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An Analysis of the Consumer Demand Structure of Rural Residents in Chongqing City in the Context of New Urbanization

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Abstract Using ELES model and econometric methods, in the context of new urbanization, we use the time series data on the consumer spending of rural residents in Chongqing City to perform an empirical analysis of the consumer demand structure of rural residents, reveal the characteristics, differences and changes concerning the consumption structure of rural residents in Chongqing City, and set forth some policy recommendations such as carrying out the new rural construction, optimizing the consumption structure, establishing sound social security system and income growth mechanism, and stabilizing the price level.

Key words New urbanization, Consumption structure of rural residents, ELES model

1 Introduction

Since the 2008 financial crisis, China's exports have been severely affected, and expanding domestic demand as the main driver of economic growth has become increasingly important. Relying heavily on imports makes domestic economic growth excessively dependent on the international market, and the volatility of the international market is bound to quickly transfer to China, causing fluctuations in domestic economic growth. In an increasingly globalized economy of today, to completely avoid the volatility of international markets is impossible, but we can expand domestic demand so that China's economic growth is more dependent on domestic demand, and reduce the impact of international economic fluctuations on the domestic economy to a low level. At present, China expands domestic demand mainly by increasing domestic investment and domestic consumption to promote national economic growth. The expansion of domestic investment has some bottlenecks, and in the case of insufficient domestic demand, the increase in domestic investment will cause industry overcapacity. The four trillion yuan ($586 billion) stimulus package implemented in 2008 played a positive role in confronting the financial crisis, but it also led to the overcapacity of some industries. Promoting sustained growth of consumption is the most fundamental way to break China's current investment policy dilemma. Fig. 1 shows the changes in components of GDP in Chongqing City. It can be seen from the figure that the share of gross capital formation in GDP increased rapidly in Chongqing City during 1996 – 2007, but began to decrease after 2007; the share of consumer spending in GDP was always in decline until 2012. By further analysis, it is found that the model of relying on investment to boost economy in Chongqing City has not achieved good effect, the investment-led domestic demand growth is facing bottlenecks, and economic development depending on continued consumption growth has become a new development model. The greatest potential for expanding domestic demand is in rural areas. However, the important influence of rural consumption on economic growth has been fully affirmed by the government, various supporting policies have been put forward, and some initial success has been achieved, but the rural consumer market is immeasurable. How to expand domestic demand by the rural consumer market is controvertible. Since 2000, total rural and urban consumption of Chongqing has showed a growing trend, but the proportion of the two to GDP has been polarized. The share of urban consumption in GDP increases year by year and remained at about 0.28 after 2008 while the share of total rural consumer spending in GDP shows a clear downward trend. To further optimize the consumption structure, improve consumption level of rural residents, expand domestic demand and promote economic development, this paper mainly uses extended linear expenditure system model and the corresponding analysis to examine the rural consumption structure and status in Chongqing City, evaluate and study the consumption structure of rural residents from different perspectives.

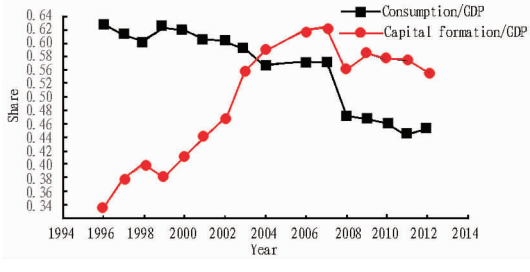

Fig. 1 Share of consumption and capital formation in GDP

2 ELES model estimation and analysis of consumption structure of rural residents in Chongqing City

2.1 Research methods Currently, the main analysis methods for consumption structure include Engel's coefficient and extended

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linear expenditure system model (ELESM). The two are closely related in terms of form and content. Engel's coefficient is an indicator to analyze residents' consumption structure, and it is often used to describe the relationship between income and consumption structure at specific stages, but it does not apply to the in-depth comparison and analysis of sub-divided consumption areas, and there are some limitations in the application. The outstanding advantage of ELES model is that it takes into account the income and price factors, so in the absence of price information, we can also estimate the expenditure of various commodities, and estimate the demand structure. In 1973, C. Liucch made two amendments on LES (linear expenditure system) model developed by R. Stone in 1954. He replaced total consumer spending V with income Y, so that the consumer spending was seen as the function of income and price, and used the marginal propensity to consume to replace the marginal budget share, in order to develop new linear expenditure system ELES. The specific model form is as follows:

$$V_i = p_i q_i = p_i r_i + b_i (I - \sum_{i=1}^{n} p_i r_i) \quad (1)$$

where V_i represents total consumer demand for a commodity; p_i represents the price of commodity i; q_i represents the actual demand for commodity i; r_i represents the demand for commodity i to meet consumers' basic living standard; b_i is the marginal propensity to consume commodity i, $0 \leqslant b_i \leqslant 1 (i = 1, 2, \cdots, n)$ and $\sum b_i \leqslant 1$; I is the per capita disposable income of consumers.

$$\text{let } \alpha_i = p_i r_i - b_i \sum_{i=1}^{n} p_i r_i \quad (2)$$

$$\text{From (1), we get: } V_i = \alpha_i + b_i I \quad (3)$$

Using the least square method, we can calculate the estimated value of parameters a_i and b_i in formula (3), and calculate the basic consumer spending $p_i r_i$ of commodity i. The formula is as follows:

$$p_i r_i = \alpha_i + b_i \sum_{i=1}^{n} \alpha_i / (1 - \sum_{i=1}^{n} b_i) \quad (4)$$

2.2 Data sources The data are from *Chongqing Statistical Yearbook* (1999 – 2014). By calculation, we get eight categories of data concerning household consumption expenditure (food; clothing; household equipment and services; health care; transport and communications; culture, education and entertainment products and services; housing; other goods and services), and put various types of consumption in different years into time series.

2.3 Analysis results Using SPSS18.0 for analysis, we derive the ELES model parameters and corresponding statistics related to the consumption structure of urban and rural residents in Chongqing. We can see that at the significance level of $\alpha = 0.05$, the estimated values of α_i and β_i pass T test; the goodness of fit of the model (R^2) is high, and the goodness of fit of cultural and entertainment consumption equation is not high. In ELES model, β_i is the marginal propensity to consume. The indicator shows the amount of change in consumer spending caused by each additional unit of income. The marginal propensity to consume of rural residents in Chongqing during 1999 – 2014 is $\beta = \Sigma\beta_i = 0.659$, indicating that rural residents in Chongqing take out 65.9% of new income for consumer spending. From the data in Table 1, we can get the marginal propensity to consume for various consumption items, and the marginal propensity to consume food is most obvious ($\beta_{\text{food}} = 0.276$). The rural residents in Chongqing will use 27.6% of new income to increase the daily food consumption, which reflects that rural residents' food consumption expenditure in Chongqing City still has a large proportion. $\beta_{\text{housing}} = 0.077$ and $\beta_{\text{health care}} = 0.075$, indicating that the propensity to consume housing and health care is substantially similar, and the consumer expectations are high; the propensity to consume other types of commodities is relatively low.

Table 1 ELES model parameter values of various types of consumer spending during 1999 – 2014

Consumption items	α_i	β_i	R^2	$T_{\beta i}$
Food	301.874	0.276	0.976	23.047
Clothing	-42.520	0.053	0.977	23.308
Household equipment and services	-86.898	0.067	0.992	40.791
Health care	-72.984	0.075	0.980	25.019
Transport and communications;	-18.357	0.055	0.959	17.577
Culture, education and entertainment products and services	60.623	0.046	0.753	6.367
Housing	36.160	0.077	0.912	11.665
Other goods and services	3.683	0.010	0.918	12.130

3 Conclusions

Using ELES model, we conduct a study on rural residents' consumption structure in Chongqing City, and the results show that the food expenditure is still the main source of overall consumer spending for rural residents in Chongqing City, and rural residents' consumption structure has not yet been optimized and upgraded, so it is necessary to promote the diversification of residents' consumption. The rural consumer market is not well developed, the consumption rate is low, and consumption structure is irrational, so the government should actively carry out new rural construction, and upgrade the spending power, consumer awareness and consumer environment in rural areas. In rural areas, it is necessary to improve the financial transfer payment system to provide farmers with additional sources of income, and stabilize the levels of consumer spending; speed up poverty alleviation and development in poverty-stricken counties, and develop special industries to promote coordinated growth of income and consumption; enhance the transfer of rural land management rights, and clearly define the ownership of rural farmland, woodland and waters, to underpin the consumer base of farmers; accelerate the popularization of

household appliances, cars, agricultural vehicles, the Internet, communication and transportation, to create more consumption hot spots. There is an urgent need to continue to increase income to strengthen the base of rural consumption, so that the net income of rural residents can be largely used to improve living conditions, upgrade health care, and update household entertainment equipment, transportation and communication. The endogenous relationship between urbanization and urban-rural residents' consumption shows greater complexity. Urbanization plays a role in promoting rural residents' consumption in general, and the increase of urbanization rate helps to raise the consumption level of rural residents. The improvement of urbanization can be actually conducive to the expansion of consumer demand. In the case of bottlenecks and difficulties in using investment and export to promote economic growth at present, accelerating the pace of urbanization has become an important way to promote sustained and rapid economic growth, but the growth of consumption plays a certain role in inhibiting urbanization pace, therefore, to ensure healthy and sustainable urbanization, we must take into account the counter-effect of consumption on the development of urbanization. There are many factors affecting the development of cities and towns, but it is mainly focused on income, income uncertainty, expenditure and expenditure uncertainty. Meanwhile, these factors have a significant impact on consumer spending. Therefore, establishing sound social security system, income growth mechanism and stabilizing the price level has become an important way to keep sustained consumption growth and healthy development of urbanization. In the future, the improvement of population's urbanization rate will further narrow the income gap between urban and rural areas, and play a major role, but it is necessary to be alert to the threshold in population urbanization, and excessive population urbanization will increase income gap between urban and rural areas and affect economic growth. It should focus on re-orientation of government-led measures, develop private economy, enhance private investment, adopt market-oriented mechanism and promote the rational allocation of factors to actively respond to the negative effects of urbanization.

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major breakthrough in the main crop cultivation technology.

5.2.2 Protecting the arable land and stabilizing food production. In the context of a large population in a small area, strengthening the protection, management and effective use of arable land resources, and implementing the most stringent farmland protection system, has become an inevitable choice to achieve food security. It is necessary to strictly control the encroachment of various types of construction land on arable land, strictly protect arable land, especially basic farmland, and enhance reclamation to increase arable land resources, to ensure the supply capacity of the region's food production.

5.2.3 Strengthening the natural disaster prevention and reducing the agricultural disaster area. Research shows that the food production in Huang-Huai-Hai Plain is negatively correlated with the area affected by natural disasters, so it is necessary to strengthen the monitoring and prevention, establish the defense engineering measures, and strengthen the rescue and relief work.

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