Pension Expectation and Human Capital Investment in Children: the evidence from pension system unification reform[*]

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The pension reform of public sectors that began in 2015 has changed the pension expectation of employees. The paper estimates a difference-in-difference model to assess its effect on household education investment. The empirical results shows that the reform has reduced the average education investment of public sectors households in children by 29.9%, and the education investment in boys has decreased even more. The paper finds that in China, parents' education investment in kids is related to their own old-age needs, which conveys more egoistic preference, and there is a substitution relationship between educational investment and pension security. The decline of the expected old-age security leads to the rise of physical capital investment, which replaces inter-generational human capital investment. The reform has a greater impact on low-income groups and students of poor academic performance. It is the first time to evaluate the impact of the pension transformation on inter-generational human capital investment from the micro level.

I. INTRODUCTION

Human capital plays an important role in explaining the productivity differences and inequalities between countries. (Schultz (1961), Becker (1962)) The accumulation of human capital is similar to the accumulation of physical capital and can be included in the growth model. (Mankiw, Romer and Weil (1992)) China's development since the Reform and Opening up has also largely depended on the accumulation of human capital. (Ding and Knight (2011), Fleisher, Li and Zhao (2010)) At the micro level, parents' spending on children's education is an important human capital investment. (Becker, Murphy and Tamura (1990)) Under the mechanism of inter-generational reciprocity or pure altruism, parents' investment in their children's human capital is affected by their own expected old-age security.

This paper uses the pension insurance reform of government organisations and public institutions(hereinafter referred as public sectors) since 2015 to provide micro-level evidence on how changes in pension security will effect parents' investment decisions in children's education. Since the reform only affects the staff of public sectors, so a difference-in-difference model (DID) can be constructed based on the nature of the workplace. In the quasi-experimental design of DID estimation, the differences between treatment group and control group is allowed. According to the estimation results, the causal relationship can be rigorously identified and the quantitative effect of reform on household education investment can be estimated. The study tries to summarise the content of the pension system unification reform. The purpose of the reform is to build a fair and unified pension insurance system. Since 2015, the staff of public sectors have started to pay 8% of their salary every month

as the personal accumulation of pension, and pay 4% of their salary to establish occupational annuity. The reforms were accompanied by wage adjustments, so the real disposable incomes did not fall. However, from the pay-as-you-go(hereinafter referred as PAYG) system to the partial accumulation system, it increases the uncertainty of pension security and may reduce the expected replacement rate. In China, parents' education investment in kids is related to their own old-age needs, which leads to more egoistic preference. The paper uses annual household education expenditure as a proxy for inter-generational human capital investment and evaluate the impact of the reform on it empirically.

Using CFPS data, the paper estimates that pension unification reform reduced investment in children's education by an average of 29.9 percent in households of public sectors. The inter-generational impact of the reform is gender-specific, with boys being more obviously affected. Robustness tests show that the estimated policy effect is unlikely to be confused by other missing policy shocks.The reform replaced inter-generational investment in human capital by reducing people's expectation of old-age security and making people invest more in physical capital. The impact of the reform on low-income groups and students of poor academic performance is more obvious. The policy of provision the 10-year guaranteed period when retirees can receive no less pension than the original policy effectively neutralizes the impact of the reform.

This study will provide an important basis for assessing the micro-level impact of the pension insurance reform in government organisations and public institutions, and then help to adjust the implementation rules of the reform, and provide empirical support for the implementation path of the pension insurance system from "fragmentation" to "unification". Moreover, this is the first time to evaluate the impact of pension transformation on inter-generational human capital investment from the micro level. The substitution relationship between educational investment and pension security is conducted.

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The research will be an important supplement to pension insurance theory and human capital theory.

The rest of the paper is arranged as follows: Section II introduces the contents of the reform and discusses the exogeneity of the reform to the micro individuals. Section III reviews the sociological and economic literature on inter-generational household human capital investments. Section IV describes the research design, data sources and variables used in the analysis, and presents descriptive statistics for the main variables. Section V reports the estimation results, the results of the parallel trend test and the robustness test. The next section makes an extended study to analyze the impact mechanism and the heterogeneity of the reform impact on samples with different characteristics. On this basis, the paper summarizes the main conclusions and policy implications of the study.

II. INSTITUTIONAL BACKGROUND

A. Pension system unification reform

For a long time, there has been a "dual pension system" between employees of government organisations and public institutions with tenure and employees of other enterprises(hereinafter referred as non-public sectors,which also includes social-own-enterprises). In 1997,China established a unified pension insurance program for urban employees, but the public sectors is relatively lagged behind and continuing the old retirement system. Under the "dual pension system", there is a huge difference in payment contribution and benefits among employees. The employees of public sectors weren't asked to participate in any social pension insurance program and contribute to the pension fund while they can receive retirement pension from original employers (from government financial provision) Moreover, the expected replacement rate after retirement and the actual number of pension are much higher than those of non-public employees. As shown in Figure 1, there is a large gap of the average pension between public and non-public sectors. The dual pension system has been widely criticized, and it has become one of typical unfair phenomenon and the focus of public opinion. (Wang, Zhou and Zhang (2021))

In order to get rid of the unfairness problem brought by the dual pension system, the State Council of China issued *The Decision of the State Council on the Reform of the Pension Insurance System for Staff of Government Organisations and Public Institutions* on January 3, 2015, which stipulated the scale, system and specific design of the reform. The staff of government organisations and public institutions are required to participate in the basic pension insurance and occupational annuity, and to contribute to the pension fund according to the prescribed proportions. The staff of public sectors, like the employees of non-public sectors, began to implement the system of combining social planning and individual
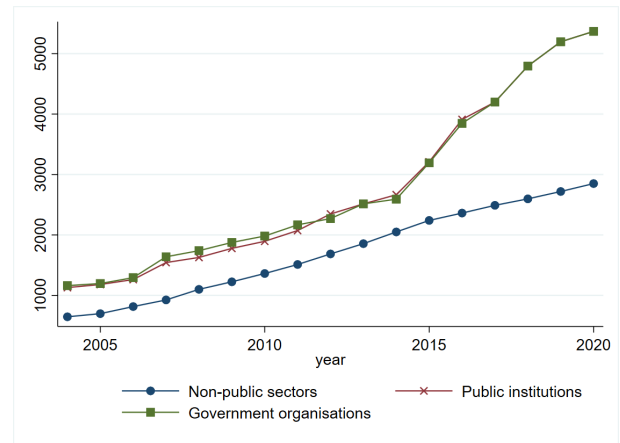

FIG. 1. Average monthly pension of employees in public and non-public sectors [a]

[a] Data source: China Human Resources and Social Security Yearbook, 2021

accounts to realize the unification of pension system (see Table I). A series of policies have been introduced in the next years. Supporting policies include increasing the wages of staff in government organisations, and establishing occupational annuity system. By the first half of 2016, all 31 provinces across the country had issued detailed reform plans. Since the reform is implemented simultaneously across the country, there are little differences among the detailed rules issued by the provinces, which are basically consistent with the urban employee pension insurance system. After the reform is completed, all 7.2 million staff of government organisations and 31.35 million staff of public institutions nationwide will be included in the pension insurance system, ending the era of financial support for retirement pension. According to data from the China Labor Statistics Yearbook, from 2015 to 2019, a total of more than 20.7 million employees of public sectors joined the pension insurance, indicating that the reform has achieved remarkable results.(see Figure 2)

The reform will lead to some reduction in the expected replacement rate. It implements the "the old method for the old group, the middle method for the middle group, and the new method for the new group". The range of groups and pension calculation method are shown in Table II. The paper will focus on the "Middle group" as the research object. If there are only basic pension and individual account pension, the pension replacement rate of the public sector will be similar to that of the non-public sector. In order to ensure the successful implementation and reduce the resistance of the reform, additional transition pension are provided for the "Middle group", and try to ensure their benefits are not reduced as much as possible. Some scholars believed that due to the addition of transition pension and the mandatory establishment of occupational annuity, the expected replacement rate of employees will not decrease much, but the un-

TABLE I. The rules of the reform[a]

	Basic pension		Occupational annuity
	Social planning	Individual account	
Ratio of contribution	Employer:20% of salary	Employee:8% of salary	Employer:8% of salary Employee:4% of salary
Monthly treatment benefits	(Average monthly salary of local staff in the previous year + Own indexed monthly average salary)÷2×1%× Years of contribution	Accumulated amount÷months of divisor	

[a] Summarized from Reform of the Pension Insurance System in Government Organisations and Public Institutions: Knowledge Answers and Policy Interpretation, Zongfu Yue, 2015,People's Daily Press.

certainty will rise. And the increase in flexibility will form a positive incentive mechanism for pension insurance contribution. (Guo (2015), Cao and Yang (2016), Wang (2012)) However, other scholars believed the expected replacement rate will decline, and that of women employees may decline more than men employees considering the difference in expected contribution years because of 5 years retirement in advance. (Yu (2015), Li, Li and Qiao (2021)) Since the distribution of occupational annuity is limited to the accumulated amount, after the occupational annuity is distributed completely, the replacement rate is expected to drop significantly, and the drop for newcomers who have recently joined the job can reach 34.34%-43.01%. (Pu and Wang (2021)) However, Figure 1 shows that after 2015, the pension gap between employees of public and non-public sectors did not disappear, but widened, which mainly because of the wage adjustment reform in public sectors. According to China Statistical Yearbook (2021), the average yearly wage in the public sector increased from 56360 yuan to 97379 yuan from 2014 to 2020, while that of the non-public sector only increased to 57727 yuan from 36390 yuan in the same period.

At the same time, another rule of the reform is the introduction of the accumulation mechanism, the establishment of individual account and occupational annuity, changed the previous state of no contributions. According to the reform, employees will have to pay 12 percent of their total salary each month. As a result of the wage adjustment, the real disposable income of public sectors staff will not fall.(The later empirical results support the conclusion.) Therefore, the study can rule out the possibility of the change in investment decisions due to the decline of current income. The employees bears the pension payment responsibility, and the final replacement rate depends on the individual contribution amount, contribution period and individual account yield. The reform of pension insurance contribution and benefit rules will have an impact on people's pension expectations, so as to change the current inter-generational human capital investment decisions.
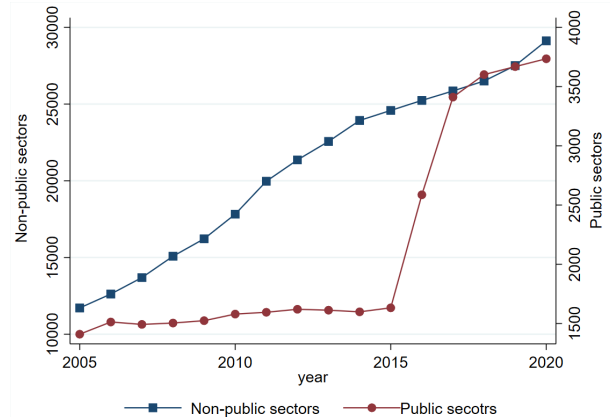

FIG. 2. Number of employees in public and private sectors participating in pension system[a]

[a] Data source: China Labor Yearbook, 2020

B. Exogeneity of the reform

The paper argues that the pension system unification reform provides an exogenous shock on the individual's expectation of pension security, and the reform itself only affects the staff of government organisations and public institutions, and has no direct externality on others. The results rely on the assumption that pension reforms are exogenous to individual decisions (investment in children's education) and changes in sample composition. First of all, whether individuals are affected by the reform depends entirely on the nature of the workplace. Since the reform is being promoted uniformly across the country, there is no endogenous problem of self-selection. Secondly, the ultimate goal of the top-level design is to unify the dual pension system, which is a response to the long-standing public opinion on social unfairness, rather than to change individual decision-making of different employment groups. In terms of exogeneity on sample composition, samples the paper studies are the population who entered the public sectors before the reform,

TABLE II. Different methods of the reform applying different groups of staff

	The range of group	Pension calculation method
The old	Retire before the reform	Same as the original treatment
The middle	Work before the reform and retire after the reform	Basic pension+Individual account pension +Transitional pension
The new	Work after the reform	Basic pension+Individual account pension

and their career choice is independent of the reform policy. And the reforms are happening nearly simultaneously across the country, with little difference between provinces. At the same time, considering the uniqueness of the work in public sectors (the existence of the tenure), the labor mobility is very poor, and individuals are unlikely to change their jobs to avoid the impact of the reform. Therefore, even if the reform causes changes in pension expectation, it will not cause large-scale cross-regional or cross-sectoral mobility among public sectors, let alone large-scale labor inflow or outflow.

III. MECHANISMS: OLD-AGE SECURITY AND EGOISM

A. Sociological background

From the perspective of sociology, the family, as a basic social group, has special functions corresponding to its structure, such as raising and supporting, education and socialization functions, etc. Fei Xiaotong believes that the inter-generational relationship in Chinese families belongs to the "raise-support" model. He pointed out in the *Fertility System in Rural China* (Fei (1998)) that the parental care of children, including physiological and social needs. Parenting in the social sense means that parents are responsible for the socialization process of their children. In addition to the raising function, the family also has the function of children supporting their parents, thus forming a two-way feedback inter-generational relationship. (Wang (2008)) It requires reciprocal support between parents and children. Bengtson (2001) believed that two-way feedback between generations is the power source of family sustainability and plays a very important role in supporting individual life cycle. The obligation relationship between generations abides by the principle of reciprocity. Reciprocity requires both generations to maintain a mutual trust, even at an uncertain time and to an uncertain degree. The study of Hollstein (2005) shows that children will determine their care behavior for their parents according to their parents' previous contribution, rather than according to the general social norms. This time order, on the one hand, gives parents an incentive to increase their investment in their children in exchange for children's support behavior in their old age. On the

other hand, it also makes parents face the risk of not getting equal return of their investment. Some social moral norms can help to weaken the tendency of children to evade obligations, thereby avoiding this risk and solidifying reciprocal inter-generational support relationships. For example, under the long-term infiltration of Confucianism, Chinese family members have formed a moral and ethical system with the obligation to support each other. This ethical system not only requires parents to spend their own resources to increase the welfare of their children but also adult children to provide material and emotional care for their aging parents. (Zhan, Feng, Chen and Feng (2011))

In addition to the principle of reciprocity, parents have unilateral emotional tendencies towards their children. Fei (1998) believed that the process of parents' raising their children is regarded by parents as an opportunity for self-rebirth, and social forces cause parents to psychologically regard their children as an organic whole, making them decide that their children's achievement is even more important than their own, and regard their children's future as their own career. In traditional society, the highest goal of a family member is to bring the honor of ancestors. (Chen (2010)) In addition, parents' support for their children also reflects parents' sense of responsibility and social norms to support their offspring. (Schokkaert (2006)) From this cultural appeal, parental investment in children, especially in education, will go beyond the limits of reciprocity. For example, Albertini and Radl (2012) argued that inter-generational transfers reflect the desire of parents to provide advantages to their offspring and prevent them from downward mobility.

B. Investment preference

The rational hypothesis of economics requires that the preference of family education investment be decided from the perspective of cost-benefit analysis. From the micro decision-making mechanism, parents generally have altruistic preference and egoistic preference. Altruistic preference is driven by a sense of moral responsibility and obligation and refers to promote the welfare of others at the cost of suffering the welfare loss. Human capital is one of the most important determinants of income. Households' expenditure on children's education

is an important part of human capital investment, which can help children obtain better educational outcomes and thus higher income in the labor market. Human capital can increase wealth accumulation by increasing labor remuneration, enriching financial knowledge, avoiding risk better and improving investment behavior and other factors. (Harrison, Lau and Williams (2002), Cole, Paulson and Shastry (2014)) Moreover, parental investment in education largely explains the inter-generational wealth correlation. (Keister (2007), Torche (2011)) Therefore, in addition to the material needs to provide for the childhood life, investment in children's human capital is naturally valued by parents with altruistic preference.

In research, scholars often assume that parents with altruistic preference can directly derive utility from the human capital level of their children, which directly enters into the utility function of parents. (Zhang (1995), Guo and Gong (2016)); Parents with egoistic preference regard their children's human capital as an investment product, consider the discount income and investment risk when making decisions, and expect the inter-generational support from their children to meet the old-age needs. There is an inter-generational exchange and reciprocity mechanism of "raising children for old age", which provides an informal form of insurance. (Guo, Jia and Zhao (2007), Jayachandran (2015)). In addition to old-age security, parents are also more likely to share the returns of their children's human capital investments in the labor and marriage markets, and this preference provides parents with an additional incentive to invest in their children's human capital. (Bau (2021)) Inter-generational investment caused by egoistic preference needs to follow the logic of cost-benefit calculation. Some scholars believe that most parents actually combine the two preference (Daatland, Veenstra and Herlofson (2012)). Ehrlich and Lui (1991) believed that parents' investment in children's education has both the function of fulfilling the needs of old-age care (egoism) and emotional satisfaction (altruism). A parent who is not fully altruistic will invest less than optimal level because the child cannot reliably promise to repay that investment in the future (Becker, Murphy and Spenkuch (2016), Banerjee (2004), Ashraf, Bau, Low and McGinn (2020)).

However, in the empirical study, it is difficult to distinguish the two preference, and the results of the two are even contradictory. Different studies have come to different conclusions about which preference are dominant. Cong and Silverstein (2011) believe that in rural China, strong familism and belief in intergenerational support dominate. But many Chinese scholars argue that as Chinese families shrink and intergenerational dependence weakens, altruistic motives gradually take over. (Luo, Sun and Xu (2015), Cai, Lu, Wu and Yu (2016))

C. Effect of pension

The pension insurance system has changed the traditional old-age security system and has the function of inter-generational income redistribution. The change of pension insurance will cause the change of education investment. In low-income countries, the establishment of a zero-based pension system will undermine the traditional customs of raising children for old age, decoupling the support of children to their parents and the investment of parents in their children, and making parents invest less in education. (Bau (2021)) Guo and Gong (2016) believed that under the existence of altruistic preference, a perfect pension insurance system can reduce the investment risk of inter-generational human capital investment, which is conducive to parents' investment in children's education.

In terms of specific institutional design, most of the literature supports that the pay-as-you-go system(PAYG) is more conducive to human capital accumulation. Buiter and Kletzer (1995) considered public choice theory in the three-period OLG model and found that inter-generational redistribution policies that hinder physical capital formation may encourage human capital formation. Such incentives come mainly from parental altruism towards their children or from reinforcing transfer obligations between parents and children. Zhang (1995) argues that when altruism is dominant, the PAYG system can reduce the fertility rate and thus increase the human capital investment per child. Peng and Shen (2007) believe that under PAYG system, parents tend to increase investment in their children because of their reduced motivation to accumulate material capital. On the other hand, the educational investment has positive externality, and the constraint mechanism of inter-generational return to the children is weak, and the moral norms within the family can not force the children to fulfill the transfer obligation to their parents. The PAYG system can ensure that the parent generation benefits from their investment, internalize the positive externality of educational investment, reduce the moral hazard of children, and thus increase the investment in human capital. (Kemnitz and Wigger (2000), Meier and Wrede (2010)) But this mechanism is only applicable to public education investment decisions, and for micro individuals, PAYG system is easy to cause the phenomenon of "free-riding". Parents' pension is not directly related to their children's individual human capital and future income level. In fact, since 1990, many countries have gradually moved from PAY-AS-YOU-go to fund accumulation. Although this shift is due to the sustainability of the pension payment system, it will inevitably have an impact on human capital investment. Such a shift in the pension system would weaken the effect of inter-generational redistribution, while the opportunity cost of education would rise, discouraging investment in human capital. (Gorski, Krieger and Lange (2007)) However, some scholars hold different views. For example, Guo, Jia and Zhao (2007) believes that com-

pared with PAYG, the accumulated system does not destroy the inter-generational support relationship of the family and is more conducive to inter-generational investment.

Previous literature mostly focused on the impact of establishing pension insurance or changing from PAYG system to fund accumulation system, and the previous research was mostly based on theoretical model analysis, and mostly based on public education investment decisions, with little analysis of decision-making mechanism at the household level. Therefore, this paper will evaluate the impact of the pension insurance unification reform on the inter-generational human capital of households from the micro level. Then the substitution relationship between pension and inter-generational human capital investment can be identified, thus deducing the egoistic preference of parents.

IV.   MODEL AND DATA

A.   Difference-in-difference Model

Since the reform only affects the staff who have retirement pension, I use the difference-in-difference strategy to identify the effect of the reform. We set students whose father or mother has retirement pension before 2015 as the treatment group, and others as the control group. We adopt a fixed-effects model to reduce the possibility of bias due to omitted variables. The model is set as follows:

$$\text{Invest}_{ijt} = \alpha + \beta \times \text{Reform}_t \times \text{Treat}_j + X'\varphi + \delta_i + \gamma_t + \varepsilon_{ijt}, \tag{1}$$

Invest_{ijt} represents the logarithm of household j's education expenditure on child i in the past year in period t; Treat_j is a dummy variable to distinguish the treatment group from the control group, and the treatment group is taken as 1. Reform_t is a dummy variable to distinguish before and after the policy impact, taking 1 after 2015. X represents other control variables that may be related to education investment, such as logarithm of family per capita annual income, number of family children, parents' age, parents' years of education, personal age, personal current education stage, school location and other family and student individual characteristic variables. δ_i and γ_t is individual fixed effect and year fixed effect respectively. Because of the fixed effect model, there is no need to control variables that do not change with time, such as children's sex, in the regression. ε_{ijt} is a random interference term. In the regression, considering the possible heteroscedasticity, we uniformly adopt the robust standard error. Among them, beta measures the impact of the reform on family human capital investment, and is the main focus of the model. Since the reform is carried out in a unified way by the national organs and institutions, there is no individual selective error. We can think

that β The estimates of are consistent and unbiased.

Furthermore, the paper adopts the difference-in-difference-difference model(DDD) to conduct heterogeneity analysis for the above three situations. The model is set as follows:

$$
\begin{aligned}
\text{Invest}_{ijt} =& \beta_0 + \beta_1 \text{ Reform}_t \times \text{ Treat}_j \times \text{ Group}_i \\
& + \beta_2 \text{ Reform}_t \times \text{ Treat}_j \\
& + \beta_3 \text{ Reform}_t \times \text{ Group}_i \\
& + \text{ Group}_i + \text{ Treat}_i \\
& + X'\phi + \gamma_t + \mu_i + \varepsilon_{ijt},
\end{aligned}
\tag{2}
$$

Where, Group_i is a dummy variable, which respectively represents whether the mother has retirement pension before 2015, whether the parents affected by the reform retire within the 10-year security period, whether the family income is higher than the average income of all samples, whether the parent think their children do well academically and whether the parents think their children study diligently. In this case, β_1 can report whether there is policy heterogeneity for different household characteristics.

B.   Data Source and Samples

This paper uses data from the China Family Panel Studies (CFPS) launched in 2010 by the Institute of Social Science Survey (ISSS) of Peking University, China. CFPS has completed five rounds of follow-up surveys in 2010, 2012, 2014, 2016 and 2018. The survey aims to track and collect data at three levels—individuals, families, and communities—to reflect the changes in China's economy, society, population, development of education, and individual health. The CFPS sample covers 25 provinces, municipalities, and autonomous regions, with a target sample size of 16,000 households, and includes all household members in the sample. The survey provided data on household demographics, employment status, economic situation, education and health status. The paper uses a panel dataset from 2010 to 2018 to select a sample of students whose parents participate in different types of pension insurance to assess the effect of the reform. The panel data of the follow-up survey allowed us to apply a fixed-effects panel model to limit the possibility of bias due to omitted variables.

Our initial sample included students who were attending school during the surveyed period and whose education was paid by their parents, which produced a sample of 46,260 observations. After removing observations with missing data from the variables and censoring the sample of the top 5 percent and bottom 5 percent of education expenditures to avoid the influence of extreme values, a sample of 15748 observations remains. As the explained variable for the entire analysis, the paper use the sum of the household's total expenditure on schooling over the past 12 months as the

main explained variables. The logarithm of investment is used in regressions. Adults were asked What type of pension insurance do they take part in, including retirement pension, the Basic Pension Insurance, the supplemental pension insurance of the firm, the New Rural Social Pension Insurance, and the Urban Resident Pension Insurance. This question is used to distinguish the treatment group from the control group. The students whose father or mother participants the retirement pension before 2015 are classified as treatment group while others are control group. Since only those who work in the public sector and have tenure can have retirement pension and participate in the reform, the treatment group can also be defined by the place where the parents work. The adults were asked about the employer type of their job, include Government/Party/People's organization/Military, State-owned/Collectively-owned public institution/Research Institute, and others. The first two types is classified as treatment group. The study also introduces some control variables that may affect education investment, including age, gender, the education stage, education year and other household characteristics such as household income per capita, the number of kids in family, permanent residence and the education level of parents etc.

Table III presents the definition and descriptive statistics on the main variables, including the total samples, two sub-samples of the treatment group and the control group. The average educational investment of all samples was 5323.21 yuan, and the average educational investment of families in the treatment group was 3783.46 yuan higher than that in the control group. The treatment group was also significantly higher than the control group in terms of annual household income, total household assets and years of parental education. In terms of the number of children in the family, the treatment group was significantly less than the control group. This may be because the one-child policy has a greater impact on public sectors and urban families. Overall, the differences between the two groups were striking. Some reasons could explain the huge difference between the treatment group and control group. In China, working in government organisations and public institutions is known as the "iron rice bowl", which is the ideal job for many people. Workers in public sector can get better salary and social welfare for almost the same work as that in private firms. And the government sets a high bar for public sector jobs, with participants having to meet certain qualification such as education, a foreign language and computer skill. Then they must pass the specific exam and compete for a limited quota. Fortunately, the differential model does not require similar characteristics between the treatment and control groups.

V. EMPIRICAL RESULTS

A. Basic results

Table IV reports the basic regression results of DID model. Column (1) shows the fixed-effect DID regression results without control variables. The estimated coefficient of the interaction term between the treatment group and the time point when the reform occurred is significantly negative at the 1% test level. Column 2 reports the main results of DID model with several control variables. The coefficient of the interaction term in column (2) is -0.299, which is significant at 1% level. This means that, compared with other families, the combined pension reform has reduced the expenditure on children's education by 29.9 percent on average. Of course, this does not mean that the households in the treatment group have absolutely reduced their investment in children's education, but compared with the households in the control group, the growth of the investment in children's education of the families slows down, and the difference between the two groups is narrowing. This empirical result is consistent with the conclusion of previous studies that PAYG system is more conducive to the investment in inter-generational human capital. And one more kid will reduce the investment by 9.3%. However, the coefficient of the household income variable is not significant, which is counter-intuitive.Because education investment will be affected by family budget constraints (Wang, Zhou and Zhang (2021)). However, the decision of family inter-generational human capital investment is not a short-term behavior, but a long-term decision based on the life cycle, which should be smooth within an investment cycle, and its short-term income elasticity is small. Short-term income fluctuations may not have an impact on educational investment decisions. At this level, controlling for fixed effects is equivalent to absorbing the long-term income level of households, and the insignificant coefficient should be expected.

Column (3) reports the results when we use employer type rather than pension type as the definition of treatment group. We can see the absolute value of the interaction term's coefficient is smaller and is less significant, since not all workers in the public sector were shocked by the reform. But the results were generally in line with the expectations. In the column (4), the explained variable is replaced by annual expenditure on instruction after class and whether the child attends instruction after school in column (5).We replace the explained variable with whether the child attends after-school tutoring. The paper uses the logit model with fixed effects to estimate the model in the case of the binary explained variable. The coefficients of the interaction terms are both significantly negative. It shows that the reform has led parents to invest less in after-school instruction in their children and students in treatment group were 4.14 percent less likely to attend after-school instruction after the reform.

The bottom panel of table IV reports the effect of the

TABLE III. Definitions of the variables, descriptive statistics[a][b][c]

	Definition	Total	Treat	Control
Total invest	Annual household expenditure on education for the child	5323.21 (9091.62)	8849.86 (14901.73)	5066.40 (8458.37)
Tutor invest	Annual household expenditure on instruction after class for the child	654.25 (3150.19)	1941.98 (6590.12)	559.78 (2708.68)
Tutor	Whether to participate in extracurricular tutorship	0.15 (0.36)	0.31 (0.46)	0.14 (0.35)
Income	Annual household income per capita	16142.35 (46331.26)	29160.64 (102160.98)	15154.55 (38783.40)
Asset	Total household assets	524421.57 (1349616)	994882.18 (1933425)	489041.84 (1288253)
Childnumber	Number of children in the family	1.95 (0.83)	1.48 (0.65)	1.99 (0.84)
Eduyear_fa	Education years of the father	8.75 (3.72)	12.70 (3.52)	8.41 (3.53)
Eduyear_mo	Education years of the mother	7.66 (4.31)	11.99 (3.94)	7.28 (4.13)
Eduyear	Education years of the child	5.23 (4.76)	6.06 (5.31)	5.17 (4.71)
Urban	Permanent residence of the family (urban=1, rural=0)	0.45 (0.5)	0.78 (0.41)	0.42 (0.49)
Gender	Gender of the child (male=1, girl=0)	0.52 (0.50)	0.54 (0.50)	0.52 (0.50)
Age	Age of the child	11.33 (5.33)	11.90 (5.88)	11.29 (5.28)

[a] *I report the sample mean, with standard error in parentheses;*
[b] *All price variables are adjusted based on 2014 by CPI in yuan;*
[c] *The last two columns report the statistics of the treatment group and the control group.*

TABLE IV. Basic regression results

	(1)	(2)	(3)	(4)	(5)
		Toal invest		Tutor invest	Tutor
Reform×Treat	-0.251*** (-2.59)	-0.299*** (-2.72)	-0.206** (-2.22)	-265.686*** (-3.03)	-0.760*** (-2.66)
Treat	0.198*** (2.61)	0.226** (2.54)	0.185* (1.97)	180.404** (2.51)	0.557** (2.46)
Income		0.026 (1,28)	0.026 (1.24)	5.238 (0.50)	0.172** (2.44)
Childnumber		-0.093*** (-2.37)	-0.093** (-2.37)	49.179** (2.32)	0.529*** (3.74)
Control	No	Yes	Yes	Yes	Yes
Student FE	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.574	0.589	0.589	0.380	
No obs.	15748	15748	15748	15748	15748

	(6)	(7)	(8)	(9)	(10)
	Boy	Girl	Parent involve	Expected edu	Study time
Reform×Treat	-0.343** (-2.12)	-0.255* (-1.70)	0.396** (2.10)	0.723** (2.00)	-3.500 (-0.71)
Treat	0.340*** (2.67)	0.120 (0.98)	-0.222** (-2.07)	0.255 (0.76)	4.911 (1.11)
Income	-0.023 (-0.79)	0.073** (2.44)		-0.036 (-0.45)	-0.370 (-0.31)
Childnumber	-0.100 (-1.59)	-0.084* (-1.68)	-0.092 (-1.09)	-0.016 (-0.10)	-6.266* (-1.83)
Control	Yes	Yes	Yes	Yes	Yes
Student FE	Yes	Yes	Yes	Yes	Yes
Observations	8215	7533	10270	4370	4920

reform on other behaviors and gender differences. The column (6) (7) report the difference between boys and girls. We can see the absolute value of the interaction term's coefficient of boys is larger and more significant than that of girls. This reflects the egoism of parental investment in education. The greater the decline on boys suggests that investment in boys' education is more likely to be driven by pension considerations. Moreover, girls' investments are significantly affected by household income. This suggests that girls' educational investment fluctuates more in the short run and is more influenced by parental altruism, that is, if parents are richer, they will invest more in girls' education under the influence of altruism. In the column (8), the explained variable is replaced by the frequency that parent ask the child to finish homework. The result shows that the reform makes the parents of treatment group more concerned about and participate in the children's education process to compensate for the behavior of reducing economic investment. It also reflects that the reduced investment is not due to weakened altruism. The paper studies the impact on children's own behavior. In the column (9) (10), the explained variable is replaced by the minimum level of education the student wants to obtain and how many hours the student spend on study in a week. The results shows that the reducing investment didn't dampen students' enthusiasm for learning, nor did it change their diligence state.

B. Parallel Trends Test

An important assumption of the DID model is the parallel trend assumption. The parallel trend hypothesis requires that the treatment and control groups have consistent trends before the shock time point. In the case of significant differences between the treatment and control groups, we need to test this hypothesis. We construct the following model for testing referring to the method of Li, Lu and Wang (2016):

$$\text{Invest}_{ijt} = \alpha + \sum_{t=1}^{5} \delta_t \cdot \text{Treat}_i \times \text{year}_t + X'\varphi + \lambda_i + \gamma_t + \varepsilon_{ijt} \tag{3}$$

year_t represents the dummy variable of the corresponding year, and other variables are the same as equation 1. δ_t measures time trends in differences between treatment and control groups. We assume that the difference between the treatment group and the control group will not change significantly over time before the pension unification reform. Since the CFPS data were used as a baseline survey in 2010, we used 2010 as the base period. Figure 3 presents δ_t at different time points, and it can be seen that before 2015 when the reform occurred, δ_t was not significant, and the absolute value of the coefficient in 2016 was about -0.24 and significant at a 10% significant level due to the lag of the reform. Although The State
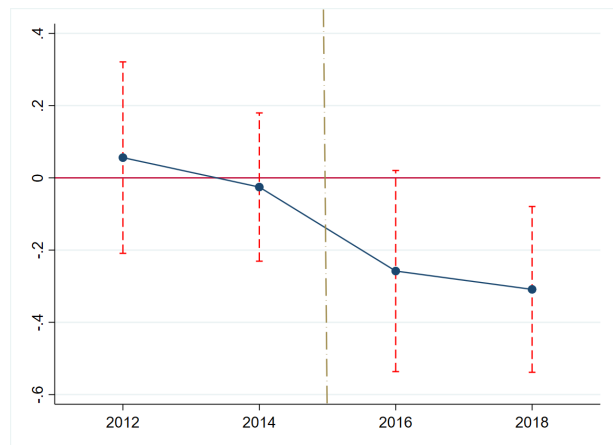

FIG. 3. Parallel tread test

Council announced the start of the reform in April and January 2015, the reform plans of each province were not fully published until the end of 2016, and the implementation of the reform was even more delayed. By 2018, the coefficient was significantly negative. Therefore, this paper concludes that the assumption of parallel trends between the treatment group and the control group is satisfied before the policy point.

C. Robustness Check

This paper conducts a series of robustness tests on the empirical results and all the results are still basically consistent with the benchmark regression. First, the household income is replaced by household expenditure and run a benchmark regression of equation 1. The regression results in column (1) of Table VI show that the coefficient and significance of the interaction term have hardly changed. The significance of household expenditure has increased, which does not violate the explanation in IV since the investment in education is directly counted as part of expenditure. And under the life-cycle assumption, other household expenditure and educational investment have the same smoothness, so the two may show a positive correlation. As mentioned in V, there is a time lag in the reform. Although 2016 is after the policy time point, the reform effect may not be obvious, so we drop the samples of 2016 for regression. Column (2) of Table V shows the regression results. It can be seen that the absolute value of the coefficient becomes larger and the effect becomes more obvious. According to Table IV, there is a large difference in the urban and rural distribution between the treatment group and the control group. Only samples from urban are remained to avoid the disturbance of urban-rural differentiation in education investment to the estimation results. At the same time, the study needs to consider other policies that may confuse the effects of the reform. China's influential policies in 2015 were the "universal two-child" policy and the
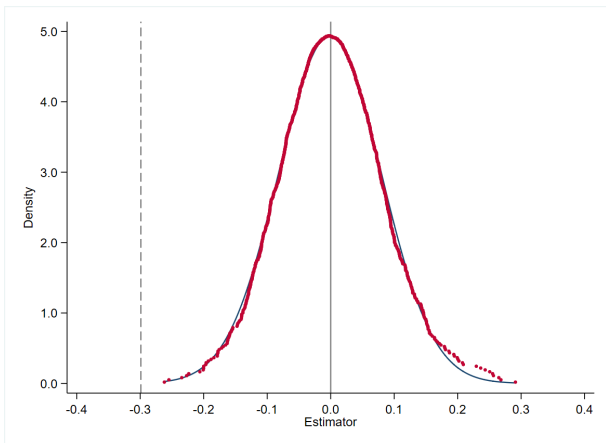
FIG. 4. The distribution of coefficients when the treatment group is randomly generated

"Mass entrepreneurship and innovation" policy. Since we controlled the number of children and family income in the regression, the disturbance of these two policies on the regression results can be excluded. The empirical results in Table VII shows that there are no difference in the number of children between two groups. Considering that it is difficult for employees in the public sector to change jobs and start their own businesses, the "Mass entrepreneurship and innovation" policy may have different impacts on the treatment group and the control group. The paper drops the samples who belong to self-employment to exclude the disturbance of this policy on the estimation results,which are shown in the column (4) of table VI. Then 10%samples is randomly dropped and the regression results are shown in columns (5).

The placebo test is also used to test the robustness of the baseline regression results. First of all, the staff of public sectors include regular workers with tenure and temporary workers who only sign labor contracts. Temporary workers were covered by urban employment insurance before the reform and weren't affected by the reform. We take temporary workers in public sectors as the treatment group, and the results are expected to be non-significant. Subsequently, we set 2013 as the time of virtual policy regression, and conducted regression using the samples of 2012 and 2014. The placebo results showed that the interaction terms were both not significant shown in column (6) and (7) of Table VIII.

To examine whether there were any other omitted variables that might have influenced the empirical results, we performed a placebo test by randomly assigning treatment groups. (Li, Lu and Wang (2016), Cai, Lu, Wu and Yu (2016), Yin and Guo (2021)) Specifically, there were 864 treatment groups in our sample. We randomly selected 1390 individuals from 15748 samples as the treatment group and the others as the control group, and then estimated them according to Equation 1. In order to ensure the robustness of the placebo test, 1200 random draws were repeated. Figure 3 plots the distribution of

the placebo test coefficients compared with the baseline regression results in Table V. It can be found that randomly generated treatment group estimated coefficient is close to zero as the mean of the normal distribution, the benchmark return results with randomly generated an estimated coefficient "Pseudo treatment group", clearly belong to the outliers, demonstrating that the randomly generated "Pseudo treatment group" is not impacted by policy, the pension system reform's influence on education investment is not a serious errors because of omitted variables.

VI. FURTHER RESULTS

A. Mechanism Test

1. The trade-off between quantity and quality

Under the egoism preference, the parents' investment decision in their children includes both the quantity and the quality of their children. Becker and Lewis (1973) proposed in their research on children's quantity and quality model that parents could raise fewer children and then allocate more resources to each child to improve their children's education quality. Especially if there is no incentive to serve their own aged years, the tendency of turn to quality would happen. Li, Zhang and Zhu (2008) and Rosenzweig and Rosenzweig and Zhang (2009) found that the size of household has a negative impact on the average education of children, because parents make a trade-off between the quantity and quality of children. Yilmazer (2008) showed that with the increase of the number of children, American parents' support for their children's college expenses decreased. Our empirical results support this conclusion. The results in Table V show that with each additional child, parents will on average reduce the educational investment in their existing children by 9.3%. Guo and Gong (2016) also believed that the strengthening of social security would make parents less dependent on their children to support them, and make them tend to reduce fertility rate and instead increase their investment in each child's education. Especially under a pay-as-you-go system, parents are less dependent on their children and choose to reduce fertility rate. (Wigger (1999)) In the case of the transition from pay-as-you-go to accrual system, parents may choose to increase fertility rate. It is therefore possible that the decline in investment in education is due to the fact that households in the treatment group are choosing more children.

In the context of China's strict one-child policy, parents have limited choice sets to make decisions about the number of children, and they can only turn to the quality of their children, that is, the investment in their children's education. But in October of 2015, the Fifth Plenary Session of the 19th CPC Central Committee announced the implementation of the universal two-child

TABLE V. Robustness test

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Reform×Treat	-0.252**	-0.464**	-0.261**	-0.280**	-0.305***	-0.198	-0.347
	(-2.35)	(-2.47)	(-2.15)	(-2.60)	(-2.30)	(-1.57)	(-1.50)
Treat	0.174**	0.279***	0.216**	0.200**	0.245***	0.178	0.216
	(1.98)	(2.72)	(2.06)	(1.90)	(2.60)	(1.45)	(1.28)
Income	0.130***	0.037	0.023	0.038	0.032	0.026	0.026
	(6.25)	(1.27)	(0.91)	(1.09)	(1.02)	(1.25)	(0.49)
Student FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No obs.	15748	11582	7086	14173	14398	7832	6154

policy. This means that parents' right to make decisions about the number of children has been restored to some extent. Moreover, the questionnaire asks parents about the desired number of children, which allows this paper to examine the relationship between pension reform and fertility or ideal fertility. Workers in public sectors may make different fertility decisions from the control group in the face of "the universal two-child", leading to changes in the number of children in the family and further affecting the investment in children's education. Although we control the number of children in the regression, and the universal two-child policy is a unified reform for all families in China, the changes in the number of children still need to be tested.

The empirical results show that after the implementation of the "universal two-child" policy, compared with the control group, there is no significant change in the self-reported desired or actual number of kids of staff in public sectors. This is evidenced by the results in columns (1) and (2) of Table VII. The column (1) (2) of Table VIII also shows that the number of kids or members in the treatment group both did not change significantly after the reform. 's (2021) empirical results for Indonesia also show that pension plans do not have a significant impact on parental fertility. Therefore, we rule out the role of this mechanism.

2. The trade-off between physical and human capital

Under the life-cycle theory, individuals need to save for old age. After introducing the analysis of human capital, parents' savings will face the trade-off between physical capital and children's human capital. Compared with the investment in physical capital, the investment in human capital faces greater uncertainty. There are two sources of uncertainty, one is that human capital investment may not be able to obtain the certain accumulation effect, the other is that the respective obligations of the two parties of inter-generational reciprocity are usually not specified and realistic constraints, and inter-generational reciprocity is carried out in several decades, which further increases the uncertainty of compliance with the implicit obligations. (Silverstein, Gans and Yang (2006)) The uncertainty of human capital investment will affect the allocation behavior of individuals between financial assets (physical capital) and non-traded assets (human capital). (Palacios-Huerta (2003)) Of course, due to altruistic preference, the trade-off of parents does not necessarily follow the principle of material benefit maximization, but the paper believes that under different old-age security, the proposition of altruistic and egoistic preference will change.

In China, where the social security system is still imperfect, parents tend to share more of the returns on their children's education investments, leading to higher human capital investments. (Banerjee, Meng and Qian (2010)) Herd, Hu, and Koen (2010) states that the effective replacement rate for rural and urban residents in China is quite low under the current pension system and is expected to decline further. Using data from CHARLS, Banerjee, Meng and Qian (2010) found that more than half of the surveyed elderly live with their children, which is consistent with the social norm of children taking care of their parents. This is further evidence that the pension system us imperfect. The pension change forces parents to invest in their children's education from the perspective of egoistic preference, and forces parents to make a trade-off between saving and investing in education. Before the reform, the replacement rate of public sectors is sufficient to support retirement, and the incentive to save material savings is low. Therefore, the inter-generational education investment is more motivated by altruistic preference, and there is no rigid demand for savings. However, since the existing pension system changed and the expected degree of pension security decreased, the introduction of accumulation system forced workers to save, the rigid financial support system was broken, the space of altruistic preference was crowded out, and people had to reconsider the allocation between savings and inter-generational investment.

The standard life-cycle assumption assumes that changes in expected pension benefits should offset private wealth one-to-one. This offset is what Feldstein (1974) called the substitution effect – pension wealth crowds out discretionary wealth, so the pay-as-you-go system of social security discourages saving. However, bequest motives, liquidity constraints, expected risk, etc., can explain why the offset between private saving and pension wealth may be less than 100%. Still, pension security and private saving should be opposites. In particular, under a cumulative system, forced saving reduces the after-tax

TABLE VI. Mechanism test: variables related to employee

	(1) Childnumber	(2) Expectation	(3) Wage	(4) Satisfaction	(5) Commercial
Reform×Treat	-0.000	0.041	0.253***	-0.255***	0.774**
	(-0.01)	(0.75)	(4.92)	(-3.79)	(1.99)
Wage	0.000	-0.016		0.074***	0.249***
	(0.11)	(-1.15)		(5.59)	(4.30)
Work time			0.003***	-0.002**	
			(4.30)	(-2.48)	
Age	0.110***	-0.017	0.189***	0.038*	0.401***
	(15.86)	(-0.83)	(9.33)	(1.90)	(3.74)
Worker FE	Yes	Yes	Yes	Yes	Yes
Control	Yes	Yes	Yes	Yes	Yes
Observations	15732	7,738	15732	15732	15732

TABLE VII. Mechanism test: variables related to household

	(1) Childnumber	(2) Size	(3) Income	(4) Expenditure	(5) Asset	(6) Finance
Reform×Treat	-0.002	-0.046	0.116	-0.072**	0.103**	1.330***
	(-0.04)	(-0.39)	(1.13)	(-1.99)	(2.05)	(6.98)
Income	-0.009	0.183***		0.140***	0.142***	1.751***
	(-1.37)	(7.00)		(27.40)	(15.83)	(23.36)
Size	0.037***		0.145***	0.051***	0.024***	-0.458***
	(5.12)		(8.37)	(10.11)	(2.96)	(-11.20)
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	30,257	30,257	30,257	30,257	30,257	30257

wage rate, which reduces the return to private human capital investment. (Zhang (1995)) Therefore, it is expected that the reduction of old-age security will encourage people to increase their private savings. And because human capital investments are riskier than savings, people will not choose to invest more in inter-generational education. Moreover, the self-interested preference will drive the parents to convert part of the educational investment generated under the original altruistic preference into physical savings. The paper will prove the effect of this mechanism through a series of empirical tests.

Column (3) of Table VI and Table VII show that after the reform, the wages and household income of the treatment group did not fall, but maybe increased. This is due to the wage reform carried out at the same time as the pension reform, and the treatment staff increased rather than decreased. Therefore, the study can rule out the possibility of the change in investment decisions due to the decline of current income. Calculated according to the national average level, excluding individual contributions to pension insurance, the actual increase of wage is 300 yuan per capita per month. However, column 4 of Table VI shows that the job satisfaction of staff in public sectors has decreased significantly. This may be due to the expected reduction of their old-age security. In the case of the increase of current income, household per capita expenditure decreased significantly (Column (4) of Table VII), it can conduct that household savings and assets increased significantly (Column 4 of Table VII). In Column 5 of Table VII, a fixed-effect logit model is used to test the effect of the reform on whether house-

holds in the treatment group invest in financial products. The interaction term is significantly positive, and the average marginal treatment effect is 0.0235, which means that the reform increases the probability of households in the treatment group to invest in financial products by 2.35%. Financial products are still less risky than investments in human capital. Thus, it reflects the pursuit of returns on physical capital investments by households in the treatment group. Furthermore, the results in the last column of Table VI show that the employees of public sectors are more likely to participate in commercial pension insurance, which also reflects their dissatisfaction with expected retirement security. The above mechanism is confirmed by the behavior of households in the treatment group in increasing private saving and seeking returns on physical capital.

B. heterogeneity

Because the female legal retirement age in China is 5 years earlier than male, there is a difference between male and female individual accounts accumulated years and total amount, Female's welfare loss is greater than male after the reform. (Yu (2015), Wang, Wang and Xue (2017)) Therefore, we expected that the impact of shocks on fathers and mothers in families would be different. Secondly, most provinces, such as Guangdong, Shandong, Fujian, Jilin and other 19 provinces have made clear the 10-year transition period for the "Middle people", that is, the people who retire from October 1, 2014 to October 1,

2024, can choose the higher benefits between the new and old methods. In this way, although the retiree within 10 years of transition period also need to pay premiums and establish individual accounts, but the pension treatment will not fall, pension expectation is more stable. The personnel that retires after transition period, pension security may decrease. At the same time, the calculation of basic pension needs to take the average of the salary level and the average salary of the employees on the job. Besides, the reform adopts the method of "guaranteed minimum and limited maximum", which means The total pension after retirement should be between 60% and 300% of the local average salary. The design of this reform has the function of redistribution, and the reform is expected to significantly reduce the replacement rate of high-income people. (Wang, Wang and Xue (2017)) However, the marginal cost of inter-generational investment depends on the economic endowment of parents. The income and wealth conditions of different classes of parents have a different impact on their transfer behavior. Low-income groups have more incentive to invest in their underlying support system. This includes saving and investing in children. (Albertini and Garriga (2011)) The low-income group is more difficult to bear the risk of human capital investment, so it can be expected that they have more egoistic preference. Therefore, the total effect between different income groups is not clear and needs to be tested empirically. According to the results of Part VI A, the decline of educational investment income is mainly due to the replacement of human capital investment by physical capital investment. So the increase of human capital investment income will weaken the effect of reform. It is reasonable to assume that the shock will be weaker for those who do well academically.

Table VIII reports the results of the heterogeneity analysis.The expected old-age security of women due to the reform weakens more, and the reaction to the policy is tending to be more obvious. However, we find that the coefficient of the triple interaction term is non-significant according to column (1), which indicates mother didn't reduce more investment because of larger old-age security risk. The paper suggests that this is because mothers have more altruistic preference that offset it. The triple interaction term in the column (2) is significantly positive. The "guaranteed" group even increases the investment in children's education by 7.8% . Parents who retire within the 10-year guarantee period will not invest less in their children's education even if they pay the premiums. Furthermore, it shows that the decrease of education investment in the current period is not because of the current contribution to the pension insurance, but the weakening of expected old-age security. The column (3) shows that although the current system design has a certain redistribution function, low-income families are more obviously affected by the policy shock. Columns (4) and (5) show that students who do better academically rather than work hard get a weaker shock. It suggests that parents' investment depends more on practical outcomes than on their children's subjective attitudes, which further validates the mechanism the paper assumes.

VII. CONCLUSION

Using the data of CFPS from 2010 to 2018, this paper designs a difference-in-difference (DID) model to evaluate the impact of pension integration reform on intergenerational household human capital investment. The results show that the pension unification reform reduces the educational investment per student by 29.9%, 34.3% for boys and 25.5% for girls. The paper finds that in China, parents' education investment in kids is related to their own old-age needs, which leads to more egoistic preference, and there is a substitution relationship between educational investment and pension security. However, along with the decreased investment, children will be compensated in terms of educational participation of their parents. The empirical results satisfy the parallel trend test and robustness test. In this paper, we further explore the impact mechanism of the reform and find that parents choose to increase the investment in physical capital such as financial assets rather than to have more children in the face of the weakening of expected old-age security so as to replace the investment in human capital with higher risk. Finally, we analyze the heterogeneity of the impact of the reform on different types of households, and find that the reform has more impact on workers who retire outside the 10-year transition period, and workers with low income levels. Children with lower academic performance are also more affected.

In general, parents' reduced investment in their children's education undermines their children's human capital accumulation, which may affects economic development. However, higher investment in their children's education is not always a good thing. First, too high investment in education may crowd out normal consumer spending and reduce their happiness. Second, difference in educational investment constitutes a pass-through mechanism for inter-generational inequality. (Chi and Qian (2016)) According to the descriptive statistics of this paper, the average household education expenditure working at public sectors is 3783.46 yuan higher than that of others. Therefore, the reform has conducted to narrowing the gap.

Based on the research conclusions, the paper puts forward the following policy suggestions. First of all, Since the pension reform does not aim to reduce the pension benefits of public workers, people expect that the weakening of old-age security largely comes from the uncertainty of the payment standard. It is necessary to further clarify the payment standard and the benefits of the GOPI pension insurance. On the one hand, it needs to increase the publicity of the reform policy. On the other hand, it needs to make it more clear and intuitive to reduce people's uncertainty. Second, the reform should strengthen the function of redistribution and give more

TABLE VIII. Heterogeneity

	(1) Parent	(2) Guaranteed	(3) Wage	(4) Preform	(5) Diligence
Reform×Treat×Group	0.043	0.404*	0.325**	0.303**	0.015
	(0.27)	(1.74)	(2.05)	(1.98)	(0.09)
Reform×Treat	-0.310**	-0.326***	-0.273**	-0.400***	-0.310*
	(-2.52)	(-2.84)	(-2.54)	(-3.13)	(-1.85)
Treat	0.225**	0.235***	0.216**	0.212**	0.226**
	(2.54)	(2.62)	(2.46)	(2.37)	(2.54)
Student FE	Yes	Yes	Yes	Yes	Yes
Observations	11,448	11,448	11,277	11,431	11,448

weight to women and low-income workers. Finally, increasing public education expenditure and promoting the equalization of educational resources can give play to the decisive role of public education in the overall and difference level of inter-generational human capital investment. Reduce the influence of household decision-making factors on children's education can not only reduce the inter-generational impact of reform, but also promote the equality of social education outcomes.

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