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# The health implications of social pensions: Evidence from China's new rural pension scheme<sup>☆</sup>

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## ABSTRACT

**Cheng, Lingguo, Liu, Hong, Zhang, Ye, and Zhao, Zhong**—The health implications of social pensions: Evidence from China's new rural pension scheme

This paper estimates the causal effect of income on health outcomes of the elderly and investigates underlying mechanisms by exploiting an income change induced by the launch of China's New Rural Pension scheme (NRPS). Using this policy experiment, we address the endogeneity of pension income by applying a fixed-effect model with instrumental variable correction. The results reveal that pension enrollment and income from the NRPS both have had a significant beneficial impact on objective measures of physical health and cognitive function of the rural elderly. Pension recipients respond to the newly acquired pension income in multiple ways: improved nutrition intake, better accessibility to health care, increased informal care, increased leisure activities, and better self-perceived relative economic situation. These in turn act as channels from pension income to health outcomes of the Chinese rural elderly. *Journal of Comparative Economics* 000 (2016) 1–25. Institute for Advanced Research, Shanghai University of Finance and Economics, China; China Economics and Management Academy, Central University of Finance and Economics, China; School of Business, Nanjing University, China; School of Labor and Human Resources, Renmin University of China, China.

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## 1. Introduction

Population aging presents one of the greatest challenges for developing countries to ensure the well-being of their growing old population. Social pension programs have been widely regarded and implemented as an important policy device to provide income security for old people. Recently many developing countries such as Brazil, South Africa, Mexico, and

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China have initiated government transfer or social pension programs for the uncovered elderly, which may have important implications for the health and well-being of these new pension recipients (Jung and Tran, 2012).

The positive association between income and health is well established in the literature (van Doorslaer et al., 1997; Gerdtham and Johannesson, 2004; Smith and Goldman, 2007; Smith, 2007). However, there remain crucial open questions that deserve further investigation, such as whether the association reflects causality from income to health and what mechanisms underlie the effects of income on health (Deaton and Paxson, 1998; Smith, 1999). The main empirical challenge in establishing causality from income to health is to correct the potential bias from reverse causality. The reverse causality can be due to contemporary factors or life-cycle factors. The possibility that the correlation between current health and current income at old ages is partly driven by health shocks at earlier ages complicates the estimation, and may bias welfare analysis based on association between income and health (Smith, 1998; Richter, 2006). The life-cycle factors also imply that the causality between income and health may vary considerably with age (Cutler et al., 2008; Smith, 2007).

A number of empirical studies have attempted to identify the causal effects of income and wealth on health, using exogenous income shocks or sophisticated panel data models, but they have produced mixed results. For example, Ettner (1996) finds a large positive effect of income on physical and mental health for United States adults, by applying an instrumental variable approach.<sup>1</sup> Frijters et al., (2005) find that the positive effect of income changes on health is statistically significant but economically small in magnitude, based on a panel data of East and West Germans in the years following the German reunification. Using lottery prizes as an exogenous source of income variation, Lindahl (2005) show that higher incomes lead to better health for the full sample of the lottery players aged 34–76, but the income effect is not significant for those aged 60 and above. Several recent studies on the United States find little evidence that changes in wealth have a significant effect on health for adults (Meer et al., 2003), for couples aged over 50 (Michaud and van Soest, 2008), or for the elderly aged 70 and above (Adams et al., 2003). As the above empirical studies all focus on wealthy and industrialized nations, the finding of no income gradient of elderly health is not particularly surprising, given universal biological frailty, good public health insurance, and well-functioning social security systems in those countries (Kim and Durden, 2007; Wilkinson and Pickett, 2006). However, contradicting the main findings in the literature, Snyder and Evan (2006) show that the American elderly who received less income in social security benefits had significantly lower mortality than those with higher earnings.<sup>2</sup>

As transition and developing countries usually provide limited social safety nets, income should be more important for health production, particularly for the elderly population, who are vulnerable to economic and health risks. The income–health gradient and its underlying mechanisms in these counties deserve special attention. Among the few recent studies, Case (2004) shows that exogenous increases in pension income have improved the health status of pensioners and other household members in households that pool income in South Africa. Two studies on Russia by Jensen and Richter (2004) and Richter (2006) have found adverse effects of exogenous negative income shocks. The first one finds that the pension loss, associated with the Russian pension crisis, has led to worsened health and higher mortality rate among the pensioners. Similarly, the second one shows that during the wage arrears crisis in Russia, the loss in household wage income had detrimental effects on health outcomes of the elderly.<sup>3</sup> Galiani et al. (2016) find that a social pension program targeting rural elderly has significantly improved the mental health of beneficiaries in Mexico.

The first contribution of this paper is to identify and estimate the causal effect of income on health outcomes of the elderly in China, a middle-income developing country, by using an income change induced by China's New Rural Pension Scheme (NRPS). As one of the pillars of China's social security system, the NRPS is a public pension program for the rural population that was established in 2009 and expanded gradually to nearly all counties by the end of 2012. At the time of introduction, individuals aged 60 years and above were eligible for a basic monthly pension that varied across regions, but the amount of the pension was uncorrelated with observed or unobserved individual characteristics, such as current or past labor supply behavior. Taking advantage of this unique policy experiment, we identify the causal effect of income on health by exploiting exogenous time variation in the NRPS implementation at the county level through an instrumental variable approach.

The second contribution of this paper is to study multiple health outcomes. Our analysis draws on panel data from the Chinese Longitudinal Healthy Longevity Survey. That is a longitudinal survey since 1998, mainly focusing on the elderly population, and covers a rich set of well-being and health outcomes. Johnston et al. (2009) suggest that using commonly available self-reported measures of health may lead to underestimation of the income–health gradient, because reporting error is related to income. Our data set allows us to examine not only self-reported health measures, but also objective measures of health, cognitive function, psychological well-being, and mortality.

Thirdly, the rich information in the data allows us to explore more thoroughly how income affects different health outcomes through a variety of important channels, such as consumption, health behaviors, perceived access to medical care,

<sup>1</sup> Ettner (1996) uses the state unemployment rate, work experience, parental background, and spouse characteristics as instruments for family income. However, the exogeneity of these instruments has often been questioned (Meer et al., 2003; Frijters et al., 2005).

<sup>2</sup> Snyder and Evan (2006) suggest that those elderly with lower income have engaged in more post-retirement part-time work, which may have prevented social isolation, and thus reduced mortality.

<sup>3</sup> Those studies have considered several pathways such as nutrition, health care accessibility, and health behaviors. However, there are additional channels that deserve further investigation. Moreover, the underlying causal mechanisms may vary across countries, due to different economic development stages, social welfare systems, and cultural contexts.

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