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Development and Use of Rural Finance: A Case Study of Village A in Sichuan Province

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Abstract Mobile finance plays a great role in solving problems of rural finance, such as insufficient physical outlets and excessive high transaction cost. Based on the field survey data of Village A in Sichuan Province, analysis and study were carried out on the development and use of rural mobile finance. The results indicated that the degree of use of rural mobile finance is not high. Mobile finance is mainly used in the young and the middle aged people with high educational level, engaged in non-agricultural industry, and with lower middle income. The business is single and mainly concentrated in shopping and transfer of account.

Key words Rural mobile finance, Development diffusion, Use

1 Introduction

As a new means of finance, the mobile finance plays an increasingly important role in developing countries and regions, makes up for the shortage of traditional finance to a great extent, and is helpful for realizing satisfaction of basic financial services in these regions[1,6,7]. Research results of Allen and Macharia reflect that the mobile finance is favorable for increasing the household income[1,11]. Munyegera argued that the mobile finance can raise the consumption level[15]. Jack stated that the mobile finance increases the household net savings, and improve the allocation of savings of both households and enterprises. Allen and Munyegera pointed out that the mobile finance increases the status and rights of women in household to a certain extent[2,15]. Findings of Jack indicate that the mobile finance exerts an important influence on diversifying household risks[8]. Isacc stated that the use of M-PESA increases the agricultural employment[13]. According to existing research results, the mobile finance not only effectively realizes financial availability in remote rural areas, but also exerts a significantly positive effect on increasing the income, raising the consumption level, increasing the employment, and smoothing risks. Mobile finance can effectively break the time and space constraints, and overcome the shortcomings of traditional financial services. In 2012, China officially launched the pilot work of rural mobile finance, Jingdong, Taobao and other E-commerce providers have also marched to the rural market, which plays a great role in boosting the development of rural mobile finance. However, the rural mobile financial market starts late. The pilot work was launched only after 2012, and related studies are few. Therefore, it is very necessary to study the rural mobile finance. It can fill the gap in exiting studies, and also it can provide certain reference for formulation and implementation of policies.

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2 Data source

The data used in this study were selected from open database and field survey. The open database includes the overall report on operation of payment system (2012 – 2014) and survey report on Internet development in rural China (2008 – 2013). The data in empirical analysis came from the field survey carried out in Village A in Sichuan Province during May and July 2015.

3 Conditions for development of mobile finance in Village A

Mobile finance the finance based on carriers such as smart phone, wireless POS terminal, and tablet computer, carrying out financial activities such as transfer, payment and credit relying on mobile communication, near-field communication (NFC) technologies. The mobile financial service available for Village A is only far-field service. The development of mobile finance needs the support of mobile network, finance, technologies, and logistics. The survey results indicate that Village A has the above basic conditions.

3.1 Smart phone becoming the major device for surfing the Internet In the interview, the utilization rate of smart mobile devices of Village A was 100%, the business of surfing the Internet with smart phone was launched and popularized in Village A in 2010. Most respondents (47 households) used mobile phone, 14 households used desktop computer, and 3 households used tablet computer. 17 households selected two or three ways of Internet surfing, and 30 households selected one way of Internet surfing. The percentage of use of mobile devices was up to 81%, and mobile devices were mainly used by 15 – 45 years old people. In the interview, middle-aged and old people seldom used mobile devices, partly because they are not good at using smart phone and partly because they are unwilling to use mobile devices for worry of security.

3.2 Mobile network available for the whole village Accord-

ing to the interview results, in 2015, Village A has achieved 4G network coverage, business outlets of China Mobile provide card change services free of charge. However, not all villagers use 4G network, some villagers still use 2G and 3G networks. Network access is mainly achieved through package of mobile data traffic and WiFi. The WiFi mode can realize network share between neighbors. In the interview, we found that both network access methods have been realized in Village A and it can satisfy the use of mobile finance. By 2014, 47 households in Village A opened the network, and the network utilization rate reached 81%. Combined with the network sharing, the network has realized the coverage in the whole village, which provides the network guarantee for the development of mobile finance. The survey results indicate that 61 people used the package of mobile data traffic, 59 people installed wireless network, and 42 people used network of neighbors or friends. 60 people selected two or three methods of network access, and 32 people selected one method of network access.

3.3 Outlets of rural financial institutions (mainly Postal Savings Bank of China) providing mobile financial services Mobile financial businesses used by Village A households mainly include online shopping and transfer of account. According to the interview results, farmer households handle business mainly through the Postal Savings Bank of China, seldom used the rural credit cooperatives. In the interview, we found that various agricultural subsidies and rural pensions are distributed mainly through the rural credit cooperatives. Every household has the account of rural credit cooperatives, but the users are mainly the middle-aged and old villagers. Most young people said that they use the account of the Postal Savings Bank of China and did not use the account of rural credit cooperatives.

3.4 Government promoting the development of mobile finance in rural areas The existing rural mobile finance is mainly reflected in the far-field payment. In the process of utilization, there are problems of technologies and commodity screening. Besides, users need appropriate guidance and services. The Party construction of Village A promoted the construction of e-commerce experience points in March 2015. Since other cadres of the village committee are old, the workers of the experience points are undertaken by village cadres. Through professional training, it basically satisfies the technical guidance and service demands of mobile finance. However, by the time of our survey, e-commerce experience points have not played the substantive role in the development of mobile finance.

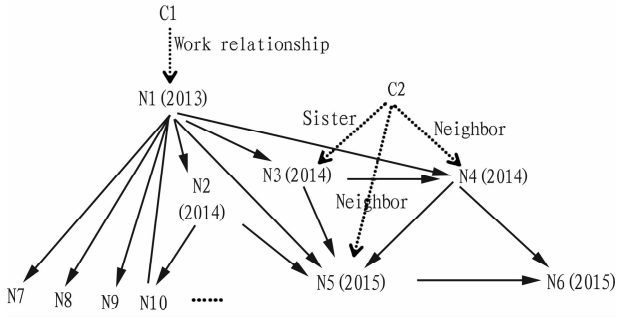
3.5 Logistics providing the village level services The mobile financial businesses farmers used are mobile shopping and transfer of account. Therefore, apart from network, financial and technical support, it also needs certain logistics platform to support. Existing logistics available in Village A include Yunda, ZTO, STO, SF Express, and YTO. Sites of these logistics have extended to the level of village and town. However, STO, Yunda, and ZTO collect 0 – 2 yuan extra charge for delivery to the town level, and S. F. and Best Express collect 5 yuan extra charge for delivery to the village level.

4 Basic situations of the development of mobile finance in Village A

4.1 Evolution and development of mobile finance In 2012, People's Bank of China launched the pilot work of mobile phone payment in 20 provinces and cities. From then on, the mobile finance is gradually developing in Village A. Even if mobile finance starts late, it develops rapidly in Village A. According to Table 1, only 4 people used mobile finance in 2013, while it increased more than 10 times in 2014. The rapid development is partly because Internet finance has realized somewhat development. It can be used just through installing corresponding service terminal in the mobile device. In other words, users can adapt to this new technology in a short period of time. The development of mobile finance in Village A originates from cities, and the mobile phone gets diffused in Village A by early users. Through interview, we knew that the earliest users of mobile finance in Village A first used the mobile finance during their migrant work in 2013 and introduced and diffused the mobile finance in Village A. The specific diffusion process is shown in Fig. 1. In a family, the closeness degree of relationship also directly affects the diffusion of mobile finance. Through interview, we found that the sister relationship is more favorable for the spread of mobile finance, while the sister-in-law relationship exerts an insignificant effect on the spread of mobile finance. For example, in the households of interviewees N2 and N9, husband's younger sisters went to colleges and used the mobile finance. Nevertheless, because the relationship between the sister and sister-in-law is not close, N2 and N9 said that they do not know how to use the mobile finance, but no person provides guidance.

Table 1 Changes in the number of users of mobile finance

	Number of new users person	Total number of users person
2013	4	4
2014	47	51
First half of 2015	39	90



Note: C denotes urban users, N denotes rural users, ·····> denotes the spread from urban residents to rural residents, and → denotes the spread among rural residents.

Fig. 1 Spread of mobile finance in Village A

4.2 Account opening of mobile finance The use of mobile fi-

nance is realized mainly relying on bank account. Therefore, users must have corresponding bank account to realize the functions of mobile finance. Through interview, we knew that the account opening mode of mobile finance used by villagers in Village A includes new accounts and existing online banking accounts. Among them, the new accounts also include online accounts and counter accounts. The specific account opening procedures and certifying documents are listed in Table 2.

Table 2 Introduction of account opening of mobile finance

Mode of account opening	Application procedure	Certifying materials to be submitted
New account opener Online account opening	Download Alipay App → Input ID card number and mobile phone number→ Input the bank account number	ID card number
Counter account opening	Fill in the application form over the counter → submit the ID card number and mobile phone number → obtain Taobao green card	Copy of ID card
Existing online banking account	Download Alipay App → add original online banking account	—

4.3 Categories of mobile finance users Rural area is acquaintance society, and resource sharing between neighbors is common. On this basis, not all users of mobile finance in Village A have their own accounts, some villagers use accounts of neighbors or friends to conduct online shopping. Therefore, mobile finance users can be divided into two categories: one is using their own mobile finance accounts, and the other is using accounts of others. Through interview, we found that those users of mobile finance do not have their own accounts are housewife with only primary school education. This is partly because some people do not want to open the account and they think they can not learn and do not want to learn, partly because they want to open the account but due to condition limit, for example, their mobile phones do not have the function of mobile finance, their certifying materials are incomplete or no person provides guidance.

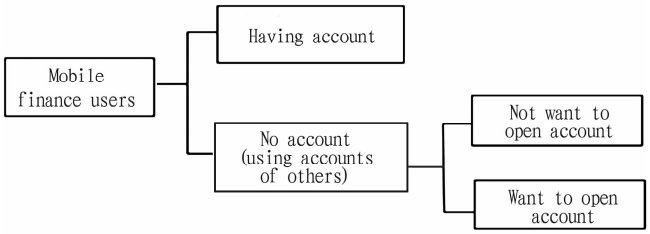


Fig. 2 Categories of mobile finance users

5 Use of rural mobile finance and characteristic analysis

5.1 Size of use of mobile finance in Village A The use of mobile finance needs a certain economic foundation. In this study, we limited the research range to the people older than 14 years old. According to the use of mobile finance, we divided farmer households into mobile finance users and mobile finance non-users. Through screening, 203 people fall into the scope, including 90 users, 113 non-users, the ratio is 44:56.

5.2 Use of mobile finance and characteristics Through interview, the use of mobile finance in Village A is mainly manifested in shopping and transfer of account. According to our survey, 73 farmer households used the mobile finance for shopping, accounting for 81.11%. 38 farmer households used the mobile finance for transfer of account, accounting for 43%. On the whole, more users use the mobile finance for shopping, while less users use the mobile finance for transfer of account. The percentage of users for shopping is significantly higher than that of users for transfer of account, up to 38.11 percentage points. According to the survey data, we carried out specific analysis from different characteristics of operation mode and users in Village A.

Table 3 Main uses of mobile finance

Functions of use	Main uses
Shopping	Clothing, footwear, food, home accessories, train, bus or air ticket, telephone expenses and fitness
Transfer of account	Transfer and remittance

5.3 Analysis of mobile shopping In Village A, there is no facility for supporting the near-field payment. The mobile shopping of farmer households relies on Internet to realize remote shopping, such as Taobao, Tmall, and Jingdong. The basic mode of mobile shopping of Village A is shown in Fig. 3. First, young and middle-aged people are main people of mobile shopping. From the age structure, no matter the male or the female, mobile shopping users were mainly concentrated in the group of 15 – 30 years old and 31 – 45 years old people, and 46 years old people never use mobile shopping. Regardless of the number of users and frequency of use, female users are significantly more than male users. Second, the number of mobile shopping users with junior middle school education is the largest. From the cultural level, the number of users of mobile shopping is highest in farmers with junior middle school, followed by senior middle school, college/university, primary school, special secondary school/vocational high school. At different cultural level, except the special secondary school/vocational high school, female users are more than male users. From the number of users, there is largest difference between male and female with primary school education, the number of female users is 5 times more than male users, followed by the ratio of female and male users with college/university education. Third, the number of workers using the mobile shopping is the largest. As to the profession, the largest number of users of mobile shopping is the worker group, following by workers having no work, people doing business, transport, construction, and farming. According to our survey, in professions of transport and construction, there is basically no female user, because no female farmer is engaged in these two professions. Fourth, the number of users with lower middle income is the largest. As to the income, the number of users with lower middle income (5001 – 20000 yuan) is the largest, followed by users with income lower than 5000 yuan and above 20001 yuan. Female users are more than male users in all groups of income lev-

el. Fifth, the number of users for buying clothes is the largest. In the different uses of mobile shopping, mobile shopping users mainly buy clothing, footwear, food, home accessories, train, bus or air ticket, telephone expenses and fitness. According to the survey data, except buying train and bus ticket and fitting tools and fishing gear, female mobile shopping users are more than male users. According to the above analysis, the users of mobile shopping in Village A are mainly 15 – 45 years old people, having junior middle school, mainly workers, and people with lower middle income (5001 – 20000 yuan). This result is consistent with analysis result of the selection stage. The degree of education, the organization of work unit, or unit size is directly proportional to the ratio of use of mobile finance, which is consistent with the theory of Rogers that the innovation is directly proportional to the social status. The income level and the percentage of use of mobile finance show a nonlinear relationship, which is consistent with the theory of Kensin slope theory put forward by Professor Kensin.

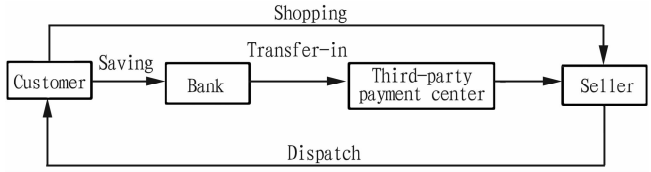


Fig. 3 Operation mode of mobile shopping

Table 4 Structure of mobile shopping

	Average value		Times of use	Amount of use//yuan
	Times	Amount//yuan		
Total	9.38	827.46	1 – 30	50 – 4000
Female	10.70	871.59	1 – 30	50 – 4000
Male	7.48	779.31	2 – 20	200 – 2000

5.4 Analysis of transfer of account with mobile phone

Through interview, it is known that the farmer households in Village A mainly used online banking service, Alipay, WeChat transfer, and WeChat bonus to realize transfer of account. The specific operation mode is shown in Fig. 4. Different from the mobile shopping, in the times and amount of use of the mobile transfer, the average times of use and amount of male users are higher than female users. The times of use of male users are 40 percentage points higher than female users, largely because the amount for transport and buildings is high and only men are engaged in these two fields. First, the young and middle-aged people are the largest group of using the mobile transfer. From the age structure, mobile transfer users were mainly concentrated in the group of 15 – 30 years old and 31 – 45 years old people, and 46 years old people never use mobile transfer. Second, people with junior middle school are the largest group of using the mobile transfer. As to the different cultural level, the number of users of mobile transfer is highest in farmers with junior middle school, followed by primary school, senior middle school, college/university, special secondary school/vocational high school. The people with college/university education are the highest group of times of use, followed by those with junior middle school, primary school, college/university, and vocational high school. According to the survey data, we found that the average times of use of mobile transfer is highest in female users with primary school and college/university education. Third, the worker group is the largest group of use of mobile transfer. As to the profession, the largest number of users of mobile transfer is the worker group, following by workers having no work, people doing business, transport, and building. No farmer used the mobile transfer, and the number of users in government departments and institutions is zero because there is no data of these users. On the whole, the times of use of mobile transfer are not high. Fourth, people with upper middle income use the mobile transfer more frequently. As to the income situation, the number of mobile transfer users with income of 20001 – 30000 yuan is the largest, followed by those with income of 30001 – 40000 yuan, 10001 – 20000 yuan, and 5001 – 10000 yuan, and the last is the user with income above 40001 yuan, and there is no user with income below 5000 yuan. In all income levels, the number of male users is higher than female users. Fifth, the transfer is mainly made between family members and friends. From the perspective of transfer objects, the objects of mobile transfer are mainly family members, friends and banks. Most users transfer money to family members, and receive money mainly from friends, only two users make transfer between their units or banks. On the whole, most users of mobile shopping are female, young and middle aged, those with junior middle school education, workers, and people with lower middle income. By contrast, most users of mobile transfer are male, young and middle aged, those with junior middle school education, workers, and people with upper middle income. These indicate that there are large differences in the gender and income between mobile shopping and mobile transfer. In the gender, the mobile shopping is mainly used by female people, while the mobile transfer is mainly used by male people. In the income level, the mobile shopping is mainly used by people with lower middle income, while the mobile transfer is mainly used by people with upper middle income.

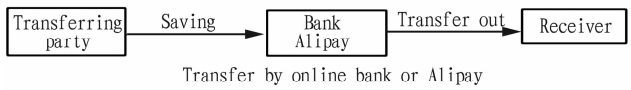


Fig. 4 Operation mode of mobile transfer

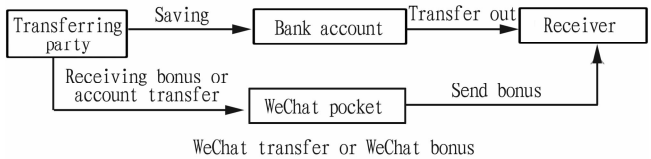


Fig. 5 Structure of mobile transfer

Table 5 Structure of mobile transfer

	Average value		Time of use	Amount of use//yuan
	Times	Amount//yuan		
Total	5.26	4704.21	2 – 10	80 – 80000
Female	4.58	381.67	2 – 10	80 – 1000
Male	6.43	12114.29	5 – 10	500 – 80000

6 Conclusions and recommendations

6.1 Conclusions Based on the field survey data of Village A in Sichuan Province, we analyzed and studied the development and use of rural mobile finance. According to study results, to a certain extent, Village A has these platforms for the development of mobile finance, but the degree of use of rural mobile finance is not high. Mobile finance is mainly used in the young and the middle aged people with high educational level, engaged in non-agricultural industry, and with lower middle income. The business is single and mainly concentrated in shopping and transfer of account.

6.2 Recommendations (i) It is recommended to simplify the procedure of use and strengthen the propaganda and guidance. From the current situation of rural population, old people are more than young people, male people are more than female people, and people with low quality are more than those with high quality. Therefore, to realize further development of mobile finance in rural areas, we should simplify the procedure of use, to adapt to current situation of rural population. Besides, it is recommended to strengthen propaganda and guidance, to solve the problem of not knowing how to use the mobile shopping and mobile transfer. (ii) It is recommended to enrich the grassroots personnel, enhance the propaganda, and improve the communication channel. In view of the existing situation in Village A, the development of mobile finance may be undertaken by villagers with rich experience, high educational level, and high entrepreneurial enthusiasm, and it is recommended to provide certain subsidy for them. Combining the mass communication channel and interpersonal communication together is more favorable for the promotion and spread of mobile finance. (iii) It is recommended to develop and improve the service platform. The development of mobile finance in Village A is restricted by poor infrastructure such as finance, technology, and logistics. For this issue, Village A can learn the experience of Kenya M-pesa, try to develop agents to provide financial, technical and logistics services. This can not only reduce the cost of services, but also can remove restrictions of mobile finance in time and area. (iv) It is recommended to establish rural mobile payment system and expand the business of rural mobile finance. The development of mobile finance in rural areas needs establishing suitable mobile payment system and expanding the business of mobile finance according to demands of rural residents. Apart from paying for daily life expenses, mobile finance businesses, such as shopping, payment, deposit, and withdrawal, will provide more convenience for rural residents.

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(From page 12)

tion is viewed by computer or mobile terminal through the Internet. Through the terminal control of greenhouse automation equipment, the remote automatic cultivation and management can be conducted. At the same time, the information related to disease and harvest is sent to on-site management and harvest staff for on-site management, harvest and distribution.

4 System design flow chart

The system design flow chartcan be shown in Fig. 1.

5 Conclusions

Leisure agriculture is a kind of high quality and efficient new form of modern agriculture, which can promote the interaction between urban and rural areas, realize the complementarity of urban and rural areas and promote the economic development of suburbs. It is an effective form to realize agricultural modernization. Urban citizens can not only experience the rural production mode on the farm, but also experience the rural way of life and local rural culture. As a senior form of leisure agriculture, the public farm is still in its infancy, and we should play the leading role of government. At the same time, it is necessary to innovate upon the public farm with different models and different themes adapting to the local market in different regional context. The "Internet + QQ farm" creative agriculture presented in this paper is the innovation based on the currently booming reality QQ farm, aimed at reducing cost, improving efficiency and optimizing human and material resource elements. It can make Internet provide technical support for intelligence-based life, leisure, entertainment, with good prospects for development.