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Discussion Paper BRIEFS

Food Consumption and Nutrition Division of the International Food Policy Research Institute

Discussion Paper 136

Dietary Diversity as a Food Security Indicator*

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Household food security is an important dimension of well-being. Although it may not encapsulate all dimensions of poverty, the inability of households to obtain access to enough food for an active, healthy life is surely an important component of their poverty. In this context, devising an appropriate measure of food security outcomes is useful for several reasons:

- to identify the food-insecure,
- characterize the nature of their insecurity (for example, seasonal versus chronic),
- monitor changes in their circumstances, assess the impact of interventions.

However, obtaining detailed data on food security status—such as 24-hour recall data on caloric intakes—can be time consuming and expensive. It also requires a high level of technical skill both in data collection and analysis. The juxtaposition of the value of indicators of food security, together with the difficulties in obtaining detailed information, is the motivation for this paper.

Purpose of the Study

This paper explores whether dietary diversity—the number of different foods or food groups consumed over a given reference period—can act as an alternative indicator of food security under a variety of circumstances, including poor and middle-income countries, rural and urban areas, and across seasons. Field experience indicates that respondents find questions about foods consumed relatively straightforward, non-intrusive, and undemanding on time or recall to answer. Moreover, asking these questions typically takes under 10 minutes per respondent. But while data on dietary diversity are clearly

simpler to collect than are data on caloric acquisition or intake, in order for it to be appropriate as an alternative measure, it is necessary to show that it is strongly correlated with more traditional measures of food security.

The Data and Methodology

The evidence presented in this paper comes from 10 countries: India, the Philippines, Mozambique, Mexico, Bangladesh, Egypt, Mali, Malawi, Ghana, and Kenya. The data sets encompass both poor and middle-income countries, rural and urban sectors, data collected in different seasons, and data on calories acquisition obtained using both seven-day recall on food consumption and 24-hour individual intake data. All data sets were collected with input from the International Food Policy Research Institute (IFPRI), and the authors paid particular attention to the sample-specific measurements of dietary diversity, consumption, caloric availability, and intake.

To ascertain that the results were not driven by the use of a particular method or variable, the authors examined associations between dietary diversity—defined as the number of unique foods consumed in the previous seven days—and household per capita consumption; household per capita daily caloric availability; household per capita daily caloric availability from staples; and house-

hold per capita daily caloric availability from nonstaples. The authors also searched for associations between number of unique food groups consumed and these variables.

The data were analyzed using linear regression techniques; however, the authors checked the robustness of their results by calculating three other measures of association:

Dietary diversity appears to show promise as a means of measuring food security and monitoring changes and impact.

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correlation coefficients (Pearson and Spearman), contingency tables, and receiver operator curves.

Results

The authors found that for every 1 percent increase in dietary diversity there was an associated 1 percent increase in per capita consumption, a 0.7 percent increase in total per capita caloric availability, a 0.5 percent increase in household per capita daily caloric availability from staples, and a 1.4 percent increase in household per capita daily caloric availability from nonstaples.

These associations, which were found in both rural and urban areas and across seasons, did not depend on the method used to assess the associations, or on the number of unique food groups consumed as the measure of dietary diversity. There was an association between dietary diversity and food access at the individual level, but the magnitude of this association was considerably weaker than that between dietary diversity and food access.

Looking across all samples, the magnitude of the association between dietary diversity and caloric availability at the household level increases with the mean level of caloric availability. Accordingly, dietary diversity would appear to show promise as a means of measuring food security and monitoring changes and impact, particularly when resources available for such measurement are scarce.

Keywords: dietary diversity, indicators, research methods, household food security

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