

MATHEMATICAL MODELLING OF THE PRICE DETERMINATION PROCESS FOR THE PRODUCTION OF FOOD COMPANIES

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Abstract

The managers of every food production and catering company have to deal with the issues of determining the price of food products, meals, and drinks as well, which are relevant in the current global economic conditions. We see the choice of pricing policy in for-profit food production and catering companies as a scientific problem of our time. The purpose of the article is to offer reasonable mathematical models for calculating the prices of food-manufacturing products or meals and drinks.

Admittedly, there is a paucity of scientific publications devoted to the justification of pricing for food service establishments, and we found this niche requires sound systematic research. While searching for information in scientific sources for the development of mathematical models, we had to summarize the scientific opinions of many researchers, based on which we created and described possible mathematical expressions for determining the price of food production. In the article, we presented a mathematical model of 3 methods for determining prices for food and catering companies. The presented methods are called a basic (it is most suitable for food business beginners seeking to understand how this business works), derivative (for more advanced entrepreneurs who already know the ins and outs of the food production process and understand the market's needs) and blind pricing method (for business professionals applying quantitative accounting of food products). The application conditions of each method, its advantages, and disadvantages are explained. It is even proven that the proposed methods are suitable for the application of an artificial intelligence system in solving food inventory and raw material quantity management issues with suppliers.

Understanding these methods will allow food production and catering companies to choose the most appropriate food pricing methodology by the mathematical expression that meets current conditions and allows them to cope with global economic challenges.

Key words: *Mathematical modeling, Price determination, Food companies.*