Digital Inclusive Finance, Urbanization Rate, and the Consumption Gap Between Urban and Rural Residents

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Abstract. We research the effect of digital inclusive finance on urban and rural resident's consumption gap as well as the indirect effects of digital inclusive finance on urbanization rate on consumption gap of urban and rural residents. The results are achieved by implementing a two-way fixed effect regression model and the panel data of the Chinese provinces between the year 2011 and 2023, the results show that development of digital inclusive finance narrows the consumption gap between rural and urban dwellers bit by bit. Following the test of intermediate effect, the existence of the digital inclusive finance diminishes the consumption gap between the urban and the rural inhabitants by encouraging the enhancement of the urbanization velocity. On the basis of the results above, two recommendations can be made, namely, to improve the infrastructure development of inclusive finance digital to gain access to financial services. Second, encourage quality urbanization and increase the bi-way movement of the urban and rural forensics.

Keywords: digital financial inclusion, urbanization rate, urban-rural consumption disparity

1 Introduction

The consumption gap between urban and rural residents specifically suggests the various levels of consumption between urban and rural inhabitants in relation to consumption structure, consumption level as well as consumption quality. The rural residents have now been effectively increased in consumption capacity and the consumption gap that exists between urban and rural residents has been narrowed. Nevertheless, the gap in consumption between urban and rural dwellers still persists which limits the economic development, increases social contradictions and generates the vicious circle of so-called urban-rural dual structure cycle.According to the data from the China Economic and Social Big Data Research Platform (EPS) and the statistical yearbooks of different provinces and cities. We found that the Theil coefficient between 2011 and 2023 were all greater than zero, indicating that the per capita consumption disparity of urban residents in China was significantly higher than that of rural residents. This continuous disparity is not only a issue of living standards but also a major factor contributing to overall economic inequality, preventing the transition to a consumption-driven

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growth model and potentially exacerbating social instability. The Chinese government has implemented various policies to solve this issue, but the gap remains a central challenge in the nation's development agenda.Nowadays, it has a significant research value and must be of common concern whether the application of digital inclusive finance in the consumption gap between urban and rural citizens can substantially reduce the gaps.

As can be seen, the level of scholarly research in this field is well-advanced, and it dwells on two main dimensions. The initial point will refer to the effects of digital inclusive finance on the urban-rural consumption gap: (Liu H, 2025)"[1]"and (Shi Y, 2025)"[2]"demonstrate the negative correlation between the role of digital financial inclusion and the gap in consumption between urban and rural areas. Hyfer (Gao Y, 2024) "[3]" with the same conclusion, which is the result of empirical analysis and tests. Based on this, he also provided a heterogeneity analysis, understanding that since the inclusive finance progress has been uneven across regions, it has diverse effects on the consumption gap and with this introduction of a step-like effect where it is more effective in the south, and less effective in the north. The second element is associated with the process by which the expansion of financial inclusion influences the consumption gap between urban and rural residents. As it is mentioned in (Gao Z et al, 2024)"[4]", (Tang C et al, 2025)"[5]", and (Yu C et al, 2022)"[6]" the development of inclusive finance has enhanced the income of rural residents, as well as liquidity constriction. (Zhang L et al, 2024) "[7]" states further that due to the expansion of financial inclusion, the development of agricultural easy loan came up that made life simpler to the rural population. Converting digital than inclusive finance to rural areas, (Sheng X et al, 2023) "[8]" , (Yan Y et al, 2025)"[9]", and (Zhang L, 2025)"[10]" confirm that digital inclusive finance is effective at improving the mechanization service levels of rural areas, intimately integrating rural industries facilitates rural industrial revitalization, and thus, reaching the objectives of bridging the consumption gap between urban and rural residents.

This article makes use of the fixed effects model where individual and time effect are considered and it also extensively tests whether and how the digital inclusion of finances can influence the consumption gap between the urban and rural residents. Such findings are successful in justifying the relationship of influence between digital financial inclusion, urbanization, and consumption disparity between urban and rural residents. According to the empirical findings, appropriate suggestions are made to help close consumption gap between city inhabitants and rural inhabitants and attain this objective. urban-rural variables.

2 Data Provenances

We will choose 31 provincial administrative regions in China between 2011 and 2023, and Hong Kong, Macao and Taiwan are not included. The digital financial inclusion data are found in the Peking University Digital Inclusive Finance Index, and the rest is primarily found in the China Economic and Social Big Data Research Platform (EPS) and the statistical yearbooks of different provinces and cities.

3 Variable Definitions and Empirical Analysis

3.1 Variable Definitions

***Dependent Variable*($Gapc_{it}$).** The Theil coefficient way is effective in measuring the level of inequality. It is able to both break the total inequality down into two sectors: between groups and within groups"[11]".It is commonly applied in the determination of the consumption gap between rural and urban residents. The calculation formula is as follows.

$$Gapc_{it} = \sum_{i=1}^{2} \left(\frac{C_{it}}{C_t}\right) * ln\left[\frac{\left(\frac{C_{it}}{C_t}\right)}{\left(\frac{P_{it}}{P_t}\right)}\right], i = 1,2 \quad (1)$$

In the above formula, C_t denotes the total consumption expenditure of residents during the period t. $C_{1,\ t}$ and $C_{2,\ t}$ represent consumption expenditures of urban dwellers and rural residents, respectively, during the period t. P_t denotes the total population during the period t. $P_{1,\ t}$ and $P_{2,\ t}$ represent the permanent resident populations of urban and rural areas, respectively, during the period t.

***Explanatory Variables*($Difi_{it}$).** Digital Financial inclusion: the paper has used the Peking University Digital Inclusive Finance Index, which takes into account the state of development of different items in digital financial inclusion, such as whether the level of financial institution digitalization has been high or not, whether the popularity of digital financial inclusion products has been high or not, whether the popularity of digital payments has been high or not, and whether the financial technology enterprises level of development has been high or not. It is among more inclusive financial indices that are of digital character.

***Mediating Variable*($Urban_{it}$).** The level of urbanization is used in representing the extent of people concentration in cities and also indicates the level of economic growth in the cities. This paper relies on the percentage of urban population on the total population at the end of the year as a measure of the level of urbanization.

Control Variables. (1) Economic Development Level ($\ln(pgdp)$): Logarithm of per capita GDP (2) Industrial Structure (Is): Measured by the ratio of the proportion of tertiary industry added value to the proportion of secondary industry added value (3) Government Fiscal Support ($Finance$): Measured by the ratio of local public fiscal expenditure to GDP (4) Population Aging ($Aging$): Ratio of elderly population (aged 65 and above) to total population (5) Urban Social Security Level ($\ln(Medi)$): Natural logarithm of the number of urban residents enrolled in medical insurance.

3.2 Model Specification

In order to analyze the impact of digital financial inclusion on the consumption divide between urban and rural dwellers, this paper builds fixed effects model with both individual and time effects to confirm Hypothesis 1, the details are as follows.

$$Gapc_{it} = \alpha + \alpha_1 * Difi_{it} + \alpha_2 * control_{it} + \partial_i + \delta_t + \mu_{it} \quad (2)$$

To analyze the influence on digital financial inclusion on the consumption divide between urban and rural dwellers through the urbanization rates, an intermediary effect testing model was constructed.

$$Urban_{it} = \beta + \beta_1 * DIF_{it} + \beta_2 * control_{it} + \partial_i + \delta_t + \mu_{it} \quad (3)$$

i and $t$represent province and time, respectively.∂_irepresents uncontrollable regional heterogeneity, $\delta_t$denotes uncontrollable temporal heterogeneity, $\mu_{it}$is the random error term, and $control_{it}$ are control variables. The sign and significance of the regression coefficient β are the focus of this study. If β is significantly positive, it represents that the development of digital inclusive finance can widen the urban-rural residents' consumption gap; if β is significantly negative, it suggests that the development of digital inclusive finance significantly narrows the consumption divide between urban and rural dwellers. Other variables are listed in Table 1.

Table 1. Descriptive Statistics.

Variable	Mean	Std. Dev.	Min	Max
$Gapc_{it}$	0.057	0.032	0.011	0.172
$Difi_{it}$	5.348	0.657	2.909	6.165
$Urban_{it}$	0.580	0.131	0.227	0.896
ln (pgdp)	10.891	0.474	9.682	12.155
Is	1.386	0.792	0.527	5.244
Aging	0.161	0.045	0.081	0.288
ln (Medi)	7.797	0.890	5.021	9.354

4 Empirical Results

4.1 Benchmark Regression

We decide to use a two-way fixed effects model to determine the effect of digital financial inclusion on the urban-rural consumption gap between urban and rural residents. Table 2 indicates the results of regression. The amount of the explanatory variable digital financial inclusion is negative at 1 percent of the following without including the control variables in the first column, which implies that the development of inclusive advancement of digital financial inclusiveness plays a repressive role in the consumption gap between urban and rural residents. Even after incorporating the control variables in the second column, there remains negative value of the explanatory variable of digital financial inclusion, at a significance level of 1 percent which reflects the fact that even with the digital-technological advancement of inclusion of finances, the consumption disparity between urban and rural resident remains significant and hence the hypothesis 1, which claims that the advancement of digital-financial inclusion will produce a phased reduction in the consumption divide between urban and rural dwellers is true.

Table 2. Benchmark Regression Results.

	(1) Gapc	(2) Gapc
Difi	-0.0408***	-0.0197***
	(-6.3762)	(-3.1361)
lnPgdp		-0.0798***
		(-5.7490)
Is		0.0219***
		(3.0094)
Finance		0.0075
		(0.2378)
lnMedi		-0.0054**
		(-2.3196)
Aging		0.0652
		(1.2778)
_cons	0.2231***	1.0514***
	(8.7257)	(6.9453)
Year Fixed Effect	Yes	Yes
Individual Fixed Effects	Yes	Yes
N	312	312
Adj. R2	0.8775	0.9018

* p < 0.1, ** p < 0.05, *** p < 0.01

4.2 Mediating Effect Test

Table 3. Mediating Effect Test.

	(1) Gapc	(2) Urban
Difi	-0.0197***	0.0473***
	(-3.1361)	(6.6788)
lnPgdp	-0.0798***	0.0702***
	(-5.7490)	(4.4803)
Is	0.0219***	-0.0443***
	(3.0094)	(-5.3937)
Finance	0.0075	-0.0416
	(0.2378)	(-1.1629)
lnMedi	-0.0054**	0.0241***
	(-2.3196)	(9.1115)
Aging	0.0652	-0.0938
	(1.2778)	(-1.6268)
_cons	1.0514***	-0.2689
	(6.9453)	(-1.5723)
Year Fixed Effect	Yes	Yes
Individual Fixed Effects	Yes	Yes
N	312	312
Adj. R2	0.9018	0.9917

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3 depicts the findings of the mediation effect test. The conclusion drawn out of the first column is that with the help of digital inclusive finance, the consumption gap between urban and rural residents has been repressed. Based on the findings in the second column, we may conclude that the level of urbanization has been facilitated by the finance inclusion progress, as such refuting hypothesis 2 that the digital financial inclusion progress stifles the consumption gap between the urban and rural residents by instigating the escalation of urbanization rate.

5 Conclusions and Recommendations

The research sample in this article consists of panel data used in different provinces of China during 2011-2023 and examines how the digital financial inclusion influences the consumption divide between the urban and rural dwellers and the way in which the digital financial inclusion indirectly influences the consumption divide between the urban and countryside dwellers through impacting the rate of urbanization. We come into the following conclusions: (1) the continuous improvement of digital financial inclusion is slowly closing the consumption gap between urban and rural residents; (2) the digital financial inclusion may lead to the increase in urbanization rate and reduce the consumption gap between urban and rural residents. Although digital financial inclusion has played an important role in narrowing the consumption gap between urban and rural residents, it still faces many challenges in the promotion process. Firstly, the problem of digital divide is important, with a low usage rate of smartphones among the elderly population in rural regions and inadequate coverage of digital skills training; Secondly, inadequate 4G/5G network coverage in remote areas affects the continuity of financial services;At the same time, some farmers have doubts about the security of online transactions and prefer traditional financial institutions. On the basis of the above conclusion and impediment, it is proposed to suggest relevant suggestions: (1) The Zhejiang Harvest Internet Platform has covered 98% of administrative villages in the province by integrating payment, wealth management, insurance and other functions, significantly improving the accessibility of consumer credit for rural residents. As of the end of 2021, there were 9.033 million households receiving inclusive credit services in Zhejiang Province, with a total credit amount of 144 trillion yuan. The coverage rate of inclusive finance reached 100% (excluding households with negative information such as age mismatch and dishonesty), an increase of 8 percentage points from the beginning of 2020.This practice further demonstrates, we need to reinforce the development of digital inclusive financial infrastructure, improve the accessibility of financial services, enhance investment and deployment of digital inclusive finance in rural and remote areas, gradually reduce the prices of utilizing such services, improve the maintenance mechanism, and enhance the convenience of rural residents to use digital inclusive financial services in a way that can enhance the consumption gap between urban and rural residents. For instance, by designing credit products that are suitable for the agricultural production cycle, such as' spring ploughing loans' and 'autumn harvest loans', with terms that fit the sales cycle of agricultural products, etc (2) We should optimize the quality of urbanization, encourage the two-way flow of urban and rural

factors, reverse the existing one-way migration of urban factors, encourage science and technology, capital and talents to move back and forth, urban and rural factors, to spur the free flow and optimal allocation of urban and rural factors, in order to actively close the consumption gap between urban and rural residents. The limitation of this article is that it mainly focuses on the impact of digital financial inclusion on the consumption gap between urban and rural residents. Future research can gradually explore the long-term effects of digital financial inclusion on rural human capital accumulation, such as education investment, health expenditure, and other non consumption areas.

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