

Alternative Approaches for Reevaluating the Thrifty Food Plan

Background

The U.S. Department of Agriculture (USDA) produces Food Plans to illustrate how a healthy diet can be achieved at various price points. The lowest cost Plan, the Thrifty Food Plan (TFP), serves as the basis for the maximum Supplemental Nutrition Assistance Program (SNAP) benefit amounts for the following Federal fiscal year and must be reevaluated every 5 years based on current food prices, food composition data, consumption patterns, and dietary guidance (Public Law 115–334, the 2018 Farm Bill¹). The TFP market basket and cost must be for a reference family of four, which is defined by law as a man and a woman ages 20 to 50 and two children—one between ages 6 and 8 and one between ages 9 and 11.

Like past TFP updates, the most recent TFP reevaluation used an optimization model to select quantities of foods and beverages in different categories to represent a healthy, practical, cost-effective diet. For this most recent reevaluation, USDA took a careful and considered approach, using the same underlying mathematical model used in previous reviews and only making changes if there was clear and convincing evidence to do so. The methods used to reevaluate the Thrifty Food Plan were peer reviewed by subject matter experts from other USDA agencies. To further the transparency of future Thrifty Food Plan reevaluations as well as to continuously improve Thrifty Food Plan methodology, USDA aims to compare results across relevant, feasible alternative approaches, motivating examination of potential alternatives to the current optimization model.

As a first step, the Center for Nutrition Policy and Promotion (CNPP) in the USDA's Food and Nutrition Service (FNS) contracted with Mathematica (hereafter referred to as “the study team”) to identify alternative approaches for reevaluating the TFP. The purpose of this report is to describe potential options along with their advantages,

disadvantages, and expected level of effort for implementation.

The second step will be to test the feasibility of the identified alternatives. This report does not include any feasibility testing of the options identified; however, this topic will be covered in a separate follow-on study anticipated in FY 2025. This forthcoming study will attempt to implement the alternatives raised in this first report in a series of test cases in order to provide detailed information on the feasibility of each option. This information on the feasibility of each approach will be used to determine which, if any, of the alternative approaches described in this report could be incorporated into future TFP reevaluations.

Approach

To identify alternative approaches, the study team convened a panel of qualified researchers with diverse methodological and subject matter expertise. The study team met with the panelists four times over a period of 5 months to develop a set of options. Each panelist provided information and opinions in response to questions from the study team related to data and methodological considerations and advantages and disadvantages of each option. The panelists provided the study team with individual rankings of the various alternative approaches in order of their preference based on which options they considered most promising for further examination in the feasibility study. This report reflects the study team's synthesis of the information provided by the panelists.

Options for Reevaluating the TFP

Using information provided by the panelists, three potentially feasible alternative options for reevaluating the TFP were identified that each use an entirely different approach from the current optimization model.

¹ Food and Nutrition Act of 2008. Public Law No. 88–525, 78 Stat. 703. As amended through Public Law No. 118–5, June 2023. Available at: <https://www.govinfo.gov/content/pkg/COMPS-10331/pdf/COMPS-10331.pdf>.

Ranking the alternative approaches in order from the one most often preferred to the least often preferred by the panelists, these alternative approaches were (1) a purchase-based option, (2) a menu-based option, and (3) an econometric-based option. **Exhibit ES.1** summarizes these options. By making certain assumptions, all three options meet the TFP reevaluation criteria, as required by the 2018 Farm Bill.

Using information provided by the panelists, three potential revisions to the existing optimization model were also identified and are included in **Exhibit ES.1**. Revisions to the optimization-based approach was the second most commonly preferred option among the panelists (after the purchase-based approach and above the menu-based approach), with panelists noting that the optimization-based approach, as currently used, works well in practice and meets all requirements of the TFP reevaluation.

Exhibit ES.1. Potential options for reevaluating the TFP

Overview	Advantages	Disadvantages	Assumptions required to meet TFP reevaluation criteria	Level of effort
Option 1: Purchase-based				
Based on household food purchase data, identify households that purchase foods making up a healthy diet. The TFP cost would be calculated based on the cost and composition of the foods purchased by the selected households.	This approach is grounded in revealed preferences and reflects choices made by consumers that incorporate practicality, palatability, affordability, cultural preferences, food preparation time, household cooking equipment, and food waste (assuming the households in the data report food-at-home purchases that exceed their dietary needs).	There are likely few observed households that purchase foods comprising “healthy” diets, making this approach potentially infeasible without reconsidering how to define a healthy diet.	Fully meets TFP reevaluation criteria. Makes reasonable assumption that household food purchase data reflect consumption patterns. If the purchase data include the age and sex of the household members, a market basket and associated cost for the reference family could be calculated.	Moderate
Option 2: Menu-based				
Nutritionists develop healthy, lower cost menus that meet current dietary guidance to serve as the basis for the market basket. The TFP cost would be calculated by averaging the costs of the individual menus.	<ul style="list-style-type: none"> • This approach implicitly accounts for important factors that are difficult to measure, such as time needed to prepare food, available kitchen equipment, palatability of menus, and cultural preferences. • It also leverages nutritionists’ knowledge about healthy foods and experience working with SNAP and other populations with low incomes, particularly if nutritionists are drawn from existing efforts like the SNAP-Ed program. 	<p>There is no existing infrastructure for this approach (that is, the procedures to collect and process the menu data and develop a market basket would need to be developed, even if drawing on efforts like SNAP-Ed).</p> <p>The nutritionists would need guidance to ensure the process was standardized and transparent.</p>	Fully meets TFP reevaluation criteria. Makes reasonable assumption that nutritionists will take community consumption patterns and preferences into account as they design the menus. A market basket and associated cost for the reference family could be calculated.	High

Exhibit ES.1. Potential options for reevaluating the TFP

Overview	Advantages	Disadvantages	Assumptions required to meet TFP reevaluation criteria	Level of effort
Option 3: Econometric-based				
<p>Model the cost of purchasing a healthy diet based on household food purchase data at varying levels of healthfulness. A demand model would maximize utility based on preferences for food items, subject to cost and nutrition constraints. A stochastic production frontier model would minimize the cost needed to produce a diet of a certain level of healthfulness.</p>	<ul style="list-style-type: none"> • Models can find unobserved solutions in data to reflect choices and outcomes that are difficult to find in the real world (overcoming a limitation of the purchase-based option). • Straightforward approach that draws on well-understood practices applied to many topics in economics. 	<p>This approach is sensitive to modeling assumptions; modeling decisions can have a large influence on the results.</p>	<p>Fully meets TFP reevaluation criteria. Makes reasonable assumption that household food purchase data reflect consumption patterns. If the purchase data include the age and sex of the household members, a market basket and associated cost for the reference family could be calculated.</p>	<p>High</p>
Revise existing optimization model				
<p>Potential revisions include one or more of the following:</p> <p>(1) Modify the current food waste parameter of 5 percent to reflect new research and data on household food waste.</p> <p>(2) Replace existing nutrient-based constraints with constraints based on HEI component scores.</p> <p>(3) Switch from the current high-level food categories to a more detailed unit of analysis.</p>	<ul style="list-style-type: none"> • Revising the current optimization model would be simpler than implementing a completely new approach. • Revisions would address different issues with the optimization model, including reducing the complexity of some steps. 	<p>This approach is sensitive to modeling assumptions; modeling decisions can have a large influence on the results.</p>	<p>Meets all requirements of the TFP reevaluation and results in a market basket and associated cost for the reference family.</p>	<p>Food waste parameter: High¹</p> <p>Constraints based on HEI scores: Low</p> <p>More detailed unit of analysis: Moderate</p>

¹ Level of effort for developing new methods and collecting new data to determine an updated food waste parameter is high. Updating the parameter using existing research would involve a low level of effort.

HEI = Healthy Eating Index; SNAP = Supplemental Nutrition Assistance Program; TFP = Thrifty Food Plan.

For more information: Jones, C., Gola, A.A. & Bardin, S. (2024). Alternative Approaches for Reevaluating the Thrifty Food Plan, Final Report. Prepared by Mathematica Inc., Contract No. 12319823F0054, U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion. Project Officer: Mark Lino. Available at: <https://doi.org/10.52570/TFP.AltApp.2024>.

USDA is an equal opportunity provider, employer, and lender.