Study on the Construction of the Evaluation Index System of Rural Revitalization in the New Era Based on Big Data Analysis

Zefa Yang[1], Dan Chen[1,2,*], Bo Su[1,2], Xiao Cheng[1,2]

[1]School of Management, HuBei University of Chinese Medicine, Wuhan, China
[2]Research Center for the Development of Traditional Chinese Medicine, Key Research Institute of Humanities and Social Sciences of Hubei Province, Wuhan, China
*Corresponding author

Abstract: Under the background of the new era of comprehensively promoting rural revitalization, based on the main points of the Strategic Plan for Rural Revitalization (2018-2022), this paper uses the theory of literature and information science to obtain the evaluation indicators of rural revitalization, and combines the analytic hierarchy process and Delphi expert scoring method to establish the indicator system, obtaining five first level indicators and 20 second level indicators. The result of indicator weight shows that industrial prosperity is still an important indicator of rural revitalization that cannot be ignored, but it is necessary to formulate evaluation criteria for indicators at all levels according to local conditions, and reasonably guide rural revitalization to achieve efficient and sustainable development.

Keywords: new era, rural vitalization, evaluation index system

1. Introduction

In 2020, China's fight against poverty will come to a successful end, and the goal and task of building a moderately prosperous society in all respects will be achieved. [1]With this, the national poverty alleviation work will enter a new historical period.

In 2014, the CPC Central Committee and the State Council put forward that poverty alleviation should be carried out precisely, and guided by the concept of refined management, precise allocation, and precise support. The poverty alleviation work has gradually shifted from the original "blood transfusion" poverty alleviation by giving money and materials to the "hematopoietic" poverty alleviation by improving the self-development ability of rural poor areas. This change of concept is not only conducive to accelerating the realization of poverty eradication goals, but also to consolidating the achievements of poverty alleviation, It is also conducive to fundamentally changing the face of poor areas and realizing the all-round revitalization of villages. At present, how to effectively link "targeted poverty alleviation" with "rural revitalization" is directly related to the realization of the goals related to agriculture, rural areas and farmers.[2]

In February 2018, the Opinions of the Central Committee of the Communist Party of China and the State Council on the Implementation of the Rural Revitalization Strategy will comprehensively achieve the ultimate goal of "strong agriculture, beautiful countryside and rich farmers"; In September 2018, the Plan clearly pointed out that the 20 word policy of "prosperous industry, livable ecology, civilized countryside, effective governance, and prosperous life" is the general requirement in the implementation of the rural revitalization strategy, and the ultimate goal is to promote "strong agriculture, beautiful countryside, and rich farmers" to achieve new results continuously, and at the same time, a rural revitalization strategy assessment index system was introduced. [3]This is a major judgment and strategic arrangement based on the entry of socialism with Chinese characteristics into a new era and the transformation of major social contradictions.　Prosperity of industry, livability of ecology, civilization of rural style, effective governance and prosperity of life are the general requirements for the implementation of the rural revitalization strategy, and also the fundamental task to promote rural revitalization. Therefore, by interpreting the relevant policy documents of the country's rural revitalization, this paper selects indicators from the five aspects of industrial prosperity, ecological livability, rural style civilization, effective governance and affluent life, and constructs an evaluation indicator system for the level of rural revitalization.[4][5][6]

2. Research methods and data sources

2.1. Research Method

The indicator system of this study is established by the following process (Fig.1):
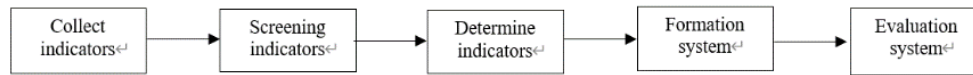

Figure 1: Index System Establishment Process

This research method is applicable to a large number of indicators that already exist before the system is built, but the indicators are scattered and out of order. It is necessary to collect indicators and then classify and screen them. After the system is formed, its scientificity and practicability will be evaluated. The indicators are mainly collected through the literature method. The screening process and indicators are determined by Delphi expert scoring method and expert group discussion method.

2.2. Data Source

Most of the documents are retrieved from China Journal Full Text Database (CNKI), China Science and Technology Journal Database (Wipe Full Text Electronic Journal), Wanfang Database, etc. Foreign literature is mainly obtained from PubMed and ProQuest databases. Other materials are retrieved from the websites of the Ministry of Health, provincial health departments and foreign related websites.

3. Analysis of the evaluation index system of rural revitalization

By setting the key words of retrieval: rural revitalization, rural revitalization evaluation index, rural revitalization evaluation index system, and setting the retrieval period as 5 years, all the documents in the database were retrieved, and a total of 95 documents were obtained. According to the purpose of the study, the inclusion and exclusion criteria of literature are formulated as follows:

Inclusion criteria: (1) Chinese and English documents in the evaluation index system of rural revitalization; (2) The research object is the evaluation of rural revitalization (limited to Chinese literature); (3) The documents that clearly write the names of the indicators used; (4) Literature with relatively complete index system.

Exclusion criteria: (1) newspaper news, advertisements, meeting notices, news, editor's notes, letters, etc; (2) Repeated publications or the same research; (3) The research object is not the evaluation index of rural revitalization; (4) Literature of pure methodology research; (5) Unclear and low quality literature.

The initial screening was conducted according to the inclusion and exclusion criteria, and at last, 33 articles involving evaluation indicators and related literature were reviewed and discussed one by one, including 30 journals and 3 master and doctoral dissertations.

3.1. Establishment and Analysis of the First Level Index of Rural Vitalization Evaluation

The first level indicators in 33 documents obtained from the second screening were summarized, and the following frequency ranking table was obtained. The first level indicators with the highest frequency were: prosperous industry, livable ecology, civilized rural style, effective governance, and affluent life

3.2. Establishment and Analysis of Secondary Indicators for Rural Revitalization Evaluation

The secondary indicators in 33 literatures obtained from the secondary screening were summarized, and the following frequency ranking table was obtained. There were 163 secondary indicators in total. An indicator system was established based on the top 35 indicators with occurrence frequency, and an expert consultation table was established. A total of 18 people, including health administrative department managers, grass-roots medical and health workers, health management experts and scholars, were organized to carry out expert consultation, with a view to deleting unreasonable indicators and adding missing important indicators, Improve the scientificity and practicability of the indicator system. In order to make the expert consultation results more scientific, we evaluate each indicator from three

aspects: importance, operability and sensitivity.

According to the expert consultation results, after two rounds of discussion, combined with the actual work and the development goals of various recent policy documents, an evaluation index system containing five first level indicators and twenty secondary indicators was finally formed, as shown in Table 1.

Table 1: Evaluation Index System of Rural Revitalization

Level I indicators	Serial No	Secondary indicators
Industrial prosperity	1	Comprehensive grain production capacity
	2	Agricultural labor productivity
	3	Processing and conversion rate of agricultural products
	4	Reception of leisure agriculture and rural tourism
Ecological and livable	5	Waste disposal rate
	6	Prevalence rate of sanitary toilets in rural areas
	7	Village green coverage
	8	Excellent rate of ambient air quality
Country style civilization	9	Percentage of full-time teachers in rural compulsory education schools with bachelor's degree or above
	10	Coverage rate of township cultural stations
	11	Percentage of college student village officials
	12	Percentage of rural residents with high school education or above
Effective governance	13	Coverage of village planning and management
	14	Proportion of villages with comprehensive service stations
	15	Satisfaction with the openness of village affairs
Live a prosperous life	16	Income ratio of urban and rural residents
	17	Rural tap water penetration rate
	18	Proportion of qualified villages with hardened roads
	19	Per capita disposable income of rural residents
	20	Participation rate of rural basic endowment insurance

3.3. Calculation of Index Weight

Table 2: Evaluation Index System of Rural Revitalization

Level I indicators	weight	Score	Secondary indicators	weight	Combination weight	Theoretical score	Actual score
industry prosperous	0.28	28	Comprehensive grain production capacity	0.22	0.06	6.26	6
			Agricultural labor productivity	0.28	0.08	7.92	8
			Processing and conversion rate of agricultural products	0.19	0.05	5.46	6
			Reception of leisure agriculture and rural tourism	0.30	0.08	8.40	8
ecology Livable	0.18	18	Waste disposal rate	0.27	0.05	4.85	5
			Prevalence rate of sanitary toilets in rural areas	0.27	0.05	4.92	5
			Village green coverage	0.23	0.04	4.19	4
			Excellent rate of ambient air quality	0.23	0.04	4.18	4
local customs civilization	0.16	16	Percentage of full-time teachers in rural compulsory education schools with bachelor's degree or above	0.28	0.04	4.47	4
			Coverage rate of township cultural stations	0.23	0.04	3.70	4
			Percentage of college student village officials	0.24	0.04	3.87	4
			Percentage of rural residents with high school education or above	0.24	0.04	3.88	4
government Valid	0.18	18	Coverage of village planning and management	0.31	0.06	5.77	5
			Villages with comprehensive service stations Proportion	0.32	0.06	6.02	6
			Satisfaction with the openness of village affairs	0.37	0.07	7.01	7
life affluent	0.20	20	Income ratio of urban and rural residents	0.17	0.03	3.41	4
			Rural tap water penetration rate	0.21	0.04	4.21	4
			Proportion of qualified villages with hardened roads	0.22	0.04	4.40	4
			Per capita disposable income of rural residents	0.20	0.04	3.94	4
			Participation rate of rural basic endowment insurance	0.20	0.04	4.04	4

The calculation of index weight is carried out in strict accordance with the requirements of the analytic hierarchy process. The weighted average method is used to calculate the index weight. The

weighted score is obtained by multiplying the importance score of each index by the authority coefficient of each expert, and then the weighted average of each index is calculated. After a series of mathematical conversion calculations, the actual score is obtained. Finally, with reference to the relevant standards and actual conditions in the policy documents, calculate the detailed scoring standards for each indicator.

According to the results of the expert consultation table, the authority coefficients of the first level indicators are greater than 0.7, indicating that the experts have a high degree of authority. The weight of the indicator system is calculated according to the authority coefficient and the score scored by experts. The results are shown in TABLE 2.

Finally, with reference to the relevant standards in the policy documents and the actual situation of each village, the government departments can develop their own detailed scoring standards for indicators.

4. Conclusion

The weight of the five first level indicators in the new era rural revitalization evaluation index system constructed above is relatively average, of which the weight of the industrial prosperity indicator is 28%. It can be seen that the important evaluation standard of rural revitalization is still to vigorously develop industries, and industrial revitalization can drive the sustainable development of rural revitalization. However, in the past, the government's evaluation of rural revitalization and development was carried out from a macro perspective and unified evaluation standards were adopted, ignoring the rural differences caused by geographical, economic and other factors within the government region, which led to the neglect of the unbalanced development between villages when making decisions on rural revitalization and rural governance planning. Therefore, the evaluation index system of rural revitalization constructed in this paper does not give a unified standard, but advocates adjusting measures according to village conditions. After considering regional differences, each index data will be quantified and standardized, and the weight table of the rural revitalization index system will be effectively used to evaluate, calculate, evaluate and compare the construction in different regions and years, so as to evaluate the current situation of rural revitalization in the region according to local conditions, Discover existing problems and summarize practical experience.[7]

The rural revitalization indicator system and its weight distribution established in this paper are intended to encourage relevant government departments to make rational use of big data information, establish a real-time and dynamic rural development indicator evaluation system, guide the benign development of rural revitalization, and further combine the geographic information system to visualize the indicator system and rural development status, becoming an important basis for effective rural governance and planning, Data supports the overall revitalization of rural areas.[8]

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