Effect of Rural Social Pension Insurance on Total Retail Sales of Consumer Goods

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ABSTRACT

Based on data of 31 provinces of China in 2019 collected from the National Bureau of Statistics, this paper explores the impact of the number of urban employees' endowment insurance on the total retail sales of social consumer goods in different provinces in China. Taking the population, per capita disposable income, per capita life expectancy and regional per capita GDP of each province as the variables, this paper establishes regression models to do the empirical research. The results show that: (1) The increase of the number of urban employees' old-age insurance has a significant positive impact on residents' consumption. The wider the coverage of old-age insurance, the more it can enhance the consumption confidence of the residents. (2) Due to the economic development, the level of urbanization has been greatly improved, leading to an increased birth rate and total population, and thus consumption has been driven. Therefore, the increase of the total population has a significant positive effect on the increase of the total retail sales of social consumer goods. (3) The increase of per capita disposable income has insignificant impact on the increase of total retail sales of social consumer goods due to residents' debt, the rise of house prices, the rapid widening of income gap between different groups and the difficulty of meeting the various needs of people. (4) Although the increase of life expectancy per capita will lead to the decrease of total retail sales of social consumer goods, this decrease is not significant. (5) Per capita GDP will lead to a small increase in the total retail sales of social consumption. Finally, based on the above conclusions, some suggestions to stimulate consumption are given.

Keywords: Pension Insurance, Total Retail Sales of Consumer Goods, Population Amount, Life Expectancy

1. INTRODUCTION

Pension insurance is an important part of China's social security, and is the main source of life for residents after retirement and a significant requirement for economic and social development. China promulgated <Regulations of the People's Republic of China on Labour Insurance> in 1951, and this is the birth of pension insurance [1]. Subsequently, the pension insurance system has undergone continuous reform and development. At the beginning, China mainly implements the corporate pension system; later began to implement the social pooling pension system after 1960s.

The new rural pension insurance system was formally established in 2009; the urban residents' pension insurance system was established in 2011s; the social pension insurance for urban residents and new rural residents were merged in 2014s, and a unified basic pension insurance system for urban and rural residents was established. Until today, China has been working on improving the pension insurance system to maximize the benefit of retired elderly.

A well-developed pension system can promote Chinese residents' consumption level has been proved by some Chinese empirical research. Scholar Fan Caiyao has found a significant impact of pension expenditure and Chinese urban residents' consumption through a comparison and correlation analysis of social security system and residents' consumption [2]. Rural region's consumption levels can be promoted by the social security system. This is found by Scholar Ran Jingfei and Jia Xiaomei who used the data collected by Nation Rural Household Survey in 2000 and 2001 [3].

Chinese scholars also have a lot of research on the influence mechanism between pension insurance and consumption level. Scholars Lei Xiaofeng and Tang

Yijun believed China is facing new problems in the pension insurance system. Problems could be no sufficient funds, operation of empty accounts, early retirement, and etc [4]. Scholars ZouHong, YuKaizhi and LiAulei (2013) found that once a family has participated in pension insurance, it can be statistically proven that there is a positive influence on consumption level. ZhaoXin and Yin Xunian (2016), based on the "comprehensive two-child policy" opened in December 2015, concluded that the increase of pension insurance would reduce the number of children in families, reduce the pressure of raising children, and increase the consumption level [5]. It is suggested that the government should increase the expenditure of insurance to stimulate consumption, and at the same time, improve the level of social security and social security system in accordance with the comprehensive two-child policy.

What's more, a well-developed pension system can promote Chinese residents' consumption level has been proved by some Chinese empirical research. Scholar Fan Caiyao has found a significant impact of pension expenditure and Chinese urban residents' consumption through a comparison and correlation analysis of social security system and residents' consumption. Rural region's consumption levels can be promoted by the social security system. This is found by Scholar Ran Jingfei and Jia Xiaomei who used the data collected by Nation Rural Household Survey in 2000 and 2001.

Pension has been found to have different effects on the consumption of different families. Income level, education level, whether the family is a retired family, and floating population or non-floating population can have an impact on the consumption individually. Scholars Yi Xingjian and Huang Yuan (2018) conducted empirical tests based on CFPS data and found that pension insurance has a more significant impact on low-income families than high-income families. In addition, it is found that compared with the non-retired families, pension insurance has a more obvious stimulus to the retired families. Scholars Yi Xingjian and Huang Yuan have found pension insurance has a greater impact on families who have a lower income or retired using data from CFPS [6].

After referring to this kind of related literature, it is found that most of the literature, when studying the relationship between pension insurance and consumption, defines the scope of consumption in rural household consumption, and only conducts empirical analysis in a certain area, and lacks the empirical research on overall social level. Therefore, this article chooses to conduct overall research based on the data of 31 provinces and cities across the country, and conducts analysis between pension insurance and consumption based on these resources.

2. DATA PREPARATION

Since the purpose of the study is to explore the impact of the number of urban workers' pension insurance on the total retail sales of consumer goods in all regions of mainland China, data of 31 provinces of China in 2019 were collected from the National Bureau of Statistics.

3. METHODOLOGY

Based on the data in 2019, regression models are established on Python to carry out the empirical analysis.

$$Y = \beta_0 + \beta_1 X_i + \beta_2 S_i + \beta_3 R_i + \beta_4 L_i + \beta_5 G_i + \varepsilon \quad (1)$$

Y represents the total retail sales of social consumer goods, in the unit of ten thousand RMB; X refers to the number of urban employees with basic endowment insurance, in the unit of ten thousand people; $\beta 1$ is the estimated coefficient of X; S refers to disposable income, in the unit of RMB; R refers to the number of permanent residents at the end of the year, in the unit of ten thousand people; L refers to life expectancy per capita, in the unit of year; G refers to the per capita regional GDP, in the unit of RMB; $\beta 2$，$\beta 3$，$\beta 4$ and $\beta 5$ is the estimated coefficient of other explanatory variables; ε is a random error term.

4. RESULTS

From the Figure 1 and Table 1, it can be clearly seen that the town resident consumption expenditure level and pension insurance assets per capita has positive linear relationship, so it is concluded that the previous linear model can be established.
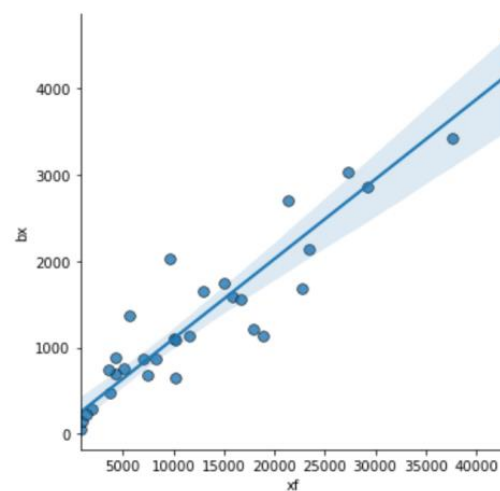

Figure 1 Scatter Diagram

Table 1. Correlation Analysis

Variable	correlation coefficient
X	0.94
S	0.39
R	0.88
L	0.43
G	0.49

4.1. Descriptive Analysis of Data

In this section, the data were subjected to descriptive analysis, presented in tables. The analysis results of sample size, mean, standard deviation, minimum value

and maximum value of each variable are shown in Table 2.

4.2. Statistical Analysis

In this section, it is analysed statistically whether there is a clear correlation between the number of urban employees' endowment insurance and the total retail sales of social consumer goods in different provinces in China. What's more, the population, per capita disposable income, per capita life expectancy and regional per capita GDP of each province are taken as control variables to see further impact on the analysis.

The results are summarized in tables.

Table 2. Descriptive Statistics

	N	Min	Max	Mean	Std
Y	31	649.30	42951.00	13161.85	10736.07
X	31	48.20	4633.44	1400.06	1045.42
S	31	361.00	12489.00	4542.10	3034.21
R	31	19139.00	69442.00	30643.23	12367.15
L	31	68.17	80.26	74.98	2.86
G	31	32995.00	164563.00	69074.29	32638.58

Table 3. Univariate linear regression

	Coefficients	Std	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-284.1339	1173.447	-0.242	0.810	-2684.103	2115.835
X	9.6038	0.675	14.218	0.000	8.222	10.985

Table 4. Multiple linear regression

	Coefficients	Std	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-2241.3895	1.57e+04	-0.143	0.888	-3.46e+04	3.01e+04
X	3.8880	1.002	3.880	0.001	1.824	5.952
S	-0.4308	0.121	-3.573	0.001	-0.679	-0.182
R	1.7929	0.311	5.769	0.000	1.153	2.433
L	-28.7309	227.360	-0.126	0.900	-496.987	439.525
G	0.2486	0.038	6.543	0.000	0.170	0.327

5. ANALYSIS

5.1. X Variable: The Amount of Participant of Pension Insurance

According to the data, we found there is a positive impact of the number of people who participate in the pension insurance to the consumption level. Most of the research on the impact of pension insurance on residents'

consumption are carried out under the life cycle framework.

On one hand, pension insurance will reduce the consumption level of early retirees during their working period. On the other hand, the asset substitution effect of pension insurance increases the consumption level of residents.

The original empirical results show that pension insurance has significantly increased the consumption

level of residents [7]. And many Scholars have confirmed that this theory is applicable in China.

Meanwhile, with the gradual improvement of the social security system and the increase in the coverage of pension insurance, consumer confidence has been strengthened and total retail sales of consumer goods is growing.

5.2. R variable: Population Amount

The increase of the total population has a significant positive effect on the increase of the total retail sales of social consumer goods.

The level of urbanization is depended on the level of economic development, which basically plays a driving force in the level of consumption [8]. The acceleration of urbanization surplus labour force in rural regions to cities, which increases total consumption level. Also, urbanization is accompanied by the shift of labour force from rural areas to cities, and the urban population has a stronger desire and tendency to consume, so urbanization contributes to the increase of consumption rate.

5.3. S Variable: Disposable Income

Judging from the data, we found that the increase of per capita disposable income will reduce the total retail sales of social consumer goods. According to previous studies, several explanations should be mentioned. First, the debt problem of the residents began to become prominent, which has an inhibitory effect on the demand of the consumers. Second, the rise of house prices presents a credit-fuelled characteristic, and the extrusive effect to residents' consumption is significantly enhanced. Third, because the income of high-income groups grows too fast, and the income of middle and low-income groups is declining, leading to a widening income gap, so the negative impact of income gap on consumption has increased.

5.4. L Variable：Life Expectancy

Life expectancy per capita has an inhibitory effect on the total retail sales of social consumer goods, but the effect is not significant. This expectation is not consistent with the previous research results of Liu Shenglong, Hu Angang and Lang Xiaojuan, that is, the growth of population life expectancy significantly reduces the resident consumption rate [9]. It can be explained from another perspective. Fogel (1997) found that the development of the American economy, the improvement of residents' health level, the extension of life expectancy and the corresponding extension of residents' working hours will reduce the savings rate and increase consumption. But at the same time, the extension of life expectancy aggravates the degree of social aging, which will further reduce the marginal consumption tendency of the elderly to a certain extent, and then have a negative impact on the residents' consumption rate. Taken mentioned theory into consideration, the inhibitory effect is not significant.

5.5. G Variable: Regional GDP Per Capita

According to the data, the regional GDP per capita will lead to a small increase in the total retail sales of social consumption, and this increase is significant. The regional GDP per capita reflects the development of social security, health care, education, population life expectancy, environment and ecological construction in a region [10]. The higher the regional GDP per capita is, the higher the life quality of people in this region will be, so people are more willing to consume products.

6. CONCLUSION

First of all, on a personal level, individuals participate in pension insurance to a certain extent through the combination of taxation and state support, which provides protection for life after old age and relieves the family from certain worries.

On a family level, in China, children are obliged to support the elderly, with pension insurance, the elderly can live on their own pensions, thereby reducing the double pressure of their children to care for them and their own kids.

On the social level, it is beneficial to the normal replacement of the labour force, the elderly retire, and the newly grown labour force get the job, hence rationalizing the employment structure.

Also, pension insurance provides basic living security for the elderly, allows people to have expectations about their future lives, and makes their mentality and society more stable. So from all levels, it promotes the development of many aspects of society

ACKNOWLEDGMENTS

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