

# The Impact of Digital Financial Inclusion on Common Prosperity: An Empirical Test Based on Micro Household Data

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**Keywords:** Digital economy, Inclusive finance, Shared prosperity, Spiritual affluence, Material affluence

**Abstract:** Can the digital economy and inclusive finance based on emerging digital technologies become a new driving force for advancing the development of shared prosperity? This paper combines data from the China Digital Inclusive Finance Index and the China Household Tracking Survey (CFPS) to explore the impact of digital inclusive finance on shared prosperity. The study shows that the development of digital inclusive finance significantly improves household income and residents' happiness, and empowers common prosperity at both material and spiritual affluence levels; the income enhancement effect is more obvious for the low-income class, and the marginal contribution of digital inclusive finance to their common prosperity is greater. Further analysis shows that for households with different capital, digital finance contributes to common affluence at the spiritual level, but the gap in material wealth is gradually increasing due to the Matthew effect brought about by the digital divide. This study provides a policy rationale for digital inclusive finance to contribute to the construction of common wealth.

## 1. Introduction

The report of the 19th Party Congress drew a grand blueprint for achieving common prosperity in China in the new era, and the outline of the 14th Five-Year Plan also put forward the visionary goal of “achieving more obvious and substantial progress in the common prosperity of all people”. The way to rule the country is to enrich the people. General Secretary Xi Jinping pointed out that “common prosperity is the prosperity of all the people, the prosperity of the material and spiritual life of the people, not the prosperity of a few people”, which aims to raise the income of low-income groups and narrow the income gap, and enhance people's well-being and happiness. Since the reform and opening up, China has achieved the historic leap of eliminating absolute poverty, jumping out of the low-income trap and building a moderately prosperous society in all aspects (Zhang and Sun Yiyuan, 2022 <sup>[1]</sup>). However, there are still two problems: first, despite the rapid overall economic growth, the problem of unbalanced and insufficient development in China remains prominent, and the gap between urban and rural regional development and income distribution has been widening year by year (Dong Zhiyong and Qin Fan, 2022 <sup>[2]</sup>). Secondly, with the improvement of social welfare, the happiness of China's residents has not been significantly improved, and the overall happiness of residents shows a downward trend (Zhu Jianqi et al., 2020 <sup>[3]</sup>). The existence of these problems leads to the fact that the realization of common prosperity is a long-term and arduous dynamic development process, and how to solidly promote common prosperity is both a major practical issue in China in the current period and a scientific issue worthy of study.

In this paper, we focus on a new perspective and combine CFPS with digital financial inclusion index to verify the impact of digital financial inclusion on common prosperity from two perspectives: material prosperity and spiritual prosperity in a micro perspective. This paper performs quantile regressions based on different households and finds that residents with lower income are more affected. In addition, a heterogeneity analysis is conducted by measuring household capital in three dimensions to investigate the differences in the impact on households with different capital when facing the digital divide.

## 2. Literature Review

This paper is dedicated to the study of whether and how digital inclusive finance empowers common prosperity, and the relevant literature can be reviewed as follows.

The first is the literature on the connotation of common affluence and how to measure it. The core connotation of common affluence includes universal affluence, comprehensive affluence, shared affluence, and progressive affluence (Yan Lianfu and Wang Yali, 2022 <sup>[4]</sup>); it has five characteristics such as overall social affluence, manifestation of fairness and justice, reasonable income distribution, sound livelihood protection, and comprehensive personal development (Qiao Huibo, 2022 <sup>[5]</sup>). The second is the literature related to digital inclusive finance. Digital inclusive finance is a hot issue in the current society, so there are rich research results. Digital inclusive finance is a combination of digital technology and inclusive finance, and the empirical research mainly focuses on its development trend, distribution dynamics and impact effects. Firstly, the development trend and distribution dynamics, Sun Yuhuan et al. (2021) <sup>[6]</sup> found that the degree of digital inclusive finance development in China has increased year by year, and there are differences, clustering and convergence characteristics among 31 provinces. Secondly, the impact effect, most scholars believe that the impact effect of digital inclusive finance is positive and mainly focuses on narrowing the income gap, promoting economic growth, encouraging innovation and entrepreneurship, and optimizing industrial structure. The third is the literature on the relationship between digital inclusive finance and common wealth. Although the research results on digital inclusive finance and common wealth have been abundant, they are mostly focused on their independent fields, and there is little literature dedicated to studying the relationship between them and their influence mechanisms. From the only few papers, scholars mostly measure the impact of digital inclusive finance on common wealth by selecting mediating variables such as entrepreneurial activity, economic growth and financing constraints and taking a macro perspective <sup>[7]</sup>. They argue that digital inclusive finance can achieve common wealth through channels such as increasing entrepreneurial activity, alleviating financing constraints, and promoting economic growth. <sup>[8]</sup> It is foreseeable that the digital economy and inclusive finance relying on various emerging technologies can further broaden the service scope and reach of finance and reduce the binding power of finance, thus helping all people to achieve common prosperity in material and spiritual life.

## 3. Study Design

### 3.1 Data Source

The research data in this paper are micro household surveys matched with macro digital financial inclusion development data. The micro data come from the China Household Tracking Survey (CFPS) conducted by the China Social Science Survey Center of Peking University, which covers 162 counties in 25 provinces/municipalities/autonomous regions with a target sample size of 16,000 households.

The macro data are obtained from the China Digital Inclusive Finance Index published by the Digital Finance Research Center of Peking University, which includes the total digital inclusive finance index, three secondary dimensional sub-indicators, and several tertiary dimensional sub-indicators. In this paper, the provincial-level index is matched with the micro household data for 2014, 2016 and 2018.

In order to make the sample more representative, the following treatments are carried out in this paper: ① invalid and vacant observations are excluded in the processing; ② to smooth the data, the net household income, total digital inclusive finance index, coverage breadth index, usage depth index and digital support service degree index are logarithmically processed according to the actual needs; ③ considering the uniformity of indicators and sample tracking rate, the household codes according to 2014 are merged. Finally, a total of 38715 valid observations are retained in this paper.

## 3.2 Variable Selection

### 3.2.1 Explained Variables

Common prosperity. As an essential requirement of socialism, common prosperity not only means material affluence, but also includes spiritual affluence. Based on this, this paper measures the level of common affluence from two levels: material and spiritual. First, the material affluence is measured by the net household income, and if the household income increases, it means that the material wealth such as clothing, food, housing and transportation increases; second, the spiritual affluence is measured by the happiness of residents. The question on happiness in the questionnaire design is: “How many points do you rate your satisfaction with your life?” In this paper, happiness is measured by the numerical value of the respondents, ranging from “very dissatisfied” to “very satisfied”, with values ranging from 1 to 5.

### 3.2.2 Core Explanatory Variables

Digital Inclusive Finance. Due to the lack of official statistics, this paper directly adopts the Peking University Digital Inclusive Finance Index to measure its development level. In addition, in order to further examine which dimension of digital inclusive finance has a greater impact on common wealth and to conduct robustness tests, this paper also chooses its three sub-dimensional indicators - breadth of coverage, depth of use, and degree of digital support services.

### 3.2.3 Control Variables

According to Yin, Zhichao et al. (2014) <sup>[9]</sup>, this paper divides the control variables into two categories based on individual and household characteristics. The individual level includes age, gender, marital status, health status, and household type of the household head; the household level includes household size. Marital status is assigned a value of 1 if the household head is married or widowed, and 0 if the other way around. Health status was set according to the choice of the question “Have you been hospitalized in the past 12 months?”; if the household head chose “yes”, the variable was assigned a value of 1, and 0 otherwise; household size was measured by the number of people who ate at home in the past 12 months, i.e., the number of people who ate on the same stove. The specific variables are defined in Table 1.

Table 1 Specific Definitions Of the Main Variables

Variable Type	Variable name	Variable Symbol	Variable Definition
Explained variables	Residents' Happiness	satisfaction	From “very dissatisfied” to “very satisfied”
	Net Household Income	lnfin	Five levels, assigning values from 1 to 5
Explanatory variables	Digital Inclusive Finance	lnind	Logarithm of net household income
Control variables	Breadth of Coverage	lncov	Total index of digital financial inclusion is taken as logarithm
	Depth of Use	lnusa	The breadth of digital financial inclusion coverage index is taken as logarithm
	Degree of digital support services	lnDIG	Depth of digital financial inclusion usage index is taken as logarithm
	Age of household head	age	Logarithm of digital inclusive finance digital support service degree index
	Marital status of household head	marriage	Age
	Health status of household head	qc401	Spouse (married), widowed = 1; Unmarried, cohabiting, divorced = 0
	Gender of the head of household	gender	No=1;Yes=1
	Household type	urban	Female=0;Male=1
	Household size	familysize	Rural=0;Town=1

### 3.3 Model Construction

#### 3.3.1 Impact of Digital Finance on Income - a Fixed Effects Model

The Hausman test is first conducted for FE and RE, and the Hausman test rejects the original hypothesis, so this paper uses a fixed-effects model to study the effect of digital finance on income. The model is constructed as follows:

$$\ln fin_{i,t} = \beta_0 + \beta_1 \ln ind_{i,t} + \beta_2 control_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where,  $\ln fin$  is the digital financial inclusion index taken as logarithm;  $\ln ind$  is the net household income taken as logarithm;  $control$  is the control variable, including the situation of individual household head and household characteristics;  $\varepsilon$  denotes the random disturbance term;  $\beta_0$  denotes the constant term;  $\beta_1$  denotes the coefficient of the core explanatory variable;  $\beta_2$  denotes the coefficient of each control variable; subscripts  $i$  and  $t$  represent the household and year, respectively. If  $\beta_1$  is significantly positive, it indicates that digital finance significantly contributes to the growth of household income.

#### 3.3.2 The Impact of Digital Finance on Well-Being - an Ordered Probit Model

Since happiness is an ordered multicategorical variable from 1-5, the Ordered Probit model is used to estimate the effect of digital financial inclusion on residents' happiness. The model is constructed as follows:

$$satisfaction_{i,t}^* = \alpha_0 + \alpha_1 \ln ind_{i,t} + \alpha_2 X_{i,t} + \mu_{i,t} \quad (2)$$

$satisfaction_{i,t}^*$  is the unobservable latent variable;  $\ln ind$  is the logarithm of the digital financial inclusion index;  $X$  is the control variable;  $\mu$  is a random error term; and the subscripts  $i$  and  $t$  represent individual and year respectively. Assuming  $\mu \sim N(0,1)$  distribution, the relationship between  $satisfaction_{i,t}^*$ s and  $satisfaction_{i,t}$  of resident happiness is as follows:

Where  $satisfaction_{i,t}^*$  is an unobservable latent variable;  $\ln ind$  is the digital financial inclusion index taken as logarithm;  $X$  is a control variable;  $\mu$  is a random error term; subscripts  $i$  and  $t$  represent individuals and years, respectively. Assuming  $\mu \sim N(0, 1)$  distribution, the relationship between  $satisfaction_{i,t}^*$  and residents' happiness  $satisfaction_{i,t}$  is:

$$satisfaction_{i,t} = \begin{cases} 1, IF satisfaction_{i,t}^* \leq r_1 \\ 2, IF r_1 \leq satisfaction_{i,t}^* \leq r_2 \\ 3, IF r_2 \leq satisfaction_{i,t}^* \leq r_3 \\ 4, IF r_3 \leq satisfaction_{i,t}^* \leq r_4 \\ 5, IF r_4 \leq satisfaction_{i,t}^* \leq r_5 \end{cases} \quad (3)$$

In equation (3),  $r_1 < r_2 < r_3 < r_4 < r_5$  is the parameter to be estimated. The probability of  $satisfaction_{i,t}$  when it takes 1, 2, 3, 4, 5 is expressed as:

$$\begin{aligned} P(satisfaction_{i,t} = 1) &= P(satisfaction_{i,t}^* \leq r_1) \\ P(satisfaction_{i,t} = 2) &= P(satisfaction_{i,t}^* \leq r_1) - P(satisfaction_{i,t}^* \leq r_2) \\ P(satisfaction_{i,t} = 3) &= P(satisfaction_{i,t}^* \leq r_3) - P(satisfaction_{i,t}^* \leq r_2) \\ P(satisfaction_{i,t} = 4) &= P(satisfaction_{i,t}^* \leq r_4) - P(satisfaction_{i,t}^* \leq r_3) \\ P(satisfaction_{i,t} = 5) &= P(satisfaction_{i,t}^* \leq r_5) - P(satisfaction_{i,t}^* \leq r_4) \end{aligned} \quad (4)$$

### 4. Low-Return Group Benefits from It - Panel Quantile Regression Model

The traditional least squares method is mean regression, which is susceptible to extreme values, while panel quantile regression is based on the weighted mean minimization of the absolute value of residuals, which not only describes the conditional distribution of the dependent variable to avoid

outlier interference, but also analyzes the differences in the effects of independent variables on different quantile points of the dependent variable. Therefore, in this paper, based on the theory of Koenker (2004) <sup>[10]</sup>, the panel quantile regression model used to study the relationship between digital inclusive finance development and net household income is constructed as follows:

$$Q_{\tau}(\ln fin_{i,t}) = a_i + \alpha_{\tau} \ln ind_{i,j} + \beta_{\tau} control_{i,t} + e_{i,t} \quad (5)$$

where  $Q_{\tau}(\ln fin_{i,t})$  is the  $\tau$  quantile of household net income;  $\alpha_{\tau}$  is the estimated coefficient of the  $\tau$  quantile of household net income by the core explanatory variables;  $\beta_{\tau}$  is the estimated coefficient of the  $\tau$  quantile of household net income by the control variables, and the quantile  $\tau$  is chosen to be 25%, 50%, and 75%, respectively;  $a_i$  denotes the inter-individual differences that do not vary with the quantile  $\tau$  and are not controlled by other variables;  $e_{i,t}$  random disturbance term.

## 5. Empirical Analysis

### 5.1 Descriptive Statistics

Table 2 shows the statistical description of the main variables, including the mean, standard deviation, minimum and maximum values. The mean value of the logarithm of net household income is 10.60, the minimum and maximum values are 0 and 16.25 respectively, and the standard deviation is 1.19; the mean value of residents' happiness is 3.78, and the standard deviation is 1.05. The above descriptive statistics of the explanatory variables show that China still has a long way to go to achieve common prosperity, and in the material level, the disparity of family income and polarization in China are relatively serious; in the spiritual At the spiritual level, although most people have a high sense of well-being, the level is uneven. The mean value of the logarithm of the digital financial inclusion index is 5.44, with a standard deviation of 0.23. The mean value of gender is 0.54, indicating that male and female heads of households in China are equal; the average age of heads of households is 48, most of them are married and in good health; there are four members in a household on average; agricultural households and non-agricultural households account for half of the total.

Tanle 2 Basic statistical characteristics of the main variables

VarName	Obs	Mean	SD	Min	Max
lnfin	36817	10.5996	1.1918	0.0000	16.2481
satisfaction	33717	3.7829	1.0524	1.0000	5.0000
lnind	38715	5.4375	0.2321	4.9692	5.9342
lncov	38715	5.3644	0.2393	4.8416	5.8689
lnusa	38715	5.3382	0.3109	4.6755	5.9925
ln dig	38715	5.7620	0.1710	5.4412	6.0874
age	38145	48.3693	17.1538	18.0000	104.0000
marriage	37385	0.8456	0.3614	0.0000	1.0000
qc401	33717	0.1290	0.3352	0.0000	1.0000
gender	38145	0.5360	0.4987	0.0000	1.0000
familysize	38054	3.6925	1.8901	1.0000	21.0000
urban	38714	0.5073	0.5000	0.0000	1.0000

### 5.2 Digital Inclusive Finance and Common Wealth

As shown by the fixed effects regression results in Table 3(1), the F-value of the household net income regression is 521.25, and its corresponding P-value is 0, indicating that the overall effect of the model is good. Digital inclusion passed the significance test at the 1% level with a coefficient of 1.2472, indicating that the higher the index of digital inclusion, the higher the net household income, i.e., digital inclusion has a significant positive effect on net household income. This is mainly due to the fact that its development and diffusion is conducive to improving the asset allocation structure of households and promoting poverty alleviation by providing equalized entrepreneurial opportunities and thus increasing household income (Duan Junshan and Shao Jiao Yang, 2022 <sup>[11]</sup>).

As shown by the results of the panel oprobit regression in Table 3(2), the chi-square value of the regression of residents' well-being is 1013.16, and its corresponding p-value is 0, indicating that the overall effect of the model is good. Digital financial inclusion passes the significance test at the 1% level with a coefficient of 0.3612, indicating that the higher the index of digital financial inclusion, the higher the happiness of the residents, i.e., digital financial inclusion has a significant positive effect on the happiness of the residents. This is mainly due to its penetration into people's daily life, which enables residents and enterprises to enjoy more convenient and diversified financial products and services, thus improving their living standards and enhancing their sense of well-being. It can be seen that the development of digital inclusive finance in China can promote common prosperity at both material and spiritual levels.

In addition, the estimation results of the control variables are basically consistent with the existing literature. Among them, the higher the age of the household head and the gradual loss of labor capacity, the lower the net household income, and possibly due to the sedimentation of years, the more optimistic and less impatient than young people in terms of mentality and other aspects, leading to their higher happiness; the higher the net household income and happiness of married people compared to single people; the worse the health condition, the lower the net household income and happiness; men have a higher income and lower Men have higher income and lower happiness than women, probably because they have more family and social responsibilities and there is gender discrimination in the workplace; family size is positively correlated with net family income and happiness, probably because the larger the family, the more the labor force, the stronger the sense of fulfillment and belonging given by the family; urban residents have higher income than rural residents.

Table 3 Baseline Regression Results

	(1)	(2)
	Net household income	Residents' happiness
lnind	1.2472*** (53.1363)	0.3612*** (12.7017)
age	-0.0066*** (-10.6528)	0.0092*** (18.7063)
marriage	0.0934*** (3.7784)	0.1975*** (8.9098)
qc401	-0.0392** (-2.1781)	-0.0546*** (-2.7244)
gender	0.0395*** (3.2529)	-0.0659*** (-4.9524)
familysize	0.1653*** (27.3009)	0.0142*** (3.5060)
urban	0.1671*** (5.1720)	-0.0176 (-1.1801)
_cons	3.3487*** (26.8332)	
N	32686	33254
R <sup>2</sup>	0.1678	--

### 5.3 Can Low Quartile Households Benefit from Digital Finance

The development of digital inclusive finance has increased the level of net household income, but the marginal contribution to different income bracket groups is not yet known. This paper uses panel quantile regressions to further explore whether low-income households can benefit from digital inclusion finance.

As shown in Table 4, the coefficients of the 0.25, 0.50, and 0.75 quartiles show a decreasing trend, with the highest marginal payoffs of household financial factors at the 0.25 quartile and the most obvious income-increasing effect obtained, and the income-increasing effect gradually decreases as the quartile rises. Accordingly, it can be shown that digital inclusive finance can promote shared prosperity. Low-income groups benefit from the inclusiveness and precise help of

digital inclusive finance and enjoy the highest marginal contribution and the highest income effect from the development dividend, while high-income groups have the least marginal contribution and the lowest income effect due to their superior resource endowments such as their own quality, social resources and economic strength. This makes the wealth gap between different income groups narrow, inhibits the intensification of polarization, and is conducive to achieving common prosperity for all people.

Table 4 Quantile Regression Results

	(1)	(2)	(3)
	0.25 decile	0.50 decile	0.75 decile
lnind	1.2704*** (5.3011)	1.1522*** (10.7507)	1.0485*** (26.6764)
age	-0.0067 (-1.0836)	-0.0061** (-2.2189)	-0.0056*** (-5.5548)
marriage	0.0896 (0.3628)	0.0908 (0.8228)	0.0919** (2.2684)
qc401	-0.0495 (-0.2735)	-0.0336 (-0.4156)	-0.0197 (-0.6632)
gender	0.0371 (0.3229)	0.0364 (0.7088)	0.0358* (1.8987)
familysize	0.1759*** (2.5926)	0.1625*** (5.3558)	0.1506*** (13.5323)
urban	0.1754 (0.5387)	0.1897 (1.3031)	0.2021*** (3.7847)
N	29664	29664	29664

#### 5.4 Robustness Tests

Table 5 Robustness Tests

	Net household income			Residents' happiness		
	Breadth of coverage	Depth of use	Degree of digital support services	Breadth of coverage	Depth of use	Degree of digital support services
lncov	1.2238*** (52.1311)			0.3865*** (13.8620)		
lnusa		1.0018*** (53.3470)			0.2254*** (10.3181)	
ln dig			1.4482*** (49.5688)			0.4220*** (11.5177)
age	-0.0067*** (-10.7717)	-0.0062*** (-10.0768)	-0.0053*** (-8.6112)	0.0091*** (18.5301)	0.0094*** (19.0491)	0.0094*** (19.2620)
marriage	0.0875*** (3.5298)	0.0967*** (3.9135)	0.0975*** (3.9074)	0.1964*** (8.8453)	0.1992*** (8.9976)	0.1979*** (8.9458)
qc401	-0.0411** (-2.2791)	-0.0387** (-2.1530)	-0.0307* (-1.6931)	-0.0536*** (-2.6721)	-0.0545*** (-2.7203)	-0.0578*** (-2.8865)
gender	0.0393*** (3.2258)	0.0412*** (3.3985)	0.0467*** (3.8160)	-0.0671*** (-5.0369)	-0.0626*** (-4.7100)	-0.0649*** (-4.8860)
familysize	0.1674*** (27.5685)	0.1652*** (27.3055)	0.1573*** (25.7704)	0.0143*** (3.5268)	0.0148*** (3.6605)	0.0129*** (3.1974)
urban	0.1690*** (5.2189)	0.1672*** (5.1795)	0.2115*** (6.5078)	-0.0209 (-1.3911)	-0.0175 (-1.1702)	0.0012 (0.0817)
_cons	3.5690*** (29.0194)	4.7574*** (47.7442)	1.7268*** (10.4944)			
N	32686	32686	32686	33254	33254	33254
R <sup>2</sup>	0.1636	0.1687	0.1531	--	--	--

In this paper, the robustness test is conducted by changing the measures of core explanatory variables. The baseline regression takes the total digital financial inclusion index as the core explanatory variable, which is now replaced with three sub-dimensional indicators. Among them,

the breadth of coverage mainly reflects the coverage of digital finance, the depth of use mainly measures the frequency of using Internet financial services, while the degree of digital support services focuses on examining the convenience and efficiency of digital finance. The larger the value of these three indicators, the more it reflects the value of digital finance. The results in Table 5 show that the breadth of coverage, depth of use and digital support services index all have significant positive effects on net household income and residents' happiness at the 1% significance level, which is consistent with the results of the benchmark regression, and the results of the control variables are also largely consistent, indicating that digital inclusive finance is robust to promoting common prosperity.

In addition, according to Table 5, it can also be seen that the pattern of the effect of the three sub-indicators on common affluence is: degree of digital support services > breadth of coverage > depth of use. It indicates that the current digital finance is more likely to promote the increase of household income level and happiness of residents by improving the utility and accessibility of financial use.

### 5.5 Endogeneity Test

In this paper, when using benchmark regressions to study the impact of digital inclusive finance on common wealth, endogeneity problems may arise due to improper selection of control variables, omitted variables, or reverse causality. Specifically, on the one hand, individuals' different risk preferences and receptiveness to new things affect their use of digital finance, but it is difficult to measure these factors in quantitative analysis, thus there is a possibility that omitted variables lead to endogeneity; on the other hand, common affluence also generates a positive feedback effect, i.e., residents' income or happiness increases, their willingness to invest rises, and they make financial investments, thus affecting the digital financial levels, thus leading to reverse causality. To address the above endogeneity issues, this paper uses the digital financial inclusion index with a two-period lag as the core explanatory variable, and then performs a benchmark regression on the two explanatory variables. The results are shown in Table 6, which are basically consistent with the benchmark regression, indicating that the results of the benchmark regression have some reliability.

Table 6 Endogeneity Test

	Net household income	Residents' happiness
	Total Financial Inclusion Index with a two-period lag	Total Financial Inclusion Index with a two-period lag
llmind	0.9462*** (23.0139)	1.1214*** (20.2433)
age	-0.0059*** (-7.8814)	0.0120*** (18.9079)
marriage	0.1334*** (4.4019)	0.1650*** (5.7173)
qc401	0.0034 (0.1577)	-0.0723*** (-2.8280)
gender	0.0359** (2.4506)	-0.0636*** (-3.6975)
familysize	0.1446*** (19.4608)	0.0139*** (2.8011)
urban	0.2750*** (6.8264)	-0.0522*** (-2.7937)
_cons	5.2259*** (24.7951)	
N	20602	20887
R <sup>2</sup>	0.0996	--

### 5.6 Heterogeneity Analysis

It has been shown that human capital, physical capital, and social capital all have significant effects on income levels and well-being <sup>[12]</sup>. In order to gain a deeper understanding of the



relationship between digital financial development and material and spiritual affluence and the differences in how households with different capital are affected when facing the digital divide, this paper will conduct a heterogeneity analysis by measuring household capital along three dimensions: human capital, physical capital, and social capital.

### 5.6.1 Heterogeneity of Human Capital

Based on the years of education of the household head, the households were divided into low human capital group (high school and below) and high human capital group (college and above), and the regression results are shown in Table 7. The development of digital finance has a greater positive effect on the happiness of the low human capital group and a smaller positive effect on the income level, indicating that it promotes spiritual affluence but not material affluence. This is mainly due to the fact that digital finance relies on big data technology, which requires higher education level and learning ability of residents, while the digital divide faced by the low human capital group is more serious, resulting in a smaller income spillover effect for them to enjoy.

Table 7 Results of Human Capital Heterogeneity Analysis

	(1)	(2)	(3)	(4)
	Low Human Capital		High human capital	
	Net household income	Residents' happiness	Net household income	Residents' happiness
Inind	1.2042*** (42.7390)	0.3806*** (11.0706)	1.3801*** (22.9621)	0.3335*** (4.3749)
Controlling the characteristics of the head of household	Yes	Yes	Yes	Yes
Controlling for household characteristics	Yes	Yes	Yes	Yes
Regional fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	25773	23603	6907	6459
R <sup>2</sup>	0.1585	--	0.2472	--

### 5.6.2 Heterogeneity of Physical Capital

In this paper, we select household net worth as a proxy variable for physical capital and divide households into low physical capital group and high physical capital group, and the regression results are shown in Table 8. The boosting effect of the development of digital finance on residents' happiness is mainly reflected in the low physical capital group, while the boosting effect on household income level is mainly reflected in the high physical capital group. This may be due to the former's lack of physical capital, more opportunities to be squeezed and deprived by the digital divide, stronger financial exclusion, and thus lower income.

Table 8 Results of Physical Capital Heterogeneity Analysis

	(1)	(2)	(3)	(4)
	Low physical capital		High physical capital	
	Net household income	Residents' happiness	Net household income	Residents' happiness
Inind	1.1644*** (27.0300)	0.3780*** (8.0033)	1.1836*** (34.4497)	0.2197*** (5.0143)
Controlling the characteristics of the head of household	Yes	Yes	Yes	Yes
Controlling for household characteristics	Yes	Yes	Yes	Yes
Regional fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	14880	13902	15739	15148
R <sup>2</sup>	0.1342	--	0.1796	--

### 5.6.3 Heterogeneity of Social Capital

According to Zhou Guangsu et al. (2014) [13], this paper uses household spending on human gifts to measure social capital, and divides households into two groups accordingly. Having human gift expenditures indicates that households have strong ties with the outside world and higher social capital. Table 9 shows that the development of digital finance increases income and happiness to a greater extent for both the low social capital group and the high social capital group, but the latter is more sensitive to income and the former is more sensitive to happiness. This is consistent with the expectation that because of the prevalence of relationship culture in China, low social capital households are unable to rely on social networks to accumulate relationship resources, and in addition, they themselves face a digital divide and thus are more disadvantaged and have lower income.

Table 9 Results of Social Capital Heterogeneity Analysis

	(1)	(2)	(3)	(4)
	Low social capital		High social capital	
	Net household income	Residents' happiness	Net household income	Residents' happiness
lnind	1.0321*** (24.7950)	0.4071*** (9.4522)	1.2211*** (30.9673)	0.2769*** (6.1698)
Controlling the characteristics of the head of household	Yes	Yes	Yes	Yes
Controlling for household characteristics	Yes	Yes	Yes	Yes
Regional fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	15312	15548	14352	14514
R <sup>2</sup>	0.1372	--	0.1715	--

Overall, the heterogeneity analysis shows that digital finance has a stronger effect on enhancing the happiness of households with disadvantages in the “three major capitals” and a stronger effect on enhancing the income of households with advantages in the “three major capitals”. This shows that digital finance has increased the gap of material wealth while promoting people's common wealth in the spiritual aspect. Therefore, when promoting the development of digital financial inclusion, we should not only focus on the availability of digital dividends for households with high capital, but also on cultivating digital financial knowledge for households with low capital, so as to eliminate the digital divide and achieve both material and spiritual affluence.

## 6. Conclusions and Recommendations

The digital economy and inclusive finance based on emerging digital technologies have greatly improved the availability and convenience of financial services, especially for groups previously excluded from traditional finance, which provides conditions for promoting common prosperity. Based on the China Digital Inclusive Finance Development Index and CFPS data, this paper explores the impact effects of digital inclusive finance empowering common wealth and its capital heterogeneity. The study shows that: first, the development of digital finance can significantly improve household income levels and residents' happiness, and empower the realization of common wealth in terms of both material and spiritual affluence. Second, the income enhancement effect obtained by the low-income class is more obvious, and the marginal contribution of digital finance to their common affluence is greater, which further verifies the relationship between digital finance and common affluence. Third, for households with different capital, digital finance contributes to common wealth at the spiritual level, but due to the Matthew effect brought by the digital divide, the gap in material wealth between the disadvantaged and advantaged groups of the “three major capitals” is gradually increasing.

Based on the findings of this paper, we propose the following policy recommendations: First, we should continue to promote the deep integration of digital economy and inclusive finance,

strengthen the role of digital finance in increasing income and happiness, and promote the realization of material and spiritual affluence. Second, we should improve the construction of regional communication infrastructure, narrow the differences in digital resource endowments of residents, eliminate the “digital divide” and reduce the “Matthew effect”, so as to improve the living standards of residents with digital dividends and achieve universal benefits for the people. Third, we should promote universal access to higher education, build an inclusive social network, and provide subsidies to special groups, focusing on improving the human, social and physical capital of households, so that digital finance can play a higher role in promoting common prosperity.

## References

- [1] Zhang Jianhua, Sun Yixuan. From overall well-off to common prosperity[J]. Study and Practice,2022,(02):14-23+2.
- [2] Dong Zhiyong,Qin Fan. Exploring the basic problems and practical paths of achieving common prosperity[J]. Journal of Northwestern University (Philosophy and Social Science Edition), 2022, 52(02):41-51.
- [3] Zhu Jianqi, Huang Linbang, Sun Bin. The level of financial development and residents' subjective well-being--an empirical analysis based on CFPS data[J]. Journal of Xi'an University of Finance and Economics,2020,33(06):5-12.
- [4] Zhang Zhanbin,Wu Zhenghai. The development logic, scientific connotation and practical progress of common wealth[J]. Journal of Xinjiang Normal University (Philosophy and Social Science Edition),2022,43(01):39-48+2.
- [5] Qiao Huibo. The connotation, foundation and promotion path of common wealth [J]. Dongyue Series,2022,43(02):21-29.
- [6] Sun Yuhuan,Zhang Tingyu,Wang Xueni,Li Danyang. The current situation, problems and prospects of digital inclusive finance development in China[J]. Quantitative Economic and Technical Economics Research,2021,38(02):43-59.
- [7] Zou K, Ni Qingshan. Inclusive finance for common prosperity: theory, measurement and empirical evidence[J]. Research in Financial Economics,2021,36(05):48-62.
- [8] Xinyi Liu, Ying Huang, Sirei Huang, Taolin Zhang. Digital inclusive finance and common wealth: theoretical mechanisms and empirical facts[J]. Research in Financial Economics, 2022,37(01):135-149.
- [9] Yin C-Chao,Song Q-Yun,Wu Yu. Financial knowledge, investment experience and household asset choice[J]. Economic Research,2014,49(04):62-75.
- [10] Aditi Kapoor. Financial inclusion and the future of the Indian economy[J]. Futures,2014,56.
- [11] Duan Junshan, Shao Jiao Yang. Has the development of digital inclusive finance affected the structure of household asset allocation[J]. Southern Economy,2022(04):32-49.
- [12] He Pingping, Luo Ruolian. The impact of digital financial inclusion on residents' subjective poverty alleviation: an empirical study based on CFPS panel data[J]. Financial Theory and Practice,2021(07):52-58.
- [13] Zhou Guangsu,Fan Gang,Shen Guangjun. Income disparity, social capital and health level-an empirical analysis based on the China Household Tracking Survey (CFPS)[J]. Management World,2014,(07):12-21+51+187.