

The Influence of Age and Sex of Children on their Food Consumption

In nutrition and health policy information is needed on the consumption of foodstuffs by different groups of the population. Grouping by age and sex is often used, especially in the design of policies for children. The consumption data of foodstuffs of children registered in observational studies are in general grouped according to age and sex of the participants. The effect of age and sex can, however, be confounded by various factors, e.g. individual food preferences of the participants of a given age and sex group, economic and social status of the households of the participants, the season of the year and measurement errors. It is therefore the objective of the paper, to isolate the influence of age and sex on the food consumption of children.

To reach this objective a statistical model is specified which explains the quantity consumed of a given foodstuff by children as a function of their age and sex and an error term. A priori information suggests that the functions should be able to depict the following dependency of food consumption from age and sex:

D1: food consumption is independent from age or changes (increases or decreases) with it at a constant or variable (increasing or decreasing) rate,

D2: the dependency between food consumption and age differs by the sex of the children.

D1 can lead to a maximum or minimum consumption of some foodstuffs during childhood.

The simplest functions with the properties D1 and D2 are functions which are quadratic in the age of children and have parameters that shift with the sex of the corresponding age group.

The parameters of the model were estimated and tested using data of the National Food Consumption Survey in Germany. The data analyzed are the average weekly quantities of 97 food groups consumed by $n = 2247$ children of 34 different age and sex groups where a distinction is made between 17 age groups (age 1 to 17 years) and two sexes respectively.

The food groups correspond to the system of the regular German Household Budget Sample. The consumption data were seasonally adjusted.

The consumption data were seasonally adjusted.

The results are the following:

For 36 food groups age of the children has no significant influence on the quantity consumed.

For 61 food groups age of the children has the following effects on the quantity consumed:

- steady increase with age for 37,
- steady decrease with age for 2,
- increase with age up to a maximum and then decrease for 15,
- decrease with age up to a minimum and then increase for 7 food groups.

The age dependent effects on quantity consumed of the 61 food groups show in 43 cases significant differences between the sexes. The estimated errors of the equations are not autocorrelated in the majority of the food groups suggesting that the influence of factors other than age and sex on food consumption of children is random due to the design of the sampling procedure.