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Types, Distribution Characteristics, and Development Strategies of Rural Characteristic Industry in Xi'an Metropolitan Area

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ABSTRACT

China's urbanization development has entered the "second half", which is at a critical stage of transition from the middle stages to the mature stage. The metropolitan area formed by the mega-city radiating the development of surrounding cities and counties is an important spatial carrier of urbanization. The rural characteristic industry is the main path to promote regional economic development and urban-rural integration in the metropolitan area. Exploring the development characteristics of rural characteristic industries in the metropolitan area has important theoretical and practical significance for promoting the effective connection between urban-rural integration and rural revitalization of the metropolitan area and improving the development quality of the metropolitan area. Take the Xi'an metropolitan area as an example and adopt kernel density analysis and other methods to reveal the spatial differentiation rules of rural characteristic industries. On this basis, the three-dimensional development strategy of "industry-spatial-institutional" for the development of the rural characteristic industry is proposed, to provide theoretical reference for the development of rural characteristic industry in metropolitan areas.

1. Introduction

Metropolitan area is the inevitable result of urbanization development. At present, China is in the stage of improving the development quality of new urbanization, and the metropolitan area is the core carrier for urban-rural integration in the new development stage. However, the long-established urban-rural relationship has put the countryside in a disadvantageous position for a long time, and the development gap between urban and rural areas

has seriously restricted the improvement of the development quality of the metropolitan area. Therefore, to solve the urban-rural problems in the metropolitan area, the focus should be on the revitalization and development of the countryside. In 2021, China proposed to form a modern rural industrial system by 2025^[1]. Rural industries have typical characteristics of diversification and differentiation, in particular, the development of industry in the metropolitan area has gradually shown the trend of

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multi-function and multi-typology of “differences in different circles”, “non-agricultural” and “complexity”. The development of rural industry in Xi’an Metropolitan Area has the problems of single development type, low development efficiency, and extensive use of resources, which does not match the market demands for rural products of the Metropolitan Area with a high degree of integration of green countryside and local culture in the development. It is urgent to explore the key path of rural industry development in the Xi’an metropolitan area, which has important theoretical and practical significance for the revitalization of rural industry in the Xi’an metropolitan area.

In China’s No. 1 central document in 2019^[2], it was first proposed to develop diverse characteristic agriculture according to local conditions and support the construction of several advantageous development areas for characteristic agricultural products^[3]. In 2020, China’s Ministry of Agriculture and Rural Affairs issued the National Rural Industry Development Plan (2020-2025)^[4], which pointed out the development of rural characteristic industry and the promotion of industrial form from “small specialty” to “large industry”^[5]. However, the current academic community has not yet formed a unified view on the concept of rural characteristic industry. Some scholars, by interpreting the relevant policies of national rural industry, propose that rural characteristic industries are based on the local natural environment, history, and culture, and inherit local breeding traditions and handicraft industries to form local economic activities. In addition, rural elements are also used as conditions for integrated development to innovate new industries and new business models such as leisure tourism and modern recreation industries. Scholars generally believe that rural characteristic industries should have the following characteristics: First, market-oriented development; second, integration of regional resources and characteristic advantages; third, strong competitive advantages and significant economic benefits; the development of rural characteristic industries aims to highlight the uniqueness and differences of industrial development^[6], drive capital, technology, and talents, etc. to gather in the countryside and provide the impetus for rural industrial development^[7]; on this basis, give play to the comparative advantages of characteristic resources in rural areas, provide re-employment opportunities for villagers, and promote the structural optimization and upgrading of rural industry^[8,9].

With the successful completion of the task of poverty eradication, improving the quality of rural industrial development and consolidating the results of poverty eradication have become the focus of China’s “agriculture -

rural - farmers” work. The Academic Circle of Urban and Rural Planning in China has begun to pay attention to the development of rural characteristic industries, mainly focusing on foreign characteristic industrial development patterns^[10], the types of rural characteristic industries in China^[11], industry chain integration, and extension^[12], capital operation mode^[13], mutual relationship between industrial development subjects^[14], policy^[15] and system design^[16], etc., and fruitful research results have been achieved. However, previous studies have focused on villages in relatively poor areas, and relatively few studies have been conducted on villages in rural areas around big cities. The current research on the rural characteristic industry in metropolitan areas mainly focuses on urban agriculture and modern agriculture, including the analysis of the evolution of their multiple functions and development patterns. In terms of industrial functions, the development of rural industry in metropolitan areas not only assumes the production function of providing agricultural products for urban residents^[17] but also the dual function of providing production and living space for cities^[18]. Secondly, in terms of development mode, Zhang Yongqiang and others analyzed the main models of the development of rural characteristic industries around foreign big cities, including the Japanese model of “one village and one product”^[19] and the agricultural park model, the American model of citizen farm and commercial farm, and the German model of leisure farm^[20], and put forward the experience beneficial to the development of rural characteristic industries in China^[21]. Wang Xiaojun combed and compared the typical modes of urban agricultural development in China, and studied the driving mechanism of different modes^[22].

In summary, the academic community mainly discusses the connotation, characteristics, and development mode of rural characteristic industry, which provides a useful reference for this paper to study the type, characteristics, and path of rural characteristic industry in metropolitan areas. At the same time, the existing studies on rural characteristic industries in metropolitan areas mainly focus on the expansion of their functions and theoretical discussion of development modes, but lack of research on type level and space level. Therefore, under the background of urban-rural integration at the regional level, based on the combination of field investigation and spatial data, this paper analyzes the types and spatial characteristics of rural characteristic industries in the Xi’an metropolitan area to explore the key path of its development, and to provide theoretical reference for the prosperity of rural industry in the metropolitan area and the promotion of high-quality development in the metropolitan area.

2. Research Methodology and Data Sources

2.2 Data Sources

2.1 Research Methodology

This paper adopts the kernel density method to analyze the spatial distribution characteristics and types of rural characteristic industries in the Xi'an metropolitan area (Figure 1). The specific research route is as follows: Firstly, the villages with rural characteristic industries in Xi'an metropolitan area are identified through relevant basic research; secondly, these villages are spatially abstracted into a POI point and their spatial distribution characteristics are identified by the kernel density analysis; and then, the kernel density method is used to determine the agglomeration characteristics of different types of rural characteristic industries.

In 2021, China issued the National Key Industries Guidance Cataloged for Rural Areas (2021 Version) and the National Rural Characteristic Product Cataloged (Table 1), aiming to make clearer classification development guidelines for the rural characteristic industries. The villages involved in this paper are from the list of “rural characteristic industries”, “one village and one product”, “rural revitalization demonstration villages”, “urban-rural integration pilot” and other names issued by the government departments such as the agricultural and rural departments, rural revitalization departments, natural resources departments of China, Shaanxi Province and cities in Xi'an Metropolitan Area. The relevant data are obtained from public information on government websites, relevant plans, and field research.

Table 1. List of Rural Characteristic Products Cataloged in China^①

Serial number	Classification	Contents
1	planting products	It mainly includes characteristic vegetables, fruits, edible fungi, authentic Chinese herbal medicines, tea, coffee, cotton and hemp, flower seedlings, etc.
2	aquaculture products	It mainly includes characteristic livestock and poultry products and characteristic aquatic products. Among them, the characteristic livestock and poultry products include the characteristic herbivores, pigs, poultry, bees, etc., as well as the characteristic livestock and poultry products listed in the national livestock genetic resources catalog. The characteristic aquatic products include the products except for the four types of traditional cultured fish green carp, grass carp, bighead carp, and silver carp, and do not include the species listed on the list of national key protected aquatic wild animals.
3	food processing products	It mainly includes characteristic foods with regional characteristics, cultural connotations, and unique flavors after characteristic processing, including local halogen products, sauce products, bean products, preserved meat, national characteristic dairy products, etc.
4	handicrafts products	It mainly includes handicraft products with regional, ethnic, historical, and cultural characteristics produced by traditional characteristic handicrafts, including hand weaving, embroidery, paper cutting, batik, pottery, sculpture, etc.

Source: Ministry of Agriculture and Rural Affairs of China

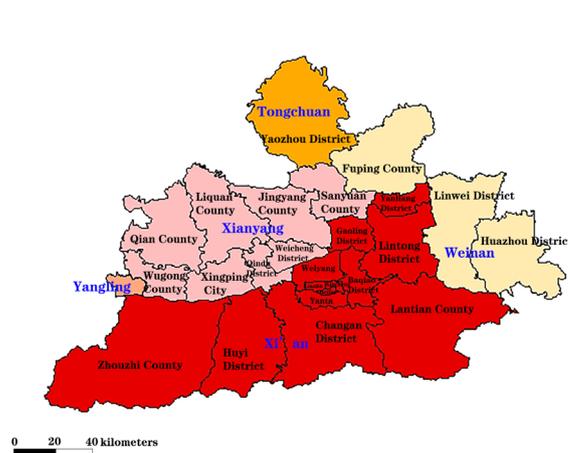


Figure 1. Schematic diagram of development planning scope of Xi'an metropolitan area

Source: Xi'an metropolitan area development plan

^① Ministry of Agriculture and Rural Affairs of China. Notice on Carrying out the Promotion of National Rural Characteristic Products and Rural Craftsmen in 2021. [EB/OL].2021.12.31[2022.9.1]. http://www.moa.gov.cn/nybg/b/2021/202112/202112/t20211231_6386160.htm

3. Analysis of the Feature of the Rural Characteristic Industries in the Xi'an Metropolitan Area

3.1 Basic Features of Rural Industry in the Metropolitan Area

A metropolitan area is an urban hierarchy centered on one or several large cities or mega-cities, including the surrounding small cities, towns, and rural areas. Therefore, the rural industry of a metropolitan area includes both urban agriculture in the core circle and rural agriculture in the rural areas around the city^[23]. The rural industry in this region often has the advantage of attracting urban production factors and large-scale markets as well as the integration of urban and rural industries due to the strong radiation and diffusion effect of the metropolitan area itself^[24]. Therefore, rural industries in metropolitan areas tend to have the following features.

(1) Rural industries in urban areas often have the phenomenon of “big market, small agriculture”. As the villages in the metropolitan area are close to the cities, in the process of urbanization, the villages are strongly influenced by the cities, which has a certain impact on the rural agricultural production space. In addition, in this process, a large number of agricultural laborers have been attracted to work in cities. Meanwhile, based on Agricultural location theory, the villages in the metropolitan area mainly provide agricultural products for the cities, and due to the shortened transportation distance, their agricultural products are mainly fruits and vegetables, flowers, and other types that are not resistant to storage and transportation.

(2) With the urbanization of the metropolitan area and the continuous improvement of the level and quality of agricultural modernization, the rural industry in the metropolitan area is developing towards branding, specialization, and scale. At the same time, the quality of products, the technical conditions of production, and the competitiveness of the market are also constantly improving. Under the requirements of expanding the market and improving demand quality, the rural industry in the metropolitan area has entered large-scale, scientific, and industrialized development. At the same time, it gradually began to develop green agriculture, agricultural products with geographical indications, and characteristic agricultural products.

(3) Diversified and compound functions of rural industries in metropolitan areas. In the process of urban-rural integration, the countryside in the metropolitan area has the dual function of providing production space and eco-

logical space for the city. Therefore, the countryside industry in the metropolitan area also extends the industrial chain based on traditional agriculture, combines its ecological and cultural resources, develops leisure agriculture, ecological agriculture, agricultural science, and other industries^[25], brings into play its ecological and cultural and other functions^[26], and in this process, realize the multi-functional combination of production, ecology, life, and culture.

3.2 Type Features of the Rural Characteristic Industry in the Xi'an Metropolitan Area

Based on the above analysis, the rural industry in the metropolitan area should not develop labor-intensive large-scale agriculture but develop refined and specialized rural characteristic industries. Based on the national classification standards of rural characteristic industries and various agricultural products classification standards such as the Statistical Classification of Agriculture and Related Industries (2020)^②, rural characteristic industries in the Xi'an metropolitan area are divided into four categories: characteristic planting industry, characteristic aquaculture industry, characteristic food processing industry and characteristic handicraft industry, and further subdivide each category by comprehensively considering the characteristics of rural characteristic industries in Xi'an metropolitan area. (Table 2).

In terms of the primary classification, among the rural characteristic industries in the Xi'an metropolitan area, the characteristic planting industry accounted for the largest proportion, accounting for 72.8% of the total, followed by the characteristic aquaculture industry, accounting for 15.3% of the total, while the characteristic food processing industry and the characteristic handicraft industry accounted for a very small proportion. From the secondary classification, among the characteristic planting industry, the fruit planting industry accounts for the largest proportion, accounting for 50.7% of the total, followed by edible fungus planting, accounting for 10.2% of the total. In the characteristic aquaculture industry, the proportion of each subcategory is relatively average; in the characteristic food processing industry, the refined tea processing industry accounts for 3.4% of the total, and Jing Yang Fu tea is the main category. On the whole, the trend of diversifying the types of rural characteristic industries in the Xi'an metropolitan area is not obvious.

② National Bureau of Statistics. Statistical classification of agriculture and related industries (2020) (Order No. 32 of the National Bureau of Statistics). [EB/OL].2020.12.14. [2022.9.1]. http://www.stats.gov.cn/tjgz/tzgb/202012/t20201214_1809096.html

Table 2. Classification of rural characteristic industries in the Xi'an metropolitan area

Primary classification	Secondary classification	Three level classification	Proportion
characteristic planting industry (72.8%)	fruits	kiwifruit, grape, winter jujube, and fresh peach	50.7%
	vegetables	-	5.1%
	edible fungi	-	10.2%
	spice	Sichuan pepper	1.7%
characteristic aquaculture industry (15.3%)	Chinese medicinal materials	honeysuckle and baikal skullcap	5.1%
	livestock breeding	sheep and pigs	5.1%
	egg and milk feeding	milk goat	5.1%
	other	rabbit, etc	5.1%
characteristic food processing industry (8.5%)	fruit processing	dried persimmon	1.7%
	sugar processing	qiongguo sugar	1.7%
	refined tea processing	fu tea	3.4%
characteristic handicraft industry (5.1%)	no subdivision subclass	handwoven cloth, straw weaving, shadow play	5.1%

Source: compiled by the author

3.3 Spatial Distribution Characteristics of Rural Characteristic Industries in the Xi'an Metropolitan Area

To further characterize the spatial distribution of rural characteristic industries in the Xi'an metropolitan area, a kernel density analysis was conducted for rural characteristic industries in the Xi'an metropolitan area. On this basis, a kernel density analysis was carried out for the two types of industries that account for a large proportion, namely, the characteristic planting industry and the characteristic aquaculture industry (Figures 2-3). In terms of spatial distribution, there are mainly the following high-density areas of rural characteristic industries within the Xi'an metropolitan area: Baqiao District and Zhouzhi County of Xi'an, Yangling Demonstration Zone, Jingyang County of Xianyang City, Fuping County of Weinan City, and Yaozhou District of Tongchuan City.

The characteristic planting industry is most widely distributed in the Xi'an metropolitan area, among them, the density of the Baqiao area within the core circle is

relatively high; the outer circles form high-density areas in Yangling District, Qian County, Zhouzhi County; the characteristic aquaculture industry is mainly in Yaozhou District of Tongchuan City with relatively high-density values; the characteristic food processing and characteristic handicraft industries are very scattered in the metropolitan area, and the number is relatively small, so they cannot form a high-density cluster in the real sense.

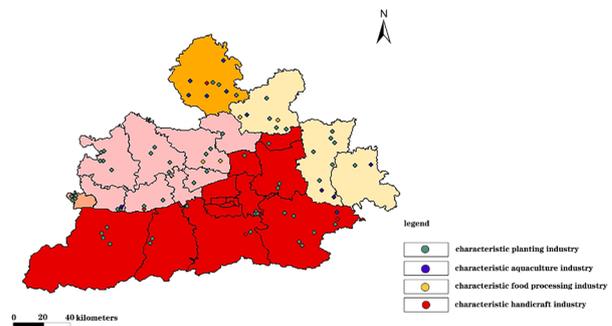


Figure 2. Spatial distribution of rural characteristic industries in Xi'an metropolitan area (Self-drawn by the author)

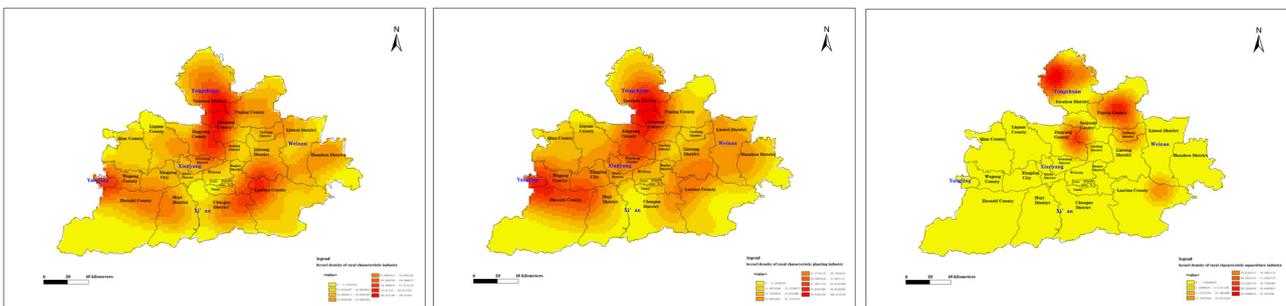


Figure 3. Analysis of kernel density of rural characteristic industries in the Xi'an metropolitan area (Self-drawn by the author)

From the spatial distribution characteristics and type characteristics, the development of rural characteristic industries in the Xi'an metropolitan area relies heavily on its resource background. From the kernel density analysis map, the high-density areas of rural characteristic industries mainly exist in the Guanzhong Plain, which has a good agricultural foundation, while the Qinling Mountain area in the south has very little distribution. At the same time, the influence of market factors on the rural characteristic industry is also more prominent, especially in the metropolitan area, the frequent flow of urban and rural factors also brings a huge demand for fresh agricultural products in the urban market, which makes the characteristic planting industry account for more than 70% of the total rural characteristic industries, and is widely distributed within the metropolitan area, forming several agglomerations. In addition, social factors such as talents and technology also play a large role in the development of rural characteristic industries. For example, the development of rural characteristic industries in Yangling District, where Northwest Agriculture and Forestry University of Science and Technology is located, is supported by scientific and technological talents from universities, and thus a cluster of rural characteristic industries has been formed in this area. Therefore, the natural background, social economy, and policy system are the important driving forces affecting the development of rural characteristic industries in the metropolitan area.

4. Strategies for the Development of Rural Characteristic Industry in the Xi'an Metropolitan Area

Based on the above characteristics, the development of rural characteristic industry in the Xi'an metropolitan area should build a three-dimensional synergy of "industry-space-institution" ^[27] (Figure 4).

4.1 Spatial Reconfiguration: Transformation of Traditional Farming Areas to Industrial Clusters

4.1.1 Transformation of Traditional Farming Areas into Rural Characteristic Industrial Parks

The rural characteristic industries in Xi'an metropolitan area have shown certain spatial agglomeration, therefore, to realize the spatial reconfiguration of rural characteristic industries in the Xi'an metropolitan area, firstly, various rural characteristic industrial parks and rural characteristic industrial science and technology parks should be built on this basis, taking this as a grip to extend the rural characteristic industrial chain, tap the characteristics of rural industries in Xi'an metropolitan area to increase the value chain and form a competitive and diversified industrial agglomeration pattern ^[28]. Secondly, all kinds of rural characteristic industrial parks should establish industrial park alliances based on geographical location and economic location, and optimize the layout of rural characteristic industries through integrated planning in space; in

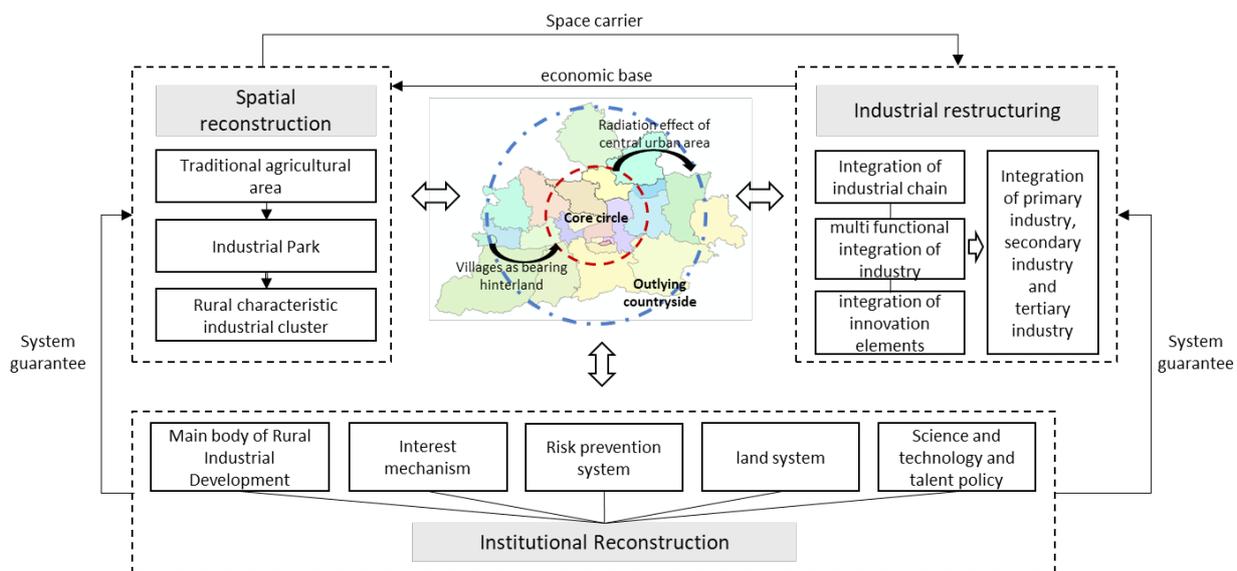


Figure 4. Strategy framework for the development of rural characteristic industries in the metropolitan area

Source: Refer to Article 27 and redraw

the construction of parks, taking into account “scale and characteristics” to avoid homogeneous competition among parks; In terms of industrial development, it is necessary to extend the industrial chain through the level-by-level contact of industrial parks at all levels, namely “industrial parks - Science and Technology Parks - Entrepreneurship parks”, to realize “products - commodities - brands”, and to promote the extension of rural characteristic industries to pre- and post-production ^[29].

4.1.2 Transformation from the Rural Characteristic Industrial Park to Rural Characteristic Industrial Cluster

Upgrading the rural characteristic industrial park to an industrial cluster will enable the development of the rural characteristic industry to restructure the rural production, life, ecology, and cultural space in space and help the revitalization of the rural industry. Rural characteristic industrial clusters have four characteristics of spatial concentration, specialization, networking, and rottenness, among which networking is its essence ^[30]. Therefore, the development of rural characteristic industry clusters must create a rural characteristic industry development network including organizers, actors, and linkage mechanisms of industrial development. Firstly, under the guidance of the government, various non-governmental organizations, including financial organizations and consulting organizations, will be united to establish a dialogue and cooperation platform for the development of rural characteristic industrial clusters, to improve the cooperation efficiency of the main body of rural characteristic industry development, namely, enterprises, agricultural cooperatives, and governments; secondly, accelerate the “government-production-academia-research-use” network. Secondly, we should speed up the combination of “official, industry, learning, research and application” to jointly create an industrialized consortium and form an organic whole for the sustainable development of rural characteristic industries, to meet the main requirements of rural revitalization, such as talent revitalization, organizational revitalization, scientific and technological progress, cooperation and symbiosis, and further promote the high-quality development of rural characteristic industries ^[31].

4.2 Industrial Reshaping: Strengthen the Cohesion of Rural Characteristic Industries through Industrial Integration

4.2.1 Integration of the Whole Process of Rural Characteristic Industry Chain

First of all, we should promote the cross-fertilization

of rural characteristic industries within the industry chain. Taking the combination of the characteristic planting industry and characteristic aquaculture industry, the combination of the characteristic planting industry and characteristic food processing industry, the combination of the characteristic planting industry and characteristic handicraft industry, etc. as the guide, we should accelerate the cross-fusion of various types of rural characteristic industries. Secondly, based on the cross-fertilization of various types of industries, the extension of the industrial chain should be promoted in depth. We should make full use of the foundation and development capacity of secondary and tertiary industries in the Xi'an metropolitan area, and create leisure tourism such as agricultural experience and sightseeing through deep processing of characteristic products and excavation of unique natural ecological and cultural resources in rural areas, to enhance the aggregation power of rural characteristic industries in Xi'an metropolitan area. Again, strengthen the management of logistics and information chains. In each link of the production-processing-marketing of rural characteristic industries, we should coordinate the relationship of various interest subjects, improve the overall efficiency of the rural characteristic industry chain, build a modernized agricultural industry system with a sound system, complete elements, advanced technology, close connection, and benign development, and improve the modern agricultural industry system in all aspects ^[32].

4.2.2 Integration of Multiple Functions in Rural Characteristic Industries

The multifunctional play of rural characteristic industries is of great significance to the integrated development of rural industries. First, in terms of industrial development, it should combine the unique ecological environment, historical culture and local characteristics of the Xi'an metropolitan area, fully combine the agricultural culture and historical cultural heritage of Guanzhong region, and promote the extension of the rural characteristic industry chain through the industrial integration of tourism, education, culture and recreation, so that it can change from a traditional single industry to a refined, quality and diversified industry; second, in terms of industrial carrier, the development of rural characteristic industries should meet the market demand of metropolitan areas, focusing on cultivating the field complex and characteristic town that integrate leisure agriculture and tourism ^[29]; again, starting from the industrial form, breaking the conventional industrial form of agriculture focusing on production, industry focusing on processing and commerce focusing on sales, and realizing the rural character-

istic industrial system that integrates the development of agriculture, industry and commerce^[33].

4.3 System Reconstruction: Innovation of Supporting System for Rural Characteristic Industry Development

4.3.1 Cultivating Diversified Business Subjects

The development of rural characteristic industry in the metropolitan area needs to cultivate diversified business subjects and promote the integration of interests between cities and villages at different levels and various interest subjects in the metropolitan area. Compared with traditional agricultural areas, rural development in the metropolitan area is highly dynamic, complex, and weakly protected, but in the process of urban-rural integration, rural areas in the metropolitan area attract production factors such as capital and technology from cities. Therefore, the development of rural characteristic industries in metropolitan areas needs to combine leading enterprises, rural cooperative organizations and competent people, etc., to give full play to their efficient management, market gathering, and talent-gathering abilities, build new agricultural production and management relationships and explore a multi-body integrated agricultural development model^[34].

4.3.2 Improve the Interest Linkage Mechanism

The fundamental purpose of the development of rural characteristic industries in the metropolitan area is to improve the level of rural industrial development and promote the development of urban-rural integration in the metropolitan area. Therefore, the development of rural industry in the metropolitan area should adhere to the principle of “base in agriculture, benefit in rural areas, and benefit in farmers”, and support various business entities to sign long-term contracts with electric business platforms such as Jingdong, Tmall, and Hema, guide enterprises, cooperatives, and other rural characteristic industry development entities to cooperate closely with each other^[29], and develop a new type of win-win cooperation relationship, so that farmers can participate more deeply in the rural characteristic industry, thus sharing more value-added industrial income and obtaining higher actual income^[35].

4.3.3 Sound Risk Prevention Mechanism

In terms of farmers’ rights and interests, the rapid changes in urban-rural relations in the metropolitan area bring about the dynamic and instability of rural characteristic industries will affect farmers’ enthusiasm for in-

dustrial development, therefore, the development of rural characteristic industries in the metropolitan area should employ farmers who have lost their land and provide them with jobs and new social security. In terms of land use systems, rural characteristic industrial clusters need to integrate rural land resources. The government should actively explore the risk guarantee system of rural land circulation, collective commercial construction land entering the market and agricultural land leasing to ensure the use efficiency of rural land; in terms of industrial development risks, in the face of the current force majeure factors such as the COVID-19, the development of rural characteristic industries should explore the establishment of an insurance system and improve the catastrophe risk transfer and sharing mechanism for rural characteristic industries^[29].

4.3.4 Reforming Rural Land System

For the rural areas in the metropolitan area, land resources are particularly tight. Reforming the rural land system is the key to promoting the formation of rural characteristic industry clusters. First, the land rights of rural in the metropolitan area should be confirmed to provide spatial support for the development of rural characteristic industries at the institutional level. Secondly, we should explore the system of rural land transfer, the system of market entry of collective management construction land, and the system of “the ownership, contracting right and management right of rural land shall be managed separately”^[36], so that the scattered agricultural land in the countryside can be concentrated into large planters and leading enterprises in the above ways to facilitate the formation of industrial clusters and provide effective land supply for the development of rural characteristic industries. At the same time, we should continue to explore the professional platform and market for rural land transfer, reasonably, and legally transferring rural land, effectively safeguarding the legitimate land rights and interests of farmers^[37].

4.3.5 Strengthen Science and Technology and Talent Support Policies

One of the major advantages of the rural characteristic industry in the metropolitan area that is different from the traditional rural industry is that the urban-rural integration in the metropolitan area helps to provide more technical and talent support for the development of the rural characteristic industry. Encourage and guide the new agricultural operation entities represented by leading enterprises to cooperate with universities, scientific research institutes and other research institutions^[38], improve the conversion efficiency of agricultural science and innovation results

and increase the added value of products^[39]; absorb agricultural science and technology innovation results, relying on research institutions such as Northwest University of agriculture and forestry science and technology, a number of agricultural science and technology alliances integrating agricultural science, education, production, study and research have been established, and rely on the driving force of science and technology innovation to continuously promote the development of “integration of primary industry, secondary industry and tertiary industry” of rural characteristic industries; attract rural migrant population to return home and participate in the construction of rural characteristic industries, promote the training program for modern young farmers and high-quality farmers, and focus on improving the level of rural human capital^[40].

5. Summary and Prospect

The metropolitan area is a product of urbanization development and an important spatial carrier for the integrated development of urban and rural areas. How to maintain the rural identity and realize rural revitalization in the rapid urbanization process is one of the key points and difficulties in the development of metropolitan areas. Unlike the highly developed metropolitan areas, the Xi'an metropolitan area is still in the nurturing stage, and its level of urban-rural integration is relatively low, and a large number of rural areas are preserved. For this reason, the research on the rural areas of the Xi'an metropolitan area will also provide a reference for the urban-rural integration of China's metropolitan area. The rural areas in the metropolitan area are highly dynamic, complex, and weakly protected due to their unique location conditions, and in this context, the development of rural industries in the metropolitan area should emphasize characteristics. The types of rural characteristic industries in the Xi'an metropolitan area include characteristic planting industry, characteristic aquaculture industry characteristic food processing industry, and characteristic handicraft industry, however, the types and spatial layout are uneven, which leads to a large development gap between villages and serious homogeneous competition among products. Therefore, it is necessary to build a three-dimensional coordinated “industry-spatial-institutional” strategy system for the development of rural characteristic industries and to promote the development of rural industries in metropolitan areas through spatial reconstruction, industrial reshaping, and institutional reconstruction.

Author Contributions

Author Xiaomeng Fu is responsible for related infor-

mation, data collection and computing, research methods and results analysis, and article writing.

Author Pei Zhang is responsible for theoretical guidance and logical architecture analysis.

Author Zhang Zhonghua is responsible for the drawing and subsequent proofreading of the pictures in the text.

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Conflict of Interest

There is no conflict of interest.

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