

# Research on the Influencing Factors of New Professional Farmer Information Service on Science and Technology Entrepreneurship under the Background of Rural Revitalization Strategy

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## Abstract

Under the background of rural revitalization strategy, the research on the influencing factors of new professional farmers' science and technology entrepreneurship has become the focus of academic attention in recent years. On the basis of clarifying the concepts of new professional farmers and technological entrepreneurship, various factors influencing the use of information related services in current new vocational agriculture were explored. The analysis shows that the environment, individual characteristics, operating conditions, information channels and service contents of rural entrepreneurial subjects have a significant impact on their information services in scientific and technological entrepreneurship. This paper also puts forward some suggestions on rural information services in order to provide reference for the related research on improving the technological entrepreneurship ability of rural new professional farmers.

## Keywords

New Professional; Farmers and Science and Technology; Entrepreneurship.

## 1. Introduction

As a form of using science and technology to start a business in rural areas, rural science and technology entrepreneurship is an important economic activity to enhance the level of rural economic development and improve the life of farmers, and has been widely concerned in recent years. In practice, as the main body of rural entrepreneurship and innovation, the new professional farmers are the important carrier of rural science and technology entrepreneurship, which plays a key role in improving the technological level and innovation ability of rural entrepreneurship. In 2018, the No. 1 document of the CPC Central Committee pointed out that "with the mature development of the Internet, the agricultural industry model should be innovated and developed, a new economic development model of scientific and technological entrepreneurship of professional farmers should be formed, and rural employment and entrepreneurship actions should be promoted.

In terms of data reliability, all the questionnaire data obtained passed the reliability test of SPASS, and the Cronbach's Alpha obtained from the reliability test was 0.853, which reached the credibility standard. It can be seen that the relevant data collected in this study have high reliability and can be used for data analysis and mining related research, and the analysis results based on this can be used as the basis for subsequent research.

## 2. Measurement Model System Construction

### 2.1. Index Dimension Selection and Model Construction

In essence, information service is an interactive behavior between information users and service providers, information resources and service systems. The ultimate goal of the action is to meet the needs of users from one or more angles. Among them, the information service for new professional farmers is a new form of information service, which is quite different from the traditional rural information service in demand, content, channel and environment. Therefore, the research to the influential factors of the information service of the new professional farmers should be in reference to traditional information service service resources reasonable collocation and utilization behavior research Angle of view, on the basis of fully considering the new farmers in the process of innovation entrepreneurship to the inherent requirement of information content and services form, from a more macro view of the influence factors were analyzed. Therefore, the academic research on this topic mainly focuses on the construction of comprehensive and systematic evaluation system for various elements of information service.

At present, in the field of agricultural information service, the integrated technology acceptance model (UTAUT model) proposed by Venkatech et al is the most widely used model system with the best performance. The four main variables in this model, which are oriented to individual expectation and external environment, can significantly affect users' information use behavior. But in reality, UTAUT model, as an open theoretical system, needs to be adjusted and improved according to the actual situation. Therefore, this paper further defines the main variables existing in the existing UTAUT system according to the actual needs of information services for new professional farmers in rural science and technology entrepreneurship: In terms of performance expectation, it can be further defined as the situation that the new-type professional farmers' expectation of information service plays a role in entrepreneurial income, while the economic income of new-type professional farmers in scientific and technological entrepreneurship is usually closely related to the operating status. Effort expectation refers to the object's perception of service during the development of information service, and this perception is usually closely related to the object's personal status and information service content. Social impact refers to the social evaluation of the new professional farmers' acceptance and use of information service, which is usually closely related to the environmental factors of information service development. Convenience refers to the support degree of infrastructure and other conditions for information services, and information channels are the most important infrastructure in the information services for new professional farmers..

### 2.2. Setting of Measurement Variables and Index System

This paper mainly focuses on the influencing factors of information service in the process of science and technology entrepreneurship of new professional farmers, among which, the effect of information service is the dependent variable of the measurement index system. In terms of the setting of independent variables, according to the setting of indicator dimensions, the study of this paper applies different scales to set relevant variables for various measurement dimensions to differentiate the influencing factors. Based on the above principles, the measurement variable system set in this study is as follows:

#### 2.2.1. Environmental Factors

Environmental factors refer to the support and supply of external policies, finance, facilities and personnel in the process of information services. Environmental factor is the leading dimension of information service influencing factor level. Some research results at home and abroad prove that a good environment can effectively support the development of information services, so that information services can better meet the information needs of subjects. Specifically, in the

research on the influencing factors of information services for new professional farmers in this paper, the scale proposed by Ding Yao et al. will be used to measure environmental factors from four aspects: relevant elements of policy support, quantity of fiscal subsidies, facilities of e-commerce service platform and logistics distribution points.

### **2.2.2. Individual Features**

Individual features are the descriptive features of the internal attributes of service objects in information services. Individual characteristics mainly affect the development of information services on the demand side and are the core dimension of the influence level. Some scholars at home and abroad have conducted relevant studies on the impact of individual characteristics on the information service effect for a long time, and the research results show that individual characteristics have a significant impact on the expression of information service demand and the way of service acquisition. Therefore, in this paper, the research results of Wang Sheng et al will be used to measure the individual characteristics of the new professional farmers in scientific and technological entrepreneurship from three aspects: gender, age and education status.

### **2.2.3. Business Status**

Operating status is a descriptive feature of the object's external activity attributes in information services, especially the object's operating facilities, personnel and financial situation in entrepreneurial activities. Similar to individual characteristics, operating conditions also affect the development of information services on the demand side, which is the basic element of the level of influence. The research results of some scholars show that the operation status of information service object can affect the effect of information service from the expression of information content demand and service mode. Therefore, this paper intends to use the scale proposed by Yu Hanying et al in their research results to measure the operating conditions of new professional farmers from four aspects: operating profit, number of long-term employees, working years and operating scale.

### **2.2.4. Information Channels**

Information channel is the medium factor used in the transmission of information service. It is the transmission tool connecting the subject and object of information service, playing the role of intermediary, and is the pathway element influencing the level. At present, the academic circle has not formed a unified consensus on the intensity and mechanism of the influence of information channel on information service, but most scholars believe that a smooth and easily accessible information channel can positively influence the effect of information service and improve the satisfaction of information service object. Therefore, in this study, the proposed FanZhenJia et al proposed scale, from a new kind of professional farmers in science and technology entrepreneurship information channels using the number of measurements, i.e., according to the number of training, science and technology personnel visiting times, access to the Internet query conditions and other information for four variables to information channels are measured.

### **2.2.5. Service Contents**

Service content is the service type and characteristics provided by the information service subject to the object, which is the carrying factor of the service enjoyed by the service object. It is the foundation of the development of information service, so it is the focus of the influence level. In practice, the influence of information service content on the effect of information service is obvious. Most scholars believe that good information content must be able to give information service object with good service experience, and the main purpose of the service object accept information service is to seek good service content, on the other hand, different category information service content at different levels may impact on the effect of information service, the size of the impact may be associated with the external environment and the actual

demand factors. Therefore, in the research on the influencing factors of information services for new professional farmers, based on the consideration of time and labor cost, the research intends to adopt some typical technical contents widely concerned in rural science and technology entrepreneurship to measure, and apply the scale proposed by Wang Xiaorong et al., The technology involved in the scale mainly includes pesticide, fertilizer, fertilizer efficiency, storage, processing, transportation, plant protection, planting and varieties.

### 3. Data Analysis and Results

Based on the measurement index system, the research of this paper adopts Backward: Gradually eliminate choice method after Wald () method, using the previous related questionnaire collected data on the independent variable regression analysis, and based on the statistics of Wald to gradually eliminate, no significant independent variables to obtain significant or some significant independent variable set, professional farmers in forming a new business information service of science and technology effects model.

#### 3.1. Environmental Factors

Among all kinds of variables associated with environmental factors, the factors related to policy support and the number of financial subsidies pass the significance level test within the confidence interval of 0.05, and the standardization coefficient B is positive, indicating that the factors related to policy support and financial subsidies play a significant positive role in the information service of new professional farmers. That is to say, relevant elements of policy support and financial subsidies can greatly improve the information service effect of new professional farmers in technological entrepreneurship. On the other hand, some environmental factors such as e-commerce platform and logistics distribution point can be used by most new professional farmers, but they can not have a significant impact on the information service effect. The reason may be that policy and financial factors can directly affect the information service itself, thus significantly affecting the effect of information service, while e-commerce platforms and other facilities indirectly affect the effect of information service through the user, so that the effect of information service is not significant.

#### 3.2. Individual Characteristics

Among the variables associated with individual characteristics, the object's education passed the significance test within the confidence interval of 0.05, while the standardization coefficient B was negative, indicating that this variable had a positive effect on information service, but different assignments in the variables had different effects. In the intermediate, junior, and the following degree of new type of professional farmers' demand for information services is higher, the main body of the academic status of information service influence degree is the most significant, and the body of the advanced degree is less demand for information service, the weaker influence on information service, and the reason may be a new type of professional farmers is the higher education level, It also has more knowledge and skills, and less dependence on information services to support technological entrepreneurship activities. On the other hand, gender, age and other individual characteristics have a certain impact on information services, but it is not significant. This also shows from the data level that the information service effect in rural science and technology entrepreneurship is not significantly affected by the gender and age of the subject.

#### 3.3. Business Conditions

Among various variables associated with operating conditions, operating profit passes the significance test within the confidence interval of 0.05, and the standardization coefficient B is positive, which indicates that the information service effect of new professional farmers'

science and technology entrepreneurship subject is significantly affected by operating profit. The reason may be that subjects with higher operating profits have a higher willingness to use information and technology to improve their income, and due to higher profits, subjects have a stronger ability to pay and a greater tolerance for service fees, so there is a greater demand for all kinds of information services and a greater significant impact on information services. In respect of long-term employment variables passed 0.1 the confidence level of inspection, and standardized coefficient B is positive, indicating that long-term employment more significantly affect the new professional information services for farmers, the reason for this is that long term employment can reflect the status of scale, and the larger the scale of operation, the greater the demand for information, Therefore, it has a significant impact on information service. In terms of investment scale, at 0.05 within the confidence interval of passed the test of significance, and standardized coefficient B is negative, indicating that investment scale can positively affect the information service, but the different value of investment scale of different effects in the information service, in particular, the scale of investment in 100000 more than, influence on information service is the most significant, However, if the investment scale is less than 100,000 yuan, the impact is relatively weak, which may be because the larger the investment scale, the larger the scale of new professional farmers' science and technology entrepreneurship, and the higher their demand for information, the more significant the impact on information services.

### 3.4. Information Channels

In information channels associated variables, other information acquirement in 0.01 within the confidence interval of passed the test of significance, and B is positive, the standardized coefficient shows that the diversity of the new type of professional farmers access to information channels can significantly affect the information service, the reason may be that new professional farmers' main body in the multi-channel access to information, The diversification of information channels has a significant impact on information services. In terms of training frequency, it passes the significance test of 0.1 confidence interval, but the standardization coefficient B is negative, indicating that training frequency can significantly affect information service, that is, a certain training can meet the information needs of subjects and stimulate the requirements of deeper information service. At the same time, this result also shows that different values of training times have different influences on information services. Training times more than 5 times a year can effectively stimulate the deep-seated demand for information services, and thus significantly affect the effect of information services, while subjects receiving less than 5 times a year have lower demand for information services. The reason is that the training frequency reflects the subject's emphasis on knowledge and skills, which means that the more times the subject receives training, the more importance it attaches to knowledge, and the greater the demand for more and deeper information services, thus the more significant the influence on information services.

### 3.5. Information Content

Among the variables associated with information content, the object's emphasis on modern fertilizer and pesticide products, knowledge of deep processing and storage, and knowledge of agricultural green environmental protection passed the significance test in the confidence interval of 0.05, and the standardization coefficient B was positive. This indicates that the new professional farmers' attention to fertilizer, pesticide, processing and environmental protection technology can affect the information service effect. The reason is that the technological entrepreneurial activities of new professional farmers are generally concentrated in planting and agricultural product processing industry, and they have a great demand for relevant technologies that can bring huge profits to their entrepreneurship, so they have a great demand for technology services in this area. Therefore, attention to these technologies can have a



significant impact on information services. In recent years, the social concern for environmental protection and the damage cases of environmental pollution to agricultural production make the new professional farmers continue to pay attention to environmental protection technology and stimulate the demand for information in this area. Therefore, the concern for environmental protection technology can also have a significant impact on information services. On the other hand, although the varieties, diseases and insect pests produced by traditional agriculture and planting technologies are also the objects that most new professional farmers are concerned about, their attention behavior does not have a significant impact on information services because relevant knowledge has been relatively popular in this group.

#### 4. Conclusion

The results of this paper show that environmental factors, individual characteristics, operating conditions, information channels and service contents can all affect the service of new professional farmers in the process of receiving information services. In it, some relevant factors, financial subsidy policy support, education status, operating profit, investment scale, a variety of access to information, advanced agricultural technology and environmental protection technology can significantly influence on information service, long-term employment and business activities and the training times can results in significant indirect influence on information service.

All in all, facing the new professional farmers of entrepreneurial activity of science and technology, the core of the information service is to promote the information service level and effect of scientific and technological entrepreneurship in rural areas, so that the rural information service can truly become the driving force of rural revitalization and scientific and technological entrepreneurship through the "put, tubes, wear" system construction, with the scientific and standard information service environment, from the angle of the deeper and wider .

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