

Research Article

Research on Western Agriculture's Modernization and Industrial Integration based on Characteristics of Agricultural Development

Li Xing-Su and Gu Xiang

School of Construction Management and Real Estate, Chongqing University, Chongqing 400045, China

Abstract: Regional economic development depends on the support of external environment and natural resources. Because of the influence of innate natural environment, China's western region dual economic structure features are more prominent than the east which is mainly in the plains and its economy is relatively developed. Strengthening agriculture and rural development in West and in the transformation of traditional agriculture, increasing agricultural productivity, while transform modernization of agriculture through various ways in western China is an important way to a dual economy economic structure transformation. This study through the contrast between the western and eastern region dual economic structure, points out that the duality of the economic structure in west is better than the present situation of the east; On the basis of this, discuss the western agricultural regional resource advantage and the way of agricultural modernization, propose related countermeasures and suggestions of western agricultural modernization and western rural industrial integration which established on the basis of development of western characteristic agricultural.

Keywords: Agriculture, dual economic, industrial integration

INTRODUCTION

Agriculture as the foundation of the national economy, its development is related to the national economy development and social stability. Since the new China is founded, the urban and rural areas adopted the double standards policy, gradually forming the existing dual economic structure. Especially in the western region in China, due to various reasons, agriculture more backward, farmers poorer, becomes the bottleneck of the western rapid economic sustainable development.

Taking effective way to develop the western agricultural economy is important to realize the combination of western economy and west urban-rural integration. If we don't do that, under the circumstances of labor heterogeneity and rural labor migration (Xibao and Can, 2010), before reaching the ideal level of urbanization and industrialization, agricultural development which is the basis for survival in the whole society will be impacted hugely in China.

According to development economists (Lewis, 1954; Ranis and Fei, 1961; Jorgenson, 1961), dual economic structure is modern industry department and traditional agriculture department existing all at once in the developing countries. The characteristic of clustering, scale and liquidity makes the modern industrial department exist in urban naturally and traditional agriculture department is reserved in the rural areas naturally. Due to the development difference

between above two sectors, the gap between urban and rural is widening more and more not only in economy areas but also in hard infrastructure such as water, electricity, transportation and soft infrastructure such as health and education etc.

To a large extent, backward economy of western China is due to backward agriculture and rural economy. Only speeding up the development of western agriculture and consolidating the agricultural foundation status can achieve the whole of China western region's economic prosperity and social stability (Maoting, 2011).

Strengthening agriculture and rural development in western China and with the transformation of traditional agriculture and increasing agricultural productivity, taking various ways to transform the agriculture being modernization in western China is an important way to realize the social economy structure unified. Based on the dual economy theory, the objective of this study is to put forward related countermeasures and suggestions of western agricultural modernization and western rural industrial integration which established on the basis of development of western characteristic agricultural.

THE WESTERN AGRICULTURAL DEVELOPMENT SITUATION AND CHARACTERISTICS

The western agricultural ecological environment: From administrative division, western region mainly

Corresponding Author: Li Xing-Su, School of Construction Management and Real Estate, Chongqing University, Chongqing 400045, China

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includes 12 provinces and autonomous regions. The provinces cover an area of 5.38 million km², which account for 56% of China's total territory. The population is 356 million, accounting for 28% of the China's total population. The year 2008, 58% of the land is grazing and 28% is forest land, garden land accounts for 1%, other only accounts for 3%, while the cultivated land accounts for only 10% in the western China. The western agricultural population accounts for more than half of total population and land area is broad, cultivated land accounts for 27%, while mountain, plateau terrain are the most. Western China's per cultivated area and volume are low; the southwest mountainous area is larger, which fertile lands that can use is small and isn't good for sowing and harvesting for agricultural machinery, so it's difficult to form large-scale belt; while the northwest areas are affected by drought, there is still the problems of soil impoverishment, soil erosion and desertification. But should also be noted that western region rich in resources, various types of climate, agriculture and rural economy in terms of breadth and depth has a huge development potential.

The western agricultural labor productivity: In 2012, the western total agricultural output value(ecological-economic) accounts for 26.4% of China's total, farming population accounts for the agriculture population was 55.8% (Table 1 and 2). Compared to the western region present situation and

the national agricultural labor productivity and eastern region (including Beijing, Shanghai, tianjin, hebei, jiangsu, zhejiang, fujian, shandong, guangdong, hainan and other 10 provinces and cities) whose economy is relatively developed, from the binary contrast index which is reflection of agricultural comparative labor productivity and non-agricultural comparative labor productivity difference, the national average is 1.31, 10 eastern provinces and cities' is 1.05, 12 western provinces and cities' is 1.57 (Table 3). The results not only reflect realistic condition of western agriculture labor productivity is relatively low, also show that dual-structure of economy of western region is more significant than eastern region.

The main crop situation in western region: Although in recent years, local governments continue to increase the agricultural structure adjustment, cash crops continues to increase, the total economy is rapid growth, but the overall level of agricultural industrialization in West is still not high. Since 2000, production in the western region's major crops are increasing year by year, in which economic growth crop yields is significantly higher than conventional oil crops, in addition to fiber crops. The remaining crops are larger than the annual growth rate of grain and oil crops, among tea, fruit growth the biggest, fruits up to 13.26% annual growth rate (Table 4).

Table 1: Western agricultural forestry animal husbandry fishery output total value accounts for the proportion (%)

	1995	2000	2001	2011	2012
Agricultural forestry animal husbandry fishery output total value	23.1	23.1	23.2	25.9	26.4
Agricultural	24.3	25.1	24.6	27.8	28.5
Forestry	24.1	25.9	26.0	28.3	27.7
Animal husbandry	24.7	25.0	25.9	28.3	28.9
Fishery	6.2	6.7	6.9	8.2	8.1

State statistics bureau of rural social economic investigation department, 2013 China rural statistical annual, China statistical publishing house

Table 2: The western primary industry average proportion of workers (%)

Chongqing	Sichuan	Guizhou	Yunnan	Tibet	Shaanxi	Gansu
43	56.5	63.6	60.7	77.3	50	61.3
Qinghai	Ningxia	Xinjiang	Inner Mongolia	Guangxi	Western primary industry average proportion of workers	
52.6	49.3	56	42.3	56.5	55.8	

State statistics bureau of rural social economic investigation department, "2013 China rural statistical annual", China statistical publishing house

Table 3: Eastern and Western comparative table of the dual economic indicators

Year	West		East		Nationwide	
	Dual contrast coefficient	Dual difference coefficient	Dual contrast coefficient	Dual difference coefficient	Dual contrast coefficient	Dual difference coefficient
2000	0.17	1.74	0.21	1.14	0.177	1.398
2001	0.16	1.80	0.21	1.14	0.168	1.424
2002	0.16	1.72	0.21	1.12	0.159	1.45
2003	0.16	1.64	0.21	1.10	0.152	1.452
2004	0.17	1.57	0.22	1.05	0.175	1.345
2005	0.17	1.55	0.21	1.04	0.17	1.321
2006	0.16	1.53	0.21	1.02	0.168	1.288
2007	0.16	1.48	0.21	1.01	0.175	1.243
2008	0.17	1.44	0.22	0.99	0.183	1.207
2009	0.16	1.43	0.22	0.98	0.187	1.178
2010	0.16	1.40	0.22	0.97	0.194	1.145
Average	0.16	1.57	0.21	1.05	0.17	1.31

Each year "China Statistical Yearbook", China statistical publishing house

Table 4: Western staple crops production average annual growth rate (ten thousand tons)

Staple crops	Crops	Oil-bearing crops	Cotton	Bast	Sugar	Tobacco leaf	Tea	Fruit
2000	12896	671.3	160.5	10.5	5047.5	142.8	19.1	1613.4
2012	15495	933.6	370.7	12.3	10845	207	67.3	7186.7
Average annual growth rate	1.54%	2.79%	7.22%	1.33%	6.58%	3.14%	11.07%	13.26%

State statistics bureau of rural social economic investigation department, "2013 China rural statistical annual", China statistical publishing house

Table 5: 12 provinces and autonomous regions in western rural residents constitute gross income (%)

Year	1990	1995	2000	2011	2012
Wage income share	8.7	8.3	15.7	23.1	24
Family business income share	87.4	86.3	79.2	67.4	65.6
Property income share		1.7	1.3	1.7	1.7
Metastatic income share	3.9	3.1	3.9	7.8	8.7

State statistics bureau of rural social economic investigation department, "2013 China rural statistical annual", China statistical publishing house

Farmers' income in west: Since 1990, from the composition the proportion of revenue (Table 5), operating income of farm families and salary income is the main source of income of the farmers, in which the proportion of wage income of farmers have a big increase and the proportion of income was a family-run continued downward trend. This shows that rural industrial structure of the west is changing. This fully shows that the western rural industrial structure constitution is no longer confined to traditional agriculture. Second and tertiary industries to promote the development of agriculture together gradually occupy a place in rural areas and society. On the other hand, the proportion of income is rapidly improving transferability. This shows that national subsidies for agriculture in the western region increases year by year and invest in agricultural development in the West is increased.

THE THEORETICAL BASIS OF ACHIEVING WESTERN REGION ECONOMIC UNIFICATION

How to dual economic structure to economic unification structure transformation, development economics put forward a series of theories and opinions:

- In Lewis (1989) model and theory as the representative of the industrialized economic structure unified view: The impact of rural labor mobility and unified urban and rural economic is due to development of the city industrialization and the expansion and attraction rural surplus labor (surplus labor), resulting in rural depopulation, thus naturally raise the marginal productivity of labor in agriculture, to achieve convergence of the income of urban and rural employment and economic unification. Thus, Lewis theory hold that, by reducing the agricultural population, labor marginal productivity in agriculture will be forced to increase and therefore the construction of urban industrial development for the unification of traditional agriculture to economic development and economic structure is significant.

- Fei and Ranis (1992) model and the theory of balanced development of agriculture and industry representatives to promote economic structural unified view (Fei and Ranis, 1992) model holds that there is a considerable amount of labor marginal productivity is greater than zero and less than the wage labor system of surplus agricultural labor force. Therefore, before the entire agricultural surplus labor transfer out, support industrial development and even the survival of the city had already started to insufficient agricultural surplus. This shortage will hinder the development of existing industries, therefore, before the entire agricultural surplus labor transfer, it is necessary to take into account the balanced development of agriculture and industry.
- Todaro (1988) model and theories as the representative emphasized the development of agriculture itself unified theory of economic development: Todaro model says: urban industrial sector of the economy to absorb the agricultural labor force is ultimately limited. Therefore, to eliminate the phenomenon of dual economic structure, relying solely on the urban industrial sector to absorb clean so-called surplus agricultural labor force thereby enabling to stay in rural areas to maximize the marginal productivity of labor, income equivalent to the urban industrial sector is unrealistic; considering urban absorption agricultural surplus labor, we should also pay attention to the development of agriculture and rural areas to encourage comprehensive development in rural areas, to achieve to improve agricultural productivity and improve living conditions in rural areas to narrow the urban-rural divide and eventually eliminate the phenomenon of dual economic structure.

ANALYSIS ON UNIFIED APPROACH IN WESTERN ECONOMIC DEVELOPMENT

Vigorously develop the western characteristics of agricultural products, upgrading traditional agricultural structure: While the east is the traditional bulk high-yield area of grain and oil, but the structure of

agricultural production is relatively simple, much less the western mountains of the status quo is more suitable for crop production career. With the changes of the social structure diet, it must upgrade traditional western agricultural planting structure west, develop western local agricultural products, highlight the advantages of western agriculture and promote western agriculture towards modernization.

Development of western characteristic benefit agriculture, make decisions by that is unable to break its natural endowments and unique resource constraints advantage of the climate. West China is mostly mountainous and plateau. Compared with the eastern and central regions, the urbanization rate and degree of industrialization's low, in addition to the local irrigation farming areas, most areas do not have the large-scale production of high-yielding crop conditions mechanized agricultural areas of the East Midlands. In the past, agricultural market structure in the western region tend to exhibit those features, that's: primary products, less high-grade, high-tech, high value-added processing manufactures; popular and dependable and less goods in short supply; traditional products, less innovative products (Shufang, 2001). But the west is fully equipped with the objective conditions of the cultivation and processing of green food, wild herbs and other characteristics of agricultural products. China currently has development of green food, while the western provinces only accounts for 15% of the total primary products (Dequan, 2001), a very large room for improvement.

West of wild medicinal resources, is also the most abundant species, the largest reserves, acquired one of the largest areas. This is many important areas of rare and export of Chinese herbal medicines. Western Region unique wild herbs mountain plateau is an important direction of development of western agriculture. 63% of Chinese herbal medicine resources are mainly distributed in 12 provinces, municipalities and autonomous regions (Chengming *et al.*, 2004) (Table 5).

Deep processing features crops and promote rural industrial structure adjustment west: For a long time, agriculture is almost the only production sector. After 1978, with the rapid development of the rural economic system reform, rural areas, industrial, commercial, transportation and other sectors have become an important part of the rural economy. But agriculture is still the most important industrial sectors in rural areas. In fact, the development of modern agriculture and the second and tertiary industries closely together, can contribute to achieve unified urban and rural areas as well as economic.

In the process of industrialization in developing countries, industry characteristics often exhibit technology-intensive, capital-intensive features, but relatively limited in absorbing rural surplus labor force;

However, the integration of industrial chain around the characteristics of agricultural products, processed agricultural products to build the core of modern agricultural industrial integration can be primary agricultural production and food processing and commercialization, the market combine to make capital, technology, personnel and other factors from a simple flow urban mobility becomes a two-way flow of factors between urban and rural areas. Which is conducive to promoting the modernization of agriculture and rural construction, urban and rural areas in favor of the opposition, the opposition of the industrial agriculture pattern and the pattern shift toward urban-rural integration.

Prominent western characteristics of agriculture advantages, further enhance the effectiveness of investment in western agricultural output: 12 provinces and autonomous regions in western China are modest development in agricultural development areas and protected area (Ministry of Agriculture of the P.R.C., 2015). "Ecological fragility, water and soil configuration dislocation, resources and engineering severe water shortages, limited environmental carrying capacity of resources, agricultural infrastructure relatively weak are the areas' feature. We should adhere to both conservation and development, based on resources and the environment endowment, play to our strengths and avoid weaknesses, moderate tap potential, intensive conservation and orderly use, to improve resource utilization."

A Problem State Agriculture Development of Western China is facing is "Mountain more, land less, grassland rich". Enhancing land productivity by raising the technological content, enhancing efficiency by increasing market value of the land, grabbing high efficiency in a small area, it is suitable for the development of modern agriculture in Western. Western agriculture should highlight its characteristics of agricultural resources, developing western lands suitable for the cultivation of cash crops and appropriate development of the plateau's ecological animal husbandry, improve the input and output efficiency of agriculture in west. For example, Sichuan Daily (2010) province through years of the adjustment of agricultural structure, cash crop output has exceeded staple food, to achieve a high input and output efficiency characteristic agriculture.

Accelerate the cultivation and development of resources, markets and efficiency characteristics of competitive industries and constantly improve land productivity, resource utilization and labor productivity, change development way, highlight the western characteristic, to achieve rapid and sustainable and stable development of agriculture in the western region. Out of a science and technology content, good economic returns, low resources consumption, little environmental pollution and agriculture characteristics of the western high input and output efficiency of modernization. Take

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