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The Cost of a Healthy Diet: Accounting for Nutrition and Food Spending Goals and Constraints

Session:
USDA Modernizes the Thrifty Food Plan
USDA Agricultural Outlook Forum
February 24-25, 2022

Parke Wilde

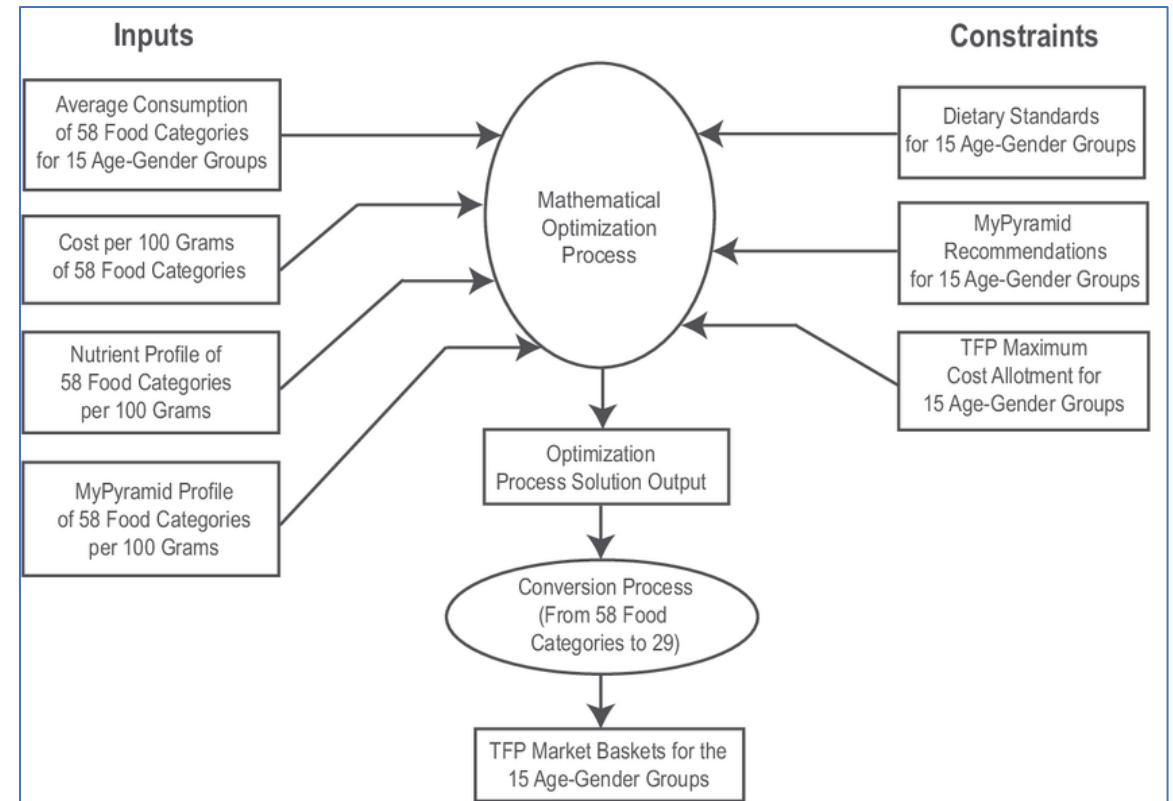
The New York Times

Biden Administration Prompts Largest Permanent Increase in Food Stamps

The jump in benefits, the biggest in the program's history, comes after a revision of the initiative's nutrition standards that supporters say will reduce hunger and better reflect how Americans eat.

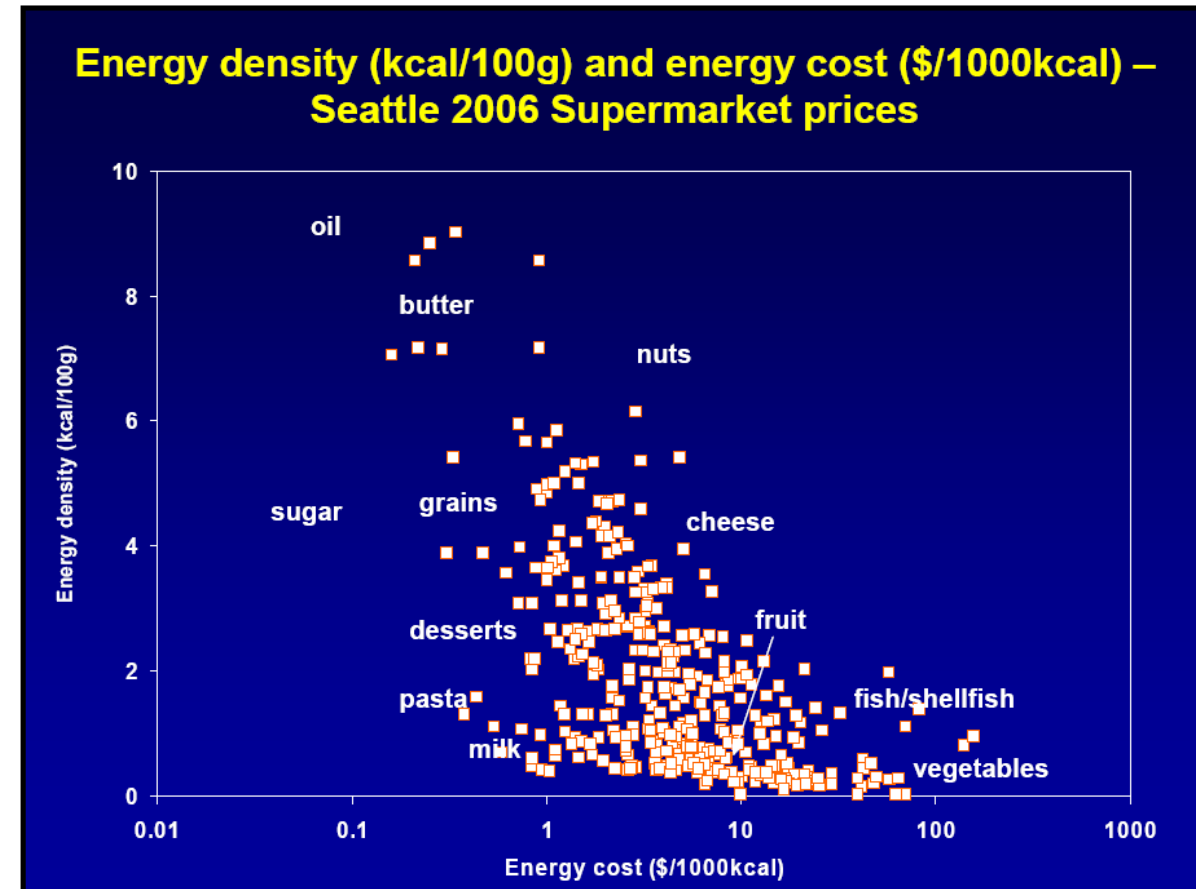
What is the cost of a healthy diet?

- Carlson et al. (2006)
- Wilde and Llobrera (2009)



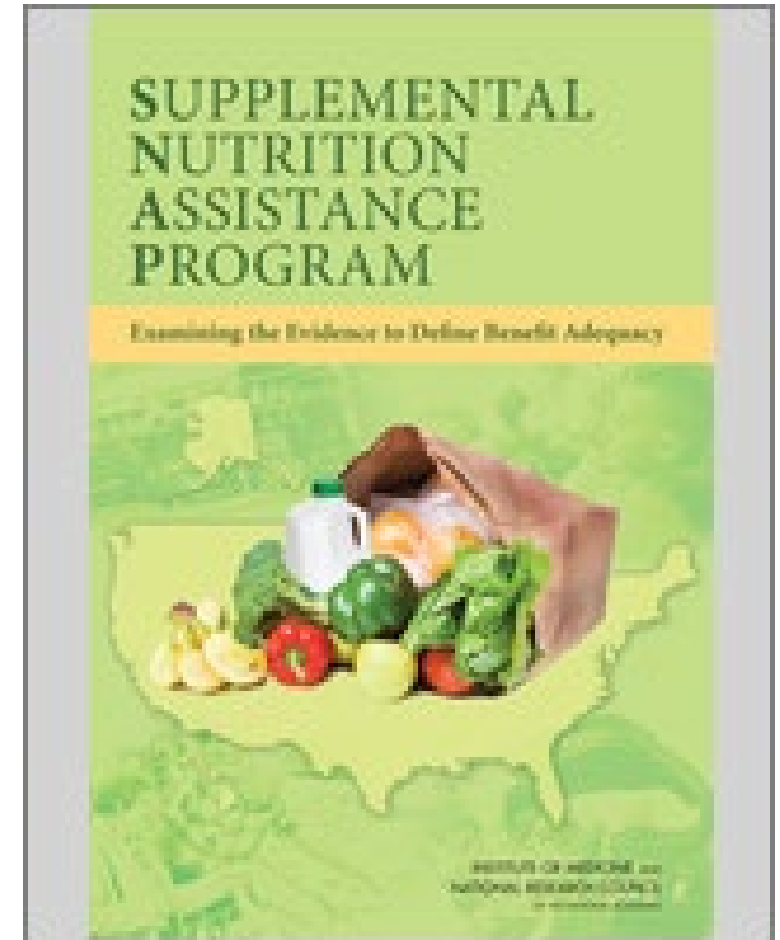
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- Wilde and Llobrera (2009)
- Drewnowski (2007)
- Caswell and Yaktine (2013)
- Ziliak (2016)
- Fan, Baylis, Gundersen, Ver Ploeg (2018)
- Waxman, Gundersen, Thompson (2018)
- Carlson, Llobrera, Keith-Jennings (2021)
- USDA (August, 2021)



More healthy



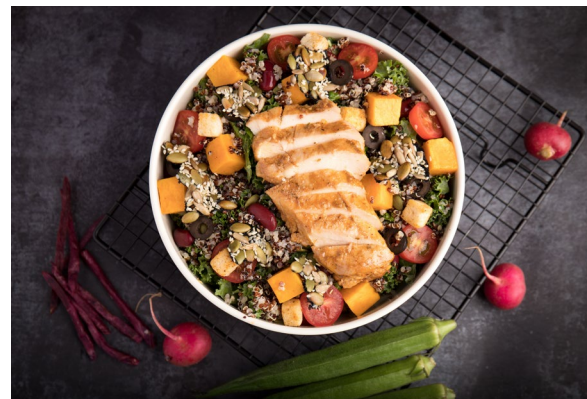
More occasional

Less expensive



More expensive

More healthy



More occasional

Less expensive



More expensive

From Scarcity to Prosperity: Nutrition and Food Spending Goals and Constraints for Low-Income Americans

Investigators: Parke Wilde, Linlin Fan, Norbert Wilson, Sara Folta

Managers: Katrina Sarson, Jada Wensman

Students: Yiwen Zhao, Elena Martinez, Aiden Gildea, and Angélica Valdés Valderrama

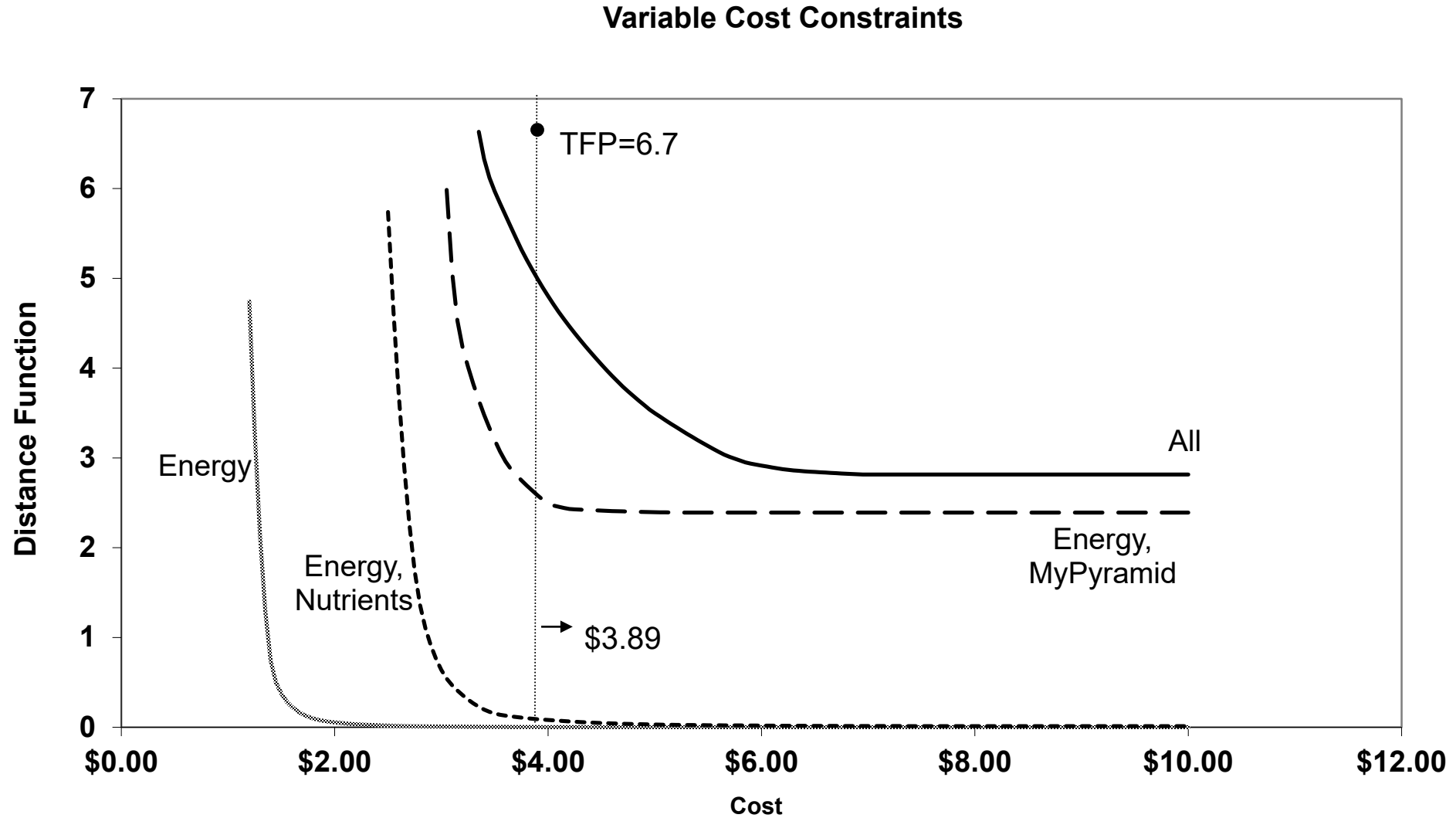
Advisors: Tatiana Andreyeva, Andrea Carlson, Will Masters, food bank/pantry partners

Optimization framework in the spirit of the Thrifty Food Plan (TFP)

Choose a plan (123 category quantities in our case):

- Not too different from current intake (quadratic objective function)
- Meeting constraints:
 - Cost and food energy
 - Nutrients from the *Dietary Guidelines 2020-2025*
 - Broad food categories from *MyPlate*
 - *Practicality* constraints

Choice of constraints → estimated cost.



Source: Wilde and Llobrera (2009).

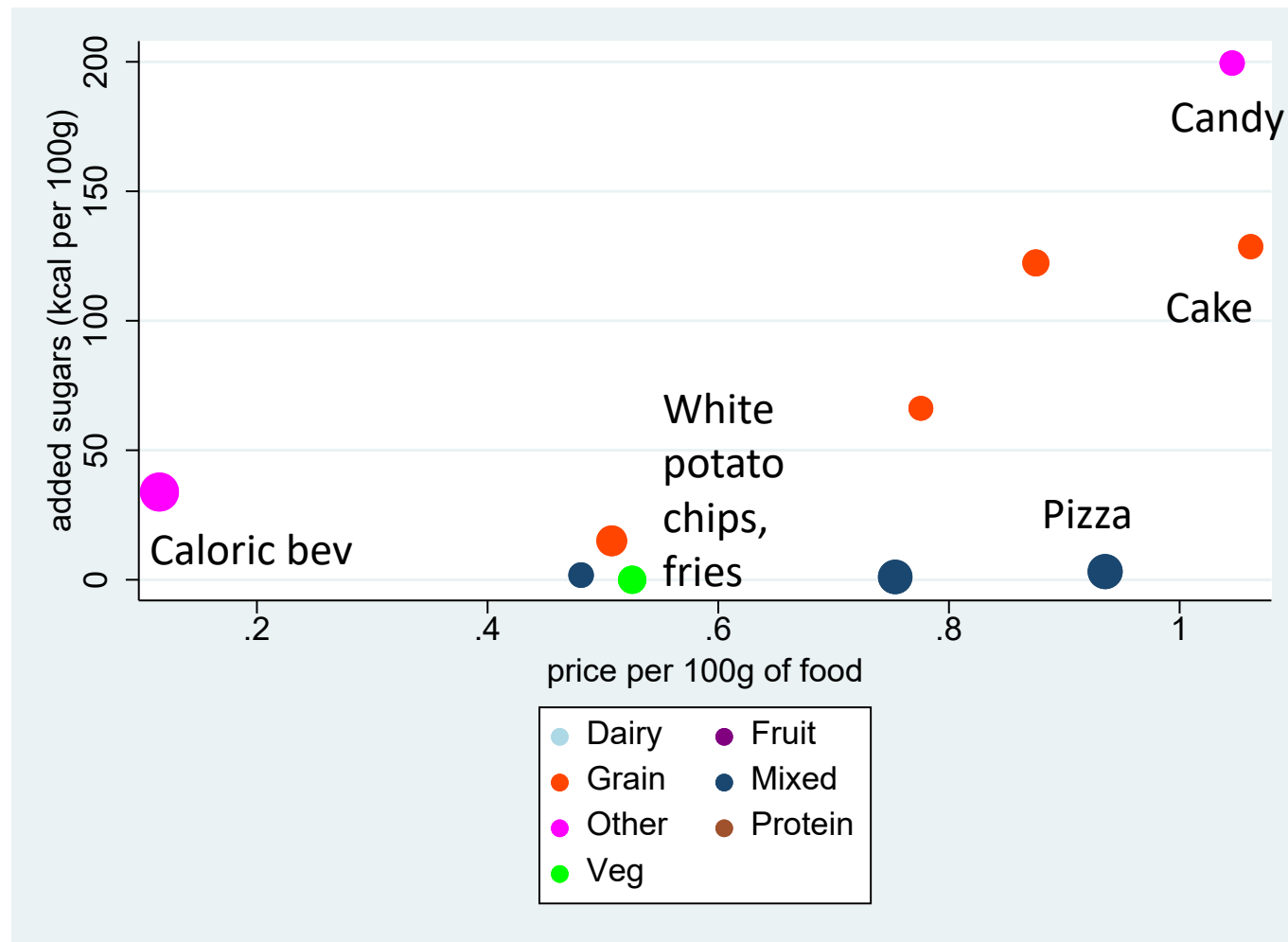
Insights

- Easier to meet nutrient constraints than food group constraints
- Expectations for fruits, vegetables, and protein foods matter
- Strict or more feasible sodium constraint
- Interaction of constraints and aspirations

Preliminary: 10 most-consumed categories

		current		output	
categ	category	rank	calories	rank	calories
122	Caloric beverages, non-alcoholic	1	117.41	15	51.42
72	Pizza	2	93.46	26	1.17
71	Mixed dishes, Mexican	3	90.25	27	1.13
49	Bread and rolls, not whole wheat or whole grain	4	69.94	28	0.88
	White potato chips, french fries and other fried				
35	white potatoes	5	57.9	10	101.16
56	Cookies	6	52.14	29	0.65
76	Pasta dishes, including macaroni	7	45.78	30	0.57
116	Candy	8	44.79	31	0.56
55	Cake	9	44.24	32	0.56
	Doughnuts, strudel, pastries, muffins, biscuits,				
58	scones, and other bakery products	10	42.87	33	0.54

Preliminary: 10 most-consumed categories



The Works Pizza

Entrées, Serves 8, 1 slice per serving

Prep time: 30 minutes • Cook time: 25 minutes



Whole Wheat
Pizza Dough
= \$1.49



8-ounce can of
Tomato Sauce,
No Salt Added
= \$0.49



1/4 teaspoon
Dried Basil
= \$0.03



1/4 teaspoon
Dried Oregano
= \$0.03



6-ounce block of
Mozzarella Cheese
= \$2.17



1 tablespoon
Canola Oil
= \$0.06



Large Onion
= \$0.99



Medium Red
Bell Pepper
= \$0.89



Medium Green
Bell Pepper
= \$0.69



2 medium
Tomatoes
= \$2.58



8 ounces of Button
Mushrooms
= \$1.79



Light coat of Non-
stick Cooking Spray
= \$0.04



\$11.25

Total grocery cost \$23.57
Cost per serving: \$1.41

The Works Pizza

Prep time: 30 minutes

Cook time: 25 minutes

Nutrition Facts

Serving Size 1/8 of pizza (190g)

Servings per Recipe 8 slices

Amount Per Serving

Calories 210 Calories from Fat 80

% Daily Value*

Total Fat 9g 14%

Saturated Fat 3g 15%

Trans Fat 0g

Cholesterol 10mg 3%

Sodium 240mg 10%

Total Carbohydrate 26g 9%

Dietary Fiber 3g 12%

Sugars 5g

Protein 10g

Vitamin A 20% • Vitamin C 70%

Calcium 15% • Iron 8%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Ingredients: Whole Wheat Pizza Dough, Bell Peppers, Onion, Tomatoes, Button Mushrooms, Tomato Sauce (No Salt Added), Mozzarella Cheese, Canola Oil, Dried Basil, Dried Oregano, Non-Stick Cooking Spray.

Tomato Egg Drop Soup

Entrée. Serves 4

1 cup per serving

Prep time = 5 minutes Cook time = 10 minutes



Vegetable oil
2 TBS = \$0.06

+



Tomatoes
2 small = \$1.18

+



Chicken broth
1 cup = \$0.33

+



Water
2 cups = free

+



Sesame oil
1 tsp = \$0.10

+



White pepper
¼ tsp = \$0.16

+



Egg
1 egg = \$0.11

+



Cornstarch
1 ½ tsp = approx. \$0.07

+



Scallions
1 scallion = \$0.15

+



Cilantro
2 TBS = \$0.11

=



Nutrition Facts

4 servings per container

Serving size 1 cup (234g)

Amount Per Serving

Calories 110

% Daily Value*

Total Fat 1g 1%

Saturated Fat 1g 5%

Trans Fat 0g

Cholesterol 40mg 13%

Sodium 360mg 16%

Total Carbohydrate 5g 2%

Dietary Fiber 1g 4%

Total Sugars 2g

Includes 0g Added Sugars 0%

Protein 4g 8%

Not a significant source of vitamin D, calcium, iron, and potassium

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Ingredients: Tomatoes, egg, water, chicken broth, vegetable oil, scallions, sesame oil, white pepper, cornstarch, cilantro

Total for recipe = \$2.20
Cost per serving = \$0.55

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