

## FOOD SECURITY IN CONDITIONS OF FINANCIAL AND ECONOMIC CRISIS

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*It is well known that in the conditions of financial-economic crisis, food security situation is aggravated. The validity of this axiom is characteristic, in the first place, for less developed countries, economic activities of which is based mainly on the production of agri-industrial commodities with relatively low value-added, reflected in decreased opportunities for investment, attracting foreign capital, etc. A detailed analysis and modern scientific study of the nature of the problem regarding food security is the actual direction of scientific activities. The aim of this work is to identify the true causes that provoke the lack of guaranteed food supply, rigid dependence on food imports and the development of measures of counteraction to all this negative phenomena. During the study of food security problems were used methods of formation of dynamic ranges, methods of comparison, approximation, etc. As the obtained results it should be noted the proposed measures for the accelerated development of the industry of cattle, as well as other types of meat and dairy products, that are designed to replace the massive import of relevant products in order to improve the balance of foreign trade, in the first place, according to the article "Live animals and livestock products".*

**Key words:** Food security, economic crisis, gross capital formation, food cart, import and export of agricultural goods etc.

*Este bine cunoscut faptul că în condițiile crizelor economico-financiare problemele ce țin de securitatea alimentară se acutizează. Valabilitatea acestei axiome este caracteristică, în primul rând, pentru țările slab dezvoltate, activitatea economică a cărora este bazată preponderent pe producerea produselor agroindustriale, cu nivel relativ scăzut al valorii adăugate, ceea ce determină reducerea posibilităților pentru activitatea investițională, atragerea capitalului străin etc. Analiza detaliată și cercetările științifice moderne a esenței problemei securității alimentare constituie o direcție actuală a activității științifice. Scopul lucrării îl constituie identificarea cauzelor adevărate de provocare a insecurității alimentare, de dependență dură de importul produselor alimentare și elaborarea măsurilor de combatere a acestor fenomene negative. În procesul cercetării problemelor securității alimentare au fost utilizate metodele de formare a seriilor dinamice, metodele de comparație, de aproximare etc. În calitate de rezultate obținute sunt de menționat recomandările științific argumentate de dezvoltare dinamică a sectorului autohton de producere a cărnii de bovine, precum și a altor sectoare de producere a produselor din carne și lapte, destinate să substituie importurile masive ale acestor produse în vederea îmbunătățirii balanței comerțului exterior, în primul rând, la capitolul „Animale vii și produse animaliere”.*

**Cuvinte-cheie.** securitatea alimentară, criza economică, formarea brută de capital, coșul alimentar de consum, importul și exportul produselor etc.

*Общеизвестно, что в условиях финансово-экономических кризисов проблемы продовольственной безопасности обостряются. Достоверность данной аксиомы характерна, в первую очередь, для слабо развитых государств, экономическая деятельность которых основана преимущественно на производстве агропромышленных товаров с относительно низкой добавочной стоимостью, что отражается в снижении возможностей для инвестиционной деятельности, привлечения внешнего капитала и т.п. Детальный анализ и современное научное исследование сущности проблемы продовольственной безопасности представляет собой актуальное направление научной деятельности. Целью работы является выявление истинных причин, провоцирующих отсутствие гарантированного продовольственного обеспечения, жесткой зависимости от импорта продовольственных товаров и разработка мероприятий*

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*противодействия данным негативным явлениям. В процессе исследования проблем продовольственной безопасности были использованы методы формирования динамических рядов, методы сравнения, аппроксимации и др. В качестве полученных результатов следует отметить предложенные меры по ускоренному развитию отрасли крупного рогатого скота, а также других отраслей по производству мясомолочной продукции, предназначенных для замены массивного импорта соответствующих продуктов в целях улучшения баланса внешней торговли, в первую очередь, по статье «Живые животные и животноводческие продукты».*

**Ключевые слова.** *Продовольственная безопасность, экономический кризис, валовое накопление капитала, продовольственная корзина, импорт и экспорт товаров и др.*

**JEL Classification:** *E2, L66, Q02, Q18, Q19.*

**Introduction.** Being an economic system of high level of efficiency, the capitalism, in appreciation of the American scientists [1], is deprived of stability and equilibrium. As a consequence, the economic crises, either of a cyclic nature, or those caused by causal phenomena (like the “theft of the century” – directly from the domestic banking system in the period of 2014-2015) are shaping the base of instability and uncertainty, extremely pronounced, practically in all the main fragments of the national economy. A part apart in this order of ideas is represented by the agri-food areas, which, in recent years, has become heavily dependent on massive imports of food products, the market price of which is raising automatically because of devaluation of the national currency (for example) in the second half of the year 2015.

Analysis of the current food basket of consumption and the elaboration of measures to prevent the worsening of the situation on the market of agri-food products is the main purpose of this article.

**The core content.** Any economic crisis demands to be treated as a signal of alarm that claims to make changes, often very radical, on the structure of the economic system, on the proportions and/or the disproportions of this system, etc. At the same time, being provoked by some or other shortcomings of general nature, for example, in financial systems, in banking systems, in fiscal or otherwise, any crisis thereafter is reflected by the large branching, damaging the economic status of some or others of the main parts of the national economy, initially having no links with the donor areas of the crisis.

The actual economic and financial crisis, being launched in 2009 and powerfully reinvigorate in the years 2014-2015, along with the devaluation of the moldovan lei at about 35.0 percent, caused the most considerable raise in the price of a whole row of food products on the domestic market of the Republic of Moldova. As a consequence, a wide range of these products, in the first place, those imported, have become even less affordable (from the economic point of view) for a large part of the population of the country, because of their low purchasing power capacities.

Carried out investigations shows us that the structure of the consumed food basket, which at the beginning of the crisis period (2009), was far away from its perfect form, currently it is even more unbalanced [2]. According to our investigation to achieve the level of consumption equal of 3500 Kcal daily in calculation per capita, the volume of production, for example, meat of various kinds should be at the level of 57.6 kg/year per capita. In reality, however, according to the National Bureau of Statistics of the Republic of Moldova, the volume of production of meat of all species of animals and birds (weight after slaughter) is only 32 kg per capita, or 55.6 percent. The considerably deficit is found at the chapter of fish, milk and dairy products, and in some periods at the chapter of vegetables, fruits and berries.

There are established two main sources of coverage of deficit of food, calculated on the base of scientifically proved norms of consumption

The first source is the substitution of food products of animal origin, with the food of phito-(plants) origin, in the first place – with products like bread, fresh pastry, as well as the products of milling (macaroni, grouts, etc.). The explanation of the phenomenon of substitution is a simple one. One thousand kilocalories, for example, in the form of bread or bakery products cost much cheaper for the consumer in comparison with the market price of a thousands of kilocalories in the form of meat or meat products (tab.1). Recall, that in table 1 are reflected consumption dates of food in the calculation at the one person in the average for the national economy.

Table 1

**The composition of the standard (optimal) basket of consumption  
in calculation for a person**

to date 01.04.2016

The name of products	monthly use				annual use			The market price, lei/1000 Kcal
	Quantity, kg	The amount of kcalories in the product used	The cost of unit, lei/kg	The total cost per month, lei	Quantity amount, kg	The amount of products in kcalories	The cost of products for a year, lei	
1	2	3	4	5	6	7	8	9
Butter	0,6	4488	90,0	54	7,2	53856	648	12,03
Cheese	0,7	1620	82,50	57,75	8,4	19440	693	35,65
Milk and other dairy	7,5	4200	15,3	114,75	90,0	50400	1377	27,32
Beef	1,5	3270	81,3	121,95	18,0	39240	1463,4	37,29
Pork	1,8	6426	70,4	126,72	21,6	77112	1520,64	19,72
Poultry meat	1,5	3600	40,5	60,75	18,0	43200	729	16,875
Fish	1,5	1650	52,0	78	18,0	19800	936	47,27
The bird's eggs	0,8	1400	12,0	9,6	9,6	16800	115,2	6,86
Other animal products	1,8	4500	70,2	126,36	21,6	54000	1516,32	28,08
Total livestock products	x	31154	x	875,88	X	373848	10510,56	28,11
Bread	15,0	34950	6,0	90	180,0	419400	1080	2,58
Grits	2,23	6852,5	12,5	27,875	26,7	82230	312,5	3,80
Macaroni	1,5	4500	15,0	22,5	18,0	54000	270	5,00
Vegetable oil	0,75	6743	25,0	18,75	9,0	80916	225	2,78
Sugar	1,5	5610	13,50	20,25	18,0	67320	243	3,61
Vegetables and squash	9,0	3150	15,7	141,3	108,0	37800	1695,6	44,86
Potatoes	5,0	4000	8,0	40,0	60,0	48000	480	10,00
Fruits and berries	7,5	3420	15,0	112,5	90,0	41040	1350	32,89
Other phito-products	3,425	10387,5	17,4	59,6	28,8	87346	501,12	5,74
Total phito-products	x	79613	x	622,775	X	918052	7237,22	7,88
Total general	x	110767	x	1498,655	X	1291900	17747,78	13,74

Source: Elaborated by the author based on "Food balance sheets: background information", FAO, statistics division, 2010, "Energy value of food".

If on average for all the consumed food basket at the time of evaluation the market price of a thousand kilocalories was equal to 13,74 lei, then, as data from table 1 is showing, for livestock products (according to the range from the table) the same thousand of kilocalories is assessed at the level of 28,11 lei. Turning to a thousand kilocalories of phito-origin – it costs only 7,88 lei, that means 3.6 times cheaper. The most cheapest kilocalories, by the way, are consumed under the form of bread and bakery products.

Carried out investigations shows us, that a thousand of kilocalories of the existing consumption basket has risen in recent years from 7,13 lei in 2011, up to 13.7 lei in the year 2016, or nearly 92.1% [3]. On the basis of modern methods of assessment regarding the cash flows we can make the conclusion, that the average annual increases of the food price in the past five years has been equal to 13,96%. Being considerably more high in comparison with the average annual level of inflation, raise in prices of food consumption basket normally should contribute to adequate increase of supply of these products.

Regretfully, from the 6 analyzed groups of agri-food and forestry products only group "Fats and oils of animal or vegetable origin" reacted adequately to the raise in prices, domestic producers have been able

to manage the increase of production volumes, including for the export of this group of food products, from 3868,1 \$ in 2000 to 77522,5 \$ in 2014, or more than about 20.0 times.

The level of coverage of import against export in this group of food products currently represent 3,03 lei of export per 1 lei of import, having as a basis of comparison, as has already been mentioned, 1,28 lei export to 1 lei of the import in total on the agri-food and the forestry sector.

The fact of accelerated growth of price of the most energetically rich components of the food basket (animal products) caused considerable increase of both the food basket in general, and the share of food products in the structure of consumption expenditure of households (table 2).

**Table 2**  
**The dynamics of food expenditure in the component of the consumer basket of households, (%)**

Years	Total	Including	
		urban	Rural
2010	40,8	37,8	44,1
2011	42,5	39,9	45,3
2012	43,2	40,6	46,0
2013	42,8	40,9	44,9
2014	43,8	42,1	45,6

*Source: National Bureau of Statistics of the Republic of Moldova.*

As the calculations demonstrate, recently the lowest price of a thousand kilocalories has the bread and bakery products. Being heavily subsidized by various forms of the state financial support, this group of food products is currently the cheapest, with the market price for a thousand kilocalories barely 2.58 lei.

At the same time, the limit of consumption of those products is pretty small – about 1.2-1.5 thousand kilocalories daily per capita, the rest of the basket has to be covered with other products, desirable of livestock provenience.

The consumption of these products is ensured, as being already pointed out, mostly on the account of import. It has to be mentioned that Republic of Moldova does not import cheap, low value added food, but mainly products of high added value in both forms of expression – calorific and monetary values. As evidence, can serve the dynamics of import volumes of those products in the period of reformation of the national economy. For comparison in the table below are reflected also the export volumes of those products (tab. 3).

**Table 3**  
**Dynamics of export and import of agri-food products, thousands US dollars**

Indicators	Years							2014 in % compared to 2000
	2000	2005	2010	2011	2012	2013	2014	
1	2	3	4	5	6	7	8	9
<b>Import</b>								
1. Live animals and animal products	10744,5	57194,1	94747,3	107833,4	130319,9	146800,2	158759,9	14,8 times
2. Vegetable products	25345,6	65022,9	168869,7	199086,6	204596,8	203516,6	195401,7	7,7 times
3. Fats and oils animal or vegetable	2410,2	9885,9	19292,1	25059,2	28376,6	30017,2	25579,4	10,6 times
4. Food products; alcoholic and non alcoholic drinks; tobacco	71233,9	147472,1	308613,1	355805,4	380046,4	403461,6	339584,6	4,8 times
5. Raw hides and skins and tanned leather, furs and products from them	2458,3	69589,6	27427,4	35668,7	30602,0	34213,7	42930,1	17,5 times
6. Wood and wood products (excluding furniture)	9941,7	43624,3	73004,8	88781,2	92623,0	97000,2	102484,6	10,3 times
<b>Total import</b>	<b>122134,2</b>	<b>392788,9</b>	<b>691954,4</b>	<b>812227,5</b>	<b>866564,7</b>	<b>915009,5</b>	<b>864740,3</b>	<b>7,1 times</b>
<b>Export</b>								

1. Live animals and animal products	22793,6	17204,0	26968,9	38042,9	37816,9	37166,5	59732,5	2,6 times
2. Vegetable products	65857,0	131906,7	340715,8	470995,0	360469,6	507045,5	549667,3	8,3 times
3. Fats and oils animal or vegetable	3868,1	37790,6	47584,2	77486,1	89708,7	44040,0	77522,5	20,0 times
4. Food products; alcoholic and non alcoholic drinks; tobacco	198433,4	395970,0	316942,1	330579,1	390885,9	427293,5	278428,7	1,90 times
5. Raw hides and skins and tanned leather, furs and products from them	13056,7	71574,2	24690,4	34668,9	30954,4	33418,1	34680,8	2,7 times
6. Wood and wood products (excluding furniture)	806,5	2290,4	5713,9	10214,4	12188,7	9485,3	8326,0	10,3 times
<b>Total export</b>	<b>304815,3</b>	<b>656735,9</b>	<b>762615,3</b>	<b>961986,4</b>	<b>922024,2</b>	<b>1058448,9</b>	<b>1108357,8</b>	<b>3,6 times</b>
The coefficient of coverage of import agri-food products with export K = Export / Import	2,50	1,67	1,10	1,18	1,06	1,16	1,28	X

*Source: National Bureau of Statistics of the Republic of Moldova.*

According to the data of table 3 netto-import at the chapter of "Live animals and animal products" in the year 2014 is almost equal to the amount of 100,0 million US dollars, which means an equivalent of almost 20.0 kg of meat, consumed annually in the account at a person.

It has to be mentioned, that currently at the everyone lei of livestock products exported from the Republic of Moldova, imports of these products is equal in the volume of almost 2.7 lei. The explanations, over all heard, that the import is done with the purpose of processing and re-export later, you are devoid of any reasoning. More than 60,0 percent of the massive imports of meat, for example, are directly or after processing sold on the local market.

The development of the livestock sector in the conditions of private households and small or medium-sized enterprises would ensure import substitution at the level of almost 2,0 billion lei annually, in the first place, in the form of meat or meat products, and milk or dairy products.

Along with the bodies of local public administration the resolution of this problem required the massive involvement of the local or foreign investors who are making today massive volumes of import of food products of animal origin.

On the base of data in the table 3 we can conclude, that in the period after the privatization of the agricultural domestic sector (summer 2000), the growth rates of imports of food products have been standing almost 2 times higher in comparison with the growth rates of export of those products. As a consequence, if at the beginning of the analyzed period the coefficient of coverage of import of agro-food products with the export ( $K=E/I$ ) was equal to 2.5, then in the year 2012, for example, it's narrowed down to 1.06. Even if in subsequent years the previous size of this coefficient has been partially restored, the negative trend of the accelerated rhythms of the import of agro-food products remains a reality. It should be noted, firstly, the pace of the alarming growth of imports of livestock products, which, in monetary value constitute between 8-12% each year. If in the past five years (2010-2014) the total exports of those products amounted to around 200 million US dollars, then their import exceeded the amount of 638,5 mln. US dollars, which is 3,2 times more.

In volume the natural import of meat and edible offal of animals (cattle, pork, sheep, goats, horse, donkey, bird etc.) in a single year (2015) constituted more than 22,36 thousand tons. Prices declared by the import (as an example) constituted (Code NCM-0207) – "Meat and edible offal of fowl fresh, chilled or frozen" – 1 dol. US/kg for the CIS countries and 0.7 dol. US/kg for import from the countries of the European Union. Obviously, these prices are much below the production costs of the same products in the Republic of Moldova. As a consequence it is in permanent decline (in the best case – in permanent stagnation) domestic production sector of livestock products. This observation refers, firstly, to the production of meat and milk, as well as meat and milk products.

**General conclusions and recommendations.** With all that we are in full market economy, the state in the persons of central and local bodies of public administration should be involved increasingly in solving the problem of the substitution of the massive imports of food products of animal origin.

It is necessary, in the first place, to elaborate and implement in practice a national Program of investments in modern livestock and poultry projects in the conditions of private (family) farms, provided by the considerable financial support from the state. Along with creating new jobs in rural areas, rational use of disposable natural resources, this way of unfolding of events on the food market will ensure and guarantee the improvement of the consumption structure, as well as raising the level of food security of the country entirely.

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