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## Land relations: features of transformation in modern Russia

**Abstract. Introduction.** Implementation of land reform has had a significant impact on the transformation of the regional agricultural policy through the change of organisational and economic conditions, forms of land ownership, setting priorities in agricultural production. Monitoring of the current state of the land relations system and transformation trends makes it possible to estimate the results of the changes. *The purpose* of the research is to suggest tools enabling to estimate structural changes of land ownership at the regional level. *Results.* The authors outlined three stages of economic and statistical estimation of land transformation. *The first stage* contributes to the description of the regional changes in the forms of agricultural land ownership, redistribution of funds, and of information about producers' right to land in the Volga economic region of Russia. The biggest increase in the area of legal entities' lands is observed in Saratov, Penza and Ulyanovsk regions. *The second stage* presupposes the use of the systemic and structural approach. The calculation of relative indices makes it possible to analyse the changes in areas under cultivation of various crops. It has been found that farmers are inclined to ignore crop rotation recommendations in order to maximise profits.

*The third stage* considers the estimation of structural shifts of the areas under cultivation, taking into account various forms of land ownership. The structure of ownership as for 1990, 2005, 2010 and 2012 differs, which outlines both legislative and economic changes in the Russian agriculture. *Conclusion.* We found out that economic interests of agricultural producers affect the changes in the structure of sown areas in Saratov region. The proposed methodological approach makes it possible to estimate structural transformation of the lands and define the directions of their use by different types of farms involved in the agricultural production.

**Keywords:** Agricultural Lands; Sown Area; Structural Changes; Land Reform; Land Relations; Agricultural Producers

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### Земельні відносини: особливості трансформації в сучасній Росії

**Анотація.** У статті розглядаються актуальні питання трансформації земельної власності. Запропоновано методологічний підхід до кількісного вимірювання та якісного опису перетворення земель, що використовуються для сільськогосподарського виробництва різними категоріями господарств. Визначено три етапи економіко-статистичної оцінки трансформації земель. Перший етап стосується опису змін форм власності земель сільськогосподарського призначення, фонду перерозподілу, відомостей про права товаровиробників на землю (досліджено на прикладі Поволзького економічного району). Другий етап передбачає застосування системно-структурного підходу. Розрахунок відносних показників вищого порядку дозволяє проаналізувати зміну посівної площі, зайнятої під вирощування різних видів сільськогосподарських культур. Третій етап спрямований на оцінку структурних зрушень посівної площі залежно від її форми власності. У статті доведено вплив економічних інтересів сільгоспвиробників на зміну структури посівної площі.

**Ключові слова:** землі сільськогосподарського призначення; посівна площа; структурні зрушення; земельні відносини; сільськогосподарські товаровиробники.

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**Земельные отношения: особенности трансформации в современной России**

**Аннотация.** В статье рассматриваются актуальные вопросы трансформации земельной собственности в региональных условиях. Предложен методологический подход к количественному измерению и качественному описанию преобразования земель, используемых для сельскохозяйственного производства различными категориями хозяйств. Раскрыты три этапа экономико-статистической оценки трансформации земель. Первый этап касается описания изменений форм собственности земель сельскохозяйственного назначения, фонда перераспределения, сведений о правах товаропроизводителей на землю (исследовано на примере Поволжского экономического района). Второй этап предполагает применение системно-структурного подхода. Расчет относительных показателей высшего порядка позволяет проанализировать изменение посевной площади, занятой под выращивание различных видов сельскохозяйственных культур. Третий этап направлен на оценку структурных сдвигов посевной площади с учетом различных форм собственности (исследовано на примере Саратовской области). В статье доказано влияние экономических интересов сельскохозяйственных товаропроизводителей на изменение структуры посевной площади в Саратовской области.

**Ключевые слова:** земли сельскохозяйственного назначения; посевная площадь; структурные сдвиги; земельные отношения; сельскохозяйственные товаропроизводители.

**1. Introduction**

The stability of the institutional form of land relations is established in the process of changing ownership rights, implementing public administration and improving agricultural production. In the present research, the authors have studied essential aspects of land relations and their transformation [1]. It has been defined that the notion of land relations has dual nature. Firstly, this notion is conventional and touches upon land property rights. Secondly, it is related to economic regulation. The authors of the article consider land relations to be a complex system which should be based upon the theory of socially-oriented market economy [2]. One of the components of the system of land relations is land ownership which is characterised by a set of rights and responsibilities of owners, land users, land owners and tenants. There is a need for an objective study of changes occurring during the formation and development of land ownership.

**2. Brief Literature Review**

Scientific provisions of the most prominent researchers are of essential value in the determination of the role and place of transformation of land relations. Here, we can mention researches such as O. B. Lepke (2000) [3]; V. V. Miloserdov (2007) [4]; N. G. Nikonova (2007) [5]; N. I. Shagaida (2010) [6] and others. Features of land reform are considered in the works by H. Dekker (2003) [7]; M. Lipton (2009) [8]; I. N. Buzdalov, V. I. Buzdalov (2012) [9]. The institutional aspects of the transformation of land relations were researched by A. A. Kazannikov (2007) [10]. Yu. N. Kaninberg (2014) [11] pays attention to the improvement of land relations in agriculture. The problems of legal and state regulation of land relations were researched by H. Shevchenko, V. Pakhomov, M. Petrushenko (2016) [12]; E. Zavorotin, A. Gordolova (2015) [13]. Methodological aspects of land ownership was studied by A. N. Makarov (2007) [14]. Many authors, for example N. G. Filimonova (2011) [15], A. P. Tsybin (2013) [16], have studied land relations as part of agricultural production structural changes. The issues of economic development of the agricultural sector in the context of regional changes are considered in the works of M. Iurkova, D. Sedobintsev (2016) [17].

**3. Purpose**

The possibility of using various tools of statistical analysis determines the purpose of the research. It stipulates the formation of methodical tools assisting the estimation of transformations related to land ownership and identification of key trends in the use of farm lands in the region.

**Methodology.** The Systemic and structural approach to the study of changes in land ownership as part of the land relations system, which consists of interconnected internal components

and is transformed under the influence of exogenous factors, will be used in the paper. The consideration of changes in land ownership should be conducted by using logical and statistical principles.

**4. Results**

The systemic and structural approach made by the authors of the article enables to determine the character of fluctuations of agricultural production structure under the influence of the land reform. The estimation of the transformation of land relations should be based on three main stages.

The first stage is aimed at the measurement of quantitative characteristics of the structural transformation of lands suitable for agriculture or can be used for agricultural production or fixed for agricultural producers. An economic analysis of the system of absolute and relative indices of land ownership should be based on the dynamics of:

- 1) the total area of agricultural lands;
- 2) the total area of land from the redistribution fund;
- 3) information on the forms of ownership of the land used by agricultural partnerships and companies;
- 4) lands used by enterprises, organisations, farms and companies which produce agricultural products;
- 5) lands of liquidated farm enterprises whose right to land has not been terminated;
- 6) information on legal issues, on the basis of which the peasant (farmers) enterprises used land;
- 7) information on the rights, on the basis of which private households used land.

The estimation of changes in the area of agricultural lands and the redistribution funds should reflect the transfer of land ownership from one party to land relations to the other, for instance from the State or municipalities to citizens or legal entities. It is necessary to separately view the change of the areas of land owned by the State, which includes land ownership of the Russian Federation (federal ownership) or its subjects (regional ownership). A significant increase in the area of federally owned agricultural lands is observed in the Republics of Tatarstan and Kalmykia. The areas of land in federal ownership in Samara region has increased due to the reduction in the lands of regional ownership. The period under review is characterized by an increase in the area of agricultural lands in the federal ownership in Saratov region (Table 1).

According to the data by the Federal Service for State Registration, Cadastre and Cartography (Rosreestr) as of the 1<sup>st</sup> of January 2016, the area of agricultural lands of Saratov region comprised 8.5 million hectares, of which 636 thousand

hectares was not being cultivated [18]. The following trends in the changes for the period of 2017-2020 can be identified: an increase in the acreage of agricultural lands owned by the legal entities, on average by 40.7%; an increase in the acreage of agricultural lands in both State and municipal ownership by 4-5%; a reduction in the areas of lands owned by citizens by 6-9%. In this regard, we may observe the involvement of agricultural lands in the turnover by enterprises, entities, societies, partnerships from among not properly registered lands in the process of the transformation of land relations.

The lands can be transferred for the development of agricultural production from the redistribution fund. The largest redistribution fund of agricultural lands in Volga region is located in the Republic of Kalmykia. During the period of 2009-2012, the fund's resources decreased by 26.5%.

The analysis of the relative values of the area owned by the state and in municipal ownership should characterise its transfer in accordance with the right to be leased or used by agricultural producers. According to statistics, there were changes in the forms of land ownership. Thus, the biggest increase in the area of legal entities' lands is observed in Saratov, Penza and Ulyanovsk regions. At the same time, there was a decrease in citizens' land share in the total land ownership. The share of the unclaimed land in the land shares of citizens doubled in Penza region, but decreased by 91% in Astrakhan region (Table. 2).

Peasant (farmers) enterprises and private households may obtain lands which are in state and municipal ownership as a lifetime inheritance demesne, use or lease; other natural or legal persons and public authorities - as a fixed term ownership to provide agricultural production.

The second stage deals with the estimation of the distribution and use of land taking into account possible changes in certain elements of agricultural production. The alternation of the structure of sown lands and gross harvest of agricultural crops change the internal content of the efficiency of land resources use [19, 20]. Thereby, the following indicators are taken into consideration:

- 1) individual parameters of absolute structural shifts [21];
- 2) individual parameters of relative structural shifts [22];

- 3) the absolute linear coefficient of structural shifts [23];
- 4) the quadratic coefficient of absolute structural shifts [23];
- 5) the index of difference between two structures [24].

Positive trends are observed regarding the change in the area of land used for the production of technical and vegetable crops in t Saratov region in 2012 compared to the year 1990. A decrease in the sown area of grains and leguminous crops led to the negative trends in their production. Sunflower production contributed to a significant increase in the cultivated area and the gross harvest of that crop. Following the scientifically based farming system of Saratov region, the cultivated area of sunflower should be no more than 14% in the structure of the sown area. However, in 2012 the cultivated area of sunflower was 25.6% in the structure of sown areas in Saratov region. As it can be seen, all the farms and agricultural enterprises of Saratov region do not follow the recommendations on the organisation of crop rotation. In the authors' opinion, individual indicators of absolute and relative structural shifts show specific economic interests of the subjects of land relations. Agricultural producers use the sown area to increase economic benefits from the production and realisation of commercial crops.

The transformation of the structure of sown area has led to a reduction of the arithmetic average of specific weight of the absolute increments recently. The linear coefficient of absolute structural shifts shows that the specific weight of the sown areas is deviated from each other on average by 4.45%, 3.24%, 3.17% and 0.99% at different periods. Quadratic coefficients equal to 8.68, 6.06 and 4.99 indicate significant structural changes. Insignificant structural changes correspond to the coefficient equal to 1.66. The land reform of 1990 is the diametric opposite of the structure of sown areas when compared to the modern period. Significant differences between the two structures of the sown area were observed in the year 2012 compared to the year 2010 (Table. 3).

The third stage is the estimation of the transformation of the sown areas due to the forms of ownership by determining statistical indices of structural shifts as it is mentioned in the second aspect. In accordance with Chapter 3 of the Land Code of the Russian Federation, there are three main forms of land

Tab. 1: Relative indices of changes in agricultural lands

Volga region	Deviation in 2012 compared to the year 2009, %						
	of total area	including:			of them:		
		citizens ownership	legal entities ownership	state and municipalities ownership	ownership of the Russian Federation	ownership of the subjects of the Russian Federation	municipal ownership
Republic of Kalmykia	100.27	117.71	97.50	96.63	249.25	103.83	123.65
Republic of Tatarstan	99.98	94.44	125.75	97.21	261.54	390.00	290.58
Astrakhan region	98.66	102.75	106.18	96.83	99.20	-	100.00
Volgograd region	99.99	100.31	100.81	99.05	100.44	138.36	196.19
Penza region	99.97	86.84	189.23	97.36	81.67	126.98	-
Samara region	99.33	98.34	124.78	97.65	142.50	78.33	-
Saratov region	100.50	96.79	129.78	101.93	100.78	366.67	195.22
Ulyanovsk region	99.44	93.91	144.28	99.67	107.28	95.99	267.82

Source: [18]

Tab. 2: Relative indices of lands used by agricultural partnerships and companies

The Volga region	Deviation in 2012 compared to the year 2009,%													
	of total area	including lands which are:							including lands which are:					
		owned by citizens	owned by legal entities	in public ownership	proportional	of them:			owned by the state and in municipal ownership	of them:		Other individual and legal entities, as well as public authorities, assigned to a fixed use for enterprises		
						land shares of citizens	of them: unclaimed	shares on right of legal entities		joint	right to			
use	lease	total	owner of land share											
Republic of Kalmykia	121.44	-	-	67.85	67.85	67.85	-	-	-	124.49	0.17	264.69	-	-
Republic of Tatarstan	112.30	-	131.51	103.86	103.86	103.88	112.35	102.35	-	99.35	86.36	105.01	-	-
Astrakhan region	94.90	-	173.33	70.28	70.15	70.15	9.23	-	100.00	108.05	10.05	146.27	-	-
Volgograd region	100.82	101.56	151.18	97.12	97.12	97.12	70.18	-	-	108.33	113.97	103.09	100.02	122.98
Penza region	126.62	-	195.11	79.74	79.74	79.74	206.57	-	-	106.32	62.63	112.04	104.24	104.17
Samara region	102.17	-	126.94	98.68	98.68	98.67	98.19	100.00	-	100.92	95.46	104.34	92.25	92.35
Saratov region	106.66	93.75	200.45	88.09	88.08	87.72	89.84	118.18	112.50	114.1	107.94	121.41	121.13	126.16
Ulyanovsk region	114.98	-	191.88	99.71	99.71	99.83	96.09	99.06	-	103.46	99.80	105.76	86.59	77.06

Source: [18]



ownership: private, state or municipal ones [26]. In the structure of the sown areas of Saratov region, the specific weight of state ownership of lands decreased by 3.76%. However, the specific weight of private ownership of the sown areas increased by 2.98%. The quadratic coefficient of absolute structural shifts is 2.77%. It proves that significant shifts of sown areas took place in 2005 and 2012. The structure of the defined periods is characterised by the opposite types. In the reporting period, compared to 2010, there were small structural shifts toward private ownership. However, there is a significant level of difference between the structures (Table 4).

### 5. Conclusions

This research is based on the use of information on the agricultural lands redistribution, the transfer of ownership and the use of land by agricultural enterprises, organisations, entities, peasant and farmers' enterprises and private households for agricultural production. The results of the conducted research show that the transformation of the structure of sown areas was predetermined by the modification of land ownership. The specific features of the estimated periods consist of different changes in political, economic, social, technological and other spheres. They impact agricultural production and, in particular, the development of land relations.

This analysis suggests a conclusion on significant influence of the land reform upon the changes in ownership, the provision of land used for growing of agricultural crops. On the basis of these results, agricultural producers can restructure the sown areas with the aim of decreasing the proportion of sunflower crops. Agricultural producers need application of scientifically based farming systems. The regulation of land relations must coordinate the influence of the internal and external factors on land management of agricultural producers. The improvement of agricultural economic efficiency should be aimed at keeping land from degradation, clogging and high anthropogenic load. Social efficiency must ensure rational management and optimisation of consumers' preferences.

Thus, the methodology proposed in the article allows studying regional characteristics of land use and ensuring agricultural production. The systematisation of data related to changes

in land ownership and crop area contributes to the implementation of managerial decisions on the regulation of land relations in the region.

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Tab. 3: Characteristics of structural shifts of sown areas on the farms of all categories of Saratov region

Parameters	Intervals			
	2012/1990	2012/2000	2012/2005	2012/2010
Individual parameters of absolute structural shifts of sown areas,%:				
of grain and leguminous crops	2.60	-2.20	-6.04	1.47
of sugar beet	-0.16	-0.18	-0.06	-0.04
of sunflower	19.23	13.36	9.39	-3.41
of potatoes	0.05	-0.35	-0.33	-0.02
of vegetables	0.21	0.10	0.04	0.02
Individual parameters of relative structural shifts of sown areas:				
of grain and leguminous crops	1.04	0.97	0.91	1.02
of sugar beet	0.52	0.50	0.73	0.82
of sunflower	4.02	2.09	1.58	0.88
of potatoes	1.08	0.67	0.69	0.97
of vegetables	1.80	1.26	1.08	1.04
Absolute linear coefficient of structural shifts of sown areas,%	4.45	3.24	3.17	0.99
Quadratic coefficient of absolute structural shifts of sown areas,%	8.68	6.06	4.99	1.66
Index of difference between two structures of sown areas according to the period	0.91	0.64	0,36	0.16

Source: Compiled by the authors based on [25]

Tab. 4: Characteristics of structural shifts of sown areas of Saratov region relevant to the forms of ownership

Parameter	Intervals	
	2012/2005	2012/2010
Individual parameters of absolute structural shifts of sown areas,%:		
of state private ownership	-3.76	-0.41
of municipal ownership	-0.17	-0.05
of private ownership	2.98	1.58
Individual parameters of relative structural shifts of sown areas:		
of state ownership	0.25	0.75
of municipal ownership	0.40	0.68
of private ownership	1.03	1.02
Absolute linear coefficient of structural shifts of sown areas of all forms of ownership,%	2.30	0.68
Quadratic coefficient of absolute structural shifts of sown areas of all forms of ownership,%	2.77	0.94
Index of difference between two structures of sown areas of all forms of ownership for the period	0.734	0.237

Source: Compiled by the authors based on [25]

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