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Comparative Analysis on the Effects of Income Structure on Consumption Level of Rural Residents in Eastern and Western China

—A Case Study on Jiangsu and Xinjiang Provinces

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Abstract Taking Jiangsu and Xinjiang Provinces in China as examples, this paper analyzes the differences of income level, income structure and consumption level between eastern and western China. Since the reform and opening up, income of rural residents in eastern China has been much higher than that in western China. Income gap between eastern and western rural residents is increasing over time. Rural per capita net income in eastern area is mainly the net income from household management and the wage income. However, rural per capita net income in western area is relatively single, mainly the net income from household management. Living consumption of eastern rural residents is higher than the western rural residents and the gap is gradually widening. Four factors affecting the consumption level of rural residents in both eastern and western areas are discussed, which are natural environment, social culture, economic and technical level and policy system. According to the relevant data in the years 1993–2007, Regression Analysis Method is adopted to study on the effect of income structure on consumption level of rural residents in eastern and western China. Result shows that according to the structure of income sources, difference of consumption level between eastern and western areas is mainly caused by the difference of wage income; while differences of net income from household management and property transferred income have little effect on the difference of living consumption level. Based on this, relevant suggestions are put forward. On the one hand, western region should accelerate the promotion of urban-rural integration, make great efforts to develop secondary and tertiary industries in order to optimize the income structure of rural residents, and effectively improve the level of wage income of rural residents. On the other hand, eastern area should promote the coordinated development of three industries, and maintain the advantages in urbanization and industrialization levels.

Key words Income structure; Consumption level; Differences between eastern and western China; Empirical analysis

1 Research background and significance

Since the reform and opening up, gap between eastern and western development levels has been widened due to the natural environment, social culture, economic and technical level, and policy system. Accompanied by the rapid development of urbanization and industrialization, income of rural residents in eastern China increases sharply, as well as their consumption level, while rural economic development in western China is relatively backward. Income level of rural residents is relatively single and low. Besides, rural social security system is not perfect at present, and saving of rural residents is relatively high, which leads to a serious shortage of consumption, and in turn hinders the economic development. Therefore, it is necessary to analyze the reasons for the differences in income and consumption level between eastern and western rural residents. Based on this, measures can be taken to narrow the gap and to achieve balanced development.

At present, when studying on the differences in rural income and consumption level between eastern and western areas, scholars usually conduct qualitative analysis from the aspects of natural environment, social culture and economic development. For instance, Li Junyi *et al.* discuss the reasons for the differences between eastern and western rural income from

the natural factor, cultural and technical factor, policy factor, industrial structure factor and so on^[1]. Zhao Zhongxuan analyzes the differences in rural income from the aspects of resource conditions and geographic location, institution and policy, fiscal and taxation systems, non-agricultural sector development, marketization degree and operation mode^[2]. Based on a large amount of data, Wang Liping analyzes the characteristics of rural economic development of eastern and western China, as well as the causations for their differences. Based on this, Wang Liping puts forward some ideas and suggestions for the coordinated development of rural economy in eastern and western China^[3]. However, there are few researches on the consumption level and income differences between eastern and western rural residents from the angle of income structure. Xinjiang is at the northwest border of China with sparse population, large proportion of rural population and ethnic minorities. Its output value of primary industry is in the upper medium level in the western provinces. Therefore, Xinjiang Province is the most representative among the ten provinces in western China. And Jiangsu Province has long been regarded as a typical province in eastern China. Thus, we take Jiangsu and Xinjiang as the examples, use Empirical Analysis Method to discuss the reasons for the rural income and consumption level differences between eastern and western China from the aspects of income structure of rural residents, so as to offer references for relevant policy making.

2 Analysis on the differences in income structure and consumption level of rural residents between eastern and western China

2.1 Analysis on the differences in income level and structure of rural residents between eastern and western China

2.1.1 Differences in income level of rural residents between eastern and western China. Since the reform and opening up, rural economy has developed rapidly in China; and income level of rural residents has increased rapidly. But income of rural residents in eastern China is higher than that in western China and the gap grows even wider^[4]. Even after the implementation of the western development strategy, income gap between eastern and western rural residents is still increasing over time.

In the year 1990, per capita net income of rural residents in China is 686.31 yuan. And the per capita net income of rural residents in seven eastern provinces (Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Anhui and Jiangxi) is 945.58 yuan, 37.7% higher than the national level, while that of ten western provinces (Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Ningxia, Shaanxi, Gansu, Qinghai and Xinjiang) is 551.84 yuan, which is 80.4% of the national level and 58.35% of the average level in eastern China. In the year 2007, rural per capita net income is 4 140.36 yuan, which is 6.0 times of that in 1990. Among them, rural per capita net income of seven eastern provinces reaches 6 146.31 yuan, 6.5 times of that in 1990 and 48.44% higher than the national level. Rural per capita net income of ten western provinces is 2 887.35 yuan, which is only equal to the per capita level of eastern region in the years 1996 and 1997. Jiangsu and Xinjiang Provinces have the same situation as other eastern and western regions.

2.1.2 Analysis on the differences in income structure of rural residents between eastern and western China. Income structure of rural residents has great differences between eastern and western areas. Income structure of rural residents in eastern area tends to be a diversification of the net income from household management and the wage income, but that in western area is relatively single, mainly the net income from household management. That is to say, the largest difference between eastern and western areas lies in wage income. Wage income of rural residents in eastern region accounts for high proportion in per capita net income, some provinces account for even more than a half. However, proportion of wage income of rural residents in many western provinces is only less than 10 percent of per capita net income. These are mainly caused by the different labor qualities, urbanization and industrialization levels, natural and geographical conditions of eastern and western areas. Taking Jiangsu and Xinjiang as examples, differences in rural residents' income between eastern and western China are analyzed.

Wage income and net income from household management are the major part of rural per capita net income of Jiangsu Province. Property transferred income has a relatively small contribution to net income. In the past decade, proportion of wage income in per capita net income is increasing year by year, while the proportion of household management income

continues to decline from 40.26% in the year 2000 to 38.9% in 2007.

Income structure of rural residents in Xinjiang Province is single. Proportion of household management income in per capita net income shows a gradual downward trend in the past decade but is still relatively high. In the year 1990, net income from household management accounts for 93.05% of per capita net income, and drops to 90.34% in 2007. In the composition of net income per family, primary industry is the main source, and income of agriculture and animal husbandry occupies as high as 90% of the net income from household management. After the year 1995, proportion of agricultural income in net income from household management has been decreasing with only 0.81% decline within 12 years. However, proportions of animal husbandry and other industries are relatively stable.

2.2 Analysis on the differences in consumption level of rural residents between eastern and western China

There are great differences in the income level and structure of rural residents. Therefore, differences in the consumption level of rural residents between eastern and western China are significant. Generally speaking, living consumption of rural residents in eastern China is higher than that of western China, and the gap is widening gradually. Taking Jiangsu and Xinjiang Provinces as examples, since the reform and opening up, per capita net income of rural residents in Jiangsu Province has increased significantly along with the process of industrialization and urbanization. And the living consumption level has also enhanced sharply. Per capita living consumption rises from 1 938 yuan in 1995 to 4 786.15 yuan in 2007, an increase of 1.5 times within 12 years. At the same time, living consumption level of rural residents in Xinjiang Province has also enhanced greatly. However, in the year 2007, per capita living consumption level of Xinjiang Province is only 2 350.58 yuan, less than a half of the per capita level of Jiangsu Province.

According to the consumption level, proportion of food consumption decreases from 43.53% in the year 2000 to 41.62% in 2007 in Jiangsu Province. Among them, proportion of staple food consumption declines but those of repast consumption and non-staple food consumption increase year by year, as well as the proportion of transport, communication and entertainment consumption. However, rural residents in western China are in their initial transition period from solving the problem of food and clothing to a higher consumption level.

3 Analysis on the influencing factors of the differences in consumption level between eastern and western rural China

Either from Keynes's absolute income function, or from the consumption function considering rational expectations, income level is one of the important economic variables affecting the consumption of main body. Keeping other factors constant, income level and total consumption show a positive correlation. Hence, income level determines the purchasing power. High income level leads to large purchasing power, more and high-

quality commodities with wide area. Thus, a higher level of consumption structure is formed^[5]. From the aspect of income structure, contribution rate of the wage income of rural residents is relatively high in eastern area. Diversified income structure has enriched the source of income and has increased the permanent income, an income in a given period that can be expected, of rural residents^[6]. Rural residents can conduct reasonable arrangements for investment, savings and consumption according to the expected income, so as to reduce the excessive savings due to uncertain income and accidents prevention and enhance the consumption level. Based on this,

eastern rural residents can reasonably arrange their production, life and consumption, and enter into a sound income-consumption cycle. However, due to the single income and poor expectation of future income, rural residents in western China need more savings to prevent accidents. This shows that the income level and structural differences between eastern and western China are the main reasons for the differences in consumption level.

However, differences in consumption level, income level and income structure between eastern and western rural residents are caused by natural environment, social culture, economic and technical level and policy system (Table 1).

Table 1 Reasons for the differences in income and consumption level of rural residents between eastern and western China

Reason for difference	Eastern area	Western area
Natural geographical environment	Good natural condition, adequate water, fertile land; convenient information flow, well-developed transport infrastructure; relatively good ecological protection; abundant resource since ancient times and a long coastline	Poor natural condition, insufficient rainfall, sterile soil; sparse population, inconvenience flow of transportation and information ^[7] ; poor eco-environment, dust storm, debris flow; extensive cultivation and rough management, inland
Ideology and social culture	Rural residents are good at innovation, dare to take risks, work hard and actively seek fortune; relatively perfect education system, relatively high educational level of labor force; avant-garde consumption concept, greater demand for high-grade consumer goods	Rural residents are relatively foggish, dare not to take risk and innovation, and are engaged mostly in primary industry; few colleges and universities, relatively low cultural level of labor forces; demand for relatively low level of consumer goods
Economic and technological level	Relatively high level of agricultural technology; a high level of economic development, large capital stock, large amount of investment, relatively high market degree; high proportion of wage income of rural residents, developed secondary and tertiary industries	Relative backward degree of agricultural mechanization compared with eastern area; relatively low level of economic development, underinvestment; relatively low level of market degree; single income structure of rural residents mainly from agriculture
Social policy and system	Prior development, high degree of opening up; More return of tax and retain of tax system ^[2]	Inadequate development, particularly backward rural areas in western area; financial penury in county and township levels in some western area

3.1 Factors of natural geographical environment Eastern area is unique in natural condition with adequate water and fertile land. It rarely has dust storm, debris flow and other severe natural disasters. Eastern area has been a rich treasure land ever since ancient times. And the agricultural income of rural residents is relatively high. However, western area has the characteristics of extensive cultivation and rough management, and farmers are hard to increase their income. In the aspects of transportation and information, eastern area has relatively developed transport infrastructure and convenient information and logistics. It also has a long coastline, which is very conducive to the international flow of agricultural trade and the introduction of foreign capital. But western area is sparsely populated in the inland China with inconvenience transportation, single income structure and slow development, which affect the consumption level.

3.2 Factors of ideology and social culture In the cultural level, the overall education level of rural residents in eastern China is significantly higher than that in western China, which leads to a relatively high productivity of eastern labor force. At the same time, compared with western area, rural residents in eastern area are good at innovation, dare to take risks, and actively seek fortune, which enhance their income greatly and further optimize the power sources of income structure. This phenomenon is particularly prominent in rural eastern coast of Jiangsu and Zhejiang Provinces. Moreover, high income level

of eastern rural residents leads to relatively avant-garde ideas about consumption. And their demand for medium and high grade consumer goods is increasing and finally a virtuous cycle is formed, which also widen the gap in income and consumption level between eastern and western rural residents.

3.3 Factors of economic and technological level Due to the comparative advantages in natural geographical environment, ideology and social culture, eastern area has a relatively high level of economic and technological development. Sound economic development leads to adequate capital in eastern area along with the expansion of investment and the increase of agricultural technological level. Therefore, the labor productivity of rural residents is also further improved, and income increase of farmers is achieved more effectively. From another point of view, secondary and tertiary industries in eastern China are relatively well-developed, which provides employment and income opportunities for rural surplus labor force, and is very beneficial to optimize the income structure of rural residents. Besides, marketization degree of eastern area is higher than that of western area, which also helps to boost the consumption of rural residents.

3.4 Factors of social policy and system In the year 1988, Deng Xiaoping put forward the strategic guiding ideology of "two overall concerns", that is, after the prior development of eastern area, it should in turn help the development of hinterland, because eastern area with superior congenital con-

dition is developing rapidly but western rural area is lagging behind^[7]. Even after the implementation of West Development Strategy, income gap between eastern and western rural residents has not been narrowed, but is increasing over time.

4 Empirical analysis on the effects of income structure on consumption level of rural residents in eastern and western China—a case study on Jiangsu and Xinjiang Provinces

Compared with western area, the overall economic development level is relatively high in eastern area, as well as the per capita net income of rural residents, source of the income structure, and per capita living consumption. Taking Jiangsu and Xinjiang Provinces as examples, empirical analysis is conducted on the effects of income structure on consumption level of rural residents in eastern and western China. According to the data of 1993–2007 *China Statistical Yearbook*, we subtract per capita net income, per capita living consumption, wage income, net income from household management and property transferred income of rural residents in Xinjiang Province from the corresponding indices of Jiangsu Province, respectively.

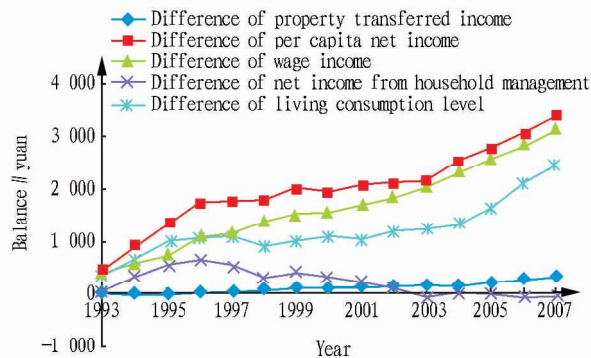


Fig. 1 Differences in income structure and consumption level of rural residents between Jiangsu and Xinjiang Province

Fig. 1 illustrates that the overall trends of the differences of living consumption level and per capita net income between Jiangsu and Xinjiang are the same. Difference of per capita net income is mainly due to the difference of wage income. And the proportion of difference of net income from household management, as well as difference of property transferred income, accounts for a lower proportion in the difference of per capita net income with instable development. Therefore, it can be deduced that difference of wage income is the main reason for the difference of living consumption level of between Jiangsu and Xinjiang rural residents. To further clarify the correlation among variables, Eviews 3.1 software is used to establish two models.

4.1 Regression Analysis on the differences of living consumption level and per capita net income of rural residents According to the Keynes's consumption theory, consumption is affected by income. Therefore, difference of con-

sumption level is subject to the difference of income level. The model selected is $y = c_0 + c_1z$, where y is the difference of living consumption level, c_0 is a constant, c_1 is a coefficient, and z is the difference of per capita net income.

Data in 1993–2007 *China Statistical Yearbook* are taken into calculation, and regression analysis is conducted. Thus, we have the model:

$$y = -77.848 + 0.642z \quad (1)$$

(9.771)

$$R^2 = 0.880; DW = 0.665; F = 95.466; SE = 184.415.$$

Economic behavior usually has a strong inertia. In other words, difference of living consumption level between Xinjiang and Jiangsu rural residents is affected by the difference of per capita income at that time, and the difference of consumption and income level, habit and environment in the past. Regression result of model (1) shows the existence of serial autocorrelation. We use Cochran-Orcutt method to eliminate the serial autocorrelation^[8]. Model (1) is corrected, using the modified model $y = c_2 + c_3z + AR(1)$, where c_2 is a constant, and c_3 is a coefficient.

Relevant data are put into the equation, we have:

$$y = -621.783 + 0.865z + [AR(1) = 0.683] \quad (2)$$

(4.687) (3.976)

$$R^2 = 0.922; DW = 2.165; F = 64.939; SE = 146.682.$$

Equation (2) shows that $c_3 = 0.865$, indicating every one yuan increase of the difference of per capita net income of rural residents will lead to the increase of 0.865 yuan in difference of living consumption level between Jiangsu and Xinjiang. Thus, it can be concluded that difference of per capita living consumption level of rural residents between Jiangsu and Xinjiang is affected by the differences of consumption and income levels, habit and environment in the past. At the same time, there is strong positive correlation between the difference of per capita income level and the difference of living consumption level. In other words, contribution rate of the difference of per capita income level to the difference of living consumption level between Jiangsu and Xinjiang is very high. Therefore, we should make efforts to promote the income of rural residents in western China, increase their consumption level, and narrow the difference of consumption level between eastern and western China.

4.2 Regression Analysis on the differences of the living consumption level and the structure of income sources of rural residents Difference of living consumption level of rural residents between Jiangsu and Xinjiang is affected by the difference of per capita net income greatly, as well as by the differences of consumption and income levels, habit, and environment in the past. In order to study on the effects of the difference of net income from household management (x_2), the difference of wage income (x_1) and the difference of property transferred income (x_3) on the difference of living consumption level, linear model of C-D function is adopted. We select model

$$\log(y) = c_4 + c_5 \log(x_1) + c_6 \log(x_2) + c_7 \log(x_3),$$

where c_4 is a constant, c_5 , c_6 and c_7 are coefficients.

Relevant data are put into the equation. Hence, the regression model becomes:

$$\log(y) = 0.642 + 1.158 \log(x_1) + 0.064 \log(x_2) - 0.273 \log(x_3) \quad (3)$$

(7.494) (2.302) (-3.319)

$R^2=0.976$; $DW=2.023$; $F=69.062$; $SE=0.075$.

From equation (3), we have $c_5 = 1.158$, indicating that every 1% improvement of the difference of wage income between Jiangsu and Xinjiang rural residents may cause 1.158% increase of the difference of living consumption level. $c_6 = 0.064$, indicating that every 1% improvement of the difference of net income from household management between Jiangsu and Xinjiang will cause 0.064% increase of living consumption level, which is extremely slight. $c_7 = -0.273$, indicating that there is almost little contribution of the difference of property transferred income to the difference of living consumption, and there even has a negative correlation between the two. Therefore, it can be concluded that the difference of living consumption level between Jiangsu and Xinjiang rural residents is mainly caused by the difference of wage income. Difference of income from household management has extreme slight effect on the difference of living consumption level. Property transferred income includes the property income from the capital, technology and management factors and the social production and living activities, as well as the various transfer payments from the state, unit and social groups to household and the income transfer between households. Its origin and composition are affected by the local economy, culture and society. Property transferred income is unstable compared with the wage income and the net income from household management, occupying a very small proportion in per capita net income. Therefore, less attention is paid to the property transferred income.

5 Conclusion

Difference of living consumption level of rural residents between Jiangsu and Xinjiang is affected by the differences of consumption and income levels, habit, and environment in the past, that is, it has certain inertia. And the main reason is the difference of per capita net income of rural residents between eastern and western areas. According to the structure of income source, difference of wage income of rural residents is the main causation resulting in the difference of living consumption level between eastern and western areas. While differences of net income from household management and property transferred income have little effect on the difference of living

consumption level. Therefore, on the one hand, western region should accelerate the promotion of urban-rural integration, make great efforts to develop secondary and tertiary industries in order to optimize the income structure of rural residents, effectively improve the level of wage income of rural residents, stimulate consumption in rural areas to reduce the differences between western and eastern regions, and eventually reduce the gap of consumption level between western and eastern rural residents. On the other hand, eastern area should increase investment and develop secondary and tertiary industries when developing primary industry in order to further optimize the income structure of rural resident, and continue to maintain its advantages in urbanization and industrialization levels, so as to promote the comprehensive, sound and fast growth of Chinese economy.

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中国东西部地区农村居民收入结构对消费水平影响的对比分析

——以江苏、新疆两省为例

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摘要 以中国江苏、新疆两省为例, 分析了东西部地区农村居民收入水平、收入结构及消费水平的差异。改革开放以来, 东部农村居民收入水平远高于西部地区, 且增速较快, 东西部农村居民收入差距随时间推移不断增加; 东部地区农村居民人均纯收入以家庭经营纯收入和工资性收入为主, 而西部地区农村居民收入结构相对单一, 主要以家庭经营纯收入为主; 东部农村居民生活性消费支出高于西部, 且差距有逐渐扩大的趋势。探讨了东西部农村居民消费水平差异的4个影响因素: 自然环境、社会文化、经济技术水平和政策制度。根据1993~2007年相关数据, 采用回归分析方法实证研究了东西部农村居民收入结构对消费水平差异的影响。结果表明: 从收入来源结构看, 东西部地区消费水平的差异主要是由工资性收入水平的差异所造成的; 家庭经营纯收入及财产转移性收入的差异对生活性消费水平差异的影响程度较小。基于此, 提出了相关建议。一方面, 西部地区应加快促进城乡一体化, 大力发展二、三产业以优化农村居民收入结构, 尤其要提高工资性收入水平; 另一方面, 东部地区应促进三次产业的协调发展, 保持城市化与工业化水平相对较高的优势。

关键词 收入结构; 消费水平; 东西部差异; 实证分析