Evaluating the role of local leaders in facing the aging economy: A perspective of health expenditure

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Introduction

China's aging population is a major threat to its economic development, which not only tests the affordability of local medical and health finance, but also tests the local governance effectiveness (Figure 1). In the Chinese context, local leaders play a critical role in local health level and regional economic development. The degree level of officials is an essential underlying factor determining their governance capability [1].
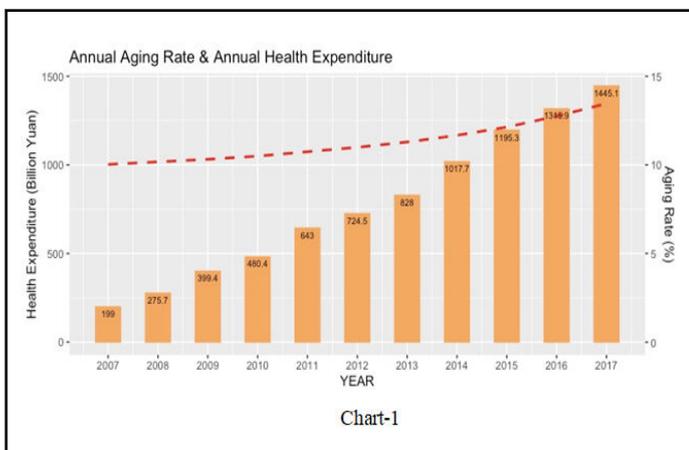

Figure 1: Annual aging rate and annual health expenditure.

Chinese provincial leaders' academic qualifications have gradually improved. There has been a growing proportion of provincial leaders holding PhD degree.

According to the technocratic statement, this arrangement was expected to help Chinese local government better deal with problems that coming with population aging because highly educated leaders have the willingness and ability to achieve both "economic growth" and "meeting the needs of residents" (Figure 2).
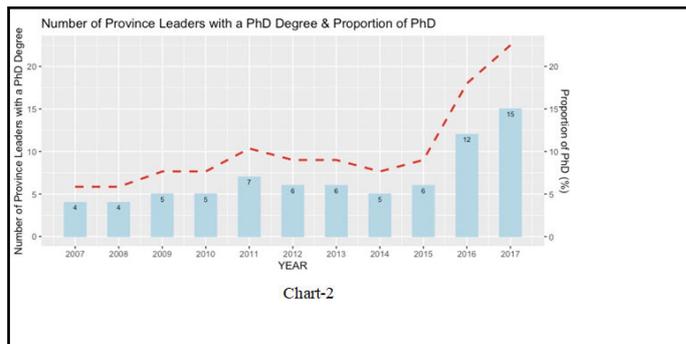

Figure 2: Number of province leaders with PHD degree and proportion of PHD.

From the capability perspective, this paper evaluates the role of provincial leader's academic degree in coping with the economic impact of population ageing. We argue that leader's higher degree guarantees the quality of decision-making, encourages the official better coordinate the relationship between aging and health spending and further enhancing the efficiency of fiscal expenditure [2]. Therefore, given a higher-level ageing population, a highly educated local leader can give full play to the complementary effect between "Silver dividend" and health spending, thus promote economic growth [3-5].

DESCRIPTION

We conduct our research into two steps. First, a dynamic panel model was constructed to verify the driving effect of health expenditure on economic growth [6]. The interaction term between health expenditure and aging is introduced to test whether aging will affect the driving effect of health expenditure on economic growth. The specific construction model is as follows:

$$LN(pgdp)_{it} = \alpha + \beta_1 LN(pgdp)_{it-1} + \beta_2 LN(ws)_{it} + \beta_3 (urban)_{it} + \beta_4 (psi)_{it} + \beta_5 (pti)_{it} \quad (1)$$

$$LN(pgdp)_{it} = \alpha + \beta_1 LN(pgdp)_{it-1} + \beta_2 LN(ws)_{it} + \beta_3 (old)_{it} + \beta_4 LN(ws) * old_{it} + \beta_4 (urban)_{it} + \beta_5 (psi)_{it} + \beta_6 (pti)_{it} \quad (2)$$

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Second, group regression method was adopted to evaluate the differences in the interaction between aging and health expenditure under the influence of varying leaders' educational backgrounds, so as to test whether leaders' academic degree have a moderating effect on the above interaction [7]. The binary variable of Official Education (OEL) is set as 1 if a provincial official leader has a PhD degree and 0 otherwise.

$$LN(pgdp)_{it} = \alpha + \beta_1 LN(pgdp)_{it-1} + \beta_2 LN(ws)_{it} + \beta_3(old)_{it} \\ + \beta_4 LN(ws)*old_{it} + \beta_4(urban)_{it} + \beta_5(psi)_{it} + \beta_6(pti)_{it} \quad (\text{if oel} \\ = 1) \quad (3)$$

$$LN(pgdp)_{it} = \alpha + \beta_1 LN(pgdp)_{it-1} + \beta_2 LN(ws)_{it} + \beta_3(old)_{it} \\ + \beta_4 LN(ws)*old_{it} + \beta_4(urban)_{it} + \beta_5(psi)_{it} + \beta_6(pti)_{it} \quad (\text{if oel} \\ = 0) \quad (4)$$

In order to effectively fix the endogeneity problem of dynamic panel model, we adopted a system GMM method to estimate. At the same time, Sargan test and Arellano-Bond test should be performed before regression. The test results show that the Sargan statistics are all that is, acceptance of the null hypothesis proves the validity of the selection of instrumental variables. Meanwhile, the P value of AR are all greater than 0.05, indicating that there is no second-order sequence correlation in the equation, so our pick of system GMM regression is reliable and effective [8]. We used 30 provincial panel data from 2008 to 2017 excluding Tibet. Data are mainly obtained from China Statistical Yearbook, China Environmental Protection Statistical Yearbook, China Fiscal Yearbook, Provincial Statistical Bulletin and Global Statistical Data/Analysis Platform [9]. Further, the urbanization rate (urban), the Proportion of the Secondary Industry (PSI) and the Proportion of the Tertiary Industry (PTI) are selected as the control variables in this paper, in order to eliminate the possible estimation bias. The urbanization rate (urban) is measured by the proportion of annual non-agricultural population in total population of each province in the same period. A larger ratio indicates a higher urbanization level [10]. The Proportion of the Secondary Industry (PSI) and the proportion of the tertiary industry (PTI) are respectively expressed by the corresponding industrial added value and the proportion of GDP of each province in the same year. The empirical results show that the improvement of China's urbanization level is significantly beneficial on economic growth, but the effect is small (β=0.006, $p<0.01$). The empirical results of PSI and PTI also show that the secondary industry has a significant dragging effect on the driving effect of health expenditure on economic (β=-0.685, $p<0.01$), while the tertiary industry has a positive effect (β=0.023, $p<0.01$). After controlling for the above variables, this paper introduces health expenditure (WS) and aging rate as the core explanatory variables. Models and measure the effect of health spending on economic growth before and after adding the impact of aging. Models and are grouped under different official leaders' academic degree. The reason why the provincial party secretary is chosen here is that in China's administrative system, the provincial party secretary has the supreme decision power, thus more valuable to study. The empirical results show that health expenditure can effectively promote economic growth (β=0.085, $p<0.01$). After considering the impact of aging trend, the driving effect still exists (β=0.02, $p<0.01$), but the coefficient value is significantly smaller, indicating that the increasing trend of aging in China does weaken the effect of government spending on people's livelihood. The grouped regression model shows that the coefficient in higher-degree group (β=0.032, $p<0.01$) is bigger than that in the lower-degree group (β=0.017, $p<0.01$). It can be concluded that in order to further modernize the national governance system and governance capacity and effectively deal with various risks and challenges, the measures to improve the educational level of officials implemented in the official management system can effectively deal with the challenge of population aging and further improve the role of government health expenditure in driving economic growth. Now a days, in order to modernize national governance system and governance capacity and effectively deal with various risks and challenges, Chinese government is taking measures to improve officials' academic degree, aiming at effectively tackling the challenge of population aging and further improve the economic effect of health expenditure.

CONCLUSION

To effectively combat the current population aging impact, we recommend the following points for policies-makers. First, expand the scale of financial expenditure in the field of health and optimize the structure of financial expenditure to ensure that it occupies a reasonable proportion in the finance; Second, cultivate scholars with profound professional qualities to be cadres, and enhance the degree of professionalism and knowledge of cadres; Thirdly, establish a set of indicators system to assess the performance of local government health expenditure, improve the environmental awareness of leading cadres, strengthen the ability of leading environmental decision-making, and promote the coordinated development of health and economy.

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