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An Analysis of Impact of Pension Insurance on Saving and Consumption Behaviors

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Abstract

This paper uses data from China's health and pension check (CHARLS) that was obtained in 2010 and also employs the OLS regression method to analyze the impact of pension insurance on savings and consumption, and to highlight the difference created by different elderly security systems. The research results show that part of the accumulated old-age insurance system still has simulative and crowding out effects on consumption and savings respectively, and moreover the impact resulting from different types of pension insurance on people's saving and consumption is totally different. The above situation demonstrates that promoting the endowment insurance system actively is helpful for increasing consumption and stimulating the economy. More attention should be paid to the merger of different endowment insurance systems in the reform of endowment insurance, narrowing the difference between the different types of insurance, so as to lower the risk expectation and promote social fairness and justice.

Key words: Endowment insurance; Saving; Consumption

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INTRODUCTION

China's persistently high savings rate has become a cause for concern all over the world. In the past, the high savings rate was considered to be a typical feature of Chinese economic growth, but in the context of international financial crisis, the economic downturn and continuous domestic inflation, the high saving rate has become a special concern of China during the process of development. At present, the mainstream media is advocating expanding domestic demand, dominated by consumption, to promote economic growth, emphasizing how stimulating consumption has become the key to economic growth. With regard to the Chinese high savings rate, a common view is that China's current social security system is not perfect; a family needs relative high saving rate for the prevention of risk in the future. Therefore, we should improve the social security system by completing the social security level, expanding the coverage of social security to lower savings, and stimulating consumption. The proposal is also supported by policy recommendations (during the Eighteenth National Congress of CPC, which has just ended) promoting construction of urban and rural social security systems coordinately (added into the report as emphasis (Bai & Qian, 2009a)). However, some scholars propose that enlarging domestic demand lies in increasing people's disposable income and redistributing the national revenue. On the contrary, enhancing the level of social security will ultimately increase the tax burden of enterprises or residents, further squeezing the current disposable income of residents (Bai & Qian, 2009b).

It is obvious that the effect of social security on savings and consumption needs to be studied further. And because endowment insurance is the main body of social security, this paper will conduct studies on the influence of endowment insurance on savings and consumption. Studying the influence of pension insurance on savings and consumption provides us with a reference for solving the dispute of theoretical and empirical research, while also helping us figure out whether the old-age insurance has a "crowding out effect" and the degree to which this affects household savings. This line of inquiry can also provide theoretical support for future pension insurance policy and even social security policy. In addition, the current domestic research methods for the social security policy vary, and the literature also covers all urban workers and residents medical insurance, new rural cooperative medical insurance, urban endowment insurance, and macro-research on the whole social security system; in contrast, comparative study of different endowment insurance types is relatively scarce. Therefore, this paper will focus on measuring methods through empirical study using micro-data from the China Health and Retirement Longitudinal Survey (CHARLS), which captured the influence of endowment insurance on savings and consumption; this paper will study especially the difference of effect between different endowment insurance systems so as to analyze the effect brought about by the current pension insurance system.

1. LITERATURE REVIEW

1.1 The Theory of Saving Effects of Pension Insurance

There is a lot of controversy regarding the relationship between endowment insurance and savings in the theoretical circles. The traditional overlapping generation model proposed by Samuelson assumes that there is no capital stock in real economy, and therefore the savings effect is not considered. But the fund supporters immediately put forward that capital stock exists in the real economy, and that the Pay As You Go (PAYG) system, due to the reduction of capital accumulation and inhibition of savings, is more detrimental to economic growth than the fund. Feldstein (1974) put forward that as the workers work and retirement age is not fixed, and the allocation decisions about retirement and savings are simultaneous, therefore under the PAYG system, endowment insurance has two kinds of effects on workers' savings: first, since endowment insurance can substitute for personal wealth, it will lead to reduction of savings, which is called "the wealth replacement effect"; second, pension insurance has incentives earlier retirement, which increases the time spent in retirement and consequently forces workers to increase savings, which is called "the induced retirement effect". Feldstein, in a series of empirical studies (1974-1976), shows that "the wealth replacement effect" of endowment insurance is greater than "the induced retirement effect", and thereby it significantly reduces savings. Kotlikoff (1979) and Meguire (2003) confirm Feldstein's point of view in their later study, but there are different conclusions about the concrete extrusion effect size (Shi & Wang, 2010).

However, there are different views about the crowding out effect of pension insurance on savings. Barro (1974), using the altruism family model of infinite survival, after considering transfer payment of parents to their children concluded that in the PAYG system, the transfer payment of a heritage resource from parent to child will fully offset the transfer payment of statutory pension insurance from a child to a parent, and this will cause the old-age insurance to have no effect on savings. His empirical research in 1978 did not find that endowment insurance has a significant impact on savings, either. Hubbard and Judd's 1987 analysis from the angle of individual liquidity constraints pointed out that the endowment insurance and personal savings could not be completely replaced with each other, leading the endowment insurance to reduce "extrusion" on savings. Davis (1995) used the life cycle theory to deduce the following reasons showing that the old-age insurance system does not reduce personal savings. First of all, due to the non-liquidity of pension commitments and uncertainty of future income, especially under the pressure of inflation, the reduction of personal savings will not be equivalent to the increase of pension income; second, the existence of liquidity constraints limit the capacity of an individual liberal loan, and therefore people should, when they are young, accumulate funds for their later consumption, and borrowing or compulsory savings will not reduce personal savings; third, workers have early retirement incentives, which will make them increase savings during their work periods, namely "the induced retirement effect" articulated by Feldstein; fourth, if there is preferential tax for turning the current consumption into future consumption, it will also provide incentives for increasing savings. After analyzing the pension fund of 12 OECD countries as well as Chile and Singapore, Davis found no regulative effect of pension fund on personal savings, so he thought that the influence of the fund system to personal savings must be dependent on the economic circumstances of each country. Philipson and Becker (1998) argue that endowment insurance may influence people's lives and therefore affect people's retirement savings. Yakita (2001) considers that PAYG pension not only extends the expected human lifespan but also reduces the birth rate, leading to an increase in savings.

In addition, some scholars consider that a fully funded system can increase long-term national savings. The following situations will lead to an increase in savings: when a country does not have a PAYG system and begins with a fully funded system; or when a country changes from a PAYG system to a fully funded system, and the compulsory savings of the country is more than voluntary savings rate, consumption will reduced and savings will increase. In addition, when a country replaces a single PAYG pension with a multi-pillar system, if the income of the endowment insurance decreases, the social insurance tax will increase simultaneously, and the national savings will increase (Pu, 2003).

In short, there is a lot of controversy on the effect of savings on the old-age insurance system within the theoretical circle. Most scholars believe that the PAYG system will reduce savings, but some scholars support the opinion that a PAYG system has no effect on savings and that the fund or a fully funded system may increase savings to a certain extent, but this still needs to be tested by empirical study. In our country, due to the implementation of a partially funded system concurrently affected by the PAYG system and a fully funded system, there is still much controversy on the concrete influence, which needs to be tested by empirical study.

1.2 Empirical Study of the Influence of Endowment Insurance on Savings and Consumption

At present, domestic empirical research on the influence of endowment insurance on savings and consumption is still relatively rare, and because there are many issues involved in endowment insurance and the topic is relatively complicated, methods and conclusions adopted by different scholars are highly variable. When choosing data, some scholars use micro-data and conduct regression analysis based on the investigation results of a random sample, so as to study the influence of endowment insurance on the saving and consumption decisions of a microcosmic body; other scholars have used macro-data based on the relationship between old-age insurance payment and savings and consumption within certain areas, to study the variation created by the insurance. Some studies regard endowment insurance as part of social security and analyze the effect of social security on savings from an overall perspective. Some scholars subdivided endowment insurance into urban and rural old-age insurance, with urban pension insurance further divided into government and institution pension insurance, enterprise pension insurance and the old-age insurance for urban residents; the influence of one or multiple old-age insurance systems on savings and consumption was then studied.

Among these studies, Bai, Wu and Jin (2012) used panel data from an urban household survey of nine provinces during 2002-2009, utilizing time-variant difference between the old-age insurance payment rate and the participation rate of the different cities and employing the OLS regression method and instrumental variable regression. The authors finally found that before 2006, despite an increase in pension coverage its stimulating consumption, when the income level before payment and pension coverage status is predeterminated, improving the pension contribution rate significantly reduces consumption of pay in a household. He, Feng and Hiroshi (2008), using natural experiments of reform of endowment insurance based on the reform of the endowment insurance system from 1995 to 1997 in China, explore the impact of endowment insurance net wealth changes caused by changes in policy on the household savings rate, and the results indicate that reduction of endowment insurance net wealth significantly improves the household savings rate. Shi and Wang (2010) utilize statistical yearbook data of 30 provinces in China during from 2002 to 2007, using the measurement of endowment insurance net wealth of each province, and take the average annual consumption expenditure per capita of urban residents as the dependent variable to perform regression; they finally come to the conclusion that endowment insurance in our country exerts an extrusion effects on savings, and that the crowding out effect is expanding. Hu and Qi (2012) theoretically analyze the crowding out effect of partially accumulated pension insurance on savings and utilize macroscopic statistical data from 1990 to 2010 to perform OLS regression; they conclude that Chinese old-age insurance has a crowding out effect, but it lacks flexibility.

The above research mainly addresses the macro-data; most scholars support the crowding out effect of pension insurance on savings, but some scholars draw different conclusions. Zhu (2006) utilizes panel data of 28 provinces during 1995-2003 statistical yearbooks, performs OLS regression and robust tests, and then reaches the conclusion that though coverage of pension insurance has expanded, urban residents have continued to increase savings and reduce consumption. Chen (2010) uses cross-sectional data of a pilot survey of urban residents in Gansu and Zhejiang provinces in 2008 from the China Health and Retirement Longitudinal Study (CHARLS), divides the sample into the retirement group and the working group, and adds the pension type to perform a regression analysis; the results indicate that the household consumption of government department pension insurance were greater than other types of endowment insurance, and that pension level has a larger influence on consumption of a retiree’s family than a worker’s family. In other words, the crowding out effect of a pension on savings is not significant for a work family. In addition, Hong (2009), using the Statistical Bureau data from each province from 1997 to 2007, studies the relationship between social security expenditures and savings from the national and provincial perspective, and the results indicate that effects of social security expenditures on household savings is not significant from the national perspective; from the provincial view, household savings in the Beijing, Liaoning, and Hubei provinces significantly reduced with the increase of social security expenditure, while the effects in all other provinces are not significant.

From the above empirical analysis, it can be seen that, based on the current research conclusions about the effect of endowment insurance on savings and consumption, most scholars use macro-data to reach the conclusion that pension insurance has an extrusion effect for savings, but there are also some scholars who conclude that pension insurance has no significant impact on savings, and even that expansion of old-age insurance coverage will increase savings and reduce consumption. In addition, as far as research methods, most of the current research focuses on the analysis of the macro-data, and there is little empirical research using micro-data; most of the focus has been concentrated on urban pension insurance, and there has been no comprehensive study on different effects for urban and rural endowment insurance, nor a worthwhile comparison of different endowment insurance systems.

Next, we will use cross-sectional data from CHARLS in 2011, and in the light of the differences between urban and rural endowment insurance and different types of urban old-age insurance, study the effect of Chinese partial accumulated pension insurance for savings and consumption. The innovation aspect of this article lies in the utilization of CHARLS data and the examination of the effect of endowment insurance from the microcosmic point of view, which is a supplement to and test of the previous macro examination. In addition to focusing on whether the old-age insurance has a crowding out effect and the degree of that crowding out effect, this article will also pay more attention to whether different types of pension insurance have significant the differences in effect, so as to provide a theoretical test for future combinations of different types of endowment insurance in China. This study differs from most of the previous studies that considered urban old-age insurance only, as this paper includes endowment insurance families both in rural and urban areas, while comprehensively investigating the differences between urban and rural areas and between different types of endowment insurance, making it more comprehensive than previous studies.

2. ECONOMETRIC MODEL SETTING AND DATA ANALYSIS

2.1 Data Selection and Model Setting

This study selected the tracking survey data from CHARLS, which was updated in 2011. CHARLS was a project presided over by the China Economic Research Center of the National Development Research Institute of Peking University; the tracking period in China is two years, and its object was to collect the data of Chinese residents who are 45 and older. The sample size was approximate 10,000 households or 17,000 people. The pre-survey was conducted in the autumn of 2008 in Gansu and Zhejiang provinces, and the investigations have been carried out in many provinces since 2011.

CHARLS used home visit investigations method to obtain data, and the investigation involved individuals, families and the community. For each family, CHARLS asked the head of household and his or her spouse questions, figured out the situations of other family members and recorded their information as an independent sample. The number of effective samples used in this thesis is 2657, among which different members of the same family and different families in the same community are considered to be independent samples and use the same family data and community data.

According to the family and individual data derived from the CHARLS database, we build the following model:

$$C = \beta_0 + \beta_1 pension + \beta_2 \Sigma pensiortype + \beta_3 hhincome + \beta_4 X + \varepsilon$$

Where C is the household consumption expenditure, pension means monthly pension amount and Y represents the average monthly household income. We choose family consumption rather than savings as the dependent variable so as to avoid the cases where the respondents do not want to publish their savings and provide false data, and so as to utilize the more detailed data in the CHARLS database on family consumption expenditure, which contributes to our regression analysis and stability test. Because household consumption and savings are closely related (Y = C + S), the study of endowment insurance effect on consumption can also reflect the effect on savings. In addition, in order to distinguish the different effects of different types of pension insurance on consumption, we introduce a set of dummy variables named *pension type* and take the families that did not participate in the pension insurance as the reference group, we regard enterprise and government institutions endowment insurance, enterprises pension insurance, commercial endowment insurance, rural endowment insurance and other endowment insurance families as the control group. The coefficient before the dummy variable, with respect to the families that did not participate in the pension insurance, reflects changes of consumption brought by different types of pension insurance. In addition, consumption and savings of the family are also affected by the income of the family, so we add the variable of *hhincome*. X represents a group of control variables, which includes family characteristic variables such as family assets, population, personal education degree, age, health status and community characteristic variables, so as to control for the effects of all other relevant factors on household consumption and savings.

2.2 Variable Construction and Statistical Analysis

Because the survey data of CHARLS is very complex, we carried out a lot of processing work when constructing the variables. In order to distinguish the family daily consumption and durable goods consumption, while also taking into account the robustness, we construct C1 and C2 for the dependent variable C, among which C1 denotes the family monthly consumer spending while C2 represents the household consumer spending, which includes education, medical and health care expenses, large consumer durable goods and transportation. In addition, we will utilize the monthly pension after retirement and expectant pension before retirement to measure the amount of monthly pension income. When measuring the family income *(hhincome),* according to the questionnaire, we will add the average monthly income of respondents with other income of the family, and then subtract productive expenditures to obtain family monthly income. When choosing the control variables, we selected the family assets, education level of respondents, self-rating health status of the respondents, ages of respondents and the price level of community as control variables. Among them, the family assets is obtained by adding up the value of house, property, household equipment, consumer durables and other valuables, as well as the property of large-scale production equipment in rural areas; community price level is obtained by adding up the prices of meat, egg, rice and other daily food, utilities, real estate prices and added income. The variables selected and their features are shown in the following table.

Table 1
Variables

	Variable name	Variable description	No. of questionnair	Remark
Independent variable	C1	Daily consumer spending of household	FE004, FE008	Unit: yuan
	C2	Monthly consumer spending (including durable goods）	FE004, FE008, FE009	Unit: yuan
Dependent variable	Pension	The amount of expected monthly pension	EP222_a—EP249_a	Unit: yuan
	Govpension	The endowment insurance of government and institution	EP215, EP167	1
	Corpension	Enterprise pension insurance		2
	Compension	Commercial pension insurance		4
	Rurpension	Rural endowment insurance		5
	Otherpension	Other pension insurance		6
	Hhincome	Average monthly household income	FA001, FD003	Unit: yuan
	Assets	Family assets	GA009, GA038_a, GA063-GA070	Unit: yuan
	Edu	Education level	A022, A023	1-11, illiteracy-doctor
	Health	Health condition	CA079, CA079_a	1-5, excellent=1, poor=5
	Age	age	A002_a	=2012-A002_a
	Price	Community price level	JH001-JH012	Unit: yuan

In order to study the effects of different types of pension insurance on consumption, we first describe the specific proportion of the sample accounted for by each type of family, as well as their monthly consumption. Results are as follows:

Table 2
Basic Situation of Different Kinds of Pension Insurance

Types of pension insurance	Endowment insurance of government and institution	Enterprise pension insurance	Commercial pension insurance	Rural pension insurance	Other pension insurance	Non pension insurance
Quantity (person)	96	248	28	76	30	1978
ratio	3.66%	9.45%	1.07%	2.90%	1.14%	75.35%
Average monthly consumption (C1, yuan)	1599 （1337）	1460 （1119）	1978 （1580）	1261 （1003）	1157 （702）	950 （911）
Average monthly consumption (C2, yuan)	2615 （1865）	2369 （1740）	3210 （2704）	1823 （1305）	1732 （949）	1433 （1339）

Note. Remarks: In parentheses is the sample variance.)

According to the results in the table, it can be seen that the monthly consumption of a family with old-age insurance is significantly higher than that of family without endowment insurance. Moreover, the monthly consumption of a family with government and institutions pension insurance, business old-age insurance and enterprise endowment insurance is higher that of family with rural endowment insurance and other types of pension insurance. This result reflects the assertion that there is certain relevance between the types of endowment insurance and household consumption; however whether this difference is a result of the amount of pension provided by different kinds of endowment insurance or is due to different degree of protection provided by provided by the different types of old-age insurance needs to be further exanimated.

3. THE REGRESSION RESULTS AND ANALYSIS

In order to distinguish the household consumption and consumer durables and improve the stability of the regression result, we set *C*1 and *C*2 to be variants simultaneously, utilize the method of OLS to perform regression and think about the stable variance. The regression results are as follows:

Table 3
The Impact of Pension Insurance on Consumption—Results of OLS Regression

	***C*1**	***C*1**	***C*1**	***C*2**	***C*2**	***C*2**
Pension	0.3283*** (8.39)		0.1804*** （3.98）	0.5318*** (10.62)		0.2817*** (4.22)
Govpension		285.72*** (2.71)	- 356.0856** （-2.32）		606.62*** (3.63)	- 364.8439 (- 1.56)
Corpension		251.58*** (3.10)	- 312.2153** （-2.88）		475.96*** (3.02)	- 287.4637* (- 1.74)
Compension		638.47*** (3.10)	158.6832 （0.77）		1187.3*** （3.02)	428.6337 (1.06)
Rurpension		109.9751 (0.82)	- 272.9415* （- 1.94）		- 3.80 （- 0.02）	- 375.812** (- 2.20)
Otherpension		- 57.743 (- 0.42)	-204.0663 （- 1.36）		- 165.45 （- 0.84）	- 328.281 (- 1.57)
Hhincome		0.0738*** （4.85）	0.0567*** (4.09)		0.1288*** （4.95）	0.0943*** (4.39)
Assets		0.0007*** （9.25）	0.0006*** (8.36)		0.0012*** （8.97）	0.0013*** (8.18)
Edu			40.156** (2.34)			76.26945** (3.16)
Health			- 48.3978* (- 1.70)			18.3078 (0.45)
Age			-9.2490** (- 3.03)			- 18.6653*** (- 4.00)
Price			0.0439*** (3.34)			0.0345 (1.64)
Con	968.201*** (50.63)	849.014*** (37.69)	1517.611*** (6.48)	1478.517*** (52.06)	1268.347*** （37.35）	2287.577*** (6.76)
Observed Data	2611	2265	1243	2611	2265	1243
***R* square**	0.0598	0.1641	0.2093	0.0704	0.2091	0.2658
***F* value**	70.42	29.13	25.94	112.79	28.55	21.89
Prob > *F*	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note. Remark: The *t* in parentheses is statistics; and it is set to ***, ** and * when the confidence level is 1%, 5% and 10% respectively.

The first column of *C*1 and *C*2 represents OLS regression results using only the monthly receiving pension; the second columns represent the regression results obtained by removing the variables and partial controlled variables that are seriously missing data; the third columns represent the regression results obtained by joining up all the variables. Though affected by the quantity of samples, the regression results display a lot of uncertainty; however, we can still draw many useful conclusions.

From the view of relationship between endowment insurance and consumption, the regression results show that there is a significant positive correlation between the monthly receiving pension and the amount of family monthly consumption. Specifically, though the specific coefficients are different, all the results of regression analysis show that once the amount of monthly receiving pension is increased by 1 yuan, the amount of family monthly consumption will increase by about 0.2-0.5 yuan. This shows that improving the amount of pension insurance helps to expand consumption and reduce savings to a certain extent, and therefore the endowment insurance has significant crowding out effect on savings.

From the view of different effects resulting from different types of endowment insurance, the result is relatively complex. It can be seen from the regression results that, after removing variables and some control variables that had seriously incomplete values, there are remarkable correlations among enterprise old-age insurance, business pension insurance, government and institutions endowment insurance and consumption;

moreover, from the view of changes of consumption after receiving the pension insurance, household consumption after purchasing commercial endowment insurance is more than that seen after purchasing government and institutions pension insurance. This phenomenon suggests that with the exceptions of changes in the amount of pension, the guarantee degree of different types of pension also impacts the decisions of household saving and consumption. After considering all variables, the differences between different pension insurance systems still exist, except for the commercial endowment insurance, the coefficients of the government and institution pension insurance, enterprise pension insurance and the rural endowment insurance have changed into negative, which indicates that these pension insurance types have significant impact on savings. This conclusion may have little connection with the samples of above pension insurance, and the specific reason still remains to be studied, but this demonstrates great difference between different endowments insurance systems.

In addition, there is an obvious relationship among the control values, including family income, assets, age, level of education and price level of community and consumption. In order to improve the robustness of the regression results, and moreover better to reflect the changes of degree of consumption brought by changes of united pension insurance under different endowment insurance systems, we take the logarithm of family monthly expenditure, family average monthly income and family assets, and use different endowment insurance as a dummy variable to multiply with the amount of pension insurance, and then construct a cross term. The revised model is as follows:

$$\log C = \beta_0 + \beta_1 \mathit{pension} + \beta_2 \Sigma \mathit{pensiortype} * \mathit{pension} + \beta_3 \log \mathit{hhincome} + \beta_4 X + \varepsilon$$

Due to the logarithm of family income, consumption and assets respectively, we may reduce volatility of regression results resulting from the large fluctuation of income to some extent; the cross terms can better measure specific differences of changes in consumption brought by different kinds of endowment insurance. After adopting the OLS regression to the new model, and thinking about robust variance, we obtain the following results:

Table 4
The Impact of Pension Insurance on Consumption—OLS regression after Adding Logarithmic Term and Cross Term

	log*C*1	**log*C*1**	**log*C*1**	**log*C*2**	**log*C*2**	**log*C*2**
Pension	0.00028*** （11.20）	0.00055*** （3.68）	0.00033*** （2.29）	0.00030*** (12.24)	0.00064*** (7.25)	0.00033** (2.29)
Govpension*		- 0.00045*** （-3.00）	- 0.00026* （- 1.80）		- 0.00052*** (- 5.81)	- 0.00026* (- 1.80)
Corpension*		- 0.00041*** （- 2.89）	- 0.00025* （- 1.92）		- 0.00044*** (- 5.79)	- 0.00025* (- 1.92)
Compension*		- 0.00006 （- 1.53）	- 0.00025 （- 0.51）		- 0.00011*** （- 3.00)	- 0.00025 (- 0.51)
Rurpension*		- 0.00043* （- 1.82）	- 0.00020 （- 0.26）		- 0.00056*** （- 3.78）	- 0.0002 (- 0.88)
Otherpension*		- 0.0004 （- 0.82）	- 0.0001 （- 0.26）		- 0.0011*** （- 2.89）	- 0.0001 (- 0.26)
Loghhincome		0.099*** （7.61）	0.083*** (4.34)		0.095*** （7.78）	0.0833*** (4.34)
Con	6.51*** (339)	3.619*** (27.95)	4.338*** (12.17)	6.938*** (373.02)	4.038*** （32.60）	4.338*** (12.17)
Observed data	2590	1593	834	2598	1596	834
***R* square**	0.0462	0.2944	0.3195	0.0546	0.3257	0.3195
***F* value**	125.38	1139.64		149.79	1438	
Prob > *F*	0.0000	0.0000		0.0000	0.0000	

Note. Remark: The regression result of control variable is omitted; the variable marked with * represents the cross item multiplied by amount of monthly receiving pension; the *T* in the parentheses is statistics; and it is set to ***, ** and * when the confidence level is 1%, 5% and 10% respectively.

The first column of log*C*1 and log*C*2 were regressions of considering only receiving monthly amount of pension; the second columns were regressions eliminating variables with significant missing data; the third columns were regressions taken after adding all variables. It can be seen from the results that there is a significantly positive correlation between the amount of monthly pension and the average monthly household consumption, namely when a pension increases 1 yuan, the growth rate of average monthly consumption will rise up by about 0.3%-0.6%. Without considering the results of different types of regression, the coefficient before various kinds of pension is still negative, which indicates that the average monthly household consumption of enjoying that type of endowment insurance is relatively less than that of not enjoying that type of old-age insurance. This conclusion is similarly reflected in the third column of the first regression results, which had considered all the variables, and it may lead to a puzzle. From our point of view, this phenomenon can result for the following reasons: first, the size of sample is not big enough, or the proportion of the family that did not buy endowment insurance is relatively high, causing an error in the regression results; in addition, because of the absence of data in the questionnaire, the model failed to consider the family scale and the health status of all members of the family. Besides, it is possible that the policy is not stable, and the family purchasing old-age insurance still has a high expectation of risk, therefore choosing to reduce consumption and increase savings even after purchasing old-age insurance. From the regression results, it can be concluded that the reduction of consumption brought about by purchasing endowment insurance is relative small. Meanwhile, it can be seen that different kinds of pension insurance have significant different influences on consumption.

In summary, according to the research results above, we can see that Chinese social pension insurance still stimulates residents' consumption and savings, and that the crowding out effect still exists. Moreover, after eliminating impact brought by the different amount of pension, the different kinds of old-age insurance have obvious influences on residents' consumption and savings. This result reflects not only that the amount of pension is variable, but that the risk protection provided by different kinds of pension is various as well. This difference affects the residents not only considering what type of pension to choose after being incorporated into certain categories of endowment insurance, but also choosing to reduce or increase the level of savings according to the guarantee degree of selected pension.

CONCLUSION AND POLICY SUGGESTIONS

Based on the above analysis and combined with the description of statistics and regression analysis results, it can be seen that Chinese partially funded pension system adopted at present stimulates consumption and squeezes out the savings to some extent. Therefore, the implementation of pension insurance system should not only provide Chinese residents a guarantee against elderly risks, adjust the income distribution, promote social fairness and stability, but it should also be conducive to stimulating consumption and promoting economic growth. Although endowment insurance cannot squeeze out savings completely, taking into account the high household savings rate brought about by the long-term absence of social security system, the implementation of a pension insurance system can reduce residents' risk expectation, increase residents' marginal propensity of consumption, and consequently inject more motivation into Chinese economic development.

In addition, the Chinese pension insurance system is classified by urban area, rural towns and residents in different social classes and group. In addition to the amount of the pension, the guarantee degree provided by different kinds of pension insurance is variable; for example, the pension of a government servant can provide better retirement benefits and medical and health services, so residents will adjust their expectations for the elderly risk according to their own old-age insurance system, and their consumption and savings will be influenced. The segmented pension insurance system is not conducive to social justice, but it also brought changes to the residents' savings and consumption behavior. Therefore, the reforming the endowment insurance system and merging different endowment insurances system would not only promote social fairness and justice, but would also be conducive to protecting residents' welfare when they are old, reducing their expected risk of agedness, and finally stimulating their consumption, promoting economic growth. At present, the relevant government departments have considered the merger of different pension systems—which belong to the city and countryside area, urban residents and urban employers, interior and exterior of the governmental system—and we look forward to more positive progress in the future. At present, the reform has entered into a critical period, and there will be more difficulties for future reform. Only by making up our mind actively to promote the reform of pension insurance, to create fairness and security for everybody can we safeguard social fairness and justice, better promote consumption, and stimulate economic growth. We hope that there will be more attention paid to this field, and that more research and policy will be adopted to promote the development of Chinese old-age insurance so that we may finally realize the goal of "looking after the elderly properly".

REFERENCES

Bai, C. E., & Qian, Z. J. (2009a). Who is occupying the residents' income—Analysis of the distribution pattern of Chinese national income. *Chinese Social Science*, (5).

Bai, C. E., & Qian, Z. J. (2009b). Elements of distribution of national income: The story behind the statistics. *Economics Research*, (3).

Bai, C. E., Wu, B. Z., & Jin, Y. (2012). The impact of pension insurance study on savings and consumption. *Chinese Social Technology*, (8).

Chen, M. Z. (2010). *The study of impact of Chinese pension insurance on consumption of urban residents (Master's Thesis)*. Hunan Normal University.

Hong, Y. N. (2009). *The study of impact of Chinese social security system on consumption of urban residents (Master's Thesis)*. Liaoning University.

Hu, Y., & Qi, X. G. (2012). The empirical study of the relationship between residents savings and social insurance. *Journal of Guangdong Universities of Business and Economics*, (3).

Meng, W. Q. (2010). *The study of impact of social pension insurance on savings of urban residents (Master's Thesis)*. Dongbei Universities of Finance and Economics, (11).

Pu, X. H. (2003). The effects of pension insurance on savings. *Contemporary Economic Study*, (11).

Shi, Y., & Wang, M. C. (2010). The impact of pay as you go system on pension insurance and savings—An empirical study based on Chinese panel data. *The Research of Quantitative Economics and Technical Economics*, (3).

Xie, E. (2010). Whether the urban medical reform has a crowding out effect on precautionary savings. *Southern Economics*, (9).

Zhang, S. B. (2009). Age structure, social insurance and savings of urban residents—An empirical study of provincial panel data. *Journal of Zhongnan University of Economics and Law*, (3).

Zhao, Y. H., Strauss, J., Albert P., & Sun, Y. (2009). *China health and retirement longitudinal study, pilot*. User's Guide, National School of Development, Peking University.

Zhou, X. Y., Wang, D. H., & Li, J. P. (2011). Empirical analysis of the impact of the new rural cooperative medical care on the saving behaviors of Chinese rural residents. *Economic Science*, (2).