

## Socio-economic determinants of efficiency in reducing child mortality in developing countries

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### Abstract

Efficiency issues in health investments have received increasing attention, mainly as a result of the growing amount of resources invested in developing countries and their mixed impacts on outcomes. The empirical literature has suggested that, although government spending on health care improves the health status of the population, society can potentially gain more through the more efficient assignment of health resources. For example, the existence of sub-national imbalances in the distribution of resources in some developing countries may produce shortages in rural areas while urban centres are overstaffed, thereby leading to wide spatial inequalities in health and poor performance at the national level. Besides this, research findings indicated that:

- Mortality tends to decrease faster in countries with a more equalitarian income distribution.
- Institutional inefficiencies or weak institutional capacity are two of the main reasons for public spending having a low or negligible impact on development outcomes.

Given the foregoing, this paper aims to: firstly, to analyse whether developing countries can further reduce child mortality by using the available resources more parsimoniously; and secondly, to identify the (non-discretionary) socio-economic factors that could be affecting this process. More specifically, this paper aims to explain why some countries are more efficient than others in converting inputs (physician density and

relative total health expenditure) into a health outcome: the under-five mortality rate (U5MR). This indicator was selected as a health outcome measure because it is a UN key indicator for monitoring progress towards MDG 4.

With these aims, a two-step Data Envelopment Analysis (DEA)-Tobit analysis was used in the empirical analysis. The logic underlying this methodological approach was to identify the factors that could have an impact on improving efficiency. To do this, the influence of non-discretionary factors have to be distinguished from that of the inputs and outputs themselves. Firstly, DEA was used to benchmark countries in terms of their relative efficiency in using multiple inputs in the production of both the selected output and outcome. After calculating the countries' technical efficiency scores, a Tobit analysis was employed to estimate the cross-sectional causal effects of a set of factors on the technical efficiency scores calculated for the health outcome (U5MR). The database used in the estimations comprised 47 developing countries with data for the periods 2000-2004, 2005-2009, and 2010-2012. The findings suggest that greater efficiency in the provision of immunization, better quality government, and lower income inequality are directly related to efficiency in the use of inputs to reduce the U5MR. Thus, the main challenge in many developing countries may be to efficiently use public resources to expand infant immunization coverage rather than to raise overall public health spending. However, reductions in the U5MR cannot be guaranteed unless the quality of governance is improved and the distribution of income is made more equal.