

Study on the Integrated Development of Rural Industries in Zigong City in the Context of Rural Revitalization

Qin Cao*, Yuran Fan, Silong Peng

School of Economics, Sichuan University of Science and Engineering, Zigong, Sichuan 643000, China

*Corresponding author

Abstract

The integrated development of rural industries can effectively promote the revitalization of agricultural industries and thus realize the revitalization of rural areas. Therefore, the integration of rural industry is being implemented throughout the country. Zigong city also grasps the integration of rural industry, developed a series of rural industry integration projects, and successfully built a national rural industry integration demonstration park. Therefore, the study of rural industrial integration in Zigong City can not only improve the decision-making basis for the subsequent development of rural industrial integration in Zigong City, but also lay a practical foundation for the promotion of rural industrial integration in other regions. The analysis of this paper shows that Zigong City has explored four modes of rural industrial integration: internal integration of agriculture, multi-functional expansion of agriculture, extension of the agricultural industrial chain, and penetration of new technologies; cultivation of family farms, farmers' professional cooperatives and agribusinesses, and other diversified business subjects; and the implementation of contract farming, foster care, back-to-rent and profit sharing, and other ways of profit sharing and other benefit linkage methods. However, there are still some problems to be solved in Zigong City. First, the level of rural industrial integration is not yet optimal. Second, the driving force of the main body of integration is not yet robust enough. Third, the profits of secondary and tertiary industries of farmers are relatively low. This paper suggests that Zigong City can take the following measures to promote the further development of rural industrial integration. These include the implementation of multiple measures to improve the level of integration, improve the quality of the main body to facilitate the integration of farmers, and strengthen the linkage to promote.

Keywords

Rural Revitalization; Industrial Integration; Zigong; Sichuan.

1. Introduction

The strategy of rural revitalization represents a powerful approach to achieving three key objectives: increased farmers' income, enhanced agricultural efficiency, and improved rural affluence. Industrial revitalization represents the primary focus and entry point of rural revitalization. It can facilitate the recruitment of talents to the countryside, expand income-generating channels, and modernize agriculture and rural areas. The integration of rural industry represents a pivotal avenue for the implementation of industrial revitalization strategies. Nationwide, there is a concerted effort to advance the rural industrial integration strategy, with the objective of enhancing the level of modernization of local agriculture and rural areas. This is also the case in Zigong City.

Zigong City has adopted a strategy of rural industrial integration with the objective of promoting industrial revitalization and thereby realizing rural revitalization. In the context of rural revitalization, the integration of rural industries requires localities to explore the mode of integration of rural industries, strengthen the degree of linkage of subjects, and cultivate diversified subjects according to local conditions. Currently, Zigong City has explored a variety of integration modes, practiced a variety of benefit linkage methods, cultivated multiple integration subjects, and established a number of rural industrial integration parks. As a result, it has been designated as a national rural industrial integration demonstration park. This paper is based on the current situation of the development of rural industrial integration in Zigong City. It summarizes and analyzes the reasons for the problems in the development of rural industrial integration in Zigong City and puts forward targeted recommendations for relevant local subjects to inform their decision-making. However, it also provides practical cases for the development of rural industrial integration in other similar areas.

2. Current Situation of Rural Industrial Integration Development in Zigong

2.1. Model of Rural Industrial Integration

Currently, Zigong City has investigated and implemented four modes of rural industrial integration: internal integration of agriculture, multi-functional expansion of agriculture, extension of the agricultural industry chain, and penetration of new technologies.

Firstly, the most prevalent rural industrial integration mode in Zigong City is the primary stage of internal agricultural integration and multi-functional agricultural expansion. On the one hand, the internal integration type of agriculture represents a rural industrial integration mode that primarily transforms the traditional agricultural production mode and optimizes the combination of planting and breeding subdivisions within agriculture in time or space. This facilitates the recycling of agricultural production resources and optimizes the agricultural industrial structure, thereby enabling the realization of green and efficient development [1]. The majority of internal integration models of agriculture in Zigong City are based on agricultural industrial parks, which utilize the intersection of time and space to optimize and integrate the structure of various subsectors within the planting and raising industry. Currently, Zigong City has implemented a number of methods, including rice-pharmaceutical crop rotation, grain-economy composite, grain-vegetable crop rotation, and rice-fishery symbiosis. In contrast, the multifunctional expansion mode of agriculture is a cross-cutting integration and development mode based on agriculture and incorporating the concepts of culture, leisure, and tourism [2]. Zigong City's multifunctional agricultural expansion integration mode is based on the local characteristics of the agricultural industry. The integration of cultural, ecological, leisure, and other theories into various aspects of the agricultural industry has resulted in the emergence of three distinct integration modes: "culture + agriculture and rural areas," "ecology + agriculture and rural areas," and "tourism + agriculture and rural areas." Integration methods such as "Tourism + Agricultural Rural" have been established. Nevertheless, in the majority of areas within Zigong City, the degree of implementation of the multifunctional expansion model of agriculture is relatively limited, with the majority of initiatives still at the primary stage.

Secondly, the agricultural industry chain extension and new technology penetration development models are of higher quality and bring the most beneficial outcomes to Zigong City. The agricultural industry chain extension model represents a rural industrial integration model centered on agriculture. It broadens the channels of agricultural income generation by unclogging the chain before and after the industry chain[3]. The agricultural industry chain extension mode in Zigong City is based on the agricultural industry as the core, with close links to the upstream and downstream sectors of the main body of the agricultural industry chain.

This ultimately results in the formation of a well-developed industry chain. For example, the Da'an District of Zigong City has identified broiler farming as its core industry. It has effectively linked feed production, broiler farming, and broiler sales with other subjects through leading enterprises. This has facilitated the transition from agricultural production to the development of the entire industry chain. Currently, Zigong has successfully established a national-level rural industrial integration development demonstration park and a five-star agricultural park in Sichuan Province through the utilization of the agricultural industry chain extension type model. The new technology penetration type is defined as an agricultural-based approach that incorporates the application of biotechnology, the Internet of Things, the Internet, big data, and other modern high-tech solutions. These innovations give rise to new business forms and facilitate the advancement of science and technology in the agricultural sector[4]. The number of new technology projects in Zigong that employ a permeable development mode is relatively limited. The sole exception is Rong County, which is participating in the national e-commerce into rural areas comprehensive demonstration project and the Sichuan Province rural revitalization financial innovation demonstration area construction pilot county project. The objective of these initiatives is to facilitate the penetration of Internet e-commerce and rural digital financial services into agriculture and rural areas. Nevertheless, they are still in their nascent stages.

2.2. Current Situation of the Development of Rural Industrial Integration

Zigong City, the primary area of rural industrial integration, exhibits a diverse range of development patterns. Currently, family farms, farmers' professional cooperatives, and agricultural enterprises are all experiencing varying degrees of growth. It is notable that family farms are experiencing a notable surge in development, while agricultural enterprises and farmers' professional cooperatives are not as rapidly expanding.

With regard to the existing stock, the number of family farms, followed by farmers' professional cooperatives, represents the largest number of rural industrial integration subjects in Zigong City. Conversely, the number of enterprises engaged in agricultural activities is the smallest and of a smaller scale. As illustrated in Figure 1, the number of family farms in Zigong City in 2022 is 8,226, which represents the largest number of integration subjects. The number of specialized farmers' cooperatives is 1,129, which represents a significant discrepancy in comparison to the number of family farms. The number of agricultural enterprises is 820, and the number of agricultural enterprises is the lowest among the three types of subjects; among them, there are only 197 leading enterprises above the county level[5], which is less than 1/4 of the agricultural enterprises, which indicates that most of the agricultural enterprises in Zigong City are small scale. In summary, Zigong City has the largest number of family farms among new business subjects, and the development scale of agriculture-related enterprises is relatively modest.

From the perspective of the changing trend, the driving capacity of the main body of rural industrial integration in Zigong City is insufficient. As illustrated in Figure 2-1, the number of farmers' professional cooperatives in Zigong City has been on a gradual decline from 2017 to 2022. This indicates that their development strength is evidently insufficient. In addition, the number of farming-related enterprises has declined in the past two years, following a period of rapid growth. Furthermore, the scale of farming-related enterprises in 2022 remains relatively modest, suggesting that farming-related enterprises in Zigong City may be susceptible to risk. Although the number of family farms is on the rise, the incremental changes indicate that their incremental growth over the past two years has also declined. This suggests that the development of family farms is gradually weakening.

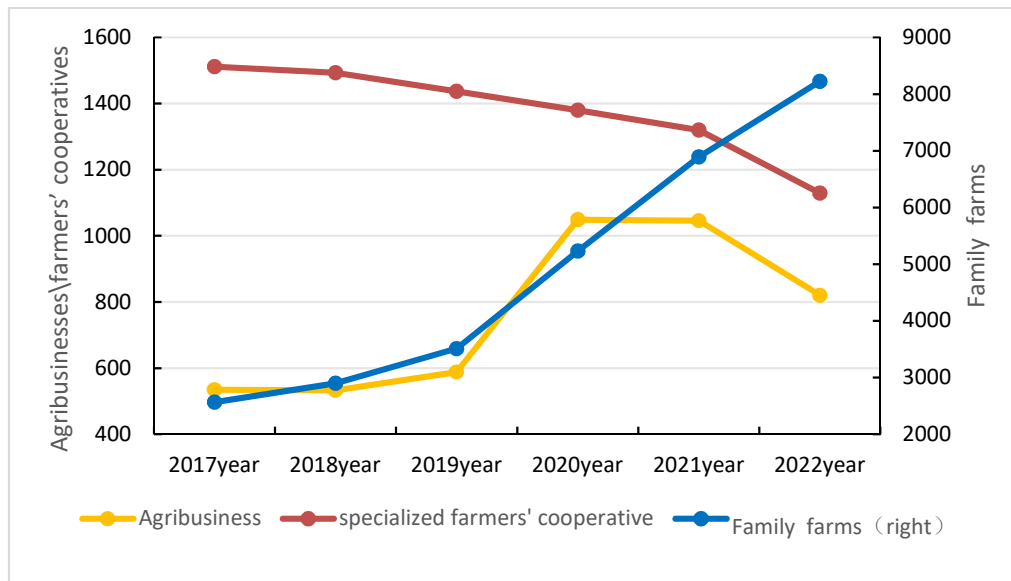


Figure 1. Number of new business entities in Zigong, 2017-2022
Data source: Zigong City Statistical Yearbook (2018-2023)

In conclusion, family farms represent the primary driving force behind the integration of rural industries in Zigong City. While the number of such farms has increased annually, their growth rate has been relatively slow. The development of farmers' professional cooperatives has been impeded by a paucity of resources, while the expansion of agricultural enterprises has been constrained by their smaller scale and the dearth of resources.

2.3. Current Status of Benefit Linkages in Industrial Integration

In order to mobilize the enthusiasm of farmers to participate in the integrated development of rural industries, Zigong City employs four types of benefit linkage to encourage mutual collaboration and common development among the main bodies of each linkage. These include order agriculture, foster care, return of rents to the package, profit sharing, and so on.

Firstly, it is of the utmost importance to vigorously develop order agriculture, guide farmers to scientific farming, and reduce farmers' market risk. For example, Zigong City has implemented a strategy involving leading enterprises and farmers' professional cooperatives entering into order contracts. This has enabled farmers to rationalize their breeding structures and quantities, while also implementing a combination of price mechanisms that includes a guaranteed purchase price and a market price that fluctuates based on supply and demand. This approach has helped to mitigate market risks for farmers, thereby ensuring that they receive fair compensation for their labor.

Secondly, the promotion of foster (generation) raising and the "foster + order" mode. Zigong City frequently employs this type of benefit linkage model to facilitate connections between farming entities. For example, Zigong Lihua Dairy Limited Liability Company has entered into contractual agreements with farmers on their behalf.

Thirdly, novel approaches to the leasing and rehiring of personnel, as well as the rehiring and contracting of employees, have been implemented. On the one hand, Zigong City has implemented a policy that allows landless farmers to exercise their right of priority hiring. This policy enables farmers to obtain wage income, thereby protecting their basic livelihoods following the transfer of land. Conversely, Zigong City has implemented a strategy whereby local land is transformed into high-standard farmland, which is then leased back to farmers or other subjects for leasing operations. Conversely, the city of Zigong employs the "land transfer—unified transformation—leased land" approach to transform local land into high-

standard farmland, subsequently returning the transformed land to farmers or other primary users for leasing. This strategy enables farmers to obtain both wage and operating income.

Fourthly, it encourages the sharing of profits. Zigong City has encouraged local farmers to utilize capital, land, assets, orders, and other resources to invest in enterprises or farmers' cooperative societies. This approach aims to facilitate joint management and the realization of profit-sharing benefits.

In summary, farmers in Zigong City primarily generate income through various forms of agricultural production, including order farming, foster care, rent reversal, and profit-sharing. The majority of farmers in Zigong City engage directly in agricultural production as a means of generating income. Nevertheless, a small number of farmers have derived additional profits from secondary and tertiary industries through profit-sharing. Nevertheless, only a limited number of farmers are able to participate directly in agriculture-related secondary and tertiary industries, indicating that the degree of profit linkage of rural industrial integration in Zigong City remains at a basic level.

3. Problems of Rural Industrial Integration Development in Zigong

3.1. Low Level of Integration of Rural Industries

The mode of rural industrial integration in Zigong City is dominated by two primary types of agriculture: the basic internal integration type and the primary stage of multi-functional expansion type. In contrast, there are fewer areas that develop the extension type of agricultural industry chain, the penetration type of new technology, and the more advanced stage of multi-functional expansion type of agriculture.

Firstly, the internal integration-type development model of agriculture is more prevalent in Zigong City's rural industrial integration, although the integration level of the majority of projects is relatively low. Currently, Zigong City has established a number of agricultural internal integration-type agricultural parks, which cover four districts and two counties. The Ziliujing District Rice and Beam Modern Agricultural Industrial Park, the Gongjing District Sorghum and Vegetable Modern Agricultural Park, the Da'an District Tuojiang Cereal and Oil Modern Agricultural Park, and the Yantan District Peppers and Soybeans Modern Agricultural Park (Provincial Three-Star) are among the numerous agricultural parks in Zigong City. The Rong County Laiheba Cereal and Oil (Rice and Fishery) Modern Agricultural Park (Provincial Four-Star) and the Fushun County Rice and Sorghum Modern Agricultural Park (Provincial Three-Star) are among the numerous agricultural parks in Zigong City. At present, there is no only based on the rural industrial integration mode of the park has been awarded five-star parks in Sichuan Province, the highest grade has only four-star parks in Sichuan Province, which indicates that Zigong City, the integration of internal agricultural development model to be upgraded.

Secondly, the multi-functional integration type model of agriculture has the potential to expand the avenues for farmers to enhance their income. Nevertheless, the majority of regions in Zigong City are still in the nascent stages of the multi-functional expansion model of agriculture due to a number of challenges, including a limited scope of integration, regional competition, and a lack of sufficient incentives for the implementation of this integration model.

Once again, the quality of the agricultural industry chain extension model in Zigong is of a high standard. Nevertheless, in order to enhance the level of rural industrial integration in Zigong, the model must be further disseminated. The integration model has been successfully implemented in Da'an District and Fushun County in Zigong City, resulting in the establishment of national-level rural industrial integration demonstration parks and five-star modern agricultural parks in Sichuan Province. The agricultural industry chain extension model has contributed to an improvement in the level of rural industrial integration in Zigong City.

Nevertheless, other regions of Zigong City have encountered difficulties in implementing the extended agricultural industry chain model to the fullest extent.

Finally, the new technology permeable integration model can facilitate the absorption of emerging technologies by the agricultural sector. Nevertheless, the new technology permeable integration model in Zigong City has only recently been initiated and is still in its infancy. At present, the sole area in Zigong to have implemented the new technology-permeable model is Rong County. Additionally, Rong County has initiated the exploration of the new technology-permeable integration model through the introduction of the e-commerce into rural areas program, which commenced in 2021.

3.2. Integration of the Main Body of Influence is Not Strong

As previously stated, the lack of development momentum of farmers' professional cooperatives and the lack of late development of agriculture-related enterprises are the primary causes of the weak driving ability of the main body of rural industrial integration in Zigong City.

The full potential of farmers' professional cooperatives in Zigong has not yet been realized. As previously indicated, the number of farmers' professional cooperatives in Zigong is on a downward trajectory. Concurrently, the number of members of farmers' professional cooperatives engaged in actual business activities in Zigong has declined from 85,800 in 2020 [6] to 58,000 in 2022 [7]. This indicates that the growth of farmers' professional cooperatives is not robust. Consequently, there is a deficiency in the development strength of farmers' professional cooperatives in Zigong City, which in turn impedes the robust integration of rural industries.

The preceding analysis indicates that the number of agriculture-related enterprises in Zigong City has exhibited a downward trend over the past two years. Moreover, the development scale of agriculture-related enterprises in Zigong City is relatively modest, which suggests that the market structure of agriculture-related enterprises in Zigong City is loose and exhibits a low degree of concentration. The low market concentration of agriculture-related enterprises in Zigong City has resulted in increased competition and a weaker risk-resistance ability, which has in turn resulted in a lack of development over the past two years. Ultimately, this leads to a lack of influence of Zigong's integration agents on the farmers.

3.3. Lower Profitability of Secondary and Tertiary Industries for Farmers

Although Zigong City has explored a variety of benefit linkages to facilitate farmers' access to the value-added income generated by the integrated development of local rural industries, the majority of these benefit linkages are primarily through participation in the core farming chain, such as wage income and business income. However, the majority of farmers primarily earn wage and business income through participation in the core farming process, rather than through benefit linkage methods. A limited number of farmers can indirectly participate in the secondary and tertiary industries that extend from agriculture through part-time work or dividend sharing to gain value-added income. Consequently, the benefits of Zigong farmers in the secondary and tertiary industries are relatively modest.

A comparison of urban and rural areas in Zigong reveals that the per capita disposable income of urban residents is approximately twice that of rural residents. In 2022, the per capita disposable income of urban residents in Zigong was 43,740 yuan, while that of rural residents was 21,976 yuan [7]. From the 11 cities and states in Sichuan Province that can obtain data from the statistical yearbook, it can be observed that the net operating income from secondary and tertiary industries in Zigong City in 2021 was 864 yuan per capita per year. Furthermore, the proportion of net operating income from secondary and tertiary industries in the operating income was 14.15%, which was the lowest value among the 11 cities and states. In conclusion,

the profit generated by the secondary and tertiary industries in Zigong City and returned to agriculture is relatively low.

4. Suggestions for Rural Industrial Integration Development in Zigong

4.1. Multiple Measures to Raise the Level

The adage "a black cat or a white cat, as long as it can catch rats, it is a good cat" can be applied to the model of rural industrial integration. Consequently, in light of the existing development model, regions should draw upon the experiences of other regions in developing this model to further develop it in depth or introduce alternative integration models to enhance the level of local integration.

Firstly, it is necessary to establish standards and rating levels. The relevant departments of Zigong City are able to select indicators and set evaluation standards for the level of integration according to the development of local rural industrial integration modes. This enables them to rate Zigong City's rural industrial integration modes in a scientific manner, using data to make the level of Zigong City's rural industrial integration visible.

Secondly, it is recommended that typical projects be selected and that their promotion be emphasized. In accordance with the evolution of different modes, the relevant departments in Zigong should select those projects with superior development, substantial experience, and notable outcomes as exemplars of excellence and identify projects with inferior development benefits and slow progress as exemplars of inadequacy. Subsequently, the lessons learned from each exemplar should be summarized. Concurrently, it is essential to disseminate these insights through a combination of online and offline channels, thereby furnishing a reference point for other regions or subjects seeking to develop the model.

Thirdly, the process of co-development and the subsequent enhancement of the level. Zigong City should encourage its residents to challenge the conventional wisdom that limits development to a single mode. Instead, it should adopt a more holistic approach that combines local resources, environmental factors, historical and cultural traditions, and other resource conditions. The integration of diverse strengths should be based on a core model that takes into account the unique characteristics of the region. Consequently, the city can enhance the level of local integration.

4.2. Enhancing the Impact of the Main Body on Farmers

In order to encourage farmers to participate in the integrated development of rural industries, it is necessary to enhance the capacity of new business entities to drive growth. Consequently, Zigong City should prioritize enhancing the quality of local new management subjects, particularly that of farmers' professional cooperatives and agriculture-related enterprises. This will facilitate the mobilization of farmers to participate in rural industrial integration.

Firstly, it is necessary to address the issue of the lack of development momentum of specialized farmers' cooperatives. The relevant departments in Zigong can issue documents or policies to guide new professional farmers who are educated, understand agriculture, and know how to run businesses to take the lead in uniting with other local farmers to establish self-organizing, self-managing, and self-decision-making farmers' professional cooperatives according to actual needs. Moreover, the relevant departments in Zigong should facilitate the merger and reorganization of poorly developed and less effective farmers' professional cooperatives with nearby specialized cooperatives with related business contents. Such a merger would enhance the quality of local farmers' professional cooperatives.

Secondly, the delayed development of enterprises related to agriculture represents a significant weakness. The individual in charge of each agricultural enterprise in Zigong City must possess the capacity to identify and respond to changes in the market, modify their development

strategy, avoid homogenization in competition, cultivate the core competitiveness of the enterprise, and then enhance the enterprise's ability to resist risks. For example, citrus enterprises in Zigong can analyze the region's topography, soil conditions, and other relevant factors to identify potential comparative advantages. Subsequently, differentiation and branding strategies can be implemented to distinguish the enterprise from other citrus producers in the province. This can enhance the visibility of the Zigong citrus brand and improve the quality and efficiency of the enterprise. Ultimately, this can facilitate the integration of the citrus industry in the region and contribute to the economic development of the local farmers.

4.3. Strengthening Benefit Linkages

In order to facilitate farmers' access to value-added profits from secondary and tertiary industries, it is essential to enhance the degree of interest linkage between subjects and to reinforce the degree of collaboration between farmers and other subjects. The degree of collaboration between farmers and other subjects in the business process determines the contribution of farmers to the agricultural industry chain, which in turn determines the size of the farmers' voice in the division of profits. Moreover, the degree of interest linkage between farmers and other subjects, and the proximity of this linkage, determines the proportion of farmers in the distribution of profits and the stability of the profit. Consequently, it is essential to simultaneously comprehend the business and interest connections between farmers and other subjects if the objective is to enhance farmers' income.

It is evident that the business linkage system requires improvement. Firstly, it is necessary to encourage farmers to become more involved in other business sectors, thereby increasing their importance within the agricultural industry. Secondly, it is of the utmost importance to guarantee that they are able to participate in the distribution of profits and to address their current weak position. Secondly, the innovative business linkage system facilitates the integration of the principal entities at each juncture of the agricultural industry. Each agricultural industry in Zigong city is permitted to elect a chain main enterprise, which is then responsible for leading the creation of an industrial alliance. The alliance is formed through the use of WeChat, QQ, and other platforms with the objective of reducing transaction costs and market risks, while also promoting the stability of farm households and their ability to profit.

It is of the utmost importance to enhance the system of benefit linkage. The relevant departments can facilitate the active innovation of benefit linkage mechanisms by providing guidance to main bodies on implementing such mechanisms, recognizing and rewarding industrial alliances with exemplary linkage mechanisms, and disseminating and popularizing exemplary linkage mechanisms. This approach can encourage main bodies to align their efforts with actual circumstances and innovate benefit linkage mechanisms. Moreover, the relevant departments must reinforce the benefit linkage supervision mechanism and take action against violations and infringements to safeguard the rights and interests of farmers.

5. Conclusion

Zigong City's industrial revitalization strategy is primarily focused on rural industrial integration, with the objective of achieving rural revitalization. Currently, Zigong City has identified four modes of rural industrial integration, cultivated a diverse range of integration main bodies, and summarized four ways of benefit linkage. Nevertheless, the city of Zigong still faces challenges, including a low level of rural industrial integration, a weak driving ability of integration main bodies, and low profits for farmers in the second and third industries. Upon analysis, it was determined that Zigong City can employ a multitude of measures to enhance the quality and capacity of the main body, thereby facilitating the integration of local rural industries and improving the overall level of integration.

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