Measuring Cost and Affordability of Healthy Diets

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#FoodPricesforNutrition
sites.tufts.edu/foodpricesfornutrition
Purpose

• Explain the methods for Cost and Affordability of a Healthy Diet (CoAHD)
  • Cost of a Healthy diet: the cost of the least expensive locally-available foods to meet requirements for FBDG, per capita, per day for a representative person within energy balance at 2330 kcal/day.
  • FAO institutionalized the indicators for annual monitoring globally this year

• Support the regular calculation of these indicators in Nigeria
  • Uses data already collected by NBS; does not require further data collection
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 tools and results on food prices, diet costs, and affordability

Project purpose: Scale up monitoring and analysis of food prices, to guide agricultural production and food markets for improved nutrition
Began with partners in Ghana and Tanzania

Building on previous projects to develop the diet cost indicators

- 2017-2020 Changing Access to Nutritious Diets in Africa and South Asia (CANDASA)
Funded by:

In collaboration with:

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• Timothy Sulser, Senior Research Fellow
Vision: Food price measurement to match this aspiration

Food security is...

when all people, at all times, have physical and economic access to sufficient, safe, nutritious food to meet dietary needs and food preferences for an active and healthy life.

- World Food Summit, 1996
Cost and Affordability of a Healthy Diet: indicators to understand food access

Used in the UN State of Food Security and Nutrition in the World (2020, 2021, 2022), joining other food security metrics


What is a healthy diet?

“...sufficient, safe, nutritious food to meet dietary needs and food preferences for an active and healthy life.”

Based on food-based dietary guidelines (FBDG), which represent:

- a realistic way for regular people to select nutrient-adequate diets
- diets that protect health against NCDs
- diets that are dignified and culturally appropriate

In nations where FBDG have been elaborated, they are the official policy standard for what constitutes dietary needs

- social safety nets and nutrition education based on FBDG
Aim

If you went to an average market in any country, how much would it cost to obtain a diet that satisfies dietary guidelines?

How many people could not afford this cost?
Benin’s quantitative food-based dietary guidelines

- Food groups
- Number of portions per day
- Grams or calories per portion
Cost of a Healthy Diet can be calculated in two ways

**National:** adherence to national FBDG

- Meets specific countries’ guidelines, if quantified, to achieve **policy coherence** within countries.
- Purpose is to answer, “*What actions in the food system and agriculture need to be taken to improve access to healthy diets, as defined by our own national FBDG?*”

**Global:** Healthy Diet Basket

- Meets commonalities among national guidelines, to **enable global comparability**.
- Used for annual updates to *The State of Food Security and Nutrition in the World* reports, as a standard of “access to nutritious food to meet dietary needs.”
How do we build a Healthy Diet Basket?

A global standard set of criteria that represents commonalities across most national food based dietary guidelines, created for the purpose of calculating and comparing the cost and affordability of healthy diets across countries.
Healthy Diet Basket reflects the commonalities across guidelines in terms of food group proportions.

- About ¼ starchy staples by volume
- About ½ fruits and vegetables by volume
- About ¼ protein-rich foods by volume
- Vegetable
- Starchy staples
- Legumes, nuts & seeds
- Animal-source foods
- Oils & Fats

Have plenty of vegetables and fruits
Eat protein foods
Make water your drink of choice
Choose whole grain foods
To calculate cost, items are selected in proportion to their share of *dietary energy*.

- **1 oil or fat**, totaling 300 kcal
- **2 animal-source foods**, totaling 300 kcal
- **1 legume, nut or seed**, totaling 300 kcal
- **2 fruits**, totaling 160 kcal
- **3 vegetables**, totaling 110 kcal
- **2 starchy staples**, totaling 1160 kcal

**11 items**, totaling 2330 kcal
What is a least-cost healthy diet?

- Food group proportions stay constant (*share of kcal*)
- Food items are substitutable

- **Within food groups, what are the cheapest items?**
  - *The answer varies by season and market.*

Least-cost diets set a lower bound. Taste, preferences, and convenience add to the cost, and would raise the number of people who cannot afford the diet.
Food items and **cost** share across countries

- **Senegal**
  - Maize, rice
  - Dates, mangoes
  - Onions, carrots, eggplant
  - Sardines, small fish
  - Palm oil

- **Pakistan**
  - Chicken, buffalo milk
  - Vegetable oil
  - Dhal
  - Maize, wheat flour
  - Bananas, coconuts

- **Italy**
  - Chicken, milk
  - Sunflower oil
  - Dried white beans
  - Pasta, wheat flour
  - Onions, carrots, cabbage
  - Apples, bananas

*Legend:*
- **Oils & fats**
- **Legumes, nuts, & seeds**
- **Starchy Staples**
- **Fruits**
- **Vegetables**
- **Animal-source foods**
Food price dataset

• For global analysis, we have used the World Bank’s International Comparison Program (ICP) dataset from 2017
  • Unique dataset of retail prices
  • Global and regional lists for 2017 include 680 foods & non-alcoholic beverages in 173 countries

• Can use other retail food price data
  • Consumer Price Index data
  • Market research data
How many people cannot afford healthy diets?

In low-income countries, people spend an average of 52% of expenditures on food

- Calculated from national accounts data compiled by the World Bank ICP

So, we compare the cost of each diet to 52% of income

- Using World Bank estimated 2018 income distributions across 164 countries
Around **3 billion** people could not afford a healthy diet in 2020

**Hover over interactive chart to see country data**

**Share of population who cannot afford a healthy diet**

| 0% | 50% | 100% |

**Population who cannot afford a healthy diet**

- 125 million
- 250 million
- 500 million
- 1,000 million


Map source: Food Prices for Nutrition DataHub

These indicators are available on the Food Prices for Nutrition DataHub

data.worldbank.org
How does Food Prices for Nutrition differ from other initiatives?

- Other initiatives have focused on cost of nutrient needs (WFP, “Cost of the Diet”)
- Extending beyond nutrients to look at healthy diet patterns and adherence to dietary guidelines
  - Collaboration with WFP to add Cost of a Healthy Diet to their work in countries
- Emphasis on monitoring
  - Focus on leveraging the abundance of data already collected in existing national and international monitoring systems
  - Support countries to calculate metrics within their own data systems
  - Cost of a Healthy Diet does not rely on linear programming → relative ease of computation
**Recommended citation:**

Food Prices for Nutrition (2022). *Technical Assistance Toolkit for Calculating the Cost of a Healthy Diet* (Beta v. 3.0, published 14 July 2022). Tufts University, Boston (USA). Available at: [https://sites.tufts.edu/foodpricesfornutrition/](https://sites.tufts.edu/foodpricesfornutrition/)

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
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<tbody>
<tr>
<td>INSTRUCTIONS</td>
<td>This document provides comprehensive instructions on how to use the full suite of Technical Assistance Tools for Calculating the Cost of a Healthy Diet.</td>
</tr>
<tr>
<td>EXCEL WORKBOOK</td>
<td>Excel Workbook for calculating the Cost of a Healthy Diet. The Excel Workbook includes the Recommended Amounts Database.</td>
</tr>
<tr>
<td>STATA CODE</td>
<td>Stata file demonstrating how to calculate the Cost of a Healthy Diet in Stata using pseudodata. This .do file pulls in information from the Excel Workbook and generates output files in a new folder called StataResults.</td>
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<tr>
<td>PSEUDODATA</td>
<td>An example input file (Stata .dta file) of retail food prices that can be used to practice calculating the Cost of a Healthy Diet using Stata. Models file structure users must generate for their own data.</td>
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<tr>
<td>STEP-BY-STEP SLIDES</td>
<td>Step-by-step demonstration (with photos) on how to use the Excel Workbook and Stata code to calculate the Cost of a Healthy Diet.</td>
</tr>
<tr>
<td>HEALTHY DIET BASKET BRIEF</td>
<td>A two-page summary of the Healthy Diet Basket, a standard which can be used as the criteria for calculating the Cost of a Healthy Diet.</td>
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# Cost and affordability of a healthy diet in Nigeria

<table>
<thead>
<tr>
<th>Cost by food group</th>
<th>Cost per day (2017 USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of a Healthy Diet (CoHD)</td>
<td>3.57</td>
</tr>
<tr>
<td>Starchy staples</td>
<td>0.76</td>
</tr>
<tr>
<td>Legumes, nuts and seeds</td>
<td>0.23</td>
</tr>
<tr>
<td>Vegetables</td>
<td>0.93</td>
</tr>
<tr>
<td>Fruits</td>
<td>0.52</td>
</tr>
<tr>
<td>Animal-source foods</td>
<td>0.99</td>
</tr>
<tr>
<td>Oils and fats</td>
<td>0.13</td>
</tr>
</tbody>
</table>

**Note:** Data shown are preliminary results from the Food Prices for Nutrition project; final results would be disseminated by the agencies responsible for each analysis.
Unaffordability: % of households with food exp. below the cost of healthy diet

- Ebonyi (with 77%) ranks as the least-affordable and Lagos (with 5%) as most-affordable.

- A healthy diet is relatively affordable in:
  - Southern states:
    - Lagos (SW)
    - Oyo (SW)
    - Ondo (SW)
    - Delta (SS)
  - Northern states
    - Benue (NC)
    - Kwara (NC)
    - Kebbi (NW)

Source: Daniel Mekonnen
Analysis of Nigeria Living Standards Survey 2018/19
Expenditures are below what is needed for all food groups except starchy staples

- Over 90% of households had expenditures below the expenses needed for recommended quantities:
  - Vegetables in about **two-thirds** of the states
  - ASF in about **one-third** of the states
  - Fruits in about **one-quarter** of the states

- Over 90% of HHs in each state had adequate (excessive) spending on starchy staples (exceptions: Imo, 80%; and Enugu, 75%)

Source: Daniel Mekonnen
Analysis of Nigeria Living Standards Survey 2018/19
• The cost of nutritious diets in the market is more than many people can afford.

• Policies and programs aiming to bring healthy diets within reach of the poor would benefit from sub-national level monitoring

• Having these metrics available within Nigeria’s national food systems dashboard will give decision-makers a realistic picture of state-level priorities for interventions, and for shaping food systems transformation pathways towards healthier diets and mitigate drivers of malnutrition in times of crisis.

• A recurring monitoring with limited time intervals of this metric, and other relevant indicators, is essential for evidence-based policy making.

• Implications for poverty, social protection, and agriculture
What is needed in Agriculture?

• Social protection: include assistance for home production?

• Investment, Research, Development:
  • Public and private actions needed to lower cost will vary by location and type of food...
  Production, distribution, storage, trade
How to reduce the cost of nutritious food?

<table>
<thead>
<tr>
<th>Method</th>
<th>Action</th>
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<tbody>
<tr>
<td>By lowering agricultural and food worker wages</td>
<td>❌</td>
</tr>
<tr>
<td>By intensive animal production that discounts animal welfare and water quality</td>
<td>❌</td>
</tr>
<tr>
<td>By cutting down forests to produce more food</td>
<td>❌</td>
</tr>
<tr>
<td>Trade protectionism</td>
<td>❌</td>
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<tr>
<td>By investing in research and development of vegetable, fruit, and legume seeds: increase diversity in the food supply, and viable opportunities for farmers</td>
<td>✅</td>
</tr>
<tr>
<td>By investing in environmentally and socially sustainable ways to produce animal source foods targeted to the poor</td>
<td>✅</td>
</tr>
<tr>
<td>Innovations for cold chains and other means of preservation</td>
<td>✅</td>
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<tr>
<td>Market infrastructure to allow movement of products</td>
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By diversification and connection, not by externalizing true costs!