

Research on Farmers' Response to E-Commerce Poverty Alleviation*

Quanchun Wang

College of Economics and Management
Yunnan Agricultural University
Kunming, China 650201

Lv Zhou

College of Economics and Management
Yunnan Agricultural University
Kunming, China 650201

Wei Long**

College of Economics and Management
Yunnan Agricultural University
Kunming, China 650201
**Corresponding Author

Abstract—The effect of rural e-commerce poverty alleviation mainly depends on the response of farmers. On the basis of behavioral science theory, this paper proposes the concept of farmers' response to e-commerce, studies the influence of factors such as personal endowment and social environment on the response, and analyzes the problems existing in the implementation of e-commerce poverty alleviation from the perspective of farmers' response. Further, it discusses the countermeasures and suggestions for improving farmers' response to e-commerce with respect to increasing farmers' cognition, enhancing their willingness to participate in e-commerce, promoting their participation in e-commerce, and creating conditions for farmers to overcome poverty.

Keywords: *rural e-commerce, e-commerce poverty alleviation, farmers' response to e-commerce, influencing factors*

I. INTRODUCTION

The rapid development of rural e-commerce has activated the endogenous driving force for the development of poverty-stricken areas, and the implementation of the e-commerce poverty alleviation has achieved certain results. Wherein, the direct effects are increasing income and becoming rich, saving expenditures and reducing poverty, entrepreneurship and employment; the indirect effects are changing concepts, industrial transformation, e-commerce spillovers, and harmonious rural area. Different from traditional poverty alleviation projects, e-commerce poverty alleviation is to implement e-commerce with respect to the poor in the main battlefield of poverty alleviation, and in poor counties and poor villages. E-commerce poverty

alleviation is participatory. Different effects may be obtained by different poverty subjects under different time and space conditions. Therefore, the effect of e-commerce poverty alleviation mainly depends on farmers' response.

Behavioral science theoretical research shows that human behavior is generated by motivation, while motivation is caused by internal needs and external stimuli. Human behavior is the result of the combined effect of multiple factors which constitute the environment; and behavior is precisely produced through the dynamic interaction between human and the environment. The inherent driving force causing the change of farmers' behavior is their need to improve their lives by developing production and increasing income. Rural e-commerce needs to promote the change of farmers' e-commerce behavior which is the initial motivation for their participation in e-commerce and the key to the practical promotion and implementation of e-commerce poverty alleviation. Therefore, in order to facilitate the implementation of e-commerce poverty alleviation, it is necessary to study farmers' e-commerce need, further analyze the factors affecting the changes of farmers' e-commerce behavior, find out the rules of changes of farmers' e-commerce behavior, mobilize farmers' positivity and subjective initiative to participate in e-commerce, and promote voluntary changes of their behaviors. At the same time, farmers' response to e-commerce is the inherent driving force for the development of rural e-commerce poverty alleviation. If farmers' response to e-commerce is not valued, the implementation of e-commerce or e-commerce poverty alleviation policies will inevitably encounter negative or passive responses from farmers, resulting in low efficiency or inefficiency. Therefore, from the perspective of farmers' response to e-commerce, analyzing the influencing factors and further discussing how to improve the feasibility for the poor to develop e-commerce is of positive significance for improving the effect of e-commerce poverty reduction.

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II. FARMERS' RESPONSE TO E-COMMERCE AND THE INFLUENCING FACTORS

The effect of e-commerce poverty alleviation depends on the industrial foundation, the implementation methods and the e-commerce participants. Among them, the participant is the core element of e-commerce poverty alleviation. The core participants are poor farmers (i.e., the objects and main body of e-commerce poverty alleviation). Their subjective initiative, action and determination are the main influencing factors of e-commerce poverty alleviation. If most poor farmers have a positive attitude and rapid action on e-commerce poverty alleviation, the implementation of this work will be more effective. Therefore, this study proposes the concept of farmers' response to e-commerce, and defines the response as farmers' e-commerce cognition, willingness to participate in e-commerce, and behavior of participating in e-commerce generated on the basis of their individual endowments and social environment. Individual endowment, economic factors, local favors, customs, regional characteristics, ideas, and so on have varying degrees of impact on farmers' response to e-commerce. At the same time, farmers' e-commerce cognition and willingness to participate in e-commerce also affect their final e-commerce participation behavior.

A. Farmers' e-commerce cognition and the influencing factors

1) Farmers' e-commerce cognition

Farmers' e-commerce cognition refers to farmers' understanding of e-commerce. To change human's behavior, the first thing is to change their cognition. Only by truly understanding the impact of e-commerce on life and production from a conscious level can farmers consciously think of using e-commerce to change their living and production conditions.

2) Analysis of the influencing factors

On the one hand, e-commerce poverty alleviation is generally implemented in places lacking resources, smooth transportation, and sound infrastructures. Therefore, due to the constraints of practical conditions, farmers have low cognition of e-commerce. On the other hand, poor farmers often have not so high education and quality levels that they have weak understanding and cognition of e-commerce, have not strong capacity to accept new things, lack enough understanding of e-commerce, regardless of believing and taking good use of e-commerce. Specifically, first, most of the poor people do not have or can't operate computers or mobile phones for online shopping; second, rural environment is relatively closed and people living here often have old-fashioned ideas, and accept new things very slow. Most of the poor people are affected by the traditional transaction mode of "paying by cash". They often have doubt and low trust in the new transaction method: online shopping and selling on computer or mobile phone.

B. Farmers' e-commerce participation willingness and the influencing factors

1) Farmers' willingness to participate in e-commerce

Farmers' willingness to participate in e-commerce means that farmers have realized the importance of e-commerce, begun to actively learn about e-commerce, and sincerely agreed that e-commerce can help them increase income and overcome poverty.

2) Analysis of the influencing factors

The first is the effect of "improving quality, speed, and efficiency" brought by e-commerce, which allows everyone to gradually accept and use e-commerce and promotes farmers' willingness to participate in e-commerce. The second is the atmosphere of tolerance and imitation of the social attributes of rural acquaintances, the willingness to share, and the e-commerce exchange based on in-law relationships which promotes farmers' willingness to participate in e-commerce. The "acquaintance" socializing mode and the demonstration by "the skilled" are important factors that influence farmers' willingness to participate in e-commerce. Due to the socializing method of "acquaintances" in rural areas and the slow transmission of information in rural areas, word-of-mouth communication becomes the main spreading method. For example, a villager purchases a product online and has a good quality experience, or someone sells product through online sales and obtains a better economic return. This good effect will be spread by word of mouth, and the farmers who had originally wait-and-see attitude will be willing to buy or sell similar or other products online. The successful e-commerce practices of youth and college students returning rural area and rural wealthy and able people can also motivate farmers' positivity to contact and use the Internet.

C. Farmers' e-commerce participation behavior and the influencing factors

1) Farmers' e-commerce participation behavior

Farmers' e-commerce participation behavior has two forms. The first is the bottom-up independent development of e-commerce by farmers, where farmers' online businesses spontaneously generate, fission, and grow. The other is the top-down development of rural e-commerce with the strong support of the country. In specific practice, there are three main types of farmers' e-commerce participation behaviors: the first is to directly sell online to consumers, namely "open online stores directly"; the second is based on the operation and participation of e-commerce platforms, namely "participatory industrial chain"; the third is sharing spillover effect.

2) Analysis of the influencing factors

Promoting the participation of farmers in e-commerce is inseparable from the construction of an e-commerce ecosystem. Practices in various places have proved that only in the areas where the government-led e-commerce ecosystem participated by third-party service providers, industry associations, and business entities collaboratively can people make better use of the regulatory mechanisms of

market and policy to better proceeding the construction of e-commerce incubation platforms and e-commerce service centers, and even use the Internet and broadcasting tools to better carry out the promotion and advertising of the Internet thinking model. They often improve the eco-environment of e-commerce, attract many poor farmers to participate in e-commerce and gradually get rid of poverty by taking measures such as providing policy preferences, increasing financial support, and encouraging financial institutions to participate in e-commerce.

III. ANALYSIS OF PROBLEMS EXISTING IN THE IMPLEMENTATION OF E-COMMERCE POVERTY ALLEVIATION FROM THE PERSPECTIVE OF FARMERS' RESPONSE

A. Insufficient publicity on e-commerce poverty alleviation and farmers' low cognition of e-commerce

Nowadays, posts or slogans about e-commerce poverty alleviation are often seen in prominent places such as road sides. This practice is indeed necessary, but the e-commerce poverty alleviation cannot stop at the general level of calling for attention. The key is to take effective measures that can let farmers bear e-commerce in mind and finally accept e-commerce. Due to insufficient publicity on e-commerce poverty alleviation, in some remote and poor rural areas, most farmers are still unfamiliar with e-commerce, do not know it, regardless of liking it, so that poor farmer have not that high cognition of e-commerce and even not contacted with this business mode yet; some poor farmers do not know more about or have basic understanding of e-commerce poverty alleviation policies, which goes against the healthy, sustainable and effective development of e-commerce poverty alleviation very much.

B. Inadequate implementation of e-commerce poverty alleviation and farmers' weak willingness to participate in e-commerce

In some poverty-stricken areas with the support of e-commerce poverty alleviation, the work has not been implemented sufficiently. Some local e-commerce poverty alleviation programs are mainly to train poor farmers to open online stores and sell agricultural products online, to cope with inspections of the higher level of management, regardless of the later benefits; some of the programs may be put into e-commerce development agreements signed with e-commerce companies and are carried out as general business work; some of the programs may have some experts give lectures and provide some trainings; but after the end of the training, e-commerce poverty alleviation is stalled. The reason is that there is insufficient understanding of e-commerce poverty alleviation. It is believed that e-commerce poverty alleviation is to provide training, neglecting to stimulate the willingness of farmers to participate in e-commerce. The deeper reason is that the local governments, enterprises and commercial tenants in those areas do not play enough leading role in environmental construction, policy support, and resource integration although they have got a certain understanding of e-commerce. This makes it difficult

for poor farmers to start a business or find a job based on e-commerce in practice, effectively exert its subjective initiative, or actively participate in and share the value-added benefits brought by rural e-commerce.

C. Weak foundation for e-commerce poverty alleviation and farmers' low extent of participating in e-commerce

A considerable number of poor farmers live in remote mountainous areas. On the one hand, the poor natural environment makes it difficult for poor farmers to communicate with the outside, and the prerequisites for e-commerce poverty alleviation to communicate between the internal and external world are difficult to achieve; on the other hand, poor farmers in those areas often devote their energy to having enough to eat and wear, have no time to take into account the production and promotion of special agricultural products, so that the source of products for e-commerce poverty alleviation is facing challenges. Although some poverty-stricken areas have plenty of high-quality resources (agricultural products, handicrafts, tourism resources, etc.), there are many weaknesses such as the weak industrial development foundation, especially the insufficient expansion of product sales channels, insufficient product brand cultivation, insufficient brand propaganda so that the brand's influence is not that great, the market benefits are not fully reflected, and the rural e-commerce poverty alleviation development faces "difficulty in selling". How to help farmers use the Internet to solve the problem of "difficulty in selling" is the actual needs of farmers.

D. The lagged e-commerce poverty alleviation service and the difficulty in meeting farmers' e-commerce needs

In the development of rural e-commerce poverty alleviation, the public service development of e-commerce is relatively lagging, and is difficult to meet farmers' e-commerce needs. The main reasons are as follows: first, many poor rural areas have low construction levels of road traffic, water conservancy, energy and network due to the local environment or the long-term economic development status, so that they cannot provide sufficient conditions for efficient operation of e-commerce; second, most of the e-commerce in poor areas started late, there is not a sound e-commerce service system and various resources are not fully integrated; third, there is a lack of leadership from leading companies. Few companies have led local farmers to use the Internet platform to sell special agricultural products. Most of them only carry out e-commerce activities by themselves; fourth, in poor areas, there is lack of e-commerce professionals due to a number of factors such as regional condition restrictions and relatively backward ideas. Professionals who know technology and management are extremely scarce.

IV. COUNTERMEASURES AND SUGGESTIONS FOR IMPROVING FARMERS' RESPONSE TO E-COMMERCE

The criteria for measuring the effectiveness of rural e-commerce poverty alleviation is mainly whether the poor farmers respond to the work positively and whether they

participate in it and obtain benefits from it. An effective way to improve farmers' response to e-commerce is to adopt certain measures to increase farmers' e-commerce cognition, increase farmers' willingness to participate in e-commerce, and guide farmers to consciously participate in e-commerce. Rural e-commerce poverty alleviation has a positive effect on farmers' response to e-commerce. The higher the response is given, the better effect the rural e-commerce poverty alleviation will achieve. The two are in a mutual-promotion relationship. Rural e-commerce poverty alleviation should be oriented to farmers' needs in combination with improving farmers' response to e-commerce. The following measures can be taken:

A. Enhancing publicity efforts and farmers' e-commerce cognition

It is needed to effectively raise farmers' e-commerce cognition level, persistently enhance the publicity efforts and create new publicity methods. The first is to strengthen publicity and guidance, enhance the e-commerce awareness of e-commerce participants, and let them know about e-commerce in the process of continuous contact with e-commerce, further support e-commerce development, and finally actively participate in e-commerce. The second is to combine traditional propaganda methods with modern new media. In poverty-stricken areas, traditional village committees, televisions, newspapers, and mutual communication among village folks are still the most important ways to obtain information due to restriction of practical conditions. At the same time, farmers' information acquisition channels are diversified. Many channels such as mobile phones and the Internet have gradually become an important way for farmers to know about information, and can be used as e-commerce cognitive channels. It is available to continuously enlarging the propagation by tradition slogans, bulletin boards, training and other methods, in addition to propagate online via media such as government information networks, mobile phones, televisions, and platforms. The third is that the content of e-commerce cognition should be close to what farmers think. It is necessary to vigorously publicize the relationship between e-commerce and agricultural product selling, between e-commerce and income, and between e-commerce and the happiness index of life so as to change poor farmers' views and values, open their market concept, gradually make them realize the availability to carry out scaled production by taking advantage of their own resources and technologies, improve production and form concentrated source of supplies while guaranteeing the quality, and further sell products via e-commerce.

B. Providing development opportunities and increasing farmers' willingness to participate in e-commerce

In order to form a prosperous pattern of rural e-commerce, it is especially necessary to provide e-commerce development opportunities. First, local governments and relevant departments should attach importance to fostering models, play a demonstration and leading role, and promote and propagate typical cases of rural e-commerce. In the

comparison of business opportunities and benefits, it is necessary to stimulate the initiative and creativity of poor farmers and make them become participants and beneficiaries of e-commerce. Second, they should inspire poor farmers' intrinsic needs to participate in e-commerce development in various ways. The focus should be given on the cultivation of poor farmers' self-development ability, enhance their consciousness of participating in e-commerce, give play to their creativity, and tap their various resource advantages. Third, it is necessary to improve farmers' online business operation capabilities. Local governments and relevant departments can provide training and employment opportunities for poor farmers who are interested in e-commerce entrepreneurship and employment, help them master the practical skills of e-commerce, and enhance their ability to overcome poverty. Unlike traditional sales model, rural e-commerce is a systematic project. From product selection to supply chain control, e-commerce operations (artwork, video, live broadcast, VR, etc.), and further to after-sales service, there must be a team familiar with relevant professional skills. Therefore, the government, e-commerce enterprise organizations and relevant social organizations should provide poor farmers with policy support, education and training, market access and technical assistance, reduce the threshold of e-commerce poverty alleviation projects so that farmers have the capabilities to participate in the project. At the same time, they should retain from many problems such as leakage and misplacement of e-commerce poverty alleviation resources, and the retention, deduction or misappropriation of poverty alleviation funds.

C. Vigorously developing the industry and promoting farmers' e-commerce participation behavior

Most poverty is caused by the backward economic development of a region. If it is available to promote the development of the local economy and involve the poor people in the development, the poverty can be overcome. With respect to this issue, the following measures may be taken. The first is to create an industrial chain based on the local conditions and the special characteristics of local agricultural products. The development of e-commerce poverty alleviation needs an industrial foundation to back it up. The development of rural e-commerce must follow the trend and combine local realities to build a brand, realize large-scale production, and promote the transformation and upgrading of local traditional industries. It is necessary to form an industrial agglomeration and scale effect, and build a complete industrial chain based on the development of individual e-commerce. The second is to guide farmers to participate in the industrial chain. The entire rural e-commerce is like an ecosystem. Leading companies in the industrial clusters often lead an interlinked industrial chain to achieve cluster-based development. To guide farmers to open their horizons, they only need to be a good producers and provide the products required by the market, or engage in e-commerce services, logistics, supply chain and the like based on actual conditions. This way can help them be fully employed or partially employed and further reduce and

overcome poverty. The third is to increase investment in policies and systems for the building of farmers' e-commerce capabilities. It is available to perfect the supporting mechanisms such as technology, training, credit and loan, subsidies and other policies, address the shortage of social resources represented by funds and technology, guide farmers to actively adjust the structure of agricultural industry, and encourage the production of agricultural products with high added value to increase farmers' income and stimulate their enthusiasm and initiative to participate in e-commerce.

D. Strengthening public services and creating conditions for farmers to reduce and overcome poverty

E-commerce public services create conditions for farmers to reduce and overcome poverty. They should be properly faced and rationally constructed. In this aspect, the first is to strengthen the construction of e-commerce service facilities in rural areas such as transportation, logistics, finance, and telecommunications. The second is to establish a sound rural e-commerce service system. In detail, it is to actively build public service sites at the county, township, and village levels for e-commerce to serve regional e-commerce development. Local governments can be encouraged to strengthen the training on local e-commerce public service center staff, online merchants and rural entrepreneurial youth, and provide them with low-cost facilities and equipment. Adopting organized and standardized management based e-commerce public service center to increase farmers' use of the center so that the center can really play its due role. This is also a necessary condition for the long-term development of e-commerce poverty alleviation. At the same time, village service station at the end of rural e-commerce market system is the fulcrum leveraging the entire market. It is necessary to realize market-oriented operation of the station as early as possible to accurately implement various policies and services. The third is to give full play to the role of industrial associations, cooperatives, village committees, and leading enterprises, and tap special products, provide platform docking service, and promote the marketing and promotion of special agricultural products and establishing landmarks via those agencies. The fourth is to promote poor farmers' entrepreneurship and employment, and provide public safety services such as food hygiene safety and online public safety.

V. CONCLUSION

The degree of farmers' response to e-commerce depends largely on the level of farmers' e-commerce cognition. Therefore, farmers must be fully exposed to e-commerce through education, propagation, training, and the like methods, and constantly improve their e-commerce cognition level in practice in order to make them actively give response to e-commerce and positively take part in e-commerce. At present, it is also needed to help farmers change their traditional values and views, improve their knowledge level, strengthen their basic competencies, and allow farmers to take an active part in e-commerce poverty alleviation work, so that rural e-commerce can make long-term progress. The

development of rural e-commerce must also be based on the fact that rural area is a special settlement environment of acquaintance society, play the leading role of rural neighbors and demonstrative role of advanced persons, and combine external factors such as industrial development, infrastructure construction, and policy support to formulate e-commerce poverty alleviation scheme based on local conditions. Only in this way can it be available to drive farmers to actively participate in e-commerce, promote the healthy development of rural e-commerce and further achieve the purpose of getting rid of poverty and getting rich for farmers.

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