

# Determinants of Malnutrition among Children in India

By

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Around a billion people in the world are currently malnourished. According to the *Copenhagen Consensus Project* (organised by Denmark's Environmental Assessment Institute with the co-operation of *The Economist*) malnutrition is one of the ten biggest challenges facing the world. In the late 1990s in India about 47 percent of children aged below three years were underweight; this was down from 52 percent in the early 1990s. Child malnutrition has several social, economic and health consequences for the individuals, families and countries. In particular, malnutrition has a direct and strong connection with the incidence and spread of infectious diseases. Given the current and predicted population size of India, what happens to the level and patterns of malnutrition among children in India has implications for the level of malnutrition in the world.

Although there have been numerous studies on the determinants of malnutrition, it can be argued that further research has the potential to contribute towards a better understanding of the issues. This is particularly the case for India where the empirical base is limited: so far there have been only three national level sample surveys on child nutrition. The most recent national survey (National Family Health Survey-II or NFHS-II) that included a module on child nutrition was carried out in 1998-99 throughout India covering all the states. This survey also included information on the nutritional status of mothers and child care which was not collected in the other national surveys. Thus this survey allows us to examine some critical relationships that were not possible to be examined with data from the previous surveys. Moreover, unlike the NFHS-I that was carried out in 1992-93, the NFHS-II module on nutrition was administered in *all* the states in India giving us the opportunity to study the determinants of malnutrition for all the major states.

In this paper we use data from the NFHS-II to first describe the patterns of malnutrition among children aged under three years in 15 major states of India. We then examine the major determinants of malnutrition. Our analysis will be guided by the theoretical framework on the causes of malnutrition developed by the UNICEF in 1990. In particular we will examine what is the relative contribution of the three intermediate determinants of malnutrition: household economic situation, health services and healthy environment, and maternal and child care. The analysis will be carried out for each of the 15 major states.

We will employ multilevel logistic regression models to analyse the causal relationships for India as a whole. Multilevel models are more appropriate for the complex sample design. They also enable us to control for unobserved heterogeneity and also to estimate the variation in estimated parameters of important policy relevant variables across the states or at a lower level of aggregation (say districts). For instance, we will estimate using the random component logistic regression model the variation in the effects of mothers' education and household living standards among the 15 major states in India. The findings from this study will have direct policy implications.