RESEARCH METHODS OF FOOD MARKETING

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ABSTRACT

As a result, the main purpose of choosing marketing research methods is to get acquainted with different methods that can be used in the collection and analysis of marketing information. In practice, they are conventionally divided into traditional and specific methods. Traditional methods of analysis include methods and techniques that have been used since the advent of economic analysis and are widely used in data processing and analysis in other areas: the system of analytical indicators, factor modeling, comparison and grouping methods, etc.

Introduction. There are many types of marketing research methods available today. The main purpose of choosing marketing research methods is to get acquainted with different methods that can be used in the collection and analysis of marketing information. In practice, they are conventionally divided into traditional and specific methods.

Traditional methods of analysis include methods and techniques that have been used since the advent of economic analysis and are widely used in data processing and analysis in other areas: the system of analytical indicators, factor modeling, comparison and grouping methods, etc. [1]

These methods are based on analytical indicators classified as follows: composition, form of expression, breadth of use, nature of application.
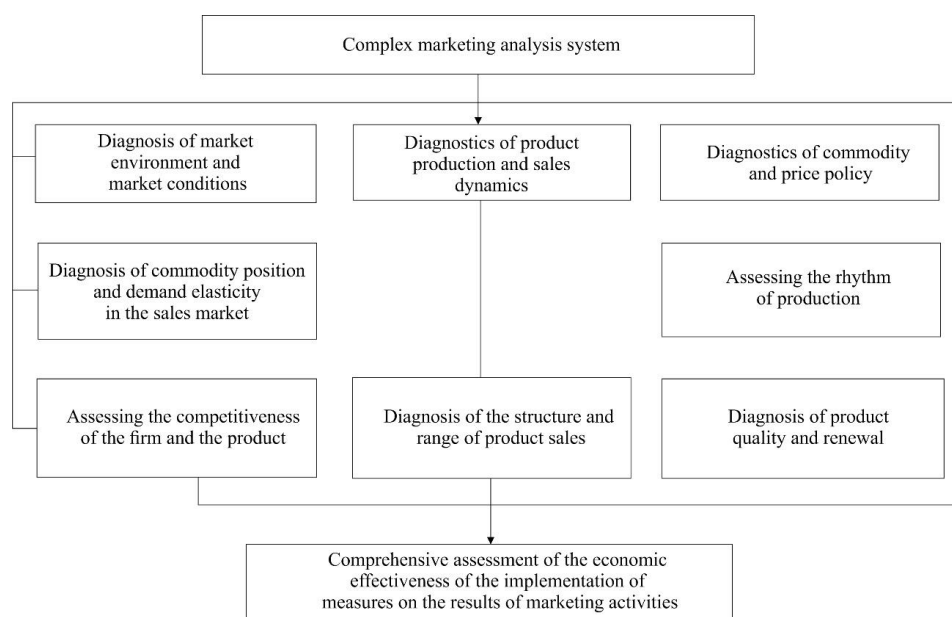

Fig. 1. Complex marketing analysis system of a food company

In our opinion, the scheme of formation of economic indicators used as a basis for the implementation of complex marketing analysis and proposed by B.I. Gerasimov is more effective [5, p. 9-10] (see Figure 1).

Modeling of economic events and processes is aimed at forming a clear picture of the object of research, its characteristics, internal structure, as well as external relations.
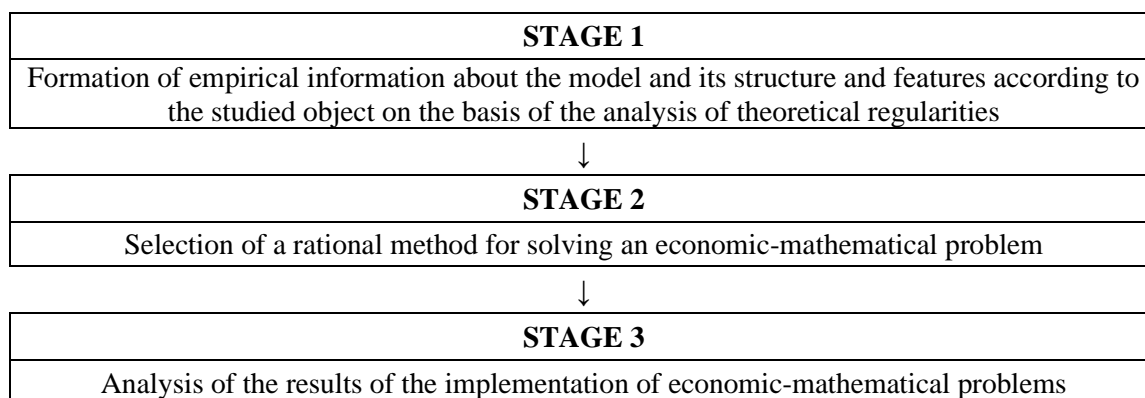
STAGE 1
Formation of empirical information about the model and its structure and features according to the studied object on the basis of the analysis of theoretical regularities

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STAGE 2
Selection of a rational method for solving an economic-mathematical problem

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STAGE 3
Analysis of the results of the implementation of economic-mathematical problems

Fig. 2. Methodology of construction and analysis of economic-mathematical model

However, the main indicator in marketing research is still the market volume indicator.

From a marketing point of view, market volume is the aggregate solvent demand of buyers for a given product at a given price level.

Market share, market integration rate and market saturation indicator are calculated on the basis of market volume indicator.

Method of determining the market volume: on the basis of production volume, consumption and cost norms, sales volume, nomenclature, price and advertising estimates, based on estimates for the previous period. [2]

The following formula can be used to calculate market volume in the first way:
$$E = P-E + I + (Ok-On) + (Zk - Zn),$$
where, E is the capacity of the market; P - annual production volume for a product or product group; E - export volume of trade organizations; I - volume of imports; Zk, Zn - stocks at the beginning and end of the period.

In order to determine the market size by the second method, marketing research should be conducted to find consumption norms. Known data can be used to take into account population categories. Research is needed to determine cost norms for new products.

In this case, the following formula can be recommended:
$$E = S * Ç * T$$
where S is the volume of consumption of the goods for 1 person during T (months), Ç is the number of consumers of the given goods.

The market volume indicator for food products can also be calculated using the following formula:
$$E = H_1 \cdot Ç_1 + H_2 \cdot Ç_2 + \cdots + H_i Ç_i$$
where H is the annual consumption rate per capita; D is the number of consumers of this product.

In the third method, the market size can be calculated in different ways:

- Market volume is determined on the basis of samples (sample) of trading organizations and accounting of their sales:
$$E = P + (O_k-O_H) \cdot 12K / K_n \cdot T$$
where P is the sales volume; K_n - number of samples of trade organizations; K - total number of trade organizations; T - time, month; (O_k-O_H) - is the difference in the balances at the beginning and end of the period.

The formula for calculating market volume by marketing nomenclature, prices and advertising is as follows:
$$E = (K_1 + K_2 + \ldots + K_i) \cdot P_0 / K_0$$
where K_1, K_2, … K_i - nomenclature of enterprises in the studied area; K_0 - nomenclature of a private or known company; P_0 is the sales volume of a private or public company.

For enterprises with a significant range of nomenclature, another formula is preferred when calculating the market volume:

$$E = K_1 S_1 Z_1 + K_2 S_2 Z_2 + ... + K_i S_i Z_i$$

where K_1 is the nomenclature of the first enterprise; S_1 - average price of goods for the first enterprise; Z_1 is the average financing reserve for the first enterprise. [3]

In the fifth method, market power is calculated by the following formula:

$$E_N = E_P K_N$$

where E_N is the market volume of the new era; E_P - market volume of the previous period; K_N is the coefficient of economic change. In this case, the calculation error is defined as the ratio of economic changes that must take into account all or most important changes.

Information on the saturation rate of the market is determined as follows:

$$E_H = E_\Pi (1 + B_H - B_\Pi)$$

where B_H, B_Π are new and old saturation indicators, respectively.

One of the approaches to the analysis of the life cycle of a product is to compare it with the life cycle of the organization. The application of this approach is conditioned by the fact that the life cycle of the commodity affects the life cycle of the organization, or rather, acts as a factor in the model of analysis of the financial condition of the organization.

The analysis data of the product life cycle is used in the formation of the product range, because during this period consumer preferences are determined. The indicator that characterizes the degree of approximation of the analyzed product to the reference sample is the consumer value index (Ip.s.).

The consumer value index is calculated by the following formula:

$$I_{p.s.} = 1 - \frac{1}{n}\sum_{i=1}^{n} \frac{w_i^n - w_i^\Phi}{w_i^n}$$

where n is the total number, w_i^Φ is the actual value of the index, w_i^n is the preferred value of the index. [4]

If the consumer value index is close to the unit, this product group has a high consumption value. The calculation of this indicator is especially important at the stage of bringing goods to market, during this stage. The calculation of this index will answer why this happened, in other words, why the consumer does not prefer the product.

The above formula can be written as follows, taking into account the specific weights of the individual λ_i attributes of the commodity:

$$I_{p.s.} = 1 - \frac{1}{n} \frac{\sum_{i=1}^{n}(w_i^n - w_i^\Phi)\lambda_i}{\sum_{i=1}^{n} w_i^n \lambda_i}$$

where $I_{p.s.}$- consumer value index, n - total number, w_i^Φ - is the actual value of the indicator, w_i^n - is the preferred value of the indicator, λ_i- is the value of the individual attributes of the commodity.

When analyzing the life cycle of a product, it is necessary to identify the most important attributes for the consumer by considering the product as a set of attributes.

Measuring the importance of the attributes of a commodity allows us to distinguish the attributes that are the basis in the process of choosing a commodity by the consumer.

These factors should be taken into account when forecasting the life cycle of the product and the formation of the program range.

The most preferred approach to assortment policy analysis is the complex approach, as its application allows the assessment of assortment policy on several characteristics simultaneously.

The algorithm for a comprehensive approach to assortment policy evaluation is as follows: [6]

Step 1: Calculation of assortment policy effectiveness indicators (15 indicators in the form of ratios).

Step 2: Assign a specific score to each indicator on a special scale.

Step 3: Calculate the sum of the points.

Step 4: Evaluate the effectiveness of the enterprise's assortment policy.

In the first step, the following efficiency indicators are calculated.

Enterprise inventory turnover ratio (K_1):

$$K_1 = \frac{S}{Z}$$

where S - cost of production of the enterprise, thousand m; Z is the average annual value of reserves, thousand m.

The profitability of the enterprise from sales (K_4) is calculated by the following formula:

$$K_4 = \frac{P_{pr}}{B} \cdot 100\%$$

where P_{pr}– profit from the sale of the enterprise, thousand m; V - gain, thousand m.

This ratio characterizes the effectiveness of the enterprise's assortment policy (higher commodity trade supplement).

The profitability of the enterprise's costs (K_5) is similar to the previous indicator, the only difference is that this indicator takes into account the return on each manat invested in production.

The share of total margin (K_6) in the turnover of the enterprise is calculated by the following formula:

$$K_6 = \frac{VM}{B} \cdot 100\%$$

where VM- is the total margin of the enterprise, thousand m.

This indicator is very important for the analysis of assortment policy, as it characterizes the effectiveness of the use of value added to the commodity.

Coefficient of time variation of enterprise sales (K_7):

$$K_7 = \frac{\sqrt{\frac{\sum_{i=1}^{n}(B_j - \bar{B})^2}{n}}}{\bar{B}} \cdot 100\%$$

where the turnover of the enterprise in the B_i – i time interval, thousand m. $\bar{B}$– is the average turnover of the enterprise over time.

This indicator characterizes the dependence of the enterprise on the seasonality of demand for its products. The increase in this indicator also indicates the instability of demand for the product, which is a great risk for the enterprise. In terms of dynamics, any company should try to reduce this figure.

The coefficient of variation of trade turnover by commodity groups (K_8) is calculated by the following formula:

$$K_8 = \frac{\sqrt{\frac{\sum_{j=1}^{m}(T_j - \bar{T})^2}{m}}}{\bar{T}} \cdot 100\%$$

where T_j– turnover of the enterprise on the j-th commodity group, thousand m. $\bar{T}$ – is the average turnover of the enterprise by commodity group, thousand m.

The high value of this indicator indicates a strong dependence of the enterprise's turnover on the commodity group or the imbalance of the range of goods.

A slightly different sequence of using marketing research analysis techniques is A.A. Proposed by Menshikov [8, p. 40-48]. In particular:

Firms operating in the market are ranked by market share:

$$Д_i = \frac{T_i}{\sum T_i}$$

where $Д_i$– i is the market share, T_i- i is the turnover, $\sum T_i$- is the total sales in the market. [7]

How can we determine the market volume and sales (turnover) of competing firms? Market size can be determined from various sources of statistical data: statistical reports, analytical opinions, syndicated data, expert assessments [11]. For example, data from statistical agencies are usually used to determine the growth rate of the market.

When it comes to determining the share of manufacturing companies, either statistical data sources, the results of consumer surveys or expert assessments are used.

B. Determining market potential.

1. Production potential characterizes the potential supply of a product. The following formula is used to determine the production potential of the market:

$$\Pi = \sum_{i}^{n}(N_i W_i) + F_i$$

where N_i- is the unit of production, W_i- is the specific power of the unit of production, F_i - is the other factors and elements of potential, n is the number of i-th units of production or consumption.

Production potential should reflect two events:

a) Production at full capacity (limit of potential);

b) Real product supply taking into account market demand. The production potential for a given period can be broadly expressed in the following formula:

$$\Pi = \sum_i^n \left(N_i W_i D_i R_i \left[T_{\text{пр.цен.}} Э_p \right] K \right) - B - C_u$$

where N_i- i is the production enterprise (group of enterprises) producing the i-th commodity, $-W_i$ is the production potential of the enterprise (group of enterprises) for the i-th output, D_i - is the average rate of overload of production capacity, R_i - is the production resources necessary for the implementation of the production program. supply rate, $\left[T_{\text{пр.цен.}} Э_p \right]$ - adjustment factor for wholesale price changes, $T_{\text{пр.цен.}}$ - price growth rate, $Э_p$- supply elasticity coefficient of prices for raw materials and finished products, K - commodity adjustment factor on competitiveness, B - domestic production consumption (normative), C - import, n - number of i-th type production enterprises.

There is a simpler formula of production potential:

$$\Pi = \sum_{i,j}^n \left(q_{ij} \left[T_{\text{пр.цен.}} Э_p \right] - B \right)$$

where $q_{ij}-$ is the i-th type of product planned to be released by the j-th production enterprise in accordance with the order portfolio, n is the number of j-th production enterprises that have contracted for the production of the i-th product.

This formula is usually applied during the formation of commodity movement channels.

2. Assessment of market consumption potential. Determining the consumer potential of the market means answering the question of how many products the market can absorb. The consumer potential of the market is conditioned by buyer demand and is characterized by market volume.

There are two main approaches to determining market size:

1) Simplified calculation of market capacity. This calculation is based on the fact that the market capacity is equal to the sales volume calculated by the balance formula:

$$V = Q + Z + E \pm I,$$

where V is the market strength; Q - product production; Z - balance of commodity stocks; E - export; I - is an import.

But this is a very simplified formula. Its main inaccuracy is based on the fact that the market volume is still determined by the volume of supply (production). In other words, in fact, the result obtained by this formula is not the volume of the market, but the amount of goods that can be offered to the market.

2) Calculation of market volume based on determining the average level of consumption.

The analysis of the degree of market imbalance is carried out using various methods.

1) **Balance sheet method to determine the supply and demand ratio**. The essence of this method is as follows: the volume of product supply (based on data on production of goods or actual data on sales of goods for the previous period (with the necessary additional calculations)) and procurement funds that make up the aggregate demand of the population (excluding revenues regulated by savings) [13].

Demand-supply balance. The disadvantage of this method is that such a calculation can be made only within the product market as a whole. It is not possible to do this for the local market or for a separate company. The fact is that demand is a potential category that exists only in the mind of the buyer and in the wallet, and it can not be measured by the local market (the exception is the stock markets where supply and demand are recorded). Therefore, this method is mostly used in macromarketing. [9]

2) **The method of correlation of dynamics.** We can apply the method of calculating production and consumption potential. However, it is easier to use the indirect method to observe changes in inventory. Inventories are sensitive to changes in the supply and demand ratio. Excess of

demand leads to a decrease in stocks, and excess of supply over demand (or their quality mismatch) is accompanied by an oversupply of products [12]. It is possible to use an absolute indicator of the volume of commodity stocks, but the use of a relative indicator of trade turnover (in days) gives more accurate results.

In general, we can express these ratios as follows:

$$I_\text{з} = \frac{P}{S} = \frac{\text{T}_\text{з}}{R}$$

where $I_\text{з}$ - commodity stock index, P - supply, S - demand, $\text{T}_\text{з}$ - commodity stocks, R - sales.

According to,

$I_\text{з} = 1$ - the market is balanced;

$I_\text{з} > 1$ - supply exceeds demand;

$I_\text{з} < I$ - demand exceeds supply.

3) **Analysis of market equilibrium based on market indicators.** Another way to qualitatively assess market equilibrium is to analyze the relationship between business indicators and business performance indices.

A. Order portfolio filling ratio. This is an indicator based on entrepreneurs' responses to the level and trends of the portfolio. The balance of positive and negative evaluations is used as an indicator. If the positive evaluations during the surveys exceed the negative ones, we can talk about the sellers' market and vice versa.

B. Customer satisfaction rate. This indicator is related to the assessment of the main marketing problem - customer satisfaction. The analysis is conducted as a ratio of the results of surveys of entrepreneurs and consumers. The result of each survey - the final assessment of both entrepreneurs and consumers - is expressed in the ratio of positive responses, which are assessed as an indicator of customer satisfaction. [10]

C. Conjuncture test. The conjuncture test is based on competitive surveys of different groups of market participants: producers, sellers and consumers. The conjuncture test is the algebraic middle of the possible estimates of the main market parameters, each of which is given a corresponding score. After conducting a survey and obtaining estimates of key market parameters, the algebra is averaged, and then their scores are estimated. Each parameter is determined according to this characteristic according to one puppy (Vi) and weight (Wi), which reflects the role of the i-th parameter in the formation of the market situation. Then a weighted average assessment of each parameter is performed, which acts as a single assessment of the situation and the market. The integrated assessment is called the strategic index or market position index according to the i-th parameter:

$$\bar{B} = \frac{\sum_i^n B_i W_i}{\sum_i^n W_i}$$

where $\bar{B}$ - average score of the market situation (generalized, multidimensional), B_i - i - score characterizing the market situation on the i-th parameter, W_i - weight (rank) reflecting the role of the i-th parameter in the formation of the market situation, n - parameters (number of factors).

Depending on which scoring system is used, a scale of the market situation is established. The higher the strategic index, the more favorable the situation, and the more promising the market.

4) Assess the proportionality of trade.

In addition to the analysis of the ratio of supply and demand, the analysis of the market also uses the analysis of the proportionality of trade turnover. In the analysis of the proportionality of trade turnover, two main relative indicators of the structure are used: share (specific gravity), i.e. the characteristic of the part as a whole and the ratio, ie to directly compare the two parts of a unit. This assessment is performed by analyzing internal statistics and analyzing the turnover (or inventory) of product groups. [10,11]

The difficulty of this method is that an array of collected statistics is required to analyze trends. When the market phenomenon under study is a complex aggregate quantity (for example, a commodity turnover consisting of a combination of similar goods), the dynamics of quantitative indicators is characterized using aggregate or average indicators, in particular the physical volume index and total price index:

$$I_{fiz.döv} = \frac{\sum_i^n q_{i1} p_{i0}}{\sum_i^n q_{i0} p_{i0}}$$

where q_{i0} and q_{i1} are the quantities of the i-th type of product sold in the base and reporting periods, respectively, p_{i0}- is the price of the i-th type of commodity in the base period.

1) Analysis of market stability over time.

The stability (variability) of market development over time is manifested in the nature of deviations from the main trend of factual data. This allows you to measure the sustainability of market development with a known analytical indicator - the convergence factor. In this case, the standard deviation of empirical levels from the trend is calculated:

$$\sigma_{yi-yt} = \sqrt{\frac{\sum_i^n (yi - yt)^2}{n}}$$

where σ_{yi-yt} – is the standard deviation of the empirical levels of the dynamic sequence from the trend, yi - is the i-th level of the dynamic sequence, y_t – is the i-th level of the dynamic sequence (trend), n is the number of i-th levels of the dynamic sequence [12, 13].

Since the standard deviation is a quantity, the approximation factor is usually expressed as a percentage of the mean:

$$K_a = \frac{\sigma_{yi-yt} \cdot 100}{\bar{y}}$$

This figure varies between 100 and 0 percent and reflects the degree of sustainability of market development. If the convergence ratio is less than 10%, it indicates the sustainable development of the market, and if it is higher than 10%, it means that the market parameters deviate significantly from the market equilibrium.

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