ECONOMY OF THE AGROINDUSTRIAL COMPLEX

MARKET CAPACITY AS THE BASIS OF MARKETING RESEARCH FOOD MARKET OF KEMEROVO REGION

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Abstract: One of the main tasks of marketing research is to identify the capacity of food market. Market capacity, concerning its quantitative characteristics, demonstrates the capabilities of food market volume of sales. It is a common practice to distinguish between two levels of market capacity: potential and actual. The actual capacity of a market is the first level. Potential level is determined by personal and social needs, and it reflects an adequate volume of sales of goods. The capacity, which is really establishing in a market may not correspond to its potential capacity. Market capacity may be calculated in cash and in kind. Knowing the capacity of a market and its trend changes, it is possible to assess the prospects for the development of the food market. Different methods are used for the market capacity calculation, each of which is most suitable in the given context, this paper presents a comparative analysis of the choice of a calculation method of the food market, food market potential capacity of Kemerovo region is justified. The capacity of its food market in the period from 2001 to 2013 is calculated. The calculations take into account the demographic situation in the region and rational consumption norms of foods, recommended by the Ministry of Health and Social Development, what meets the modern requirements of a healthy diet. Conclusions on the data are formulated.

Key words: Marketing research, real and potential market capacity, rational consumption norms (rates)

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INTRODUCTION

Marketing is a hierarchically organized system of management activities in a market, regulation of market processes and market research. One of the basic requirements of marketing is to ensure the "transparency" of a market and the "predictability" of its development. Without the collection of reliable information and its subsequent analysis marketing cannot fully perform its mission. To do this, you must conduct marketing research. All marketing research is carried out in two sections: evaluation of various marketing options for the given time and getting their predicted values. Collection of information, its interpretation, evaluation and forecast calculations are assumed to call a marketing research.

When conducting marketing research, you should pay attention to the principles which you should follow – regularity, consistency, comprehensiveness, coherence and commitment, the multiplicity of information sources, versatility, and scientific character.

(1) Systematic character – studies should be carried out systematically, rather than in a disposable nature.

(2) System character – should cover the entire market and all the structural hierarchy of market processes: facts, their dynamics and interactions.

(3) Complexity – on the one hand, includes a set of actions or processes (collection, processing, analysis), on the other hand - an integrated approach to the study of objects (their relationships with other processes and objects).

(4) Coherence and commitment – the direction, magnitude, depth; the details of research should be organically linked to the goals and objectives of this market, entity reflect its real needs in specific analytical information.

(5) Plurality of sources of information – receipt of market information not from one but from several sources is advisable, allowing you to have a comprehensive "overlapping" each other's data and thereby to clarify and verify information, excluding questionable data.

(6) Versatility – research can be conducted on the basis of all the needs of obtaining any market information to make rational decisions.

(7) Scientific character – accuracy, objectivity, conditionality.

Non-objective, groundless investigations lead to wrong, distorted recommendations. Each of these principles is important in itself, but taken together they make such interaction possible and prepare such market research, which can become a reliable basis for making well-informed, thoughtful management decisions.

The main purpose of marketing research is reducing the uncertainty and risk in management and business decisions. We study the trends and developments of a market, its capacity, dynamics of sales, the actions of competitors, attractive sides and risks. Consumer research allows us to determine the motives of their behavior; and commodity research - the competitiveness of products; the effectiveness of incentives and advertising are investigated as well. The effectiveness of distribution channels, an important area of marketing research is to identify the strengths and weaknesses of business activities and others.

Marketing research can provide information on many aspects of a market. The study of the food market of Kemerovo region by marketing research is aimed at the discovery of effective means of market management on the basis of objective understanding of the situation on it.

Parameters of stable development of the regional food market can be determined through marketing research: one of the tasks of marketing research of the food market in the region is to determine its capacity. The calculation of food market potential capacity reflects the total needs of the region based on the highest possible level of consumption.

Food product is a specific product, used by consumers on a daily basis in certain amounts, which depends on a variety of factors: economic, demographical, natural and climatic, national and routine. The inclusion of real consumption and the size of the impact of these and other factors, determining these volumes allow us to calculate the demand of local market on a particular food product. Necessity (presenting as aggregate demand) is a potential consumer market, which, in its turn, is characterized by the capacity of the market.

In economic literature [1, 2, 3, 4] different ways of calculating the capacity of a market are suggested. Market capacity is a key parameter characterizing the total demand for products and being of interest. Market capacity of certain products is the volume of production of one kind or commodity group in a given area at a given time. In marketing interpretation of a market size (market capacity) it is the aggregate effective demand of customers for a particular product at the current price level. Real knowledge of market capacity allows us to build the right strategy of obtaining a market niche, or make a reasonable program of attainment of the leading position in the branch market. The option was recently enriched with a new content, expanding the scope of application: within the space of integration into the world community; within the market segment.

We may determine market capacity as a real and potential one. In the result of generalization of several works the following definition of market capacity is proposed - it is the cumulative number of certain goods or services, which for a certain period of time is provided in a market (or will be provided) by current demand, required supply structure and appropriate level of prices in the specific marketing environment. [5] The use of specific numbers in a certain period indicates the actual use of the concept of market capacity.

The potential capacity of a market is the maximum aggregate amount of certain goods and services, which is able to absorb this market for predetermined period of time under conditions of maximum consumption of all potential users and the maximum intensification of marketing campaigns. [5]

Procedure of determining the capacity of a market provides for special marketing research or calculations based on the published and borrowed information. Such studies are performed by specialized centers and more seldom marketing departments.

Estimation accounts based on the published data and calculation methods stated here (Table 1) may be made by market research and marketing departments, and where they do not exist – by economic analysis and accounting departments.

OBJECTS AND METHODS OF RESEARCH

To choose the right way, you must know exactly what the purpose is, and answer the question: why do you need to find the capacity of a market? Selection criteria determination method lies in the reply. In this work, we need to determine the capacity of the market in order to find out, what should be the saturation of the market (potential market capacity) of some food products.

From Table 1, we may state, that method 4 is the most suitable, since it takes into account the market capacity depending on the number of users. To achieve the objectives of the study, we need to modernize this method by making the following changes:

– It is necessary to determine not only the total number of users, but their age group;

– When determining consumption rates we consider the consumption coefficient, specific for a certain age category.

Thus, the formula 1 determining the potential market capacity will be as follows:

$$E = \Sigma (H_i \, x \, N \, x_I \, R_i), \quad (1)$$

where E is the number (in kind) of goods, products for consumption for the period in accordance with the norms of rational consumption; H_i is the number of the i-th consumers group; R_i is the consumption coefficient of specific age groups the i-th group; N is the physiological norms of products consumption (goods).

As a basis for calculating the demand amount for a particular food product physiological consumption rates were made, calculated for a specific region, in particular for the temperate continental climate zone of Siberia.

Thus, to calculate the needs of the regional market in food, the following data are necessary: the population of Kemerovo region, the rate of consumption of certain foods, consumption peculiarities of age categories. Consumption norms are defined as physiologically required amount of food for one person per year of normal life. Rates of consumption of some food items are shown in Table 2. When the consumption norms are taken for further calculations in the present work, we choose the maximum value due to the fact that, as mentioned earlier, the potential capacity of a market is determined by the maximum level of consumption.

These volumes of consumption of products by consumers of different age groups are not the same, so consumption rates were adjusted for age-specific consumption (Table 3).

Table 1. Methods for determining market capacity [3]

Description of the method	Formalized view
On the treatment of production volumes	
Method 1. Base: accounting of production, import, export and balances.	$M = P - E + I + (O_E – O_B) + (R_E - R_B)$, where P is the volume of production for the year of specific product or product group; I is the volume of imports of state and private structures; O_B, O_E is the residues at the beginning and end of the period, respectively; E is the exports of state and private structures; R_B, R_E is the state reserve at the beginning and the end of the period, respectively (not always taken into account, but only for specific types of products); M is the market capacity.
Method 2. Base: selecting the major manufacturers in the branch. Absolute and relative volumes may be considered. Supply of imported goods is valued on a par with that of manufacturers of domestic products.	$M = M_1 + M_2 + ... + M_i$
Method 3. Base: selective account of the major enterprises. It is used in a large number of enterprises. Sampling should be done by categories of producers: largest or regions. The calculation is possible in both absolute and relative terms.	$M = P_1 x K_1 + P_2 x K_2 + ... + P_i x K_i$, where P_1, P_2, ..., P_i is the production of an individual sample, the most typical enterprises within each category of producers, taking into account residues; K_1, K_2, ..., K_i is the coefficients within each group of samples manufacturers.
By the method of accounting standards expenditure and consumption	
Method 4. Base: accounting standards in expenses of consumers Essentially, this is theoretical or potential capacity of the market. Used for rapid expenditure of goods, which are purchased regularly.	$M = C \times W \times T_i$, where C is the consumption of goods per person; W is the number of users of the goods; T is the life time of the product.
Method 5. Base: norms for expenditure mechanisms. Inquire, that in one category are several mechanisms that should be considered separately in each category, and then summarize these data.	$M = C \times N \times T$, where C is the consumption of one mechanism over time T in a month; N is the number of mechanisms.
Method 6. Base: rates of consumption of food products, raw materials and other consumables.	$M = A_1 \times U_1 + A_2 \times U_2 + ... + A_i \times U_i$, where H is the annual rate of consumption per capita; U is the number of users of products or raw materials.
On the treatment of sales	
Method 7. Base: a sample of trade enterprises and accounting the norms of the volume of their sales (index sequential panels).	$M = P + (O_K - O_N) \times 12N / N_F \times T$, where P is the volume of sales; N_F is the number of the sample of trade enterprises; N is the total number of trading companies; T is the life time in months; $(B_E – B_B)$ is the life time in months different balances at the beginning and the end of the period, respectively, for the enterprise.
Method 8. Base: the value of all sales in the branch is on one single product or product group. Usually used for district or city, it is difficult to determine all trading enterprises in the country.	$M = (P_1 + P_2 + ... + P_i) \times 12 / T$, where P_1 P_2, ..., P_i is the life time in months amount of sales of various companies in the period T during a month.
Method 9. Base: accounting the amount of primary, secondary and additional sales. Consumer goods are divided into those who acquires the product for the first time, thus they form the primary market sales of M_F; for those who re-buy the item for the replacement of the old one, they form secondary market sales – M_S; for those who buy goods in addition, that is the second, third, etc. instances of the same product – M_A.	$M_F = P / T$, where T is the life time.

Table 1. Ending. Methods for determining market capacity [3]

Description of the method	Formalized view
Method 10. Base: transfer of the experience in terms of sales from one region to another, taking into account population and average salary (based on factor coefficients of sales driving).	$M = M_0 \times K_1 \times K_2 \times K_3$, where M_0 is the known capacity of one of the regional markets; K_1 is the first reduction coefficient equal to the ratio of the population of a new region to the number of well-known, that defines the size of the market; K_2 is the second reduction factor equal to the ratio of the average earnings of the new region to the known ones, K_3 is the for regions of the same type is 1.0, and to compare the new region with the big city urbanization ratio is 0.35.
On the treatment of nomenclature, prices, advertising volume with reference to the parameters well-known enterprises	
Method 11. Base: comparison of the sum of the range of all commercial enterprises bound to nomenclature and the range and volume of sales of their firm or a famous company. The method is applicable for industries with high nomenclature: for household goods, pharmaceuticals, electrical products and others.	$M = (K_1 + K_2 + ... + K_i) \times P_0 / K_0$, where K_1, K_2, ..., K_i is the nomenclature of companies on investigated industry; K_0 is the nomenclature of its own, or well-known company; P_0 is the sales of own or well-known company.
Method 12. Base - comparing the amount of advertising in the industry with the volume of advertising your own firm, or a well known one, tied to sales.	True for all firms. All calculations are similar to the previous case, except that, when instead of the nomenclature of the advertising volume equal to the product of the area of ads on the frequency of repetition or playing time on the frequency of repetition is taken.
Method 13. Base: finding a sales volume of the company with reference to the nomenclature of the average price and average commodity stocks. Preferred is the method for companies with significant nomenclature.	$M = K_1C_1R_1 + K_2C_2R_2 + ... + K_iC_iR_i$, where K_1 is the nomenclature of the first company; C_1 is the average price for the first item of the enterprise; R_1 is the average goods reserve for the first enterprise.
By the method of comparison with the previous period	
Method 14. Base: taking performance equal to the previous period, under conditions close to the stable.	$M_P = M_N$, where M_P is the market capacity for the previous period; M_N is the market capacity of the new period.
Method 15. Base: taking rates of the prior period, after adjusting for changes in certain economic solvency, the rate of ruble exchange, energy costs and other factors.	$M_N = M_P \, x \, K_N$, where M_N is the market capacity of the new period; M_P is the market capacity of the previous period; K_N is the factor of economic change.
Method 16. Base: mainstreaming the previous period, adjusted for the share of imports K_I, and export K_E share of the internal volume K_P	$M_N = M_P \times (K_P + K_I - K_E)$ or only to the internal volume indicators $M_N = M_P \times K_P$
Method 17. Base: taking the rates for the previous accounting period, adjusted for the change in the market saturation.	$M_N = E_P \times (1 + S_N - S_P)$, where S_N, S_P is the respectively the new and old rates saturation.

Table 2. Physiological consumption rates of certain food products

Food products	Consumption rates,kg / year / person*	Consumption rates,kg / year / person**
Bread and pasta in terms of flour	95–105	105
Milk and dairy products in terms of milk	320–340	340
Meat and meat products	70–75	75
Potato	95–100	100
Vegetables and water- melons	120–140	140
Eggs	260 pcs.	260 pcs.
Sugar	24–28	28
Fish and fish products	18–22	22
Fruit and berries	90–100	100

Notes. * According to [6], ** Rates of consumption taken for further calculations in this paper.

Table 3. Scale of age groups consumption coefficients*

Age of customers	Up to 1 year	1 – 3 year	3 – 7 year old	7 – 11 year old	11 – 15 year old	15 – 18 year old	Grown ups	In the pension age
Coefficients	0.20	0.35	0.50	0.65	0.80	0.90	1.00	0.90

Notes. * According to [7].

More accurate baseline information on the calculation of the needs of the regional market in foods makes possible the adjustment of physiological norms of consumption of a particular age group in accordance with the scale of the specific age category. Arrangement of the data on the distribution of the region's population by age groups according to the age-specific coefficient of consumption intervals is presented in Table 4. Calculation (data given in Tables 2, 3, 4) of the needs of the region's commodity food groups (Table 2) is presented in Table 5 (the potential capacity of the food market of Kemerovo Region for 2001-2013).

Table 4. Population distribution by consumption groups for the 2001-2013 biennium*

Age of customers	Group size (on January 1)						
	2001	2002	2003	2004	2005	2006	2007
Up to 1 year	26 235	27 352	30 102	30 255	30 430	30 605	31 838
1 - 3 years	75 137	76 265	81 052	87 720	86 622	88 520	90 812
3 - 7 years	112 256	106 379	101 295	102 120	102 906	103 697	106 399
7 - 11 years	139 118	135 744	117 243	109 529	107 905	106 284	104 113
11 -15 years	196 520	194 348	170 318	155 308	147 610	139 911	127 303
15 -18 years	153 375	154 648	155 390	153 369	148 721	144 073	132 088
Grown Ups	1 672 516	1 688 677	1 681 018	1 691 118	1 695 600	1 700 086	1 708 033
In the pension Age	542 678	540 754	535 646	528 624	526 990	555 673	525 709
Total	2 917 835	2 924 167	2 872 064	2 858 043	2 846 784	2 868 849	2 826 295

Notes.* In accordance with Kemerovostat.

Table 4. Ending. Population distribution by consumption groups for the 2001-2013 biennium*

Age of customers	Group size (on January 1)					
	2008	2009	2010	2011	2012	2013
Up to 1 year	34 050	36 501	37 433	35 169	34 854	37 598
1 - 3 years	92 654	96 240	102 494	106 229	107 519	106 513
3 - 7 years	111 858	115 961	120 325	122 603	126 633	132 294
7 - 11 years	101 950	103 190	104 901	107 755	112 798	115 522
11 -15 years	118 053	110 654	107 483	104 597	101 608	102 877
15 -18 years	121 004	110 474	98 019	90 497	85 066	80 740
Grown Ups	1 713 187	1 710 074	1 703 773	1 636 090	1 610 431	1 582 508
In the pension Age	530 783	538 398	546 208	558 315	571 920	584 298
Total	2 823 539	2 821 492	2 820 636	2 761 255	2 750 829	2 742 350

Notes.* In accordance with Kemerovostat.

Table 5. The potential capacity of the food market of Kemerovo region for 2001-2013 years*

Trading group		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Meat and meat products, thous. Tons	need	197.57	198.27	195.03	194.11	193.49	194.99	192.07	191.68	191.15	190.60	185.94	184.82	183.70
	deflection in previous year		+0.7	-3.24	-0.92	-0.62	+1.5	-2.92	-0.39	-0.53	-0.55	-4.65	-1.12	-1.12
Milk and dairy products in terms of milk, thous. Tons	need	895.65	898.83	884.15	879.98	877.14	883.90	870.72	868.93	866.53	864.03	842.95	837.84	832.79
	deflection in previous year		+3.18	-14.68	-4.17	-2.84	+6.76	-13.18	-1.79	-2.40	-2.50	-21.09	-5.11	-5.05
Bread and pasta in terms of flour, thous. Tons	need	276.60	277.58	273.05	271.76	270.88	272.98	268.90	268.35	267.61	266.83	260.32	258.75	257.18
	deflection in previous year		+0.98	-4.53	-1.29	-0.88	+2.1	-4.08	-0.55	-0.74	-0.77	-6.51	-1.57	-1.57
Fish and fish-products, thous. Tons	need	57.95	58.16	57.21	56.94	56.76	57.2	56.34	56.23	56.07	55.91	54.54	54.21	53.89
	deflection in previous year		+0.21	-0.95	-0.27	-0.18	+0.44	-0.86	-0.12	-0.16	-0.16	-1.37	-0.33	-0.32
Potato, thous. Tons	need	263.43	264.36	260.04	258.82	257.98	259.98	256.09	255.57	254.86	254.13	247.93	246.42	244.94
	deflection in previous year		+0.93	-4.32	-1.22	-0.84	+2.0	-3.89	-0.52	-0.71	-0.73	-6.20	-1.51	-1.48
Vegetables and melons, thous. Tons	need	368.80	370.10	364.06	362.34	361.18	363.98	358.53	357.79	356.81	355.78	347.10	344.99	342.91
	deflection in previous year		+1.3	-6.04	-1.72	-1.16	+2.8	-5.45	-0.73	-0.99	-1.03	-8.68	-2.11	-2.08
Eggs, million. pcs.	need	684.91	687.34	676.12	672.92	670.75	675.95	665.84	664.48	662.64	660.73	644.61	640.70	636.84
	deflection in previous year		+2.43	-11.22	-3.2	-2.17	+5.2	-10.11	-1.36	-1.83	-1.91	-16.12	-3.91	-3.86
Sugar, thous. Tons	need	73.76	74.02	72.81	72.47	72.24	72.80	71.71	71.56	71.36	71.16	69.42	69.00	68.58
	deflection in previous year		+0.26	-1.21	-0.34	-0.23	+0.56	-1.09	-0.15	-0.20	-0.21	-1.74	-0.42	-0.42
Fruits and berries, thous. Tons	need	263.43	264.36	260.04	258.82	257.98	259.98	256.09	255.57	254.86	254.13	247.93	246.42	244.94
	deflection in previous year		+0.93	-4.32	-1.22	-0.84	+2.0	-3.89	-0.52	-0.71	-0.73	-6.20	-1.51	-1.48

Notes. *In accordance Kemerovostat and Tables 2 – 4.

RESULTS AND DISCUSSION

Development of a region is primarily determined by the life standard of population and the degree of satisfaction of human needs for food. Availability of information on the potential capacity of the food market in the region allows the management of the region to respond to food crises in proper time, such as the global food crisis of 2007-2008.

In Kemerovo region the level of its own food production provision is about 70%, the rest is imported from neighboring regions, i. e., natural-resource potential of the region is not used to the full extent. Ensuring food self-sufficiency in the region is possible only when the mobilization of resource potential of agriculture and the creation of the industry of effective organizations is attainable. Over the years of agricultural reform in Kemerovo region, a broad range of agricultural commodity producers has been generated with different variety of forms of ownership and management, but not all of them are effective [8].

Recommended actions to ensure food security are to increase investment in agricultural production and productivity growth [9, 10].

In this work, to determine the potential market capacity we upgraded mode 4 (Table 1). These changes take into account the age group structure of the region's population and age consumption coefficient [11].

Not only agricultural production in rural areas plays an important role in the food market saturation, but also the so-called urban agriculture, which contributes to the improvement of the local population. The garden plots of urban population, urban fruit and vegetables gardens for growing fruit (currants, raspberries and others) require a minimum initial investment [12].

The potential of meat and dairy foods sales [13] in Russia is very large and requires further filling by domestic products. The problem of import substitution, especially in the developed in our country recent situation when we announced the international sanctions, is highly relevant for all industries, including food.

Being based on the calculated data decline in the needs of the regional market can be stated for the period of 2001-2013, also it is stipulated by consideration of some food products. It should also be noted, that slowdown needs of the regional market in foods in the years 2009-2013, particularly in 2011, are connected with the reduction in the total population of the region, in particular with a significant decrease in population in the category of "adult" (with a high rate of consumption of 1.0 to the general rules).

The relationship between the demographic situation in Kemerovo region and the capacity of the regional food market is obvious. Over the past 10 years, no increase in population is observed. Therefore, under these conditions, we can draw some conclusions, namely, for the improvement of situation it is necessary:

– To improve the standards of life of the region's population;
– To increase the birth rate and reduce mortality;
– To improve health and safety of labor in hazardous occupations;
– To raise awareness of the attractiveness of the area for citizens of other regions, etc.

Solving of these problems should become the priority task of leaders at all the levels: businesses and public organizations.

Thus, market research can provide information on many aspects of a market, since in this case we study trends and development processes of a market: its capacity, the dynamics of sales, the actions of competitors, attractive sides, the risks and others. The parameters of sustainable development of the regional food market of Kemerovo region can be determined by market research. Determination of market capacity is one of the main prior tasks of the marketing research of food market in the region. The knowledge of market capacity and trends of its change, makes it possible to assess the prospects for further development of the food market of Kemerovo region, as well as the adoption of competent management decisions for the development of the region as a whole.

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