of financial profits. Therefore, examining the spatial spillover effect of financialization of the economy and testing whether the development of financialization of the economy has a spatial spillover effect on the income gap between urban and rural residents is crucial to verifying the mechanism of the income distribution effect of financialization of the economy.

(1) Spatial correlation test

Moran's I index is the most commonly used method to test the spatial autocorrelation of variables, specifically reflecting the spatial clustering of the observed variables as a way to identify the spatial autocorrelation properties and spatial dependence characteristics of the variables.*Moran's I* index is defined as:

$$Moran's\ I = \frac{n}{\sum_{i=1}^{n}\sum_{j=1}^{n} w_{ij}} \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} w_{ij}\left(x_i - \bar{x}\right)\left(x_j - \bar{x}\right)}{\sum_{i=I}^{n}\left(x_i - \bar{x}\right)^2} \quad (5)$$

where x_i represents the *ith* regional observation, w_{ij} represents the spatial weight matrix, and n is the total number of regions. When *Moran's I* ≥ 0, there is spatial positive autocorrelation of the observed variable; when *Moran's I* ≤ 0, there is spatial negative autocorrelation of the observed variable; if the

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value of *Moran's I* index is close to 0, it means that there is no spatial correlation of the observed economic variable, i.e. the variable is spatially randomly distributed.

Table 9 lists the *Moran's I* index to test the spatial clustering of financialization of the economy and urban-rural income disparity in 30 provinces in China. As can be seen from the table, the *Moran's I* index of financialization of the economy and urban-rural residents' income gap from 2003 to 2022 passes the 10% confidence level, which indicates that there is a significant positive spatial correlation between financialization of the economy and urban-rural residents' income gap in each province of China, so it is necessary to consider the spatial spillover effect to explore the impact of financialization of the economy on the So it is necessary to consider the spatial spillover effect to explore the impact of financialization of the economy on the income gap between urban and rural residents.

Table 9. Financialization of the Economy and Income Gap between Urban and Rural Residents *Moran's I* Index.

Year	Financialization of the Economy		Income Gap Between Urban and Rural Residents	
	Moran's I Index	Z-Value	*Moran's I* Index	Z-Value
2003	0.199***	4.643	0.134***	4.150
2004	0.203***	4.693	0.146***	4.530
2005	0.225***	5.146	0.157***	4.758
2006	0.225***	5.136	0.165***	4.904
2007	0.216***	4.959	0.164***	5.012
2008	0.222***	5.108	0.161***	5.036
2009	0.227***	5.205	0.177***	5.255
2010	0.236***	5.391	0.191***	5.447
2011	0.227***	5.191	0.190***	5.521
2012	0.229***	5.252	0.191***	5.429
2013	0.232***	5.299	0.192***	5.434
2014	0.231***	5.276	0.193***	5.467
2015	0.234***	5.340	0.189***	5.405
2016	0.234***	5.345	0.193***	5.438
2017	0.241***	5.521	0.171***	5.207
2018	0.240***	5.496	0.160***	5.089
2019	0.239***	5.466	0.166***	5.154
2020	0.238***	5.451	0.172***	5.186
2021	0.238***	5.458	0.172***	5.176
2022	0.239***	5.508	0.168***	5.213

Note: ***, **, * denote significance test levels of 1%, 5%, 10% respectively.

(2) Spatial effects model estimation

After passing the LM test, Hausman test, LR test, and Wald test, this part chooses the Spatial Durbin Model (SDM) to complete the test of the spatial spillover effect of financialization of the economy on the income gap between urban and rural residents. The Spatial Durbin Model (SDM) takes the specific form:

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$$THEIL_{it} = \alpha_0 + \rho W \times THEIL_{it} + \alpha_1 FINZ_{it} + \delta W \times FINZ_{it} + \sum_j \alpha_j CONTROL_{jit} + \sum_j \alpha_j W \times CONTROL_{jit} + \lambda_t + \mu_i + \varepsilon_{it} \quad (6)$$

where W is the n-order proximity spatial weight matrix, and in this part, the adjacency weight matrix, geographic distance weight matrix, and economic-geographic nesting matrix are selected as the spatial weight matrix; $W \times THEIL_{it}$ is the weighted sum of the variables of the urban-rural income disparity in neighboring areas, andρ is the spatial autoregressive coefficient to measure the effect of the spatial lag of the explanatory variables on the explanatory variables themselves; $W \times FINZ_{it}$ is the weighted sum of the financialization of the economy of the neighboring regions, and δ is the corresponding regression coefficient reflecting the impact of the development of financialization of the economy of the neighboring regions on the income gap between urban and rural residents in the region. The definitions of the remaining variables are consistent with equation (3).

This part not only completes the estimation of Spatial Durbin Model (SDM) under different spatial weight matrices, but also utilizes the method of LeSage et al. (2010) to decompose the total effect of SDM into direct and indirect effects to more clearly describe the spatial effect impact of economic and financial development, in which the direct effect reflects the performance of the economic and financial development in affecting the income disparity between urban and rural residents of the region, and the indirect effect reflects the performance of the economic and financial development in affecting the income disparity between urban and rural residents of neighboring regions. The direct effect reflects the performance of financialization of the economy development on the income gap between urban and rural residents in neighboring regions. Table 10 reports the SDM estimation results and effect decomposition. The results find that by using different spatial weight matrices, financialization of the economy consistently has a significant positive impact of 1% on the income gap between urban and rural residents. The regression coefficient of financialization of the economy in neighboring regions maintains an expansionary effect above the significant 5% confidence level, which suggests that the development of financialization of the economy in neighboring or surrounding regions inhibits the convergence of the income gap between urban and rural residents in the region. Possible explanations are: financialization of the economy has changed the financial capital circulation pattern, giving the financial system stronger external attributes, realizing the allocation of financial capital across time and space flows, resulting in the unequal development of inter-regional economic realities, followed by a large number of urban and rural non-agricultural laborers in the pursuit of high capital and high returns to the pursuit of trans-regional influx of developed provinces to engage in the value of the production of work, increase the scale of urban income, improve the structure of income, and the low return on investment of agricultural production, making the rural labor force to engage in value production work. The low rate of return on investment in agricultural production makes it difficult for the rural labor force to form capital on a large scale, enlarging the differences in the volume of labor force and the gap in the value of scale between regions, and aggravating the unbalanced evolution of urban-rural income distribution. From the estimation results, we can also see that the spatial autoregressive coefficient ρ is significantly positive under different spatial weight matrices, that is, the urban-rural residents' income gap shows obvious spatial spillover effects, and the expansion or convergence of the urban-rural residents' income gap is easily affected by the actual trend of the urban-rural residents' income gap in the neighboring regions and neighboring provinces, which forms the "Club Convergence" of the inter-provincial income gap.

From the estimation results of the spatial effect decomposition in Table 10, under different spatial weight matrices, the direct, indirect and total effects of financialization of the economy on the income gap between urban and rural residents are all significantly positive, and the indirect effect is greater than the direct effect, which means that the financialization of the economy of the region pulls open the income gap between urban and rural residents in that region while significantly inhibiting the contraction of the income gap between urban and rural residents in the neighboring region or the surrounding provinces, thus Hypothesis 3 is confirmed by the test. Marginal investment returns in

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areas with high concentration of financial capital have declined, leading to accelerated spatial and temporal "flight" of financial capital, and neighboring areas have begun to enjoy the regional economic development, industrial upgrading of towns and cities and improvement of residents' incomes, which also magnify the possibility of income differentiation between urban and rural residents in the neighboring areas. The possibility of income differentiation between urban and rural residents in neighboring regions is also magnified; compared with regions with high concentration of financial capital, regions with low concentration of financial capital do not have a high degree of financialization of the economy, but have abundant financial profit margins, so the inter-temporal spillover effect of financialization of the economy will inevitably make the urban sector in financially backward regions give priority to obtaining external financial resources, promote local enterprises to absorb financial capital and complete the expansion of reproduction, and further absorb social surplus labor for non-agricultural labor. The surplus labor force is further absorbed to engage in non-agricultural labor, and the level of laborers' wages and incomes is raised, the functional income structure is improved, and the scale of incomes is significantly better than that of traditional agricultural production, and the income gap between urban and rural residents is further widened.

Table 10. SDM Estimation Results.

	Adjacency Weight Matrix		Geographic Distance Weighting Matrix		Economic Geography Nested Matrix	
	(26)	(27)	(28)	(29)	(30)	(31)
FINZ	0.109***	0.094***	0.144***	0.115***	0.139***	0.106***
	(6.057)	(3.301)	(7.976)	(3.939)	(7.430)	(3.421)
W× FINZ	0.004***	0.008**	0.006***	0.011**	0.006***	0.011**
	(2.908)	(1.980)	(3.169)	(2.011)	(3.687)	(2.142)
ρ	0.524***	0.480***	0.654***	0.591***	0.462***	0.444***
	(6.355)	(5.242)	(10.999)	(7.418)	(3.966)	(3.631)
Direct Effect	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(6.142)	(7.857)	(5.644)	(8.180)	(5.883)	(8.992)
Indirect Effect	0.122***	0.107***	0.154***	0.123***	0.145***	0.112***
	(6.240)	(3.477)	(7.964)	(4.030)	(7.590)	(3.455)
ALL Effect	0.140***	0.134***	0.328***	0.252***	0.172**	0.162**
	(3.276)	(2.647)	(3.807)	(3.337)	(2.316)	(2.117)
Control Variable	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*
Obs.	600	600	600	600	600	600
Adjusted R^2	0.262	0.236	0.421	0.36	0.308	0.285
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Note: t-statistics are in parentheses; ***, **, and * denote significance test levels of 1%, 5%, and 10%, respectively.

VI. Conclusions and Suggestion

Based on the logic and mechanism of political economy theory, this paper analyzes and summarizes the effect of financialization of the economy on the income gap between urban and rural residents. It is found that, firstly, financialization of the economy is derived from the monetization

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and virtualization of industrial capital, and the essence of its income distribution is the division of surplus value and the plundering and appropriation of labor income. Secondly, financialization of the economy magnifies the disparity in gaming power and class conflicts between the profit-grabbing class and the working class, with urban and rural conflicts being particularly prominent. The main reason for financialization of the economy to widen the income gap between urban and rural residents is the gap in wage income between urban and rural residents, while the property income is relatively convergent. Third, empirical tests on China's provincial panel data found that financialization of the economy development has curbed the convergence of the income gap between urban and rural residents, showing obvious regional heterogeneity; financialization of the economy has significantly widened the wage income gap between urban and rural residents, and also pushed up the consistency of urban and rural residents' property incomes. Fourthly, there is a spatial spillover effect of financialization of the economy; the widening or narrowing of the income gap between urban and rural residents in the region is not only related to the degree of financialization of the economy in the region, but is also affected by the spillover effect of financialization of the economy in neighbouring regions, and there is a certain "Club Convergence" Effect.

This paper draws the following decision-making insights: (1) the regulatory control of financialization of the economy should be required from the market currency circulation, the level of direct financial development, the debt level of the economic sector, the degree of capital agglomeration, the degree of development of the financial market and the size of the assets of the new profit-grabbing class and other dimensions of a comprehensive consideration, and further deepen the reform of the financial system at the same time, the optimization of financial innovation and the structure of the financial capital, to curb the expansion of consumer credit and commodity financialization, to avoid the development of overheating of the economy. The financialization of commodities, limit the frequency of financial capital, avoid the financialization of the economy overheated development, to "go virtual to real" or "slow virtual to promote real". (2) Give full play to the important role of the policy-based financial system in social distribution, regulate the mechanism of wealth accumulation, focus on changes in the tilt of the functional income structure of the population, correctly guide the financial capital to "make blood" for the development of the real economy, revitalize the real economy for high-quality development, optimize the industrial structure and the industrial system, clear the resistance to industrial production, and improve the remuneration of labor in the industrial cycle, and guarantee the quality of the real economy. Improve labor remuneration in the industrial cycle, protect residents' labor income, optimize the wealth accumulation mechanism, and enhance people's well-being. (3) Deepen inclusive financial services in rural areas, improve the construction of the financial system for supporting and assisting rural areas, design differentiated and unique rural financial services with reference to the actual needs of different regions, reduce the cost of financing in rural areas, focus on supporting the development of local industries, enhance rural labor income, open up the channels connecting rural wage income and property income, raise the proportion of property income in rural households, realize the increase in income of rural residents, and alleviate long-standing class contradictions and economic conflicts between urban and rural areas. The long-standing class conflicts and economic frictions between urban and rural areas will be alleviated. (4) Give full play to the role of developed provinces and regions as "leaders", correctly utilize the spatial spillover effect of finance, and actively guide the import of financial resources to regions with relatively scarce financial services, so as to achieve spatial and temporal balance of economic development, thereby promoting the convergence of the income gap between urban and rural residents, and facilitating the high-quality development of the regional economy and the sense of well-being of the people's lives.

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