TERRITORIAL DIFFERENTIATION OF AREAS AMUR REGION AT SELF-SECURITY LEVEL FOOD

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The relevance of this work is due to the territorial differentiation of the possibilities and scale of agricultural production in various regions of the country, which also affects the uneven food security of the population. The article examines the significant imbalances in the food supply of the population of the Amur Region. As a method of assessing the level of food security in the region, the methodology of the rating assessment of the level of self-sufficiency for basic food-stuffs was used. Practical significance of the methodology allowed to determine the place and level of the districts in solving the issue of self-sufficiency in the region's food. Within the region, districts and cities are grouped into three groups with a high, permissible and unacceptable level of food self-sufficiency. The changes in indicators of lagging agro-food directions that require increased attention to increase their own production capacities for the development of domestic production as the main direction for maintaining sustainable self-sufficiency of the region's population with food have been established. The main directions of the development of food production are determined and the necessity of optimizing the territorial food sector of the region is grounded.

Keywords: region, food security, food security doctrine, self-sufficiency index, actual consumption, normative consumption, self-sufficiency level, population, food, own production, territorial differentiation

Introduction. The situation that has really developed in the Russian economy at the present stage, under conditions of increasing tension and embargo on the supply of food from a number of foreign countries, continues to exacerbate the issues of the Federal Food Supply System [1]. For the Russian food sector, sanctions, on the one hand, have become a difficult challenge for the relation management system "country-region - household", on the other hand, they had a positive impact on the development of their own agribusiness [2,3].

The regions of the country as its territorially deterministic subsystems fulfill a significant role in solving the problem of food security at the macroeconomic level [4, 5]. They complete, make more specific and individualize the Federal food security [6]. The mechanism of ensuring food security in the regions largely depends on their specific features: natural and climatic conditions, socio-economic situation, the degree of development of agriculture, as well as their potential and specialization, etc. [7]. The problem of significant differences between the possibilities and the scale of production of outputs in the regions of the country affects the differentiation of the structure in the food sector, its results and, consequently, the uneven distribution of food causing the problem of food supply at the regional level [8].

The new economic conditions that have arisen only exacerbate this problem, since the development of the country's regions is sometimes characterized by instability and imbalance, violation of science-based criteria for the territorial organization of industries, insufficient exploring issues of adaptation to changing market conditions [9]. Differentiation of regions on the level of socio-economic and agro-food development dictates the need for an adequate assessment of the level of food region independence in order to identify and plan effective management mechanisms of agricultural, economic and social policy to maintain a sufficient level of the regional food security [10].

The purpose of the research is to identify the territorial differentiation in the level of provision of the population in the Amur Region with basic food products at the expense of local production.

Object, research methods and materials. The study area is located in the Southeast Asian part of Russia. It ranks No. 13 on a nationwide scale and No. 6 in the Far Eastern Federal District by the specific weight of the territory. The territorial differentiation of the region on the level of self-sufficiency is largely determined by *the physical and geographical factor* that creates the main prerequisites for economic activity and determines the overall natural and economic status of the region [11]. The considerable extent of the territory - sublatitudinal (1150 km) and submeridional (750 km)-causes the great spatial and temporal variability of climatic parameters with the significant variation of seasonal temperatures and the reduced amount of annual precipitation. Such phenomena as dry conditions, dry hot winds, floods, permafrost, etc. complicate the economical activities. The suburban location and remoteness from European regions and industrial centers are 7 - 8 thousand km, which naturally inhibits the development of natural resources, the application of the newest resource-saving and low-waste technologies, creates high costs for transportation, which greatly affect the competitiveness of products and natural resources.

According to the degree of diversity of natural and climatic, soil, biological and other conditions, the region is a unique natural near-border system [12] and it belongs to the number of regions of narrow specialization, as it remains the main area of the country providing 65-70% of the total soybean harvest in the Russian Federation. In general, the region is characterized by a significant agricultural potential. The region accounts for almost 60% of all arable land in the Russian Far East (1001.3 thousand hectares); 49.6% of grain crops, 75.1% of soybeans, 28.3% of milk, 19.5% of eggs from the production of the Far Eastern Federal District[1]. The area of agricultural land in the region is 38%, but 3.5 million hectares are in the agricultural use as on 01.01.2017. 2.6 hectares of all agricultural lands including 1.2 hectares of arable lands are per capita. The last indicator in the national average is a little more than 0.8 hectares per inhabitant [13]. In this regard, the region can be considered as a powerful and real reserve for increasing the food economy not only in the Far East of Russia, but also in the APR countries [14].

The methodological basis of the work is a systematic approach in the unity of qualitative and quantitative research of the population provision level in the region by different types of food products at the expense of local production. The study of this issue was carried out on the basis of the materials of their own research and available scientific, theoretical and practical works of specialists in various fields containing the results in close natural-resource, economic, social interactions. The initial data of the study were the statistical reports of the Federal State Statistics Service of the region under study for 2016-2017 (the main socio-economic indicators), legislative and other documents of the governmental authorities and management of the Russian Federation as well as the materials of scientific conferences, intergovernmental organizations and analytical centers.

As one of the methods for assessing the level of food security in the region, the method of calculating the level of self-sufficiency for basic food products proposed by Mansurov R. E. was

used [15].The practical significance of this technique lies in the possibility to rank the areas in the system of regional management of agro-industrial complex according to the degree of provision of food resources for the population [16].

One of the main quantitative indicators of the level of food security is the criteria of self-sufficiency (Cij) which characterizes to what extent the region fully meets the needs of the population with various types of food products of its own production [17,18]. To justify the calculations, it is proposed to express this criterion by the self-sufficiency index in the context of two indicators: actual and normative levels of food consumption. The actual volumes of consumption form the level of food self-sufficiency, and the rational norms of consumption of basic food products, recommended by RAMS and approved by the Ministry of Health in the Russian Federation, allow assessing the qualitative aspect of the market saturation with food and its potential capacity [19]. Therefore, the calculation of the actual level of food consumption is based on the actual number of products for a certain period of time, and the normative level is based on the recommended norms of consumption of basic food products that meet the up-to-date requirements of a healthy diet (Table 1) [10, 15,17]. In order to fully characterize self-sufficiency, it is necessary to take into account the number of all categories of basic food products.

Table 1 - Recommended consumption of basic food products

Product group	Recommended volume (V_r)
Bread products and pasta in flour equivalent	95–105 kg/year/person
Potatoes	95–100 kg/year/person
Vegetables and cucurbits	120–140 kg/year/person
Fruits and berries	90–100 kg/year/person
Meat and meat products	70–75 kg/year/person
Milk and dairy products in milk equivalent	320–340. kg/year/person
Eggs	260 pcs.

Thus, the index of self-sufficiency with the main food products in the region as a whole and in the context of areas is determined by the ratio of the value of deviations for actual and normative indicators, reduced to the conventional form to the sum of the reference values of deviations of actual and normative indicators according to the formula (1) [15,16]:

$$I = \frac{\sum_{i=1}^{n} C(f,n)}{\sum_{i=1}^{n} C_i} \qquad (1)$$

where I - the value of self-sufficiency index with basic food products; i = 1 n – the number of categories of basic food used in the calculation; C (f, n)-the values of deviations of actual and normative indicators (calculated in the analytical table), given to the conventional form; C_i – reference values of deviations of actual and normative indicators.

In the actual values in the gross yield of the main products it is necessary to take into account losses. Thus, for grain crops, as the main source of raw materials of the milling industry, grain losses due to waste and shrinkage are 7% [20], grain consumption for forage purposes is 50% (expert indicator) [21][2]; losses during storage and transportation of potatoes, vegetables, fruits and berries– 30% [22, 23, 24, 25]; slaughter yield for livestock and poultry is figuratively accepted at the rate of 50%. Milk and eggs are taken in the actual value without losses.

The standard rate of consumption is calculated according to the formula:

$$N_i = P_j \times V_r , \qquad (2)$$

where, N_i -the normative indicator of food production; P_j -the population of the district (city); V_r - the recommended volume of consumption of basic food products (the maximum value from Table 1 is taken)

The difference between the normative and actual values allows us to demonstrate negative (shortage of products) and positive (reserve products) deviation for each product in the food patterns of the population.

For the calculation of the proposed indicators, data on the population in the Amur Region were taken for 2017. In the analytical table 2 the data of deviation calculation in actual and normative indicators of provision with agricultural products on six main types (grain crops, milk, meat of cattle and poultry (in slaughter weight), eggs, potatoes, and vegetables) are given in the context of municipalities of the Amur Region.

In order for the self-sufficiency index to leave out the volume of food production above the normative value of deviations of actual and normative indicators, calculated in Table 3, it is proposed to bring them about a conditional form. This calls for: if the deviation value $C(f,n) \geq 0$, i.e. provision of food is sufficient or excessive, $C(f,n)$ is taken to be 1. If $C(f,n) < 0$, $C(f,n)$ represents the ratio of the actual to the normative value. Therefore, the reference values of C_i deviations will be equal to 1. If the main types of food under consideration are six in the region, the denominator of formula 1 is 6 [15].

The boundaries of the index estimation values characterizing the level of self-sufficiency of the regions with the necessary amount of food due to local production are determined taking into account the existing representations in the domestic and foreign theory, practice and they are ranked in 4 groups: *a high level* is distinguished under condition I = 1; *an acceptable level* - 0.75 < I ≤ 0.99; *a low level* - 0.5 < I ≤ 0.74; *an unacceptable level* - I < 0.5 [26].

Research result. On the territory of the region when moving from North to South following the change of agro-climatic and soil conditions we observe the change in the self-sufficiency indices of basic food products. According to the calculation results the total value of the index as a whole for the region was 0.807, which corresponds to the *acceptable level.*

Table 2 - Calculation of deviations in actual and normative values of provision with basic food products in the context of municipalities of the Amur Region in 2017 (in farms of all categories)

Municipal districts, cities	Cattle and poultry for slaughter (in carcass weight basis), thousand tons			Milk, thousand tons			Egg, million pieces			Grain crops, thousand tons			Potatoes, thousand tons			Vegetables, thousand tons		
	Fact	Norm	De-via-tion	Fact	Norm	Devia-tion	Fact	Norm	De-via-tion	Fact	Norm	De-via-tion	Fact	Norm	De-via-tion	Fact	Norm	De-via-tion
Arkharinsky	0,77	1,10	**-0,33**	3,59	5,00	**-1,40**	1,44	3,82	**-2,38**	3,57	1,54	**2,03**	5,51	1,47	**4,04**	1,79	1,47	**0,32**
Belogorsky	1,64	1,33	**0,30**	9,85	6,05	**3,80**	114,04	4,63	**109,41**	16,49	1,87	**14,62**	11,44	1,78	**9,66**	3,25	1,78	**1,47**
Blagoveshchensky	1,23	1,98	**-0,75**	9,55	8,98	**0,57**	2,81	6,86	**-4,06**	4,84	2,77	**2,07**	24,20	2,64	**21,56**	10,44	2,64	**7,80**
Bureisky	1,14	1,54	**-0,40**	4,74	6,97	**-2,24**	1,70	5,33	**-3,63**	1,29	2,15	**-0,86**	7,22	2,05	**5,17**	1,17	2,05	**-0,89**
Zavitinsky	1,36	1,08	**0,28**	10,56	4,90	**5,66**	2,90	3,75	**-0,85**	3,22	1,51	**1,71**	6,13	1,44	**4,69**	0,86	1,44	**-0,58**
Zeisky	0,47	1,11	**-0,65**	2,30	5,05	**-2,75**	1,24	3,86	**-2,62**	0,34	1,56	**-1,22**	6,51	1,49	**5,03**	0,72	1,49	**-0,77**
Ivanovsky	2,25	1,79	**0,45**	15,50	8,13	**7,37**	3,35	6,21	**-2,87**	24,66	2,51	**22,15**	13,65	2,39	**11,26**	3,59	2,39	**1,20**
Konstanti-novsky	1,69	0,94	**0,76**	10,92	4,24	**6,68**	1,82	3,24	**-1,42**	19,63	1,31	**18,32**	8,45	1,25	**7,21**	0,98	1,25	**-0,27**
Magdagachinsky	0,36	1,52	**-1,16**	1,89	6,90	**-5,01**	0,69	5,27	**-4,59**	0,20	2,13	**-1,93**	5,97	2,03	**3,94**	0,51	2,03	**-1,52**
Mazanovsky	0,99	1,00	**-0,01**	6,49	4,52	**1,97**	1,56	3,46	**-1,90**	1,30	1,40	**-0,10**	8,50	1,33	**7,17**	1,17	1,33	**-0,15**
Mikhailovsky	1,52	1,04	**0,48**	7,88	4,70	**3,18**	2,83	3,59	**-0,77**	24,27	1,45	**22,82**	7,43	1,38	**6,05**	1,46	1,38	**0,07**
Oktyabrsky	0,97	1,37	**-0,41**	4,52	6,21	**-1,69**	2,49	4,75	**-2,27**	13,67	1,92	**11,75**	8,89	1,83	**7,06**	1,11	1,83	**-0,72**
Romnensky	1,03	0,61	**0,42**	7,73	2,79	**4,95**	1,57	2,13	**-0,56**	5,14	0,86	**4,28**	6,24	0,82	**5,42**	0,93	0,82	**0,11**
Svobodnensky	1,07	1,07	**0,00**	5,85	4,84	**1,01**	28,92	3,70	**25,22**	4,13	1,49	**2,64**	11,4	1,42	**10,05**	3,70	1,42	**2,28**

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Selemdzhinsky	0,10	0,77	**-0,68**	0,22	3,51	**-3,29**	0,55	2,69	**-2,13**	0,00	1,08	**-1,08**	1,39	1,03	**0,36**	0,15	1,03	**-0,88**
Seryshevsky	1,48	1,83	**-0,36**	12,12	8,32	**3,81**	2,46	6,36	**-3,90**	5,37	2,57	**2,81**	12,69	2,45	**10,24**	3,96	2,45	**1,51**
Skovorodinsky	0,31	2,04	**-1,73**	1,82	9,25	**-7,42**	0,61	7,07	**-6,46**	0,00	2,86	**-2,86**	6,11	2,72	**3,39**	0,39	2,72	**-2,33**
Tambovsky	2,36	1,61	**0,75**	23,56	7,31	**16,24**	3,33	5,59	**-2,27**	41,47	2,26	**39,22**	15,87	2,15	**13,71**	2,94	2,15	**0,79**
Tyndinsky	0,14	1,02	**-0,88**	0,22	4,62	**-4,40**	0,72	3,53	**-2,81**	0,00	1,43	**-1,43**	1,25	1,36	**-0,11**	0,15	1,36	**-1,21**
Shimanovsky	0,40	0,40	**0,00**	1,67	1,80	**-0,13**	0,97	1,38	**-0,41**	0,71	0,56	**0,15**	5,31	0,53	**4,78**	0,46	0,53	**-0,07**
Blagoveshchensk	18,40	17,26	**1,14**	0,31	78,23	**-77,92**	20,33	59,82	**-39,49**	0,00	24,16	**-24,16**	10,44	23,01	**-12,57**	4,93	23,01	**-18,08**
Belogorsk	0,10	5,01	**-4,91**	0,38	22,71	**-22,33**	0,95	17,36	**-16,42**	0,00	7,01	**-7,01**	7,18	6,68	**0,50**	1,89	6,68	**-4,79**
Zeya	0,13	1,75	**-1,63**	0,40	7,95	**-7,55**	0,56	6,08	**-5,52**	0,00	2,46	**-2,46**	2,83	2,34	**0,49**	0,43	2,34	**-1,91**
Raychikhinsk	0,19	1,51	**-1,32**	1,42	6,85	**-5,44**	0,44	5,24	**-4,80**	0,00	2,12	**-2,11**	4,36	2,02	**2,34**	1,28	2,02	**-0,74**
Progress (urban village)	0,10	0,89	**-0,79**	1,02	4,04	**-3,03**	0,80	3,09	**-2,29**	0,00	1,25	**-1,25**	3,41	1,19	**2,22**	0,47	1,19	**-0,72**
Svobodny	0,24	4,04	**-3,80**	1,71	18,33	**-16,63**	0,26	14,02	**-13,76**	0,00	5,66	**-5,66**	9,20	5,39	**3,81**	1,67	5,39	**-3,72**
Tynda	0,05	2,48	**-2,43**	0,26	11,26	**-11,00**	0,14	8,61	**-8,47**	0,00	3,48	**-3,48**	0,96	3,31	**-2,36**	0,18	3,31	**-3,13**
Shimanovsk	0,12	1,40	**-1,28**	1,27	6,35	**-5,08**	0,15	4,86	**-4,71**	0,00	1,96	**-1,96**	3,45	1,87	**1,58**	0,40	1,87	**-1,46**
Total	**40,56**	**59,52**	**-18,96**	**147,73**	**269,81**	**-122,08**	**199,60**	**206,32**	**-6,73**	**170,33**	**83,32**	**87,00**	**216,1**	**79,36**	**136,70**	**50,95**	**79,36**	**-28,40**

Source: compiled by the author according to official data of the Federal State Statistics Service

Table 3 - Calculation data of the self-sufficiency index value with basic food products in the context of municipalities of the Amur Region in 2017 (in farms of all categories)

Municipal districts, cities	Cattle and poultry for slaughter (in carcass weight basis), thousand tons	Milk, thousand tons	Egg, million pieces	Index (I) of livestock products	Grain crops, thousand tons	Potatoes, thousand tons	Vegetables, thousand tons	Index (I) of crop production	$\sum_{i=1}^{n} C(f,n)$	Total index	Rank
Svobodnensky	1	1	1	**1,00**	1	1	1	**1,00**	6,000	1,000	**1**
Belogorsky	1	1	1	**1,00**	1	1	1	**1,00**	6,000	1,000	**2**
Mikhailovsky	1	1	0,79	**0,93**	1	1	1	**1,00**	5,790	0,965	**3**
Zavitinsky	1	1	0,77	**0,92**	1	1	1	**1,00**	5,770	0,962	**4**
Romnensky	1	1	0,73	**0,91**	1	1	1	**1,00**	5,730	0,955	**5**
Shimanovsky	1	0,93	0,7	**0,88**	1	1	1	**1,00**	5,630	0,938	**6**
Tambovsky	1	1	0,59	**0,86**	1	1	1	**1,00**	5,590	0,932	**7**
Konstantinovsky	1	1	0,56	**0,85**	1	1	1	**1,00**	5,560	0,927	**8**
Ivanovsky	1	1	0,54	**0,85**	1	1	1	**1,00**	5,540	0,923	**9**
Mazanovsky	0,99	1	0,45	**0,81**	1	1	1	**1,00**	5,440	0,907	**10**
Seryshevsky	0,8	1	0,39	**0,73**	1	1	1	**1,00**	5,190	0,865	**11**
Blagoveshchensky	0,62	1	0,41	**0,68**	1	1	1	**1,00**	5,030	0,838	**12**
Oktyabrsky	0,7	0,73	0,52	**0,65**	1	1	1	**1,00**	4,950	0,825	**13**
Arkharinsky	0,7	0,72	0,38	**0,60**	1	1	1	**1,00**	4,800	0,800	**14**
Bureisky	0,74	0,68	0,32	**0,58**	1	1	1	**1,00**	4,740	0,790	**15**
Zeisky	0,42	0,46	0,32	**0,40**	0,22	1	0,48	**0,57**	2,900	0,483	**16**
Magdagachinsky	0,24	0,27	0,13	**0,21**	0,09	1	0,25	**0,45**	1,980	0,330	**17**
Skovorodinsky	0,15	0,2	0,09	**0,15**	0	1	0,14	**0,38**	1,580	0,263	**18**
Selemdzhinsky	0,12	0,06	0,21	**0,13**	0	1	0,15	**0,38**	1,540	0,257	**19**
Tyndinsky	0,14	0,05	0,2	**0,13**	0	1	0,11	**0,37**	1,500	0,250	**20**
Raychikhinsk	0,13	0,21	0,08	**0,14**	0	1	1	**0,67**	2,420	0,403	**1**
Progress (urban	0,11	0,25	0,26	**0,21**	0	1	0,4	**0,47**	2,020	0,337	**2**

village)											
Blagoveshchensk	1	0	0,34	**0,45**	0	0,45	0,21	**0,22**	2,000	0,333	**3**
Shimanovsk	0,09	0,2	0,03	**0,11**	0	1	0,22	**0,41**	1,540	0,257	**4**
Svobodny	0,06	0,09	0,02	**0,06**	0	1	0,31	**0,44**	1,480	0,247	**5**
Zeya	0,07	0,05	0,09	**0,07**	0	1	0,18	**0,39**	1,390	0,232	**6**
Belogorsk	0,02	0,02	0,05	**0,03**	0	1	0,28	**0,43**	1,370	0,228	**7**
Tynda	0,02	0,02	0,02	**0,02**	0	0,29	0,05	**0,11**	0,400	0,067	**8**
Total	**0,682**	**0,548**	**0,967**	**0,73**	**1**	**1**	**0,642**	**0,88**	**5,571**	**0,929**	**X**

Source: compiled by the author

The index of self-sufficiency in livestock products as a whole was 0.73, crop production – 0.88, which also corresponds to the acceptable level. However, the situation in the context of the region and for certain types of food is not so clear. As for the production of grain and potatoes we observe the surplus of production, as well as the production of eggs is within the permissible limits (0.967 or 96.7%). Reserves of grain and potatoes are sold to other administrative regions and are exported to the APR countries, and the export of grain, especially soybeans, is increasing annually (for example, export of soybeans in the past five years increased by 68%). The increase in potato production causes a gradual decrease in the dependence of the domestic market on imports (3 % - mainly early spring young potatoes from China) and supports the increase in export supplies (14%) to the nearby administrative regions of the Federation (Khabarovsk Territory, the Republic of Sakha (Yakutia)). Most of the grown potatoes are used to provide the population of the region.

Beef raising and poultry breeding (0.682 or 68.2%), vegetable production (0.642 or 4.2%) and dairy cattle (0.548 or 54.8%) have an obvious imbalance and require special attention. The level of self-sufficiency in this food has not reached the thresholds yet, established by the Doctrine of food security of the Russian Federation (Table.4). Supplies of the missing vegetable volume for the region (the share of imports is almost 70%) are carried out mainly from China, CIS countries and the West Siberian region. In 2017 the formation of resources in meat and meat products (pork, beef), milk and dairy products (milk powder, cheese, butter) in the Amur Region was carried out due to coming-in of products including importation[2].

Table 4 - Provision of the population of the Amur Region with food at the expense of its own production

Name of produce	Production, thousand tons (million pieces)	Threshold values according to the Doctrine of the RF[2]	Rate of covering the consumption of own products	The deviation from the threshold values in the Doctrine of the RF	Share of import/export
Meat and meat products	40,56	85 %	68,2 %	-16,8	67% / 42,3%
Milk and dairy products	147,73	90 %	54,8%	-35,2	50% / 51,1%
Grain	395	95 %	by 2 times	+106	- /
Potatoes	308,6	95 %	by 2.7 times	+177	3% / 14%
Eggs*	199,6	-	96,7 %		18,3% / -
Vegetables*	50,95	-	64,2%		68,5 %/ 10%

*(not defined by the Doctrine of the RF)

From the proposed classification of the index assessment, characterizing the level of self-sufficiency, regions and urban districts were divided into three levels: *high, acceptable and unacceptable* (Table 5).

Table 5 - Ranking of the districts in the Amur Region according to the level of food self-sufficiency

Indicators	High (I = 1)	Acceptable ($0{,}75 < I \leq 0{,}99$)	Unacceptable (I < 0,5)
		Municipal districts	
Municipal and urban districts	Belogorsky, Svobodnensky	Mikhailovsky, Zavitinsky, Romnensky, Shimanovsky, Tambovsky, Konstantinovsky, Ivanovsky, Mazanovsky, Seryshevsky, Blagoveshchensky, Octyabrsky, Arkharinsky, Bureisky	Zeysky, Magdagachinsky, Skovorodinsky, Selemdzhinsky, Tyndinsky
			Raychikhinsk, Progress (urban village), Blagoveshchensk, Shimanovsk, Sbobodny, Zeya, Belogorsk, Tynda
Population, thousand people	32 (4%)	217 (27,4%)	86 / 458 (10,9% / 57,7%)
Total area, thous. km²	9,8 (2,8%)	97,84 (27%)	254/1,22 (69,9% /0,3%%)
Sown area of all crops, thous.ha	155,8 (12,4%)	1091,3 (86,6%)	7,8 / 5,9 (0,53% / 0,47%)

Specialization	Meat-and-dairy cattle farming, pork production, sheep farming, poultry breeding, cultivation of cereals (spring crops), grain legumes, soybeans, potatoes, vegetables, fodder crops	Meat-and-dairy cattle farming, pig breeding, bee-farming, poultry breeding. The cultivation of wheat, barley, oats, buckwheat, soybeans, potatoes, vegetables, cucurbits, fodder crops	Dairy cattle breeding, pig breeding, cultivation of corn (grain), potatoes, vegetables, fodder crops; reindeer husbandry, sea-hunting industry and hunting, harvesting of wild fruits and berries, fishing industry

The first group (*high level*) consisting of two districts Svobodnensky and Belogorsky is fully provided with all basic types of food. The key economic activity is agriculture formed under conditions of the greatest agricultural development of the territory. The main areas of agricultural production are cultivation of soybeans, meat and dairy cattle farming, pork production, and sheep farming. Livestock production is mainly represented by the private sector. This group is characterized by a more diverse combination of types of enterprises (collective farms, OOO, SEC, PFE and IE), the formation of which is due to the peculiarities of economic and geographical position. Vegetable growing, poultry farming and soya-cattle breeding direction can get the priority development as a result of receiving "Far Eastern hectares" on the territory of this group.

The areas of the second group (*allowable level*) - Mikhailovsky, Zavitinsky, Romnensky, Shimanovsky, Tambovsky, Konstantinovsky, Ivanovsky, Mazanovsky, Seryshevsky, Blagoveshchensky, Octyabrsky, Arkharinsky, Bureisky – are located in the forest-steppe zone with a predominance of meadow- chernozemic and brown forest soils with a high degree of tilled areas (86,6%). The specialization of the second group of districts is based on the commodity balanced production of grain, potatoes, vegetables, meat and dairy products, as well as on the processing of valuable consumer properties of crops - wheat, soybean, corn, beef and dairy farming.

For this group of districts high levels of self - sufficiency in food amounted to the cultivation of cereals, potatoes and vegetables-1, meat and dairy production varies between 0.7 - 1, eggs - 0.32-0.79. It is worth noting that to the Northern regions indicators are reduced. Agricultural commodity producers are agricultural enterprises, peasant farms (farming enterprises), private subsidiary farming. Even with positive dynamics the areas of this group have serious problems and contradictions between the growing demand for food and agricultural raw materials, the withdrawal of land in favor of non–agricultural industries and the vulnerability of lands to the development of negative processes - deflation, water logging of land on flat plains with heavy soils, water erosion of slope land on watersheds [13, 27].

The third group has the so-called *unacceptable level.* It combined the norlands of the region - Zeysky, Magdagachinsky, Skovorodinsky, Selemdzhinsky, Tyndinsky and urban areas. The Northern regions combine agricultural, mining land use and a system of land tenure based on the traditional management of natural resources by the native population. Due to the extremely low agroecological potential of low-mountain lands and permafrost, we observe very low rates of self-sufficiency (0.05 - 0.25) in all food products for these areas. Here the agriculture has a local (riverine) nature of distribution and secondary meaning aimed at meeting the needs of the local population in fresh vegetables and dairy products, in combination with fishing and hunting specialization. At the same time the commercial value of beef cattle breeding is reduced in the areas equated to the Far North where the possibilities of forage harvesting are limited. Further improvement of the Northern regions may be associated with the deepening of agricultural specialization in the development of beef cattle breeding, herd reindeer husbandry, hunting and fishing activities.

Based on the fact that the concentration factor of home-raised product has a significant impact on the assessment of self-sufficiency, urban areas with the largest share of the population (57.7%) are among the outsiders in terms of food self-sufficiency. According to the data of computation tables 2 and 3, urban self-sufficiency indicators vary at a greater range - 0.02 -1. For a more reliable and pragmatic assessment of the situation it may be necessary to combine the indicators of cities with nearby areas to ensure their food security at the expense of intra-regional reserves.

Conclusion. Summarizing the above, the authors come to the conclusion that the calculated index should be included into the system of indicators of the analysis for the food supply level in the region, which has its own specific features in connection with the zonal-sectoral differentiation of territories and different levels of their socio-economic development. The conducted research allowed determining the district and level in solving the issue of food self-sufficiency in the Amur Region. Besides, we succeeded in identifying the lagging agrofood areas that require particular attention to increase their own production capacity for the development of domestic production as the main direction in maintenance of sustainable self-sufficiency of the regional population with food.

At the same time food security of the population at the regional level can be achieved by optimizing the territorial organization of the food sector in the region, which is possible under the condition of rapid response to changes of business climate in the food market, deepening the specialization of each district, the development of rational productive-economic relations between them.

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