



Price elasticities of major food categories to inform fiscal reform in Costa Rica

Malnutrition and redefinition of the basic tax basket in Costa Rica

According to the 2009 National Nutrition Survey, 64.5 percent of the adult population is overweight or obese; 66.6 percent among women and 62.4 percent among men. Another affected group is childhood and adolescence. According to the 2016 School Census, overweight and obesity affect about 34 percent of the school population. Costa Rica is currently redesigning its basic tax basket – *canasta básica tributaria* (CBT) to include a nutritional criterion to choose which products will be included. Products listed in the CBT would be taxed at 1 percent, while the rest of the products would be taxed at 13 percent. International evidence indicates that lower-income households often choose foods with a lower cost per calorie, such as those high in sugars, fats, and sodium, while consuming relatively fewer foods with a higher cost per calorie, such as fruits and vegetables. Consequently, the design of a CBT without nutritional criteria may widen the cost gap between foods of low nutritional value and foods of high nutritional value, which could negatively impact access to nutritionally desirable foods for the entire population, particularly for the lower-income population. It can create a vicious circle of poor nutrition by reinforcing low-quality diets, especially among the most socially vulnerable population, and therefore increase the development of noncommunicable diseases in the medium and long term.

Price elasticities and food products to be included in the basic tax basket

Knowing the extent to which food demand reacts to price changes makes it possible to anticipate changes in the quantities demanded as a result of fiscal policy changes (e.g. introduction of excise taxes or changes in VAT). It also allows measuring potential substitution and complementary effects between food groups, and the nutritional effects of fiscal policies. We estimated price elasticities of different food groups for Costa Rican households using the 2018 National

KEY MESSAGES

- ▶ It is necessary to elaborate basic tax baskets with nutritional criteria and reject the logic of elaborating baskets that barely covers the nutritional minimums without considering the other components of the right to food.
- ▶ Prices influence food choices and therefore have an impact on the population's health. Price elasticities of food products need to be understood to draw conclusions on products to be included in basic tax baskets.
- ▶ Substitution and complementary effects between food categories are important elements when designing a basic food basket with nutritional criteria, as they determine whether the basket can ultimately have positive effects on diets.

Survey of Household Income and Expenditures – *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH),¹ using a Quadratic Almost Ideal Demand System (QUAIDS) model (Table 1). Price elasticities estimated from demand system models like this one are key elements to measure the impact of fiscal policies on household spending for specific food groups. This technical information can effectively support fiscal policy decision-making in promoting actions to facilitate the consumption of healthier foods, particularly among socially vulnerable populations. The results of this study could be used to redesign or evaluate current fiscal policies related to food and beverage consumption.

¹ INEC. 2018. *Encuesta Nacional de Ingresos y Gastos de los Hogares*. San José.

TABLE 1. Food categories

Category	National Survey of Household Income and Expenditure code
Bread and cereals	0111
Meat	0112
Fish	0113
Milk, cheese and eggs	0114
Oils and fats	0115
Fruits	0116
Pulses and vegetables	0117
Sugar, jam, honey, chocolate and sweets	0118
Condiments	0119
Coffee, tea and cocoa	0121
Mineral waters, soft drinks, fruit and vegetable juices	0122

Source: Author's own elaboration based on data from INEC. 2018. *Encuesta Nacional de Ingresos y Gastos de los Hogares*. San José.

Price elasticities, substitution effects and complementary goods

The categories for which demand is the most elastic to a change in price are "bread and cereals", "mineral waters, soft drinks and fruit and vegetable juices", "milk, cheese and eggs", "pulses and vegetables", and "meat". We identified that there were substitution effects, notably between the "fruits" category and two other categories: "oils and fats" and "bread and cereals" (Table 2). A substitute good is a good capable of satisfying the same need as another good. When the price of such good increases, the demand for one of its substitutes increases. In this case, it means that to increase the consumption of fruits, their price should remain low to prevent a shift towards consumption of more foods from the "oils and fats" category. Additionally, raising the prices of bread and cereals can further support this objective. For instance, if the category of "bread and cereals" experiences a 10 percent price increase, it would result in a 4.7 percent increase in the quantity of fruits consumed. These results make sense because the unit values of fruits and oils and fats are quite similar, also with the unit value of pulses and vegetables. Nevertheless, it can be inferred that consumption shifts towards oils and fats because they are more convenient to eat and for cooking. When the price of fruits increases, there is a tendency to prefer foods from the "bread and cereals" category in Costa Rica, as they are commonly preferred and widely consumed in the country.

TABLE 2. Main substitutions between food groups

Change in price/change in quantity	Uncompensated cross price elasticities
Bread and cereals/fruits	0.46542351
Fruits/oils and fats	0.362719
Milk, cheese and eggs/oils and fats	0.30609847
Meat/fish	0.2584827

Source: Author's own elaboration based on data from INEC. 2018. *Encuesta Nacional de Ingresos y Gastos de los Hogares*. San José.

Additionally, there is a noticeable substitution effect between the "milk, cheese, and eggs" category and the "oils and fats" category. Therefore, in order to promote higher consumption of milk, cheese, and eggs, it is crucial to maintain their prices sufficiently low. This is important because when prices rise, there is a tendency to substitute these more expensive fats with cheaper alternatives from the "oils and fats" category.

Implications for the basic tax basket and related policy options to foster better diets

The inclusion or removal of products from the CBT has nutritional and public health effects, and it is essential that they are considered when selecting products for the CBT. It is important to encourage the consumption of particularly healthy food groups such as fruits, pulses and vegetables to promote healthier diets. The consumption of fruits, pulses and vegetables can be significantly encouraged through price reductions and for example reduced VAT. The presence of a greater number of this type of products in the CBT will be an indicator of its healthy character. It is important at the same time to discourage the consumption of particularly unhealthy food groups such as sugar-sweetened beverages and the group of sugar, jam, honey, chocolate and sweets with fiscal measures (VAT increase and/or excise taxes), but also with other complementary measures since we observed the consumption of some of these products was not strongly elastic to price changes (public campaigns, banning of advertisements, nutritional education, etc). Finally, it is important that for each food group, the consumption of the healthiest foods within the group be fiscally promoted. Being more nutritionally selective when choosing products to be included in the basic food basket is essential due to the negative impact some food products can have on the overall diet. In this regard, effects of substitution and complementarity between food groups must be considered.