

Research on the influence effect and mechanism of digital economy on rural residents' income under the background of rural revitalization

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Abstract: *The rapid development of digital economy is a new driving force for rural residents to increase their income, which is of great significance for comprehensively promoting the rural revitalization strategy. Based on the panel data of 30 provinces in China from 2015 to 2020, this paper calculates the digital economy development index of each province, and analyzes the impact of digital economy on rural residents' income and its effect mechanism. It is found that the development of digital economy significantly promotes the improvement of rural residents' income level; the development of the digital economy can increase the income of rural residents by promoting scientific and technological innovation and accelerating the development of agricultural finance; the development of digital economy has a more significant positive effect on the income of rural residents in Western China.*

Keywords: *Rural revitalization; Digital economy; Income of rural residents; Scientific and technological innovation; Agricultural finance*

1. Introduction

The 20th National Congress of the Communist Party of China clearly emphasizes the need to accelerate the development of digital economy and promote the deep integration of digital economy and real economy. In recent years, the digital economy has flourished and has become the most active part of China's economic development, playing an essential role in stimulating consumption, creating employment, and boosting investment. According to the "REPORT ON THE WORK OF THE GOVERNMENT" in 2023, China's digital economy continues to grow and develop, the added value of new industries, new formats and new models accounts for more than 17% of gross domestic product (GDP), and the digital economy will also be vigorously developed in 2023, which fully illustrates the importance of developing the digital economy.

At the same time, the 20th National Congress of the Communist Party of China also stated explicitly that China will comprehensively promote rural revitalization and insist on giving priority to the development of agriculture and rural areas. In 2023, the No.1 Document of the Central Committee once again emphasized that it is necessary for China to stick to the basic issues of agriculture, rural areas and farmers, speed up the modernization of agriculture and rural areas, and promote the employment and income increase of rural residents. How to speed up the modernization of agriculture and rural areas and improve the income level of rural residents has become a hot issue for people from all walks of life. Then, can the development of digital economy increase the income of rural residents? How does the development of digital economy promote the income increase of rural residents? It is of great practical significance for the effective implementation of the national rural revitalization strategy to explore the role of digital economy on the income level of rural residents and its effect mechanism, and to judge the promotion of digital economy on rural revitalization from the perspective of increasing rural residents' income.

Based on this, according to the provincial panel data of 30 provinces in Chinese mainland (except Tibet) from 2015 to 2020, this paper constructs the digital economy development level index, and makes an empirical analysis of the direct effect, mechanism effect and heterogeneity of digital economy development affecting the income level of rural residents.

2. Literature review

At present, scholars have generally found that the development of digital economy has a positive effect on the income level of residents after research. Meanwhile, the studies on the effect of digital economy development on residents' income increase mainly focus on heterogeneity analysis and effect mechanism analysis.

In terms of heterogeneity analysis: Lina Zhang et al (2021)^[1] found that the development of digital economy can significantly promote residents' income increase based on the China Household Tracking Survey (CFPS) data, and its income increase effect is not linear, but shows U-shaped characteristics, and the income increase effect is more significant for rural households. Yi Li et al (2021)^[2] used Meta-analysis to construct dataset on farmers' income increase and income gap among different countries. It was found that the development of digital economy not only promoted income increase, but also widened the income gap, and the income increase effect on groups with higher social status and education level was more obvious. Fang Qin et al (2022)^[3] found that under the background of digital economy, the significant promotion of e-commerce development on farmers' income has no heterogeneity among farmers with different human, material and social capitals.

In terms of effect mechanism analysis: Lina Zhang et al (2021)^[1] found that the digital economy promotes the rise of residents' income level by increasing the importance of the Internet. Shuaitao Jiao et al (2021)^[4] found that the development of digital economy promotes regional economic growth by boosting employment based on Chinese city-level data. Mei Yang (2021)^[5] after further research found that the development of digital economy can promote economic growth by enhancing the human capital level. Fuqian Fang et al (2021)^[6] found that the digital economy promotes rural residents' income growth by boosting agricultural production, increasing non-farm work participation, increasing human capital, and improving the social environment. Based on panel data from cities in the Yangtze River Economic Zone, Wenting Sun et al (2022)^[7] found that the development of digital economy can boost farmers' income by increasing the urbanization rate. According to CFPS data, Mengtao Gao (2023)^[8] found that the development of digital economy can reduce poverty and increase residents' income by stimulating employment, encouraging entrepreneurship, financial empowerment and human capital empowerment. Cheng'an Xu et al (2023)^[9] based on CFPS data and panel Probit model found that digital economy can increase the income of low-income groups by expanding the depth and breadth of employment. Zifeng Wang et al (2023)^[10] found that increasing farmers' non-farm employment rate, accelerating land transfer, and reducing urban-rural division are the effect mechanisms of digital economy to promote farmers' income.

According to literature review, it is found that the development of digital economy has a direct or indirect promotion effect on the income level of rural residents. there are abundant related researches, but the research on its effect mechanism mostly focuses on boosting employment, stimulating entrepreneurship, increasing non-farm employment rate, and improving human capital level. According to the No. 1 document of the Central Government in 2023, which emphasizes strengthening scientific and technological innovation and enhancing financial support for rural revitalization, this paper uses the entropy method to measure the index of digital economy development level, and studies the effect mechanism of digital finance on the income level of rural residents from two new perspectives of scientific and technological innovation and agricultural finance, so as to provide reference for the development of China's digital economy and the effective implementation of rural revitalization strategy.

3. Theoretical analysis and research hypothesis

Digital economy is an important force to promote the new modernization of agriculture and rural areas, and plays an active role in promoting rural revitalization. With the development of digital economy, the deep penetration of digital technology has changed the agricultural and rural production methods, and spawned new industries, formats and models in rural areas. In terms of production, the development of digital technology has made both laborers and production tools smarter, helping laborers save time on production significantly and have more opportunities to earn non-agricultural income. In terms of sales, the development of Internet technologies has reduced the risk of agricultural production^[11]. For example, the rise of e-commerce platforms has reduced the probability of the problem of stagnant agricultural products^[12], and to a certain extent, the income of rural residents is guaranteed. Based on this, the following hypotheses are proposed:

Hypothesis 1: The development of digital economy has a positive role in promoting the income level

of rural residents.

The development of digital economy can promote science and technology innovation by reducing the cost of enterprise innovation and changing the industrial model and resource allocation^[13]. The development of digital technology makes it possible for innovation agents to acquire knowledge and cooperate without high search and sharing costs, which promotes the development of diversity and flexibility of innovation agents^[14], and thus better promotes scientific and technological innovation. At the same time, science and technology are the first productive forces, and their innovation increases labor productivity and improves the material base for production, which in turn increases the scale of production^[13]. The innovation and progress of science and technology also provide more employment and entrepreneurial opportunities for rural residents, promote the economic development of rural areas, and increase the income level of rural residents. In conclusion, the following hypotheses are proposed:

Hypothesis 2: The development of the digital economy positively affects the income level of rural residents by increasing the level of scientific and technological innovation.

The development of the digital economy has brought about the deep integration of digital information technology and traditional finance, which also promotes the digital transformation and rapid development of agricultural finance. At the same time, the development of agricultural finance has reduced the cost of financing carried out by farmers, increased the possibility of obtaining loans^[15], and broadened the access to capital for rural residents^[16], which in turn has contributed to the growth of farmers' income. In addition, the expansion of village banks has strengthened financial penetration, which has a positive impact on the income level of local residents and alleviates family vulnerability^[17]. In conclusion, the following hypotheses are proposed:

Hypothesis 3: The development of the digital economy positively affects the income level of rural residents by accelerating the development of agricultural finance.

4. Study design

4.1 Data sources and variable descriptions

Since there are problems such as discontinuity or unavailability of data for some provinces, this paper focuses on 30 provinces in China (excluding Hong Kong, Macao, Taiwan and Tibetan areas) from 2015 to 2020, and the data used are mainly derived from the China Statistical Yearbook, the People's Bank of China and the statistical yearbooks of each province.

a) Explained variable: Income of rural residents (Income). This paper takes the per capita disposable income of rural residents as an index to measure the income level of rural residents. The per capita disposable income of rural residents can intuitively reflect the affluence of rural residents, thus well reflecting the level of rural revitalization.

b) Core explanatory variables: Digital economy development index (Dle). This paper draws on the digital economy development level indicator system constructed by the method of Jun Liu et al (2020)^[18], Xiaozhong Li et al (2022)^[19], and combines the development characteristics of the digital economy to measure the digital economy development level in three aspects: the level of informatization, the level of digital transactions and the level of Internet development. The selected specific indicators are shown in Table 1.

Referring to the research by Jun Liu et al (2020)^[18], in order to make the established digital economy development level indicators comparable across years and the indexes of each province comparable across years, this paper standardizes the raw data with 2015 as the base period and adopts the following calculation method:

$$X_{it} = \frac{W_{it} - W_{min0}}{W_{max0} - W_{min0}} \quad (1)$$

In the above formula, t represents the year of the measurement index, W_{it} represents the original data of each measurement index in different years, W_{min0} represents the minimum value of the original data in the base period year (2015), and W_{max0} represents the maximum value of the original data in the base period year. After the above treatment, the measurement indicators can be compared between different years, which can more intuitively reflect the development of China's digital economy with the passage of time.

This paper uses the entropy value method to derive the weight values of each indicator, and then uses

the obtained weights to measure the data obtained after standardization, and finally obtains the digital economy development level indicators for each province and division from 2015 to 2020. The evaluation system of digital economy development level index is shown in Table 1:

Table 1: Evaluation system of digital economy development level indicators.

first-class index	second-class index	index weight	index attribute
the level of informatization	Fiber optic cable line density	0.0902	+
	Mobile phone base station density	0.1123	+
	Proportion of employed persons in urban units in the information transport, software and information technology service industries	0.1550	+
	Total volume of telecommunications services	0.0901	+
	Total software business	0.1413	+
the level of digital transactions	Number of websites per 100 enterprises	0.0097	+
	E-commerce sales	0.1058	+
	Proportion of enterprises with e-commerce transactions	0.0319	+
the level of Internet development	Online retail sales	0.1405	+
	Number of Internet broadband access ports per capita	0.0208	+
	Mobile phone penetration	0.0242	+
	Number of computers used per 100 people	0.0346	+
	Proportion of mobile Internet users	0.0209	+
	Proportion of broadband Internet access users	0.0227	+

c) Intermediary variables: The level of scientific and technological innovation (Sti) and the development speed of agricultural finance (Agr). In this paper, the amount of patent applications per 100 people is taken as an index to measure the level of scientific and technological innovation, and the growth rate of local and foreign currency agriculture-related loans is taken as an index to measure the development speed of agricultural finance.

d) control variables: fiscal expenditure level (Gov), mechanization level (Mcl), fertilizer input (Fer), rural delivery routes (Pos), and industrial structure (Ins). Among them, fiscal expenditure level is measured by the proportion of fiscal expenditure to local GDP, mechanization level is measured by the total mechanical power per capita in rural areas, fertilizer input is measured by the logarithmic data of agricultural chemical fertilizer application, rural delivery routes are measured by the delivery routes owned per 100 people in rural areas, and industrial structure is measured by the proportion of primary industry. Table 2 shows the descriptive statistics of each variable.

Table 2: Descriptive statistics.

variable	mean	p50	SD	Min	Max
Income	1.487	1.371	0.542	0.694	3.491
Dle	0.301	0.187	0.289	0.045	1.548
Sti	0.144	0.081	0.149	0.02	0.744
Agr	0.082	0.092	0.082	-0.264	0.278
Gov	0.27	0.237	0.112	0.12	0.753
Mcl	1.867	1.69	1.035	0.349	6.21
Ins	9.301	8.9	5.105	0.3	25.1
Pos	0.794	0.734	0.323	0.306	2.044
Fer	4.799	5.366	1.174	1.696	6.574

4.2 Model construction

This paper constructs Model 1, a benchmark model, to analyze the impact of digital economy development on rural residents' income, and Model 2 to investigate the effect mechanism of digital economy development on rural residents' income through scientific and technological innovation and accelerated agricultural finance development.

Model 1: The direct impact of digital economy development on rural residents' income. The model is as follows in equation (2):

$$Income_{it} = \alpha_0 Dle_{it} + \alpha_1 Gov_{it} + \alpha_2 Mcl_{it} + \alpha_3 Fer_{it} + \alpha_4 Pos_{it} + \alpha_5 Ins_{it} + \beta_0 + \mu_i + \sigma_t + \varepsilon_{it} \quad (2)$$

Among them, $Income_{it}$ represents the per capita disposable income of rural residents in the i province of the t year, and Dle_{it} represents the level of digital economy development in province i in year t , Gov_{it} , Mcl_{it} , Fer_{it} , Pos_{it} and Ins_{it} are the control variables, α_i is the impact coefficients, β_0 is the intercept term,

μ_i is the regional fixed effect, and σ_t is the time fixed effect, ε_{it} is the random disturbance term.

Model 2: The transmission mechanism of digital economy development to rural resident' income.

Firstly, the total effect of the development level of digital economy on the income level of rural residents is analyzed. This is shown in equation (3):

$$\text{Income}_{it} = \theta_0 \text{Dle}_{it} + \theta_1 \text{Gov}_{it} + \theta_2 \text{Mcl}_{it} + \theta_3 \text{Fer}_{it} + \theta_4 \text{Pos}_{it} + \theta_5 \text{Ins}_{it} + \beta_1 + \mu_i + \sigma_t + \varepsilon_{it} \quad (3)$$

Then, we analyze whether the development level of digital economy has a significant impact on the level of scientific and technological innovation and the development speed of agricultural finance. The following equations (4) and (5) are shown:

$$\text{Sti}_{it} = \delta_0 \text{Dle}_{it} + \lambda_1 \text{Gov}_{it} + \lambda_2 \text{Mcl}_{it} + \lambda_3 \text{Fer}_{it} + \lambda_4 \text{Pos}_{it} + \lambda_5 \text{Ins}_{it} + \beta_2 + \mu_i + \sigma_t + \varepsilon_{it} \quad (4)$$

$$\text{Agr}_{it} = \delta_1 \text{Dle}_{it} + \lambda_6 \text{Gov}_{it} + \lambda_7 \text{Mcl}_{it} + \lambda_8 \text{Fer}_{it} + \lambda_9 \text{Pos}_{it} + \lambda_{10} \text{Ins}_{it} + \beta_3 + \mu_i + \sigma_t + \varepsilon_{it} \quad (5)$$

Finally, we analyze whether the increase in the level of digital economy development increases the income level of rural residents and analyze its transmission mechanism. That is to say, we analyze whether scientific and technological innovation and the accelerated development of agricultural finance can improve the income of rural residents, and obtains the contribution degree of two intermediary variables. The following equations (6) and (7) are shown:

$$\text{Income}_{it} = \rho_0 \text{Dle}_{it} + \rho_1 \text{Sti}_{it} + \xi_1 \text{Gov}_{it} + \xi_2 \text{Mcl}_{it} + \xi_3 \text{Fer}_{it} + \xi_4 \text{Pos}_{it} + \xi_5 \text{Ins}_{it} + \beta_4 + \mu_i + \sigma_t + \varepsilon_{it} \quad (6)$$

$$\text{Income}_{it} = \rho_2 \text{Dle}_{it} + \rho_3 \text{Agr}_{it} + \xi_6 \text{Gov}_{it} + \xi_7 \text{Mcl}_{it} + \xi_8 \text{Fer}_{it} + \xi_9 \text{Pos}_{it} + \xi_{10} \text{Ins}_{it} + \beta_5 + \mu_i + \sigma_t + \varepsilon_{it} \quad (7)$$

When θ_0 is significant, if δ_0 , δ_1 and ρ_1 , ρ_3 are significant at the same time, it shows that there is an obvious mediating effect. At the same time, if ρ_0 and ρ_2 are also significant, it shows that there is a partial mediating effect; If ρ_0 and ρ_2 are not significant, it means that there is a complete mediating effect.

5. Empirical analysis and testing

5.1 Benchmark regression results

Firstly, this paper uses Hausman test to judge whether to use the fixed effect model or a random effect model for regression analysis. Hausman test results are significant at 1% significance level, so this paper uses the fixed effect model.

Table 3: Direct effects of digital economy development.

	(1)	(2)	(3)
	Income	Income	Income
Dle	1.563*** (0.065)	0.630*** (0.057)	0.544*** (0.058)
Gov			0.403 (0.297)
Mcl			-0.009 (0.021)
Ins			0.001 (0.005)
Pos			0.201*** (0.051)
Fer			-0.244*** (0.081)
year	No	Yes	Yes
province	Yes	Yes	Yes
R ²	0.796	0.948	0.958
Note: *, **, *** represent 10%, 5%, and 1% significance levels respectively, and standard errors are in parentheses. The same is below.			

Table 3 shows the benchmark regression results of the direct effect of digital economy development. Columns (1), (2) and (3) in Table 3 are the regression results without time-fixed effect, time-fixed effect, time-fixed effect and control variables, all of which add province-fixed effect. From the regression results, it can be seen that the development of digital economy has a significant positive effect on rural residents' income, both at the level of 1%. The development of digital economy can help rural residents increase their income and promote rural revitalization as a whole. From the analysis of

control variables, we can find that rural delivery routes have a significant positive impact on the income of rural residents, while fertilizer input has a significant negative impact. It can be seen that the increase in rural delivery routes can promote rural residents to increase their income, while the increase in fertilizer input may increase the production cost of farmers, which in turn inhibits rural residents to increase their income.

5.2 Intermediation effect regression results

Table 4: Intermediation effect regression results.

	(1)	(2)	(3)	(4)	(5)
	Income	Sti	Income	Agr	Income
Dle	0.544*** (0.058)	0.346*** (0.028)	0.321*** (0.080)	0.437*** (0.067)	0.440*** (0.063)
Sti			0.645*** (0.169)		
Agr					0.238*** (0.070)
control	Yes	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes	Yes
province	Yes	Yes	Yes	Yes	Yes
R ²	0.958	0.845	0.962	0.455	0.961
Sobel		0.223*** (z=3.654)		0.104*** (z=3.009)	
Goodman-1		0.223*** (z=3.643)		0.104*** (z=2.982)	
Goodman-2		0.223*** (z=3.665)		0.104*** (z=3.038)	
Intermediary effect ratio		0.40954614		0.19118233	

Table 4 shows the regression results of mediating effects.

a) Scientific and technological innovation: From columns (2) and (3), it can be seen that the development of digital economy has a significant positive impact on scientific and technological innovation, and both the development of digital economy and scientific and technological innovation have a significant positive impact on the income of rural residents, both at the level of 1%. Comparing columns (1) and (3), it is found that the coefficient of digital economy development index has obviously decreased. Therefore, scientific and technological innovation has a partial intermediary effect between the development of digital economy and the income of rural residents. The proportion of the mediating effect is 40.95%. In this paper, the results of three significance tests, Sobel, Goodman1, and Goodman2 tests, were obtained by Sgmediation command, and all of them were significant. The analysis shows that the development of digital economy can increase the income of rural residents by promoting scientific and technological innovation.

b) Accelerated agricultural financial development: From columns (4) and (5) it can be seen that the development of the digital economy has a significant positive effect on the speed of agricultural financial development, and both of them have a significant positive effect on the income of rural residents, both significant at the 1% level. Comparing columns (1) and (5) also reveals that there is a significant decrease in the coefficient of digital economy development index and there is a partial intermediary effect. The proportion of intermediary effect is 19.12%, and the test results of Sobel, Goodman 1 and Goodman 2 are significant. It can be seen that the development of digital economy can accelerate the development of agricultural finance, and then realize the income increase for rural residents.

5.3 Robustness tests

a. Replace core explanatory variables: In this paper, the weighting method adopted by Jun Liu et al (2020) ^[18] is used for reference to construct a new core explanatory variable to replace the digital economy development index constructed by entropy method above. Table 5 shows the regression results after replacing the core explanatory variables. From the test results, the development of digital economy still plays a significant role in promoting the income of rural residents, and the intermediary effect of scientific and technological innovation and agricultural financial development speed is still significant, which is consistent with the benchmark regression results.

b. Replace the explained variable: In order to further test the effectiveness of benchmark regression, this paper takes the per capita wage income of rural residents as the explained variable to replace the above per capita disposable income of rural residents. Table 6 shows the regression results after replacing the explained variables, which is basically consistent with the above regression results.

Table 5: Replace core explanatory variables.

	(1)	(2)	(3)	(4)	(5)
	Income	Sti	Income	Agr	Income
Dle	0.687*** (0.096)	0.474*** (0.046)	0.260** (0.115)	0.569*** (0.106)	0.504*** (0.099)
Sti			0.900*** (0.159)		
Agr					0.321*** (0.072)
control	Yes	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes	Yes
province	Yes	Yes	Yes	Yes	Yes
R ²	0.950	0.812	0.959	0.411	0.956
Sobel		0.427*** (z=4.954)		0.183*** (z=3.432)	
Goodman-1		0.427*** (z=4.936)		0.183*** (z=3.398)	
Goodman-2		0.427*** (z=4.972)		0.183*** (z=3.468)	
Intermediary effect ratio		0.62132813		0.26624739	

Table 6: Replace the explained variable.

	(1)	(2)	(3)	(4)	(5)
	Income	Sti	Income	Agr	Income
Dle	0.339*** (0.043)	0.346*** (0.028)	0.250*** (0.061)	0.437*** (0.067)	0.281*** (0.048)
Sti			0.260** (0.129)		
Agr					0.133** (0.053)
control	Yes	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes	Yes
province	Yes	Yes	Yes	Yes	Yes
R ²	0.887	0.845	0.890	0.455	0.892
Sobel		0.090** (z=1.986)		0.058** (z=2.348)	
Goodman-1		0.090** (z=1.98)		0.058** (z=2.324)	
Goodman-2		0.090** (z=1.993)		0.058** (z=2.373)	
Intermediary effect ratio		0.26442565		0.17074424	

5.4 Endogeneity test

Table 7: Endogeneity test

	(1)	(2)
	Dle	Income
L.dle	1.058*** (0.029)	
Dle		0.503*** (0.056)
control	Yes	Yes
year	Yes	Yes
province	Yes	Yes
R ²	0.997	0.995
LM	15.847[0.000]	
Wald F	357.706{16.38}	

Note: [] is the P value and {} is the critical value at the 10% level of the Stock-Yogo test.

To alleviate the endogeneity due to omitted variables, measurement error and two-way causality, the lagged one-period of the digital economy development level index (L.dle) is chosen as the instrumental variable in this paper for the 2SLS regression. Table 7 shows the regression results after considering endogeneity, and it can be seen that the results are consistent with the previous results. In addition, the LM value of Kleibergen-Paap rk significantly rejects the original hypothesis at the 1% level, indicating that the instrumental variable meets the identifiability requirement; The Wald F value of Kleibergen-Paap rk is larger than the critical value at the 10% level of the Stock-Yogo test, indicating that it passes the weak instrumental variable test. Therefore, the conclusion that the development of digital economy improves the income of rural residents and then promotes rural revitalization has been further verified.

5.5 Heterogeneity analysis

Considering the differences in regional development, this paper divides 30 provinces in China into three regions: eastern, central and western, and explores the differences in the impact of digital economy development on rural residents' income. Table 8 shows the regression results after dividing regions. The results show that the development of digital economy has a significant positive impact on the income of rural residents in all regions, which is significant at 10% level in the eastern and central regions, significant at 1% level in the western regions, and the coefficient is the largest in the western regions. It can be seen that in areas with relatively backward economic development, the greater the promotion of digital economy to rural residents' income, the greater the promotion of rural revitalization.

Table 8: Regional heterogeneity analysis.

	Eastern	Central	Western
	(1)	(2)	(3)
	Income	Income	Income
Dle	0.159*	0.384*	0.465***
	(0.082)	(0.191)	(0.088)
control	Yes	Yes	Yes
year	Yes	Yes	Yes
province	Yes	Yes	Yes
R ²	0.975	0.992	0.992

6. Conclusions

This paper selects provincial panel data from 2015 to 2020, constructs fixed effect and intermediary effect models, and analyzes the influence of digital economy on rural residents' income level and its effect mechanism. The results show that: First, the development of digital economy can significantly improve the income level of rural residents. Second, the development of digital economy can increase the income of rural residents by promoting scientific and technological innovation and accelerating the development of agricultural finance. Third, the development of digital economy has a more significant role in promoting the income of rural residents in Western China.

Based on the above findings, the following suggestions are provided:

First, we should increase the construction of rural digitalization. It is necessary to actively improve the rural digital infrastructure, strengthen the construction of infrastructure such as Internet of Things, Internet and communication network, and ensure the stable and smooth communication signals of rural networks. At the same time, improve the digital literacy of rural residents, let rural residents understand and make good use of the Internet, and maximize the efficiency of digital economy empowering rural revitalization.

Second, we should actively encourage scientific and technological innovation. The government should actively introduce and cultivate innovative talents in science and technology, train a group of digital talents who are deeply involved in Internet technology and issues concerning agriculture, rural areas and farmers, and provide corresponding financial support to encourage innovation in agricultural science and technology. At the same time, grasp the innovative development of agricultural science and technology by digital technology, improve agricultural production efficiency, accelerate agricultural and rural modernization, and comprehensively promote rural revitalization.

Third, we should strengthen financial support for agriculture. The government should accelerate the digital transformation of agricultural finance, and combine with local characteristic industries to launch digital financial products with local characteristics, so as to reduce the financing costs of local residents, enhance the availability of loans, provide better financial support for local residents and industries, promote the development of local industries and increase residents' income.

Fourth, the government should improve the regionally differentiated digital economy strategy. The government should formulate preferential policies to attract digital talents to the western region and strengthen the digital construction of the western region, so that the development of digital economy can better promote the development of the western region. At the same time, strengthen the construction of digital infrastructure in the western region, narrow the digital gap between the eastern, central and western regions, and accelerate the economic development of the western region.

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