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## Targeting Urban Malnutrition: A Multicity Analysis of the Spatial Distribution of Childhood Nutritional Status

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In many developing countries, the number of malnourished children in urban areas is increasing. To stem the growth of urban malnutrition, effective interventions are needed that reach those at greatest risk. Current strategies to reach these individuals appear to have been strongly influenced by the prevalent view that, in UNICEF's words, "urban poverty is primarily concentrated in squatter settlements and slum areas." This statement implies that urban neighborhoods are highly differentiated with respect to manifestations of social deprivation, but that within neighborhoods, conditions are largely homogeneous.

Empirical data for this claim, however, are surprisingly limited. For example, the author's forthcoming examination of survey data found that in Abidjan garbage collection and access to potable water were indeed unequally distributed across neighborhoods, but that nutritional status showed no "clustering" in particular areas. In Accra, nutritional status was also heterogeneous within neighborhoods, as were many other variables such as household income, drinking water source, and education of the household head. If nutritional status is not clustered by neighborhood, then nutrition interventions that are geographically defined will lead to serious undercoverage of those at risk, as well as to provision of program benefits to the nonneedy.

### ***The Purpose and Methodology of This Study***

This paper attempts to determine the degree to which malnutrition, poverty, overcrowding, substandard housing, lack of potable water, child mortality, and infectious diseases are clustered by neighborhood in seven different cities in Africa, Asia, and Latin America. The analysis is based on data from eight different national household surveys that used a two-stage sampling design (households within clusters). Spatial clustering was assessed

using the intraclass correlation coefficient ( $\rho$ ), which may be interpreted as the proportion of the total variance in a variable that is associated with the cluster to which it belongs.

### ***Results***

In general, per capita expenditures and the share of the household budget spent on food showed a high level of spatial clustering across the seven cities, but the magnitude of this clustering varied markedly from city to city. Spatial clustering in the provision of basic services also varied greatly. There was consistently little evidence of spatial clustering of infectious disease, childhood mortality, or the weight-based nutrition indicators. Age-standardized height, on the other hand, showed slightly more spatial clustering, with a median intraclass correlation of  $r = 0.12$ . Some cities showed relatively higher levels of spatial clustering on several measures of deprivation simultaneously, while other cities showed consistently lower levels of clustering.

### ***Discussion and Conclusions***

This study suggests that the conventional view of urban deprivation greatly oversimplifies the reality. The complex patterns revealed in this study have important policy implications.

First, it is necessary to consider whether the levels of spatial clustering of childhood nutritional status identified are sufficiently high to justify the geographical targeting of nutrition interventions in cities. Physical upgrading programs are intrinsically

geographically targeted, yet the large outlays involved are frequently justified by invoking the supposed health benefits that will result.

Local economic development initiatives may also have less effect on childhood nutritional status than

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might be imagined if large numbers of vulnerable households do not live in the target areas. With respect to community-based initiatives, some of these are necessarily geographically targeted—the *comedores populares* or soup kitchens of Lima being an obvious example—while others, such as food and nutrition education, or micronutrient supplementation, are not. However, even when the type of intervention permits alternative approaches, geographical targeting tends to be administratively simpler than individual targeting. In addition, political considerations may favor highly visible interventions in obvious “problem” communities, rather than more subtle approaches to identifying those in greatest need.

The current analysis suggests that where nutrition interventions are focused on stunting (low height-for-age), there may be some limited scope for targeting by neighborhood in cities with high structural inequalities, such as in South Africa and Latin America. However, even in these cases, it should be borne in mind that neighborhoods are far from homogeneous, and that both undercoverage and leakage of program benefits will result from restricting benefits to a few neighborhoods. On the other hand, only in very particular cases—such as in Bangladesh—are urban nutrition programs likely to be focused on wasting (low weight-for-height), since this problem is not prevalent in most urban areas.

The low levels of spatial clustering of nutritional status observed thus pose a problem for the design of effective nutrition interventions. The very same problems of undercoverage and provision of benefits to the nonneedy that led to disillusionment with

citywide approaches are present again as arguments against excessively localized interventions in the area of nutrition. However, the implementation of nutrition programs at the citywide level is likely to be fraught with difficulties, because the resources required for endogenous development—such as effective community activist groups—are to be found at the local, not city, level.

Furthermore, even if geographic targeting of nutrition interventions is inadequate, it remains to be determined what alternative model might replace the “pockets of undernutrition” framework in guiding the design of effective programs for the cities of tomorrow.

**Keywords: developing countries, urban, urban poverty, child malnutrition, nutrition interventions, geographical distribution, targeting**

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