

Policy evaluation of market-oriented elderly care industry reform in China Based on DID method: Evidence from Chengdu and Shanghai

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Abstract: In the past few years, the role of the private economy in the elderly care system is being paid attention to. This article first discusses the history of the development of the pension industry, then uses the DID method to analyze the impact of a package of policies supporting the private pension economy. This will help us understand the past, present and future of China's private pension industry, and the important role of policy in it.

1. Introduce the Private Elderly Care System

In the nascent days of the People's Republic of China, the pension system primarily relied on family support. However, with the incremental establishment of the social welfare system, some responsibilities transitioned from families to the state and organizations. Within urban areas, employers arranged welfare for their staff and their families[1], whereas in rural regions, the "five guarantees" system was implemented to ensure basic livelihoods for elderly individuals lacking labor capacity or a means of subsistence.

Post-reform and opening-up, as economic development surged and population aging intensified, the conventional elderly care system increasingly struggled to meet practical demands[2]. Against this backdrop, China embarked on a gradual push for the market-oriented reform of pension service. On one hand, pension institutions evolved into social welfare departments accessible to the broader society; on the other hand, reforms in the community service system and grassroots social governance fortified the backbone of this new pension paradigm.

2. Empirical Research of the Influence of Policy Based on DID

Based on the data of some regions in the past few years, we use the DID analysis method commonly used in policy evaluation econometrics to discuss the following 2 situations : (a) Regions where governments enact policies that support the development of private institutions; (b) Regions where policies do not change so much.

Table 1: Variable Description

Variable	Description
GA	(1) The degree of government attention. Inspired by Wang Xiaoxuan[3] of Shanghai University of Engineering and Technology (2023), this paper uses NVivo12 software to analyze the policies of local governments in China from 2018 to 2023, and reflects the importance of policies through word frequency.
PP	(2) Number of people in elderly care institutions
EP	(3) Enterprise participation. Measured according to the number of local elderly care enterprises per capita.

Variable description (Table 1): Based on the theory of welfare pluralism, we use the above variables as the control variables of DID. Then, In China, we selected 2 samples, 1 of which (Chengdu) meet the above situation (a), 1 of which (Shanghai) meet the above situation (b). The specific data we choose carefully are as follows (Table 2, Figure 1).

Table 2: Regions' Data

Region	Yrs	Population/k	GA	PP	EP	PP/EP	PP/Population
C City(a)	2010	14048000	0.11	35569	195	182.4	0.0025
	2011	14070800	0.33	38288	253	151.3	0.0027
	2012	14177800	0.54	44172	250	176.7	0.0031
	2013	14297600	0.56	39189	200	195.9	0.0027
	2014	14427500	1.50	70414	257	274.0	0.0049
	2015	14657500	1.56	89194	309	288.7	0.0061
	2016	15917600	1.58	112494	477	235.8	0.0071
S City(b)	2010	23026600	0.26	97800	625	156.5	0.0042
	2011	23555300	0.55	101896	631	161.5	0.0043
	2012	23985000	0.42	105215	631	166.7	0.0044
	2013	24484300	0.94	108364	631	171.7	0.0044
	2014	24670600	1.71	114900	660	174.1	0.0047
	2015	24575900	1.77	126000	699	180.3	0.0051
	2016	24673700	1.78	132800	702	189.2	0.0054

*C City: Chengdu, S City: Shanghai

We deleted some data changes caused by irrelevant factors such as administrative adjustment.

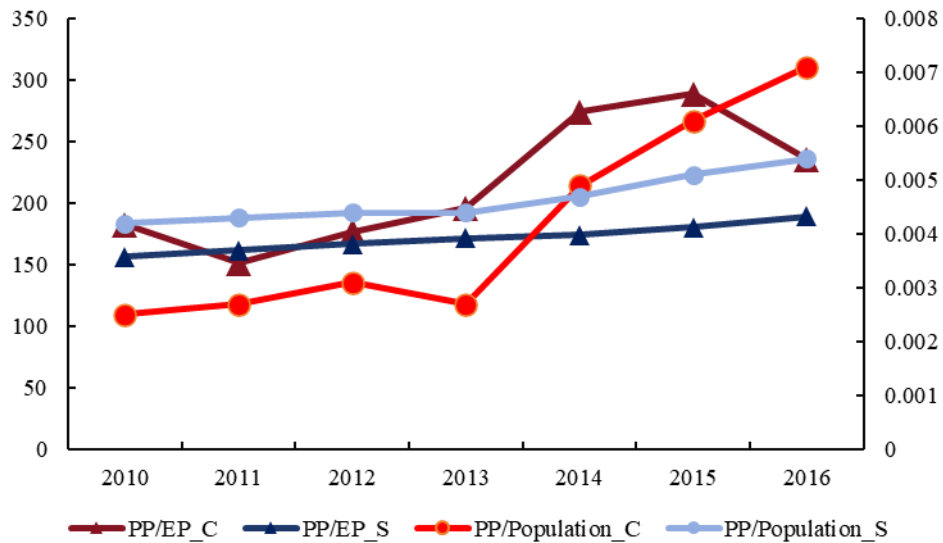


Figure 1: Comparison

Shanghai(S City) is a city that has already realized the market-oriented reform of elderly care institutions. In 1979, Shanghai was the first to enter the aging society in China. In order to meet the needs of urban aging, after 1979, the Shanghai Municipal People's Government and the civil affairs department advocated the establishment of social welfare homes, and the old-age service facilities were developed in a budding manner, which was almost the first in the country. In 2001, the General Office of the Shanghai Municipal People's Government forwarded the *Opinions on Accelerating the Socialization of Social Welfare in Shanghai* to the 22 departments including the Shanghai Municipal Civil Affairs Bureau. Combined with the characteristics of the growing demand for old-age care in Shanghai, it is proposed to vigorously promote the market-oriented reform from the long-term and overall interests. Since then, the Shanghai Municipal People's Government has changed the traditional practice of covering construction investment and service operation investment in the past, and has shifted to giving priority to government construction fund subsidies. It has used policy guidance, financial subsidies, service purchases and other means to mobilize social capital to invest in pension services. In order to encourage the establishment of old-age care institutions and encourage social forces to invest, the government gives preferential policies to participate in the construction of old-age care services in terms of construction land, community planning, public utility fees, and taxation. Therefore, Shanghai 's private elderly care industry has a long history of development, far ahead of the country. In recent years, Shanghai's social pension services have remained relatively stable and have not experienced major fluctuations.

Chengdu is a rising city in western China with a low level of economic development. Whether it is people's understanding of private elderly care services, the business environment of private elderly care institutions or the support of government policies for private institutions, it is relatively backward compared with Shanghai. Until 2014, under the policy call of the State Council of China, the establishment of pension institutions in Sichuan was promulgated, and Chengdu had a formal private pension institution track, while Shanghai had relevant laws and regulations as early as 1998. It is mentioned here that the Ministry of Civil Affairs and the Development and Reform Commission of China promulgated the *Notice on the Pilot Work of Comprehensive Reform of the Elderly Care Service Industry*, marking the official opening of the comprehensive reform of the national elderly care service industry. Since Shanghai has already completed the socialization of the elderly care industry, it is not greatly affected by this policy. Comparing the development of the elderly care industry in Chengdu and Shanghai during this period and analyzing it through DID, we can find the impact of large-scale comprehensive policy adjustments on the development of private elderly care institutions.

First, we review the basic model of DID:

$$Y_{it} = \alpha + \gamma D_t + \beta T_i + \delta D_t T_i, i = 1, 2, 3, \dots, n.$$

The coefficient δ of the interaction term is the policy effect. Using the SPSS PRO, Chengdu as the experimental group, Shanghai as the control group, and the event node is set to 2014, we get the following DID results(Table 3):

Table 3: DID Results

RESULT		COEFFICIENT	σ	t	P
Before 2014	Control	1.018	-	-	-
	Treated	1.229	-	-	-
	Diff (T-C)	0.211	0.057	3.714	0.003***
After 2014	Control	1.091	-	-	-
	Treated	1.514	-	-	-
	Diff (T-C)	0.423	0.04	10.506	0.001***

RESULT	COEFFICIENT	σ	t	P
Diff-in-Diff	0.212	0.057	3.714	0.003***
***, **, * represents the significance level of 1 %, 5 %, 10 % respectively				

According to the results of the Difference-in-Difference (DID) model, the data analysis reveals the significant differences in the key indicators between the experimental group and the control group before and after the event, and then a DID method is used to effectively estimate the net effect of the event on the experimental group. Before the event, the mean difference (Diff(T-C)) between the experimental group and the control group was 0.211, although there was a certain difference, the t value was 3.714, which was significant at the 1 % significance level, indicating that there was a systematic difference between the experimental group and the control group in advance. This is reasonable, because Shanghai's elderly care industry has a certain difference from Chengdu due to its early start. However, this difference is not the core concern of this study, because it reflects the state before the event (2014).

After the incident, the mean value of the control group increased slightly to 1.091, while the experimental group increased significantly to 1.514. The difference between the two groups (Diff T-C) expanded to 0.423, and the difference was statistically high ($t = 10.506$, $p = 0.001^{***}$), indicating that the incident had a significant positive impact on the experimental group.

The core Diff-in-Diff estimator further confirms this conclusion, with a value of 0.212, which is the same as the inter-group difference before the event, but the significance remains ($t=3.714$, $p=0.003^{***}$). This result shows that after eliminating the combined effects of the initial inter-group differences and time trends on the two groups, the net effect of the event itself on the experimental group is positive and significant, that is, the event led to an additional increase of 0.212 units in the experimental group's indicators compared to the control group. This shows that the package of policies to support the private elderly care industry implemented in Chengdu, Sichuan Province in 2014 has played a significant positive role.

Although the relevant data of Chengdu declined in 2015-2016, it still remained at a high level. In any case, the policy of supporting the private elderly care industry plays an extremely important role in the short term. They have created a rapid rise in private elderly care institutions by releasing market space and stimulating the vitality of the private economy.

3. Summary: the Policy Recommendations for Supporting Private Sector

In summary, we first discuss the development history of the pension industry. Then, the DID analysis method was used to empirically demonstrate the role of the Chinese government's package of policies supporting private elderly care since 2014. This study indicates that policies play an important role in China's private pension economy. Ensuring the stability and improvement of policies can unleash the vitality of the private economy and bring more growth points to the elderly care industry.

References

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