



The impact of population aging on income inequality in developing countries: Evidence from rural China

Hai ZHONG*

School of Public Finance and Public Policy, Central University of Finance and Economics, 39 South College Road, Beijing 100081, China

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ABSTRACT

Population aging is an emerging issue in developing countries. In this paper, we argue that it is largely responsible for the sharp increase in income inequality in rural China at the beginning of this decade. As a result of the one-child policy implemented in 1979, fewer young adults have reached working age during this period. This leads to a fall in the ratio of household members in working age. Regression-based inequality decomposition shows that labor shortages and the expansion of industrialization significantly increases the return of a higher ratio of household members in working age to household income while the distribution of this ratio becomes increasingly unequal. The interaction of two effects significantly increased income inequality in rural China.

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1. Introduction

Income inequality in the development context has been a subject of long-standing interest among economists. Since Kuznets's (1955) seminal paper, numerous studies have examined the relationship between inequality and a number of processes associated with development. These processes include industrialization, factor-specific technical change, the development and prevalence of education systems, participation of women in the labor force and population aging. The experience of developed countries shows that those processes did not appear simultaneously and occurred across a very large time span. The process of population aging began unfolding only at the end of the 20th century. Compared to other processes, the effects of population aging on income inequality have received little attention. Existing studies on the relationship between population aging and income inequality have mainly explored this relationship in the context of developed countries, and many of them found that population aging accounts for only a minor fraction of the overall increase of income inequality (e.g., Barrett, Crossley, & Worswick, 2000; Bishop, Formby, & Smith, 1997; Jantti, 1997).

Although economically less developed countries have been slow to recognize population aging as a major public policy concern, their older population groups are growing more rapidly than those of industrialized nations as a result of rapid declines in fertility and the broad diffusion of medical knowledge. In 1975, the majority of the world's population aged over 65 resided in developed countries. However, in 2000, more than 59% of persons aged over 65 lived in developing countries. In the near future the distribution of the world's elderly will continue to shift considerably. A United Nations (UN) projection estimates that by 2020, 67% of persons aged over 65 will live in developing countries. In 2000, all developing countries except some Eastern European countries had elderly populations that were less than 7% of their total populations, which is the definition of an "aging population" by the UN. However, by 2020, the elderly population of China, India, Asia (excluding South-Central Asia), Latin America and the

* Tel.: +86 10 62288775; fax: +86 10 62288535.

E-mail address: haizhong@cufe.edu.cn.

Caribbean will increase to 11.5%, 7.3%, 10.5% and 8.3% of their total populations respectively (Shrestha, 2000). The socio-economic and industry structures are significantly different between developed and developing countries, thus the impact of population aging on income inequality in a developing country may be significantly different to that in a developed country.

The reduction of income inequality is an important policy objective for the Chinese government over the next few years. The national campaign of “western development” and the government’s commitment to “building a harmonious society” exemplifies their recognition of this problem. Furthermore, these concerns were expressly discussed during the two most important national conferences on the People’s Republic of China’s (PRC) political calendar, the National Party’s Congress and the National People’s Congress.¹ China is among the few developing countries that will step into an aging society first. As a result of socio-economic development and the one-child policy, the fertility rate in China has dramatically dropped from 6.0 in 1957 to 2.3 in 1980, to 1.7 since the 1990s (Cai & Wang, 2006). At the same time, life expectancy at birth has risen continually from 35 in 1949 to 63 in 1975, 69.2 in 1985, 71.3 in 2000 and 73.2 in 2008 (Bergaglio, 2008; CIA, 2008). According to the UN’s projection, 11.5% of Chinese will be aged 65 and older in 2020, the ratio of the working age population to the total population in China will begin to fall from 2010 and the absolute number of the working population will begin to fall from 2015 (UN, 2003). In the 1980s and 1990s, many observers believed that China was characterized by surplus and underemployed rural labor (Bowlus & Sicular, 2003; Knight & Song, 1995; Taylor, 1988). However, by 2003 a shortage of rural migrant workers occurred in the Pearl River Delta area, a region with a high concentration of labor-intensive manufacturing enterprises. At that time, most observers believed that this was just a cyclical phenomenon. However, over time, this phenomenon continued and spread to the Yangtze River Delta area, another region dominated by labor-intensive manufacturing enterprises, and even to some central provinces such as Jiangxi, Anhui and Henan, from which migrant laborers are generally sent out (Cai & Wang, 2006). One possible explanation is that as a result of the one-child policy, the growth of the working age population has slowed from the beginning of this decade. Consequently, the ratio of China’s working population to total population may have fallen since then.

In this paper, we examine the evolution of income inequality in rural China from 1997 to 2006, and try to identify its relationship with the demographic changes. We focus our study on rural areas for several reasons. First, the majority (about 75%) of the population in the developing countries reside in rural areas (Anríquez & Stloukal, 2008). Thus, such a study might be more useful to the policy makers in the developing countries. Secondly, there are compelling reasons to anticipate that the impact of population aging may be more pronounced in a rural setting. As von Weizsacker (1996) emphasizes, there is a substantial danger of underrating the distributional significance of an aging population if we ignore the critical role of age-related redistributive tax-transfer systems, such as public pension schemes and health care systems, which are usually non-existent or very poorly established in rural areas compared with those for the urban population. Moreover, for those rural workers in a developing country like China, they are more likely to exit the labor force before reaching the official retirement age in urban areas. This is due to a combination of factors including the nature of the work undertaken by the majority of workers, i.e. agricultural or low skilled labor-intensive work, and the poorer physical health of workers compared to developed countries. Thirdly, aging in developing countries usually occurs earlier and proceeds more rapidly in rural areas than in the cities (Marcoux, 1994, 2001; Stloukal, 2004).² This is mainly caused by rural-to-urban migration which comprises mainly younger adults and thus increases the proportion of older persons in the villages. Therefore, the consequences of aging are felt most by the rural population.

In this study, we also try to identify the other causes of income inequality in rural China and the ways in which they affect income inequality. While the problem of population aging cannot be solved in the short run, the information about other inequality determinants is important for the reduction of income inequality.

Our paper contributes to the existing literature in a number of ways. It is one of the first studies on the relationship between population aging and income inequality in the context of a developing economy. Since China is one of the first developing countries to experience population aging, our results may be of use not only to the policy makers in China, but also to policy makers in other developing nations. China accounts for about a quarter of the world’s population, and the majority of its population resides in rural areas. As the largest developing country in the world, any advancement in the knowledge of causes and consequences of China’s rural income inequality and its changes is not only important for understanding the economic development and well-being of the people in China, but also important in a global context. Secondly, as emphasized in Wan and Zhang (2006), since existing studies on income inequality in China are mostly descriptive rather than prescriptive, one area that deserves further research efforts is the cause of the inequality. We employ two different regression-based inequality decomposition methods in this paper. The Shapley value decomposition method allows us to identify the relative contribution of each cause of income inequality, including the measure of demographic change. In addition to that, we introduce a decomposition method commonly used in the health-related inequality literature to analyze income inequality. This approach allows us to identify not only the relative contribution of an income determinant, but also the underlying mechanism through which that income determinant affects income inequality. Finally, our study provides more updated information on the evolution of income inequality in China. One primary focus of existing literature on income inequality in China has been on estimating the levels and changes of inequality over time. Due to data limitations, the information for the period after 2002 is lacking. Based on newly available cycles of the China Health and Nutrition Survey (CHNS), we find that the level of income inequality has risen sharply between 2000 and 2006 and a significant portion of this increase can be attributed to the demographic change.

The paper is organized as follows. In the next section, we describe the methods and data used in this analysis. Section 3 contains our empirical results, and in the last section we discuss the policy implications arising from these results and submit our conclusion.

¹ Held in October 2007 and March 2008.

² Calculations based on the data from the National Bureau of Statistics of China (2010) indicate that in 2005, the ratio of elderly people (60 and older) to the working young (15–59) is 0.213 in rural areas, and is 0.169 in the urban areas.

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