Food Insecurity Measures and Assessment of Nutritional Adequacy

Edward Frongillo, Ph.D.
University of South Carolina

Thanks to Maryah Fram and Eliza Fishbein for ideas and literature
Outline

• What do we mean by adequacy, need, and benefit?
• How have other social programs gone about determining adequacy?
• What do we know about food insecurity?
• What are the intent and outcomes of SNAP?
• What are needs for and benefits of SNAP?
• What might we do to assess adequacy?
What does adequate mean?

• Sufficient for a specific requirement or need
• Need
  – Gap between existing and desired state
  – A value judgment
• Identified and measured differently according to the perspective of need chosen
  – Felt
  – Expressed
  – Normative and comparative

Lee & Frongillo 2001
For program to benefit participants requires

1. Understand need
2. Target to need of group who will benefit
3. Deliver resources or services
4. Use resources or take up services

- Generate immediate benefit (e.g., food expenditures)
- Generate intermediate benefit (e.g., dietary intake)
- Generate long-term benefit (e.g., learning)
Nutrient requirements

• Requirements vary
• “of specific persons can only be expressed by referring to the probability or likelihood that each level of observed intake is inadequate”
• “Consist of a distribution of usual dietary intakes required to maintain an adequate or acceptable physiological or nutritional state”

NAS 1986
Child growth

• Requirements do not vary, but genetic potential does

• Reference vs. standard
  – Reference: “tool for grouping and analyzing data and provides a common basis for comparing populations”
  – Standard: “embraces the notion of a norm or desirable target, and thus involves a value judgment”

• WHO 2006 growth standards describe growth of children who are well-nourished and living in healthy conditions

WHO 1995
Income adequacy

• Necessary minimum has determined by prevailing standards of what is needed for
  – Food and housing
  – Health and nutrition
  – Medical care
  – Efficiency
  – Nurture of children
  – Social participation
  – Maintenance of self-respect and the respect of others

Lamale 2002
Income adequacy

- Objective: income or food basket
- Subjective: simple qualitative assessments of perceived consumption adequacy based on a household survey

Pradhan & Ravallion 2000
Chronic poverty

• Income or consumption measures insufficient because relate to means to achieve ends rather than ends
• Individuals differ in ability to convert income or commodities into ends because of personal, social, and environmental factors
• For given income or commodities level, there is wide variation in ends
• Household measures do not capture intra-household variation, which can be substantial
• Income or consumption measures typically show large fluctuations over time, especially for the poorest

Hulme & McKay 2005
Unemployment insurance

• Benefit should be:
  – High enough to sustain worker and family without resort to public welfare assistance
  – Not so high as to undermine incentive to return to work

• Concurrence that benefit should be related to prior wage earnings (homeostatic function)

• States differ widely in:
  – Measurement of past wages
  – Amount of wages to be replaced by the benefits
  – Highest amount of benefits that should be payable
  – Whether benefit should represent a higher percentage of the wages of lower-paid workers
  – Whether benefits should be increased for claimants who have dependents

O’Leary and Rubin 1997
Defining educational adequacy using successful schools approach

1. Identify schools or districts that are meeting certain performance benchmarks (e.g., % of students above certain proficiency level)

2. Estimate their expenditure levels
   - Examine basic expenditures and revenues of identified district
   - Calculate a base cost figure using the basic expenditure figures of successful districts (possibly excluding some unusual districts)

• Limitations
  - Simplistic definitions of successful schools
  - Largely ignores substantial impact of student characteristics and special needs on resources

Pérez et al. 2007
Core concepts related to nutritional state

Anderson 1990; National Research Council 2006
Children in households that are food-insecure fare poorly in multiple domains

- Behavior and mental health
- Social
- Academic
- Developmental trajectories
- Hospitalizations
- Obesity

National Research Council 2006; Alaimo, Olson & Frongillo 2001, 2002; Slack & Yoo 2005; Jyoti, Frongillo & Jones 2005; Cook et al. 2006
Food Insecurity
Uncertain, insufficient, or unacceptable availability, access, or utilization of food

Management Strategies

Livelihod Strategies

Nutritional status

Dietary Intake

Hunger

Distress & Adverse Family & Social Interactions

Worry & Anxiety

Deprivation & Alienation

National Research Council 2006
Well-being (quality of life perspective)

- **Domains**
  - Health and functioning
  - Psychological and spiritual
  - Social and economic
  - Family

- **Individuals best able to assess own experience**

Ferrans 1996
Differences among family members in food insecurity

• Children have own unique experiences
  – Awareness (cognitive, emotional, physical)
  – Responsibility (participation, initiative, resource generation)

• Parents are not always aware of children’s experiences
  – Lack of communication
  – Efforts to protect each other

• Questionnaire reports from parents and children do not agree

• Men and women have different roles and experiences

Fram et al. 2011; Nanama and Frongillo 2012; Bernal et al. in press
Intent of SNAP

• Original (1964): “eligible households…shall be provided with an opportunity more nearly to obtain a nutritionally adequate diet”

• Current: alleviate food insecurity
Outcomes of SNAP

• Increases food expenditures among participants and the availability of nutrients in food at home

• Difficult to show conclusively that participation reduces hunger or increases nutrient intake

• Other outcomes
  – Birth weight
  – Height and weight
  – Nutritional biochemical markers
  – General health status
  – Learning in elementary school girls (K to 3)

Fox, Hamilton & Lin 2004; Frongillo, Jyoti & Jones 2006
What needs for and benefits of SNAP?

• Income
• Expenditures
  – Food
  – Other than food
• Security
  – Food
  – Income
• Dietary intake
• Health
  – Mental (avoidance of stress, depression)
  – Physical
• Learning
Adequacy of SNAP for group or members?

• Across group (i.e., population)
  – On average
  – Most members
  – Every member

• Across time
  – On average
  – Most of the time
  – All the time
Who benefits and has potential to benefit from SNAP?

• Households
  – Income
  – Education
  – Food insecurity
  – Mental health

• Individuals
  – Mother
  – Father
  – Children
Families receiving SNAP, but still cannot afford food they need

- Budgeting carefully, making healthy choices, but still coming up short
- Some perceived food needs we might question
  - Convenience foods, soda, chips, and snacks
  - Meat
- Parent with complex problems that were challenges for using and benefitting from SNAP
  - No refrigerator or car
  - History of trauma
  - Lack of parenting efficacy
Potential to benefit from SNAP may depend on parental efficacy

- Get and maintain SNAP when eligible
- Combine SNAP effectively with other resources as needed
- Budget and make good food choices with whatever resources (e.g., car, refrigerator, stable housing, or employment) they can access that provide platform for making sustainably good food choices
Food insecurity results from complex interplay of many contributing factors

- Not having savings
- Needing to add to SNAP allotment
- Low income
- Low food expenditures
- Unexpected expenses
- Being a single parent
- Not receiving free commodities
- Gardening
- Housing ownership and cost
- Household size
- Household education

Olson et al. 1997
Suggestions

- Food insecurity (any affirmation) is powerful integrative indicator of outcomes
- Use Current Population Survey or other data to examine prevalence of household food insecurity as function of income (SNAP and other) and expenditures (food and non-food)
- Develop research agenda on understanding
  - Variation in potential to benefit from SNAP by families
  - Variation in food-insecurity experiences of individuals within families
  - Differential benefit of SNAP to individuals within families