Research on the impact of digital inclusive finance on farmers' entrepreneurial decisions

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Abstract. This essay explores the relationship between DIF (digital inclusive finance) and farmers' entrepreneurship. This essay points out that DIF improves the financing availability of farmers not covered by non-traditional finance through Internet technology, thereby motivating farmers to start their own business. Based on the CHFS (China Household Finance Survey) data and the Peking University DIF Index, this essay proposes two research questions: first, whether DIF motivates farmers' entrepreneurship, and second, the impact mechanism on farmers' entrepreneurship. Through analysis, the research concludes that the DIF index significantly correlates with farmers' entrepreneurial activities, among which the impact of DIF width of coverage is the main mechanism. The research reveals that width of coverage significantly increases the possibility of farmers' entrepreneurship mainly by increasing the availability of financing channels. In contrast, the depth of coverage has little impact on entrepreneurial decisions. Finally, the research proposed some policy recommendations, such as expanding the coverage of DIF and strengthening farmers' financial awareness education, and emphasizes that in future research, the measurement indicators of DIF should be further optimized, and time series data should be added to deeply analyze its long-term impact on farmers' entrepreneurship.

Keywords: DIF(Digital inclusive finance); Chinese farmer; entrepreneurial decisions.

1. Introduction

1.1 Research Context

With development of the rural economy and the further improvement of the overall rural environment, the number of farmers who decides to start businesses has increased significantly. However, financial support is essential for the starting of farmers' entrepreneurial activities. In current research, financial constraints (Bohacek, 2006; Cheng and Luo, 2009; Ahlstrom and Bruton, 2010) are generally regarded as the main reasons for the low entrepreneurial rate and high failure rate of farmers. Relevant studies have also confirmed that a stable capital supply chain is an inevitable condition for entrepreneurship. The financial system can provide a stable capital flow for entrepreneurial projects, which is a prerequisite for the development of projects (Welter and Smallbone, 2014; Acharya and Xu, 2016; He and Li, 2019). Inclusive finance, which focuses on serving farmers, actively explores pricing strategies that are suitable for them, directly or indirectly guides various financial institutions to serve rural areas, and effectively provides supporting financial supply for farmers' entrepreneurship. With the help of DIF (digital inclusive finance) that has emerged with Internet technology and mobile terminals, it reduces transaction costs and enriches transaction varieties through technical means, and improves the coverage width for those not covered by traditional financial formats.

Looking at the existing literature, the origin, basic meaning and development status of DIF have been discussed in a comprehensive and in-depth manner, with a focus that that DIF can alleviate financial exclusion. Therefore, the current hot research mainly discusses how DIF can influence the development of financial markets and farmers' income (Hu and Zhang, 2014; Li and Feng, 2020; Zhang, 2021). At present, there is still a lack of attention and in-depth thinking on the impact of DIF on farmers' entrepreneurship, and the impact of the sub-indicators included in DIF on farmers' entrepreneurship is not clear (Xie et al., 2018; Feng and Cai, 2021; Luo and Zhang, 2021). At present,

relevant research on the impact of DIF on farmers' entrepreneurship is still insufficient and needs to be improved.

1.2 Research Questions

This research carefully clarifies the actual development situation, combines the CHFS data and the Peking University DIF Index, and focuses on studying the impact of the development of DIF on farmers' entrepreneurship. This study raises the following questions: Does DIF promote farmers' entrepreneurship? If DIF can affect farmers' entrepreneurship, what is the impact mechanism?

1.3 Research Significance

From an academic perspective, scholars have conducted a lot of research on the relationship between traditional financial development and entrepreneurship, but there is a lack of research on how DIF influences farmers' entrepreneurship. At present, most of the research related to DIF in the field of entrepreneurship uses macro data or small-scale surveys. This research uses the CFPS data to conduct a systematic study of entrepreneurial behavior from a micro perspective. This research studies the impact mechanism of DIF on farmers' entrepreneurship. The research results will help to sort out the inherent theoretical connection between DIF and farmers' entrepreneurship and enrich related research.

In practice, the study of the factors influencing farmers' decision to start a new business is conducive to enhancing farmers' and other entrepreneurial entities' understanding of entrepreneurship-related issues, making practical and feasible entrepreneurial decisions, and increasing the probability of entrepreneurial success. In addition, it helps policymakers adjust relevant strategies and provide appropriate subsidy support policies for farmers' entrepreneurship, which has important practical significance for studying the relationship between farmers' entrepreneurship and employment and rural revitalization in China.

2. Literature Review

2.1 Definition of Key Conceptions

The UN first proposed the definition of "inclusive finance" in 2005, aiming to expand the scope of financial services as much as possible so that everyone can equally enjoy the benefits of financial services. DIF generally refers to the development of traditional financial services supported by various digital technologies (Xing, 2021). On the premise of sustainable development of service providers and beneficiaries, it allows people at the bottom of society who were previously difficult for financial institutions to reach to have the opportunity to enjoy financial services that meet their needs (Ge and Zhu, 2018).

Farmer entrepreneurship is a process in which farmers who have entrepreneurial motivation, spirit, ability, and conditions, take a family, formal organization, or informal organization as a unit (Guo, 2006b), in the process of seeking survival, opening up the market and creating value, integrate production factors and innovate management methods (Wu et al., 2006), to optimize efficiency and maximize benefits and employment. Guo (2006b) analyzes the entrepreneurial process and divides the forms of farmer entrepreneurship in my country into three types: the first is the resource development type relying on local agricultural resources, the second is the self-employment type based on non-agricultural resource advantages and personal management resources, and the third is the migrant worker entrepreneurship type in which farmers with weak foundations carry out primitive accumulation in the form of labor export.

2.2 Related research on the impact of DIF on farmers' entrepreneurship

Finance is one of the important factors affecting entrepreneurial activities. Under the condition of sound economic and political systems, financial development can empower the appearance of

entrepreneurial activities (Dutta and Meierrieks, 2021). The application of digital technology also plays a key role in promoting entrepreneurship (Nambisan, 2017). Digital technologies can discover consumer preferences and current social problems through data analysis, thereby helping potential entrepreneurs find entrepreneurial opportunities. DIF provides convenience and flexibility for entrepreneurial activities, which will encourage more people to choose entrepreneurship (Chen, 2016). DIF expands the scope of financial services, reduces the risks of both financial institutions and users, and improves financial security (He, 2019). Therefore, farmers with entrepreneurial motivation are more likely to make entrepreneurial decisions because of the financial supports (Asli et al., 2017). DIF's online payment, online credit, online insurance, online financial management, and other businesses enable farmers to enjoy efficient and convenient financial supports, reduce financing cost, and further reduce the cost of starting a business (Fenwick et al., 2018; Elisa et al., 2021).

Zhang et al. (2019) adopts the China Family Panel Studies (CFPS) data to explore how DIF empowered inclusive growth and found that DIF can significantly promote the entrepreneurial behavior of residents in rural areas, but the entrepreneurial effect on urban residents is not significant. At the same time, it was found that for families with less social capital, the entrepreneurial effect of DIF is stronger. Liu et al. (2021) used the same data to explore the comprehensive impact of multidimensional education and DIF on farmers' entrepreneurial choices. The study found that the development of DIF has relaxed the constraints of academic education on entrepreneurial behavior and is crucial in the entrepreneurial process of farmers. Zhang and Wu (2021) used newly registered industrial and commercial enterprises as a proxy variable for entrepreneurship. In the process of exploring the impact of DIF on residents' income distribution, they found that DIF can help encourage rural residents to engage in entrepreneurial activities and improve their income level, thereby alleviating the problem of unfair income distribution, but DIF has no effect on the entrepreneurial behavior of urban residents. Song and Li (2021) used survey data on farmers' entrepreneurial behavior in the Three Gorges Reservoir area to construct a Probit model and found that both digital finance and financial literacy have a positive impact on farmers' entrepreneurship. Zhang and Huang (2021) matched the Peking University DIF Index with the China Labor Force Survey (CLDS) data to study how digital financial influence the self-employment among rural labors. Their findings showed that DIF has a more significant positive effect on farmers becoming self-employed, and this effect is more significant in economically underdeveloped areas and groups with low education levels.

In summary, past empirical studies have found that digital inclusion is significantly related farmers' entrepreneurship, but the data sources are different and there is a lack of research data from the latest round of CHFS surveys.

2.3 Related research on factors affecting entrepreneurial behavior

The factors influencing entrepreneurship mainly include the individual level and the family level.

The first perspective mainly refers to the impact of the individual characteristics of entrepreneurs on entrepreneurial behavior. Bosma et al. (2000) analyzed the survey data of 2,000 start-up companies in the Netherlands conducted by EIM in 1994. The results showed that male entrepreneurs tends to be more willing to run new business and succeed in starting a business. Chen et al. (2014) found that compared with young people and the elderly, middle-aged people were more likely to start a business. Zhu et al. (2010) collected data from 1,145 migrant workers and found that married people were more likely to start a business. Kolstad and Wiig (2015) used data from 1,900 companies in the Second Integrated Household Survey (IHS-2) of Malawi from 2004 to 2005 to explore how education attainment influences entrepreneurship. The conclusion is that higher educated citizens are more motivated to start a business.

The second perspective refers to the characteristics of the entrepreneur's family. Lindquist et al. (2015) analyzed a large amount of comparable entrepreneurial data and concluded that father's start up experience would stimulate child's passion to start new businesses by about 60%. Yang et al. (2017) studied the data from the 2016 "China Thousand Village Survey" and found that if the family background is good, such as someone in the family has a high job status, it will encourage family

members to run a new business. Zhu(2010) found that there is a significant correlation between factors such as the number of family members and the area of contracted arable land in rural families and the probability of farmers starting their own businesses. In particular, family wealth is also one of the important factors affecting farmers' entrepreneurial decisions (Gai et al, 2013). The more human capital and material capital a family accumulates, the more competitive it will be in the labor market. It will fully mobilize its subjective initiative, try its best to seek exogenous financial support, and flexibly use relevant financial policies and products, thereby increasing the possibility of entrepreneurial decisions (Dong et al, 2019). Through intergenerational inheritance in the family, the entrepreneurial spirit may be passed on to the next generation, and their children are likely to choose to start their own businesses (Malecki, 2018).

3. Empirical Analysis

3.1 Research Design

3.3.1 Data Source

This essay combines macro data with microdata to conduct empirical analysis, mainly including two aspects.

China's DIF index system is jointly compiled by the DIF Research Center of Peking University and Ant Financial Group. Referring to Guo et al. (2020)’s methodology, this research uses the China DIF Development Index as a proxy variable with sub factors width of coverage and depth of coverage. To correspond to the microdata of the China Family Panel Studies, this research selects the DIF index at the provincial level.

China Family Panel Studies (CFPS) mainly includes four categories: community survey, family survey, adult survey, and children's survey. Considering the timeliness of the data, this essay uses the 2020 CFPS data as the research. Relevant factors affecting farmers' entrepreneurial decisions are selected from the adult questionnaire and the family questionnaire.

3.3.2 Variable Selection

According to the relevant research in the literature review, we know that DIF Index, personal factors, and family factors are all possible influencing factors of entrepreneurial decision-making. Among them, the DIF Index includes the width of coverage and depth of coverage. Personal factors include gender, age, and education level, and family factors include total family earning and family cash assets. The dependent variable is farmer's entrepreneurial decision (ED). Entrepreneurial behavior has great uncertainty. For farmers, the risk of entrepreneurship is often not borne by one person. Therefore, this paper defines farmers' entrepreneurial behavior as a family behavior. This research draws on the practice of Ju (2020) to select the question "Has any family member engaged in individual private activities or started a private enterprise in the past year?" in the 2018 CFPS family questionnaire as the basis for constructing the virtual variable "farmer's entrepreneurial decision". If the farmer answers "yes", the variable is assigned a value of 1, otherwise it is assigned a value of 0. The specific content is shown in Table 1:

Table 1 Research Variables

Variables Classification	Variables	Definition
Dependent Variable	Entrepreneurship Decision	Not started a business = 0; started a business = 1
Independent Variable	DIF Index	Indicator from database
	Width of coverage	Sub Indicator from database
	Depth of coverage	Sub Indicator from database
	Gender	Male=1 Female = 2
	Age	16 - 60 years old

Control Variable	Education Level	No education experience = 1;
		primary school = 2;
		junior high school = 3;
		senior high school = 4;
		technical secondary school = 5;
		College = 6;
		Bachelor's degree = 7;
		Master's degree = 8;
		Doctorate = 9

	family earning	"Total work income (RMB/year)" includes wages, bonuses, and various cash and in-kind benefits or subsidies. How much was the total annual family earning?
	Family Cash Asset	How much is the total cash and savings of all family members in your family?

3.3.3 Research Hypothesis

$H_1$1: DIF significantly affects farmers' willingness to start a businesses.

3.2 Descriptive Statistical Analysis

Table 2 Descriptive Statistical Analysis

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Entrepreneurship	5091	0	1	.11	.313
index	5091	3.0550	4.3193	3.351187	.2640115
Width of coverage	5091	2.905	3.970	3.22498	.209477
Depth of coverage	5091	2.5820	4.8868	3.256984	.4732243
Family Asset	4792	0	6000000	38757.68	130626.065
family earning	3181	0	600000	44278.98	40015.569
gender	5091	1	2	1.58	.493
age	5085	4	108	44.25	18.139
Education Level	5091	1	9	3.38	1.763
Valid N (listwise)	3020				

According to Table 2, among all the rural population surveyed, 11% of them chose to start a business. From the perspective of DIF, although the overall average score is around 3.35, the differences between regions are still obvious in this index. The average score of width of coverage and depth of coverage is 3.22 and 3.26 while the variance of coverage depth is more larger reflecting the differences in DIF usage frequnecy. In terms of gender, there are more women in the database, because women have a higher response rate to telephone surveys, and the average age is 44.25 years old indicating that the samples are mature population. In general, the education level is relatively low, with an average of 3-4 points. From the perspective of household cash assets and eranings, the differences are also quite obvious, and rural income is less stored in cash assets suggesting that wealth is unevenly distributed.

3.3 Correlation Analysis

Because entrepreneurial decision is a binary variable, this study uses Spearman correlation analysis.

Table 3 Correlation Analysis

Correlations			
			Entrepreneurship

Spearman's rho	Entrepreneurship	Correlation Coefficient	1
		Sig. (2-tailed)	.
		N	5091
	index	Correlation Coefficient	.218**
		Sig. (2-tailed)	0
		N	5091
	Width of coverage	Correlation Coefficient	.216**
		Sig. (2-tailed)	0
		N	5091
	Depth of coverage	Correlation Coefficient	.198**
		Sig. (2-tailed)	0
		N	5091
	Family Asset	Correlation Coefficient	.128**
		Sig. (2-tailed)	0
		N	4792
	family earning	Correlation Coefficient	.052**
		Sig. (2-tailed)	0.003
		N	3181
	gender	Correlation Coefficient	-0.016
		Sig. (2-tailed)	0.265
		N	5091
	age	Correlation Coefficient	-0.001
		Sig. (2-tailed)	0.938
		N	5085
	education	Correlation Coefficient	0.001
		Sig. (2-tailed)	0.95
		N	5091
** Correlation is significant at the 0.01 level (2-tailed).			
* Correlation is significant at the 0.05 level (2-tailed).			

From the correlation analysis showing in the table above, it can be seen that the DIF index, family cash assets, and family earning are all significantly correlated with rural entrepreneurship decisions, and their p-values are all less than 0.05. Among those factors, the DIF index is moderately correlated with rural entrepreneurship decisions with Spearman's rho > 0.2, while household cash assets and household income are weakly correlated with rural entrepreneurship decisions with Spearman's rho < 0.2. These research findings aligned with the previous student research results, revealing that the DIF index, household cash assets, and household income have continued to promote farmers' entrepreneurial decisions from 2018 to 2020.

However, unlike previous studies, gender did not show a significant difference. The main reason is that with the development of society, the gap between women and men is narrowing. Data perspective shows that the average assets of female-led households are 40,000 yuan, which is greater than the 36,000 yuan of male-led households, indicating that women have certain advantages over men in capital accumulation, which is one of the important conditions for entrepreneurship (Tan and Ye, 2020). In addition, unlike previous studies, age also did not show an impact on rural entrepreneurship. From the data perspective, it can be seen that the age of rural entrepreneurs is concentrated between 28 and 41. Farmers in this age group have certain experience and experience and have accumulated certain financial and social resources, so they are more motivated to start a business. Younger people still lack certain experience and accumulation, while older people may bear greater family pressure, have a higher risk aversion awareness, and their physical functions are

declining (Yin, 2015), so the relationship between age and entrepreneurial decisions may not be linear. From the perspective of education level, there is no obvious correlation with rural entrepreneurship. The main reason for this difference from international research is that the main direction of rural entrepreneurship in China is more individual businesses, mainly in life service industries, and these industries lack the appeal to highly educated talents to start businesses (Zhang, 2013).

Hypothesis Test

$H_1$1: DIF significantly affects farmers' willingness to start a businesses.

As the correlations between the DIF index and farmers' decision to start businesses with a p-value < 0.5, reject H0 and accept H1, DIF is ignificantly related with farmers' decision to start businesses.

3.4 Regression Analysis

3.4.1 Regression Model 1

Through descriptive statistical analysis, we can see that because the variables involved in this study, such as DIF index, gender, education level, income, assets, etc., do not show normal distribution, and the dependent variable, namely farmers' entrepreneurial decision, is a binary variable, this study uses a logistic regression model instead of probit model for modeling.

The variables that are significantly related with farmers' entrepreneurial decisions in the correlation analysis include the DIF index, household income, and household cash assets, and the constructed binary logistic regression model is as follows: Logit (ED) = ln[$P_{ED}/(1-P_{ED})$] = β+ β_1 * DIF index + β_2 * Family cash asset + β_3 * family earning

Table 4 Regression Model 1

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	180.879	3	.000
	Block	180.879	3	.000
	Model	180.879	3	.000

Model Summary

Step	-2 Log likelihood	Nagelkerke R Square
1	1818.194a	.120

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	index	2.641	.210	158.349	1	.000	14.024
	Family Cash Asset	.000	.000	.855	1	.355	1.000
	family earning	.000	.000	.213	1	.645	1.000
	Constant	-11.195	.715	245.456	1	.000	.000

a. Variable(s) entered on step 1: index, Family Asset, family earning.

Through the logistic regression of farmers' entrepreneurial decisions, it can be seen that this model is significant with a p-value < 0.05. When the DIF index, household cash assets, and household income play a role together, only the DIF index is significant in the prediction model of farmers' entrepreneurial decisions with a coefficient of 2.641， indicating that controlling other factors remain unchanged, a 1% increase in the DIF index can increase the occurrence of farmers' entrepreneurial decisions by 2.64%. The modeling formula is as follows: Logit (ED) = ln[$P_{ED}/(1-P_{ED})$] = -11.195+ 2.641* DIF index.

This is aligned with previous studies. The important factor that determines farmers' entrepreneurial decisions and entrepreneurial performance is their disposable income (Zhang and Wen, 2020). Digital payment allows financial institutions to obtain farmers' financial information traces. DIF adjusts farmers' income and then affects farmers' entrepreneurial activities, solving the problem of farmers'

difficulty in financing, that is, solving the situation where farmers can only rely on free income and cash assets to start a business (Zou and Wang, 2020).

3.4.2 Regression Model 2

To further explore the influence mechanism of DIF on farmers' entrepreneurial decisions, this study explores the DIF index into width of coverage ndex and depth of coverage index. Coverage width refers to the coverage of users, and depth refers to the frequency of use of users (He, 2019). Combining household cash asset variables and household income variables, the established regression model is as follows: Logit (ED) = ln[$P_{ED}/(1-P_{ED})$] = β+ β_1 * coverage of width + β_2 * coverage of depth +β_3 * Family cash asset + β_4 * family earning

Table 5 Regression Model 2

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	183.585	4	.000
	Block	183.585	4	.000
	Model	183.585	4	.000

Model Summary

Step	-2 Log likelihood	Nagelkerke R Square
1	1815.488a	.122

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	Width of coverage	2.396	.527	20.659	1	.000	10.984
	Depth of coverage	.469	.241	3.782	1	.052	1.598
	FamilyAsset	.000	.000	.903	1	.342	1.000
	FamilyIncome	.000	.000	.295	1	.587	1.000
	Constant	-11.598	1.097	111.709	1	.000	.000

a. Variable(s) entered on step 1: width of coverage, depth of coverage, Family Asset, family earning.

The logistic regression of farmers' entrepreneurial decision-making shows that the model is solid, with a p-value of <0.05. When the width of coverage, coverage depth, household cash assets, and household income of DIF work together, only the width of coverage of DIF is significant in the prediction model of farmers' entrepreneurial decision-making, with a coefficient of 2.396. This means that, with other factors unchanged, every 1% increase in the DIF index can increase the incidence of farmers' entrepreneurial decisions by 2.40%. The modeling formula is as follows: Logit (ED) = ln[$P_{ED}/(1-P_{ED})$] = -11.598 + 2.396* coverage of width.

The second regression model further reveals the influence mechanism of DIF on farmers' decision to start a business. Compared with the coverage depth of DIF (frequency of farmers' use), the width of DIF coverage impact farmers' entrepreneurship more significantly. This is consistent with the research results of Huang and Zeng (2021). They found through spatial channel effect analysis that the width of coverage has a positive spatial spillover effect on entrepreneurial activity, and the depth of use has no significant impact. The reason why width of coverage plays a major role is that width of coverage is mainly measured by the number of Alipay accounts and the proportion of card-bound users, reflecting the coverage rate of the account. Because the initial investment in entrepreneurship is mostly a one-time investment, the availability of financing (the width of coverage of DIF) has a

more significant impact on entrepreneurial decisions than the frequency of DIF usage (Zhang et al, 2019).

In summary, inclusive finance with farmers as the key service objects actively explores pricing strategies that are suitable for them, directly or indirectly guides various financial institutions to serve undeveloped regions, and effectively provides supporting financial supply for farmers to start a business. DIF, which has emerged with the help of Internet technology and mobile terminals, has improved the availability of financial supports for groups not covered by traditional financial formats through technical means, thereby solving financing needs and influencing farmers' entrepreneurial decisions (Feng and Cai, 2021).

4. Conclusion

4.1 Conclusions

Rural entrepreneurship is an effective way to promote rural economic growth and advance the rural revitalization strategy. Farmers' entrepreneurship can fully mobilize local innovation vitality and farmers' enthusiasm, change traditional production and operation models, promote rural farmers' income growth and quality of life. DIF can provide more stable and convenient financing and service channels through the advantages of digital means, stimulate the starting of entrepreneurial activities, and thus accelerate the evolution of rural economy and society.

Based on the 2020 CFPS and the 2020 Peking University DIF data, this research uses a binary logistic model to empirically test the impact of my country's DIF development on farmers' entrepreneurship. At the same time, the impact of different sub-dimension indicators of DIF on farmers' entrepreneurship are studied. Combining theoretical analysis with empirical evidence, the research findings are obtained: (1) The DIF index has a significant correlation with farmers' entrepreneurial activities. Further logistic regression shows that compared with factors such as household cash assets and household earnings, DIF is significant, while other personal and family factors are not significant. (2) Different dimensions of DIF have different impacts on farmers' decision to start businesses. The impact of width of coverage on farmers' entrepreneurship is significantly positive, while depth of coverage is not significantely affecting farmers' entrepreneurship. The impact mechanism shows that DIF increases the probability of entrepreneurial decisions by improving the availability of farmers' financing channels.

4.2 Suggestions

The width of DIF coverage should be improved. Deeply integrate traditional financial services and digital technologies in undeveloped regions, and continuously expand the coverage of financial products and services. Traditional financial institutions have been deeply involved in financial service methods, financial product design, and financial information acquisition for many years, while financial technology companies have unparalleled advantages in data acquisition and technology inclusion. The strong cooperation between the two sides will inevitably accelerate the realization of inclusive goals. To build a digital comprehensive inclusive financial system, it is necessary to achieve the downward and diversification of service objects by improving network coverage enriching payment methods, and designing agricultural financial products according to the actual needs of farmers to achieve the upgrading and diversification of service methods, so that farmers, agriculture and rural areas can truly enjoy convenient modern financial services and alleviate the capital constraints.

Improve farmers' awareness of DIF. Farmers in undeveloped regions with low cultural knowledge levels are slow to accept new things, and the popularization of DIF faces obstacles. It is possible to combine with local financial institutions to jointly organize financial knowledge popularization education activities to guide farmers to better understand financial market knowledge and risks. In addition to on-site explanations and traditional training forms, online courses and distance learning can be explored according to needs, and various types of financial knowledge courses can be offered,

such as interpretation of local rural financial policies, entrepreneurship support policies, financial product usage skills, risk assessment, and avoidance, etc. At the same time, for groups with entrepreneurial difficulties, entrepreneurial skills can be improved through entrepreneurial pairing assistance and other methods. Due to low-income levels and less wealth accumulation, there are obvarious barriers for farmers to obtain traditional financial supports. It is necessary to accelerate the promotion of farmers' acceptance of innovative financial models such as online payment and online lending, increase the use rate of mobile banking, expand the ways for farmers to participate in financial activities, enhance farmers' recognition of digital inclusive financial products, and provide convenience for farmers to carry out entrepreneurial activities.

4.3 Research Limitations and Future Research

First, the measurement of DIF. This research adopts the "DIF Development Index" compiled by Peking University. Although the index has been widely used in academia, it still has certain limitations. The data used in the compilation of the index is limited to Ant Group and the source is relatively single. In addition to Alipay, WeChat, JD.com, etc. are also important components of digital inclusive financial services. Their indicator system should cover more comprehensive data to accurately and objectively reflect the actual situation of DIF development.

Second, the limitations of variable selection. There are many factors impacting farmers' motivation to start business. Based on the limitations of questionnaire surveys and other factors, it is difficult to include all of them in the empirical research of this research. This research can only select some influencing factors for research, and it is difficult to construct a complete research framework for farmers' entrepreneurship.

Third, the limitations of the research method. This research adopted the truncated data of 2020 and does not continuously track the data on the timeline. If there are more years of data analysis, the evolution of the model of the role of DIF in farmers' entrepreneurship can be deeply analyzed and more targeted suggestions can be put forward.

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