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Retraction

Retracted: How Does Digital Finance Affect People's Income: Evidence from China

Security and Communication Networks

Security and Communication Networks has retracted the article titled "How Does Digital Finance Affect People's Income: Evidence from China" [1] due to concerns that the peer review process has been compromised.

Following an investigation conducted by the Hindawi Research Integrity team [2], significant concerns were identified with the peer reviewers assigned to this article; the investigation has concluded that the peer review process was compromised. We therefore can no longer trust the peer review process, and the article is being retracted with the agreement of the Chief Editor.

The authors agree to the retraction.

References

[1] T. Wang and C. Ji, "How Does Digital Finance Affect People's Income: Evidence from China," *Security and Communication Networks*, vol. 2022, Article ID 7025375, 15 pages, 2022.

[2] L. Ferguson, "Advancing Research Integrity Collaboratively and with Vigour," 2022, https://www.hindawi.com/post/advancing-research-integrity-collaboratively-and-vigour/.

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Research Article

How Does Digital Finance Affect People's Income: Evidence from China

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Using data from the China Family Panel Studies (CFPS) from 2010 to 2018 and the Peking University Digital Financial Inclusion Index from 2011 to 2018, this research explores the effect of digital financial development on residents' income and the channels of influence. The findings suggest that the growth of digital financial services has a significant and favourable influence on citizens' income. Furthermore, digital financial development benefits rural populations, low-skilled workers, and individuals working in basic industries the most. The extension of inhabitants' employment space, better access to credit, and ease of access to information online are the major ways that digital financial development influences their income. In particular, the expansion of employment space has a greater positive impact on the low-skilled labor force, rural residents, and those in primary and secondary industries, while access to information is more likely to explain the increase in income of urban residents, and credit has an advantage in promoting income growth for the low-skilled laborers and those in traditional industries.

1. Introduction

At present, a new generation of digital technologies represented by big data, artificial intelligence, and blockchain is driving the rapid development of the digital economy, and accelerating the transformation of the digital economy has become the consensus of the whole society. As part of the development of the digital economy, digital finance plays an important role in promoting the development of inclusive finance and boosting the development of the real economy. Developing digital finance, improving the possibilities of financial services, and innovating financial products are a policy response to the Plan for Promoting the Development of Inclusive Finance (2016–2020) and the implementation of the Chinese government's actions to promote inclusive finance as proposed in the G20 High-Level Principles on Digital Inclusive Finance in 2016. The development of digital finance has positive implications for optimizing the allocation of financial resources and establishing a highly adaptable, competitive, and inclusive modern financial system in China.

China's digital finance has grown swiftly and has a broad impact since the twenty-first century [1]. The median value of China's Digital Inclusive Finance Provincial Index was 33.6 in 2011, and it is expected to rise to 214.6 in 2020, with an average yearly growth of 29.1 percent. Will the quick growth of digital finance boost residents' income in order to satisfy their wants for a better life? As a result, it is important to consider what, if any, influence digital money will have on people's income.

In exploring the impact of digital finance on residents' income, the existing literature mainly discusses it from two perspectives: macro and micro. First, residents' income is studied indirectly from a macroperspective, that is, digital finance can promote residents' income growth by promoting economic development and narrowing regional disparities [2, 3]; second, the impact of digital finance on residents' income is explored directly, and it is concluded that digital finance will promote residents' income growth. Through heterogeneity analysis, digital finance can bring about inclusive economic growth [4, 5]. In terms of exploring the micromechanism of digital finance on residents' income, the

existing literature has mainly focused on the role of entrepreneurship and ease of payment in the income effect of digital finance.

In addition to the abovementioned micromechanisms of digital finance that increase people's income, three other mechanisms of digital finance promote people's income growth for the following reasons: first, the digital economy has a positive impact on employed informal employment and entrepreneurship [6], and labor employment in industries based on the digital economy has the advantages of unlimited retirement age and the availability of both full-time and part-time jobs, which ensures a wide range of people can involve in the industry [7]. The Internet has enabled residents to create wealth in a way that breaks through the limits of geographic space, so the expansion of employment space for residents brought about by the Internet may be a mechanism for the development of digital finance to increase the income of residents. Second, literature [8] demonstrated the relationship between credit and household labor income, arguing that credit constraints reduced the share of labor income. Therefore, we can infer that the possibility of access to credit affects the residents' income. Rather than using direct empirical study of credit on residents' income as a mechanism test, this research employs a mediating effects model to offer a full description of the link between digital finance, credit, and residents' income. Third, literature [9] argues that online information access facilitates households' participation in financial market investments; thus, we infer that online information access may also be a mechanism of digital finance to household income. Combining these three points, we focus on the role of the expansion of the employment space of the population due to the development of digital finance, the increased possibility of access to credit for the residents, and the increased ease of access to information from the Internet for the population in terms of income growth. Therefore, this paper is an extension of the existing literature.

The novelty of this paper is that it complements the existing mechanism from digital finance to residents' income growth and uses a mediating effects model to test it empirically, explaining the group-specific differences in the mechanism, such as whether the credit is used more to explain the income growth of low-skilled labor or the income growth of rural residents and whether the expansion of residents' employment space explains the income growth of residents engaged in primary and secondary industries? Based on this, this paper examines the impact of digital financial development on residents' income and analyses its impact paths using the 2010–2018 China Family Panel Studies (CFPS) and "Peking University Digital Inclusive Finance Index of China" (PKU_DFIIC), through which the specific paths of digital financial development on residents' income growth are further refined. This paper seeks to innovate in the following aspects: first, using the 2010–2018 China Family Panel Studies and the Peking University Digital Inclusive Finance Index of China to study the relationship between digital finance and residents' income at the microlevel; second, using household data to further explore the mechanisms affecting the impact of digital finance on residents' income, proposing that the expansion of residents' employment space, access to online information, and credit are the micromechanisms of digital finance that promote the growth of residents' income, and conduct mechanism tests on grouped samples to illustrate the variability of the effect of each mechanism on different groups.

The remainder of this paper is structured as follows: Section 2 presents the literature review, Section 3 explains the model and variables, Section 4 shows the empirical analysis, and Section 5 concludes the paper.

2. Review of the Literature

It is widely agreed that financial development fosters economic growth [10, 11]. Financial development, according to traditional financial theory, provides the benefits of smoothing consumption, controlling risk, eliminating residential limitations, and simplifying transactions [12–14]. As indicated in [15], digital finance, as a mix of financial and Internet innovations, should also contribute to economic growth. In addition, digital finance has advantages that traditional finance does not have. Digital finance is developed through the Internet, which can enable the participation of the general public, can reduce the dependence of traditional finance on physical branches, can break through geographical and spatial limitations, increase the coverage of financial services, and can reduce costs, thus promoting the development of inclusive finance [16, 17]. At present, research in the field of digital inclusive finance focuses on research on SMEs and residents' welfare, whereas research on residents' welfare focuses on the impact of digital inclusive finance on residents' income distribution.

Extensive literature has examined the relationship between digital finance and income, and studies have shown that the development of digital inclusive finance can help narrow the income gap between urban and rural areas [18–20] for the reason that digital inclusive finance can complement the shortcomings of the traditional financial system in rural areas, reduce service costs, and contribute to the revitalization of rural areas as well as solve the problems of the "three rural issues" [21, 22]. However, most of the above studies discuss the role of digital finance development on residents' income at the macrolevel, and it is difficult to identify the impact mechanism of digital finance development on residents' income at the microlevel. To explore the microscopic impact mechanism of digital finance on income distribution, the authors of [23] used microhousehold data to demonstrate that digital financial development can promote residents' consumption by enhancing both payment convenience and alleviating liquidity constraints, which was also proved by Li et al. [24]. Xun et al. [4] further pointed out that residents' entrepreneurial behavior is the mechanism by which digital finance promotes residents' income growth. In exploring the mediating role of credit, Xun et al. [25] used a regression analysis of credit on residential consumption and concluded that credit does not promote residential consumption, while Zhichao et al. [26] used a regression analysis of the digital divide on credit and

concluded that the digital divide reduced residential income by reducing the likelihood of credit.

Through the above discussion, we can know the following three points about the transmission mechanisms from digital finance to residents' income growth: first, most of the literature has studied the effect of entrepreneurship on residents' income and the role of digital finance on entrepreneurship has been analyzed using regressions, leading to the conclusion that digital finance obtains income growth by affecting residents' entrepreneurship. Similarly, we suggest that increasing citizens' work opportunities may help them earn more money. We use the "frequency of using the Internet for work and business activities" as a proxy variable for the expansion of residents' employment space, which is different from previous studies, because digital finance is based on the Internet. The emergence of the Internet has enabled residents to create wealth in a way that breaks through geographic space, so we use the "frequency of using the Internet for work and business activities" as a proxy variable for the expansion of residents' employment space. To quantify the increase of inhabitants' employment space, we present a novel Internet-based viewpoint. Second, when it comes to credit as a mechanism of digital finance to income, the above literature uses credit as a subindex to regress on consumption or income to explore the role of credit on consumption or income for mechanism analysis, while we use a mediating effects model to test the mechanism and provide a more detailed account of the relationship between digital finance, credit, and residential income. Third, with regard to the existing mechanism, no scholars have studied the role of Internet information channels in digital finance to promote residents' income, and we will test this possible mechanism. Digital finance relies on the development of the Internet, and residents can obtain information from the Internet. Internet information access has the characteristic of breaking the information barriers between urban and rural areas or developed and less developed areas, which will promote household financial participation [9], so the income that residents will obtain from the financial market may also become a source of income growth for residents. The above three points constitute the first innovation of this paper, which is to complement and improve the existing mechanism from digital finance to residents' income growth.

The second innovation is that existing literature suggests that digital financial development can lead to inclusive growth. For example, the authors of [5, 27] used household microsurvey data to investigate the relationship between digital inclusive finance and resident poverty alleviation, concluding that it is effective in reducing poverty for those with low education and poor health. Xun et al. [4] also discussed in detail that digital financial development can significantly raise household income, with rural people profiting more in the process, concluding that digital financial development promotes inclusive economic growth. However, no one has addressed the group-specific differences in the mechanism, such as whether the credit is used more to explain the income growth of low-skilled labor or rural residents? By empirically testing the heterogeneity of the mechanism analysis, this paper, therefore, builds on the

empirical framework for assessing digital finance and income constructed by Xun et al. [4] to further delve into the micromechanism.

3. Models, Data, and Variables

3.1. Sample Selection and Data Sources. The data in this paper come from the "Peking University Digital Inclusive Finance Index of China" (PKU_DFIIC), jointly compiled by the Digital Finance Research Center of Peking University and Ant Group Research Institute, which utilizes three dimensions of digital finance, including breadth of coverage, depth of use, and digitalization of inclusive finance, to construct an indicator system of digital inclusive finance. The sample interval used in this paper is the provincial data from 2011 to 2018. In addition, this paper has data from the China Family Panel Studies (CFPS) for 2010, 2012, 2014, 2016, and 2018, which provides researchers with high-quality microdata to study Chinese household finance issues, mainly including housing and financial wealth, consumption, income, credit constraints, and social insurance. This paper covers 154,313 individuals in 31 provinces/municipalities/autonomous regions across China from 2011 to 2018. By removing outliers and missing values, the remaining valid sample of residents is 20,430.

3.2. Model and Variable. The model in this paper is set as follows:

$$\ln Y_{it} = \alpha_{it} + \beta_0 IF_{it-1} + X_{it}\beta_1 + \varphi_i + \varepsilon_{it}. \quad (1)$$

In equation (1), $\ln Y_{it}$ represents the income of resident i in year t, IF_{it-1} is the digital financial development variable of interest in this paper, and the digital financial development index is lagged by one period to attenuate the reverse causality effect. ε_{it} is the stochastic perturbation term; φ_i denotes the individual fixed effect; β_0 reflects the impact of digital financial development on residents' income; X_{it} are control variables that mainly include individual characteristic variables: age, gender, years of education, whether from urban or rural areas, whether they are married, types of household registration, whether from CPC, and health status of the household head. To mitigate the bias of omitted variables, the squared term of age is controlled for this paper by referring to [28] as well as [4]. In addition, the effects of industry and occupations are also controlled in the regressions.

3.2.1. Residents' Income. The residents' income variable comes directly from the questionnaire in the CFPS: "How much is your total personal income (all sources of income) approximately," including wage income, subsidies, allowances, grants, gratuities received from various sources, rents received from leasing in one's name, compensation, interest on deposits, and dividends from stocks, funds, bonds, etc. The income variable is obtained by taking the logarithmic correction of residents' income, which is expressed as *lnincome* in the following tables.

3.2.2. Digital Financial Development. The Peking University Digital Inclusive Finance Index of China (2011–2020) reflects the breadth of digital financial coverage, the depth of digital financial use, and the degree of digitalization of financial inclusion, which is considered to be representative of the development of the digital economy. Therefore, we use the "total index" of the PKU_DFIIC as a proxy variable to represent the development of digital finance, which is expressed as *DF* in the following tables.

3.2.3. Mediating Variables. (1) Residents' Employment Space. The development of digital finance is based on the construction of network infrastructure. The emergence of the Internet has enabled residents to create wealth in a way that breaks through the limitations of geographic space. That is, in addition to working in a fixed place, residents can use the network anywhere to conduct business activities. The development of digital finance has led to the emergence of new businesses such as e-commerce, and work has gradually become diversified, with more employment options for residents. Residents can also take advantage of the dividends of digital finance development to develop side businesses, which all make the employment space of the labor force expanded. Therefore, this paper can conclude that the employment space of residents becomes larger due to the development of digital finance, which leads to the increase of residents' income. In the questionnaire of CFPS, "the frequency of using the Internet for business activities" and "the frequency of using the Internet for work" can be used to represent the employment space, which is expressed as *Internet business activities* and *Internet work* in the following tables.

(2) Internet Information Access. The growth of network infrastructure is essential for the development of digital finance. Internet information access promotes household financial growth, which in turn affects residents' income; hence, Internet information access affects residents' income. The development of digital finance also means that residents have more access to information from the Internet, breaking through the barriers caused by the timeliness of information, and the cost of accessing information is gradually decreasing. The gathering of various types of producers into the virtual space reduces the problem of information asymmetry among producers and increases the ability of producers to integrate and collaborate on information [29]. Residents in both urban and rural areas, developed regions, and less developed regions can equally enjoy the right to synchronous access to information from the network which breaks the information barriers. In today's information age, information can undoubtedly bring business value and whoever has mastered information has discovered the steering wheel of wealth. The development of digital finance makes information access less costly and faster, thus making the income of residents grow. Therefore, Internet information access is an influential mechanism for digital financial development to promote the growth of residents' income. In this paper, we use "learning about political information through the Internet" in CFPS

TABLE 1: Descriptive statistics of main variables.

Variable name	Obs	Mean	Sd	Min	Max
Age	20430	37.7	12.52	16	96
Age squared	20430	1577.9	1035.15	256	9216
Gender	20430	0.58	0.49	0	1
Years of education	20430	10.52	3.77	0	23
Urban	20430	0.65	0.48	0	1
Married	20430	0.77	0.42	0	1
Rural household registration	20430	0.64	1.54	0	79
CPC	20430	0.51	0.5	0	1
Health levels	20430	3.3	1.07	1	5
Province code	20430	36.61	14.42	11	65
Industry type	20430	2.54	0.53	1	3
Logarithm of resident income	20430	9.99	0.97	4.87	10.78
Digital financial development	20430	243.86	63.73	18.47	377.73

as a proxy variable for Internet information access from the Internet.

(3) Credit. The development of digital finance has made digital financial services widely available to the population. Credit released precisely based on digital technology is used for investment and financing of micro and small enterprises and entrepreneurship of residents, which can alleviate financial constraints, mitigate the impact of external shocks such as epidemics in a short period, and promote income growth of residents. We can conclude the development of digital finance will increase the possibility of credit for individuals and enterprises, which will contribute to the increase of residents' income. Therefore, credit is an influential mechanism for digital financial development to promote residents' income growth. In this paper, we use *credit*, a categorical index of digital financial inclusion in the PKU_DFIIC (2011–2020) for each year, as a proxy variable for credit.

(4) Control Variables. The control variables used in this paper that affect digital financial development and residents' income can be obtained directly from the CFPS questionnaire, and individual characteristic variables are mainly selected in this paper. By processing the missing values and outliers in the questionnaire, finally, 31 provinces with 20,430 valid samples were retained to go for regression analysis. The descriptive statistics of the variables are given in Table 1. As can be seen from Table 1, the sample covers residents from 16 to 96 years old, the average age is 38 years old, among which 58% are male, 65% are urban residents, 77% are married residents, 64% are rural household registration, and 51% are party members; the average health level and education level of residents are in the middle, the average income level of residents is in the middle to lower position. The average of the Digital Finance Development Index is 243.86.

4. Empirical Analysis

4.1. Digital Financial Development and Residents' Income: Benchmark Analysis. In this paper, a panel data fixed effects

TABLE 2: The effects of digital financial development on residents' income.

	(1)	(2)	(3)	(4)	(5)	(6)
DF	0.0071***	0.0057***	0.0038***	0.0022***		0.0120***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)		(0.0000)
Spherical distance to Hangzhou					−0.0170***	
					(0.0003)	
Age	0.0928***	0.0919***	0.1631***	0.1184***	1.2370***	0.0860***
	(0.0039)	(0.0040)	(0.0044)	(0.0052)	(0.1063)	(0.0033)
Age squared	−0.0015***	-0.0015***	-0.0022***	-0.0016***	−0.0200***	−0.0010***
	(0.0000)	(0.0000)	(0.0001)	(0.0001)	(0.0010)	(0.0000)
Gender	0.5424***	0.5470***	0.4751***	0.3517***	−5.1060***	0.5740***
	(0.0160)	(0.0159)	(0.0184)	(0.0174)	(0.5397)	(0.0170)
Years of education	0.0759***	0.0724***	0.0461***	0.0284***	0.1380*	0.0740***
	(0.0024)	(0.0024)	(0.0028)	(0.0028)	(0.0754)	(0.0023)
Urban	0.3845***	0.3276***	0.0616***	0.0353**	3.3010***	0.3510***
	(0.0182)	(0.0185)	(0.0176)	(0.0171)	(0.5691)	(0.0178)
Married	0.2809***	0.2808***	0.1041***	0.0665***	−4.0620***	0.2930***
	(0.0224)	(0.0224)	(0.0219)	(0.0212)	(0.7621)	(0.0234)
Rural household registration	−0.0192**	-0.0152*	−0.0014	−0.0054	0.2400	−0.0210***
	(0.0094)	(0.0080)	(0.0047)	(0.0052)	(0.1739)	(0.0054)
CPC	0.0511**	0.1852***	0.1641***	0.1375***	87.3870***	−0.4000***
	(0.0235)	(0.0256)	(0.0255)	(0.0232)	0.5846	(0.0578)
Health levels	0.0859***	0.0877***	0.0714***	0.0427***	−0.5850**	0.0890***
	(0.0077)	(0.0077)	(0.0074)	(0.0073)	(0.2417)	(0.0074)
Provincial fixed effects	No	Yes	Yes	Yes		
Occupational fixed effects	No	No	Yes	Yes		
Industry fixed effects	No	No	No	Yes		
_cons	5.5599***	5.9377***	4.8680***	6.4764***	136.9770***	5.0050***
	(0.0861)	(0.1115)	(0.1318)	(0.1657)	(2.5893)	(0.1035)
Observations	23293	23293	19411	14579	23,074	23,074
Adjusted R2	0.6235	0.6284	0.6672	0.3115	0.59	0.611
F-statistic					2336.7700	2336.7700
Wu-Hausman					75.6437	75.6437
					0.0000	0.0000

***, **, and * denote passing the 1%, 5%, and 10% significance tests, respectively; values in parentheses below the coefficients are robust standard errors; dependent variable indicators are logarithmic values of residents' income, and regressions control for the province, occupation, and industry individual effects.

model is estimated according to (1), and the regression results of digital financial development are listed in Table 2. The total number of observations in each column varies because the variables entering the model are different in each column, so the corresponding missing status of observations is different. Column (1) is the baseline regression: the co-efficient of digital financial development is significantly positive, indicating that digital financial development has a significant positive impact on residents' income. Moreover, the coefficient of column (1) indicates that for each unit increase in the degree of digital financial development, residents' income will increase by 0.71%. We utilise a progressive inclusion of dummy variables to reduce the influence of these influencing factors on income since oc-cupational category, industrial features, and regional de-velopment all have an impact on households' involvement in financial markets. Column (2) adds province fixed effects, column (3) further controls for occupation fixed effects, and column (4) further controls for industry fixed effects. We find that after the introduction of fixed effects, digital fi-nancial development still has a significant positive effect on the growth of residents' income. Therefore, this paper can conclude that digital financial development will promote the growth of residents' income.

4.2. Endogeneity Test. The above model may have the problem of endogeneity, so this paper uses instrumental variable estimation to test it. Consistent with Zhang et al. (2020), we use the spherical distance between the area where the household is located and Hangzhou calculated by the geographic information system (GIS) as an instrumental variable for this paper. Because the development of digital finance represented by Alipay originated in Hangzhou, Hangzhou is a leader in digital finance development in China. Therefore, we expect that the closer the household's area is to Hangzhou, the better the degree of digital finance development should be.

Column (5) of Table 2 reports the results of the first-stage regression, and a negative coefficient on the spherical dis-tance to Hangzhou indicates that the further away from Hangzhou, the lower the degree of digital finance devel-opment. Column (6) reports the results of the second-stage regression, which indicates that digital financial

TABLE 3: Robustness test estimation results.

	(1)	(2)	(3)
L. Coverage breadth		0.0021***	
	(0.0002)		
L. Use depth			0.0029***
		(0.0003)	
L. Digitization level			0.0015***
			(0.0001)
Age	0.1185***	0.1176***	0.1188***
	(0.0052)	(0.0052)	(0.0052)
Age squared	−0.0016***	−0.0016***	−0.0016***
	(0.0001)	(0.0001)	(0.0001)
Gender	0.3512***	0.3525***	0.3500***
	(0.0174)	(0.0174)	(0.0174)
Years of education	0.0283***	0.0288***	0.0286***
	(0.0028)	(0.0028)	(0.0028)
Urban	0.0355**	0.0353**	0.0335*
	(0.0171)	(0.0172)	(0.0171)
Married	0.0655***	0.0663***	0.0674***
	(0.0212)	(0.0212)	(0.0212)
Rural household registration	−0.0053	−0.0053	−0.0055
	(0.0052)	(0.0052)	(0.0051)
CPC	0.1584***	0.1271***	0.1420***
	(0.0220)	(0.0259)	(0.0225)
Health levels	0.0426***	0.0425***	0.0426***
	(0.0073)	(0.0073)	(0.0073)
Provincial fixed effects	Yes	Yes	Yes
Occupational fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
_cons	6.5102***	6.3908***	6.5663***
	(0.1652)	(0.1691)	(0.1637)
Observations	14579	14579	14579
Adjusted R2	0.3113	0.3102	0.3118

***, **, and * denote passing the 1%, 5%, and 10% significance tests, respectively; values in parentheses below the coefficients are robust standard errors; dependent variable indicators are logarithmic values of residents' income, and regressions control for the province, occupation, and industry individual effects.

development has a significant positive effect on residents' income. The p value of the Durbin–Wu–Hausman test (DWH) is 0, indicating the existence of endogeneity in the model. The F-statistic of the first stage is greater than 10, indicating the instrumental variables satisfy the correlation requirement.

4.3. Robustness Test.
We use the three subindices of *digital financial coverage breadth, digital financial usage depth, and digitalization of inclusive finance* in PKU_DFIIC to replace the core explanatory variables, respectively, in the regressions. The estimated coefficients in Table 3 can examine the robustness of the model. As we expected, the coefficients of the breadth of digital financial coverage, depth of use, and digitization are all significantly positive, indicating that digital finance promotes the residents' income growth.

4.4. Heterogeneity Test

4.4.1. Impact of Digital Financial Development on the Income of Urban and Rural Residents.
In the above analysis, we examined that digital financial development could increase residents' income. In this part, we will look at who in urban

and rural regions gets the most from it. The estimate results for samples categorised by urban and rural regions are shown in Table 4: the coefficients for digital financial development in columns (1) and (2) are positive, showing that digital financial development boosts residents' income for both urban and rural inhabitants.

Moreover, for each unit increase in the degree of digital financial development, the income of urban residents will increase by 0.19 units and the income of rural residents will increase by 0.3 units, so the income of rural residents will increase by 0.11 units compared to the income of urban residents. This indicates that, in the process of digital finance development, rural residents will profit more than urban residents; thus, rural residents will enjoy more dividends brought by digital finance development, which reflects the inclusiveness of economic growth. This may be because the development of digital finance has increased the possibility of improving rural residents' access to information and financial services.

4.4.2. The Impact of Digital Financial Development on the Income of High- and Low-Skilled Laborers.
In benchmark analysis, we studied digital financial development has a

TABLE 4: The effects of digital financial development on residents' income: grouped by urban-rural and high- and low-skilled residents.

| | (1) | (2) | (3) College and above High-skilled | (4) Below college Low-skilled | (5) High school and above High-skilled | (6) Below high school Low-skilled |
	Urban	Rural				
DF	0.0019***	0.0030***	0.0011***	0.0024***	0.0014***	0.0027***
	(0.0002)	(0.0004)	(0.0004)	(0.0002)	(0.0003)	(0.0002)
Age	0.1102***	0.1276***	0.1126***	0.1170***	0.1110***	0.1148***
	(0.0063)	(0.0091)	(0.0188)	(0.0053)	(0.0118)	(0.0057)
Age squared	−0.0015***	−0.0017***	−0.0013***	−0.0016***	−0.0013***	−0.0016***
	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Gender	0.3261***	0.4083***	0.0588	0.3848***	0.1804***	0.4053***
	(0.0201)	(0.0357)	(0.0382)	(0.0194)	(0.0245)	(0.0226)
Years of education	0.0308***	0.0244***	0.0052	0.0270***	0.0335**	0.0221***
	(0.0033)	(0.0051)	(0.0200)	(0.0030)	(0.0149)	(0.0039)
Urban			0.0699	0.0277	0.0927***	0.0161
			(0.0605)	(0.0180)	(0.0340)	(0.0197)
Married	0.0634**	0.0734*	0.0382	0.0607***	0.0202	0.0716***
	(0.0252)	(0.0399)	(0.0458)	(0.0235)	(0.0315)	(0.0272)
Rural household registration	−0.0036	−0.0100*	−0.0816*	−0.0045	0.0029	−0.0067
	(0.0061)	(0.0058)	(0.0427)	(0.0052)	(0.0027)	(0.0060)
CPC	0.1674***	0.0493	0.1951***	0.1249***	0.1794***	0.0965***
	(0.0269)	(0.0464)	(0.0551)	(0.0258)	(0.0352)	(0.0299)
Health levels	0.0358***	0.0518***	−0.0191	0.0465***	−0.0032	0.0505***
	(0.0087)	(0.0135)	(0.0189)	(0.0077)	(0.0126)	(0.0085)
Provincial fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Occupational fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
_cons	6.6658***	6.8256***	8.1020***	6.5566***	7.3828***	6.5881***
	(0.2040)	(0.3505)	(0.6380)	(0.1771)	(0.3559)	(0.2002)
Observations	9522	5057	1523	13056	3397	11182
Adjusted R2	0.3110	0.2986	0.2720	0.3021	0.2311	0.2962

***, **, and * denote passing the 1%, 5%, and 10% significance tests, respectively; values in parentheses below the coefficients are robust standard errors; dependent variable indicators are logarithmic values of residents' income, and regressions control for the province, occupation, and industry individual effects.

positive impact on residents' income. In this section, we will figure out who benefits more from digital financial development, the high-skilled labor or the low-skilled laborer. As shown in Table 4, columns (3) and (4) are classified as high-skilled laborers according to the residents' education of college and above; otherwise, they are low-skilled laborers. For each unit increase in the degree of digital financial development, the income of the high-skilled laborers will increase by 0.11 and the low-skilled laborers will increase by 0.24, so the low-skilled laborers will have an income of 0.13 more than the high-skilled laborers. To increase the robustness of the above results, we also classify residents with high school and high school education or above as high-skilled laborers; otherwise, they are low-skilled workers. The regression results are shown in columns (5) and (6) in Table 4. Each unit increase in the degree of digital financial development will increase the income of the high-skilled laborer by 0.14 and the low-skilled laborer by 0.27, so the low-skilled laborer will earn 0.13 more than the high-skilled laborer. The above results show that the development of digital finance makes the income of low-skilled laborers increase more than that of high-skilled laborers, which reflects the inclusiveness of economic growth. This may be due to the development of digital finance, which also enables low-skilled laborers to enjoy more convenient lending services, and the emergence of new businesses in society with

the support of digital finance, such as Internet-based live streaming, which makes more resources available to low-skilled laborers and increases the space for career choice, thus making the income of low-skilled laborers increase.

4.4.3. Impact of Digital Financial Development on the Income of Urban and Rural Residents. To examine the impact of digital financial development on the income of residents engaged in different industries, we grouped the residents according to the industries where their jobs belong. The results are shown in Table 5: in column (1), the coefficient of digital financial development is 0.0046, which indicates that for each unit increase in the degree of digital financial development, the income of residents engaged in the primary industry will increase by 0.46; the coefficient of digital financial development in column (2) is 0.0017, indicating that for each unit increase in the degree of digital financial development, the income of residents in the secondary industry will increase by 0.17; the coefficient of digital financial development in column (3) is 0.0023, indicating that for each unit increase in the degree of digital financial development, the income of residents in the tertiary industry will increase by 0.23. Inhabitants in the primary industry would profit the most from the development of digital finance since their income growth is substantially higher than that of residents

TABLE 5: The effects of digital financial development on residents' income: grouped by industry in which residents are employed.

	(1) Primary industry	(2) Secondary industry	(3) Tertiary industry
DF	0.0046**	0.0017***	0.0023***
	(0.0021)	(0.0003)	(0.0002)
Age	0.1238***	0.0893***	0.1436***
	(0.0469)	(0.0082)	(0.0070)
Age squared	−0.0017***	−0.0013***	−0.0019***
	(0.0005)	(0.0001)	(0.0001)
Gender	0.2551	0.4558***	0.3582***
	(0.1549)	(0.0225)	(0.0198)
Years of education	0.0685***	0.0254***	0.0547***
	(0.0202)	(0.0032)	(0.0032)
Urban	0.2340	0.0081	0.0775***
	(0.1614)	(0.0221)	(0.0257)
Married	0.2586	0.1533***	0.0027
	(0.2144)	(0.0317)	(0.0285)
Rural household registration	−0.0597	−0.0269***	−0.0004
	(0.1805)	(0.0035)	(0.0038)
CPC	−0.1416	0.1236***	0.1880***
	(0.2677)	(0.0363)	(0.0300)
Health levels	0.0745	0.0488***	0.0343***
	(0.0603)	(0.0100)	(0.0107)
Provincial fixed effects	Yes	Yes	Yes
_cons	6.3621***	7.6002***	6.0974***
	(1.1543)	(0.1940)	(0.1621)
Observations	239	6308	8079
Adjusted R2	0.3715	0.2223	0.3053

***, **, and * denote passing the 1%, 5%, and 10% significance tests, respectively; values in parentheses below the coefficients are robust standard errors; dependent variable indicators are logarithmic values of residents' income, and regressions control for the province, occupation, and industry individual effects.

in the secondary and tertiary sectors. The possible reason for this is that, with the development of digital finance, the facilitation of digital financial services such as credit, insurance, and payment supports the development of the primary sector. In addition, the digital infrastructure required for the development of digital finance has greatly contributed to the integration of digital and primary industries.

4.5. The Mechanism of Digital Financial Development Affecting Residents' Income

4.5.1. Digital Financial Development and Residents' Employment Space. The development of digital finance and the employment space of residents become larger, which makes the residents' income increase. The employment space of residents is an intermediate transmission path from the development of digital finance to the growth of residents' income. Next, we will introduce the stepwise test mediating effect model (Judd and Kenny, 1981) for empirical analysis:

$$\ln Y it = \alpha_0 + \beta_0 IFit - 1 + X_{it}\beta_1 + \varepsilon_{it}, \tag{2}$$

$$\text{work}_{it} = \alpha_1 + \varphi_0 IFit - 1 + X_{it}\varphi_1 + \mu_{it}, \tag{3}$$

$$\ln Y_{it} = \alpha_2 + \eta_0 IFit - 1 + \lambda_1 \text{work}_{it} + X_{it}\eta_1 + \tau_{it}. \tag{4}$$

In the above equations, work_{it} denotes the employment space of residents which is represented by the proxy variables of frequency of using the Internet for business activities (*Internet business activities*) and frequency of using the Internet for work (Internet business activities), respectively. X_{it} is the control variables, as in (1).

In the above equations, (2) only considers the relationship between residents' income and digital finance development, (3) considers the relationship between mediating variables and digital finance development, and (4) tests the relationship between residents' income and digital finance development and residents' employment space. Table 6 gives the estimation results of the mediating effect model of residents' employment space for the full sample: in column (1), digital finance is significantly related to resident income with a regression coefficient of 0.0107; the coefficient of digital financial development significantly increases the frequency of *Internet business activities* in column (2) with regression coefficients of 0.0120. When *Internet business activities* are added in column (3), the significant relationship between development and residents' income does not change, but the coefficients decrease from 0.0107 to 0.0054, and residents' *Internet business activities* also significantly increase residents' income with a coefficient of 0.0341, indicating that residents' use of the Internet for business activities plays a partially mediating role between digital financial development and residents' income growth. The coefficient of column (4), like column (2), indicates that

TABLE 6: Sequential tests for mediating effects of residents' employment space: full sample.

Models	(1) Equation (2)	(2) Equation (3)	(3) Equation (4)	(4) Equation (2)	(5) Equation (3)	(6) Equation (4)
DF	0.0107*** (0.0011)	0.0120*** (0.0008)	0.0054*** (0.0006)	0.0107*** (0.0011)	0.0063*** (0.0012)	0.0057*** (0.0005)
Internet business activities			0.0341*** (0.0039)			
Internet work						0.0495*** (0.0031)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23293	24898	10926	23293	22478	10624
Adjusted R2	0.6262	0.2750	0.2854	0.6262	0.2582	0.3016

***, **, and * denote passing the 1%, 5%, and 10% significance tests, respectively; values in parentheses below the coefficients are robust standard errors; individual characteristic variables in the table are the same as in Table 2, and the report of coefficient for individual characteristic variables is omitted for space.

digital finance is significantly related to residents' income, and the coefficient of column (5) for digital financial development is 0.0063, indicating that the development of digital finance significantly increases the frequency of residents' use of the Internet to participate in work. In column (6), we add the control variable of *Internet work* to the regression of digital finance and residents' income where the coefficient of digital financial development decreases from 0.0107 to 0.0057. Besides, the frequency of residents' participation in Internet work also significantly increases residents' income, indicating that residents' use of the Internet to participate in work also plays a partially mediating role between the development of digital finance and residents' income growth. In summary, the residents' employment space is the mechanism by which digital finance contributes to the increase in residents' income.

4.5.2. Digital Financial Development and Internet Information Access. Information access is becoming less expensive and quicker as a result of digital financial development, which is positive for people' income growth. One of the pathways from digital financial progress to population income is access to information. In this paper, the proxy variable of Internet information access from the Internet is described by "political information through the Internet" in CFPS, and then, a stepwise test mediating effect model is introduced for empirical analysis.

$$\ln Yit = \alpha_0 + \beta 0 IFit - 1 + Xit\beta 1 + \varepsilon_{it}, \tag{5}$$

$$infor_{it} = \alpha_1 + \varphi_0 IFit - 1 + X_{it}\varphi_1 + \mu_{it}, \tag{6}$$

$$\ln Yit = \alpha_2 + \eta 0 IFit - 1 + \lambda_2 infor_{it} + X_{it}\eta_1 + \tau_{it}. \tag{7}$$

Among them, $infor_{it}$ denotes *Internet information access*, which is represented by "learning about political information through the web." X_{it} is the control variables, as in (1).

The estimation results in columns (1)–(3) of Table 7 describe the relationship between equations (5)–(7). The coefficient of digital financial development in column (1) is 0.0107, indicating that digital financial development has a significant positive impact on residents' income. The

coefficient of digital financial development in column (2) is 0.0056, indicating that digital financial development promotes residents' behavior of using the Internet for information acquisition. When we add Internet information access in column (3), the coefficient of digital financial development decreases from 0.0107 to 0.0103, and the coefficient of *Internet information access* is also significantly positive, indicating that Internet information access plays a partially mediating role between digital financial development and residents' income growth. Therefore, Internet information access is the mechanism by which digital financial development promotes the increase of residents' income.

4.5.3. Digital Financial Development and Credit. Digital financial development leads to the greater possibility of credit for individuals and businesses which contributes to the increase of residents' income. We can infer that credit is a path for digital financial development to promote residents' income increase. In this paper, the following model is constructed using "credit" as a mediating variable in the PKU_DFIIC:

$$\ln Yit = \alpha_0 + \beta 0 IFit - 1 + Xit\beta 1 + \varepsilon_{it}, \tag{8}$$

$$credit_{it} = \alpha_1 + \varphi_0 IFit - 1 + X_{it}\varphi_1 + \mu_{it}, \tag{9}$$

$$\ln Yit = \alpha_2 + \eta_0 IFit - 1 + \lambda_3 credit_{it} + X_{it}\eta_1 + \tau_{it}. \tag{10}$$

Among them, $credit_{it}$ denotes "credit" and X_{it} is the same control variables, as in (1).

The estimation results in columns (4)–(6) of Table 7 describe the relationship between equations (8)–(10). The coefficient of digital financial inclusion in column (4) is 0.0107, which indicates a significant positive effect of digital financial development on residents' income. The coefficient of column (5) is 1.0633, which indicates that digital financial development promotes the increase of credit. When we add credit in column (6) as a control variable, the coefficient of digital financial inclusion decreases from 0.0107 to 0.0073, and the coefficient of credit is also significantly positive, indicating that credit plays a partially mediating role between the development of digital finance and the increase of

TABLE 7: Mediation effects of Internet information access and credit tested sequentially: full sample.

Models	(1) Equation (5)	(2) Equation (6)	(3) Equation (7)	(4) Equation (8)	(5) Equation (9)	(6) Equation (10)
DF	0.0107*** (0.0011)	0.0056** (0.0024)	0.0103*** (0.0011)	0.0107*** (0.0011)	1.0633*** (0.1382)	0.0073*** (0.0014)
Internet information access			0.0150*** −0.003			
Credit						0.0030*** −0.0012
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23293	43505	20021	23293	60267	23293
Adjusted R2	0.6262	0.3476	0.6342	0.6262	0.9242	0.6266

***, **, and * denote passing the 1%, 5%, and 10% significance tests, respectively; values in parentheses below the coefficients are robust standard errors; individual characteristic variables in the table are the same as in Table 2, and the report of coefficient for individual characteristic variables is omitted for space.

TABLE 8: Mediated effects of Internet business activities in residents' employment space: grouped by high- and low-skilled laborers.

Models	High-skilled laborers			Low-skilled laborers		
	Equation (2)	Equation (3)	Equation (4)	Equation (2)	Equation (3)	Equation (4)
DF	0.0040*** (0.0005)	0.0141*** (0.0016)	0.0033*** (0.0004)	0.0071*** (0.0008)	0.0112*** (0.0009)	0.0057*** (0.0007)
Internet business activities			0.0055 (0.0070)			0.0376*** (0.0051)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1332	1972	1228	9049	16708	6159
Adjusted R2	0.3950	0.2499	0.2545	0.1749	0.2443	0.1597

Same as Table 6.

TABLE 9: Mediated effects of the frequency of using the Internet for work in the residents' employment space: grouped by high and low skills.

Models	High-skilled laborers			Low-skilled laborers		
	Equation (2)	Equation (3)	Equation (4)	Equation (2)	Equation (3)	Equation (4)
DF	0.0040*** (0.0005)	0.0051*** (0.0012)	0.0031*** (0.0004)	0.0071*** (0.0008)	0.0055*** (0.0016)	0.0062*** (0.0006)
Internet work			0.0366** (0.0154)			0.0332*** (0.0039)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1332	1907	1209	9049	14501	5898
Adjusted R2	0.3950	0.1302	0.2752	0.1749	0.1866	0.1654

Same as Table 6.

residents' income. In summary, credit is a mechanism for digital financial development to promote income increase of residents.

4.6. Heterogeneity in the Mechanism of Digital Financial Development Affecting Residents' Income

4.6.1. Grouped by High- and Low-Skilled Laborers. (1) Residents' Employment Space. In this part, we consider whether the mediating effect remains after grouping residents according to high and low skills and analyze the magnitude of the mediating variable playing a role in different groups. Table 8 provides the results of the estimated mediating effect of *Internet business activities*. In the high-skilled group, the coefficient of *Internet business activities* in (4) is not significant, so it is not possible to determine whether *Internet business activities* is the mechanism by which digital financial development drives residents to increase their income. In the

low-skilled group, the relationship between equations (2)–(4) is satisfied, indicating that *Internet business activities* are the mechanism of digital finance to residents' income. Table 9 then gives the estimation results of the mediating effect of *Internet work*, and the coefficients of the three-step test of the mediating effect are significant, indicating that the frequency of using the Internet for work is the mechanism of digital finance to residents' income for both high-skilled and low-skilled laborers. We can see that, for the low-skilled group, the mediating effects of both variables, *Internet business activities* and *Internet work*, existed, which are used to describe the employment space of residents. Comparing the coefficients of digital financial development in (2) in both samples, we can see that digital financial development has a greater effect on the income of low-skilled laborers. Therefore, the expansion of the employment space of the population can be the reason for the greater effect of digital financial development on the income increase of the low-skilled laborers.

Table 10: Mediating effects of Internet information access examined sequentially: grouped by high and low skills.

Models	High-skilled laborers			Low-skilled laborers		
	Equation (5)	Equation (6)	Equation (7)	Equation (5)	Equation (6)	Equation (7)
DF	0.0040***	0.0071***	0.0035***	0.0071***	0.0033	0.0063***
	(0.0005)	(0.0017)	(0.0004)	(0.0008)	(0.0027)	(0.0007)
Internet information access			0.0050			0.0151***
			(0.0070)			(0.0033)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1332	2051	1292	9049	17281	6455
Adjusted R2	0.3950	0.0702	0.4173	0.1749	0.0936	0.1786

Same as Table 6.

Table 11: Mediating effects of credit: grouped by high and low skills.

Models	High-skilled laborers			Low-skilled laborers		
	Equation (8)	Equation (9)	Equation (10)	Equation (8)	Equation (9)	Equation (10)
DF	0.0040***	0.9653***	0.0016	0.0071***	0.9639***	0.0042***
	(0.0005)	(0.0965)	(0.0014)	(0.0008)	(0.1197)	(0.0010)
Credit			0.0022*			0.0027*
			(0.0011)			(0.0015)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1332	2171	1332	9049	32544	9049
Adjusted R2	0.3950	0.9206	0.3959	0.1749	0.8546	0.1764

Same as Table 6.

(2) Internet Information Access. Table 10 provides the estimates of the mediating effects of Internet information access after grouping by high-low skill. The coefficient of Internet information access in (7) is not significant in the high-skilled laborers and the coefficient of digital financial development in (6) is not significant in the low-skilled laborers, indicating that by this grouping, we cannot tell whether Internet information access plays a role in the increase of income in the high-skilled or low-skilled laborers.

(3) Credit. Table 11 provides the estimation results of the mediating effect of credit after grouping by high-low skill. For the high-skilled group, (8) indicates that digital finance significantly contributes to the increase of residents' income, while (9) indicates that digital inclusion promotes the increase of residents' credit. The coefficient of digital financial development is insignificant and credit is significant, indicating that credit plays a full mediating effect in the high-skilled laborers. For the low-skilled laborers, by observing the coefficients of equations (8)–(10), credit plays a partially mediating role in the low-skilled laborers. Thus, the finding that credit is a mechanism for the development of digital finance to income growth of the population is robust. By comparing the coefficients of digital financial inclusion of (8) in the two sample groups, it is clear that digital finance has a greater role in increasing the income of the low-skilled laborers. Therefore, credit can be used to explain the conclusion that digital financial development has a greater role in increasing the income of low-skilled laborers.

4.6.2. Grouped by Urban and Rural Areas. (1) Resident Employment Space. Tables 12 and 13 provide the estimation results of the mediating effect of resident employment space after grouping according to urban and rural areas. Equation (2) describes the relationship between digital financial development and resident income, while equation (3) describes the relationship between digital financial development and resident employment space. Equation (4) describes the relationship between resident income and digital financial development and resident employment space. The conclusion that the resident employment space is a pathway from digital financial development to resident income is resilient to both urban and rural residents based on the coefficients in equations. By comparing the coefficients of digital financial development of (2) in the two sample groups, it can be seen that digital finance has a greater effect on increasing the income of rural residents. Therefore, the expansion of the resident employment space can be used to explain the conclusion that digital finance promotes more income increase for rural residents.

(2) Internet Information Access. Table 14 provides the estimation results of the mediating effects of Internet information access after residents are grouped by urban-rural area. The observation of the coefficients in the table shows that Internet information access is the mechanism by which digital finance promotes income growth for urban residents, while it is not possible to judge whether Internet information access is the mechanism by which digital finance promotes income increase for rural residents.

(3) Credit. Table 15 provides estimates of the mediating effect of credit after residents are grouped by urban-rural area. Since the coefficient on credit in (10) is not significant in either sample group, it is not possible to determine whether credit plays a mediating role in increasing the income of urban or rural residents.

TABLE 12: Mediating effects of Internet business activities in the employment space of residents: grouped by urban-rural area.

Models	Urban			Rural		
	Equation (2)	Equation (3)	Equation (4)	Equation (2)	Equation (3)	Equation (4)
DF	0.0085***	0.0112***	0.0054***	0.0146***	0.0155***	0.0074***
	(0.0007)	(0.0010)	(0.0006)	(0.0026)	(0.0025)	(0.0012)
Internet business activities			0.0343***			0.0355***
			(0.0041)			(0.0089)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12084	14151	6494	9394	8676	3378
Adjusted R2	0.5705	0.2718	0.3331	0.6617	0.2525	0.2303

Same as Table 6.

TABLE 13: Mediating effects of the frequency of using the Internet for work in the employment space of the population: grouped by urban-rural area.

Models	Urban			Rural		
	Equation (2)	Equation (3)	Equation (4)	Equation (2)	Equation (3)	Equation (4)
DF	0.0085***	0.0067***	0.0056***	0.0146***	0.0068**	0.0080***
	(0.0007)	(0.0013)	(0.0006)	(0.0026)	(0.0029)	(0.0010)
Internet work			0.0535***			0.0466***
			(0.0044)			(0.0066)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12084	12597	6300	9394	7942	3285
Adjusted R2	0.5705	0.2698	0.3531	0.6617	0.1695	0.2424

Same as Table 6.

TABLE 14: Mediating effects of Internet information access: grouped by urban and rural areas.

Models	Urban			Rural		
	Equation (5)	Equation (6)	Equation (7)	Equation (5)	Equation (6)	Equation (7)
DF	0.0085***	0.0063***	0.0079***	0.0146***	0.0044	0.0146***
	(0.0007)	(0.0020)	(0.0007)	(0.0026)	(0.0027)	(0.0028)
Internet information access			0.0239***			0.0100*
			(0.0048)			(0.0050)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12084	21197	10724	9394	19410	7855
Adjusted R2	0.5705	0.3136	0.5783	0.6617	0.3498	0.6639

Same as Table 6.

TABLE 15: Sequential tests of the mediating effects of credit: grouped by urban and rural areas.

Models	Urban			Rural		
	Equation (8)	Equation (9)	Equation (10)	Equation (8)	Equation (9)	Equation (10)
DF	0.0085***	0.9780***	0.0073***	0.0146***	1.2445***	0.0118***
	(0.0007)	(0.0871)	(0.0018)	(0.0026)	(0.1964)	(0.0036)
Credit			0.0011			0.0023
			(0.0018)			(0.0017)
Individual characteristics variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12084	28000	12084	9394	28261	9394
Adjusted R2	0.5705	0.9355	0.5705	0.6617	0.9271	0.6618

Same as Table 6.

4.6.3. Grouped by Industry. (1) Residents' Employment Space. Table 16 provides the estimation results of the mediating effect of Internet business activities by industry grouping. By observing the results of equations (2)–(4), *Internet business activities* are the mechanism of digital financial development for residents' income growth in both the tertiary industry and the traditional primary and secondary industries. Table 17 provides the results of the estimated mediating effect of the frequency of using the Internet for work. The mediating effect of *Internet work* in the tertiary industry cannot be judged, while in the primary and secondary industries, the mediating effect of *Internet work* exists. In summary, the mediating effect of residents' employment space in the traditional primary and secondary

TABLE 16: Mediated effects of *Internet business activities* in residents' employment space: grouped by industry.

Models	Tertiary industry			Primary and secondary industries		
	Equation (2)	Equation (3)	Equation (4)	Equation (2)	Equation (3)	Equation (4)
DF	0.0048***	0.0117***	0.0037***	0.0128***	0.0120***	0.0069***
	(0.0009)	(0.0008)	(0.0009)	(0.0014)	(0.0012)	(0.0006)
Internet business activities			0.0279***			0.0358***
			(0.0075)			(0.0047)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3151	5605	2624	14373	13094	4650
Adjusted R2	0.1983	0.2252	0.1934	0.6311	0.2720	0.3797

Same as Table 6.

TABLE 17: Mediated effects of the frequency of using the Internet for work in the residents' employment space: grouped by industry.

Models	Tertiary industry			Primary and secondary industries		
	Equation (2)	Equation (3)	Equation (4)	Equation (2)	Equation (3)	Equation (4)
DF	0.0048***	0.0005	0.0041***	0.0128***	0.0095***	0.0069***
	(0.0009)	(0.0017)	(0.0009)	(0.0014)	(0.0014)	(0.0006)
Internet work			0.0222***			0.0547***
			(0.0079)			(0.0061)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3151	5255	2508	14373	11319	4544
Adjusted R2	0.1983	0.2362	0.1940	0.6311	0.1839	0.3910

Same as Table 6.

TABLE 18: Sequential test of mediating effects of Internet information access: grouped by industry.

Models	Tertiary industry			Primary and secondary industries		
	Equation (5)	Equation (6)	Equation (7)	Equation (5)	Equation (6)	Equation (7)
DF	0.0048***	0.0018	0.0040***	0.0128***	0.0068**	0.0128***
	(0.0009)	(0.0021)	(0.0009)	(0.0014)	(0.0027)	(0.0014)
Internet information access			0.0131***		0.0015	
			(0.0044)			(0.0048)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3151	5655	2658	14373	29189	12270
Adjusted R2	0.1983	0.0783	0.1977	0.6311	0.3625	0.6228

Same as Table 6.

industries is robust, which means residents' employment space is a mechanism for digital finance to promote residents' income growth. By comparing the coefficients of (2), it can be seen that digital finance has a greater effect on increasing the income of residents working in the primary and secondary industries. Therefore, the residents' employment space is the cause of promoting the income growth of residents in traditional industries.

(2) Internet Information Access. The estimated mediating effect of Internet information access by industry grouping is presented in Table 18. The coefficient of (6) for digital financial inclusion in the sample of tertiary industries is not significant, and the coefficient of (6) for Internet information access in the sample of primary and secondary industries is

not significant. As a result, it is impossible to assess the mediating impact of Internet information access in the sample of industrial grouping.

(3) Credit. Table 19 provides the estimation results of the mediating effect of credit by industry grouping. The coefficient of (10) for credit in the tertiary industry is not significant, so it is impossible to judge whether the credit is a mediating effect in increasing the income of residents in the tertiary industry, while the coefficients of equations (8)–(10) in the primary and secondary industries satisfy the sequential test requirements, so credit is a mechanism to promote the income increase of residents in the primary and secondary industries. By comparing the coefficients of (8) in the two groups of samples, it is clear that digital finance plays

TABLE 19: Sequential tests of the mediating effects of credit: grouped by industry.

Models	Tertiary industry			Primary and secondary industries		
	Equation (8)	Equation (9)	Equation (10)	Equation (8)	Equation (9)	Equation (10)
DF	0.0048***	0.9351***	0.0042**	0.0128***	1.0982***	0.0079***
	(0.0009)	(0.1040)	(0.0017)	(0.0014)	(0.1508)	(0.0020)
Credit			0.0005			0.0043***
			(0.0016)			(0.0014)
Individual characteristic variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3151	7349	3151	14373	42664	14373
Adjusted R2	0.1983	0.8509	0.1982	0.6311	0.9239	0.6318

Same as Table 6.

a greater role in promoting income increase for residents engaged in traditional industries, and credit may be the reason that can explain this finding.

5. Conclusions

Using data from the China Family Panel Studies (CFPS) from 2010 to 2018 and the "Peking University Digital Inclusive Finance Index of China" (PKU DFIIC) from 2011 to 2018, this research explores the influence of digital financial development on residents' income and the impact route. We found that digital financial development had a significant beneficial influence on citizens' income, with rural inhabitants, low-skilled workers, and those working in basic sectors benefiting the most. As a result, the economic growth spurred by digital financial development is broadly distributed. The results of the empirical analysis showed that digital finance contributed to the increase in income through the expansion of the employment space of the population, the increase in the possibility of access to credit, and the increase in the convenience of access to information from the Internet. The expansion of residents' employment space had a greater positive impact on low-skilled laborers, rural residents, and those engaged in primary and secondary industries, while access to information was more often used to explain the increase in income of urban residents, and credit had an advantage in promoting income increase of low-skilled labor and those engaged in traditional industries. The above findings are not mentioned in previous studies, and this paper elaborates on the mechanism of digital financial development on residents' income. The shortcoming of this paper is that it does not further investigate the relationship between digital financial development and income distribution of the population, and we will study this aspect in future studies. In addition, it is an interesting topic to study digital financial development and income disparity and we will leave this for a future study.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

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