The Impact of Regional Food Cost Differences on the TFP Recommendations

Ge Zhang[1], Wen You[1], Andrea Carlson[2], and Biing-Hwan Lin[3]
[1]Virginia Polytechnic Institute and State University
[2]Center for Nutrition Policy and Promotion, USDA
[3]Economic Research Service, USDA

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Food Prices All Over U.S.A.

Food prices are different across regions.

➢ Examining regional prices of 11 grocery items from year 2004 to year 2007, USDA-ERS shows that comparing to national average prices in **Northeast** are **8% higher** and prices in **Midwest** are **6% lower.**

Food prices are even different within regions.

➢ Examining three different areas of New York State, the actual food cost ranges from **93%** to **111%** of the USDA Thrifty Food Plan (TFP) cost (Crockett, Clancy and Bowering, 1992).

➢ Several other studies have also found that local food cost is higher than the TFP cost (Morris, 1990; Food Research and Action Center, 1985; Neuhauser, 1988).

Americans Are Eating Out.

Need for FAFH is sizable across all income strata

➢ Low income households' FAFH share: ~27%

➢ High income households' FAFH share: >50%

(Stewart and Blisard, 2006)

The USDA Thrifty Food Plan

➢ Provides annual updates to the maximum allotments for the Supplemental Nutrition Assistance Program (SNAP) benefits

➢ Provides a nutritious and economical dietary pattern recommendation that is as similar as possible to low-income consumers' diet

➢ Adapts **a national average price** for calculation

➢ Assumes that **all** foods are prepared at home

The Research Objective

➢ Uses the average regional prices for each of the four regions (i.e. Northeast, Midwest, South and West) into the expanded TFP_FAFH model.

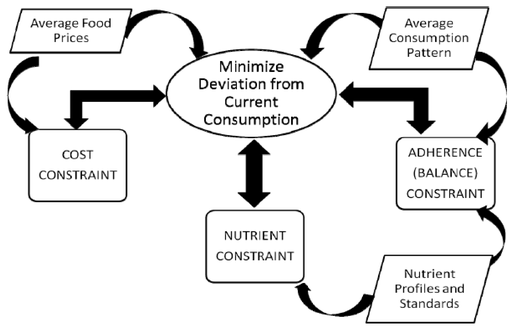
➢ Provides insights for designing more effective nutrition intervention programs.

Model

Instead of having 1 model for the entire country, we have 1 model for each region. Similar model structure as the TFP and same data sources were used.

The Framework

➢ The TFP model outline



➢ The regional model

Similar to the TFP model but all components are expanded to consider FAH and FAFH.

The Objective Function

➢ The TFP model

Minimize the weighted average deviations between the suggested diets and the current diet pattern of the poor to ensure "Familiarity"

$$\underset{TFP_f}{Min}\left[\sum_f FBS_f(\ln TFP_f - \ln Current_f)^2\right]$$

➢ The regional model

Considered additional deviations from current low-income consumers' FAFH diet patterns

$$\underset{FLEX_f}{Min}\left[\sum_f FBS_f^{fah}(\ln FAH_f - \ln Current_f^{fah})^2\right] + \left[\sum_f FBS_f^{fafh}(\ln(FAFH_f + 0.00001) - \ln Current_f^{fafh})^2\right]$$

The Constraints

➢ The TFP model

- Cost: <= the inflation adjusted costs from the previous year (economical)
- Nutrients: imposing the upper and/or lower nutrient standards (nutritious)
- Adherence: ensuring reasonable and palatable diets

➢ The regional model

- Cost: no larger than TFP amount if possible. Increased by $0.10 at a time if needed until feasible solutions were reached. (using the regional price data)
- Nutrients and adherence constraints are allowed to be met through two sources: FAH + FAFH
- FAFH consumption solution is allowed to be zero

The Data

➢ The TFP Model

- 2001-2002 National Health and Nutrition Examination Survey (NHANES)
- 1997-2005 Dietary Reference Intakes
- 2005 Dietary Guidelines for Americans
- 2005 MyPyramid Food Guidance System
- 2001-2002 Center for Nutrition Policy and Promotion (CNPP) Food Prices Database

➢ The regional Model

- Same datasets as the TFP model except price
- NHANES data provides FAH and FAFH current consumption patterns and nutrient profiles
- We apply a constant 77% markup to FAFH to generate FAFH price data.

(USDA-ERS Food CPI, Prices and Expenditures: Relative prices of food at three stages of the system)

Results

Results are presented for a TFP Reference Family of Four: a male and a female age 20-50 yrs and two children aged 9-11 yrs and 6-8 yrs.

Cost and Adaptability

➢ Weekly Food Costs for the family of four:

TFP _FAFH	Northeast	Midwest	South	West
112.95	123.54	121.15	124.34	123.54

All the four regional costs are higher than the one calculated using the national average price.

Energy Density (ED) (unit: kcals/g)

Lower ED: low in fat and high in moisture and fiber

TFP _FAFH	Northeast	Midwest	South	West
1.07	1.05	1.05	1.05	1.05

Nutrient Composition

Both the regional plan and the TFP plan:

- contain Less fat and adequate most of the micronutrients
- favorable than current low-income consumption patterns

Food Groups consumptions

Components	Mypyramid	TFP_FAFH	Current	Northeast	Mid west	South	West
Total fruit	8.0	8.4	3.9	8.61	8.4	8.62	8.51
Total grains	25.2	29.4	29.1	29.7	30.2	29.6	29.9
Diary Product	11.0	11.7	6.93	11.8	11.6	11.8	11.8
Meat & Beans	23.0	24.7	23.0	24.7	26.0	24.7	24.7
TotalVegetable	11.5	12.0	5.4	12.0	12.6	12.0	12.0
Oils	112	120	65	120	120	120	112
Discretionary Calories	1115	1250	3044	1214	1261	1230	1221

Note: Units are different for the food groups.

- contain Less discretionary calories and more fruits, vegetables, milk and oils
- favorable than current low-income consumption patterns

Findings

➢ FAFH in moderation and with appropriate portion sizes can be a part of a nutritious yet economical diet

➢ All the four regional costs are higher than the TFP cost, but are all quite healthy in comparable of the TFP recommendations

➢ The low-income people's current consumption patterns are very unhealthy, and needs significant reductions of current FAFH

Adapting the regional food prices into the TFP calculation is important for effective nutrition education interventions