

## *Original Paper*

# Research on Information Poverty in Ethnic Border Regions

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### **Abstract**

*The information revolution has ushered in a new era of information and economy, with information resources becoming a key resource for regional economic strength and core competitiveness. In the process of informatization in China, there is a significant gap between the central and western regions and the eastern regions in terms of information infrastructure, information resource transmission and acquisition capabilities, information resource utilization and development potential, and information industry development. Therefore, information differentiation and the digital divide have also become important factors leading to the wealth gap in the information age. Against the backdrop of promoting the development of poverty-stricken areas and rural revitalization strategies, the issue of information poverty among the vast rural population in the western region, especially in ethnic border areas, cannot be ignored. To solve the problem of information poverty in ethnic border areas, it is necessary to strengthen the construction of rural information environment, improve farmers' information literacy, strengthen the construction of information service talent team, and improve the effectiveness of information services.*

### **Keywords**

*ethnic border areas, information poverty, long term governance*

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## 1. Introduction

With the gradual deepening of the information age, informatization is becoming one of the key elements of economic development in various countries around the world. Developed countries have taken the lead in entering the fast lane of the information revolution and seized a large amount of “information wealth”. However, due to the transition from an agricultural economy to an industrial economy or the early stages of industrialization, low levels of economic development, low levels of information technology, lack of information talent, and poor information infrastructure and environment, the vast number of developing countries have made it difficult for rural areas to enjoy the right to information technology, widening the gap between the rich and poor in the economy and information, and gradually becoming marginalized groups in the information society. The ownership and utilization rate of rural information resources are low, and there is no interaction between information equipment, technology, and self-development. However, in the process of informatization in our country, the uneven progress of informatization and the uneven distribution of information in different regions have gradually become prominent. The informatization process has intensified the information differentiation among various provinces (cities, districts) in China, and the information wealth gap is also widening with the deepening of informatization construction. The gap between ethnic border areas and the eastern region in terms of information infrastructure, information resource transmission and acquisition capabilities, information resource utilization and development potential has not decreased. The level of information technology development in the eastern region is significantly higher than that in the central and western regions, especially in ethnic border areas. Nowadays, information resources have become a key resource for regional economic strength and development. How to effectively improve the plight of ethnic border areas trapped in “information poverty” in the information age has become an important challenge for the healthy and orderly development of China’s economy and society.

## 2. Literature Review

### 2.1 *The Connotation of Information Poverty*

Scholars at home and abroad mainly define the concept of information poverty from four aspects: firstly, the theory of “insufficient available information resources”, that is, the lack of personal available information is the main manifestation of information poverty. Goulding (2001), Sweetland (1993), and others mainly focused on the lack of available information resources in rural areas. Research has found that there are information poverty phenomena in rural areas, such as social information blockage, information insensitivity, information lag, and information distortion. The second is the theory of “lack of opportunities/abilities”. Amartya Sen (1987), after redefining poverty, pointed out that information poverty refers to those who are deprived of the ability and opportunities to access knowledge and information, unable to participate in the creation and sharing of knowledge based social civilization achievements, forming the “laggards” or “marginalized groups or regions” of the knowledge society and information society. Chinese scholars such as Hu Angang (2012) and Yu Liangzhi (2015) echoed this viewpoint. The third is the theory of improper information behavior. Childers (1975) first explored information poverty from the perspective of information behavior, defining it as a poverty situation caused by improper group information behavior (especially self-protection behavior). Based on this, Sun Honglei et al. (2016) proposed from the perspective of information ecology that the weak cultural subject consciousness and limited information ability of new citizens lead to their “self-marginalization” and “voluntary isolation”, resulting in the situation of information “self-poverty”. The fourth is the theory of “lack of information willingness”. Wang Junwen (2020) regarded the lack of awareness of information values, information development and utilization, and information exchange among people in impoverished areas as an aspect of information poverty. Feng Ling (2015) believes that information poverty is manifested on the one hand as “poverty of willingness to obtain information”, and on the other hand, it is manifested as an individual’s lack of (positive or negative) experience of information acquisition.

### 2.2 *Measurement of Information Poverty*

There are two main types of indicators for measuring information poverty. One is to measure the degree of regional information poverty. For example, Hu Angang (2012) and Li Feng (2013) used different indicator systems to measure the degree of information poverty in regions such as Qinghai, Wuling Mountain Area, Hebei, and Henan. Similar to people’s understanding of the concept of information poverty, early scholars mainly focused on traditional information access conditions such as television and radio penetration rates. Later, they gradually expanded to modern information facilities such as the Internet and telephone penetration rates. In recent years, people have expanded their research horizons from simply considering information access conditions to focusing on the information environment, the cultural level and income of information recipients, information services, and information applications. Information consumption reflects the expansion of research perspectives

and a more comprehensive understanding of information poverty. The second is the measurement of individual information poverty. In terms of individual information evaluation, a complete grading index system has not yet been found. But in 2017, Min Yang (2017) examined the level of information poverty among farmers in southern Shaanxi from four aspects: per capita net income of farmers, ownership of media equipment in farmers' households, frequency of farmers' exposure to media, and the impact of mass media on agricultural economic activities. After reviewing the main measurement indicators, concepts, and theoretical models that have emerged in domestic and international research on information inequality since the 1970s, Yu Liangzhi et al. (2015) classified these indicators into the following categories based on the nature of the measured concepts: measurement of access or utilization of information sources and information acquisition channels, measurement of information acceptance or absorption, measurement of information literacy, measurement of ICT (Information and Communication Technology) access, measurement of ICT utilization ICT skill measurement, ICT comprehensive index, etc.

It is not difficult to find through reviewing previous literature that scholars have achieved certain results in research on information poverty, individual information poverty, and rural information poverty in developing countries. However, there is little research on combining regional information poverty with individual farmers. Therefore, from the perspective of scholars, the author believes that rural information poverty can be defined from both individual and regional dimensions. Individual information poverty refers to the inability of behavioral entities to utilize the abundant information resources in society for their own purposes due to a lack of sufficient information awareness and ability, resulting in obstacles in information practice, a lack of information capital, and becoming a "laggard" or "marginalized" group in the knowledge and information societies. Regional information poverty mainly refers to the situation where a certain region's information infrastructure construction, information talent team, information application level, and residents' information literacy lag behind the social average due to factors such as economic development level, geographical environment, and cultural education. To solve the problem of rural information poverty, it is necessary to comprehensively consider multiple factors such as individual rural residents, rural information infrastructure, and rural social development environment.

### 3. The Causes of Rural Information Poverty

The main manifestations of rural information poverty are that farmers have limited media resources, limited access to media types and information content, limited information suitable for farmers, and a lack of information resources for farmers. On the one hand, it is due to the industrial nature of media, lagging economic development in rural areas, low technological and cultural literacy of farmers, and insufficient government support; On the other hand, the development level of informatization is closely related to the level of regional economic development. The information gap in the eastern, central, and western regions of China has become one of the key factors restricting the rapid and healthy development of China's economy. By analyzing the causes of rural information poverty, we can find solutions to the problem of rural information poverty.

#### 3.1 Weak Rural Infrastructure

Agricultural infrastructure refers to the basic services provided for China's agricultural production process, which are necessary facilities for agricultural production and have a huge impact on the development of agricultural production. As a carrier of information transmission, the gap between provinces (cities, districts) in information infrastructure to some extent characterizes the wealth gap of information in different regions. Information infrastructure mainly refers to telecommunications networks, radio and television networks, the Internet, public data centers, and their supporting environments. The current situation of information infrastructure in China is extremely uneven. From the actual development situation, information infrastructure shows a stepped distribution that weakens from east to west. In the western region, except for Chongqing, Shaanxi, Ningxia, Sichuan and other provinces (cities, districts) that are close to the level of the central region, the current situation of information infrastructure in other provinces (cities, districts) is truly embarrassing. The investment in agricultural production infrastructure has a relatively small proportion in the construction of internal agricultural infrastructure. Some regions lack awareness of the importance of agricultural infrastructure construction, and the scope of investment in agricultural production infrastructure is still limited to the traditional agricultural infrastructure field. The construction of new agricultural infrastructure has not received sufficient financial support, invisibly slowing down the development speed of emerging agricultural infrastructure. Due to the lack of available information infrastructure, farmers are unable to effectively utilize information resources, resulting in information poverty in rural areas.

#### 3.2 Farmers' Information Capabilities Need to be Improved

The ability to transmit or obtain information resources represents the amount of information resources that a region can access. Strong transmission and acquisition capabilities mean smooth information transmission channels and strong information acquisition capabilities, thus enabling more information resources to be available. With the development of electronic information technology, the factors that affect the ability of regional information transmission and acquisition are becoming more diverse. The information awareness of farmers in ethnic border areas is relatively weak. Due to the relatively

backward infrastructure and economic level of rural informatization, insufficient construction of agricultural information resource databases, and weak sharing, farmers have low ability to analyze, process, and utilize information, making it difficult to obtain some agricultural production information, resulting in information poverty. The survey shows that 67.4% of farmers are able to recognize the important role of information and information technology, but their understanding of the importance of information is still at a shallow level. They show significant deficiencies in the initiative of information acquisition and the behavioral tendencies of information technology use. 91.2% of farmers obtain information mainly through radio and television, and rarely use online media to search for production and life information. The information utilization ability of most farmers is not yet suitable for the basic requirements of the information society.

### *3.3 Lack of Rural Information Talents*

The ability to transmit or obtain information resources represents the amount of information resources that a region can access. Strong transmission and acquisition capabilities mean smooth information transmission channels and strong information acquisition capabilities, thus enabling more information resources to be available. With the development of electronic information technology, the factors that affect the ability of regional information transmission and acquisition are becoming more diverse. In many rural areas of China, there is a common phenomenon of information blockage and lag. Rural information professionals have an older age group, lower education levels, and lack timely analysis, utilization, and processing of information. They also lack the ability to collect, analyze, and transform information in production and daily life; There are very few farmers who can use smartphones to obtain the necessary agricultural information, actively download, save, and utilize agricultural information. Most farmers hope to acquire some computer network skills, but lack the help of information professionals. It is urgent to recruit various professional talents to strengthen the rural information construction team.

## **4. Reflections on the Solutions to the Problem of Information Poverty in Ethnic Border Regions**

In response to issues such as weak rural infrastructure, weak information awareness among farmers, and a shortage of information talents, active promotion, increased investment, and strengthened rural infrastructure construction should be carried out to provide material guarantees and information channels for farmers to obtain information. Through the promotion and application of agricultural science and technology information, farmers' information literacy should be continuously improved, their living standards should be improved, and rural information poverty should be eliminated.

### *4.1 Increase Investment and Accelerate the Construction of Rural Infrastructure*

The construction of agricultural infrastructure is an important foundation for promoting rural economic development, increasing farmers' income, and driving the construction of a new socialist countryside. The improvement and increase of infrastructure is a strong support for the development of rural

information environment. We should further stimulate market vitality, promote the establishment or improvement of incentive mechanisms through diversified investment entities, encourage social capital to participate in rural infrastructure investment and operation, and ensure that agricultural infrastructure construction has sufficient financial support. Encourage the enthusiasm and initiative of various economic entities to participate in rural infrastructure construction, and encourage and support private capital to increase investment in key areas such as road construction, irrigation infrastructure, large-scale agricultural product trading markets, farmland cultivation equipment, and information and communication technology facilities.

#### *4.2 Cultivating Talents and Strengthening the Informatization Construction Team*

Providing cultural education, skills, and information literacy training for farmers, enabling them to understand how to use the internet to obtain information and process, analyze, and utilize it, providing talent and intellectual support for promoting the construction of new rural areas, and is of great significance for solving rural information poverty. Firstly, strengthen the cultivation of rural informatization talents. Organize experts to hold agricultural information technology training courses, use remote education and short-term training to train agricultural science and technology personnel, farmer technicians, and interested farmers, and write network resource usage guides and brochures that are easy for farmers to read, in order to improve their ability to organize and develop rural information system construction and their own service level. Secondly, utilize social practice activities during college students' winter and summer vacations. College students possess the quality of training farmers in information technology. The winter and summer vacation time is relatively consistent with farmers' leisure time, which can provide guidance and training on computer usage knowledge and information technology for farmers.

#### *4.3 Scientific Integration and Multi-channel Strengthening of Rural Information Resource Construction*

The construction of rural information resources directly affects whether information is effectively transmitted. The construction of rural information infrastructure is the foundation for solving rural information poverty. Firstly, establish the most basic hardware infrastructure, including the Internet and mobile communication base stations, promote the entry of optical cables into villages and broadband into households, achieve comprehensive information interactive services mainly related to agriculture, and improve the network coverage of various towns and villages; Secondly, strengthen the construction of rural information stations, organically integrate various information equipment in the hands of farmers, and establish a comprehensive information network service system. And provide effective classification and navigation services for network information that are suitable for the characteristics of rural users, so that farmers can fully understand agricultural policy information, rural labor information, agricultural meteorological information, agricultural product market prices, crop sales information, breeding technology information, etc., forming a rural information service chain through a comprehensive service information platform.

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