Food price analysis for the Africa FERN:
Food prices for nutrition and healthier food environments

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17 November 2021
Aims of this session

• Introduce Food Prices for Nutrition project, approach, and metrics
• Provide examples from African countries
• Comparison of INFORMAS and Food Prices for Nutrition approaches
• Discussion
The Food Prices for Nutrition project

**Project purpose:** Scale up monitoring and analysis of food prices, to guide agricultural production and food markets for improved nutrition

- Support use of new metrics in high-priority countries
- Build a global system to monitor change in food prices for nutrition
- Analyze change in cost and affordability of healthy diets

Actively disseminate data and results on food prices, diet costs, and affordability

This work began with partners in Ghana and Tanzania

- Building on previous projects to develop the price indices and diet cost metrics
  - 2017-2020 Changing Access to Nutritious Diets in Africa and South Asia (CANDASA)
Motivation

• As we strive for food security, healthy diets are still out of reach for many (~3 billion)
• Healthy diets must be accessible: available and affordable
• Must monitor what we want to achieve: are we able to deliver affordable, healthy diets at each time and place?

Photo: Binila Subedi, Kasungu market, 2018
Aims

• If you went to the market, how much would it cost to obtain nutritious food to meet dietary needs?
• How many people can afford that cost?

Photos: W. A. Masters (Ethiopia, Tanzania, Ghana, Morocco) and S. Kaiyatsa (Malawi)
We estimate three least-cost diets

- **“Energy sufficient diet” - Cost of Calorie Adequacy (CoCA)**
  - Minimum cost to meet energy requirements using the least expensive, available starchy staple food in each country
  - Often mistaken as a measure of food security

- **“Nutrient adequate diet” - Cost of Nutrient Adequacy (CoNA)**
  - Minimum cost to meet energy and nutrient requirements (23 macro and micro-nutrients, with upper & lower bounds)
  - Requires linear programming to meet cost and nutrient constraints

- **“Healthy diet” - Cost of Healthy (Recommended) Diet (CoRD)**
  - Minimum cost to meet food-based dietary guidelines (FBDG), based on food group recommendations
  - Behaviorally realistic way to meet nutrient needs and other needs (proportionality, norms, protection of health against NCDs)
Least-cost diets

- Most affordable (cheapest, lowest cost) combination of foods that meet the criteria of each of the 3 diets

- Affordability of the least-cost healthy diet as a measure of food access
  - Necessary but insufficient for food security

- No standard diet or “food basket”
  - Foods chosen depend on time and place; Seasonal or locally-available foods selected
Composition of the least-cost diet in Ethiopia

Source: Bai, Naumova, and Masters, 2020
Least-cost diets

• Most affordable (cheapest, lowest cost) combination of foods that meet the criteria of each of the 3 diets

• Affordability of the least-cost healthy diet can be used a measure of food access
  o Necessary but insufficient for food security

• No standard diet or “food basket”
  o Foods chosen depend on time and place; Seasonal or locally-available foods selected

• Least-cost diets provide a conservative estimate (lower bound) on the cost per day
  o Preferences or convenience would add to the cost
When healthy diets are unaffordable, food prices are an insurmountable barrier to improved diet quality.

If all diets are affordable, food prices are one of many influences on food choice.

Diet costs prevent many people from reaching healthier diets

Source: Food Prices for Nutrition, October 2020
Existing retail food price data

• Market information systems (MIS)
  o Collected by agri-food agencies
  o Farm-gate, wholesale, or retail prices of basic commodities

• Early warning systems (EWS)
  o Guide food aid & emergency interventions
  o Prices of staple or basic foods, at markets in vulnerable areas

• Consumer Price Index (CPI)
  o Collected by national statistical organizations, used to monitor inflation
  o Prices of frequently consumed products, collected monthly in various markets

Less emphasis on processed foods and supermarket prices
Expanding food lists and looking at food availability

- Notice where and when food groups are missing, unavailable or too expensive
  - Guide investments in foods where market opportunities exist
- During the IANDA project, Ghana’s Ministry of Food and Agriculture (MoFA) piloted and implemented an expanded list of foods in their monitoring system

Source: Herforth et al., 2020
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- “Healthy diet” - Cost of Healthy (Recommended) Diet (CoRD)
  - Minimum cost to meet food-based dietary guidelines (FBDG), based on food group classifications
  - Behaviorally realistic way to meet nutrient needs and other needs, including proportionality, norms, culture, and protection of health against NCDs
Calculating the cost of a healthy diet

- Healthy diet is operationalized as a recommended diet, based on quantitative food-based dietary guidelines (FBDG)

- ~100 countries have FBDG; FAO maintains FBDG repository
  - Only some are quantitative
Example: Benin food-based dietary guidelines

<table>
<thead>
<tr>
<th>Groupe d’aliments</th>
<th>Enfants</th>
<th>Adolescents</th>
<th>Adultes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Céréales et tubercules</td>
<td>2 a 3</td>
<td>2 a 3</td>
<td>2 a 3</td>
</tr>
<tr>
<td>Viande, poisson, haricots et autres aliments riches en protéines</td>
<td>1</td>
<td>1 a 2</td>
<td>1 a 2</td>
</tr>
<tr>
<td>Légumes et saucisses à base de légumes</td>
<td>2 a 3</td>
<td>3 a 5</td>
<td>4 a 6</td>
</tr>
<tr>
<td>Fruits</td>
<td>1 a 3</td>
<td>2 a 3</td>
<td>2 a 3</td>
</tr>
<tr>
<td>Produits laitiers</td>
<td>1</td>
<td>1</td>
<td>1 a 2</td>
</tr>
</tbody>
</table>

UNE PORTION CORRESPOND À

- Food groups
- Number of portions per day
- Grams per portion

1. Pour le calcium, consommer aussi des poissons fumés séchés, crevettes fumées séchées et carapace de crabe.
2. Les femmes en âge de procréer prendront des suppléments de fer et d’acide folique conformément aux instructions du personnel de santé, car leurs besoins sont difficiles à combler avec l’alimentation seule.
Steps to calculate the cost of a healthy diet

1. Categorize each food in food price list according to the food groups in the selected dietary guideline
2. Remove items not required for a healthy diet (e.g., sweets) and duplicate items
3. Calculate price per day for each item
4. Take the average of the 1-3 lowest cost items (price/day) in each food group
5. Sum the cost for all food groups
Regional variation in the cost of a healthy diet in Tanzania

- High regional variation in the cost of healthy diets
- Diets in the higher cost regions ~35% more expensive than the average cost in the southwest
- Vegetable prices driving high costs – contribute about a third of total diet cost in these areas

Source: Herforth et al., 2020
Affordability of diets

- Poverty lines
  - National
  - International (US $1.90)

- Food expenditures

- Income

- Wages
  - Compared to unskilled wages in Ethiopia, India
Affordability of relative to wages in Ethiopia

- Daily wage data
- Cost as a percentage of wages decreased
- Affordability improved due to wage increases, rather than less expensive food

Source: Herforth et al., 2020
How diet costs can enter policy dialogue around food environments

• Food-group specific price spikes or unavailability may motivate investment in agriculture, infrastructure, or trade

• Can highlight specific needs for social protection
  - Homestead food production as well as cash transfers
  - Seasonal price spikes

• Design of regionally specific programs

• Poverty lines and social safety net programs
How does Food Prices for Nutrition differ from other initiatives?

• Emphasis on monitoring
  o Cost of a healthy diet does not rely on linear programming → relative ease of computation

• Focus on leveraging the abundance of data already collected in existing national and international monitoring systems
  o Support countries to calculate metrics within their own data systems

• Moving beyond nutrients to look at healthy diet patterns
  o Other initiatives have focused on cost of nutrient needs (WFP, “Cost of the Diet”)  

• Least-cost diets versus current diets
<table>
<thead>
<tr>
<th></th>
<th><strong>INFORMAS</strong></th>
<th><strong>Food Prices for Nutrition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Starting point</strong></td>
<td>Obesity/NCDs</td>
<td>Food security and food access</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Individual foods, meals, whole diets</td>
<td>Whole diets; food groups</td>
</tr>
<tr>
<td><strong>Metrics used</strong></td>
<td>Various; Gap between healthy diet and current</td>
<td>Cost of the least-cost diets; cost contribution of</td>
</tr>
<tr>
<td></td>
<td>diets</td>
<td>each food group; affordability</td>
</tr>
<tr>
<td><strong>Level of analysis</strong></td>
<td>Reference household (including reference</td>
<td>Reference individual</td>
</tr>
<tr>
<td></td>
<td>household of 1)</td>
<td></td>
</tr>
<tr>
<td><strong>Data sources</strong></td>
<td>Provides guidance on data collection; use of some</td>
<td>No new data collection; leverage existing food price</td>
</tr>
<tr>
<td></td>
<td>existing food price data</td>
<td>data</td>
</tr>
<tr>
<td><strong>Unhealthy foods</strong></td>
<td>Foods approach categorizes by healthfulness and</td>
<td>No specific categorization of “unhealthy” foods,</td>
</tr>
<tr>
<td></td>
<td>level of processing</td>
<td>but foods not required by FBDG are removed (e.g.,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sweets)</td>
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</table>
Complementary approaches

- Easy-to-calculate metrics with existing data needed for monitoring
- In-depth analyses needed to guide interventions and behavior change
- Least-cost diets can serve as a benchmark; understanding access to healthy diets as a measure of food security

Thoughts?
Methods: Information on the metrics and resources to calculate them

Research: Read our work

Engagement: View country webinars and join food price user groups

Contact us or email me directly Rachel.gilbert@tufts.edu

Food Prices for Nutrition
Diet cost metrics for a better-fed world

About

Many policies and programs aim to bring healthier diets within reach, but lack standardized data about the cost and affordability of nutritious foods at each time and place. The Food Prices for Nutrition project is a four-year, $3 million effort (Oct. 2020 – Sept. 2024) to equip governments and development agencies with accurate, updated metrics to monitor diet costs and affordability to inform agricultural and food systems interventions. This work is funded by the Bill & Melinda Gates Foundation and UKAid from the Foreign, Commonwealth and Development Office (FCDO) as INV-016158.

Food Prices for Nutrition aims to scale up use of diet cost metrics developed by two previous projects, Changing Access to Nutritious Diets in Africa and South Asia (CANDASA, 2017-20) and Indicators of Affordability for Nutritious Diets in Africa (IANDA, 2015-17). This work has been widely disseminated in peer-reviewed journal articles and dialogue with international agencies and national governments. Our work provided the diet cost and affordability estimates presented in the UN agencies’ SOFI 2020 and SOFI 2021 reports, and is now included in the suite of food security indicators monitored globally, most notably in references to the three billion people who
Discussion

Opportunities to use food prices in your country or organization?

What is needed? Next steps?

Questions?
Thank you to our donors

This project is funded as INV-016158 by the Bill & Melinda Gates Foundation and UKAid, through the Foreign, Commonwealth & Development Office of the United Kingdom.
References

