

Introduction

Food insecurity and hunger, as measured by the household food security scale (Hamilton et al., 1997a; Hamilton et al., 1997b; Bickel et al., 2000), are expected to be linked to inadequate financial resources. Every question in the food security scale specifically references this, as, for example, "In the last 12 months, were you ever hungry but didn't eat because you couldn't afford enough food?" or "In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?" As expected, food insecurity and hunger are found to decline with increasing income, whether income is measured by household income categories or household income-to-poverty-ratios (i.e., income adjusted for household size and composition) (Hamilton et al., 1997a, p. 49). Nevertheless, some middle- and high-income households also register food insecurity in the nationally representative Current Population Survey (CPS) Food Security Supplements. Of the 57 million U.S. households with incomes above 185 percent of the poverty line (average 1995, 1996, and 1997), 3.8 percent were classified as food insecure, including 1.2 percent classified as food insecure with hunger. Nationally, these middle- and high-income households accounted for 20 percent of all food-insecure households and 17 percent of all households with hunger.

This raises questions about the measurement process. Are these households really food insecure, or are their scores false positives? A number of hypotheses can be proposed to explain why higher income households register food insecurity.

1. ***Temporal mismatch/uneven income***—The food security items reference the previous 12 months, while the income measures refer to the year prior to a household's entering or re-entering the survey. For some households, 1, 2, or 3 months have elapsed since their income was recorded. It may have been high during that earlier period, but due to job loss, illness, or other factors, income in the past few months may have been much lower, and the experience of food insecurity may have occurred then. Even when the two measures reference the same 12-month period, income may have been variable during the year, with food insecurity occurring during periods of low income.

2. ***Change in household composition***—Household income in the CPS refers to the combined incomes of all persons who are in the household at the time of the survey. However, these persons may not have lived together the entire year. For example, in a recent marriage, one of the spouses may have lived for part of the previous year on a very limited income, even though the combined income of the two persons is relatively high.
3. ***Multiple economic units in a residential household***— Income and food security measures refer to all the persons living at the same address. In some cases, these persons comprise more than one economic unit, with little or no sharing of resources. For example, roomers and boarders may not share income with the primary householder, and roommates or housemates may not fully share income. Thus, the adequate income of one unit may not prevent food insecurity in the others.
4. ***Unusually high economic needs***—Some households have either episodic or chronic needs that deplete economic resources. Medical conditions, personal or household disasters, uninsured liabilities, high costs of education, addictive behaviors, and other contingencies can reduce money available for food to inadequate levels, even though household income is quite high.
5. ***Intrahousehold allocation of money***—One or more individuals within the household may control access to household funds and fail to allow enough food money for other members.
6. ***Accidental identification of food insecurity and hunger due to noneconomic causes***— Respondents may have mistaken the intention of the food-sufficiency questions and described insufficient food intake or hunger that resulted from health, mobility, or limitations of facilities, rather than from inadequate money to buy food as requested by the questionnaire.
7. ***Inappropriate responses to food security questions***—Respondents may have misunderstood the intent of questions or answered randomly or erratically. Some may have assessed minimal or very infrequent food stresses as more serious or long lasting than they

really were. Some may have mistaken the intention of the food-sufficiency questions and described insufficient food intake or hunger that resulted from dieting or other voluntary actions, rather than from resource constraints as specified by the questionnaire.

Households conforming to hypothesis #7 (inappropriate responses) are correctly considered "false positives" on the food security measure. Those described by hypothesis #6 (noneconomic causes) experienced involuntary food insecurity or hunger, although not from causes the food security scale was intended to measure. The other hypotheses describe households where involuntary, resource-constrained food insecurity or hunger have, in fact, occurred despite a relatively high income. In households conforming to hypotheses #2, #3, and #5 (change in household composition, multiple economic units in the household, or inadequate allotment of food money by members in control), the food insecurity or hunger did not extend to the entire household. Therefore, the prevalence of these conditions, as measured by the number of persons living in food-insecure households, may be overestimated.

These hypotheses are not mutually exclusive at the aggregate level. We expect some households conform to each of them. The object of the research is to assess the relative importance of the various measurement anomalies, especially false positives. More understanding of measurement issues is necessary to properly interpret food security statistics.

To explore these issues, we compare three income categories of households who responded to the Food Security Supplement during the first 3 years the survey was conducted, 1995, 1996, and 1997. (The categories--low-income, middle/high-income, and high-income--are explained in the next section, "Data and Methods.") First, we compare their patterns of responses to the individual items in the food security and hunger series. Then we compare the households classified as food secure, food insecure without hunger, and food insecure with hunger across the three income groups on a number of dimensions. These include household structure at the time of the interview, alternative indications of food stress, use of various coping strategies to avoid food insufficiency, use of food assistance and other welfare programs, employment, income in an earlier period, migration, and change in household composition.