Issues of implementation of control indicators of the food security doctrine of the Russian federation

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Abstract. The article considers individual issues of implementation of control indicators of the execution of the Doctrine of Food Security of the Russian Federation. The characteristic features of food security are defined. The variants of assessment of self-sufficiency in foodstuffs are offered. The formula for the level of self-sufficiency in foodstuffs, which allows to take into account the provision of rational norms of consumption in calculations, is offered. The possible measures aimed at achieving the indicators of national interests of the state declared in the Doctrine were defined. Two possible options for the authorities, aimed at achieving the indicators of self-sufficiency in food were considered. The advantages and disadvantages of each of the presented directions are presented.

1. Introduction

1.1. The Food Security Doctrine as a document defining national security priorities

Food security issues in our country have received attention since the end of the last century. The greatest publication activity on this topic falls on the period of 2006 - 2012. During this period the works of such famous scientists and statesmen as A.I. Altukhov, G.A. Gorbunov, I.M. Kulikov, V.I. Nazarenko, E.B. Skrynnik, I.D. Ushachev, A.A. Shutkov, and many others.

Recent events, both in the world and in Russia, have required special attention to the issues of food supply for the country’s population.

The latest version of the Food Security Doctrine, approved by Presidential Decree No. 20 of January 21, 2020, defines food security as a certain level of socio-economic development. In accordance with the definition presented in the Doctrine, the specified socio-economic level should be characterized by a number of characteristic features:

- food independence (for Russia);
- physical accessibility of food products (for each person);
- economic accessibility of food products (for each person);
- compliance of food products with mandatory requirements;
• compliance of rational norms of consumption with the needs necessary for an active and healthy lifestyle.

As can be seen from the definition, the Doctrine provides a number of criteria for defining food security. But the food independence of Russia was the only criterion, for which thresholds are defined in the Doctrine. Food independence should be understood as self-sufficiency of the state in basic foodstuffs. It is assumed that for self-sufficiency of the state in food it is sufficient to achieve the presented thresholds (table 1).

Control over the execution of relative indicators is characterized by the fact that it is necessary to introduce a procedure for calculating indicators that is uniform for execution by all actors involved in the process of collecting and processing information. In this paper, we will refer to some indicators that have certain formulas for calculation, through the assessment of which it is permissible to draw conclusions about the degree of fulfillment of the objectives of the Doctrine, presented in the Doctrine as "national interests. The issue of defining indicators seems to us quite important, since the absence of precise formulas and formulas for calculating indicators can be used by unscrupulous performers as a permissible possibility to fudge the actual indicators with the desired ones.

**Table 1.** Thresholds of food self-sufficiency of the Russian Federation in the context of food groups [1].

| Product Type                | Self-sufficiency threshold, % |
|-----------------------------|-------------------------------|
| Grain                       | 95                            |
| Sugar                       | 90                            |
| Vegetable oil               | 90                            |
| Meat and meat products      | 85                            |
| Milk and dairy products     | 90                            |
| Fish and fish products      | 85                            |
| Potatoes                    | 95                            |
| Vegetables and gourds       | 85                            |
| Fruits and berries          | 60                            |
| Seeds of major crops        | 75                            |
| Food salt                   | 85                            |

The purpose of this study: to consider the possibilities of collecting information and obtaining data on the country's actual self-sufficiency in food in accordance with the stated Doctrine.

Of course, any collection of information is advisable, using natural units of measurement. The value factor will inevitably lead to a significant distortion of the data due to the instability of prices. The price factor will affect both the comparability of regional indicators and indicators calculated for different time ranges.

2. Main part

2.1. Indicators of implementation of the Food Security Doctrine and some issues of their calculation

In principle, there are two main possibilities to study the sources of food supply: on the basis of information on production, and on the basis of information on consumption.

When investigating on the basis of production information, it is necessary to take into account the following factors:

- Volume of actual domestic production (PrRF);
- Export volume (ERF);
- Import volume (IRF).
The required indicator of self-sufficiency based on production volumes (SVRF) will be calculated as:

$$SVRF_{pr} = \frac{PrRF - ERF}{PrRF - ERF + IRF} \times 100\%$$  

(1)

The advantage of this calculation option is its simplicity and transparency. There is no need to recalculate the volume of production of processed agricultural products in the original raw materials, while including the product of secondary processing in the calculation. Let's consider the situation on the example of meat and meat products. Meat products, according to the doctrine, should be recalculated to the amount of meat. This recalculation can be quite complicated, as producers produce quite a wide range of products, in each position of which the meat content will be different. Calculation "from primary production" simplifies the calculations. It is enough to have information about the production of meat in the country. To collect the production figure in this way, only information from slaughter points, corrected for the normative waste percentage, will be needed. The need to convert meat products to meat arises only when estimating the volume of exports and imports.

Disadvantages of this method:

- the impossibility of determining whether a given product has reached the end consumer directly (part of the product in the process of processing and bringing it to the consumer may be spoiled, destroyed. For the purposes of this study, we will not examine the reasons for such phenomena; we will simply assume that such situations are possible in principle).
- for exported and imported products, there is still the need to recalculate for the desired unit of product (for example, meat products should be recalculated for meat, based on its content in this product).

The situation will be different when calculating the indicator on the basis of information on consumption. In this situation there is no need to study the volume of production. Information according to this principle can only be collected from the retail trade network. Logically there is a need to trace the volume of sales of controlled products in the context of producers (domestic product/import) and the percentage content of controlled product (conditional meat in conditional sausage).

When researching the issue based on information about sales to the end consumer, it is necessary to consider the following factors:

- The volume of sales of domestic goods by each commodity item (VSCDG);
- The volume of sales of imported goods by each commodity item (VSCI);
- The content of the main product in the product (CMP) - this indicator is shown as a percentage;
- The required self-sufficiency indicator based on the volume of consumption (SVRF_{cons}), will be calculated as:

$$SVRF_{cons} = \frac{\sum (VSCDG \times CMP)}{\sum (VSCDG \times CMP)} + \frac{\sum (VSCI \times CMP)}{\sum (VSCI \times CMP)} \times 100\%$$  

(2)

The advantage of this type of calculation is the greatest accuracy.

The disadvantages of this method.

The source of information in this case is the retailer. The representative of the retail network does not always have information about the composition of the product in percentage ratio, as the indication of information about the percentage composition of raw materials in the product is not mandatory for the manufacturer.

There is a complexity of collecting information, since significantly more subjects will be involved in the process of collecting information than when using the information of producers.

As we can see, there are at least two possibilities to study the level of self-sufficiency of Russia in food in accordance with the adopted Doctrine. The ideal research would involve the use of two methods, both based on production volumes and on consumption volumes. Comparison of indicators calculated
by using different methods will allow to determine quite accurately the share of domestic product in the total volume of consumption. Significant differences in the indicators calculated by different methods will diagnose attempts to falsify statistical data. Insignificant differences in the indicators can be regarded as certain inaccuracies in the calculations.

When forming information on RF self-sufficiency in its own food products, one more factor must be taken into account, namely the use of imported raw materials. For a qualitative study of the food market in Russia (in terms of self-sufficiency), it is necessary to decide on the order of classification of domestic goods produced wholly or partially from imported raw materials.

If we use literally the concept of the level of self-sufficiency, presented in the Doctrine as an indicator which is calculated "as the ratio of the volume of domestic production of agricultural products, raw materials and food to the volume of their domestic consumption", the calculation should use an integrated formula, combining formulas (1) and (2). The numerator should contain indicators of production, and the denominator - indicators of consumption. We obtain the formula for the self-sufficiency indicator (SVRF\(_D\)), calculated on the basis of and production volumes (SVRF\(_{pr}\)) and consumption (SVRF\(_{cons}\)):

\[
SVRF_D = \frac{PrRF - ERF}{\frac{\sum (VSCDG \times CMP)}{100} + \frac{\sum (VSCI \times CMP)}{100}} \times 100\% \tag{3}
\]

In this formula, the ratio of sales of domestic and imported products in the volume of retail sales of goods does not matter in principle, which greatly simplifies the calculations, allowing us to reduce the denominator to total food sales (VSG):

\[
SVRF_D = \frac{PrRF - ERF}{\frac{(VSG \times CMP)}{100}} \times 100\% \tag{4}
\]

The presented formula corresponds most closely to the formulation of the level of self-sufficiency presented in the Doctrine. At the same time, it seems insufficient to assess the level of food security only by the degree of self-sufficiency. A number of factors of food security under this condition remain uninvolved and unappreciated. There is a certain discrepancy between the formulation of indicators of self-sufficiency in food and the concept of food security presented in the Doctrine. Interpretation of self-sufficiency without taking into account other factors, points to the priority task of transferring the maximum share of the food market to domestic producers. This task, of course, seems important enough, but it does not take into account the level of coverage of the population's needs for food. In the absence of indicators that characterize other components (factors) of food security, the achievement of the required indicators can take distorted forms that do not ensure the achievement of the whole set of objectives set by the Doctrine. Achieving the level of self-sufficiency established by the Doctrine can lead to results not quite consistent with the declared national interests. In particular, in order to increase the share of domestic products in the volume of food consumption, a situation may arise in which the required level can be achieved not by increasing the numerator in the formula, i.e. the volume of domestic production, but by reducing the denominator, i.e. the total volume of consumption. In this regard, we consider it necessary to expand the list of indicators of food security by involving in the evaluation criteria the level of provision of people with the need for food. In the light of this formulation of the issue food independence should be expressed not so much by the share of own production in total consumption, but by the share of own production in the needs of the population in food. One of the factors for calculating the achievement of food independence is the need for food, calculated on the basis of the Order of the Ministry of Health. With Order No. 614, the Ministry of Health defined a rational rate of consumption (RCR) per person. The population's need for food can be determined on the basis of data on the current or projected population (PS) and rational norms of consumption. Ideally, consumption rates by age and sex can be used to examine a country's food needs. The average norm presented by the Ministry of Health is sufficient to get an overall picture. In its adjusted form, the formula for self-sufficiency, based on the provision of products of domestic production of rational norms of consumption (SVRF\(_N\)), would look as follows (Formula proposed by Solodova S.V.):
SVRFᵦ = \frac{PRF - ERF}{RCR \times PS} \times 100\% \tag{5}

The proposed formula has the following advantages:

- reveals the share of own-produced products not in the total volume of the market, which can be either higher or lower than the needs, but in a scientifically defined rate of consumption, which provides the optimal need of the body for a healthy and active lifestyle.
- makes calculations much easier, because the need to convert the final product to the original product is no longer relevant. The only exception is exported products, but such sales are carried out only in large batches, the collection of information will not be a significant labor cost.

The possibility to refuse complicated recalculations of meat products into meat, dairy products into milk, etc. will allow to achieve the transparency of calculations, because it will allow to get information only from primary producers of agricultural products. In the proposed version of calculations it becomes unimportant how much conditional sausage is produced from a kilogram of meat or how much dairy products are produced from a liter of milk. The volume of information collection for obtaining the necessary indicator is significantly reduced.

The calculation of the self-sufficiency indicator based on consumption norms seems to be the most convenient and consistent with the needs of management.

The economic affordability of food products as one of the signs of food security is not provided with evaluation criteria and indicators. Thus, this factor, being declared, needs an objective assessment. An objective approach to assessing the affordability of food can be considered the level of income that allows to provide adequate nutrition [5, 11]. It is necessary to take into account that the rational norm of food consumption is not a priority in the expenditure of the family budget. There are compulsory payments, the priority of which turns out to be higher, because their non-payment can entail consequences affecting the possibility of further income generation. Such expenditures include payment for utilities, transportation, medical expenses, and communication services. In addition, in order to exist in society people need to periodically buy clothes according to the season, visit a hairdresser, buy synthetic detergents, personal hygiene products, etc. It is assumed that food security takes place if, after all the above expenditures, there are funds to provide oneself and one's family with food at the level of a rational norm of consumption. If we proceed from the "active, healthy lifestyle" and the need to renew labor resources, the calculation should be made on the basis that each working citizen of working age should have an income that ensures the possibility of a full life not only for himself, but also for at least one child. In world practice, it is customary to assess the level of economic well-being of households according to the expenditure structure. One of the factors determining the assignment of a household to a certain group according to the level of well-being is the share of food in consumption [3]. It is believed that as income increases, the share of expenditures on food decreases. According to international standards, households were divided into 6 groups according to the level of expenditure on food (table 2).

| Category of households by standard of living | Share of expenditures on food, % |
|---------------------------------------------|-------------------------------|
| Poor                                        | ≥60 %                         |
| Low standard of living                      | 50–60%                       |
| Below average                               | 40–50%                       |
| Average                                     | 30–40%                       |
| Above average                               | 20–30 %                      |
| High                                        | ≤ 20%                        |

Table 2. Classification of households by the level of expenditure on food [4].
As the population's income grows, the share of expenditures on food decreases. At the same time, the structure of food expenditures themselves changes in the direction of higher-quality products. At the same time, the decrease in the share of expenditures on food with an increase in the amount of income is not directly proportional. Studies of consumption in developing countries have shown that in poorer countries and population groups the share of expenditures on food can increase as income increases, because the process of quantitative saturation of basic demand has not yet been completed [3].

In Russia, the share of spending on food and non-alcoholic beverages was 29.8% in 2019, according to Rosstat [5]. Based on the above classification, Russians should be categorized as having a fairly high standard of living. The Food Security Doctrine assumes that food is economically accessible to everyone. Consequently, average per capita indicators in this situation will not be objective enough, given the social stratification of the population.

It is necessary to take into account the quality of nutrition. The composition of products that are sold on the food market in Russia is often unacceptable for economically developed countries. An example of a solution to the situation with the declining quality of food can be the situation that arose in Canada in 2021. Residents began to complain about the declining quality of butter. In particular, it was noted that the butter did not soften at room temperature. It turned out that palm oil was added, no, not to the butter itself, but to the cattle feed in order to increase the fat content of milk. As a result of the inspection, a working group was set up to look for alternatives to palm oil.

At the same time, the consumption of palm oil in Russia grows from year to year, the share of food products for the population, in which palm oil is directly added, increases accordingly. In January 2021 alone, Russia increased imports of palm oil and its fractions by 18.8% compared to January 2020 [6]. For an objective assessment of the level of economic affordability of food, the calculations should be based on the prices of natural products that do not contain harmful additives in their composition.

Food safety in the Doctrine is defined as "compliance of food products with mandatory requirements". Taking into account that the compliance of products with basic safety criteria does not guarantee the naturalness and high nutritional value of the product [7], two main directions of food quality changes necessary to achieve food safety should be distinguished:

- reducing the proportion of ingredients in the composition of the product that negatively affect human health;
- increasing the proportion of useful substances in the product.

Achieving the national interests defined in the Doctrine requires numerous managerial decisions, both at the federal and regional levels.

It will depend on the state authorities what path the country will take in solving the issues of food supply for the population. There are two main directions in which we can move from our current position. One of them is the simplest and most consistent with modern trends in managerial decision-making: controlling and prohibitive. Within the framework of this variant, the following measures may be taken to achieve the set goal [6, 9, 10]:

- introduction of restrictions and additional requirements to the process of organizing food production;
- obligatory chipping of foodstuffs included in the rational norms of consumption in order to confirm the quality of the produced product; accordingly, a ban on the sale of unchipped products;
- the creation of working groups and government agencies to ensure that manufacturers comply with the rules for chipping products;
- restricting consumption (e.g., by introducing cards);
- limitation of imports of agricultural products from the list of rational consumption.
These measures will certainly lead to an increase in the cost of production and a reduction in the number of producers. Small producers will be the first to leave the food production market: individual entrepreneurs and farmers, for whom the additional costs will be beyond their means.

Against the background of reduced competition the formation of structures which in fact seek to monopolize the market of agricultural products will become more and more visible. The monopolization of the market increases the likelihood of corruption: the producer who claims to be a monopolist will try to lobby the interests of his company in every possible way. Statistical indicators of self-sufficiency, defined by the Doctrine, will certainly be achieved in the shortest possible time.

The second possible direction to achieve national interests is the economic impact on the market of agricultural products, aimed at achieving the following results:

- achievement of economic feasibility of production of safe products;
- achievement of economic feasibility of safe food consumption.

As specific measures aimed at the development of safe food production, we can offer:

- simplification of the procedure for the producer to enter the retail market;
- increasing the priority in providing trading places to representatives of personal subsidiary farms;
- to include the obligation of the producer in the processing of the original agricultural product to indicate the composition indicating the percentage of the main ingredients;
- introduction of an interest-free system of seasonal lending to agricultural producers (small farms should be a priority);
- the possibility of concluding an agreement with the state on the repurchase of future agricultural products at a fixed price.

The presence of competition in the market forces the producer to improve the quality of products much more effectively than any prohibitive measures and control procedures. And absolutely free of charge. In the current situation in Russia with food we need to fully develop both small businesses and individual farms.

The consumption of safe food is possible if the population has a sufficiently high level of income. In this case the need to control counterfeit products is minimized. They will not withstand competition. At a low level of income counterfeit gets the right to exist due to the low price. Consequently, for it to disappear from the market it is enough to raise incomes to a level at which a low-quality product will not be in demand, despite its cheapness.

So far, we have, on the contrary, an increase in demand for the cheapest foodstuffs. Thus, the soaring prices for basic products at the end of 2020 - beginning of 2021 can be logically explained not so much by the "surplus of money of Russians" [8], as Mrs. Nabiullina said, but by the increased demand for the cheapest segment of the food market. According to the known economic laws, the price of the most popular products began to rise immediately.

3. Summary of the results of the study

In order to prevent healthy eating, the level of consumer awareness must rise so that people understand the consequences of their eating behavior. This is not sketchy knowledge of one-time literacy improvement, but orientation of the whole school curriculum not on social, but on natural science disciplines. Only a sufficiently high general level of consumer education can be a barrier to the penetration of new harmful health effects on food.

The state policy should be aimed not at banning not quite safe products, but at creating conditions under which the production and consumption of safe products will be economically profitable - a promising way to ensure food safety.
Ensuring food safety is impossible without the recovery of the economy as a whole. Success in this area can be achieved only through the development of small businesses in agriculture and processing industries, through the restoration of individual farms, through ensuring a sufficiently high level of income of the average resident of the country, allowing to buy the necessary product and through the proper level of consumer awareness [8, 9].

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