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Determinants of food security in Ukraine

Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania 35/1, 219-229

2014

Artykuł został opracowany do udostępnienia w internecie przez Muzeum Historii Polski w ramach prac podejmowanych na rzecz zapewnienia otwartego, powszechnego i trwałego dostępu do polskiego dorobku naukowego i kulturalnego. Artykuł jest umieszczony w kolekcji cyfrowej bazhum.muzhp.pl, gromadzącej zawartość polskich czasopism humanistycznych i społecznych.

Tekst jest udostępniony do wykorzystania w ramach dozwolonego użytku.

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DETERMINANTS OF FOOD SECURITY IN UKRAINE

ABSTRACT

The author carried out on the theoretical analysis of the modern approaches for ensuring food security on the different levels. Article contains the proposition of main indicators for determining the level of food security of the country. On the basis of which the author analysed and determined the level of ensuring food security of Ukraine.

Keywords: food security, level of food security, indicators for determining the level of food security, current state of ensuring food security of Ukraine

Introduction

The topic of food security in Ukraine is topical in the current conditions. Food consumption of Ukrainians is below the rational norms. In addition, studies indicate low quality of the most products, due to the lack of proper control of the state.

The objectives of this article are: to describe and analyse different point of view on the problem of ensuring and determining food security; to propose the complex of indicators, on the basis of which could be determined the level of food security; to make the investigation of the level of food security of Ukraine; on the basis of this investigation to create possible directions for raising the level of food security.

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The issue of food security should be considered from the perspective of maintaining food security of the population at a sufficient level for healthy lifestyles and adequacy of the internal market. As well as it involves a lack of dependence on imports and protection the interests of domestic producers of food.

Base of food security is the state of agro complex, which has a number of advantages in Ukraine, such as the climatic conditions and labour.

With the aim to ensure food security, Ukrainian government should create favourable conditions for agriculture, promote agricultural technologies, ensure quality control of the production and distribution of products, create socially-oriented economy, which will reduce the number of people with low incomes and reduce the gap in incomes of different quintiles of the population.

1. Food security as a component of the national security

In general terms, food security is ensured adequate resources, potential and ability to guarantee by the state regardless of external and internal threats to respond the needs of the population in food at levels of quality and range, which are accepted to standards and norms¹.

The obtaining of food security in the country is possible by the expense of food self-sufficiency, as well as imports – coming-in of inexistent products or production of products in the insufficient quantities.

Analysis of the studies testify, that widely spread is to characterize food security by the groups of parameters which determine the level of food ensuring for the country's population and it quality.

Food security is characterized by the following basic parameters:

- a) the level of food self-sufficiency, which is resulting in satisfying needs for food at the expense of food production within the country;
- b) food sovereignty, which is the state of food security of population on which the suspension of imports of food does not cause food crisis;
- c) stability of the domestic food market, which is defined as the volume of production and stocks of agricultural products, raw materials and food, as well as the level, dynamics of supply, demand, and prices for these products;

¹ К.А. Ахметова, *Продовольственная безопасность: состояние, проблемы, пути решения*, К.А. Ахметова, „Проблемы современной экономики”, 2009, nr 2 (30).

- d) physical availability of food – availability of food throughout the country at any time in the amount and range corresponding to the effective demand;
- e) economic availability of food in which the incomes of consumers, regardless of social status and place of residence, can buy food at least the minimum level of consumption;
- f) food safety for consumers – to prevent the production, sale and consumption of low quality foods that can harm the health².

2. The role of the state

A special role in the formation of food security plays the state. This role is manifested through the main areas of state regulation, the main of which is creating demand for food. The state exercises the formation of demand for food through pricing, raises the level of power purchase due to an increase in the minimum wage and pensions, reduce the gap in incomes of different groups and so on. In addition to economic factors, which provide increased demand for food is also advisable to use non-price regulation. Among them, the most important for Ukraine is providing population by quality products which are on the food market and ensure protecting from defective products and counterfeit products with properties that do not meet the one that declared by the manufacturer.

Food security in the country should be ensuring by law. There is the draft of Law No. 11378 „On food security of Ukraine”, according to which the government has tasked with regular monitoring of food security and defined food security indicators. Food security indicators are limited parameters, unreachng of which will indicate a threat to food security. As such indicators are proposed the following:

- a) daily energy ration of person should be no less than 2500 kcal / day;
- b) amount of public grain stocks for 60 days of consumption (normal amount of UN is 17% of annual consumption);
- c) the share of household expenditure on food products should not exceed 50%;
- d) differentiation of the cost of food by social groups;
- e) the share of imports of food products on the domestic food market upon 20%.
- f) These draft of Law mostly built on the basis of the current state of food security.

Parameters, which are mentioned in the Draft, in addition to the amount of public grain stocks, do not respond to the international standards for food security.

² *Ibidem.*

In addition, this Draft provides the Government's actions if will existed the situation of threats to food. These actions defined market interventions, instruments of state regulation, measures to stimulate domestic producers. In order to achieve food independence is proposed to use the tools of tariff protection³.

3. The indicators of food consumption

A group of criteria, which together form the country's compliance with the requirements of indicators of food security, determines food security of the country.

One of these criterions is the availability of food consumption.

This criterion includes a number of such indicators, namely: the physical and economic accessibility to food for different categories of consumers; the flexibility of demand for food costs and the level of income; the share of population witch incomes are below the poverty level; the level of food prices, the dynamics of production of basic food per capita.

Average food consumption per capita is one of the main indicators, which determines food security of country.

Identification of potential demand for food depends on consumer behaviour. In turn, the consumption depends primarily on consumer income and price changes. That is, the demand for food is elastic to price and income. And these two criteria determine supply in the domestic market which at the state level guarantees the certain level of food security.

Despite the fact that Ukraine is among the top ten sellers of wheat, sunflower, sunflower oil, barley, rye and corn, the amount of average annual export of Ukrainian food from 2007to 2011was 9.7million dollars, the problem of food consumption of Ukrainian population is still relevant⁴.

The consumption of food per capita is important in the country's food security, the concept of food security is directly associated with food consumption.

One of the major factor which effects on food consumption per capita is the purchasing power of the population. Accessibility to food as one of the main indi-

³ Analysis of the market of Ukraine, [www. apn-ua.com](http://www.apn-ua.com) (21.03.2013).

⁴ Е. Струк, *Какие страны кормит Украина*, http://forbes.ua/business/1341639-kakie-strany-kormit-ukraina?utm_source=BigmirMain&utm_medium=LastNews&utm_campaign=Forbes (18.02.2013).

cators is determined by the level of expenditure on food in the cost structure of households. The share of spending on food in the U.S. is 9%, Canada – 11%, in the EU – 12% in the OECD countries – an average of 13% (previous generation was 25%). The absolute amount of costs for food increases; the daily diets become include more ready-to-eat and processed foods in wider assortment⁵.

At the same time, there is the high proportion of expenditure on food in the income structure in Ukraine. Thus, according to statistics in 2011 the share of the household budget, which spends on food, was 51.3%. During 2000–2012 the maximum costs for food of households were 67.9% in 2000, the lowest was 48.9% in 2009. In Russia, this figure was 38.5%.

The share of costs for food in the total expenditure structure of the population serves as an indicator of actual spreading of poverty. According to the law of E. Engel, which was bred in the late 19th century, the third share of their income on food is spending by only a very poor family, and if on the food is spending 50%, then this is the evidence of extreme poverty.

There is a derived compliance between the shares of costs for certain types of food, and the flexibility of demand for some products, which is presented in the table 1.

Table 1. The cost of food in the structure of household expenditures and the flexibility of demand for food by income

Consumption	The share of expenditures food in the budget of households with different incomes			Income flexibility of demand		
	low income	average income	high income	low income	average income	high income
All foods	0.53	0.35	0.17	0.73	0.60	0.34
Crops	0.27	0.18	0.12	0.53	0.37	0.17
Meat	0.15	0.18	0.18	0.78	0.64	0.36
Milk products	0.08	0.11	0.10	0.80	0.69	0.38
Fruits and Vegetables	0.20	0.18	0.14	0.64	0.51	0.28
Drinks and tobacco	0.09	0.14	0.26	1.25	0.84	0.44

Source: created by authors based on „Україна в цифрах 2011 р”. Статистичний збірник., К. Державна служба статистики України, 2012 s. 250.

⁵ Проблема ожирения в Европейском регионе ВОЗ и стратегия ее решения, ВОЗ, 2009.

How higher is the share of expenditure on food, and then more elastic is the demand for it by income, as evidenced by the coefficient of flexibility of 0.73 for the population, the share of food in the total structure of which is 53%. The highest flexibility of income for all groups demonstrated meat and meat products and milk and milk products. Flexibility for meat and meat products for people with low incomes is 0.78 for households with high income – 0.36. For dairy products, these ratios are 0.8 and 0.38, respectively.

Another indicator of the level of food security is the quality of nutrition, which depends on the structure of the food basket and compliance with consumption of certain foodstuffs level required for a healthy lifestyle. In this case are determined correspondence between nutrition of average citizen and rational nutrition standards.

Table 2. Consumption of main food-stuffs per capita in year; kilograms

Food-stuffs	Rational consumption rates	Actual consumption in 2011		Ukraine (Consumption 2011)		
		Ukraine	Russia	In % to 1990	In % to RNN	In % to Russia
Meat and meat products Including sub products and row fat	83	51.2	63	73.9	62.8	81.3
Milk and milk products	380	204.9	47	54.7	53.7	83.0
Eggs, pcs	290	310	69	106.9	100	115.2
Fish and fish products	20	13.4	5.5	75.8	65	86.5
Sugar	39	38.5	3.9	75.5	99.5	987.2
Oil	13	13.7	3.4	114.4	102.3	102.2
Potatoes	129	139.3	104	102.7	107.7	133.9
Vegetables, watermelons, melons and gourds	161	162.8	101	155.8	98.5	161.2
Fruits, berries and grapes (without processed for wine)	90	52.6	58	104.4	54.4	90.7
Bread-stuff products (bread and macaroni counted as flour; cereals, flour, leguminous)	101	110.4	119	78.5	109.5	92.8

Source: created by authors based on „Україна в цифрах 2011 р”. Статистичний збірник. К. Державна служба статистики України, 2012, s. 250.

According to estimates of the UN in the area of Agriculture and Food (FAO), in the mid 80's USSR was in the top ten countries with the best type of nutrition. In

1985, according to the FAO, the average Soviet citizen daily received 105.3 g protein, including 51.5 g of animal protein, including with the meat – 22.2 g, milk – 15.2 g milk, 9.5 g with fish and 4.6 g with eggs⁶.

The food security of country is determined by matching the consumption rational standards. For the majority products in Ukraine, the actual consumption is below the rational norms. This is typical for animal products: meat and meat products, milk and dairy products.

So, there is the movement towards cheaper consumption and less caloric foods. These changes are accompanied by changes in caloric intake and changes in the structure of the diet per capita.

The average daily calorie food intake per one capita you can see on the table 3.

Table 3. The average daily calorie food intake per one capita, kcal

Caloric intake of the population of Ukraine	2000	2005	2007	2008	2009	2010	2011
Total	2661	2916	2940	2998	2946	2933	2951
Growth rates to 2000	100	109.6	110.5	112.7	110.7	110.2	110.9
Herbal products	2050	2183	2158	2193	2150	2124	2144
Relative density in total volume,%	77.0	74.8	73.4	73.1	73.0	72.4	72.7
Products of animal origin	611	733	782	805	796	809	807
Relative density in total volume,%	33.0	25.2	26.6	26.9	27.0	27.6	27.3

Source: created by authors based on „Україна в цифрах 2011 р”. Статистичний збірник, К. Державна служба статистики України, 2012, s. 250.

In 2011, the caloric intake of the population of Ukraine decreased due to the decrease in food consumption.

We have to admit that the structure does not correspond to nutrition standards of food safety. Compared to 1990 (the period of closest approach to the rational norms of consumption) of dietary energy in Ukraine has decreased by 18% from 3597 to 1990 kcal to 2951 kcal per day in 2011.

Trends that characterize the changes in the structure of consumption for the period 2000–2011 years give grounds to assert that a calorie diet of the population

⁶ И.А. Соколова, *Спрос на продукты питания и аграрная политика страны*, „Проблемы современной экономики”, 2010, пг 4 (36).

has decreased the share of animal products. Thus, the energy value in 2011 of 73% off set by plant products. In 2000, the floor was 77%.

Let ensure a complete investigation and to find out different food consumption by quintile groups. In the absence of definitive data for 2011 will analyse the consumption of basic food products by quintile groups in 2010.

Table 4. Food consumption in households by quintile (20%) groups in terms of total revenues on average per month for one person, kg

Products	Consumption for all households	Including quintile groups					With average per month in total revenue, lower cost of living
		first	second	third	fourth	fifth	
Meat and meat products	5.1	3.5	4.6	5.2	5.8	7.1	3.4
Milk and milk products	19.1	13.9	8.0	19.6	21.5	25.5	13.5
Eggs, pieces	20.0	17.0	20.0	20.0	21.0	22.0	17.0
Fish and fish products	1.8	1.3	1.6	1.9	2.0	2.4	1.2
Sugar	3.0	2.4	2.9	3.2	3.3	3.6	2.3
Oil and other vegetable fats	1.8	1.6	1.8	1.9	1.9	2.0	1.5
Potatoes	7.6	7.0	7.6	7.7	7.9	7.8	7.0
Vegetables and melons	9.5	7.3	9.1	9.9	10.7	11.8	7.2
Fruits, berries, nuts and grapes	3.7	2.4	3.3	3.7	4.2	5.8	2.3
Bread and bakery products	9.3	8.4	9.3	9.8	9.7	9.6	8.3

Source: created by authors based on „Україна в цифрах 2011 р”. Статистичний збірник, К. Державна служба статистики України, 2012, s. 250.

At an average cost of food in the household in 2010 in Ukraine – 53.5%, in households with per capita incomes of up to 300 UAH. per month on food spent 67.0% of total costs, and in households with per capita incomes from 1020 to 1200 UAH – 55.7%.

Foods related to products which provide biological needs of man. The flexibility of demand for food is low in the most groups, but the change in income levels and prices leads to changes in the structure and components of food consumption basket. In addition,

these changes primarily occur in the group of people with low incomes. This population is more sensitive to any changes in prices. In addition, minor decline in real incomes of such group also causes to significant changes in consumption patterns as deteriorating of quality of the product basket structure. In addition, under these conditions, food costs increases more rapidly of urban population, which has low and middle incomes.

But even such a high proportion of expenditure on food in the poorest Ukrainians did not allow them to consume food at the level of rational standards for most products.

Meat and meat products population with the lowest income are consumed 2 times less than the population that belongs to the fifth quintile and almost 2 times less than the consumption of milk and milk products, fish and fish products. Replacement of the population that belongs to the first quintile, with food consumption is toward less expensive products of plant origin – bread and cereal products, potatoes, and vegetables.

Our calculations suggest that the test of the availability of food consumption in Ukraine has not reached yet. Food consumption is not responsible country's food security.

4. Food production and import as a measure food safety

This is the case despite the fact that Ukraine has significant potential for the agricultural sector, which allows fully ensure a decent standard of living of the population and largely satisfied the growing needs of the European food market. In 2011, exports of agricultural products and finished products of its industrial processing secure Ukraine income of \$12,804.1 million. Along with this, the cost of food imports amounted to 6346.4 million. Thus, the domestic agriculture provided about 6.5 billion dollars balance of trade. Achievement of these results was made possible by a low level of intensification of the national agricultural sector and low investment attractiveness of the industry. The average yield of grain crops in Ukraine is 37.0 c/ha, sugar beet – 361.1 kg/ha, sunflower – 18.4 c/ha, which is almost two times lower than in most European countries.

Another measure food safety advocates imports of food. The share of food products imported into the country shall not exceed 25%. Indicators of Ukraine on this criterion should correspond to the food safety standards. Although, standards became much lower in comparison with the pre-reform period.

Production of main agricultural products in Ukraine is presented on the table 5.

Table 5. Production of main agricultural products in Ukraine

Agricultural products	Years			
	1990	2000	2010	2011
Cereal, thousands tons	51009.0	24459.0	39271	56747
Sugar beet, thousands tons	44264.0	13199.0	13749	18740
Sunflower, thousand tons	2571.0	3457.0	6772	8671
Meat, mln t	4.0	1.7	2.9	2.1
Milk, mln t	24.5	12.7	11.3	11.1

Source: created by authors based on „Україна в цифрах 2011 р”. Статистичний збірник, К. Державна служба статистики України, 2012, s. 250.

As a result of this situation in the agricultural sector of Ukraine exporter become an importer of many types of food. This is typical for meat and meat products, dairy products, sugar.

Conclusion

The level of food security of Ukraine cannot be defined as known and predicted. From the main foods production point of view, can be concluded about obtaining the level of self-sufficiency at a constant increasing exports. Instead, Ukraine imported foods that are mainly focus on the segment of consumers with low incomes which are the products at low prices and low quality and luxury foods for consumers with high incomes, also including organic products.

Critical role in ensuring food security plays an effective development of the agri-food sector, steady growth in the real incomes, use of effective protective measures to protect the domestic food market.

Therefore, to ensure the level of food security plays a primary role.

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WSKAŹNIKI DEFINIOWANIA POZIOMU BEZPIECZEŃSTWA ŻYWNOŚCI

Streszczenie

Autorka przeprowadziła teoretyczną analizę nowoczesnych rozwiązań służących zapewnieniu bezpieczeństwa żywności na różnych poziomach. Artykuł zawiera propozycje głównych wskaźników określających poziom bezpieczeństwa żywności w kraju. Na ich podstawie autorka przeanalizowała i określiła poziom zapewnienia bezpieczeństwa żywności na Ukrainie.

Słowa kluczowe: bezpieczeństwo żywności, poziom bezpieczeństwa żywności, wskaźniki określające poziom bezpieczeństwa żywności, aktualny stan zapewnienia bezpieczeństwa żywności na Ukrainie

JEL Codes: I130, P2

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