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Attaining Millennium
Development Goals
in Health: Isn't Economic
Growth Enough?

Ajay Tandon

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Ajay Tandon is an Economist in the Development Indicators and Policy Research Division of the Economics and Research Department, Asian Development Bank. The author thanks Eric Suan for research assistance.

The UN Millennium Declaration, agreed to by 189 countries in 2000, exemplifies an unprecedented commitment on the part of both rich and poor countries to attain improvements in human development by the year 2015. This commitment is summarized in the eight Millennium Development Goals (MDGs) that set targets in areas of poverty reduction, health improvements, education attainment, gender equality, environmental sustainability, and fostering global partnerships (UNDP 2003).¹ This focus on MDGs has triggered (healthy) debates on several issues ranging from concerns regarding the lack of availability and reliability of data for monitoring MDG outcomes to those relating to choice of policy options for attaining the MDGs.

For health and other social-sector MDGs, it is not clear what the exact policy options are to ensure that the goals are met by 2015. Some argue for a massive scaling up of public health and other social-sector expenditure (Sachs 2004). A second school of thought favors a more multisectoral approach: emphasizing cross sector synergies, general investments in infrastructure, and improved governance for achieving better social-sector outcomes (Leipzig et al. 2003). Others focus on economic growth as the primary driver of social outcomes. Implicitly, in the latter approach, the focus on social-sector MDGs is considered to be superfluous. Instead, emphasis is placed on policies that target generalized macroeconomic growth more than anything else.

This policy brief examines the empirical evidence on major determinants of health MDGs using under-five (child) mortality as an example. Reduction between 1990 and 2015 by two thirds in the under-five mortality rate is one of the targets for the MDG of reducing child mortality. We examine the issue of macroeconomic growth and attainment of this MDG target: Is economic growth sufficient for

¹ The eight goals are: eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria, and other diseases; ensure environmental sustainability; and develop a global partnership for development.

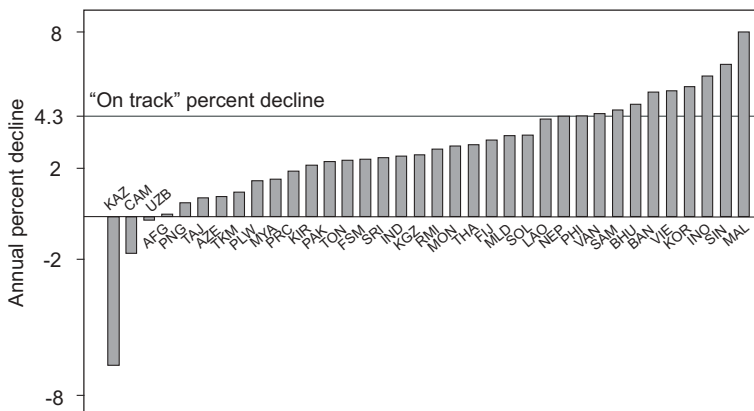
attaining the two-thirds reduction in under-five mortality? If not, what else needs to be done to make sure that this target is met?

The remainder of the policy brief is organized as follows. The next section looks at the elasticity of under-five mortality vis-à-vis economic growth. Subsequently, other determinants of under-five mortality are reviewed. The brief concludes with a discussion and some policy implications.

Income Elasticity of Child Mortality

A two-thirds reduction in under-five mortality between 1990–2015 implies that, at least roughly, countries must reduce their under-five mortality rate by about 4.3 percent per year.² Figure 1 summarizes the percent changes in child mortality observed over the period 1990-2000 in selected developing member countries (DMCs) for which data were available (see Appendix for country codes). Progress has been promising in some countries such as Bangladesh, Indonesia, and Viet Nam. However, a large proportion of Asian DMCs have had declines in child mortality that are lower than the required “on track” target rate of 4.3 percent. At current trends, except for a handful, most DMCs in Asia will not reach this MDG health target.

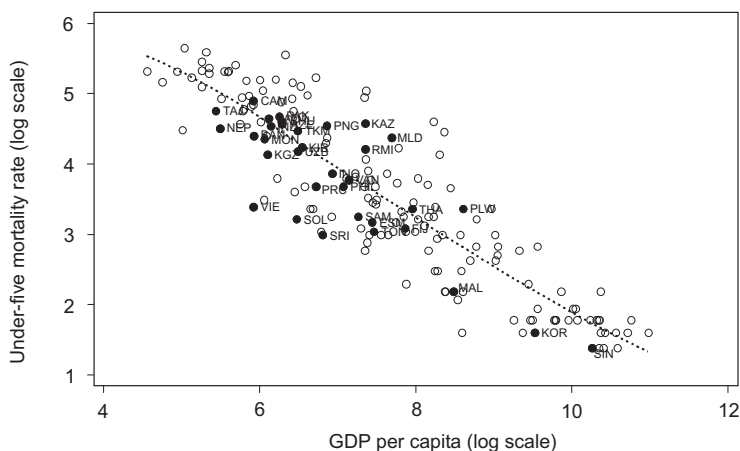
Figure 1. **Percent Decline in Under-five Mortality, 1990-2000**



² If x is the under-five mortality in 1990, then the reduction must be $(2/3)x$, which implies that for 1 year it should be $1 - (1/3)^{1/25} = 0.0429$ or roughly 4.3 percent.

In order to better understand what policy options might be available to accelerate progress in achieving this MDG, we need to know what the prominent drivers of change in under-five mortality are. We start by looking at economic growth by estimating the income elasticity of under-five mortality. Figure 2 plots child mortality versus GDP per capita for the year 2000 (Asian DMCs in the sample are highlighted; see Appendix for country codes). The estimated elasticity derived from cross-country data is about 0.7: i.e., a per capita growth rate of 1 percent is associated with about a 0.7 percent decline in child mortality.³ This implies that countries would need to have per capita growth rates in excess of 6 percent to achieve the “on track” 4.3 percent reduction in child mortality. For those countries that are below target so far, the growth rates would have to be even higher than that in order to catch up. This may be feasible for a handful of countries but clearly not for most. One policy implication is that economic growth does help but—in practical terms—cannot be counted on to be the sole deliverer of the child mortality MDG target.⁴ Additional factors need to be looked at, which we do in the next section.

Figure 2. **Income Elasticity of Under-five Mortality, 2000**



Source: World Development Indicators (2004)

³ This is far lower than estimates of the income elasticity of poverty. See Asian Development Bank (2004).

⁴ There is some room for optimism in that empirical studies have shown that the estimated relationship between child mortality and income has been shifting downward over time, i.e., the *same* level of income in 2000 is associated with a *lower* level of child mortality in 2000 vis-à-vis 1990. However, the magnitude of this positive effect is not easy to predict. See World Bank (2004).

Other Determinants of Child Mortality

As the previous section has argued, the elasticity of child mortality with respect to income is not high enough to allow this MDG target to be delivered through reliance on economic growth alone. Even if extant, higher incomes by themselves do not lead to better health outcomes: it is the ways in which the higher income levels translate into increases in public health expenditure, improved education, better housing, nutrition, etc. that are key to understanding what some of the policy alternatives might be for attaining the child mortality MDG.

One obvious policy candidate is public expenditure on health. Can increases in public health expenditure—over and above those that are correlated with GDP growth—precipitate attainment of the MDG outcome of reducing child mortality? Sachs (2004) is a proponent of this strategy: advocating a scaling up of health spending financed, at least in large part, by increases in donor assistance. He argues that the health goals should be ambitious—in terms of aiming to hit or exceed the MDG targets—and should be explicitly incorporated in Poverty Reduction Strategy Papers (PRSPs) along with well-designed implementation plans that ensure increases in public health spending actually result in increases in the capacity of countries to provide health care.

At first glance, empirical evidence appears not to support a strategy of increasing public expenditures on health, at least not without some significant caveats relating to the composition and effectiveness of the expenditure (Gupta et al. 1999). In an oft-cited paper on this topic, Filmer and Pritchett (1997) present empirical evidence that suggests that public spending on health is *not* the dominant driver of child mortality outcomes. Income, income inequality, female education, and “cultural factors” such as the degree of ethnolinguistic fractionalization explain practically all of the variation in child mortality across countries (see Filmer and Pritchett 1997).⁵ Based on these findings, policies that encourage economic growth, reduce poverty and income inequality, and increase female education would do more for attaining child mortality reductions than increasing public spending on health. Similar findings of lack of significance of

⁵ Ethnolinguistic fractionalization is the probability that any two randomly drawn individuals from the population are *not* from the same ethnolinguistic group. It is often used as a proxy measure of social capital in a country.

public health expenditure have been found by others (see Kim and Moody 1992, Musgrove 1996).

One needs to be careful, though, in terms of interpreting the empirical evidence. Focusing on *aggregate* public health expenditure as a determinant of child mortality, however, misses important *compositional* effects. For instance, for the same level of public health expenditure, higher allocations to primary health care as opposed to secondary and tertiary health care (the latter primarily benefiting urban elites) do appear to be effective in improving child health outcomes, especially when implemented in good governance settings (see Gupta et al. 1999, Filmer et al. 2000). A related point is that aggregate health expenditure will be a poor proxy for measuring the effect of health resources on health outcomes if it is spent ineffectively to begin with. Physical input, human resources, access, and process indicators such as number of doctors or hospitals per capita and immunization rates have been found to be significant and robust determinants, capturing the importance of effectively targeted health expenditure on health outcomes such as child mortality (Hanmer et al. 2003, Anand and Barnighausen 2004). These are precisely the same indicators that have been identified as representing health system delivery constraints to scaling up of health interventions (Ranson et al. 2003). This underscores the need for more and better information on both the cost-effectiveness and general effectiveness of health interventions, the latter taking into account broader health system factors that may make it difficult to realize health gains on the ground. Without this background to inform policy choices, increases in health expenditure will likely not translate to better health outcomes.⁶

Empirical studies suggest that another major determinant of child mortality outcomes is female (maternal) education (Caldwell 1986). Although not strictly under the purview of the health sector, the importance of this factor in allowing for health gains to be realized cannot be overemphasized. It represents a demand-side determinant as well as a behavioral factor that has to be taken into account in any assessment of attaining child mortality outcomes. Since the time lags between policies and outcomes in the education sector are not that immediate, aggressive health promotion and information programs as well as adult education programs may serve as effective substitutes in the short term.

There is also evidence that, controlling for income, the degree of poverty in a country is another determinant of child mortality and other

⁶ A similar point is made by Savdeoff (2004).

health outcomes (Rodgers 2002, Anand and Ravallion 1993). This is believed to be because of the nonlinear nature of the relationship between income and health: the gradient being steepest at lower levels of income. Hence, reductions in income inequality and poverty rates will likely lead to improved child mortality outcomes even if not accompanied by economic growth.

Conclusions

The purpose of this policy brief has been to examine some of the dominant factors influencing the attainment of the MDG outcome of child mortality. Without a doubt, there is strong evidence that suggests economic growth *is* strongly related to declines in child mortality. Growth increases the capacity and ability of individuals to demand and consume better health care, housing, nutrition, etc. Growth also increases the capacity of governments and other players to supply more and better health care and to improve access to health care through better infrastructure. However, this strong relationship should not be taken for granted. The income elasticity of child mortality is not as high as it is for poverty and projections indicate that at current trends, economic growth alone will not be enough to attain the child mortality MDG target by 2015. This underscores the importance of the health system and other nonincome factors to facilitate the attainment of this MDG outcome.

Empirical evidence tends to suggest that public health expenditure is not a significant determinant of child mortality after controlling for income and other factors such as female education. However, the fact that higher aggregate health expenditure at a given income level does not yield better health outcomes belies the fact that it is the composition and the ways in which health expenditure is allocated that matter for health outcomes. Investments in primary health care and implementation of cost-effective interventions such as immunization programs, as well as investments that lead to real increases in health-related human resources, physical infrastructure, and access can and do have a significant impact on child mortality. A carefully crafted plan for scaling up of public health interventions could, therefore, lead to attainment of the child mortality MDG outcome by 2015.

In addition, one needs to be cognizant of cross-sector synergies as female education is a significant determinant of this MDG indicator and, hence, must be included in any analysis of policy options that could help precipitate declines in child mortality. Poverty reduction

itself, due to the nonlinear gradient between income and health, would also facilitate reductions in child mortality.

Appendix: Country Codes

AFG	Afghanistan
AZE	Azerbaijan
BAN	Bangladesh
BHU	Bhutan
CAM	Cambodia
FIJ	Fiji
FSM	Federated States of Micronesia
IND	India
INO	Indonesia
KAZ	Kazakhstan
KGZ	Kyrgyz Republic
KIR	Kiribati
KOR	Korea, Republic of
LAO	Lao PDR
MAL	Malaysia
MLD	Maldives
MON	Mongolia
MYA	Myanmar
NEP	Nepal
PAK	Pakistan
PHI	Philippines
PLW	Palau
PRC	People's Republic of China
PNG	Papua New Guinea
RMI	Marshall Islands
SAM	Samoa
SIN	Singapore
SOL	Solomon Islands
SRI	Sri Lanka
TAJ	Tajikistan
THA	Thailand
TKM	Turkmenistan
TON	Tonga
UZB	Uzbekistan
VAN	Vanuatu
VIE	Viet Nam

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