

The costs of a healthy diet

Prof. Dr Thomas Brunner (Switzerland) | Bern University of Applied Science

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This study, carried out on behalf of the Federal Food Safety and Veterinary Office (FSVO), examines the cost of a healthy diet.¹ Cost is a popular reason that consumers give when asked why they do not eat healthier foods (c.f. FSO, 2007). Therefore, the real costs of a healthy/balanced diet and a somewhat unhealthy/unbalanced diet should be calculated. The goal was to add up the total of three different shopping carts: one with balanced, fresh ware; one reflecting a balanced diet, but including convenience food; and one with an unbalanced selection of food. Additional cost factors were considered to account for the differing types of household (number of adults and children) and work scenarios: these extra factors included meals outside the home, the work involved in cooking, and other costs for external child care. Finally, in a second step, a survey was carried out in the German- and French-speaking parts of Switzerland to draw conclusions concerning costs and nutritional behaviour for the entire population.

1 The shopping carts

In order to design the shopping carts as realistically as possible, an online survey was drawn up by a consumer panel of the School of Agricultural, Forest and Food Sciences (HAFL), a department of the Bern University of Applied Sciences, and used to recruit 20 people for qualitative, guided interviews. On the basis of statements made in the interviews, weekly menu plans were put together to meet the criteria of three diets: healthy, healthy and convenience, and unhealthy. This compilation was checked and adapted to meet the recommendations of the Swiss Society for Nutrition (SSN, 2011) according to the Swiss food pyramid, data from the online survey and food consumption figures

1 When one talks about a healthy diet, what is meant is a balanced diet according to more or less recognised, national, and international recommendations (c.f. Federal Food Safety and Veterinary Office, the Swiss Society for Nutrition and the World Health Organization). Conversely, an unhealthy diet refers to a diet that is seen as unbalanced and which can carry health risks. A single food item cannot really be deemed healthy or unhealthy. It all depends on how much, and in what proportions (compared to other food items), the food is consumed.

in Switzerland. The primary carts were put together from the list of ingredients for these meals. The point of reference was a two-person household with one man and one woman, and a timeframe of one week. The costs of these primary carts were determined via Storecheck in retail shops, and the cheapest products were always chosen. In a second step, and based on these primary carts, the shopping carts and overall costs for the different household types (families with several children, single parents, etc.) were calculated according to work scenarios and related cost factors.

| | The healthy shopping cart | The healthy shopping cart and convenience products | The unhealthy shopping cart |
|--------------------------|---------------------------|----------------------------------------------------|-----------------------------|
| Cost per week per couple | CHF 108.30 | CHF 146.50 | CHF 95.10 |

Table 1: Cost of the three shopping carts

The shopping carts in Table 1 show that a healthy/balanced diet is only slightly more expensive than an unhealthy/unbalanced one (approximately CHF 15.– more, or approximately 14%). At CHF 146.50, the convenience shopping cart is considerably more expensive, and eating outside the home is the main source of these extra costs. A coffee out costs a lot more than one at home. On the other hand, differences in price between semi- and finished products, such as frozen vegetables or ready-made pizza, are not significant when compared with their fresh equivalents: convenience products are sometimes even cheaper. Furthermore, when comparing products and product categories of the healthy and unhealthy shopping carts, it is clearly impossible to identify one single item that is responsible for driving up the costs. The healthy shopping cart is more expensive because of the purchasing of vegetables, but this is because of the greater quantities of vegetables required, and not because this product group costs more.

With regard to the different totals of the shopping carts, food costs overall are pushed up by refreshments taken outside the home. This was already apparent with the shopping cart with convenience products. However, it becomes

clear in the seven different types of household and two work scenarios when meals or snacks taken outside the house are included. Eating out 11 times for a family with 2 children and a 140 per cent workload equals a shopping cart for a whole week, that is CHF 132.–.

Similarly, expenses for external care for pre-school children are a significant cost factor compared to money spent on food. With estimated costs of barely CHF 27.– per half-day for a family with two children and a mid-range income, these costs rapidly exceed the costs of food. If the rate of CHF 32.60 per hour is calculated for preparing the meals, this too adds up. The cost for eight meals, with a preparation time of half an hour for each meal, equals the amount of the shopping cart.

At the same time, these preparation costs are greatly reduced per household member as the household gets larger. A preparation time of only 10 minutes lowers the overall cost of the convenience shopping, making it cheaper than the fresh-food shopping cart. According to the calculated shopping carts, the answer to the question of whether or not a healthy diet entails higher costs is clearly 'no'. Even if the costs of a healthy shopping cart are slightly above those of an unhealthy/unbalanced one, the amount is significantly lower than the amount spent on food, on average, every month by a household (of two) (with a low income: CHF 472.35² to CHF 612.30³ or 618.90⁴).

At the same time, it must be pointed out that ideally the cost of the products placed in the shopping cart is kept low (the cheapest products are consistently chosen and amounts are calculated exactly). This is unlikely to happen in real life. However, a first comparison can be made, making it possible to assess the costs of a healthy diet '*in extremis*'. Second, a more one-sided diet with inexpensive products (for example, mainly pasta) would be even cheaper.

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- 2 This monthly amount is calculated by multiplying the weekly shopping cart by 4.333 (the average number of weeks per month: 52/12).
 - 3 HABE (2011): Two-person households under 65 years of age with a net income of less than CHF 7,631.
 - 4 HABE (2011): Two-person households over 65 with a net income of less than CHF 4,470.

However, as such a diet does not coincide with real, unhealthy/unbalanced dietary patterns, this was not taken into consideration.

2 Population poll

The purpose of the second part of the study was to collect data from the population on their eating and nutritional habits, and to use this data to investigate the factors that influence a healthy diet and its costs. For this, a random selection of households in German-speaking ($n = 2,000$) and French-speaking parts of the country ($n = 1,000$) was made from the Swiss telephone book. Questionnaires were mailed to these households, which the families were asked to fill out and return. In total, 929 questionnaires were returned. With 147 undeliverable questionnaires, this works out at a response rate of 32.6 per cent. In addition to a detailed food frequency questionnaire (FFQ), which recorded food eaten, the questionnaire also included a detailed section concerning attitudes to nutrition, shopping and cooking—so-called potential drivers. These were the central components of the analysis. Questions were also asked about visits to various shopping locations, the cost of nutrition, knowledge about nutrition and cooking skills. As a result of incomplete information in the FQQ, some cases had to be excluded. A total of $N = 880$ cases were considered for the analyses. Approximately two-thirds of the participants were female, as, in order to obtain the necessary information, the survey was aimed explicitly at the households' (co-)leading persons. Age and income were slightly above the Swiss average.

The survey revealed valuable initial descriptive findings concerning what food—and in what quantities—is consumed by the Swiss population. These findings were categorised according to recommendations of the Swiss food pyramid (SSN, 2011) and used to determine how balanced the diet was. In a final step, of the potential drivers (independent variables) and the degree of fulfilment (dependent variable), a linear regression analysis was applied to identify the influencing factors. Factors:

- that encourage or inhibit a healthy diet,
- that raise or lower the cost of the food,
- that raise or lower the cost of a healthy diet.

With constant prices for all product categories according to the calculations of the shopping carts from the first section, dietary patterns in the survey were also examined to determine the relationship between balance and (standardised) costs of nutrition. Barely 10 per cent comply with less than 40 per cent of the recommendations of the food pyramid. Around one-third of the respondents feed themselves at 60 per cent or more. None of the respondents reach 100 per cent. Respondents consume more sweet and salty snacks and soft drinks—items appearing at the top of the pyramid—than is recommended.

When the factors influencing a balanced diet were analysed, the importance of neither health nor a healthy diet are shown to affect eating habits. However, the importance of nutrition itself and consulting nutrition tables have a positive effect on healthy eating habits. In addition, certain frequently visited shopping locations clearly have a positive effect: people who often shop at fair trade outlets, health food stores or the *Landi* (a chain of agriculture shops in Switzerland) enjoy a more balanced diet.

Eating at restaurants raises the personal costs of food, and people with higher incomes spend more on food and nutrition. However, the size of the household reduces the costs of food (per head, *nota bene*), as does sound knowledge about nutrition and good cooking skills. When considering the cost of a healthy diet, the relationship between a healthy diet and the amount of money needed for this diet, income and restaurant food have a negative effect. The more money high earners spend on food, the more unbalanced their diet. On the other hand, the size of the household raises the quality of the diet for every franc spent on food. Table 2 shows an overview of the influencing factors and identifies those factors that show no effect.

| Factors influencing | ... a balanced diet | ... the cost of the diet | ... the cost of a balanced diet |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Encouraging | <ul style="list-style-type: none"> - Health food stores - Index nutritional value - Children - Index nutrition - <i>Landi</i> | <ul style="list-style-type: none"> - Going to restaurants - Household income - Specialty shops (bakery, etc.) | <ul style="list-style-type: none"> - Going to restaurants - Household income |
| Inhibiting | <ul style="list-style-type: none"> - Discount shop - Index readymade products | <ul style="list-style-type: none"> - Size of household - Nutritional knowledge - Cooking skills - Time pressures | <ul style="list-style-type: none"> - Size of household - Animal welfare index |
| No effect (selection) | <ul style="list-style-type: none"> - Household income - Money spent on food - Price index - Health index - Index Importance of a healthy diet - Index healthy = expensive | <ul style="list-style-type: none"> - Price index - Health index - Index Importance of a healthy diet - Season index - Swiss index | <ul style="list-style-type: none"> - Organic index - Season index - Index healthy = expensive |

Table 2: Summary: factors influencing diet and costs

If we return to our initial question of whether cost affects a healthy, balanced diet, no such influences were observed. There were no economic predictors positively influencing a balanced diet. Nor were there health aspects pushing up expenditures on food. The only economic factor of any significance was household income. A higher income leads both to higher spending and higher costs for healthy food. Put the other way round, this means that people or households with a lower income spend less, yet achieve a higher degree of compliance with dietary recommendations. The analysis of the dietary patterns, using prices from the shopping cart, showed that the more the diet met the recommendations, the cheaper it was.

3 Conclusion

Both the shopping carts and the results of the population poll indicate that cost considerations are not a criterion for a healthy diet. The healthy, balanced shopping cart is only slightly more expensive than the unhealthy one, and, *nota bene*, it is well below the average expenditure on food in Swiss households with low incomes. As far as was included in the analysis, expenditures on food are relativised by other, falling costs in the household (e.g. eating out or external child care). There was no indication in the population poll that a healthy diet is more expensive or that spending more money will lead to a healthier diet.

The various cost aspects of the shopping cart could create the impression that food costs are very low compared to other costs and that the preparation is more 'expensive'. Although this finding is not incorrect, it must be qualified in two respects: first, the costs of the food in the shopping cart were deliberately kept low. Second, it is debatable whether the time spent on cooking can be monetised into francs, from either the economic or the personal perspectives of the cook. If so calculated, convenience food has a clear advantage, because the cost savings due to reduced preparation time are considerable. At the same time, it can be seen that external child care and eating out incur substantial costs for family households, which can increase the pressure to save money on eating and/or food.

This study has made a significant contribution to the field of costs and diet. However, further investigations, replications and more differentiated studies are needed. In this way, the food consumption behaviour of specific target groups (singles, lone parents, adolescents, etc.) could be investigated, or consumer behaviour towards individual product categories examined. An evaluation of communication campaigns relating to eating and dietary behaviour would also be useful. This would require the application of valid measurement instruments. The commonly used food frequency questionnaire would afford such a study a proven survey instrument while also optimising the Swiss food pyramid for the purposes of the study.

To return to the opening question of whether eating a healthy diet is actually more expensive, the answer, based on the findings of this study, is no. However, this conclusion begs the question of why so many people say that a healthy diet is more expensive (c.f. FSO 2007). The issue is all the more interesting given that the results of the driver analysis indicate that this driver (the 'more expensive' index) has no influence. Possible explanations for this are that the 'expensive' argument is popular (even though it does not really apply), or that a healthy diet may be associated with organic and other premium-class products with correspondingly higher prices, which could lead to this perception.

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