Alla Gizzatova[1], Ludmila Tarshylova[2], Aigul Kazambayeva[3]

RESEARCH ON PRODUCTION AND CONSUMPTION OF FOOD IN THE REGIONS OF THE REPUBLIC OF KAZAKHSTAN

The article studies the issues of production and consumption of food in the regions of the Republic of Kazakhstan which combine the natural conditions needed for certain types of agricultural production and the necessary areas of agricultural lands per capita. A mechanism is offered for the determination of advantages for each region concerning the production of certain types of agricultural products. This is of vital importance for further development of recommendations on increasing the level of food security of the country, strengthening its export potential by certain types of agricultural products and balancing the levels of economic and social development of rural areas.

Keywords: *agricultural economy; food provision; food security; regions; territorial division of labour.*

Алла Гіззатова, Людмила Таршилова, Айгуль Казамбаєва

ДОСЛІДЖЕННЯ ВИРОБНИЦТВА І СПОЖИВАННЯ ПРОДОВОЛЬСТВА У РЕГІОНАХ РЕСПУБЛІКИ КАЗАХСТАН

У статті розглянуто питання виробництва і споживання продовольства в областях Республіки Казахстан, які поєднують у собі природні умови для тих або інших галузей сільського господарства і площу сільськогосподарських земель на душу населення регіону. Запропоновано механізм виявлення переваг кожної області у виробництві певних видів сільськогосподарської продукції, що є особливо важливим при розробці рекомендацій з підвищення рівня продовольчого забезпечення країни, нарощування експортного потенціалу окремих видів сільськогосподарської продукції, вирівнювання рівня економічного та соціального розвитку сільської місцевості.

Ключові слова: *сільське господарство; продовольче забезпечення; продовольча безпека; регіони; територіальний поділ праці.*

Табл. 4. Літ. 30.

Алла Гиззатова, Людмила Таршилова, Айгуль Казамбаева

ИССЛЕДОВАНИЕ ПРОИЗВОДСТВА И ПОТРЕБЛЕНИЯ ПРОДОВОЛЬСТВИЯ В РЕГИОНАХ РЕСПУБЛИКИ КАЗАХСТАН

В статье рассмотрены вопросы производства и потребления продовольствия в областях Республики Казахстан, которые отличаются сочетанием в них природных условий для тех или иных отраслей сельского хозяйства и площадью сельскохозяйственных угодий в расчёте на душу населения региона. Предложен механизм выявления преимуществ каждой области в производстве тех или иных видов сельскохозяйственной продукции, что особенно важно при разработке рекомендаций по повышению уровня продовольственного обеспечения страны, наращиванию экспортного потенциала отдельных видов сельскохозяйственной продукции, выравниванию уровня экономического и социального развития сельской местности.

Ключевые слова: *сельское хозяйство; продовольственное обеспечение; продовольственная безопасность; регионы; территориальное разделение труда.*

[1] Department of Economics and Forecasting, Zhangir Khan West Kazakhstan Agrarian-Technical University, Uralisk, Kazakhstan.

[2] Department of Management System of Quality and Innovation, Zhangir Khan West Kazakhstan Agrarian-Technical University, Uralisk, Kazakhstan.

[3] Department of Economics and Forecasting, Zhangir Khan West Kazakhstan Agrarian-Technical University, Uralisk, Kazakhstan.

1. Problem statement

45.1% of population in the Republic of Kazakhstan reside in rural areas, in some regions of the country the share of rural population is even higher (Kazakhstan Regions, 2011). The general level of land provision per capita is rather high, accompanied with excellent natural land resources for various types of agricultural production. However, at the food market of the Republic there is a distinct disproportion between domestic production and its export. For example, according to the data by the Republic of Kazakhstan Agency on Statistics, in 1995 the share of agricultural products and raw materials in the total exports of the country was around 10%, while the same category of import was around 11% (Kazakhstan's Regions, 2010), and in 2011 the export of the same category was already 2%, while import was 10,8% (Kazakhstan..., 2011). The presented dynamics of exports and imports predetermines the necessity to seek for the advantages of various regions of the country in the production of various types of agricultural products and food. Such advantages would enable the increase of rural population welfare, rise of the country's food security level as well as building up the export potential of various kinds of agricultural products, thus promoting the economic and social development of rural areas.

2. Literature Review

The issue of agricultural production and food security of the country and its separate regions has already been studied from various angles. In particular, this issue has been explored by Agayev (2000), Altukhov et al. (2005), Borovskih (2003), Borisenko (2001), Borshchevskiy and Deineko (2007), Kaigorodtsev (2008), Kaliev (2013), Kosinskiy (2012), Ulyanchenko et al. (2013) and some other authors.

Agricultural production and food industry development as the basis for the regions' food resources formation has been studied in the works by Granberg (2003), Espolov et al. (2004), Kistanov (1998), Tracy (1995), Ushachev (2006) etc.

Regional food markers and the territorial organization have been considered in the works by Armstrong & Taylor (2000), Boev (1995), Bergman (1969), Hanson (2001), Klark (1999), P. Krugman (2011), Krylatyh (2006), Shukeev (2002), Tekenova (2003), Trukhachov (2005), Vermel (2002) etc.

3. Key objectives of this research concern the development of methodological grounds and practical recommendations on increasing the level of country's food security, thus increasing the level of rural population income and balancing the levels of economic and social development of rural areas, enhancing at the same time their export potential by various types of agricultural products.

4. Key results of the research

For determining the levels of production and consumption of food in the Republic of Kazakhstan the most important factor would be the natural resources and the territorial differences between the regions of agricultural production. These two factors predetermine the grouping of regions into: importing, self-sustaining and exporting ones.

One more important factor is the ratio between the population to be fed in the country and the areas of agricultural lands which serve to satisfy the need of local consumers in food as well as the export needs. The most obvious way to present this information is to calculate the per capita of agricultural areas, including all arable lands, hay fields and pastures.

Our research was based on the materials of the Statistics Agency of the Republic of Kazakhstan and the current territorial distribution of labour in the country as described by contemporary Kazakhstani economists, geographers and agrarian specialists.

Regional differences in agricultural production, food including, have their specific impact on market environment and agrifood industry in general through the territorial and sector distribution of labour and certain connections in the field of raw material supply.

For the Republic of Kazakhstan, just as like for any other country with vast territory and significant natural and economic differences between regions inside the country, one of the most important factor of efficient agrarian production and food supply is the smart combination of diverse natural and climatic conditions (including temperature, humidity and types of soils) with sufficient land supply per capita. The specific peculiarity of these factors' combination in Kazakhstan is that the most favourable natural conditions for agriculture belong to Almaty, Zhambyl and Southern Kazakhstan regions, however, the same regions at the same time have very limited agricultural areas while the vast land territories of Pavlodar, Aktyubinsk and Western Kazakhstan regions have the least favourable quality of lands.

To estimate the level of population food supply a system of indices can be applied describing no only production or consumption of major types of products but also the potential of agriculture from the viewpoint of food products and raw materials sufficiency.

Under the current conditions the vital factor in regional food supply is their (regions') self-sufficiency by grain which is needed for bread production and is also used in production of feedstuff for livestock breeding. In Kazakhstan since the 1950-ies Soviet campaign of virgin lands breakthrough grain production has become one of the leading activities, the basis for food supply and the key position in exports.

In maintaining food provision the role of various regions is not equal due to their differences in natural, economic and social conditions as well as their different levels of internal consumption and some other factors.

Table 1 presents the grouping of Kazakhstan regions according to their levels of land availability and lands under grain in particular. Please, note that the presented grouping does not correspond to the standard geographical classification of the country's regions.

Table 1. **Kazakhstan regions' grouping by arable lands availability per capita, 2011**

Indices	Groups of regions by arable lands per capita, ha			On average in the Republic
	I till 0,4	II from 0,41 to 3,0	III above 3,0	
Arable lands per capita, ha	0,4	1,0	6,1	1,4
Other agricultural lands	5,2	4,8	3,4	4,1
Grain production per capita, kg	150,0	513,9	10174,5	1628
Relative weight of the group, %: By population	26,4	56,0	17,6	100,0
In total grain production of the country	2,4	14,7	82,9	100,0

Source: Authors' development, based on Statistics Agency of the Republic of Kazakhstan, 2011.

The first group of the regions consists of Atyrau and Mangistau regions in Western Kazakhstan and Kyzyl'orda and Southern Kazakhstan regions on the south of the country. The second group unites the representatives of all geographicsl parts of the country: Pavlodar region on the north, Eastern Kazakhstan region on the east, Aktyubinsk and Western Kazakhstan region on the west; Almaty and Zhambyl regions on the south, and finally – Karaganda region in the central part of the country. However, we must note here that even though they are grouped together statistically, the temperature, humidity, soils and other natural parameters of these regions are drastically different.

Homogenous by their natural features are the regions making the third group, all on the north of the country. These are the major producers of summer wheat – Akmola, Kostanay and Northern Kazakhstan regions.

The first group of regions is the importing one. It accounts for 26% of the country's population and only 3% of grain production. The third group of regions is the exporting one, accounting for less than 1/5 of the Republic's population and more than 2/3 of grain at the same time. And finally, the second group can be treated as self-sustaining.

Table 2 reveals a certain correlation between per capita consumption of grain, potatoes, meat and dairy products for all the regions of the country (Kazakhstan's Regions, 2011).

Table 2. **Per capita production of major agricultural products by groups of Kazakhstan's regions, 2011, kg**

	Grain	Sugar-beet	Potatoes	Vegetables	Meat	Milk	Eggs, pcs.
Group I							
Atyrau	1	-	22,7	87,6	45	105	4
Kyzylorda	426	-	170,8	140,9	23	112	17
Mangistau	-	-	0,2	18,3	9	14	1
Southern Kazakhstan	138	0,3	81,7	282,6	35	255	103
Group average	150,5	0,07	78,8	203,4	31,4	184,1	64,2
Group II							
Aktyubinsk	548	-	122,1	99,2	78	416	227
Almaty	592	46,7	317,1	374,4	90	354	465
Eastern Kazakhstan	387	-	268,3	145,1	88	518	126
Zhambyl	374	105,9	145,3	428,2	48	266	113
Western Kazakhstan	569	-	89,9	82,0	62	371	225
Karaganda	524	-	187,1	61,3	48	260	275
Pavlodar	516	-	380,5	142,9	55	467	244
Group average	513,8	25,5	231,8	214,3	70	373,6	260,8
Group III							
Akmola	9010	-	303,7	77,0	56	495	598
Kostanai	8971	-	21,8	78,1	173	659	628
Northern Kazakhstan	13436	-	837,6	301,0	103	947	682
Group average	10174,6	-	411,4	138,1	115,3	681,2	632,5
Republic's average	1628	12,1	186	174	57	316	226

Source: Authors' development, based on Statistics Agency of the Republic of Kazakhstan, 2011.

As compared to the first group, the second one produced meat per capita 2,7 times more, and the third one – 3,7 times more; milk production is 2,0 and 3,7 times more, respectively; and eggs production – 4,0 and 9,9 times more, accordingly. Especially high indices belong to the third group of region, with Northern Kazakhstan and Akmola regions having a significant overstock of potatoes, in particular.

The presented differences cause further differentiation of production by the groups of regions, each having a unique combination of natural and economic conditions for the development of certain product groups. A part of southern regions, importing grain, barley and beef, are at the same time exporting rice, corn and lamb meat. Certain regions within the second group, in particular, Western Kazakhstan region, are shifting gradually from grain consuming regions to become grain importers.

Natural conditions and land resources availability predetermine the volumes of potential production in agriculture in all the regions; however, the actual volumes of production are predetermined, first of all, by the consumers' money flows (both domestic and from abroad). The production is also influenced by certain traditions in internal consumption. For example, the regions rich in vegetables (Almaty and Southern Kazakhstan) tend to consume more vegetables.

The data by the Agency on Statistics on Kazakhstan's household economy demonstrate the evident correlation between the level of regional production and the level of following consumption per capita (which is, however, also predetermined by some other factors, such as the level of income, demographic structure in a region, lifestyle etc.). Table 3 demonstrates the food consumption patterns in Kazakhstan's regions (Vermel, 2002).

Table 3. **Food products consumption in the groups of Kazakhstan's regions, per head in a household, 2011, kg**

Groups, regions, cities	Bread and other cereal products	Potato	Vegetables	Sugar	Butter and other fats	Meat and meat products	Fish and fish products	Milks and dairy products	Eggs, pcs.
Group I									
Atyrau	9,9	3,8	6,2	3,6	1,5	6,5	1,4	21,6	10,7
Kyzylorda	12,3	3,4	8,2	3,1	1,6	5,0	1,4	21,6	12,5
Mangistay	10,5	4,2	7,2	2,7	1,4	5,8	0,6	18,4	9,7
Southern Kazakhstan	11,5	3,3	7,9	2,7	1,7	3,4	0,7	13,0	8,9
Group average	11,0	3,7	7,4	3,0	1,6	4,0	1.0	18,7	10,5
Group II									
Aktyubinsk	11,2	4,2	6,0	3,5	1,6	5,4	0,8	18,9	12,9
Almaty	11,9	3,9	9,3	4,2	2,0	6,3	0,8	21,4	11,2
Eastern Kazakhstan	9,7	4,6	6,2	2,8	1,3	5,9	0,8	20,6	13,4
Zhambyl	10,5	3,8	7,1	3,3	1,8	5,5	0,8	13,7	8,6
Western Kazakhstan	9,5	3,8	6,7	3,1	1,2	5,1	1,1	17,7	9,7
Karaganda	9,3	4,9	7,2	3,4	1,5	5,8	0,8	19,2	15,9
Pavlodar	9,8	3,6	5,8	2,9	1,2	5,5	0,9	21,1	13,3
Group average	10,3	4,1	6,9	3,9	1,5	5,6	0,8	18,9	12,1
Group III									
Akmola	10,7	4,0	6,4	3,4	1,6	5,6	0,9	20,8	14,1
Kostanai	10,2	3,9	6,3	3,2	1,3	5,7	1,0	17,2	15,8
Northern Kazakhstan	9,0	3,8	5,7	3,2	1,3	4,9	1,1	21,9	16,2
Group average	10,0	3,9	6,1	3,3	1,4	5,4	1,0	20,0	15,0
Astana city	8,3	4,0	6,4	2,5	1,4	5,7	0,7	20,6	12,6
Almaty city	8,5	4,2	8,8	3,0	1,5	6,9	1,0	23,5	16,8
Republic's average value	10,4	4,0	7,3	3,2	1,6	5,5	0,9	19,0	12,5

Source: Vermel, 2002.

Various product groups demonstrate different levels of correlation between the production volumes and the consumption volumes per capita. Bread and cereal products, being the most affordable product, form a large share of crossregional product exchange and quite often substitute the lack of consumption of other products. For example, the Kyzylorda region, having very modest own grain resources, consume by half more than the country's average, thus somehow compensating for the lack of other products in the region (e.g., the potato consumption in this region is 1,2 less than Kazakhstan's average).

The consumption of vegetables, sugar and vegetable oil can be considered more or less heterogeneous and balanced in the country, still these are the regions producing much more of these products. In particular, Almaty region has the leading positions by vegetables and sugar. Between the livestock products a significant difference should be noted concerning the consumption of milk and eggs. The differences are quite significant: from 13,0 kg (milk) in Southern Kazakhstan to 21,9 kg in Northern Kazakhstan; and from 8,9 pcs. (eggs) in, again, Southern Kazakhsthan to 15,9 in Karaganda region. Fish and fish products' consumption is naturally more in those regions, on the territory of which there are large water basins; the basis of fish production in the country are in Atyrau region and in Western Kazakhstan.

Table 4. **Ranking of the food products consumption levels per capita per region (and major cities) in the Republic of Kazakhstan**

	Bread and cereal products	Potatoes	Vegetables	Sugar	Butter and other fats	Meat and meat products	Fish and fish products	Milk and dairy products	Eggs, pcs	Composite ran-king
Group I										
Atyrau	6	12	14	6	8	4	3	7	6	14
Kyzylorda	2	14	13	11	2	12	5	15	11	16
Mangistau	10	2	1	7	5	3	5	1	7	4
Southern Kazakhstan	1	13	6	10	3	11	6	16	10	15
Group average	5	10	9	9	5	8	5	10	9	12
Group II										
Aktyubinsk	6	8	9	3	2	4	5	10	3	9
Almaty	1	7	3	1	1	8	5	8	1	5
Eastern Kazakhstan	6	3	4	5	3	4	4	3	5	2
Zhambyl	4	11	5	9	3	10	4	14	9	13
Western Kazakhstan	9	10	15	2	3	7	1	2	2	8
Karaganda	9	7	8	6	3	5	5	13	6	11
Pavlodar	7	5	11	7	4	7	4	6	7	10
Group average	6	7	8	5	3	6	5	8	5	8
Group III										
Akmola	5	4	10	4	3	7	5	9	4	7
Kostanay	8	6	12	6	4	9	4	12	6	12
Northern Kazakhstan	3	1	7	4	2	6	2	11	4	1
Group average	5	4	10	5	3	7	4	11	5	7
Astana City	12	9	3	8	4	1	3	5	8	6
Almaty City	11	7	2	7	3	2	4	4	7	3

Source: Kaliev, 2013.

Both Kazakhstan's capitals, former – Almaty, and current – Astana, are having equally high levels of food consumption for all the categories, excluding bread and

cereal products. Their values on vegetables and meat are significantly higher than the Republic's average.

Since the regions have quite different levels of consumption for several food categories, it might be of interest to calculate the composite consumption index for the total of categories. Since some products can be treated as irreplaceable, we calculate their composite consumption index, see Table 4 for that (Kaliev, 2013). The composite index demonstrates the average ranking of each region by the consumtion volumes per capita for certain types of products. The leaders of the ranking are Northern Kazakhstan (1), Eastern Kazakhstan (2) and Almaty City. The lowiest positions in the ranking are occupied by Atyrau region (13), Southern Kazakhstan (15) and Kyzylorda region (16).

In the calculations of the composite ranking the lowest rank was attributed the to the region with the highest level of product consumption.

Among the regions' groups the highest rank belongs to Group III, which, as stated above, has the largest grain resources, same with potatoes and all livestock products. The lowest rank belongs to Group I which demonstrated the lowest level of production per capita for the same food categories. Group II is, accordingly, in the middle of the ranking.

Conclusions

The demonstrated here significant differences between the regions of Kazakhstan are the evidence of the necessity to study more thoroughly the country' food problems and their causes by regions in order to develop further a complex program to overcome these difficulties. In particular, it is obvious that to achieve the level of developed countries it is of vital importance to combine quantitative parameters with qualitative ones in terms of rational nutrition. Special attention must be paid to the products with the low level of cholesterol – vegetables and fruits, fish and fish products, low fat dairy products. One of the efficient ways to increase the level of milk products' consumption, for example, is to increase the productivity of the corresponding livestock in some regions which currently show poor performance on that. E.g., in the first group of region in 2011 the average productivity of dairy cattle is only 1120 kg, while the same dairy cattle in the third group had the average productivity of 2510 kg. The cheapest source of animal protein is eggs, still, its consumption in the first group is 2,2 times lower than in the third group. Therefore, it would be reasonable for such regions as Kyzylorda (ranked 11th) and Southern Kazakhstan (ranked 10th) to increase the production volumes of their poultry plants.

Taking into account the current condition of national production and consumption, their further development should be a vital component of the national economic policy, both at the republican and regional levels.

Inside the regions special measures should be taken on the development of food supply provision, dividing the food market into several geographical zones.

Urgent solution of the described regional problems is the necessary prerequisite for increasing the level of the country's food security, increasing Kazakhstan's export potential in agriculture and also for balancing the levels of economic and social development of various rural areas.

References:

Агаев Б.В. Организационно-экономический механизм обеспечения продовольственной безопасности. – М.: Экономика, 2000. – 177 с.

Алтухов А.И., Вермель Д.Ф., Куропаткин А.И. Территориальное разделение труда в АПК России и продовольственное обеспечение регионов // Экономика с.-х. и перерабатывающих предприятий. – 2005. – №4. – С. 15–19.

Бергман Х. Разделение труда и специализации в сельском хозяйстве. – М.: Изд-во "Прогресс", 1969. – 289 с.

Борисенко А.В. Проблемы формирования региональных систем продовольственного обеспечения // Междунар. с.-х. журнал. – 2001. – №5. – С. 50–56.

Боровских Н. Потребление продуктов питания и его прогнозирование // АПК: экономика и управление. – 2003. – №4. – С. 39–43.

Борщевський П., Дейнеко Л. Продовольча безпека країни: стан і тенденції // Розбудова держави. – 2007. – № 1 – 6. – С. 66–73.

Вермель Д.Ф. Региональные особенности обеспечения продовольственной безопасности России // Пищевая промышленность. – 2002. – №2. – С. 18–19.

Гранберг А. Производство и использование валового регионального продукта: межрегиональные сопоставления // Росс. экон. журн. – 2003. – №1. – С. 39–54.

Есполов Т.И., Куватов Р.Ю., Керимова У.К. Повышение эффективности сельского хозяйства Казахстана в условиях его интеграции с внешними рынками. – Алматы: Экономика, 2004. – 598 с.

Казахстан в 2011 году / Статистический ежегодник / г. Астана. – 496 с.

Кайгородцев А.А. Продовольственная безопасность: казахстанская модель // Вестник КАСУ. – 2008. – №4. – С. 92–99.

Калиев Г.А. Влияние единого экономического пространства и вступления в ВТО на продовольственную безопасность Казахстана // АПК: Экономика, управление. – 2013. – №2. – С. 71–82.

Кистанов В.В. Комплексное развитие и специализация хозяйства экономических районов. – М.: Финансы и статистика, 1998. – 283 с.

Косинский П. Продовольственная самообеспеченность региона как экономическая система // Проблемы современной экономики. – 2012. – №3 – http://www.m-economy.ru/art.php?nArtId=4218.

Крылатых Э.Н. Прогноз развития агропродовольственного сектора России до 2030 г. // Экономика с. – х. и перерабатывающих предприятий. – 2006. – №9. – С. 8–12.

Мониторинг развития аула: Стат. сб. – Часть 2 / под ред. Ю. Шокаманова. – Алматы, 2012. – 68 с.

Регионы Казахстана в 2011 году / Статистический сборник/ г. Астана. – 400 с.

Сельское, лесное и рыбное хозяйство Казахстана. Статистический сборник / под ред. А.Смаилова \ Алматы, 2001. – 172 с.

Текенов У. Модель участия Казахстана и его регионов в МРТ // Аль-Пари. – 2003. – №1. – С. 47–52.

Территориальное разделение труда и рынок продукции АПК / Под ред. Боева В.Р. – М.: Экономика, 1995. – 178с.

Трейси М. Сельское хозяйство и продовольствие в экономике развитых стран: введение в теорию, практику и политику. – СПб.: Экономическая школа, 1995. – 356 с.

Трухачев В.И. Эффективность зональной специализации сельского хозяйства // Экономика с.-х. и перерабатывающих предприятий. – 2005. – №2. – С. 33–35.

Ульянченко А, Кошкалда И. Направления развития аграрного сектора Украины //АПК: Экономика, управление. – 2013. – №2. – С. 89–94.

Уровень жизни населения в Казахстане /Статистический ежегодник /г. Астана. – 238 с.

Ушачев И. Агропродовольственный сектор: основные направления и проблемы // Экономист. – 2006. №5. – С. 86–94.

Хэнсон Ф. Влияние фактора регионального разнообразия на экономическую трансформацию России // Проблемы прогнозирования. – 2001. – №3. – С. 17–23.

Шукеев У. Приоритеты развития региональной экономики // Экономист. – 2002. – №10. – С. 60–66.

Armstrong, H., Taylor, J. (2000). Regional economics and policy. 3rd ed. Oxford: Blackwell Publishers. 437 p.

Klark, K. (1999). Regional and urban location. – New York, 560 p.

Krugman, P. (2011). The New Economic Geography, Now Middle-aged. Regional Studies, 45: 1–7.

Стаття надійшла до редакції 25.07.2013.