The Influence of Population Aging On Residents Consumption in Fujian

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Abstract. This paper uses Eviews7.2 of stationarity test and cointegration test for each variable, analyzed from 1998 to 2014 in Fujian province population age structure on the consumption level of residents, the elderly dependency ratio of population increase will have an inhibitory effect on the consumption level of residents. According to the conclusion of the empirical analysis, suggestions are put forward to stimulate the consumption of the elderly population.

Introduction

The aging of population has evolved into one of the most important economic and social problems in China today. The aging population in Fujian has gradually surfaced and has a significant impact on the economy and society. We should attach great importance to this problem. This article will use the Yearbook and the census data of Fujian Province over the years, mining and analyzing the current situation and characteristics of population aging in Fujian province.

Model and Data

This paper uses the consumption model of Tong Sasa (2014) to do empirical analysis. The model as follows:

\[ \ln\text{CONS}_t = \alpha + \beta_1 \ln\text{ODR}_t + \beta_2 \ln\text{CDR}_t + \beta_3 \ln\text{UI}_t + \beta_4 \ln\text{RI}_t \]

Among them, CONS refers to the level of consumption. The independent variables selected elderly dependency ratio (ODR), the young dependency ratio (CDR), urban per capita disposable income (UI), rural per capita disposable income (RI), and all the variables were taken with logarithm.

The data of this empirical analysis are derived from the statistical yearbook of Fujian province and the Chinese Economic Statistical Yearbook in recent years.

Regression Analysis

\[ \ln\text{CONS} = -2.407 - 0.135\ln\text{ODR} + 0.302\ln\text{CDR} + 0.968\ln\text{UI} + 0.177\ln\text{RI} \]

\((-3.22)(-1.57) (3.03) (7.48) (1.65)\)

From the regression estimation, the goodness of fit reached 0.99819, indicating that 99.819% of the explanatory variables could be explained by explanatory variables, with a F value of 2201.636. The AIC and SC values were -3.99693 and -3.74824, and the model fitted well.
Empirical Analysis

Grey Relational Analysis

Compared with other complex statistical analysis, the grey relational analysis method is not so demanding, and it is simple and convenient to calculate. The specific steps are as follows:

Dependent variables constitute the sequence of \( \mathbf{Y}_i = [y_i(1), y_i(2), \ldots, y_i(n)] \) \( i=1,2,\ldots,s \), and it is a reference series. Independent variable constitute the sequence of \( \mathbf{X}_j = [x_j(1), x_j(2), \ldots, x_j(n)] \) \( j=1,2,\ldots,m \), and It is a comparative series.

In order to ensure reliable and true analysis results, it is necessary to process the sequence of each variable without dimension. After processing, the reference sequence becomes \( \mathbf{Y}_i = [y_i(1), y_i(2), \ldots, y_i(n)] \) \( i=1,2,\ldots,s \). Comparison progression becomes \( \mathbf{X}_j = [x_j(1), x_j(2), \ldots, x_j(n)] \) \( j=1,2,\ldots,m \). The absolute difference between the reference sequence and the comparison sequence is calculated and denoted as \( \Delta_{ij}(k) = |y_i(k) - x_j(k)| \). The correlation coefficient is \( \gamma_{ij}(k) = \frac{\min_{i} \Delta_{ij}(k)}{M + \xi M} \), \( k=1,2,\ldots,n \). \( \xi \) is 0.5. The correlation degree is given as follows.

Calculation Result

This paper selects the proportion of aged people aged 65 and over in urban and rural areas as the reference sequence from 2000 to 2014, and selects the consumption structure of urban and rural residents as a comparative sequence.

\{Y1\} and \{Y2\} respectively represent the proportion of the aged population aged 65 and over in cities and towns in Fujian province. \{X1\}, \{X2\}, \{X3\}, \{X4\}, \{X5\}, \{X6\}, \{X7\}, \{X8\} respectively represent the consumption of urban residents in Fujian province food and alcohol, clothing, housing, daily necessities and services, transport and communications, education, culture and entertainment, medical insurance and other supplies and services accounted for more than. \{Z1\}, \{Z2\}, \{Z3\}, \{Z4\}, \{Z5\}, \{Z6\}, \{Z7\} and \{Z8\} represent the eight categories of rural residents' consumption in Fujian province. The initial value method is used to deal with the non dimensional. The absolute difference between Y1 and X1, X2, X3, X4, X5, X6, X7, and X8 is computed. The absolute difference between Y2 and Z1, Z2, Z3, Z4, Z5, Z6, Z7, and Z8 is calculated. give the result as follows.
## Table 1. Absolute Difference between Y and Other Factors.

<table>
<thead>
<tr>
<th></th>
<th>(\Delta 11)</th>
<th>(\Delta 12)</th>
<th>(\Delta 13)</th>
<th>(\Delta 14)</th>
<th>(\Delta 15)</th>
<th>(\Delta 16)</th>
<th>(\Delta 17)</th>
<th>(\Delta 18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Y_1)</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>(Y_2)</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>Maximum</td>
<td>0.6149</td>
<td>0.5743</td>
<td>0.6532</td>
<td>0.3622</td>
<td>0.5811</td>
<td>0.7409</td>
<td>0.6367</td>
<td>0.5678</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

The first table is two, the maximum is \(M_1=1.6886\), and the two is minimum \(m_1=0\). The second tables, two, maximum \(M_2=1.7265\), two minimum \(m_2=0\). The degree of association between \(Y_1\) and each factor is: \(g_{11}=0.7469\), \(g_{12}=0.7589\), \(g_{13}=0.8224\), \(g_{14}=0.6709\), \(g_{15}=0.7647\), \(g_{16}=0.8564\), \(g_{17}=0.8005\), \(g_{18}=0.6859\). The degree of association between \(Y_2\) and each factor is: \(g_{21}=0.6574\), \(g_{22}=0.7669\), \(g_{23}=0.7364\), \(g_{24}=0.7616\), \(g_{25}=0.7249\), \(g_{26}=0.6564\), \(g_{27}=0.7409\), \(g_{28}=0.5678\). Incidence matrix:

\[
R = \begin{bmatrix}
\mathbf{r}_{11} & \mathbf{r}_{12} & \cdots & \mathbf{r}_{18} \\
\mathbf{r}_{21} & \mathbf{r}_{22} & \cdots & \mathbf{r}_{28}
\end{bmatrix} = \begin{bmatrix}
0.7469 & 0.7589 & 0.8224 & 0.6709 & 0.7647 & 0.8564 & 0.8005 & 0.6859 \\
0.6574 & 0.7669 & 0.7364 & 0.7616 & 0.7249 & 0.6564 & 0.7409 & 0.5678
\end{bmatrix}
\]

### Conclusion Analysis

The size of the impact of the urban and rural elderly population on the demand for eight categories of consumption in Fujian is sorted as follows.
Table 2. The Size of the Impact on the Demand.

<table>
<thead>
<tr>
<th>Town</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cultural entertainment</td>
<td>Reside</td>
<td>medical care</td>
<td>Transportatio n and communicatio n</td>
<td>Clothing</td>
<td>food or smoke wine</td>
<td>Other supplies</td>
<td>Daily necessities and services</td>
</tr>
<tr>
<td>Countryside</td>
<td>Clothing</td>
<td>Daily necessities and service</td>
<td>medical care</td>
<td>Reside</td>
<td>Transportatio n and communicatio n</td>
<td>food or smoke wine</td>
<td>Cultural entertainment</td>
<td>Other supplies</td>
</tr>
</tbody>
</table>

Therefore, there are some similarities and differences between the urban and rural elderly population in Fujian. Urban and rural residents' demand for medical care is very high, because the probability of suffering from chronic diseases increases with age. In addition, there are differences in education, culture and entertainment, mainly due to the economic differences between urban and rural areas. Compared with the old people in the rural areas, the elderly in cities and towns pay more attention to the quality of life. More elderly people participate in social networking will also lead to traffic and communications consumption, so traffic and communications consumer rankings are also found.

Conclusions and Recommendations

Research Conclusion

This paper uses the data of the past years to do empirical analysis, and then finds that there is a long-term equilibrium relationship between the population aging, the consumption level of residents and the income of urban and rural residents in Fujian province. The consumption level of residents will decline with the accelerated aging of the population, and the consumption structure will change accordingly. The consumption structure of urban and rural areas are different, urban elderly population more education culture and entertainment, health care, housing, transportation and communication consumption, while the rural elderly population tend to clothing, supplies and services, medical care, housing consumption.

Recommendations

First, the government policy should guide the consumption concept. The government should introduce policies to guide the elderly to increase consumption, increase publicity, change the concept of consumption of the elderly. And promote the elderly to go out more, not only in domestic tourism, but also to foreign tourism, broaden their horizons, cheerful body and mind. The elderly should take part in various forms of old age university courses, meet new things, maintain and expand social circle, and enrich the life of the elderly.

Second, we must improve the old-age security system. On the one hand, we must vigorously improve the old-age insurance system, and gradually raise the basic pension level of all retirees, so that the overall coverage of old-age pensions in rural areas. On the other hand, we should pay attention to the investment in medical care, and vigorously develop and build the elderly medical service system to solve the problems of "difficult medical treatment, expensive medical treatment" and so on.

Third, we should promote the development of old industry. In order to promote the development of the elderly industry, it is necessary to open up more services for the needs of the elderly population, attract the eye of the elderly population, and also meet their needs. For example, the introduction of products suitable for elderly consumers, the addition of older products counters, in the product description, packaging design to meet the needs of elderly consumers, such as adding "elderly special" and other labels.
References

