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The Impact of Trust in Government on Rural Residents' Participation in China's New Rural Pension Scheme

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The Impact of Trust in Government on Rural Residents' Participation in China's New Rural Pension Scheme

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Abstract: This paper studies the impact of trust in government on participation behavior of rural residents in China's New Rural Pension Scheme (NRPS). We construct an analysis framework for the impact of trust on participation behavior in the pension scheme. Using data from the China Family Panel Studies (CFPS), we analyze the impact of trust in government on rural residents' insurance participation behavior, and explore the internal mechanism of trust in government on their pension contributions by Propensity Score Matching (PSM), then we verify the internal mechanism of trust in government affecting the contribution using the mediation effect test. We find that the trust in government has a positive effect on the contributions of rural residents. Compared to rural residents with low trust in the government, the contributions of those with medium and high trust in government increase by 8.75% and 18.32% respectively. These results show that trust in government plays a crucial role in the NRPS program. We further identify the factors and mechanisms that affect participants' trust level. Findings of this paper offer important policy implications for improving the Chinese pension system, and providing reference and guidance for the world rural pension research.

Key Words: Rural China; Pension policy; Social security; Trust in government; China's New Rural Pension Scheme

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1 Introduction

Insufficient enthusiasm to contribute in insurance is a common problem in the social security systems due to its long-term nature and complexity of decision-making. To face the challenge of the increasing aging population and the weakening of family security brought by fewer children and urbanization, the Chinese government launched a pilot program for the New Rural Pension Scheme (NRPS) in 2009 and rapidly expanded its coverage. In 2012, NRPS had covered all rural areas. In 2014, it was merged with the old-age insurance system for urban residents to form the basic old-age insurance for urban and rural residents. By the end of 2019, the number of residents covered by NRPS had reached 533 million, with a participation rate of over 86 percent of the country. It has become the basic security system of the rural elderly. However, with the rapid expansion of NRPS's coverage, the problem of insufficient contribution has been perplexing social security departments at all levels. Despite the government's efforts, studies still show that participants especially the young participants, lack incentives to contribute, and most of them choose the lowest contribution. The per capital contribution is only 282 yuan with 12 out of the 31 provinces in the country having raised the minimum contribution to more than 200 yuan in 2018(Liu, 2019). Research shows that too low contributions may lead to inefficient use of fiscal funds, and the efficiency of fiscal funds is even lower than that of the universal welfare pension system (Palacios, 2009).

In view of the plight of insufficient contribution of NRPS, the existing literature concern about the intention of participation (Yang et al., 2013; Ding et al., 2019),

participation behavior (Zhang et al., 2017) and policy incentives (Lin et al., 2015, 2016), which have carried out a large number of studies and come up with some practical policy suggestions. At the same time, social security departments in various regions have made many efforts to improve system publicity, insurance facilitation, incentive mechanism improvement and other aspects, but up to now, the problem of insufficient contribution has not been solved. In fact, Madrian (2013) shows that, compared with offering contribution subsidies, overcoming the influence of psychological factors is a more effective and cost efficient way to raise contribution of endowment insurance. Among the relevant literature, many scholars have regarded trust as an important factor that affects the contribution in the study of pension system. According to research by the Department for Work and Pensions (DWP) in the UK, lack of trust in pension as a reliable savings tool is an important reason for insufficient pension savings (DWP, 2009). The research of Wu (2015), Deng and Li (2014), and Huo et al. (2016) showed that the institutional trust of insurance participants significantly affected the insurance participation behavior of residents in China's NRPS. All these studies emphasize the important role of trust in endowment insurance behavior decision-making.

However, most studies concerned with the impact of trust on the NRPS pay attention to the participation rate, but not the level of contribution, and few studies focus on the newly reform of the system. Given current problems of high participation rate and low contribution level in NRPS, this study use the propensity score matching method (PSM) to introduce the "trust" variable into the influencing factors of NRPS,

empirically analyzed the influence of trust in government on rural residents' participation behavior in insurance scheme, and explored the internal mechanism and influencing mechanism of trust in government affecting rural residents' contribution.

The rest of the paper is organized as follows. The next section is literature review. Section 3 is theoretical basis and research hypothesis. Section 4 discusses the methodology data. In Section 5 the empirical results are presented, and Section 6 presents our conclusions.

2 Literature review

In recent decades, trust has been widely discussed in the study of economic behavior. The following is a review from two aspects of academic studies on participation behavior of endowment insurance and the influence of trust in pension institutions on participation behavior of endowment insurance.

Under the framework of traditional economic analysis, the participation of endowment insurance in decision-making depends on two factors: one is the attractiveness of endowment insurance plan itself; the second is the household saving propensity of participants (Basset et al., 1998). The former depends on the design of the pension plan and its comparison with other savings plans. The latter depends on the the participant's age. Therefore, in a given pension plan, individual participation behavior is mainly explained by the life cycle theory.

In terms of the attractiveness of the pension plan itself, there are only two types of measures. One is to provide a more favorable institutional environment for private

pension savings, such as providing more conservative asset management rules for private pension plans. The second is to give more convenience and economic incentives to public pensions (Yoo & De Serres, 2004; Immacolata et al., 2011). However, under the framework of traditional life cycle theory, because there are both income and substitution effects, and fiscal incentives themselves also have efficiency loss (Hubbar & Skinner, 1996; Yoo & De Serres, 2004), so there is no consensus on the effect of fiscal incentives (Immacolata Marino et al, 2011). For example, the conclusion of Poterba et al. (1996) for the 401 (K) plan in the United States contradicts to that of Engen et al. (1996), whose research results show that the plan has no significant impact on the increase of individual retirement savings. And matching contributions provided by employers have been proven to be an influential factor (Papke, 1995,2003; Basset et al., 1998; Munnell et al., 2000; Cunningham & Engelhardt, 2002;Engelhardt & Kumar,2007). Informal workers face more uncertainty and lack of credit constraints than those in the formal sector, so they need to be given larger incentives to participate in endowment insurance plans with a period of 20 or 30 years (Robert Palacios, 2009). Most OECD countries provide incentives equivalent to at least 10% of the contribution, with an average of around 20%, but they do so by allowing firms to take pre-tax deductions rather than providing direct matching funds (Yoo & De Serres, 2004). Since the poor are unlikely to pay taxes, using tax breaks to subsidize pension contributions seems to make little sense in developing countries. The defined-contribution model (MDC), which provides contribution subsidies, is a relatively new approach that some developed countries are exploring.

From the perspective of the participant's saving propensity, based on the analytical framework of life cycle theory, existing studies have generally focused on the influence of social demographic characteristics such as income, age, education and work tenure. It is generally believed that older, older and better-educated individuals are more likely to participate in old-age savings plans offered by their employers (Basset, etc., 1998; Even & MacPherson, 2004; Agnew, 2006; Gutter et al., 2007). In general, men are more likely to participate in pension savings plans than women, but for people working full-time, women are more likely to participate than men (Copeland, 2006). Ethnicity has a significant impact on pension savings plan participation, and the participation tendency of ethnic minorities is significantly lower than that of whites (Nesbitt & Neary, 2001; Copeland, 2006; Gough & Hick, 2007; Barnes & Taylor, 2007). However, this also supports an important effect of income levels, since the older, white, and better-educated people tend to have higher incomes (Basset et al. 1998; Agnew, 2006; Huberman et al., 2007).

Pensions often require individuals to rely on the expertise of third parties (Beckett et al., 2000), and trust exists in multiple dimensions: consumers need a degree of trust in advisers, personal pension providers and products, and in the stock market or the economy (Dietz and Den Hartog, 2006). Other factors that could affect trust include personal brands, suppliers and the past performance of pension products. In addition, market imperfections, such as the lack of product performance and quality information, may also increase the risk of buying pensions and the level of trust required (Llewellyn, 1999), so this is related to the frequency and type of

communication that governments, providers and others involved in the delivery and management of pensions have with people. Most of the literature indicates a decline in public trust in pension institutions (Hyde et al., 2007). In particular, there is widespread public concern about the ability of national pension plans to meet their obligations (Hicks, 2001; Jacobs, 1998). Kelly's (2007) research shows that employers are more trusted than financial institutions, which in turn are more trustworthy than the government. Because of the information asymmetry between the government, financial institutions and consumers, financial knowledge and expert advice can improve consumers' confidence in pensions, and the provision of NLS pensions can increase consumers' trust. (Ring, 2005). Hyde et al. (2007) argues that people's trust in pension system depends on the rationality of their system design and the state of people after retirement. Gerard et al. (2001) found that pension participation in mergers and acquisitions led to unemployment and reduced the confidence of labor unions in pension institutions, while improving the transparency of pension can enhance people's trust (King, 2003). However, Dalen and Henken (2018) found that transparency perceived by participants had little effect on building trust, while pension fund providers' sense of integrity, competence, stability, and benevolence played an important role in assessing their trustworthiness.

Many studies also pay attention to the influence of trust on participation behavior in China's NRPS. Wu (2011) finds that trust in village had a positive effect on rural residents' insurance participation. Yang and Wang (2013) combined the "institutional confidence" variable with five indexes of expected pension receiving, i.e., policy

expected stability, contribution subsidy system, pension received in full amount, and expected fund security. These results showed that the trust of this system had a significant effect on improving the participation rate in NRPS. Deng and Li (2014) equated trust in government with institutional trust and paid further attention to the influence of trust on contributions. The results showed that institutional trust and policy cognition had a significant positive influence on rural residents' choice of contributions. Ding et al. (2019) constructed a "comparison-processing" pseudo-natural experiment scenario between husband and wife, and again concluded that it was the difference in social trust level that led to the difference in rural residents' participation behaviors in the new rural insurance system.

The common drawback of existing research lies in the fact that they ignore that endowment insurance is a long-term and complex financial decision-making behavior (Madrian, 2013). As trust is the cornerstone of finance, it is undoubtedly difficult to draw convincing conclusions if they ignore the influence of trust in financial decision-making. At the same time, due to the lagging development of the rural endowment insurance system, the existing studies pay more attention to the participation of the insurance, but ignore the study of the contribution level. The low level of payment is the current more prominent problem. Our study aims to solve two problems. First, we include participants' trust in government in the analytical framework of insurance participation behavior; and studies the relationship between trust in government and the level of rural residents' contributions. Second, we analyze and verify the internal logic and mechanism of trust in government that influence

rural residents' contributions in NRPS.

3 Theoretical basis and research hypothesis

Endowment insurance participation is also a special long-term investment behavior. In the research of investor behavior in financial market, investor trust contains at least two levels: "trust in managers" and "trust in market", of which "trust in managers" is closely related to cultural background or psychological factors, and "trust in market" is closely related to expected returns. Among them, "trust in managers" refers to confidence in specific managers. Investors will feel at ease when they hand over funds to managers they think are reliable, thus reducing nervousness and anxiety about taking risks (Gennaioli, 2015; Massa, 2015). People have less confidence in pensions provided by the average employer than by governments or financial companies (Clery, 2007 and 2010). Due to the information asymmetry among the government, financial companies and individuals, mutual trust is more needed. Individuals lack financial knowledge and therefore rely more on professionals (Ring, 2005). The essence of trust in government is the public's trust in the government structure and system, including three levels: government staff, government department entities and institutional factors. The former two are based on the public's "subjective cognition" of government officials. (Zhao, 2013). If rural residents do not trust the implementer of the system, the participation of the system will be indirectly affected. As the policy maker and implementer, the executive power of the government's policies is an important factor affecting rural residents'

participation in the system (Li, 2018). Meanwhile, rural residents' trust in the system also has a positive impact on their choice of insurance contributions (Deng, 2014). China's social old-age insurance fund is a special fund, managed by the government as a whole. The government is the manager of the fund, and to some extent, local government officials also play the role of professionals. Therefore, enhancing the trust between the government and rural residents can improve the contributions of rural residents.

Therefore, our hypothesis one is: Trust in government has a positive impact on the contributions of rural residents. The stronger the trust of rural residents to government, the higher the contributions of NRPS.

Trust in government is a kind of "mutual behavior". In the process of forming trust through the interaction between the government and the insured rural residents, more trust recipients are presented, while the public is the trust giver. The government is the direction and object of trust; On the other hand, the information conveyed by the government to the public serves as the basis for public cognition and judgment (Zhao,2013). Improving the interaction mechanism and channels between rural residents, policy makers and executors can improve the public's trust in government (Li and Yang, 2018). Investors' trust is partly based on rational expectations of future returns and partly due to cultural and specific factors (Zingales, 2011). In the research on the investment behavior of the stock market, the essence of stock as a financial contract is an exchange, that is, the exchange of the present investment and the promise of future income. Participating in endowment insurance is a special long-term

investment behavior. The higher level of trust in government, the more likely people believe that the pension fund can be properly managed and increase in value,, the more likely they are to increase their contribution in NRPS (Ruan,2015).

Specific to NRPS, the expected rate of return and the expected amount of pension depend on the age and life expectancy of rural residents. NRPS fund raise total consists of three pieces: individual pay cost, collective allowance and government subsidies, the above writes down individual account entirely, and with the central bank announced RMB one-year deposit interest at a pre-determined rate, month of individual account annuities plan hair standard for individual account stores the forehead entirely divided by 139¹. The insured can be received only if the age of the insured reaches 60 years old and the payment period has been paid at least 15 years. To do so, the younger participants tend to consider when the choice of pension investment cycle is long, low return on investment, increase carries expends the specified amount to get more pay cost subsidy is limited, think the future of old-age pension is gotten more than enough to make up for lost by the current capture to expend more utility (zhang, 2017), reasons for the low pay cost investment cycle is long and expected return makes young people pay level is too low. On the contrary, for older insured people, their early pension investment is about to receive a return, and different from the time preferences of young people, their current expected investment return rate is much higher than that of young people, and the participation level is higher. However, life expectancy mainly affects the contribution level of rural

¹ After the individual account annuities in 139 months reduced to zero, government will pay for 100% payment of personal accounts for basic old-age pension as a whole untill the participants die.

residents through two ways: 1. The better the health of rural residents, the longer their life expectancy will be, and ideally, the longer the time they will receive pension. Longevity will increase the expected investment rate of return and thus increase the contribution level 2. Compared to rural residents in good health, rural residents with poor health conditions are more dependent on NRPS, more willing to participate in the insurance, and higher level of contribution (Le, 2004).

Based on this, forming hypothesis two: The mechanism between rural residents' trust in government and the level of insurance contribution can be summarized into two groups of channels: the expected investment rate of return and the amount of return on pension. Under the same control of local policies, rural residents' expected investment rate of return and the amount of return on pension depend on their own age and life expectancy.

4 Research methods, data sources and variable selection

4.1 Research methods

One of the core questions of this paper is whether rural residents' trust in government will affect their participation in NRPS. There may be problems of self-selection and reverse causality between the level of rural residents' trust in government and the level of payment. For example, rural residents with a high level of insurance contributions may have a higher trust in the government, which may lead to a self-selection bias. In order to reduce the impact of endogeneity on empirical

results, the propensity score matching method(PSM), which is commonly used to deal with self-selection problems in the research of causal inference, is used. through the different levels of the rural residents' trust in government group match, to estimate the average treatment effect on the treated(ATT). Secondly, as for the possible bias of reverse causality, in which rural residents receive more pensions and therefore have more trust in government. According to NRPS policy, to set, the residents who begin receiving pension do not pay contribution anymore. Therefore, in theory, it can be solved by selecting the participants between the ages of 16 and 59 who have not received pension as the sample.

PSM was first proposed by Paul Rosenbaum and Donald Rubin in 1983 as a method of "counterfactual analysis and estimation". Counterfactual is the potential result under the control state. On the contrary, counterfactuals are the potential consequences of intervention for members in control. In reality, only the results that actually occur can be observed, and another potential result requires counterfactual estimation. Observed at the same time, we can only rural residents to trust a state (high or low), therefore, this study for the treatment group (in this study to trust the government of the standard of peasants' payment) to find a suitable the facts in the control group (in this research the standard of peasants' payment of distrust government), and then get the standard of peasants' pay cost difference between two groups of samples is the ATT.

The dummy variable $D_i = \{0,1\}$ is used to represent rural residents' trust in the government. Take the contributions group with high trust in government and the

contributions group with low trust in government as examples, where 1 is the treatment group -- the rural residents who trust the government; 0 is the control group -- the rural residents who do not trust the government, Y_i representing the contributions of rural residents. The processing effect of D_i on Y_i is:

$$Y_i = \begin{cases} Y_{1i} & D_i=1 \\ Y_{0i} & D_i=0 \end{cases}$$

Where Y_{1i} is the contributions of rural residents with high trust in government; Y_{0i} is the contributions of rural residents with low trust in government; $Y_{1i} - Y_{0i}$ is ATT, namely:

$$Y_i = (1 - D_i)Y_{0i} + D_iY_{1i} = Y_{0i} + (Y_{1i} - Y_{0i}) D_i$$

$$ATT = E[y_{1i} - y_{0i} | D_i = 1, p(X)] = E[y_{1i} | D_i = 1, p(X)] - E[y_{0i} | D_i = 1, p(X)]$$

In social science research, there are many matching methods to achieve matching. The commonly used matching methods are k-nearest neighbor matching, caliper matching, kernel matching, Markov matching, etc. Theoretically, all the matching results should be asymptotically equivalent. However, due to slightly different estimation of deviation and efficiency of methods, the matching results of different methods may be different (Caliendo and Kopeinig, 2008). Therefore, in order to ensure the robustness of the matching results, three commonly used methods, K-nearest neighbor matching, caliper matching and Mahaloban matching, were adopted in this study, and the matching results were compared.

4.2 Data sources

In combination with the propensity score matching method, the sample size required by the study should be as large as possible. In order to improve the matching quality, the big data survey method was used in this study. Using big data from the China Household Tracking Survey (CFPS), the survey is conducted every two years by the Chinese Social Science Survey Center (ISSS) at Peking University, with samples covering 25 provinces, municipalities and autonomous regions in china. In this paper, CFPS data of 2012 was used

². The total sample size was 35,719, and after the missing values of key variables were removed, the remaining valid sample size was 14,356, which basically included the data of family characteristics, personal characteristics, grass-roots governance (including trust in government officials), insurance participation behavior and other aspects needed in this paper, which could basically meet the analysis of this paper.

4.3 Variable selection

The research object of this paper is the annual contributions of rural residents participating in NRPS. In 2012, NRPS has been fully covered in the whole country. For rural residents, NRPS and the urban and rural resident pension system are just the names of the same system in different periods. Therefore, the contributions of rural residents in the two systems is taken as the explanatory variable together. According

² Since the data from the Chinese Family Tracking Survey after 2012 did not involve the key explanatory variable of rural residents' contributions in insurance, and did not meet the research needs, this study uses CFPS (2012) data.

to the descriptive statistics in Table 1, the annual contributions of rural residents in 2012 was generally low, and the per capital insurance contributions was 143.44 yuan.

In terms of the core explanatory variable of this study, the data measures the trust of respondents in local government officials, corresponding to questions such as "how much do you trust local government officials?" "On a scale of 0 to 10, with 0 being very mistrustful and 10 being very trusting. Table 1 shows that the trust in government is generally moderate, with an average of 4.93. In the study, the median trust value of 5 was divided into grouping points, and the samples with scores of 0-4 were taken as a group with a total sample size of 5040. The rural residents in this group had low trust in government. The sample with 5 points is a group with a total sample size of 4254. The rural residents in this group have average trust in government. The 6-10 samples are a group with a total sample size of 5062. rural residents in this group have relatively higher trust in government.

As for the selection principle of covariates in propensity score matching method, in order to ensure that the assumption of ignorability is satisfied, variables that may affect rural residents' trust in government and contributions should be included as much as possible. Combined with the survey data, 9 variables most commonly used in relevant literature were selected according to the individual characteristics and family characteristics of rural residents(Basset, 1998; Papke, 2003; Smith, 2004; Huberman, 2007; Zhang, 2010; Xiao, 2011; Deng and Liu, 2013; Ruan, Zheng and Liu, 2015). including: gender, age, health, education, Party, occupation, number of sons, per capital net household income, and location. According to the requirements of NRPS,

this study selected the insured samples between the ages of 16 and 59 (without receiving pension). Table 1 shows that the average gender is 0.48, the proportion of males and females among the respondents is relatively balanced. Among the variables of health status, 1 point means very healthy, 5 points means very unhealthy. The mean value of 2.98 means that most people are in average health. The average education level and age were 2.62 and 2.23, respectively, representing the average age of the respondents was about 38 years old, and the average education level was below junior high school. The average occupation value was 0.84, representing that most families were engaged in agricultural work. The average annual net household income of the sampling staff was nearly 40,830 yuan. The region represents the province where the sample is located and is a dummy variable.

< Insert Table 1 about here >

5 Results

5.1 The impact of trust in government on contributions

5.1.1 Analysis of propensity score matching results

First of all, rural residents with high trust in government were taken as the treatment group, and the rural residents with low trust in government were taken as the control group for matching. The control variables were all matching variables in Table 1. Table 2 lists the influence results of three groups of different trust in government on the contributions of rural residents. In the case of control covariate by

K neighbor matching (1 to 4), caliper matching (caliper is 0.01), the average treatment effect of martensite matching method were 11.70 yuan, 9.85 yuan and 10.73 yuan, compared with the rural residents with low trust in government, the rural residents with high trust in government increased their payment by 10.76 yuan on average, which was 18.32% of the average payment amount. The matching results are asymptotically equivalent, and the results are robust and significant at the 1% level.

Secondly, the treatment group was still the rural residents with high trust in government, and the control group was adjusted to the rural residents with moderate trust in government. Under the same condition of controlling the matching variable, the average processing effects obtained by the three matching methods were 5.42 yuan, 4.89 yuan and 7.93 yuan respectively. Compared with the rural residents of general trust in government, the contributions of rural residents with high trust in government increased by 6.08 yuan on average, which increased by 10.35% of the average payment amount. The results were close and passed the significance test. Finally, the rural residents with general trust in government were taken as the treatment group, and the farmers with low trust in government were taken as the control group for matching, under the condition of controlling the same matching variable, the average treatment effect obtained by the three matching methods is 4.04 yuan, 4.80 yuan and 6.58 yuan, compared rural residents with low trust in government, the contribution level of rural residents with general trust in government increased by 5.14 yuan, the standard of peasants' pay increase the level of 8.75% of average payment amount, the K neighbor matching (1 to 4) get the average treatment effect is

not through the test of significance. As mentioned before, due to the different methods to estimate the deviation and efficiency between different, causing the results vary, but the caliper, markov matching and nuclear match (the default bandwidth) method to get the average treatment effect by significance test, which are listed in table 3 nuclear matching the average treatment effect was 4.98 yuan, 3 groups of matching result is reliable.

The above results show that trust in government has a positive impact on the level of rural residents' payment, which is consistent with the hypothesis. With the gradual increase of rural residents' trust in the government from low to general to high, the level of insurance premium is also on the rise. The trust degree of rural residents to the government determines their trust degree to the NRPS. As the implementer of the new rural insurance system and the manager of the pension fund, local government officials also play a professional role.

However, due to the information asymmetry and lack of financial knowledge among rural residents, rural residents will choose to trust familiar government officials. rural residents who trust local government officials more will pay more. Strengthening the communication and interaction between the local government and the rural residents and improving the rural residents' perception of the benefits of the policy are beneficial to raising the level of rural residents' payment in the new rural insurance system.

< Insert Table 2 about here >

5.1.2 Heterogeneity test

As for the heterogeneity test, the study mainly divided the whole sample into two groups: rural residents with high trust in government (5-10 points) and rural residents with low trust in government (0-4 points) based on two different characteristics of education level and age, and empirically analyzed the possible differences in the contributions of rural residents according to the median trust value of 5 points. The results are shown in Table

(1) Packet matching test based on education level

First of all, according to the different education levels, the rural residents whose education level is junior high school or below are divided into a group, and the rural residents whose education level is above junior high school are divided into a group. The sample size of the two groups is 5040 and 8316 respectively. The matching test results of rural residents with low education level show that under the control of matching variable, the contribution level of rural residents with high trust in government increases by 9.54 yuan on average compared with that of rural residents with low trust in government, and it is significant at the level of 5%.

Among the highly educated rural residents, compared with the rural residents with low trust in government, the contributions of the rural residents with high trust in government increased by 5.96 yuan on average, and through the significance test, the difference in the contributions between the two groups of rural residents with different education levels reached 3.58 yuan. On the contrary, rural residents with higher education level pay lower contributions. The main reason may be that rural residents

with higher education level, richer financial knowledge and better understanding of pension tend to choose other commercial insurance with higher return rate on investment.

(2) Group-matching test based on age

According to different ages, the samples from 16 to 59 years old were divided into two groups: 16 to 40 years old and 41 to 59 years old, to study whether there is heterogeneity in the contributions of rural residents of different ages. The average processing effect of the contributions of the younger and older rural residents was 5.30 yuan and 12.86 yuan, respectively, and both were significant at the level of 5%. Compared with the contributions of the younger rural residents, the average processing effect of the contributions of the older rural residents was 7.56 yuan higher. Compared with younger rural residents, older rural residents have a more urgent need for pension, which makes their contribution level significantly higher than that of younger rural residents.

< Insert Table 3 about here >

5.1.3 Balance test

When matching propensity scores, it is necessary to pay attention to the balance between sample groups of rural residents with different levels of trust in government. That is, after matching the samples, there should be no significant difference in

matching variables except for differences in trust. Due to the limitation of space, only two groups of "high trust in government" and "low trust in government" were divided into two groups by K-nearest neighbor matching method, and the balance test was conducted before and after matching. The balance test results in Table 4 show that, compared with before matching, the error ratio of all characteristic variables decreases to less than 2% after matching, and the absolute value ratio of error reduction is all higher than 50%. At the same time, the t-test statistics showed that the null hypothesis that the difference of matching variables between the two sample groups was zero could not be rejected, Thus, propensity score matching does significantly reduce the difference between the two groups of samples.

< Insert Table 4 about here >

5.2 An internal mechanism examination of the impact of trust in government

Empirical result has showed the positive effect of trust in government on rural residents' contribution in insurance scheme. This section further explores the internal mechanism of the impact of trust in government. According to the research hypothesis two, the trust in government affect the contribution by influencing the rural residents' expected revenues and rate of return in the pension scheme. Given the policy, expectations of revenues and rate of return in pension scheme depend on age and life

expectancy of rural residents. That is to say, trust in government affect the contribution through the age and life expectancy which are the proxy variables for the expected revenues and rate of return. Meanwhile, according to the hypothesis, this study used the variable of "health status" to represent the life expectancy of rural residents. In order to verify the above mechanism, the following equation was established in this study by referring to the mediating effect test method of Wen et al. (2004,2014) :

$$Paylevel = a_0 + a_1Trust + \sum Controls + \zeta \quad (1)$$

$$Health = b_0 + b_1Trust + \sum Controls + \varepsilon \quad (2)$$

$$Age = c_0 + c_1Trust + \sum Controls + \zeta \quad (3)$$

$$Paylevel = e_0 + e_1Trust + e_2Health + e_3Age + e_4(Health \times Age) + \sum Controls + \zeta \quad (4)$$

The control variables of the above models are listed in the descriptive statistics in Table 1. The explained variables of Model (1) and Model (4) are the level of rural residents' payment, a_1 represents the total effect of trust in government on the level of contribution, e_1 is the effect of trust in government the contribution level after adding the intermediary variable, the product of the b_1 and e_2 said the life expectancy of the mediation effect of contribution, c_1 and e_3 the product of the said intermediary effect of age on contribution, the regression results are shown in table 5.

Firstly, it is estimated whether trust in government has an effect on the contribution of rural residents through age, and the age of rural residents is used as an intermediary variable to test. According to the mediation effect analysis steps, the first step is to test whether a_1 is significant, which is 1.966, and passing the significance test of 1% means that government trust has a_1 positive impact on the level of rural

residents' payment, and the total effect is significant. In the second step, the product of c_1 , e_3 and e_1 were tested to be significant. The regression results all passed the 1% significance test. In the case of significant c_1 and e_3 bootstrap test is unnecessary (Wen et al., 2014). The partial mediating effect of trust in government on rural residents' contribution level through age is 30.17%, that is to say, taking age as the influence channel of expected pension investment rate of return and income amount, the hypothesis of the mediating effect of government trust on the contribution level through affecting expected investment rate of return is established.

Secondly, when estimating the trust in government by rural residents life expectancy affected rural residents pay cost level of effect, we observe that model (2) health coefficient b_1 (0.028) and model (4) health coefficient e_2 (7.256) have different signs. According to the judgment method of Wen et al. (2014) on mediating effect and masking effect, the mechanism of health status as a mediating variable has a masking effect, with a masking effect value of 10.19%.. Why does this exist? According to the two ways that life expectancy affects the contribution level, it can be seen that: 1. rural residents in better health condition have a longer life expectancy, higher expected investment rate of return and relatively higher income amount for insurance participation, and then increase the contribution level of insurance participation; 2. rural residents with poor health conditions are more dependent on the NRPS, and tend to pay more insurance premiums now in order to secure their future life. This is also in line with the reality in rural areas, where the economic development level is relatively backward, and a considerable number of elderly people need to rely on their

own physical labor and agricultural production to maintain a living. Most elderly people will give up work only when they are unable to move. If their health is poor, the risk of supporting the elderly in the future is bound to increase. As a result, rural residents with a lower self-assessment of their health will choose to pay a higher level of contribution than rural residents who are in good health. Therefore, under the interaction and influence of the above two mechanisms, the effect of trust in government on rural residents' payment level through the way of life expectancy is masked.

< Insert Table 5 about here >

6 Conclusions

Using data from CFPS, this paper analyzes the impact of trust in government on the contribution of rural residents in NRPS by propensity score matching, and tests the internal mechanism of trust in government affecting the contribution by the mediation effect test. The results show that: Trust in government has a significant positive effect on the contribution of rural residents. On average, compared to rural residents with low trust in the government, the contributions of those with medium and high trust in government increase by 8.75% and 18.32% respectively and those with high trust in government increased their contribution by 10.35% compared to those with medium trust in government. This conclusion is basically consistent with the research by Deng. (2014) and Huo. (2016). Trust in government affects the

contribution by influencing residents' expected revenues and rate of return in the pension scheme, which depend on their participation age and life expectancy. The mediating effect test showed that the partial mediating effect of trust in government on residents' contribution through age was 30.17%. While the masked effect of life expectancy on contribution was 10.19%. Both conclusions testify the hypothesis two in this paper.

Although there are plenty of researches on the relationship between trust and rural residents' participation behavior in insurance scheme, most of them focus on participation rate, while few of them focus on the contribution in insurance scheme. What's more, there is no literature explore the internal mechanism and influence channels of trust in government affecting contribution at present. The contribution of this paper is to empirically verify the causal relationship between trust in government and the level of rural residents' contribution in insurance scheme, and theoretically analysis the internal mechanism between the effect of trust in government on the rural residents' contribution in insurance scheme, and verify the mechanism by the intermediary effect.

Conclusions of this paper show significant impact of trust in government on rural residents' contribution in NRPS. Strengthen the communication between the rural residents and the local government to improve the trust in government, raise rural residents' accurate understanding of policy perceive the revenue of pension scheme, improve public health service to increase rural residents life expectancy, all of these would be conducive to increase rural residents' contribution and improve the level of social security of NRPS.

Reference

- [1] Alesina, A. and E. La Ferrara (2002) Who trusts others? *Journal of Public Economics*, 85(2): 207-234.
- [2] Butler Jr, J. K. (1991). Toward understanding and measuring conditions of trust: Evolution of a conditions of trust inventory, *Journal of management* 17(3): 643.
- [3] Beshears, J., Choi, J., Laibson, D., & Madrian, B. (2006b) . Simplification and saving. NBER Working Paper 12659.
- [4] Choi, J., Laibson, D., Madrian, B., & Metrick, A. (2002) . Defined contribution pensions: Plan rules, participant choices and the path of least resistance. *Tax Policy & The Economy*, 16(1) , 67–113.
- [5] Clark G L, Munnell A H, Orszag J M. Oxford handbook of pensions and retirement income[M]// *The Oxford Handbook of Pensions and Retirement Income*. 2006:521-523.
- [6] Department for Work and Pensions (DWP) (2009) *Security in retirement; towards a new pension system*, Cm 6841, TSO.
- [7] Ennew C, Sekhon H . Measuring trust in financial services: the Trust Index[J]. *Consumer Policy Review*, 2007, 17(2):62.
- [8] Guiso, L., Sapienza, P. et al. (2007). *Trusting the stock market*, European University Institute.
- [9] Hedges, A., Sykes, W. and Groom, C. (2009). *Extending Working Life: changing the culture, qualitative research into effective messages*, Research Report No. 557, Department for Work and Pensions, Stationery Office.
- [10] Hyde, M., Dixon, J. and Drover, G. (2007). Assessing the capacity of pension institutions to build and sustain trust: a multidimensional conceptual framework. *Journal of Social Policy* 36(03): 457-475.
- [11] Hyde M, Dixon J, Drover G. Assessing the capacity of pension institutions to
- [12] build and sustain trust: a multidimensional conceptual framework[J]. *Journal of Social Policy*, 2007, 36(3): 457-475.
- [13] Meyer, S., Ward, P., Coveney, J. and Rogers W. (2008). Trust in the health system: An analysis and extension of the social theories of Giddens and Luhmann, *Health Sociology Review* 17: 177-186.

- [14]O'Donnell, O. and Tinios, P. (2003). The politics of pension reform: Lessons from public attitudes in Greece. *Political Studies* 51(2): 262-281.
- [15]Ring, P. J. (2005). Security in pension provision: a critical analysis of UK government policy. *Journal of Social Policy* 34(03): 343-363.
- [16]Rousseau, D. M., Sitkin, S. B., Burt, R. S. and Camerer, C. (1998). Not so Different After All: A Cross- Discipline View of Trust, *Academy of Management Review*, 23, (3):393-404
- [17]Taylor-Gooby, P. F. (2009). *Reframing Social Citizenship*, Oxford University Press.
- [18]Van Dalen H P , Henkens, Kène. The Making and Breaking of Trust in Pension Providers: An Empirical Study of Pension Participants[J]. *Geneva Papers on Risk & Insurance Issues & Practice*, 2018.
- [19]Deng DaSong, li YuJiao. Institutional Trust, Policy Cognition and the Dilemma of Individual Account Payment Level Selection, Basing on Ordered Probit Model[J]. *Rural Economy*, 2014, 8:77-83.
- [20]Ding CongMing, Wu YuJia, Qin ShuYuan, Liang ZhenQiao. Social Trust and the Implementation Efficiency of Public Policy, basing on the micro evidence of rural residents' participation in the new rural insurance, *Chinese Rural Economy*, 2019(05):109-123.
- [21]Gao Yong. Research on the Relationship between Participatory Behavior and Government Trust, *Sociological Research*,2014(5):98-119.
- [22]Huo Peng, Zhang JingYi, Pen ChuQiao.Research on the Influence of Social Interaction and Trust on rural residents' Participation in the "New Rural Insurance",Basing on CGSS2010 Survey Data[J]. *Journal of Agrotechnical Economics*, 2016 (6): 68-76.
- [23]Le Zhang. The Intention of rural residents to Participate in Social Endowment Insurance under the Current System Arrangement[J]. *Chinese Journal of Population Science*, 2004(5):40-47.
- [24]Lin BenXi,Wang YongLi. Research on the Influencing Factors of rural residents' Willingness and Behavior to Participate in the New Agricultural Insurance,Citing the Fujian Province as an Example[J].*Finance and Trade Economics*,2012,07:29-38.
- [25]LiJia, Yang YanSui. Research on Social Governance of the Trust Mechanism Construction of "New Rural Security" System[J]. *Social Security Research*, 2018 (1): 3-12.

- [26]Wu YuFeng. Research on Satisfaction and Loyalty of Rural Residents in Endowment Insurance,Basing on the Perspective of Trust[J]. China Economic Studies, 2015 (5): 16-26.
- [27]Ruan RongPing, Zheng Feng, TianLiu Li. Analysis of the Influence of Religious Belief on the Participation Behavior of Rural Social Endowment Insurance[J]. China Rural Survey,2015(01):71-83+95-96.
- [28]Wen ZhongLin,Ye BaoJuan. Mediating Effect Analysis: Methodology and Model Development[J].Advances in Psychological Science,2014,22(05):731-745.
- [29]Wen ZhongLinZhangLei,Hou JieTai, Liu HongYun. Mediation Effect Test Program and its Application[J].Journal of psychology,2004(05):614-620.
- [30]Zhang Ning, Li KuangQi ,Fan Yi . Time Preference, Income Level and Peasants' Participation in Insurance, Analysis on the Behavior of rural residents Participating in Social Endowment Insurance in Two Counties of Central China[J].Journal of Agrotechnical Economics, 2017(7):60-70.
- [31]Yang Zhe,Wang MaoFu.Participation Willingness and Influencing Factors of Endowment Insurance for the New Generation of Migrant Workers, Basing on the Survey Data of Anhui Province[J].Social Security Research,2013(05):62-68.
- [32]Zhao QuanMin.On the Reconstruction of Government Trust in the Transforming Society, Basing on the Perspective of Institutional Trust Building[J]. Social Sciences in China ,2013(01):12-24.

Table

In the following table, *, ** and * represent significant at the level of 10%, 5% and 1% respectively.**

Table 1: Variable description and descriptive statistics

The variable name	Variable declaration	The mean	The standard deviation
Explained variable			
pay level	Insured per capital payment amount, unit: yuan/year	143.44	180.58
Core explanatory variable			
trust	How much trust do you have in local government officials? 0 to 10 points	4.93	2.48
Match variable			
gender	Male =1 female =0	0.48	0.50
age	16~59	38.29	12.59
health	Health status was rated from high to low on a scale of 1 to 5	2.98	1.22
education	Illiterate/semi-literate =1 Junior college =5 Elementary =2 Undergraduate =6 Junior High =3 Master =7 High school/vocational school =4 PhD =8	2.62	1.14
party	Party member =1 Other = 0	0.03	0.18
sons	0~5	0.80	0.75
work	Agricultural =1, non-agricultural =0	0.84	0.37
income	Unit: Yuan/year	9197.84	11286.69
(FE)	Fixed region	—	—

Table2:The average processing effect of rural residents' payment level under different government trust

	(1)	(2)	(3)
Matching method	Rural residents of high trust in government VS Rural residents of low trust in government	Rural residents of high trust in government VS Rural residents of medium trust in government	Rural residents of medium trust in government VS Rural residents of low trust in government
K nearest neighbor matching	11.70***	5.42*	4.04
Caliper match	9.85***	4.89*	4.80*
Markov match	10.73***	7.93**	6.58**
The average ATT	10.76	6.08	5.14

Table 3: The average processing effect of government trust on rural residents' payment level under different groups

Sample group who don't	rural residents who trust government VS rural residents
Low education level N=6040	9.54**
High education level N=8316	5.96*
Younger(16-40) N=7347	5.30**
Older(41-59) N=7009	12.86**

Table 4: Balance test results

variable	Matching type	Government trust is high	Government trust is low	T statistic	Errors (%)	Reduce the error ratio (%)
gender	Before	0.486	0.472	1.52	2.7	74.3
	After	0.485	0.482	0.47	0.7	
age	Before	38.728	37.479	5.68***	10.0	92.2
	After	38.715	38.618	0.53	0.8	
education	Before	2.623	2.632	-0.47	-0.8	-89.5
	After	2.622	2.640	-1.06	-1.6	
health	Before	2.940	3.066	-5.92***	-10.3	95.6
	After	2.941	2.936	0.31	0.5	
party	Before	0.037	0.023	4.47***	8.1	84.5
	After	0.035	0.038	-0.77	-1.3	
sons	Before	0.820	0.818	3.27***	5.7	95.7
	After	0.819	0.820	0.17	0.2	
work	Before	0.849	0.823	4.16***	7.2	81.5
	After	0.849	0.854	-0.94	-1.3	
income	Before	9126.3	9331.6	-1.04	-1.8	49.9
	After	9124.9	9227.9	-0.63	-0.9	
FE				YES		

Table 5: Regression results

variable	Model(1) paylevel	Model(2) health	Model(3) age	Model(5) paylevel
trust	1.966*** (0.455)	-0.028*** (0.004)	0.183*** (0.033)	1.504*** (0.448)
Control variables	Y	Y	Y	Y
health				7.256** (3.232)
age				3.241*** (0.251)
health#age				-0.189** (0.0765)
Constant	72.48*** (5.937)	3.429*** (0.052)	43.530*** (0.433)	-64.64*** (11.61)
Observations	14,356	14356	14356	14,356
R-squared	0.011 —	0.070	0.393 —	0.049
Bootstrap text		b ₁ 、 e ₂ is significant, and bootstrap test is not needed	c ₁ 、 e ₃ is significant, and bootstrap test is not needed	
Whether the effect is significant	significant	Significant masking effect	Significant mediating effect	significant
Mediating (masking) effect/total effect	—	10.19%	30.17%	—