

## Inclusiveness of Economic Growth in the People's Republic of China: What Do Population Health Outcomes Tell Us?

Ajay Tandon and Juzhong Zhuang find that despite the People's Republic of China's remarkable economic growth, improvements in population health outcomes actually slowed during the reform period. The weakening of the public health system following the 1978 reforms appears to have resulted in a deterioration in health care coverage especially for the rural poor, and increasing urban-rural disparities in health outcomes in the country.

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ERD POLICY BRIEF NO. 47

# **Inclusiveness of Economic Growth in the People's Republic of China: What Do Population Health Outcomes Tell Us?**

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## Introduction

This policy brief looks at inclusiveness of economic growth in the People's Republic of China (PRC) from the perspective of population health outcomes.<sup>1</sup> Health is a key dimension of human welfare and an intrinsic goal of development, this being reflected in the prominence of health among the Millennium Development Goals. The distribution of health outcomes is a key indicator of the inclusiveness of economic growth in a country (see, for example, Sen 1998). Arguably, levels and distribution in health outcomes can also serve as proxies for the concern a government has for all its citizens, and for the extent to which a government is pro-poor. Population health outcomes and their distribution are now an important focus of the PRC government's strategy toward a harmonious society, as reflected in its 11th Five Year Plan.

This policy brief specifically asks two questions. Firstly, has spectacular economic growth in the PRC over the past three decades been accompanied by similar achievements in improving population health outcomes? And, secondly, how inclusive have the improvements in health outcomes in the PRC been? To answer the first question, we relate the PRC's life expectancy to its per capita income and examine how this relationship has changed during the postreform period compared to the prereform period. We also compare improvements in health outcomes in the PRC with those of some of its regional peers. To assess the inclusiveness of improvements in population health outcomes, we use both provincial- and household-level data to examine interprovincial and interhousehold inequality in health outcomes and health care coverage.

Three key messages emerge from the analysis. Firstly, despite the PRC's remarkable economic growth, the pace of improvements in population health outcomes has actually slowed in the postreform period, i.e., after the country moved away from an exemplar public health system to an increasingly commercialized one. Secondly,

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<sup>1</sup> By population health outcomes, we refer to average levels of health attainments of a country's entire population (e.g., life expectancy) or its subgroups (e.g., infant mortality and child mortality rates).

there has been convergence in health indicators across provinces but divergence between rural and urban areas during the reform period; furthermore, there is evidence that the relationship between health and income at the provincial level has strengthened over time. And, thirdly, there are glaring disparities in health outcomes and health care coverage between the poor and rich households (and, by association, between rural and urban populations), as suggested by evidence from recent micro-level data.

A key policy implication of these findings is that redressing health-related inequalities must be a priority for the government. If not, the PRC's growth process risks leaving a large section of its population behind in terms of key development indicators such as health outcomes, leaving many worse off than what they had been prior to the initiation of economic reforms.

### **Health Outcomes and Economic Growth: The PRC in a Comparative Perspective**

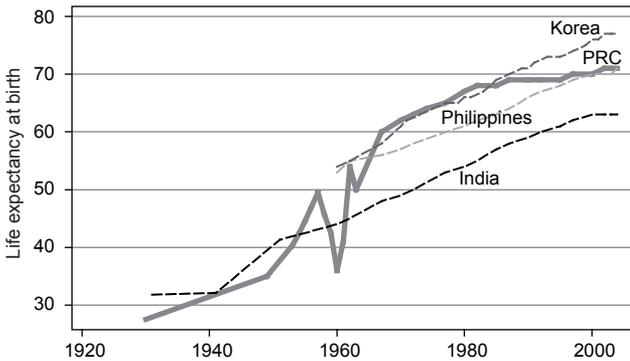
Figure 1 contrasts life expectancy in the PRC with that in India, Republic of Korea (henceforth Korea), and Philippines. For the PRC and India, we have data from as far back as the 1930s, when the two countries started off at very similar levels of population health with life expectancy at about 25–35 years. India gained independence in 1947 and, in the PRC, the Communist Party came to power in 1949. Subsequently, for more than three decades, the PRC and India had very similar levels of income per capita.<sup>2</sup> However, during the same period, the PRC's improvements in population health indicators such as life expectancy far outstripped those of India. Except for a dip in the late 1950s and early 1960s due to its "Great Leap Forward" and the associated famine, the PRC consistently had life expectancy figures that were 10–15 years higher than those of India. The PRC also outperformed the Philippines in life expectancy by about 5 years during the late 1960s through the mid-1980s. Many attribute the PRC's success in improving health outcomes in the prereform period, relative to its income level and to other countries at similar income levels, to the implementation of several effective public health

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<sup>2</sup> The PRC overtook India in economic terms beginning around 1985 at which time the PRC's gross domestic product per capita was about US\$290 compared with India's US\$261 (in constant 2000 US\$ terms [World Bank 2006]).

interventions.<sup>3</sup> A relatively equitable income distribution was also likely to have been conducive to achieving better population health outcomes during the period.

**Figure 1. Life Expectancy over Time in PRC, India, Korea, and Philippines**



Sources: *World Development Indicators* (World Bank 2006), Banister (1984), Indiastat (2006).

Figure 1, however, also shows that the pace of growth in the PRC's life expectancy slowed after the initiation of reforms in 1978. Cornia and Menchini (2005) estimated that the PRC's life expectancy grew by 0.80% annually in the 1970s. By the 1980s, the pace of growth had slowed to about 0.30% per year on average. In the 1990s, it dropped further to an annual rise of about 0.20%. Sen (2006) estimated that, in the PRC's postreform period, India's pace of improvement in life expectancy has on average been at least three times faster than that of the PRC. Similarly, as noted by Zhang and Kanbur (2005), improvements in other population health indicators such as infant mortality have also leveled off in the PRC since the 1990s.

Is the slowdown in the pace of improvement in population health indicators in the PRC a result of diminishing returns? From a biological perspective, it gets progressively more and more difficult to raise life expectancy (or to lower infant and child mortality) beyond a certain point. However, comparisons with other countries, in particular

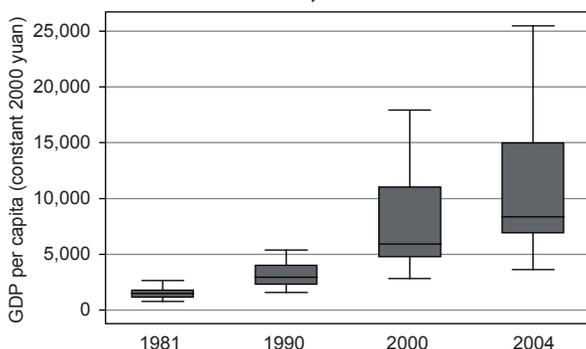
<sup>3</sup> These included, among others, the closure of brothels and opium dens; programs for the elimination of pests such as flies, mosquitoes, and rats; high levels of and wide access to primary health care; and training of a legion of "barefoot" doctors that descended on rural areas. See Hesketh and Zhu (2004).

Korea (Figure 1)—which has maintained a steady growth path for life expectancy since the 1960s (the earliest period covered by the data available to us)—suggest that the slowdown in the PRC need not be entirely attributed to diminishing returns. Instead of following Korea's trajectory, growth of life expectancy in the PRC has slowed down and gravitated toward the (lower) trajectory of the Philippines. Further evidence of the decline in the PRC's relative health performance can be seen in comparison with other countries at similar income levels when using a larger, global sample. For example, Grigoriou et al. (2005) show that in 1980–1984 the PRC was far above the average with regard to the child mortality measure relative to other countries in the same income class. By 1995–1999, its relative standing had declined and its child mortality was significantly closer to the average for its income level.

### **Income and Health in the PRC from a Spatial Perspective**

In order to better understand national trends, we examine what is happening at the provincial level within the PRC. Across provinces, per capita incomes have clearly diverged during the postreform period (Figure 2). The difference between the average income for the richest five provinces and that for the poorest five provinces was 3,719 yuan in 1981. This difference rose to 5,622 yuan in 1990; 13,111 yuan in 2000; and 20,188 yuan in 2004 (in constant 2000 yuan terms). Has the divergence in incomes led to divergence in provincial health outcomes? This does not appear to be the case. Despite a divergence in average incomes, provincial-level averages for health indicators such as life expectancy and infant mortality have been converging over time in the PRC (Figure 3). The differences in average life expectancy (infant mortality) between the top five provinces and bottom five was 11.7 (82.7) in 1981, 10.8 (68.2) in 1990, and 8.6 (17.0) in 2000. In many ways, this convergence in health outcomes in the presence of divergence in average incomes mirrors similar trends observed globally as noted by Kenny (2004). One likely explanation in the PRC's case is diminishing returns: poorer provinces have seen relatively bigger jumps in health outcomes than the richer ones, leading to convergence.

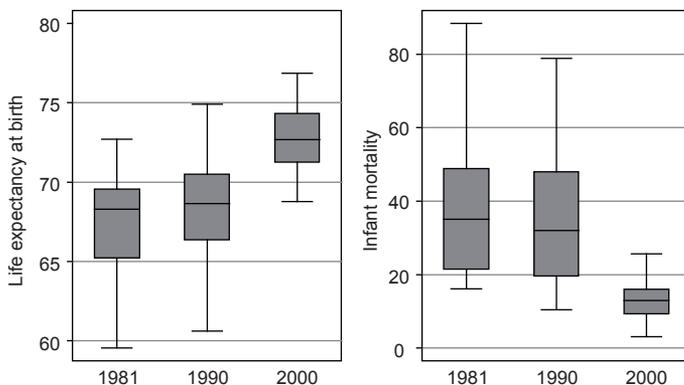
**Figure 2. Distribution of Income by Province in the PRC, 1981–2004**



Note: The graph shows the distribution using a box plot: the horizontal line inside the box represents the median. The top and bottom lines are the 75% and 25% percentile, respectively. The extended tails are 1.5 times the 75% and 25% percentile.

Source: *China Statistical Yearbook* (National Bureau of Statistics of China, various years).

**Figure 3. Distribution of Health Indicators by Province in the PRC, 1981–2000**



Note: Distribution is represented by box plots (excluding outliers).

Source: *China Statistical Yearbook* (National Bureau of Statistics of China, various years).

On the other hand, the regional inequality in population health outcomes across the rural–urban dimension appears to have increased during the reform period in the PRC. As noted in Table 1, infant mortality rates for urban areas were about 1.7 times the rate for rural areas in 1981. By 2000, this ratio had increased to 2.8. A similar widening of disparities among rural and urban areas has been reported with regard to growth of children measured using height-for-age indicators (Shen et al. 1996). Others have noted growing disparities between the rich and the poor: Meng et al. (2004) reports on evidence from urban surveys indicating that nutrition intake among the poor declined during the 1990s, probably a result of removal of price subsidies and rising food prices. Official sources show that utilization of health facilities declined from 1993 to 2003 across all income groups, and particularly so for those at the bottom end (Liu 2006).

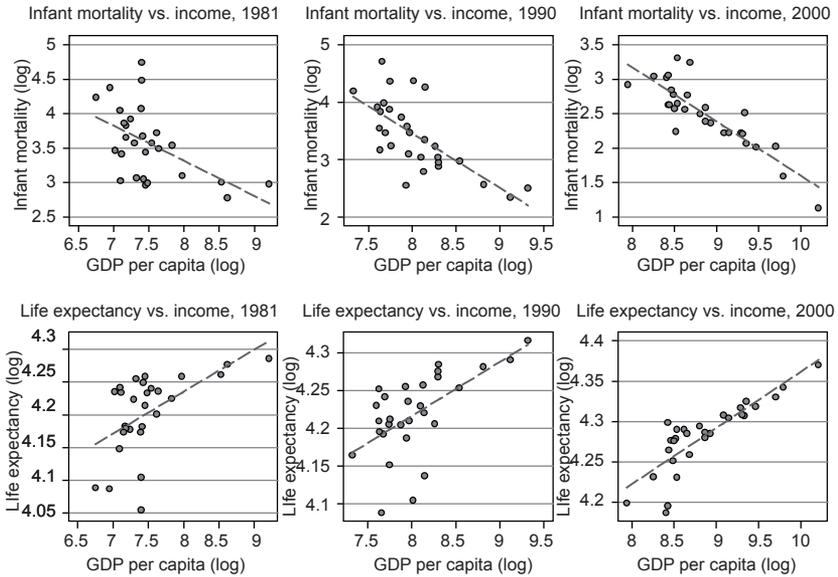
**Table 1. Rural–Urban Differentials  
in Infant Mortality over Time in the PRC**

| Year | Rural | Urban | Rural/Urban |
|------|-------|-------|-------------|
| 1981 | 39.1  | 23.6  | 1.7         |
| 1990 | 32.4  | 19.1  | 1.7         |
| 2000 | 30.8  | 11.0  | 2.8         |

Source: Zhang and Kanbur (2005).

Privatization, rising medicine prices, increasing out-of-pocket health expenditure, and the virtual collapse of the rural cooperative medical system have all been blamed for the rise in rural–urban and rich–poor health disparities in the postreform period. Grigoriou et al. (2005) argue that, as the PRC health system has been progressively commercialized, health outcomes are now increasingly a function of ability to pay in the PRC. This trend is evident if one looks at the “tightening” of the relationship between provincial incomes and health outcomes over time (Figure 4).

**Figure 4. Provincial Income versus Health Indicators, 1981–2000**



Source: *China Statistical Yearbook* (National Bureau of Statistics of China, various years).

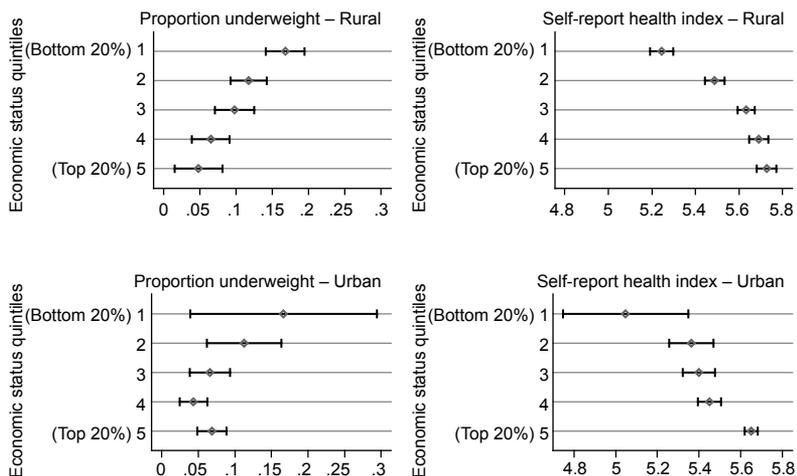
### Assessing Inclusiveness from a Micro Perspective

National and provincial averages can sometimes be misleading. Averages may improve even if there are no changes (or even declines) in the health outcomes for certain population subgroups such as the poor. As noted in the previous section, there is evidence that health outcomes for the PRC’s rural (and, by association, relatively poor) population have seen relative declines despite overall improvements in national and provincial averages. Hence, it is important to look at what is happening from a micro perspective.

Evidence from the *World Health Survey* (WHS) data from the World Health Organization (2003), which sampled about 4,000 households across 10 provinces in the PRC, indicates that there were large disparities in health outcomes and health cover between the rich and the poor. More than 15% of the respondents in the bottom economic group for both rural and urban residents were underweight (with a body mass index less than 18.5) as opposed to about 6%

in the top group (Figure 5).<sup>4</sup> The poor also had significantly lower self-report health in both rural and urban areas.<sup>5</sup>

**Figure 5. Proportion of Underweight and Self-Report Health Index by Rural–Urban Residence and Economic Status**



Note: Ranges refer to 95% confidence interval.  
 Source: Author's estimates using *World Health Survey* data (World Health Organization 2003).

The WHS data also show that the health insurance coverage among the poor was particularly low: less than 5% of those in the bottom quintile of the population had some form of health insurance versus over 75% among the top quintile. This is in stark contrast to the late 1970s when virtually all urban residents and over 85% of rural residents had some form of health cover (Akin et al. 2004). Unsurprisingly, the data indicate that the bottom quintiles spent a greater proportion of their total expenditure on health care. Key coverage indicators such as antenatal care, cervical cancer screening, breast cancer screening, and Vitamin A supplementation rates were significantly lower for the poorer (and rural) segments of the population (Table 2).<sup>6</sup>

<sup>4</sup> WHS quintiles were based on an asset index.

<sup>5</sup> Higher values of the self-report health index (calculated from 16 self-report health items) represent better health.

<sup>6</sup> In the sample, about 95% of the respondents in the poorest quintile and 80% of those in the second lowest quintile were rural residents in the sample.



ensuring improvements in health outcomes.<sup>7</sup> Prereform PRC along with Costa Rica, Cuba, the state of Kerala in India, Sri Lanka, and (more recently) Bangladesh are stark examples of this fact. Even in some parts of sub-Saharan Africa, which has posted little or no economic growth in the past few decades, the levels of infant and child mortality have improved as a result of targeted health interventions.

The level and distribution of health outcomes in a country represent the concern a government has for all its citizens. As Sen (1998) has argued, health is a critical component of welfare from a capabilities perspective: it allows individuals to lead lives they value. In terms of policy priorities, the implications are clear: there has to be a greater focus on addressing health among the poor, and especially so in rural areas. There have been some recent initiatives by the government to improve the coverage of rural health care in the PRC, and the new 11th Five Year Plan has the explicit aim to broaden the inclusiveness of economic growth. Even if the market is to play a major role in health provision, it is imperative that the government provide the appropriate regulatory and protective cover so as to ensure that the PRC's spectacular economic growth does not leave a large section of its population behind and, in many ways, worse off than what they had been prior to the initiation of economic reforms.

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<sup>7</sup> From an economic perspective the labor intensity of provision that makes health care relatively cheaper in low-wage settings can make it possible for significant population health outcome improvements to occur even in low-income, low-growth settings.

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