



The Development Level and Dominant Types Partition of Rural Areas in Fujian Province of China

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KEYWORDS Rural Development. Dominant Types. Evaluation Index. Beautiful Rural. China

ABSTRACT This paper hierarchically constructed the Rural Development Level (RDL) evaluation index system with four evaluation indices and ten factor layer indices. The result showed that, on one hand, basic features of rural development included stability overall level, remarkable growth trend, obvious regional characteristics on Minnan area, Northern area, a small part of Minxi area in Fujian province, and undulation of different regions in different periods of Fujian's rural development. On the other hand, rural development in Fujian province, is striking influenced by geography, resources, economy and culture, and the characteristics of agricultural modernization, new urbanization and new rural construction are main driving factors. Ultimately, the four dominant types with Industry and Commerce Oriented (I), Agricultural Industry Oriented (II), Agriculture, Industry and Commerce Oriented (III), and Agricultural Leading (IV) of rural development was divided by cluster analysis.

INTRODUCTION

Under the background of deep development of urbanization, it is important to accelerate the pace of new rural construction and realize common prosperity of rural and urban areas. Especially under the modern social background dominated by industrialization, the rural construction and rural community development present certain fragility, which is emphasized and supported in various countries in the world, such as the "Rural Development Policies" adopted by the European Union (EU), the South Korean "New Village Movement", the Japanese "Rural Building Movement", the Indian "People's Science Movement" and "Community Regeneration Movement" in Taiwan. Rural features of Chinese society (Fei 2012) represented that there are 680,000 administrative villages. Overall, the rural population was 46.27 percent. In 2003, the government began to emphasize the "Three Rural Issues", in 2005, the goal of socialist new rural construction was proposed, in 2012, the goal to build beautiful China was proposed, and then, it was proposed to strengthen the rural construction of ecological civilization, environment protection and comprehensive improve-

ment, in this way to build a beautiful rural area with their specific features. Currently, the key in current beautiful village developments is to prevent various phenomena, such as village decline (Li and Zhang 2012) and loss of "nostalgia", from happening.

The rural development is the process of transforming from the backward state of rural areas with incomplete infrastructure and low productivity to the modern state. Currently, foreign researchers found that on the rural development level (RDL) based on the rurality and the rurality are important indexes and reflect on the rural development level, internal difference and regional space (Li and Zhang 2015). For the measurement of rurality, Cloke was the first one to propose the 16 rurality indices (Cloke 1977), and continually, he worked with Edwards to conduct rurality evaluation of England and Wales (Cloke and Edwards 1986). Due the change of era, its close relation with rural development (Shubin 2006) and return to evaluation (Dibden et al. 2009; Marsden and Sonnino 2008), the rural theoretical researches were popular in the 1970s, which promoted the continuous attention to rural area in geography, science of public management (Xia and Lu 2016) and new institutional economics (Dwyer and Powell 2016). In developed countries, researchers focused on the motivations and results of rural social changes,

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which were caused by different geographical conditions in the rural society. However, the undeveloped countries emphasized the economic, social and political aspects of social development, and they partitioned the rural development types and proposed the policy suggestion. The domestic researches on rural development level are mainly on the aspects of sociology and management, which adopted two foreign approaches of “rurality” and “rural development level”, respectively. However, they generally use certain indices to measure and evaluate the rural development level and conduct in-depth analysis in accordance with the result, and they mainly focus on the researches of rural development transformation, development types and models, including, the rural development researches that combine the agricultural geography (Long et al. 2014), rurality evaluation within the region (Li and Wang 2013), the rural development types, spatial forms and influencing factors (Li et al. 2011; Shao et al. 2015; Long et al. 2013; Chen et al. 2014), rurality assessment combined with rural tourism (Feng and Sha 2007; Wu et al. 2010), researches on the rurality and rural transformation (Liu 2007; Long et al. 2012; Zhou and Wang 2013), and types division of rural multifunction and evaluation (Li et al. 2017). In conclusion, the domestic and foreign researchers reported the rural development level on various aspects, which can promote the rural development in both theory and practice.

This paper focused on the rural development level and the classification of development, and on the evaluation of rurality through the development of the introduction of qualitative method (Pini 2002). As described by Cloke, simple linear summation and Pini’s semi-structured interview, to the application of Q method by Duenckmann was tested (Duenckmann 2010). Additionally, the foreign researchers have developed from simple qualitative and quantitative analysis to comprehensive qualitative and quantitative analysis. The domestic researches focus on the construction of rural evaluation system, and the methods of linear weighting summation (Long et al. 2009), multiple-index comprehensive evaluation (Long et al. 2013) and mechanical equilibrium model (Zhou et al. 2013) are used. On the aspect of development type classification, the domestic and foreign scholars all believe that rural development is a multi-level and multi-factor system. Its type classification

can be summarized as combining various factors while dominated by industrial economy, space and region, certain social and economic indices, functional system and spatial locations can be used as the measurement factors and various technologies and methods can be used to gradually realize the research that combines the qualitative and quantitative evaluation and the spatial form analysis from the perspective of rural geography, such as the ArcGIS spatial analysis (Zhang et al. 2013), constellation graphical clustering method (Liu et al. 2011) and SOFM clustering algorithm (Li et al. 2011).

In conclusion, the domestic and foreign scholars have studied the rural development level on various aspects, and the contents and evaluation methods for rurality and rural development level have also become diverse, systematic and complicated. Until now, there are no systematical studies on the rural development level under the background of beautiful rural construction. The rural development level is an important index to measure the beautiful rural construction, which decides the sustainability of new rural construction and beautiful rural development. Therefore, in order to promote the construction of beautiful rural, various cities and counties in Fujian Province, they have adopted various effective support policies. However, after the economic zone has been built on the west coast of the Taiwan Straits, it is still unclear whether the rural development level can promote the sustainable beautiful rural development in Fujian Province. Therefore, it is particularly important to evaluate and study the rural development level in Fujian Province for pertinent construction. Based on that, with Fujian Province as demonstration, this paper will analyze the rural development level, spatial pattern and dominate type of 57 counties and cities since 2010 based on county scale, hoping to provide reference to making scientific plan and policies for beautiful rural construction in Fujian Province.

METHODOLOGY

Introduction of Research Area

Fujian Province, located at the coastal area in southeast China, has pleasant climates. The administrative region covers 9 cities, 26 municipal districts, 59 counties and 14,745 administrative villages, due to various factors such as di-

verse terrains and economic difference, it has developed Minnan Culture, Hakka Culture and Mindong Culture, and the rural development has formed the overall situation of significant regional features, rich and diverse types and significant cultural differences. Meanwhile, Fujian Province is a main province in the Western Taiwan Straits Economic Zone. In 2009, the State Council issued *Several Opinions on Supporting the Construction of Western Taiwan Straits Economic Zone*, and the rural development of Fujian Province got strategic opportunity. In 2013, the urbanization level of Fujian Province reached 60.76 percent, and the GDP per capita reached 57,856 RMB, which is 38.05 percent higher than the national GDP per capita. In the Western Taiwan Straits Economic Zone, the net income per capita in the rural area of Fujian Province has seen significant increase, which reached the highest growth of 15.42 percent in 2011, but the proportion of agricultural population in the total population is as high as 65.8 percent. The simple agricultural types, hollowing out of villages and lack of agricultural labor are still some of the factors that restrict the rural development of Fujian Province. Therefore, it is the urgent requirement in promoting the goal of “common wealth of civilians, beautiful ecology, flexible mechanism and optimal industry” through pertinent construction and development of beautiful rural construction by exploring and recognizing the overall situation of rural development level (RDL) and types in Fujian Province. Based on the county scale, this paper explores and measures the rural development level, overall types and distribution pattern of Fujian Province, and proposes the policies and suggestions to promote the beautiful rural construction and development.

Research Method

Construction of the Evaluation Index System of Rural Development Level

Based on comprehensive consideration of the completeness, science, objectiveness and data availability of indices, by referring to related domestic and foreign research results (Li et al. 2011; Long et al. 2013; Van Ittersum et al. 2008; Duan and Li 2010; Long et al. 2011), the four aspects of economic development level,

farmer living standard, public infrastructure condition and rural social security are used as the level evaluation indices; 10 factors are used as the factor level indices, including the proportion of agricultural population in the total population and rural land productivity, and the assessment index system of rural development level (RDL) in Fujian province was built (Table 1).

Comprehensive Analytic Hierarchy Process (AHP) of Multiple Indices

The assessment index system of rural development level (RDL) is mainly built with the analytic hierarchy process, which conducts comprehensive assessment of the rural development level of Fujian Province on the four aspects of economic development level, farmer living standard, public infrastructure condition and rural social security. The weight calculation of assessment system is mainly completed through the two methods of analytic hierarchy process and entropy evaluation method.

First of all, the index weight on assessment level is completed based on the expert scoring method. The consultancy questionnaire is designed for the 4 indices on the assessment level to determine the matrix scale of assessment level. Experts in the field are consulted for rural development research, score through comparison and feedback on the opinions. Combining the experts' scoring to build the judgment matrix, the ordering vector, and determine the index weight are obtained (Table 1). Through the consistency test, $\lambda_{\max}=4.121$, $C.R.=0.045$ is obtained, which means it has satisfying consistency.

Secondly, the index weight on factor level is completed with the entropy evaluation method. The extremum method is used to conduct dimensionless treatment to the original data, the positive index is $X'_{ij} = \frac{X_{ij} - \min(X_j)}{\max(X_j) - \min(X_j)}$, and the negative index is $X'_{ij} = \frac{\max(X_j) - X_{ij}}{\max(X_j) - \min(X_j)}$. The overall average value of the j^{th} index in the n^{th} year on factor level is used to calculate the index weight $x_{nj} = \frac{\bar{X}_{nj}}{\sum_{j=1}^m \bar{X}_{nj}}$. The entropy of the index information of the j^{th} index on factor level is $E_j = -k \sum_{n=1}^m (Y_{nj} \times \ln Y_{nj})$. The information entropy difference coefficient is $D_j = 1 - E_j$. The various index weights on the factor level $w_{ij} = D_j / \sum_{j=1}^m D_j$ are calculated (Table 1).

Thirdly, to calculate the assessment score of single index on the assessment level is

Table 1: The assessment index system of Rural Development Level (RDL)

Assessment level	Weight	Factor level	Weight	Calculation method	Unit	Index description
Economic development level X_1	0.2761	X_{11} : Proportion of agricultural population in the total population	0.9317	Agricultural employees /total registered population in the county x100	%	-
		X_{12} : Rural land productivity	0.0221	Gross output value of agriculture /sown area of the crops	Yuan/m ²	+
		X_{13} : Agricultural mechanization level	0.0463	Total power of agricultural machinery / total rural population	Kw/person	+
Farmer living standard X_2	0.3905	X_{21} : The proportion of net income per capita of famers in GDP	0.8650	Net income per capita of rural residents / GDP per capita *100	%	+
Public infrastructure condition X_3		X_{21} : Farmers' consumption ability	0.1350	Per capita living expenditure of farmers	Yuan/person	+
	0.1381	X_{31} : Agriculture, forestry and water affairs expenditure level	0.9869	Total agriculture, forestry and water affairs expenditure / total rural population	Yuan/person	+
		X_{32} : Rural transportation convenience	0.0131	Total length of rural post route /total county area	km/km ²	+
Rural social security X_4	0.1953	X_{41} : Medical and health care level	0.0494	Number of beds in health institution / resident population at the end of year	piece/10,000 persons	+
		X_{42} : New Rural Cooperative Medical System (NCMS) insured level	0.7417	Insured number by the new rural cooperative medical system (NCMS) / total registered county population *100	%	+
		X_{43} : Minimum Living Standard in rural area	0.2089	Number of rural residents with minimum living standard / total rural population x100	%	-

+: Positive Index. -: Negative Index.

$S_{ij} = W_{ij} \times X'_{ij}$, and then, the calculation method for rural development level (RDL) is $S_{RDL} = \sum_{i=1}^n S_{ij} \times W_i$.

Here, X_{ij} refers to the value of j^{th} factor of the i^{th} assessment index, m refers to the assessment years, n is the index number, $Max(X_j)$ and $Min(X_j)$ refer to the maximum and minimum values of the j^{th} assessment index respectively, $k=1/\ln(m)$, and W_i is the weight of i^{th} index on the assessment level.

Finally, in order to realize time and space comparability of the assessment results, the rural development level (RDL) results of Fujian Province are classified, which are classified into 4 levels by using the clustering analysis method and equidistance partitioning method to present the overall distribution features.

Data Sources

The data used in this paper mainly comes from the Statistical Yearbook of Fujian Province (2011-2014), Chinese County (Municipal) Social and Economic Statistical Yearbook (2010-2012), Chinese County Statistical Yearbook (2013-2014), related statistical websites of various counties and cities, as well as the data obtained through field investigation. During the spatial analysis, the map data of 57 counties and cities come from the administrative map of Fujian Province. For the research object and data, one should make the following instructions. The missing value is replaced by using the sequence mean value method. Because Shishi county lacks three years' data of "the number of rural residents with minimum living standard", it is eliminated from the analysis in order to maintain the reasonability of results. In 2011, the State Council officially approved founding Pingtan County, but during the current development process, the rural society still occupies an important status, so it will be kept for the consideration of the comprehensiveness of research results. In 2014, the State Council agreed to transformed Jianyang city in Nanping from a city to a district, which was officially implemented in 2015, but because the analysis data is before 2013, so it was kept.

RESULTS

Basic Features

The overall rural development level is stable, which presents significant growth trend. With the establishment and development of Western Taiwan Straits Economic Zone, Fujian

Province has provided policy guidance and fund support on various aspects, such as infrastructure, transportation conditions, investment promotion, industrial structure and social security. In particular, various measures have been adopted in the rural area, such as promotion of the drinking water project, "village to village road" project, rural financial reform, "small public facilities" project, special modern agricultural construction and farmer innovation park, which has promoted the development on various aspects such as strengthening the rural infrastructure construction, promoting the adjustment of agricultural structure, effectively transferring the surplus labor in rural area and improving the farmers' living standard and quality, and as a result, it can ensure the positive and rapid development of rural area.

The rural development presents significant regional features (Fig. 1). Fujian Province has a reputation of "eight mountains, one river and one farmland", which has generally low terrain on the southeast part while high terrain on the northwest part. As a result, the regional features of rural area caused by various factors, such as resource conditions, geographic location and transportation elements, are significant. For example, in *Nanping* city, *Sanming* city and *Longyuan* city in inland of Fujian Province, due to the complicated terrain conditions and severe population outflow, it will definitely result in that the regional economic development will focus on the rural area, in the coast economic belt in East Fujian Province, due to the urban circle development in *Fuzhou* city, *Quanzhou* city and *Xiamen* city, it caused the rural population and economic transfer, which led to that the construction of rural area has been relatively ignored, in *Zhangzhou* city, various factors have supported the feature and modern agricultural development, such as the strengthening of infrastructure and preferential policy, it has resulted in high rural development level.

Different motivations and factors tend to cause the rural development level of different areas during different periods to present certain fluctuation. It is vital to conduct reasonable classification and promote pertinent policy suggestions in accordance with the overall rural development level in Fujian Province by exploring the features and rules of period change in regional development. The fluctuation coefficient analysis is conducted in accordance with the rural development level ranking of 57 counties and cities in Fujian Province during 2010-2013, and

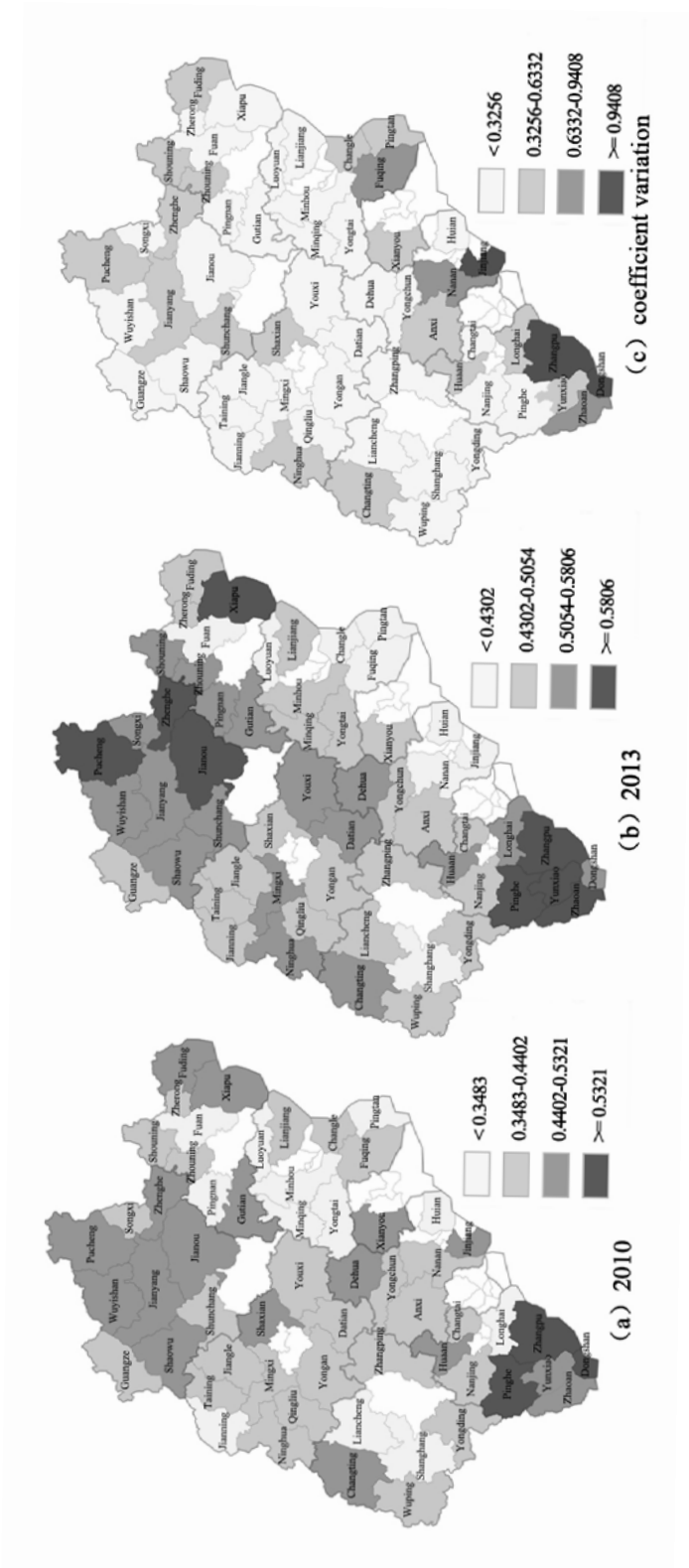


Fig. 1. Regions with high rural development level (RDL) in Fujian Province

87.72 percent of them have a coefficient equivalent to or higher than 87.72 percent, which means most counties and cities had unstable rural development during these years. Among them, *Jinjiang* county, *Dongshan* county and *Zhangpu* county had the most unstable development, the next were *Fuqing* county, *Nan'an* county, *Zhaoan* county, *Huaan* county, *Changting* county, *Shouning* county and *Xianyou* county (Fig. 1). For example, *Jinjiang* county initiated the new urban development strategy in 2009, which rapidly promoted the new urbanization process and accelerated the urbanization process of rural area, as a result, the rural agriculture has been replaced, the rural population has had identity transfer, and the rural life has transformed to city life. In areas like *Dongshan* county and *Zhangpu* county dominated by the agricultural industries of fishery and featured agriculture, in recent years, due to the impact from various factors such as the fluctuations of seafood market, industrial environment pollution as well as the industrial transformation and upgrade of agriculture, they have experienced significant fluctuations in recent years. Most counties and cities in the west, central and east parts of Fujian Province have stable rural development, which can be mainly attributed to the following several factors like restriction of terrain conditions, long distance from the city, inconvenient transportation and the dominant status of traditional agriculture.

Regional Characteristics and Influencing Factors

In 2010, the regions with high rural development level (*RDL*) in Fujian Province mainly concentrated on the Zhangzhou city (South of Fujian Province), followed by Nanping city area (East of Fujian Province), and the regions around Fuzhou city, Quanzhou city and Xiamen city generally had low development level (Fig. 1). The Zhangzhou city area, including Zhangpu county, Pinghe county, Dongshan county, Yunxiao county and Zhaoan county, among the top in the province on the aspects of strengthening infrastructure construction and undertaking industrial transfer from Taiwan agriculture, the fund support for early infrastructure construction is high, and the policy strength is significant. In the Nanping city area, including Jiansyang county, Jian'ou county, Shaowu county, Zhenghe county, Wuyishan county and Pucheng county, its industrial structure of agriculture is dominated by ecological tourism, traditional agriculture

and animal husbandry, which has resulted in the high rural development level. The rural development level (*RDL*) depends on the industrialization and urbanization development level. After the adoption of reform and opening-up policy, by grasping the development opportunities such as the establishment of Western Taiwan Straits Economic Zone, the metropolitan circle has been gradually formed in the coastal area of Fujian Province, with Fuzhou city, Quanzhou city and Xiamen city. As a result, the fast development of industrialization and modernization will definitely result in the significant decline in the proportion of agriculture, the identity transformation of agricultural population and the transfer of surplus labor in the rural area, which has caused insufficient capital and labor elements for rural development, and it has resulted in the low rural development level.

In 2013, the regions with high rural development level (*RDL*) mainly concentrated on the south and north parts of Fujian Province (Fig. 1). The south part of Fujian Province consisted of Yunxiao county, Zhaoan county, Pinghe county and Zhangpu county, which has also radiated to other areas such as Dongshan county, Longhai county, Nanjing county, Yongding county, Huaan county and Changtai county. The average S_{RDL} was 0.5596, the main cause was the featured modern agricultural development of this area depends on the urbanization construction and the demanded market of economic belt in South Fujian Province. The advantages on the aspects of infrastructure, industrial support and transportation, and the industrial structure of agriculture were further regulated. The north area concentrated on Zhenghe county, Pucheng county and Jian'ou county, which is radiated to Wuyishan county, Jiansyang county, Shaowu county, Shunchang county and Songxi county, as well as others in East Fujian Province, such as Shouning county, Zhouning county, Pingnan county, Gutian county and Xiapu county. The average S_{RDL} is 0.5590, and the main cause is driven by the continuous development of green ecological tourism in Northwest of Fujian Province, and with Wuyishan county (center). It has promoted the development of modern agriculture on animal husbandry and the overall construction of mountain farming with regional characteristics of East Fujian Province. The regions with low rural development level (*RDL*) were mainly concentrated on the east part of Fujian Province as well as the coastal counties and cities in the south, such as Changle

county under the administration of Fuzhou city, *Luoyuan* county, *Fuqing* county, *Pingtang* county, *Nan'an* county under the administration of *Quanzhou* city, *Huian* county and *Jingjiang* county. The average S_{RDL} was 0.4006, and the main causes include the urban integration of metropolitan region and the new urbanization development, which has transferred the rural labor and absorbed the financial support fund in a high degree.

From the individual perspective, during the same period, the rural development level (RDL) of various counties and cities in Fujian Province affected by various inter-regional factors, such as geography, resource, economy and culture. Generally, the rural development level (RDL) of Fujian Province has improved by various factors including the agricultural modernization, new urbanization and new rural construction.

Basic Types and Policy Orientation

In order to make the overall differentiation of terrain types of rural development in Fujian Province more significant, from the four dimensions of economic development level, farmers' living standard, the public infrastructure condition and the rural social security, and with industry as the carrier, the K-means clustering analysis is conducted to the 57 counties and cities in Fujian Province through Stata12 by combining the interaction of various factors in production and life. Meanwhile, because various regional units have different rural development types, different development conditions, levels, structures and directions, by combining the actual situation grasped during the practical investigation, the rural development type of Fujian Province will be named as "industrial structure oriented." It can mainly be divided into the four types of industry and commerce oriented (I), agro-industry oriented (II), agriculture, industry and commerce oriented (III) and agriculture oriented (IV), and then, one can use the ArcGIS software to draw the numeric features (Fig. 2). Finally, by combining the regional distribution features, field investigation and related development plans of various county and municipal governments, systematic analysis will be conducted to the advantages, potentials and restriction elements of different types of areas, and corresponding development direction and policy sug-

gestions will be proposed.

The industry and commerce distributed five areas of *Fuqing* county, *Changle* county, *Pingtang* County, *Jingjiang* county and *Longhai* county. This type has high urbanization level, which is around big cities, the agricultural productivity is high, the urbanization speed and efficiency of rural area are high, and the secondary and tertiary industries occupy a high proportion. The constraints for rural development include the gradual decrease in agricultural acreage, the continuous transfer of rural population, severe non-agricultural occupation of agricultural acreage and severe damage to the ecological environment in rural area. Therefore, in the future, the industrial structure of agriculture will be adjusted and optimized in accordance with the market demand of city's size, meanwhile the efforts will be made to develop comprehensive modern agricultural system and urban multi-function agriculture. Along with strengthening the ecological environment protection and the popularization and education of environment protection awareness in the rural area, improve related laws and regulations, and reduce the non-agricultural occupation of farmland through reasonable allocation of rural land utilization methods.

The commerce oriented type (III) consists of ten counties and cities, including *Yong'an* county, *Datian* county, *Nan'an* county, *Anxi* county, *Yunxiao* county, *Zhangpu* county, *Jian'ou* county, *Jiayang* county, *Zhenghe* county and *Fuan* county. This type of county has a long history of agricultural industry, competitive advantages of agricultural industry. Recently, the industrialization of agriculture and the processing technique of agricultural products were continuously promoted, and also, the conversion of agricultural technology has been continuously improved, and the regional radiation and motivation ability of township enterprises has been continuously strengthened. The main constraints include that the new urban development system needs to be improved, fast industrialization has resulted in severe pollution to the rural area, and the endurance of industrial development of agriculture has declined. Therefore, future development will be focused on optimization of the industrial structure of agriculture, extending the industrial chain and improving the technical added value of agricultural products. Meanwhile, efforts should also be made to guide the intensive and effective development of town-

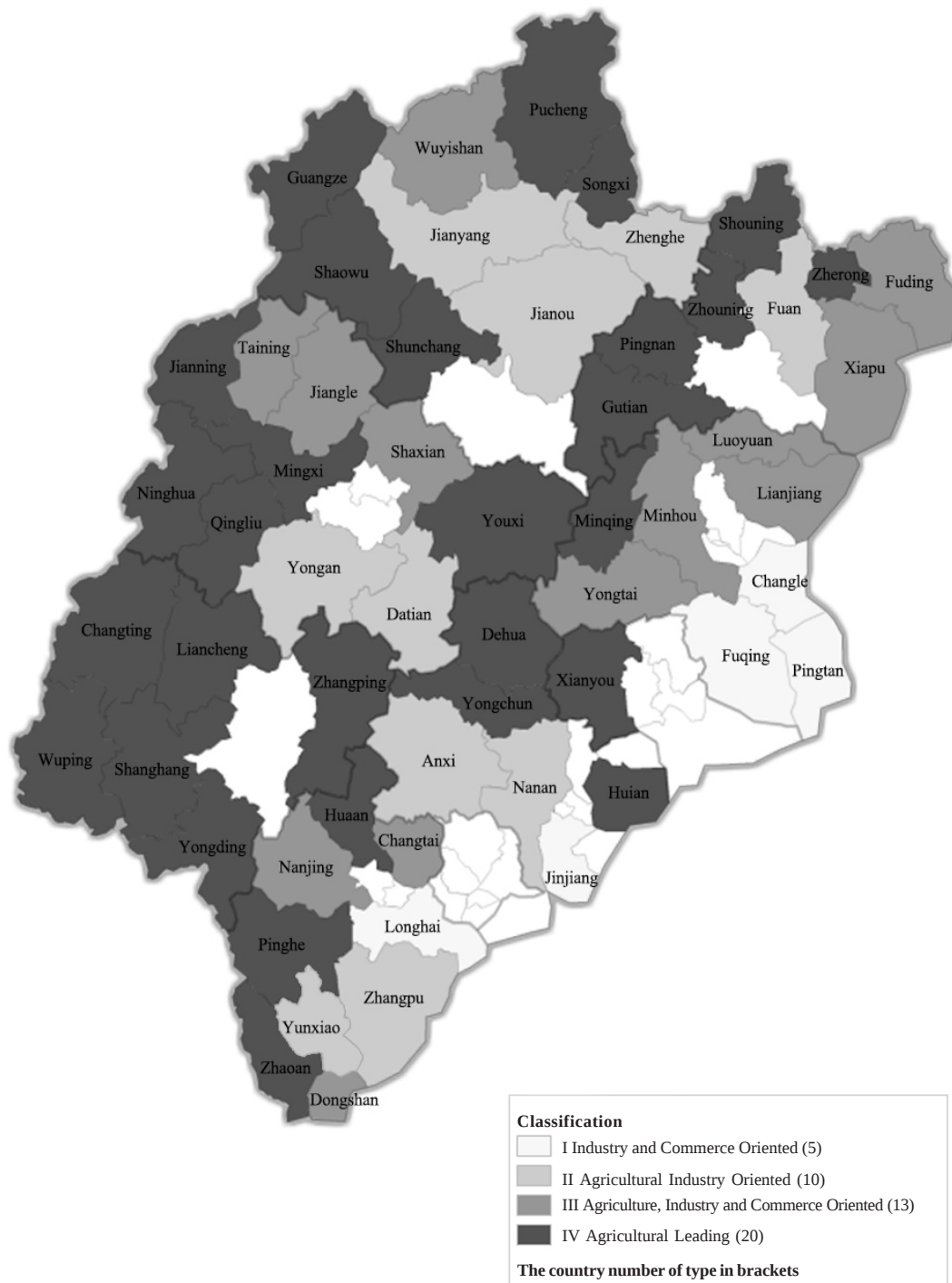


Fig. 2. Rural development type of Fujian province named as 'Industrial structure oriented'

ship enterprises, integrate advantageous resources, strengthen the effective utilization of resources and the ecologic growth of economy, accelerate the transfer of surplus labor in rural area, improve the small town development system and promote the beautiful rural construction.

The agriculture, industry and commerce oriented type (III) includes thirteen counties and cities. Over all, which are *Minhou* county, *Lianjiang* county, *Luoyuan* county, *Yongtai* county, *Shanxian* county, *Jiangle* county, *Taining* county, *Changtai* county, *Dongshan* county, *Nanjing* county, *Wuyishan* county, *Fuding* county and *Xiapu* county. This type maintains relatively good ecological environment, and based on featured resources, the agricultural product processing and tourism have experienced fast development in recent years, and the structures of agriculture, industry and commerce are relatively balanced, and the road transportation infrastructure is relatively complete. The constraints of rural development that including the rural human settlement, requires further improvement, which related to tourism service facilities in most areas. Also, the comprehensive quality of rural residents, the technical, and cultural needs to be improved. Therefore, during development, efforts should be made to continuously strengthen and protect the overall ecological environment, improve the value of ecological output, strengthen and improve the infrastructure construction and improve the rural human settlement, strengthen the rural residents' education on the aspects of culture, ecology and skills, and improve the comprehensive quality of farmers, carry out the advantages of natural ecological environment, combine rich cultural resources, and promote the coordinated development of agriculture, processing and service industries in rural area with the featured agriculture of mountainous area as the orientation, and with the ecological, cultural, agricultural and experience tourism as the carrier.

The agriculture oriented type (IV) is mainly distributed in most areas in the west, central and north parts of Fujian Province, which includes twenty-nine counties and cities, such as *Minqing* county, *Xianyou* county, *Mingxi* county, *Qingliu* county and *Ninghua* county. This type mainly includes the remote mountainous areas with inconvenient transportation conditions, which have great agricultural production conditions. The constraints of rural development main-

ly include the difficulty to radiate metropolis, backward industrial and professional levels of rural area, severe outflow of rural labor, common phenomena such as idling arable land and hollowing out of rural area, as well as the inadequate endogenous power of rural development. Therefore, the small town construction and public supply in rural area should be the main direction, and efforts should also be made to guarantee the infrastructure construction such as irrigation and water conservancy and road transportation, strengthen the skill and cultural training of rural labor, and improve the employability and entrepreneurial ability, the government financial support should transfer from "blood transfusion" to "blood creation" to strengthen the endogenous innovation and development of rural area, support and guide the development of featured and advantageous agricultural industry, extend the links of industrial chain, and improve the added value of agricultural products, actively introduce social capitals, and guide e-commerce to participate into the development agricultural industry.

Suggestions

In order to comprehensively promote and guarantee the beautiful rural construction and promote the development of rural area, it requires innovating the macro-system and policies that may include the following. The researchers' first proposal is that the farmers should be supported and encouraged to create business and development comprehensive modern, leisure and urban multi-function agriculture, in this way to effectively transfer the surplus labor in rural area and improve the internal development innovation of rural area. The second suggestion is the administration should promote the small town development system, guide the intensive and effective development of township enterprises, develop through multiple industrial forms such as township enterprises and economic cooperation organization, drive the supply of public products in the rural area, and motivate the development vitality of rural area. The last but one is that the government should transfer the capital policy support method and capital participation method, improve the infrastructure construction, support the development of various industries (such as featured agriculture, ecological, cultural and agricultural tourism) in the mountainous

area through the form of “replacing subsidy with reward”, and guide the participation into agricultural production through the Internet. Ultimately, the government agency should strengthen the ecological and environmental construction in rural area, popularize education on environment protection, reduce the non-agricultural occupation of farmland, and improve the ecological value output.

DISCUSSION

This paper reveals four basic types of rural development in provincial through quantitative analysis. Li and Liu (2011) state that remaking traditional agriculture rural development pattern with studied on the pattern and types of rural development in the Huang-Huai Hai region. Besides, Chen et al. (2014) indicate that the driving factors of spatial differentiation of rurality, which included industrial development, government investment, agricultural modernization and ministry of foreign trade. In addition, Li et al. (2017) divided types on village scale in the view of rural multifunction. In terms of perspectives, this essay establishes the index system for the fact in Fujian province with absorb and draw on the experience of the evaluation index from previous researchers. As this paper also emphasized by ecological function which is the most advantage in research area. Li and Wang (2013) mentioned this point of view as well based on the assessment of the county's rurality in the reservoir area eco-economic zone. Furthermore, the viewpoint of government departments might pay attention to exploit rural development project (Dwyer and Powell 2016) was assimilated. Hence, while making scientific plan and policies for provincial beautiful rural construction, the study can provide reference.

CONCLUSION

The sustainable construction of beautiful rural area depends on the rural development level. This paper has conducted a comprehensive assessment of the rural development level in Fujian Province during 2010-2013 from the county perspective, which can be used to effectively grasp its general development level and actual situation. Based on the availability, quantify ability and actual situation, the multiple-index comprehensive assessment system for the rural

development level of Fujian Province is built hierarchically on the four aspects of economic development level, farmer living standard, public infrastructure condition and rural social security, and comprehensive analysis is also conducted to the basic features, regional characteristics and influencing factors of rural development in Fujian Province. In the meantime, the K-means clustering analysis is conducted to the dominant types of rural development in Fujian Province, and the rural development in Fujian Province is divided into the four basic types of industry and commerce oriented (I), agro-industry oriented (II), agriculture, industry and commerce oriented (III) and agriculture oriented (IV). The research results are basically consistent with the actual situation in various counties and cities in Fujian Province, and these assessment indices, research methods and conclusion can be used as the reference in the decision making process for regional beautiful rural area planning and construction, which can be further promoted and applied.

ACKNOWLEDGMENTS

This work is supported by the structure and mechanism innovation for improving rural governance as base of national comprehensive security, a major project funded by the National Social Science Foundation of China (No.14ZDA064). The authors would like to thank professor Yin-ying Cai for her very helpful and constructive comments.

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Paper received for publication on November 2016

Paper accepted for publication on July 2017