



Is wealthier always healthier in poor countries? The health implications of income, inequality, poverty, and literacy in India

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ABSTRACT

Standard policy prescriptions for improving public health in less developed countries (LDCs) prioritise raising average income levels over redistributive policies since it is widely accepted that 'wealthier is healthier'. It is argued that income inequality becomes a significant predictor of public health only after the 'epidemiological transition'. This paper tests this theory in India, where rising income levels have not been matched by improvements in public health. We use state-, district-, and individual-level data to investigate the relationship between infant and under-five mortality, and average income, poverty, income inequality, and literacy. Our analysis shows that at both state- and district-level public health is negatively associated with average income and positively associated with poverty. But, at both levels, controlling for poverty and literacy renders average income statistically insignificant. At state-level, only literacy remains a significant and negative predictor. At the less aggregated district-level, both poverty and literacy predict public health but literacy has a stronger effect than poverty. Inequality does not predict public health at state- or district-levels. At the individual-level, however, it is a strong predictor of self-reported ailment, even after we control for district average income, individual income, and individual education. Our analysis suggests that wealthier is indeed healthier in India – but only to the extent that high average incomes reflect low poverty and high literacy. Furthermore, inequality has a strong effect on self-reported health. Standard policy prescriptions, then, need revision: first, alleviating poverty may be more effective than raising average income levels; second, non-income goods like literacy may make an important contribution to public health; and third, policy should be based on a broader understanding of societal well-being and the factors that promote it.

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Introduction

A large body of research has linked higher average income levels in less developed countries (LDCs) to improved public health through materialist mechanisms (Preston, 1975; Pritchett & Summers, 1996). Other factors that affect social well-being such as inequality, especially through non-materialist pathways, are assumed to be insignificant in LDCs. The policy prescription is simple: social well-being in poor countries is best improved by increasing GDP per capita (Anand & Ravallion, 1993; Dollar & Kraay, 2002). This paper uses state-, district-, and individual-level data to test the associations between public health and average income,

poverty, income inequality, and literacy in India. It demonstrates that this simple policy prescription must be qualified.

The policy debate arises between three main positions: pro-market liberalizers, the psycho-social school, and a pro-poor position. Pro-market liberalizers – who are dominant in the policy debate – argue that raising average incomes through economic liberalization is the most effective way to improve public health. They point to seminal work by Preston (1975) and Pritchett and Summers (1996) that shows the relationship between average income and health is curvilinear and concave, and that the causal direction is from wealth to health. Their argument is based on reducing material deprivation: higher average incomes allow public investment in health infrastructure at the societal-level and sufficient expenditure on diet and medicine at the individual-level to protect health (see also Anand & Ravallion, 1993; Dollar & Kraay, 2002).

The psycho-social school, focussing on developed countries, accepts these materialist pathways and the important role of average income levels but also introduces non-materialist

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pathways and income inequality. For individuals with relatively low incomes, inequality generates stress that damages health directly through 'psycho-neuro-endocrine' mechanisms and indirectly through unhealthy behaviours associated with stress, like smoking and alcohol abuse. Socially, these feelings manifest as reduced civic participation and anti-social behaviour, affecting the health of others, including those higher up the income range (Lynch, Smith, Kaplan, & House, 2000:1201; Marmot, 2002; Murali & Oyebo, 2004; Wilkinson, 1996, 1997). This view is closely related to the 'social capital' paradigm, in which inequality reduces 'civic engagement' and 'levels of mutual trust' (Kawachi & Kennedy, 1999; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997:1492). In this paradigm it is this fraying of social bonds that gives rise to both the individual and social effects that, in turn, manifest as poorer public health. These effects are often captured in objective measures of public health like infant or under-five mortality or life expectancy. But more subjective measures of well-being such as 'life satisfaction' and self-reported health have received increasing attention following work by Stiglitz, Sen, and Fitoussi (2008) advocating more holistic measures of development, including public health.

Wilkinson (1994) locates materialist and non-materialist pathways on either side of the inflection point in the Preston curve – the 'epidemiological transition' (Fig. 1). Before this transition, the leading cause of mortality is material deprivation; after it the effects of inequality predominate. Frey and Stutzer (2002) and Inglehart (2002) make analogous policy prescriptions for subjective measures like life satisfaction: poor countries must prioritise raising average incomes; only policy in rich countries can afford to be broader.

The pro-poor position extends the psycho-social school's paradigm beyond developed countries and posits that both materialist and non-materialist mechanisms operate in LDCs too. It shows that the effects of economic growth are strongly mediated by inequality

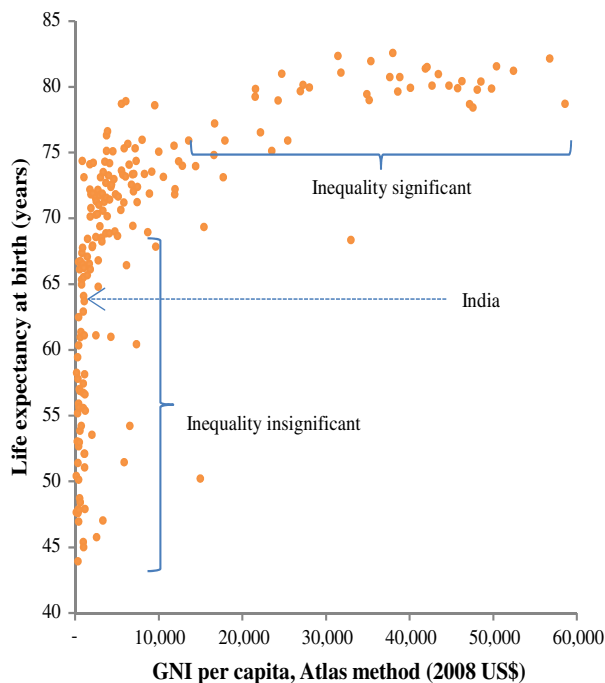


Fig. 1. The Preston curve and the epidemiological shift.^{ab} Source: World Development Bank Indicators. ^aIn 2008 the average life expectancy in India was 64 years and gross national income per capita US\$1080. ^bThe curve would be more linear if in purchasing price parity (PPP) terms. But it would still slope upwards: PPP would attenuate but not completely undermine either societal- or individual-level operators.

and poverty. Biggs, King, Basu, and Stuckler's (2010) study of 22 Latin America countries over 47 years suggests that although average income is the key determinant of public health, its positive effects are almost absent when growth is accompanied by rising inequality and poverty. Here one effect of inequality may be political: "the greater the income gap, the greater the disparity in interests. This translates, because of the clout of the elite, into constant pressure for lower taxes and reduced public spending [on public health]" (Krugman, cited in Kawachi & Kennedy, 1999:221). (Bertola (1993) and Perotti (1993) have constructed models that connect income inequality to support for a tax to fund a public good such as public healthcare.) The pro-poor position echoes the 'Easterlin paradox', which juxtaposes substantial increases in per capita incomes with paltry rises or even falls in subjective measures of well-being, especially in transitional economies. Materialist variables like average income and poverty may be the chief determinants of objective measures of public health like infant mortality rates but this work suggests that even in developing countries inequality, among other factors, undermines more subjective measures, including life satisfaction and self-reported health, and thereby undercuts the gains made by increasing income levels (Brockmann, Delhey, Welzel, & Yuan, 2009; Easterlin, 2010, 2003; Easterlin, Morgan, Switek, & Wang, 2012; Knight & Gunatilaka, 2011).

In summary, these theories implicate three main income-variables: average income, poverty, and income inequality; and four causal mechanisms: investment in infrastructure; personal protection of health; individual stress; and social capital. Investment in infrastructure and personal protection of health are materialist, whereas individual stress and social capital are non-materialist. By level of operation, however, investment in infrastructure and social capital are at societal-level whereas personal protection of health and individual stress are at individual-level (Fig. 2). (In reality these mechanisms are interdependent and not easily isolated – see Pickett & Wilkinson, 2009, on 'compositional' and 'contextual' factors.)

Although this study's central aim is to compare the effects of average income levels with those of income distribution on public health, the analysis below also introduces literacy rate as an alternative predictor to income-measures. The predictive power of literacy has been well-established in both developed and developing countries and can be located in both materialist and non-materialist mechanisms (see literature surveys in DeWalt, Berkman, Sheridan, Lohr, & Pignone, 2004; Kabir, 2008:186187; WHO, 2007). Literacy mediates the investment in infrastructure pathway by enabling a population to engage with the healthcare infrastructure available and respond to public health campaigns (DeWalt et al., 2004:1232). In poor countries female illiteracy in particular is associated with child mortality (Caldwell, 1986:184–187; Sen, 1999:195–198). At the individual-level it is associated with better personal protection of health, including healthier behaviours such as not smoking and improved diets (Kabir, 2008:186). And, to the extent that it is a marker of an individual's socio-economic status, it may also be implicated in the non-materialist individual stress pathway (DeWalt et al., 2004:1237).

Case selection

We focus on India, home to over one sixth of the world's population and one third of the world's poor, in which the effects of liberalizing reforms since the mid-1980s are hotly contested. The World Bank (undated) estimates 37% of India's population live on less than US\$1.25 per day. Oxford University's Multidimensional Poverty Index (2010) gives an even higher figure of 55% – over 600 million people. Several analysts have noted that India's public health indicators have failed to keep pace with its GDP (Horton &

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