Household Consumption and Expenditure Surveys (HCES)

A Tool for Better Understanding Food and Nutrition Issues

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The USAID SPRING Project
The Food Consumption and Nutrition Information Gap: A Global Problem

- Nutritionists’ gold standards: Observed-Weighed Food Record and the 24 Hour Recall survey

- But few exist
  - Expensive
  - Difficult to conduct; capacity constraints

- Most are small scale, one-time, not statistically nationally representative, of questionable generalizability
Implications of the Food Consumption and Nutrition Information Gap

• Nutrition programs are
  – being discouraged
  – being designed and implemented in a sub-optimal manner

• The prevalence of malnutrition is higher

• In an age of:
  – expectations that policies will be evidence-based,
  – where there is increased accountability and
  – increased competition for resources

...the gap slows progress in reducing malnutrition
Household Consumption and Expenditure Surveys (HCES)

• Large scale, multi-purpose, recurring HH surveys

• Generally representative at a subnational (regional or state) level

• Detailed information on household food acquisition and consumption

• Already being conducted and paid for
  • Incremental cost of analyzing the nutrient content of an already-existing HCES: ~$25,000
  • Cost of a 24HR survey (8,500 HHs) $2.3 million
The Appeal of HCES

1. Food: Consumption, Expenditures & Gifts/In-kind
2. Household Composition: Number of members, age, gender, education
3. Housing Characteristics (water, sanitation)
4. Non-food expenditures, assets, employment
5. Common, but not universal modules on:
   - **Agriculture**: Amount of land owned, cultivated, types of crops planted, inputs, production levels and disposition
   - **Health** and health care use (Vitamin A and iron supplementation)
   - **Safety net programs** participation
HCES Global Coverage: Growing Numbers, Quality, Availability

- **1990 World Development Report**
  - Cross country analysis of household surveys from 22 countries, 1 per country

- **Today**
  - Household surveys cover 116 countries, an average of 6 per country
  - Latest surveys from 116 countries covers 1.2 million households, 5.5 million people

HCES are Heterogeneous

- General statements are challenging to make
- What are judged to be strengths and shortcomings depend on:
  - General survey characteristics: the particular type of survey (i.e., NHBS, LSMS, HIES, HIS, etc.)
  - Country-specific characteristics: How the survey was designed and implemented in a country, and how the data was processed
  - Specific issues / applications of interest
**Variation in Key HCES Characteristics**
*(From a sample of 74 countries)*

<table>
<thead>
<tr>
<th>1. Sample Size</th>
<th>Mean</th>
<th>11,958</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>9,555</td>
</tr>
<tr>
<td>2. Data Capture Method</td>
<td>Recall</td>
<td>54, 73%</td>
</tr>
<tr>
<td></td>
<td>Diary</td>
<td>20, 27%</td>
</tr>
<tr>
<td>3. Recall Period</td>
<td>Mode</td>
<td>7 days (20, 27%)</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>3 days-12 months</td>
</tr>
<tr>
<td>4. Number of Food Items</td>
<td>Range</td>
<td>21 - 3,536</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>212</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>146</td>
</tr>
<tr>
<td>5. Food Data</td>
<td>Quantity</td>
<td>58, 78%</td>
</tr>
<tr>
<td></td>
<td>Only value</td>
<td>16, 22%</td>
</tr>
<tr>
<td>6. Food Sources / Acquisition Method</td>
<td>Purchases</td>
<td>73, 99%</td>
</tr>
<tr>
<td></td>
<td>Consumed from own Production</td>
<td>52, 70%</td>
</tr>
<tr>
<td></td>
<td>Gifted</td>
<td>34,46%</td>
</tr>
</tbody>
</table>
Commonly Regarded Limitations of HCES Data for Nutrition Analysis

1. A mixture of food acquisition and food consumption = availability or “apparent food consumption”

2. Food consumed away from home is inadequately captured

3. Units of measurement not always standardized

4. Food lists and food list categories can vary enormously in terms of how inclusive they are
HCES Limitations

5. Food items may not be specific enough to enable unambiguously matching to a Food Composition Table entry—making caloric and nutrient intake estimation imprecise.

6. Unit of analysis: Household level data, not individual level
   - To analyze individual nutrition status it is necessary to make assumptions about the intra-household food distribution.

SPRING is working to better understand the significance of these shortcomings and how to ameliorate them.
### The Most Popular Foods in Bangladesh

<table>
<thead>
<tr>
<th>Food</th>
<th>Percentage of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>100%</td>
</tr>
<tr>
<td>Vegetable oil</td>
<td>100%</td>
</tr>
<tr>
<td>Potatoe</td>
<td>99%</td>
</tr>
<tr>
<td>Lentil (musur)</td>
<td>74%</td>
</tr>
<tr>
<td>Spinach</td>
<td>74%</td>
</tr>
<tr>
<td>Eggplant</td>
<td>71%</td>
</tr>
<tr>
<td>Puti (fish)</td>
<td>61%</td>
</tr>
<tr>
<td>Tea</td>
<td>60%</td>
</tr>
<tr>
<td>Hen’s Egg</td>
<td>54%</td>
</tr>
<tr>
<td>Biscuits</td>
<td>52%</td>
</tr>
<tr>
<td>Sugar</td>
<td>49%</td>
</tr>
<tr>
<td>Pumpkin</td>
<td>47%</td>
</tr>
<tr>
<td>Milk</td>
<td>46%</td>
</tr>
<tr>
<td>Carp (fish)</td>
<td>44%</td>
</tr>
</tbody>
</table>
Bangladesh Households’ Dietary Diversity Scores

![Bar graph showing dietary diversity scores](image-url)

- ≤ 5: 5%
- 6: 11%
- 7: 16%
- 8: 18%
- 9: 20%
- 10: 18%
- 11: 13%

Percent of all households dietary diversity score by category.
HCES, a Tool for Understanding Food and Nutrition Issues: *Key Sources of Nutrients*

**Food Sources of Vitamin A in Bangladesh (µg/p/day)**

- Spinach: 97
- Perbol: 62
- Dried Chili: 37
- White gourd/Pumpkin: 35
- Milk: 15
- Other Vegetables: 13
- Tea: 6
- Puti Fish: 4
- Hen Egg: 3
- Mala-kachi Fish: 3
Wheat Flour as a Source of Average Total Daily Energy, Bangladesh

Percent of Average Total Kcal Apparent Consumed

- Barisal: 6.9
- Chittagong: 6.8
- Khulna: 6.8
- Rajshahi: 6.4
- Sylhet: 5.0
- Dhaka: 4.1
- Rangpur: 3.5
Monthly Fluctuations in Sweet Potato Consumption, Uganda

HCES, a Tool for Understanding Food and Nutrition Issues: Seasonality
HCES, a Tool for Understanding Food and Nutrition Issues: *Estimating Nutrient Intakes*

- Match food items with items listed in country-specific Food Composition Tables (FCTs)
- Calculate total household apparent consumption of each food item
- Apply Adult Male Equivalents (AMEs) concept to take into account household’s size and composition
- Compare to Estimated Average Requirement (EAR) to determine nutrient intake adequacy
HCES, a Tool for Understanding Food and Nutrition Issues: *Food Market Structures*

**Concentration of Highland Cooking Banana Production in Uganda**

- Isingiro: 15%
- Mbarara: 13%
- Bushenyi: 9%
- Kabarole: 5%
- 76 Districts: 58%
Percent of Households Producing the 7 Most Important Food Sources of Iron

<table>
<thead>
<tr>
<th></th>
<th>Sweet Potatoes</th>
<th>Matooke</th>
<th>Beans</th>
<th>Cassava</th>
<th>Dodo</th>
<th>Maize</th>
<th>Sorghum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kampala</td>
<td>4%</td>
<td>4%</td>
<td>5%</td>
<td>4%</td>
<td>1%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Central</td>
<td>45%</td>
<td>52%</td>
<td>55%</td>
<td>51%</td>
<td>1%</td>
<td>58%</td>
<td>1%</td>
</tr>
<tr>
<td>Eastern</td>
<td>50%</td>
<td>29%</td>
<td>47%</td>
<td>68%</td>
<td>1%</td>
<td>71%</td>
<td>26%</td>
</tr>
<tr>
<td>Northern</td>
<td>44%</td>
<td>8%</td>
<td>56%</td>
<td>66%</td>
<td>0%</td>
<td>62%</td>
<td>52%</td>
</tr>
<tr>
<td>Western</td>
<td>53%</td>
<td>66%</td>
<td>83%</td>
<td>44%</td>
<td>0%</td>
<td>52%</td>
<td>15%</td>
</tr>
<tr>
<td>Uganda</td>
<td>44%</td>
<td>35%</td>
<td>55%</td>
<td>53%</td>
<td>1%</td>
<td>56%</td>
<td>22%</td>
</tr>
</tbody>
</table>
HCES, a Tool for Understanding Food and Nutrition Issues: Harmonizing Nutrition Program Portfolios

- Biofortified Food Programs
- Food Fortification Programs
- Conditional Cash Transfer Programs
- Point-of-Use Fortification Programs
- School Feeding and Other Food Programs
- Iron/Vitamin A Supplementation Programs
- Nutrition Status
A Comprehensive, Integrated Nutrition Policy Requires Understanding Programs’ Interactions and Their Harmonization as a Portfolio
The Challenge: How “Good” Can We Make HCES?

- To date, HCES have been used only as a source of secondary data
- How much could HCES be strengthened to collect more precise food and nutrition data?
- The work has begun: World Bank-FAO-International Household Survey Network-UN Statistical Commission have recently developed a multi-agency working group to strengthen HCES
Strengthening HCES: The Agenda

1. FAO/WB just-released *ADePT-Food Security Module* software to facilitate and routinize HCES processing of food and nutrition data

2. 2014 assessment of the precision and relevance of 115 countries’ HCES

3. 2014 agenda (being implemented with National Statistical Offices)
   - Improve the food list
   - Standardize reporting units
   - Better capture (1) processed foods and (2) food consumed away from home