

A Healthy Food Basket in Israel

Janetta Azarieva^{1*}, Ben Orion², Rebecca Goldsmith³, Avidor Ginsberg⁴, Ran Milman⁵, and Dov Chernichovsky⁶

¹Taub Center Guest Researcher, Department of Political Science, The Hebrew University of Jerusalem

^{2,3}Taub Center volunteers

³Director of Health and Nutritional Status surveys, Ministry of Health

⁴Department of Nutrition, Ministry of Health

⁶Principal Researcher and Chair, Taub Center Health Policy Program

***Corresponding author:** Janetta Azarieva, Taub Center Guest Researcher, Department of Political Science, The Hebrew University of Jerusalem, Israel, E-mail: janetta.azarieva@mail.huji.ac.il

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Abstract

This paper outlines, for the first time in Israel, features of a basic healthy food basket. The paper begins with a detailed discussion of the basket's potential components, based on Ministry of Health recommendations for proper and balanced nutrition. This is followed by a presentation of the prices of the goods included in the basket, and a calculated estimate of the per capita cost of funding the basket. Based on this cost figure, the authors assess the economic ability of Israeli households in different demographic configurations, and at different income levels, to purchase the basket. The results show that the mean incomes of the three highest income quintiles are sufficient to purchase the healthy food basket, even if other food products are actually bought due to preferences or lack of awareness. By contrast, the two lowest quintiles – and especially the poorest quintile – would have trouble paying the price of a basic health food basket for all family members, due to income limitations and the other expenditures involved in household management.

Introduction

A fifth of Israeli families, including a third of the country's children, report food insecurity [1]. Based on National Nutritional Security Council income and expenditure tests, 110,000 Israeli households were eligible for food purchasing assistance in 2012 [2]. One reason for this is that food prices rose substantially and precipitously between 2005 and 2011. During this period, the prices of most food groups became more expensive in Israel than in other OECD countries. Israeli dairy prices, which in 2005 were only 6 percent higher than in the OECD, were 51 percent higher than the OECD average in 2011. During that same period, bread, grains and baked goods, which formerly had been 19 percent less expensive in Israel, became 26 percent more expensive than in the OECD countries [3,4]. It should be noted that the rising food prices contributed to stagnation in Israeli households' gross real wages, along with surging housing costs [5]. Access to a basic healthy food basket ensures proper nutrition that is vital to physical, mental, cognitive, and social functioning. It is a basic right in modern society, like access to education and health care services. Even the US, where economic liberalism reigns and where features of the welfare state are few, a Supplemental Nutrition Assistance Program (SNAP) has been in operation since 1964, providing food-purchasing assistance to needy citizens. In 2016, over 44 million people around the US (13 percent of the country's entire population) received aid from SNAP. The program costs 5.5 billion

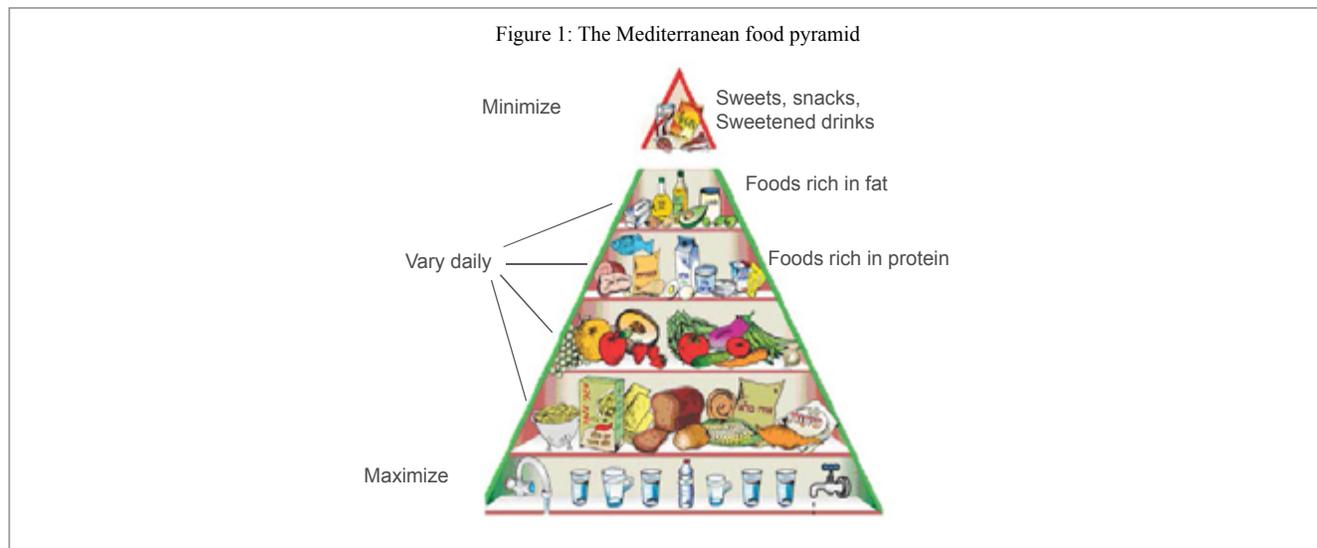
dollars, and provides, on average, assistance in the amount of \$130 a month per person [6]. To date, there has been no serious attempt in Israel to define a basic healthy food basket or to determine what purchasing such a basket would mean for household budgets or for social policy. This paper lays the foundation for defining a basic healthy food basket in several stages. First, it defines a healthy food basket that could be considered basic but adequate, and indicates the cost of its components. It then analyzes the cost of the total basket in relation to several indices, including household income by income level and number of household members. The basket's components, and the funds needed to buy it, could have policy making implications with regard to social services, health care, education for proper nutrition, and food prices.

Defining a Basic Healthy Food Basket

Current Ministry of Health recommendations are based on the Mediterranean diet pyramid, which follows the pattern of the traditional Mediterranean diet (Figure 1). This pattern emphasizes natural, unprocessed, plant-based foods – vegetables, fruits, whole grains, legumes, and nuts – supplemented by relatively small amounts of animal-based foods – eggs, dairy products, fish, poultry, and meat. The Mediterranean diet has advantages in four major spheres:

- Health: Proper nutrition can prevent disease and extend life expectancy.
- Environmental sustainability: A diet consisting primarily of plant-based foods with little reliance on animal-based foods is less harmful to the environment and to animals.

- The socio-cultural sphere: The Mediterranean diet promotes habits of social-familial dining and home cooking.
- Economics: Raw, plant-based foods are usually less expensive than processed, animal-based foods.



The Ministry of Health’s Department of Nutrition is guided by these principles, and recommends a diet based on the Israeli food pyramid. The Israeli scheme is similar to the Mediterranean diet pyramid, and features healthy nutritional habits suited to Israel society. As shown in the diagram, the Ministry of Health recommendations call for five food groups as components of a healthy diet. The food items included in each group in the food basket conform to the Israeli dietary pattern [7], and are based on current scientific knowledge and prevailing dietary recommendations. The food groups in the basket defined in Table 1 were developed by the US

Department of Agriculture’s Center for Nutrition Policy and Promotion and Israel’s Ministry of Health. The Israeli recommendations are identical to the American recommendations except for the following:

- **Potatoes:** The US food basket assigns them to the vegetable group, while the Israeli basket places them in the grains group.
- **Avocados and olives:** In the US, these are included in the vegetable group, while Israel includes them in the fats and oils group.
- **Peanut butter and seeds:** The US includes these in the protein-rich group, while Israel places them in the fats and oils group (Table 1).

Table 1. Details of the foods in the various food groups

Food group	Details of foods included in the group	Foods not included in the group
Whole grains	Bread, pita, noodles, potatoes, rice, everything from whole wheat	Breakfast cereals, baked goods, crackers
Fruit and vegetables	Fresh and cooked vegetables and fruit	Fresh juice, dried fruit
Protein-rich food	Milk, yogurt, white and yellow cheese, meat, chicken, turkey, fish, eggs, legumes	Puddings, ice cream, cream, peanuts, sunflower and other seeds, fatty meats
Foods high in fat	Oil, nuts, avocado, tehina	Margarine, butter and foods high in fat and transfats

Source: Ministry of Health, Department of Nutrition.

The relative shares of the food groups in the basket, and the recommended daily intakes, are reflected in the food servings. Serving size calculations are based on US Department of Agriculture and Israel Ministry of Health definitions.

- Grains group serving: one slice of bread or half a cup of pasta/rice/cooked potatoes
- Vegetable group serving: half a cup of cooked or raw vegetables
- Fruit group serving: a medium-sized fruit (apple/banana/orange/tangerine), half a grapefruit; half a cup of pitted fruit (for fruits with pits)
- Protein-rich group serving:

- o Dairy protein: a quantity that supplies 300 milligrams of calcium
- o Plant-based protein: equivalent to 75 grams of lean (cooked) meat; an egg is considered equivalent to 30 grams of meat
- o Legumes: Half a cup of cooked legumes is considered equivalent to 30 grams of meat
- Fats and oils group serving: a quantity that supplies ten grams of fat (Table 2)

Table 2. Daily recommended nutritional consumption, by gender and age

Age (yrs) and gender	Recommended caloric intake	Food groups					
		Whole grains	Vegetables	Fruit	Protein-rich foods		Foods high in fat
					Milk	Animal/legumes	
2-3*	1,300	6	3	2	1	3	1
4-6	1,800	7	3	2	1	3	1
7-10	2,000	8	4	3	1	3	1.5
11-14	2,500	10	5	4	2	4	3
15-18 (boys)	3,000	11	5	4	2	4	3
19-24 (boys)	2,900	11	5	4	1	4	3
25-50 (men)	2,900	11	5	4	2	4	3
51+ (men)	2,300	9	4	3	2	3	3
11-24	2,200	9	4	3	2	3	3
25-50 (women)	2,200	9	4	3	2	3	3
51+ (women)	1,900	7	4	3	2	2	3

* Portion size for ages 2-3 are equal to 2/3 of the size of portions for the other age groups, except for milk products.

Source: Ministry of Health, Department of Nutrition.

Cost of the Basket

In order to calculate the cost of the basket as a whole, the prices of its component products were examined, based on the required serving figures presented in Table 2. Since recommended daily servings can be composed of several items in each group – for example, the grain group serving can be made up of bread, pasta, etc. – the median cost of the food items capable of fulfilling the requirements per serving was chosen for each group. For example, in the dairy protein group, one serving is meant to provide 300 milligrams of calcium. This requirement can be fulfilled by drinking a quarter bag of milk, or eating a container of yogurt or a single slice of yellow cheese. In the animal-based protein and legumes group, a serving is equivalent to 75 grams of lean meat, two to three eggs, 150 grams of uncooked poultry or 100 grams of canned tuna. The cost of a serving in each group was calculated as the median price of all of these possibilities.

In order to reduce the basket cost without compromising the minimal composition needed to ensure its nutritional value, the basket was formulated according to the following principles:

- For each group, the least expensive and most accessible items were chosen, those that reflect a balance between the nutritional value provided by the various sources, and the consumption habits of different ethnic groups (“the Israeli basket”).
- The weight of the food items was reduced to the minimum necessary to maintain the required nutritional value per serving.
- The serving cost was calculated again in terms of the median price of its components, not the average price.

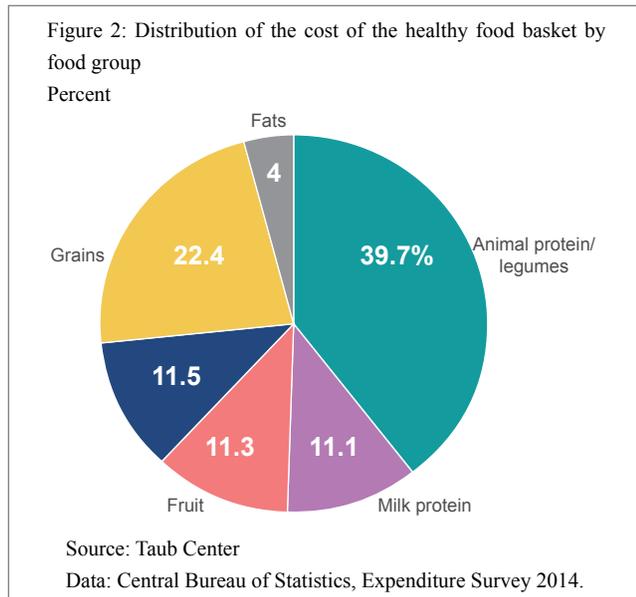
From the most expensive food group – animal-based protein and legumes – more costly types of meat, such as beef and hamburger, were excluded. They were replaced by items that would reduce the serving cost: eggs and legumes. In order to calculate the cost of the entire food basket per person, the cost of each serving was multiplied by the number of recommended servings for each age group. For adults, the number of servings was calculated in terms of the mean number of servings per man and woman aged 25-50, while the number of servings per child was calculated as the mean number of servings required in each group up to age 18 (Table 3).

Table 3. Cost of a basic healthy food basket per adult and child
2015 prices, NIS

Food group	Recommended daily portion	Median price per portion	Daily cost	Monthly cost
Adult				
Whole grains	10	0.63	6.30	189.00
Vegetables	4.5	0.71	3.20	96.00
Fruit	3.5	0.91	3.19	95.70
Protein-rich foods:				
Milk	2	.57	3.14	94.20
Animal protein/legumes	3.5	3.19	11.17	335.10
Foods high in fat	3	0.38	1.14	34.20
Total cost per month for an adult: NIS 844.20				
Child (average portion for each group ages 2-18)				
Whole grains	8.5	0.63	5.36	160.80
Vegetables	4	0.71	2.84	85.20
Fruit	3	0.91	2.73	81.90
Protein-rich foods:				
Milk	1.5	1.57	2.36	70.80
Animal protein/legumes	3.3	3.19	10.53	315.90
Foods high in fat	2	03.8	0.76	22.80
Total cost per month for a child: NIS 737.40				

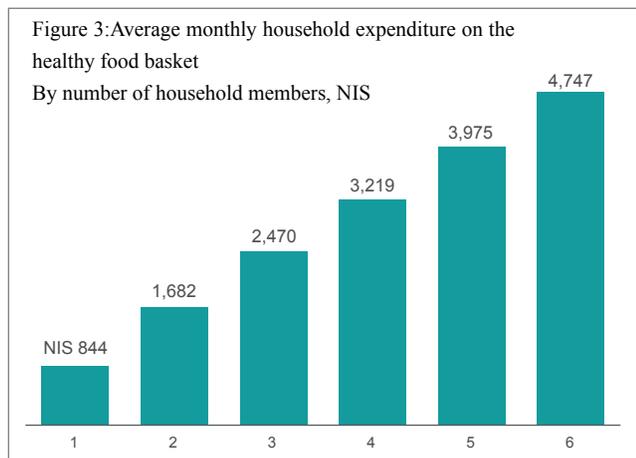
Source: Taub Center. Data: Central Bureau of Statistics database and leading food sites, May-November, 2015.

Thus, the basic healthy food basket's monthly cost per adult amounted to NIS 844 in 2015 (or about 216 US dollars), while the monthly cost per child was NIS 737.40. The monthly cost distribution of the major basket components per adult are presented in Figure 2: animal-based protein and legumes – NIS 335 (39.7 percent); grains – NIS 189 (22.4 percent); vegetables – NIS 96 (11.5 percent); fruit – NIS 95 (11.3 percent); dairy products – NIS 94 (11.1 percent); and fats and oils – NIS 34 (4 percent). The distribution for the recommended basket for children is very similar. It should be emphasized again that the estimate presented here is a preliminary one that represents a general range. Clearly, food prices change almost daily and the basket cost fluctuates accordingly. Nevertheless, the estimate gives an overall picture of the cost of a healthy, recommended diet (Figure 2).



Household Expenditure on a Healthy Food Basket

Naturally, household food-basket expenditures rise as the number of people in the household increases. For example, the mean food basket expenditure of a three-person household is NIS 2,470, that of a four-person household is NIS 3,219, and that of a five-person household is NIS 3,975 per month. However, the actual increase is not linear, due to households' differing age compositions (adults versus children). Figure 3 shows the average monthly household food-basket expenditure per number of persons. We can see that each person added to a household beyond the first two brings a mean expenditure increase of NIS 760 (Figure 3).



On average, the monthly expenditure required to purchase a healthy food basket decreases as household income rises, because in Israel there is an inverse ratio between household size and income level (Table 4). That is, in the highest decile, the mean expenditure required to buy a basic healthy food basket is the lowest, because the mean number of persons per household in this decile is the lowest – 2.46. By contrast, in the lowest decile, the mean number of persons per household is the highest (4.37) meaning that the monthly expenditure needed to finance a healthy food basket for this decile is the highest: NIS 3,450. The reciprocal ratio exists despite the fact that the per person healthy food basket expenditure actually rises as household income rises, because the lower deciles have many large families, and, as noted, there are economies of scale when calculating the basket cost (Figure 4) (Table 4).

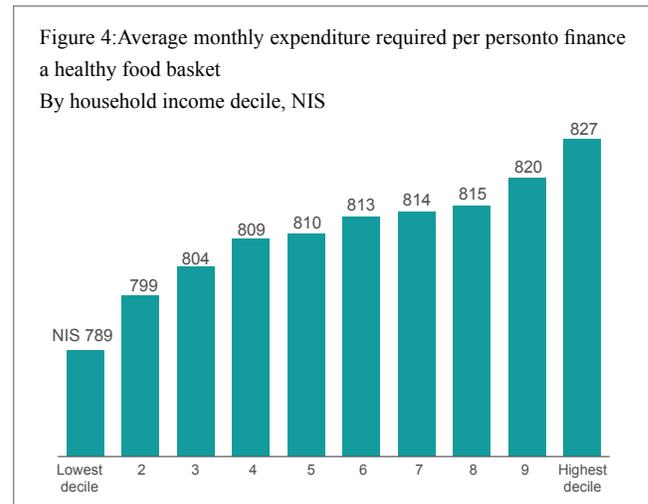


Table 4. Monthly cost for a healthy food basket per household
By income deciles and average number of household members

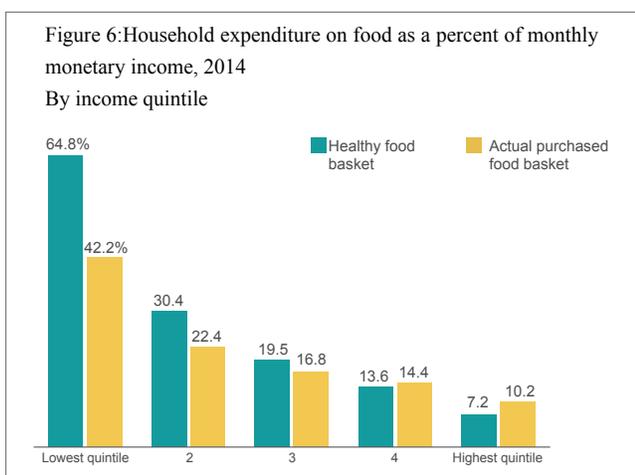
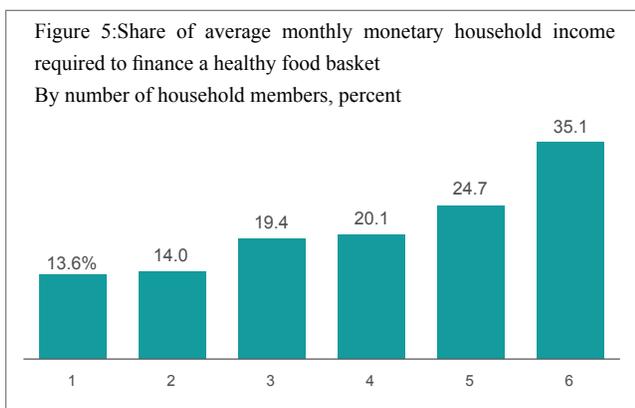
Income decile	Average number of household members	Average monthly cost NIS
Lowest decile	4.37	3,450
2	3.73	2,987
3	3.65	2,937
4	3.33	2,694
5	3.27	2,653
6	3.13	2,558
7	3.12	2,541
8	2.95	2,411
9	2.73	2,248
Highest decile	2.46	2,039

Source: Taub Center.

Data: Central Bureau of Statistics, Expenditure Survey 2014.

The healthy food basket expenditure's share of household net monetary income [8]. Increases as the number of persons per household rises (Figure 5). For a household of two people, the recommended healthy food basket expenditure is 14.0 percent; for a three-person household, it is 19.4 percent; and, for a five-person household, food basket expenditure share reaches 24.7 percent of total income. As noted, the different income levels display large disparities in the average number of persons per household. For this reason, it is also important to look at the required expenditure share by income quintile (a more useful and accepted breakdown than

income decile). The quintile-based calculation paints a picture of large disparities between the lowest and highest quintiles both in terms of the required expenditure percentage of income and in terms of the gap between the required percentage and the amount devoted to actual food purchase. Based on Central Bureau of Statistics data (2014), an average family in the highest quintile needs to spend 7 percent of its income (NIS 2,143) in order to pay for a healthy food basket for all household members, while the actual expenditure is 10 percent (Figure 6). In the fourth quintile, the actual expenditure percentage is also slightly higher than the expenditure percentage needed to buy a healthy food basket (14.4 percent versus 13.6 percent, respectively). By contrast, the data for the three lowest quintiles point to lower spending relative to the expenditure required to finance a healthy food basket. A family in the lowest quintile needs to spend 65 percent of its monthly disposable income (NIS 4,965) to purchase a healthy food basket, but it actually spends just 42 percent of its income on food. The amount that families in the second and third quintiles spend on food is also lower than the amount needed to buy a healthy food basket; the gaps between the required sum and the actual expenditure decrease as income increases. In the lowest income quintile, the gap is NIS 1,126 per month (23 percent); in the second quintile the gap is NIS 745 (8 percent), and in the third quintile the disparity drops to NIS 360 (less than 3 percent). That is, the probability that households in the lowest quintile would be able to bear the cost of the healthy basket is exceedingly low. (Figure 5, Figure 6).



Conclusion

This paper constitutes a first attempt at defining an Israeli basic healthy food basket and analyzing its household-budget implications. In accordance with Ministry of Health recommendations, the basket encompasses the Israeli food pyramid, and is meant to represent foods that, while sufficiently

nutritious, are and widely accessible in the market. Calculations based on recommended daily serving numbers indicate a mean monthly basket cost per adult of NIS 844 (or 216 US dollars), and a mean monthly cost per child of NIS 737 (in 2015 prices). Given the household compositions of families at different income levels, the basket cost per family is NIS 2,040 per month in the highest decile, and NIS 3,450 per month in the lowest decile. When comparing the calculated basket expenditures with actual food expenditures, we find that, in the highest income quintiles, actual spending is higher than necessary to finance a healthy food basket (Quintiles 4 and 5), or lower by a few percentage points (Quintile 3). By contrast, in the two lowest quintiles (especially Quintile 1), actual food expenditure is significantly lower than the recommended sum. It is hard to know whether the gaps are due to preferences for cheaper (and often less healthy) foods, differing priorities, or economic constraints. However, while for the three highest income quintiles purchasing the healthy basket is probably a matter of awareness and preference, for the two lowest quintiles – especially the lowest one – buying the basket is not a realistic possibility given prevailing household income limitations and the other expenditures required for household management. Further study is warranted to determine the reasons for the lowest income quintiles' low levels of food spending. Such research would enable the Israeli government to take the policy measures needed to encourage the country's entire population to adhere to the healthy Mediterranean diet.

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