

Old-Age Security and Development of the Health and Wellness Economy: Evidence from China Health and Retirement Longitudinal Study

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Abstract

The health of the elderly population and the upgrading of the health and wellness industry are crucial and integral components of the national strategy for addressing population aging in the new era. Based on matched data from the 2018 China Health and Retirement Longitudinal Study (CHARLS), this paper analyzes the impact of pension receipt on the demand for the health and wellness industry. Employing causal analysis techniques with instrumental variables, the study finds that receiving a pension has a significant positive effect on the demand for hospital treatment and health checkups, but a significant negative effect on the demand for institutional physiotherapy. Furthermore, this impact exhibits heterogeneity across urban/rural areas, genders, and marital statuses. The health perception of the elderly serves as an important channel through which this influence operates. These findings provide quantitative policy references for continuously optimizing the old-age security system and promoting the sustainable development of the health and wellness industry.

Keywords: Population Aging; Sustainable Economic Development; Pension; Health and Wellness Industry

1. Introduction

Since the beginning of the 21st century, the aging trend in China's population has intensified. For instance, data from the latest seventh national census shows that in 2020, the population aged 60 and above accounted for approximately 18.70% of the total population, an increase of 5.44 percentage points compared to a decade ago [1]. Moreover, China's population aging is characterized by temporal compression, with the aging process accelerating after the 1990s due to structural factors of population inertia, at a rate two to three times that of developed countries [2]. Therefore, China's aging problem is difficult to resolve through natural adjustment. In this context, the State Council issued the "14th Five-Year Plan for National Aging Undertakings and Elderly Care Service System Development" at the end of 2021, which pointed out the need to "promote the coordinated development of aging undertakings and industries, and build and improve a safety-net, inclusive, and diversified elderly care service system to continuously meet the growing multi-level, high-quality health and elderly care needs of the elderly."¹ Consequently, exploring the demand of the elderly population for the health and wellness industry against the backdrop of population aging holds significant theoretical and practical importance, as well as policy value.

Existing research indicates that an important foundation for the second demographic dividend lies in the extension of healthy life expectancy, and the demand for old-age security and institutional supply are primary sources of this type of demographic dividend [3]. In fact, the promoting effect of pension insurance on family welfare and even social welfare has been evidenced by economic research both domestically and internationally, primarily through the income effect of pension insurance. The elderly have low income levels and low purchasing power; after population

¹Source: Chinese Government Website: "Notice of the State Council on Printing and Issuing the '14th Five-Year Plan for National Aging Undertakings and Elderly Care Service System Development'", February 21, 2022, URL: https://www.gov.cn/zhengce/content/2022-02/21/content_5674844.htm?eqid=fe8ff242003917f00000002649124d5

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aging, the purchasing power of the total population declines, leading to decreased demand for consumer goods in the market [4]. Pension insurance can improve the income status of the elderly, thereby increasing their consumption levels, and ultimately positively impacting family welfare [5, 6]. In the realm of elderly health, the increased prevalence of cardiovascular and cerebrovascular diseases and chronic conditions is a direct consequence of population aging, accompanied by a rapid rise in medical expenses and demand for related services [7]. However, on the other hand, consumer demand for the health and wellness industry is also negatively affected by the decline in the overall purchasing power of the aging population. Given this contradiction, old-age security constitutes a significant source of income for the elderly, alleviating the constraint of reduced purchasing power, which is likely a crucial factor influencing the demand for the health and wellness industry, warranting further investigation. Specifically, the main research question of this paper is: In the context of accelerating population aging in China, what is the mechanism through which old-age security affects the demand for the health and wellness industry?

Compared to existing studies, the potential contributions and innovations of this paper are: (1) Utilizing national micro-survey data to measure the characteristics of old-age security implementation among the elderly population in China, providing empirical analysis for examining how pension receipt affects the demand for the health and wellness industry and its causal mechanisms; (2) Starting from the realities of China's unique aging population, delving into the heterogeneity in this effect across different genders, marital statuses, and urban/rural divides, as well as the channel mechanism of health perception; (3) Starting from the economic practice of social policies, providing policy recommendations for accelerating the development of the health and wellness industry and better realizing Chinese-style modernization characterized by a huge population.

The remainder of this paper is structured as follows: Section 2 conducts a literature review and formulates the research framework; Section 3 introduces the empirical data sources, variable measurement, and model specification; Section 4 presents the empirical results and main findings; Section 5 concludes with research findings and policy recommendations.

2. Literature Review and Commentary

Historically, the reform of China's pension insurance system has been advanced in stages for different groups and has lagged behind economic reforms. It was only after the State Council promulgated the "Opinions on Establishing a Unified Basic Pension Insurance System for Urban and Rural Residents" in early 2014 that a unified system was established, albeit with relatively low coverage levels, particularly for rural residents [8]. Consequently, academic research has focused significantly on pension insurance in rural areas [6, 9–12]. This focus primarily examines the change of China's elderly care model through the realities of the New Rural Social Pension Insurance. Relevant studies found that the "New Rural Social Pension Insurance" increased the economic independence of enrolled elderly, reducing their dependence on children for financial support and care on one hand, and increasing their demand for formal social care services on the other [12]. It suggests that "social old-age support" can, to some extent, substitute for traditional "family old-age support," although there is still room for improvement [11]. Therefore, the income effect of pension insurance not only enhances the consumption capacity of the elderly within the health and wellness industry but also promotes the transition from "family support" to "social support," expanding the demand for the health and wellness industry.

Inspired by this, this paper intends to follow the research approach of examining health and wellness demand through the lens of social pension insurance. However, it is crucial not to overlook the significant urban-rural disparities in China's population aging, which are also undergoing a transformation. Against the backdrop of accelerated urbanization, a large influx of young and middle-aged rural laborers move to cities in search of better economic opportunities, leading to the phenomenon of "rural hollowing." In 1982, over 70% of China's population resided in rural areas, and the degree of rural aging (7.8%) was higher than that in urban areas (7.4%). However, as cities' absorption of rural labor saturates and rural fertility stabilizes at low levels, the pace of rural aging will slow down, and the focus of aging will gradually shift, potentially resulting in urban areas exceeding rural areas in the degree of aging after 2045 [13].

Furthermore, China's old-age security system comprises both social security and family support. Compared to Japan's model dominated by social security and Thailand's model primarily based on family support, China mainly adopts a dual urban-rural old-age security model, gradually transitioning towards an integrated model [4]. Overall, social security for the elderly is determined by employment status (occupation, work unit ownership), while family support is determined by factors like children, marital status, and living arrangements [4]. Meanwhile, significant differences exist in health and psychological needs between elderly women and men. Women generally have longer life expectancies but may have higher rates of chronic diseases, requiring more sustained and diverse medical and health care services. Elderly individuals living alone constitute a more specific and vulnerable group compared to those living with a spouse [14]. Therefore, this paper aims to move beyond a solely rural focus and incorporate an urban-rural comparative perspective. Specifically, building upon the investigation of the average effect of pension insurance on health and wellness demand, this paper seeks to examine the underlying heterogeneity. It aims to further test: Does the impact of pension insurance exhibit heterogeneity between urban and rural areas? Is the heterogeneity also reflected across different genders and marital statuses?

The deterioration of elderly health status is a direct driver of increased demand for the health and wellness industry [7]. The association between pension insurance and the health status of the elderly thus constitutes a potential channel influencing demand for the health and wellness industry. Indeed, existing research has also noted the possible link between elderly care models and the health of the elderly population. The elderly care model is a key factor related to the health of Chinese seniors. Empirical findings suggest that elderly couples who are both economically and residentially independent enjoy the most significant health advantages and subjective well-being, whereas the model of individuals living alone and relying on children's support or government assistance is the worst [15]. In other words, the "social old-age support" model covered by pension insurance significantly promotes the health status of the elderly, especially their subjective health perception [16]. This, in turn, is likely a significant motivational source for the health consumption behavior of the elderly, affecting demand for the health and wellness industry, as it is evident that poorer health status leads to greater demand for health and wellness services. Therefore, this paper will further explore the channels and mechanisms through which pension insurance affects demand for the health and wellness industry. Specifically, if the aforementioned effects exist, do they operate through the channel of the elderly's health perception?

3. Research Design

3.1. Data Source

As a microeconomic study focused on the elderly population, the empirical analysis data for this paper originates from the 2018 (fourth wave) survey database of the China Health and Retirement Longitudinal Study (CHARLS). The CHARLS national baseline survey is a long-term project initiated in 2011 and followed up biennially, aiming to establish a high-quality public micro-database providing extensive information ranging from socioeconomic status to health conditions to meet the needs of scientific research concerning the elderly. This database was selected for two main reasons: (1) The survey questionnaire covers variables needed for this paper, including pension receipt status, urban/rural residence, marital status, health status, etc., meeting the measurement requirements; (2) The database employs random sampling, covering 150 county-level units and 450 village-level units nationwide. By the completion of the 2018 national follow-up, the sample included 19,000 respondents from 12,400 households, making it representative and suitable for statistical inference. Considering the standard definition of the elderly population², this paper selects samples aged 60 and above from the database, resulting in a cleaned sample size of 10,704.

3.2. Variable Measurement and Descriptive Statistics

First, this study uses three binary variables to represent the dependent variable, the elderly's demand for the health and wellness industry: demand for health checkups, demand for hospital treatment, and demand for institutional physiotherapy. Specifically, demand for health checkups is measured by whether the respondent has recently participated in routine physical examinations. Demand for hospital treatment is measured by whether the respondent has visited a general hospital, specialized hospital, Chinese medicine hospital, or township health center for outpatient treatment in the past month. Demand for institutional physiotherapy is measured by whether the respondent has visited an elderly care institution, community health service center, health service station, or private clinic in the past month.

Second, the independent variable is the elderly individual's pension receipt status, captured by two variables: whether they receive a pension and the amount of pension received. "Whether receiving a pension" is a binary variable, coded as 1 for currently receiving and 0 for not yet receiving. In further examining the effect of the pension amount, a subsample of those currently receiving a pension is extracted, and the specific monthly pension amount is included as a continuous variable in regressions on this subsample. Considering the distribution of pensions and the scale difference with independent variables, the natural logarithm is taken when estimating coefficients. Since taking the logarithm after adding one can lead to estimates without a natural interpretation and potentially incorrect signs [18], only the logarithm is taken in the regression.

Third, this study also controls for demographic factors that may influence demand for the health and wellness industry, including gender, age, marital status, residence type, cultural beliefs, ethnicity, and years of education. Gender is a binary variable (female=1, male=0); considering the potential nonlinear effect of age on income, the square of age is additionally controlled for in regressions; marital status is a binary variable (married=1, not married=0); residence type is converted into a binary variable for urban central areas (=1) versus non-central areas such as urban-rural fringes and rural areas (=0); cultural belief is a binary variable (has belief=1, none=0); ethnicity is a binary variable (Han=1, minority=0); years of education for respondents is constructed as a continuous variable based on the highest education level attained [19], with below primary school assigned 0 years, primary school and junior high school assigned 6 and 9 years respectively, high school or secondary specialized school assigned 12 years, associate degree and undergraduate degree assigned 15 and 16 years respectively, and master's and doctoral degrees assigned 19 and 22 years respectively.

Finally, the channel variable, health perception level, is measured by the question: "How do you think your health is?" This ordinal variable ranges from 1 to 5, with higher values indicating better self-perceived health. Table 1 reports the descriptive statistics of the relevant variables.

Table 1: Descriptive Statistics of Variables

Variable	Mean	Std. Dev.	Min	Max	Obs.
Demand for Hospital Treatment	0.112	0.316	0	1	10704
Demand for Institutional Physiotherapy	0.052	0.221	0	1	10704
Demand for Health Checkups	0.552	0.497	0	1	10704
Pension Amount (RMB/Month)	2923.878	1460.209	20	23000	2132
Whether Receiving Pension	0.199	0.399	0	1	10704
Age (Years)	69.263	7.158	60	118	10704
Whether Female	0.509	0.500	0	1	10704
Whether Living in Urban Center	0.197	0.398	0	1	10704
Years of Education	3.844	4.517	0	22	10704
Whether Married	0.783	0.412	0	1	10704
Whether Has Cultural Belief	0.108	0.311	0	1	10704
Whether Han Ethnicity	0.930	0.256	0	1	10704
Health Perception Level	2.930	1.010	1	5	9839

Note: (1) The question for the variable "Health Perception Level" comes from the "Health Status and Functioning" module of CHARLS 2018, with some sample loss; (2) The sample size for "Pension Amount" corresponds to the sample where "Whether Receiving Pension" equals 1 ($19.918\% \times 10704 = 2132$).

The survey shows that approximately 19.9% of the elderly population receive a pension, with an average monthly amount of about 2923.9 Yuan.

²The 1982 World Assembly on Aging recommended 60 years as the social standard for defining the elderly, a standard adopted by most developing countries and possessing global relevance [17].

Regarding health and wellness demands, demand for health checkups is the most common, accounting for 55.2% of the total elderly population; demand for hospital treatment follows at about 11.2%; demand for institutional physiotherapy is the least, at only 5.2%.

3.3. Empirical Model

As the dependent variables are binary, a logit regression is used as the baseline model, and OLS regressions controlling for provincial fixed effects are presented as robustness checks. The specific econometric models used for the full sample and the pension-receiving subsample are specified in equations (1) and (2), respectively:

$$\text{logit}[P(\text{demand}_i = 1)] = \alpha_0 + \beta_1 \text{receive}_i + \beta_2 \text{control}_i + \varepsilon_i \quad (1)$$

$$\text{logit}[P(\text{demand}_{is} = 1)] = \theta_0 + \gamma_1 \ln(\text{pension}_{is}) + \gamma_2 \text{control}_{is} + \varepsilon_{is} \quad (2)$$

Here, demand_i includes individual i 's demand for hospital treatment, institutional physiotherapy, and health checkups. $P(\text{demand}_i = 1)$ is the probability of having that demand. receive_i is a dummy variable indicating whether the pension is received. pension_{is} represents the monthly pension amount in the subsample. The subscript is denotes individual i in subsample s . control_i represents individual-level control variables, and ε_i is the random error term.

To address potential endogeneity issues arising from omitted variables and reverse causality, this paper also employs instrumental variables for two-stage least squares estimation. Chronic diseases are common among the elderly. The earlier the onset of a chronic disease, the more likely an elderly person might value and consider their own elderly care issues early on. Thus, the duration since the first diagnosis of a chronic disease can, to some extent, identify the motivation for receiving a pension. Furthermore, chronic diseases have long incubation periods and relatively minor impacts on daily life, meaning they do not directly affect short-term demand for the health and wellness industry, satisfying the exogeneity condition. Therefore, the total duration (in years) from the respondent's first diagnosis of a chronic disease to the time of the survey is used as an instrumental variable for the core independent variable "whether receiving a pension."

Additionally, based on theoretical discussions in the existing literature, the following mechanism model is established for the potential channel variable. Since the channel variable is continuous, an OLS regression model controlling for regional fixed effects is used for estimation.

$$\text{health}_{ip} = \rho_0 + \rho_1 \text{receive}_{ip} + \rho_2 \text{control}_{ip} + \sigma_p + \varepsilon_{ip} \quad (3)$$

$$\text{health}_{isp} = \delta_0 + \delta_1 \ln(\text{pension}_{isp}) + \delta_2 \text{control}_{isp} + \sigma_{sp} + \varepsilon_{isp} \quad (4)$$

Here, health_{ip} represents the channel variable health perception, σ_p is the provincial fixed effect, control_{ip} are individual-level control variables, ε_{ip} is the random error term, and the subscript is denotes individual i in subsample s , other aspects are as previously defined.

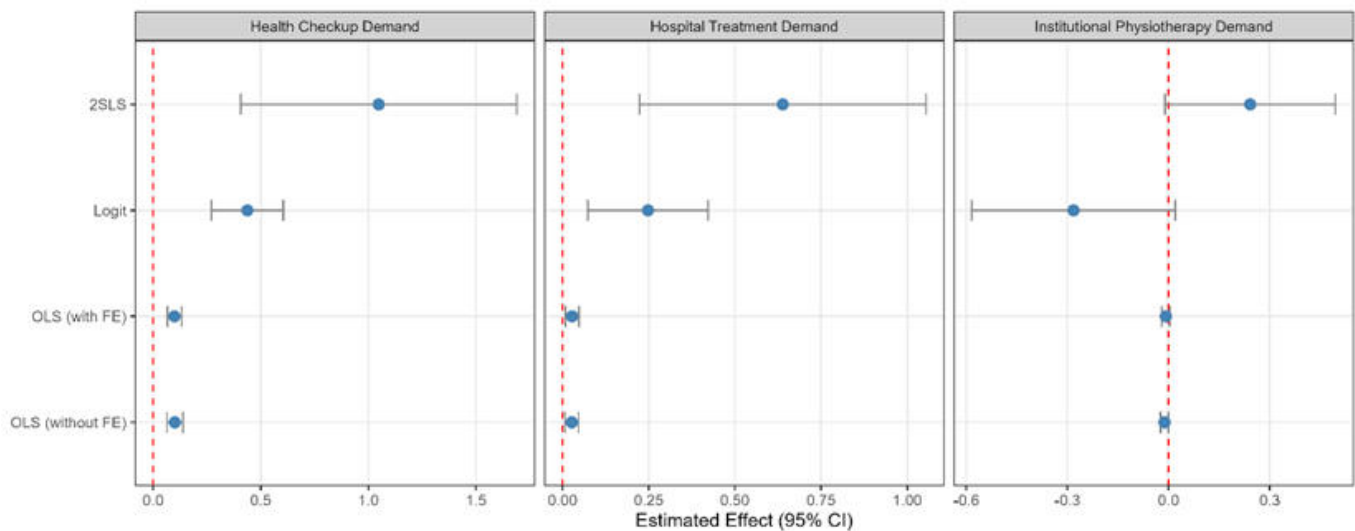


Figure 1: The Impact of Pension Receipt on Health and Wellness Demand (Full Sample)

4. Research Results

4.1. Impact of Pension Receipt on the Health and Wellness Demand of the Elderly

Table 2 and Figure 1 presents the regression estimation results of the baseline model for the full sample. For each dependent variable, the three models employed are OLS regression without provincial fixed effects, OLS regression with provincial fixed effects, Logit regression, and two-stage least squares regression using instrumental variable estimation. The first-stage F-statistic for the instrument is greater than 10, allowing rejection of the null hypothesis of a weak instrument. Overall, whether receiving a pension has a significant impact on all three types of health and wellness industry demand.

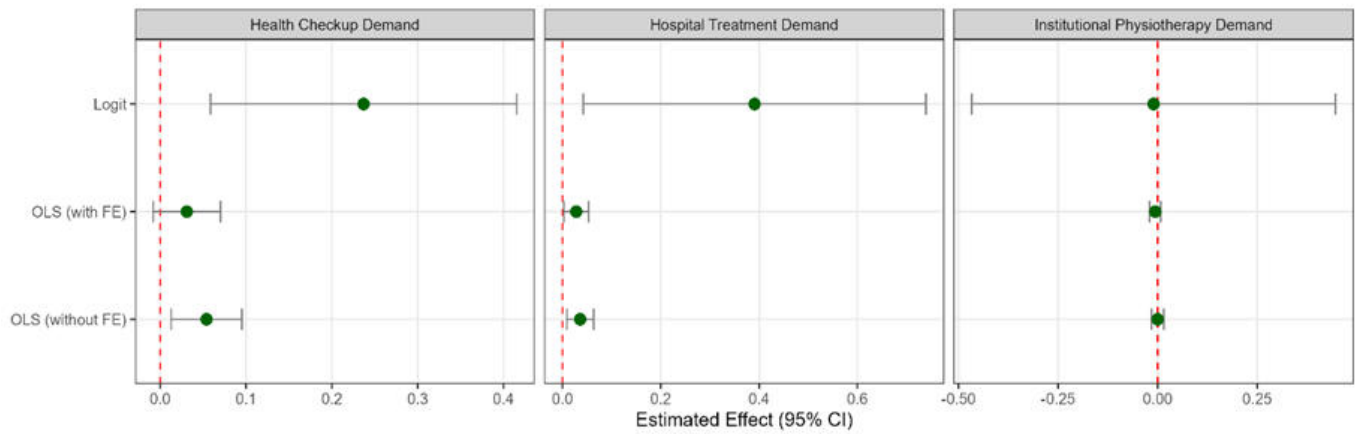


Figure 2: The Impact of Pension Amount on Health and Wellness Demand (Subsample)

Table 2: The Impact of Pension Receipt on Health and Wellness Demand (Full Sample)

Dependent Variable Obs.	Model	Estimated Effect (β_1)	Clustered Std. Err.	Control Variables	Provincial FE	R^2	Pseudo R^2	Weak IV F-test
10704	OLS	0.027**	(0.010)	Controlled	No	0.003	-	-
10704	OLS	0.028**	(0.010)	Controlled	Yes	0.016	-	-
10704	Logit	0.248**	(0.089)	Controlled	No	-	0.005	-
10704	2SLS	0.639**	(0.212)	Controlled	Yes	-	-	28.333***
10704	OLS	-0.012**	(0.006)	Controlled	No	0.005	-	-
10704	OLS	-0.008	(0.006)	Controlled	Yes	0.015	-	-
10704	Logit	-0.282*	(0.154)	Controlled	No	-	0.013	-
10704	2SLS	0.242	(0.129)	Controlled	Yes	-	-	28.333***
10704	OLS	0.101***	(0.019)	Controlled	No	0.045	-	-
10704	OLS	0.099***	(0.017)	Controlled	Yes	0.078	-	-
10704	Logit	0.438***	(0.085)	Controlled	No	-	0.034	-
10704	2SLS	1.048***	(0.327)	Controlled	Yes	-	-	28.333***

Note: (1) *, **, and *** indicate significance at the 10%, 5%, and 0.1% levels, respectively; (2) Robust standard errors clustered at the community level are in parentheses; (3) Logit models are not suitable for fixed effects due to potential significant estimation bias [20]; (4) Due to space limitations, coefficient estimates for control variables are not reported.

Specifically, based on the Logit regression results, receiving a pension has a significant positive impact on generating demand for hospital treatment. Odds represent the ratio of the probability of an event occurring to the probability of it not occurring. And in the model settings of this article, $odds = \frac{P(\text{demand}=1)}{1-P(\text{demand}=1)} = \frac{P(\text{demand}=1)}{P(\text{demand}=0)}$. Holding other variables constant, the odds of an elderly person receiving a pension seeking treatment at a formal hospital increase by 28.15% ($e^{0.248} - 1$) compared to those not receiving a pension. However, receiving a pension has a significant negative effect on generating demand for institutional physiotherapy. Holding other variables constant, the odds of an elderly person receiving a pension seeking physiotherapy at institutions or service centers decrease by 24.57% ($1 - e^{-0.282}$) compared to those not receiving a pension. In other words, formal pension security encourages the elderly to prefer formal hospitals over auxiliary service institutions to meet their health and wellness needs. Additionally, regarding health checkup demand, receiving a pension plays a positive role. Holding other variables constant, when an elderly person transitions from not receiving a pension to receiving one, the odds of generating routine health checkup demand increase by 54.96% ($e^{0.438} - 1$). The OLS regression results indicate the robustness of the above findings.

4.2. Impact of Pension Amount on the Health and Wellness Demand of the Elderly

Building on the above results, this paper further explores the impact of the specific pension amount, as shown in Table 3 and Figure 2. For each dependent variable, the three models employed are OLS regression without provincial fixed effects, OLS regression with provincial fixed effects, and Logit regression.

Table 3: The Impact of Pension Amount on Health and Wellness Demand (Subsample)

Dependent Variable	Model	Estimated Effect (γ_1)	Clustered Std. Err.	Control Variables	Provincial FE	R^2	Pseudo R^2	Obs.
Hospital Treatment Demand	OLS	0.036**	(0.014)	Controlled	No	0.012	-	2132
	OLS	0.028**	(0.013)	Controlled	Yes	0.043	-	2132
	Logit	0.391**	(0.178)	Controlled	No	-	0.016	2132
Institutional Physiotherapy Demand	OLS	-0.000	(0.008)	Controlled	Yes	0.005	-	2132
	OLS	-0.006	(0.007)	Controlled	No	0.047	-	2132
	Logit	-0.010	(0.233)	Controlled	Yes	-	0.016	2132
Health Checkup Demand	OLS	0.054**	(0.021)	Controlled	No	0.035	-	2132
	OLS	0.031	(0.020)	Controlled	Yes	0.108	-	2132
	Logit	0.237**	(0.091)	Controlled	No	-	0.027	2132

Note: (1) *, **, and *** indicate significance at the 10%, 5%, and 0.1% levels, respectively; (2) Robust standard errors clustered at the community level are in parentheses; (3) The independent variable, pension amount, is log-transformed; (4) Logit models are not suitable for fixed effects due to potential significant estimation bias [20]; (5) Due to space limitations, coefficient estimates for control variables are not reported.

Taking the Logit regression results as an example, the pension amount has a significant positive promoting effect on the generation of demand for hospital treatment and health checkups but has no significant impact on demand for institutional physiotherapy. Specifically, holding other variables constant, a one percent increase in the pension received increases the odds of an elderly person seeking treatment at a formal hospital by approximately 39.1%, and the odds of undergoing routine health checkups by approximately 23.7%. The OLS regression results also demonstrate the robustness of these findings.

4.3. Heterogeneity in the Impact of Pensions on the Health and Wellness Demand of the Elderly

By adding interaction terms to OLS models controlling for regional fixed effects, this paper also explores whether the aforementioned effects exhibit heterogeneity concerning gender, residence, and marital status. The results are shown in Table 4.

Table 4: Heterogeneity of the Impact of Pensions on Health and Wellness Demand

	Variable Name	Hospital Treatment Demand	Institutional Physiotherapy Demand	Health Checkup Demand
Gender Difference	Whether Receiving Pension	0.026** (0.011)	0.000 (0.007)	0.110*** (0.019)
	Gender (Female=1)	0.012* (0.007)	0.020*** (0.005)	0.055*** (0.011)
	Interaction Term	0.005 (0.015)	-0.021** (0.009)	-0.030 (0.023)
	R^2	0.016	0.015	0.078
Urban/Rural Difference	Whether Receiving Pension	0.012 (0.013)	-0.014* (0.007)	0.097*** (0.021)
	Residence Type (Urban=1)	-0.022** (0.011)	-0.011 (0.008)	0.009 (0.022)
	Interaction Term	0.040** (0.018)	0.016 (0.012)	0.006 (0.032)
	R^2	0.017	0.015	0.078
Marital Status Difference	Whether Receiving Pension	-0.000 (0.019)	-0.008 (0.014)	0.041 (0.029)
	Marital Status (Married=1)	-0.007 (0.009)	-0.014** (0.007)	0.016 (0.014)
	Interaction Term	0.034 (0.021)	0.000 (0.013)	0.070** (0.029)
	R^2	0.016	0.015	0.079
	Other Control Variables	Controlled	Controlled	Controlled
	Provincial FE	Yes	Yes	Yes
	Obs.	10704	10704	10704

Note: (1) *, **, and *** indicate significance at the 10%, 5%, and 0.1% levels, respectively; (2) Robust standard errors clustered at the community level are in parentheses; (3) The reference group for gender is male; the reference group for residence type is non-central areas; the reference group for marital status is not married; (4) Due to space limitations, coefficient estimates for other control variables are not reported.

It can be observed that although significant differences in health and wellness demands exist across urban/rural areas, genders, and marital statuses,

the impact of pension receipt on these demands shows relatively minor differences among groups with different characteristics. Combined with the baseline model results in Table 2, it can be inferred that compared to elderly men, the negative effect of pension receipt on institutional physiotherapy demand is somewhat mitigated among elderly women, possibly related to women's preference for institutional physiotherapy within social culture. Compared to elderly people living in urban-rural fringes and rural areas, those in urban centers, if receiving a pension, experience a more pronounced promoting effect on demand for formal hospital treatment, likely related to the transportation accessibility of formal medical resources. Compared to unmarried or widowed elderly, those who are married, if receiving a pension, generate stronger demand for health checkups. This might be because the former may lack motivation for continuing life, thus forgoing routine physical examinations.

4.4. Mechanism Analysis of the Impact of Pensions on the Health and Wellness Demand of the Elderly

Using OLS models controlling for regional fixed effects, this paper estimates the effect of pension receipt status on the channel variable, health perception. Since health perception level is a five-point ordinal variable, an ordered Logit model is also employed as a robustness check.

Table 5: Mechanism Analysis of the Impact of Pensions on Health and Wellness Demand: Health Perception Channel

	Effect of Receiving Pension (ρ_1)		Effect of Pension Amount (δ_1)	
	OLS	Ordered Logit	OLS	Ordered Logit
Estimate	0.119*** (0.031)	0.293*** (0.057)	-0.011 (0.039)	0.071 (0.080)
Constant	7.515*** (0.875)	-	7.169*** (1.746)	-
Dependent Variable Threshold 1	-	-11.764*** (1.709)	-	-10.457** (3.771)
Dependent Variable Threshold 2	-	-9.961*** (1.709)	-	-8.859** (3.772)
Dependent Variable Threshold 3	-	-7.787*** (1.706)	-	-6.324* (3.768)
Dependent Variable Threshold 4	-	-6.881*** (1.706)	-	-5.275 (3.773)
Control Variables	Controlled	Controlled	Controlled	Controlled
Provincial FE	Yes	No	Yes	No
R^2	0.048	-	0.053	-
Pseudo R^2	-	0.010	-	0.006
Obs.	9839	9839	1974	1974

Note: (1) *, **, and *** indicate significance at the 10%, 5%, and 0.1% levels, respectively; (2) Robust standard errors clustered at the community level are in parentheses; (3) Ordered Logit models are not suitable for fixed effects due to potential significant estimation bias katz2001bias; (4) Pension amount is log-transformed; (5) Due to space limitations, coefficient estimates for control variables are not reported.

As shown in Table 5, whether receiving a pension has a significant positive impact on the health perception channel. Holding other variables constant, compared to elderly not receiving a pension, those who receive one have their self-assessed health status improve by 0.12 unit levels. However, the specific amount of pension received has no significant effect on health perception. The ordered Logit regression results indicate the robustness of the above findings.

5. Conclusion and Discussion

Based on data from the 2018 CHARLS survey, this study investigated the impact of pension receipt status among the elderly on the demand for the health and wellness industry. This paper first conducted descriptive statistical analysis of the elderly's personal characteristics, pension receipt status, and three types of health and wellness demands. Subsequently, by constructing Logit models and OLS regression models controlling for fixed effects, and using instrumental variables to identify the causal effect of pension receipt on the elderly's demand for the health and wellness industry, it further explored how the amount of pension received influences corresponding demands. Building on this, the paper also examined the heterogeneity of this effect across urban/rural areas, genders, and marital statuses, as well as potential channels of action. Additionally, robustness checks using different models confirmed the robustness of the results. The main research conclusions include the following aspects: First, receiving a pension has a significant positive promoting effect on the demand for hospital treatment and health checkups but has a significant negative inhibiting effect on the demand for institutional physiotherapy. Compared to elderly individuals not receiving a pension, being embedded in a formal pension security system encourages this elderly group to prefer formal hospitals over auxiliary service institutions to meet their health and wellness needs. To some extent, this implies that higher income levels and more formal security mechanisms raise the elderly's quality requirements for health and wellness services, increasing the demand for specialized, high-quality offerings within the health and wellness industry.

Second, among the elderly group integrated into the formal old-age security system, the amount of pension received has a significant positive promoting effect on the generation of demand for hospital treatment and health checkups but has no significant impact on demand for institutional physiotherapy. This suggests, to some extent, that an increase in the income level of the elderly enhances their service purchasing power, thereby boosting demand for the formal health and wellness industry. From a broader perspective, this also indirectly corroborates the empirical findings from existing research that increased economic independence of enrolled elderly promotes the substitution of "social old-age support" for "family old-age support" [11, 12].

Third, the aforementioned effects also exhibit certain heterogeneity. Specifically, elderly women have a stronger preference for institutional physiotherapy. Elderly people residing in urban centers, compared to those in urban-rural fringes and rural areas, show a more pronounced demand for formal hospital treatment due to the transportation accessibility of formal medical resources. Compared to unmarried or widowed elderly, married elderly may lack motivation for continuing life, making them more likely to suppress demand for routine checkups. Additionally,

the empirical analysis suggests that these effects operate through the channel of the elderly's health perception, thereby influencing demand for the health and wellness industry.

In terms of policy recommendations, existing research suggests that to actively respond to population aging, China urgently needs to follow the timeline of an aging society, improve the asset structure of the elderly in a countdown manner to enhance purchasing power, while also gradually blurring the boundaries between regions, sectors, and ownership types [21]. Combined with the above empirical results, this paper argues for the urgent establishment of a universal national pension system to replace the current contribution-based pension insurance system. The pension system should be popularized more widely, enabling the vast majority of the elderly to enjoy the security brought by pensions, thereby increasing their income levels and quality consumption demands, and consequently promoting the better development of the health and wellness industry in both scale and quality. At the same time, it is essential to focus on the health perception of the elderly population, working from the perspective of mental health. It is also necessary to design diversified service products and types tailored to the characteristics of different elderly groups to meet individualized needs.

Of course, this study has some limitations and areas for further exploration. Subsequent research could use multi-period panel data with DID methods or employ more precise instrumental variables to reduce model endogeneity and achieve better causal identification. Additionally, future studies could consider more channels of action beyond health perception, such as the level of trust in the formal medical system.

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