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Do the Chinese "Keep up with the Jones"?: Implications of peer effects, growing economic disparities and relative deprivation on health outcomes among older adults in China

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ABSTRACT

What are the health effects of unequal economic growth? What are the health consequences of 'keeping up with the Jones'? Many developed countries (e.g., US and Japan) have experienced significant income growth between 1950s and 2000s but population survey shows that on average the population is not growing more satisfied with life. Theories that attempt to respond to these findings hypothesize that as income grows, people may spend more on conspicuous consumption because they compare themselves with others in their peer groups and care about their position in socio-economic distributions relative to others. Indeed, public health studies have found a relationship between income inequality and adult health outcomes in developed countries. Specifically, there seems to be a correlation between social hierarchy and mortality, as well as a correlation between social hierarchy and morbidity.

China is a prime study site due to its growing spatial inequalities in the past decade. Though China has been committed to economic reform, different regions and cities have encountered very disparate rates of development and growth. In this paper, we utilize a set of panel data collected in China (China Health and Nutrition Survey 1989–2004) to examine the effects of peer groups, relative deprivation, and income disparities on individual health outcomes such as the probability of high waist circumference, body mass index categories, probability of hypertension, nutritional intake as well as health behavior such as smoking. We use a combination of multi-level mixed effects modeling as well as factor analysis to examine these effects and find significant and differential effects of income quartiles, peer groups, relative deprivation, and Gini coefficient on health.

1. Introduction

> "… [the first Whitehall Study] showed that the more senior you are in the employment hierarchy, the longer you might expect to live compared to people in lower employment grades…The social gradient in health is not a phenomenon confined to the British Civil Service. Throughout the developed world, wherever researchers have had data to investigate, they have observed the social gradient in health…" (Ferrie ed., Work, Stress, and Health: the Whitehall II study, 2004).

> "All of us—rich and poor alike, but especially the rich—are spending more time at the office and taking shorter vacations' we are spending less time with our families and friends; and we have less time for sleep, exercise, travel, reading, and other activities that help maintain body and soul..." (Frank, Luxury Fever: Why Money Fails to Satisfy in an Era of Excess, 1999).

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Are individuals healthier as countries get richer? Particularly, do those at the top of the socio-economic hierarchy get healthier? How important is "relative deprivation" in determining health? Does unequal economic growth affect health outcomes? What is the role of "peer effects" on health outcomes?

Recent studies show that the relationships among economic development, income disparities, and health are more ambiguous than once thought. First, despite predictions from traditional utility maximization framework, economists have found the paradox that increases in income may not lead to better well-being for US and other industrialized nations. Second, there is growing evidence that absolute level of income matters for individual health (also named "absolute income hypothesis") but relative income also matters (also called "relative income hypothesis") (Wilkinson, 1996, 1999; Kennedy, Kawachi, Glass, & Prothrow-Smith, 1998; Wildman, 2003a,b). As a response to these controversies, this paper utilizes individual-level longitudinal data to examine the role of relative income and income inequality on anthropometric health outcomes (e.g., body mass index, waist circumference, and blood pressure readings) as well as unhealthy health behaviors (e.g., smoking cigarettes and pipes) among older adults in China over the course of economic development.

China presents a particularly rich laboratory to test these theories on a microeconomic level. Over the past two decades, it has been the fastest growing economy in Asia with a six-fold increase in its gross domestic product (GDP) between 1984 and 2004 (World Bank, 2006). Its economic growth and development were spurred by its open door policies that had begun in early 1980s with the establishment of its Special Economic Zones (SEZ). The open-door policies were further extended in 1985 and in 1988. After the economies along the coastal regions took off in the 1980s, the open-door policies were gradually extended to the inland regions in the 1990s. Between 1988 and 1997, the pace of economic development and growth in China was determined by the degree of economic openness and the rate of industrialization. Since most labor intensive industrial activities were concentrated along the coastal regions, these economic policies did not significantly modify the location of industries and specialization of the inland provinces. As a result, economic growth became polarized and concentrated along the coastal regions, widening the socio-economic gap between the coastal and inland regions (Jones, Li, & Owen, 2003).

These trends were reflected in the rise in Gini coefficient for China overall as well as within the rural and urban regions. China's Gini coefficient rose from 0.283 to 0.402 between 1985 and 2003 (Chotikapanich, Rao, & Tang, 2007). Similarly, the Theil index increased from 0.132 to 0.270 over the same period (Chotikapanich et al., 2007). Within urban China, the Gini coefficient rose from 0.167 to 0.329, and within rural China, the Gini coefficient rose from 0.299 to 0.334 between 1985 and 2003 (Chotikapanich et al., 2007). The amount of exports in these coastal SEZs reached 36 billion dollars in 1999, constituting more than 20% of the amount for the entire China (Jones et al., 2003). In 2003, 85% of total Foreign Direct Investment (FDI) was concentrated in the coastal provinces. Zhang and Kanbur (2005) argued that a major component of the increases in total inequality in China did not lie in the urban–rural inequality but was attributed to the coastal–inland inequality. On the other hand, the World Bank (1997) estimated that the urban–rural income inequality accounted for more than half of the overall income inequality in 1995. Yang (1999) estimated that the urban–rural inequality explained 82% of the change in overall income inequality in the Jiangsu province and virtually all of the change in overall income inequality in Sichuan province. Despite the controversies between the rural–urban inequalities versus coastal–inland inequality in accounting for the overall change in income inequality, it was clear that income inequality has grown substantially over the period.

Changes in consumption inequality over the same period also suggest the deterioration of the well-being for the poor versus the rich. Wu and Perloff (2004) found that the consumption–income ratio for households in the lowest five percentiles fell from 1.06 before 1997 to 0.96 over 1997–2001. The (relative) deterioration of the consumption–income ratios for households at the lowest end of the income distribution as well as the increase in consumption inequality over the period may be attributed to the shrinking state-owned sector, massive laid-offs in that sector, as well as the concurrent collapse of the government-provided "safety net" and the decrease in government transfers from 0.35% of Gross Domestic Product (GDP) in 1985 to 0.28% in 2001 (Wu & Perloff, 2004). These economic trends in China provide an ideal backdrop for testing hypotheses regarding economic development, health outcomes, and relative income hypothesis.

We are particularly interested in the health of older adults due to the rapidly aging population in China. Older adults are also most affected by the economic reforms and the subsequent reduction in the provision of social insurance through state-owned enterprises. With a population of more than 1.2 billion and an estimated 7% of its population being in age range 65 and above, China boasts the largest absolute number of elderly in the world (Beydoun & Popkin, 2005). Furthermore, life expectancy at birth for Chinese males and Chinese females has been projected to increase by 5.8 years and 6.3 years respectively between 2005 and 2050 (U.N., 2004). Traditionally elderly in China had relied on one pillar of support—intergenerational transfers within the family and since the communist state, formal institutional support was created as a second pillar (McCarthy & Zheng, 1996). However, economic reforms and privatization have progressively reduced the central government's role in providing public pension and health insurance to the old and poor (Dorn, 2004; Zhao & Xu, 2002; Zhang & Kanbur, 2005; McCarthy & Zheng, 1996). Specifically, old age support had been vested in the former communist system whereby state-owned enterprises (SOEs) had previously provided pension, health insurance, as well as safety net, older workers have been particularly affected by recent economic changes and are less able to adjust to these changes than their younger counterparts (Dorn, 2004; Zhao & Xu, 2002). Concurrently, social changes, migration, population policies, and demographic transitions have affected the role of family support for the elderly (Adamchak, 2001; Chen, 2005; McCarthy & Zheng, 1996). As a result, the confluence of these trends is expected to adversely affect the health of older adults.

1.1. Theoretical background and framework

This paper is motivated by two strands of economic studies—first, the study of relative income, conspicuous spending and subjective well-being and second, the "relative income hypothesis" or social gradient for health. Evidence supporting the first