



# Household share of animal protein in total protein consumption

## Overview

The household share of animal protein in total protein acquisition and/or consumption is a household-level indicator that can be used as a proxy measure of diet quality at the population level. (Surveys that collect data on acquisition are a proxy for food consumption, as households may build food stocks or consume food stocks during the reference period, as compared to consumption-based surveys, which collect data on food consumed in a specified recall period ( [Fiedler et al., 2016](#) [1]). Both of these types (acquisition and consumption) collect information on food that is purchased, own-produced, or received as a transfer. A third type of [Household Consumption and Expenditure Survey](#) [2] (HCES) collects a combination of acquisition and consumption data wherein households report what they acquired through purchases and what they consumed from own-production and transfers ( [Smith, 2003](#) [3]). Animal source protein is more likely than plant protein to be highly digestible and more easily utilized by the human body, in addition to having all of the essential amino acids, which cannot be synthesized by the body and must be acquired through the diet ( [Ghosh et al., 2012](#) [4]). Protein quality has significant impacts on nutritional status, and insufficient dietary protein quality has been linked to stunting in children ( [Semba et al., 2016](#) [5]; [Ghosh et al., 2012](#) [4]). Protein quality is especially important in populations where individuals are prone to frequent infections that both decrease intestinal absorption and increase the body's demand for protein to fight off infection ( [Ghosh et al., 2012](#) [4]). In addition, a higher percentage of animal source protein is likely to come with higher absolute consumption of animal source foods and likely to bring a variety of micronutrients that are either less frequent in other types of foods or less bioavailable in plant source foods.

## Method of Construction

The data required to construct this indicator can be taken from an [HCES](#) [2] that records both the type and quantities of foods acquired and/or consumed by each household ( [Smith et al., 2014](#) [6]). A food composition table (preferably local or regional, if available) is then used to estimate the protein composition of the foods recalled in the survey. The food commodities that are considered to be animal source foods are meat (red and white), fish, eggs, milk, and cheese ( [Molledo et al., 2014](#) [7]). The share of animal protein in total protein consumption can be calculated using the fraction below, which is then multiplied by 100 to obtain the percent:

$$\frac{\text{Total protein consumed from animal source foods (grams)}}{\text{Total protein consumed from all foods (grams)}} \times 100$$

This indicator is one of several indicators included in the [ADePT-FSM](#) [8] (Food Security Module) software package, which is a free standalone software developed by the Food and Agriculture Organization (FAO) and the World Bank that allows users to easily derive food security indicators from household survey data. The software download and corresponding documentation can be found on the [FAO](#) [8] website.

Please also see the [Moltedo et al., 2014](#) [7] book published by the World Bank, which provides detailed instructions for analyzing food security using household survey data.

## Uses

This indicator is often used by FAO, UNICEF, and national statistics bureaus for food security situation reports and nutrition reports. This indicator can also provide an understanding of changing patterns in diet quality over time, especially in populations with increasing or decreasing wealth, considering that higher incomes have been associated with greater consumption of or expenditure on animal source foods ([Mayen et al., 2014](#) [9]).

## Strengths and Weaknesses

This indicator provides information on one aspect of dietary quality at the population level based on household data and it can be produced using existing [HCES](#) [2] data. However, since this indicator only measures one of many important aspects of diet quality, it should be used in conjunction with other indicators for a more comprehensive understanding of household diet quality (e.g. the [household share of dietary energy from non-staple foods](#) [10]). For this indicator to be accurate it is important that the food list is sufficiently detailed to match the diets of respondents. If the food list just includes “meat” as an aggregate category then it is difficult to match with specific values in the Food Composition Table, which can result in inaccuracies as the protein content varies by type of meat. Another drawback related to the [HCES](#) [2] data source, but specific to this indicator, is that quantities of some animal source foods can be difficult to estimate given the varied cuts of meat and associated challenges of estimating the edible portion

## Data Source

[HCES](#) [2] data can be used to calculate this indicator. The [World Bank Microdata Library](#) [11] has the most comprehensive and publicly accessible repository of data. Otherwise, data can be accessed—often for a fee—from the National Statistics Office, though each country has its own policies and procedures regarding data access. The International Household Survey Network ([IHSN](#) [12]) is an informal network to promote data standards and dissemination. National or regional Food Composition Tables should be used to identify the nutrient contents of the foods and can be found at FAO's International Network of Food Data Systems ([INFOODS](#) [13]) or the International Life Science Institute's (ILSI) World Nutrient Databases for Dietary Studies ([WNDDS](#) [14]). In addition, [FBS](#) [15] could be used to calculate a similar indicator, such as the [national average supply of protein](#) [16]. Alternatively, data from a [24-hour Dietary Recall](#) [17] or [Food Frequency Questionnaire](#) [18] (FFQ) could be used to allow for calculation of individual intake of specific food groups (e.g. animal source foods).

## Links to guidelines

- [Moltedo et al., \(2014\). "Analyzing food security using household survey data"](#) [19]
- [Smith and Subandoro, \(2007\). "Measuring food security using household expenditure surveys"](#) [20]

## Links to illustrative analyses

- [Southern Sudan Commission for Census Statistics and Evaluation, \(2010\). "Food and nutrition security assessment in Sudan: Analysis of 2009 national baseline household survey"](#) [21]
- [National Bureau of Statistics, Ministry of Finance and Economic Affairs, \(2010\). "Trends in food insecurity in mainland Tanzania: Food security and nutrition analysis of Tanzania Household Budget Surveys 2000/1 and 2007"](#) [22]

## Food Security Dimensions

- [Quality](#) [24]

## Data Collection Levels

- [Household](#) [25]

## Data Sources and Methods

- [Household Consumption and Expenditure Surveys \(HCES\)](#)
- [Food Composition Databases](#)

## Requires Food Composition Database

- [Yes](#) [26]

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