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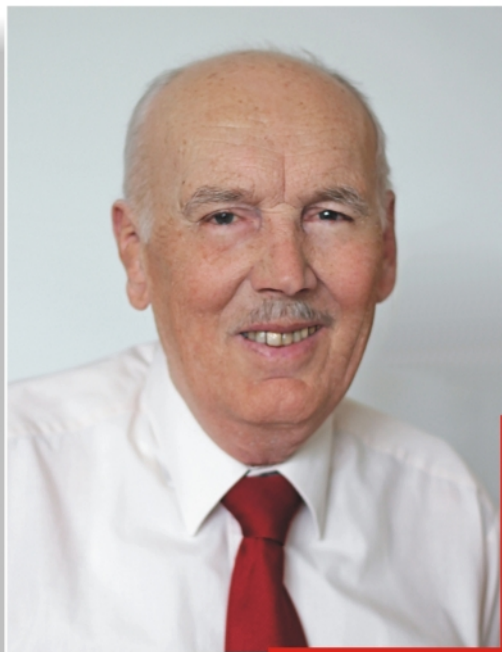
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*Дорогой  
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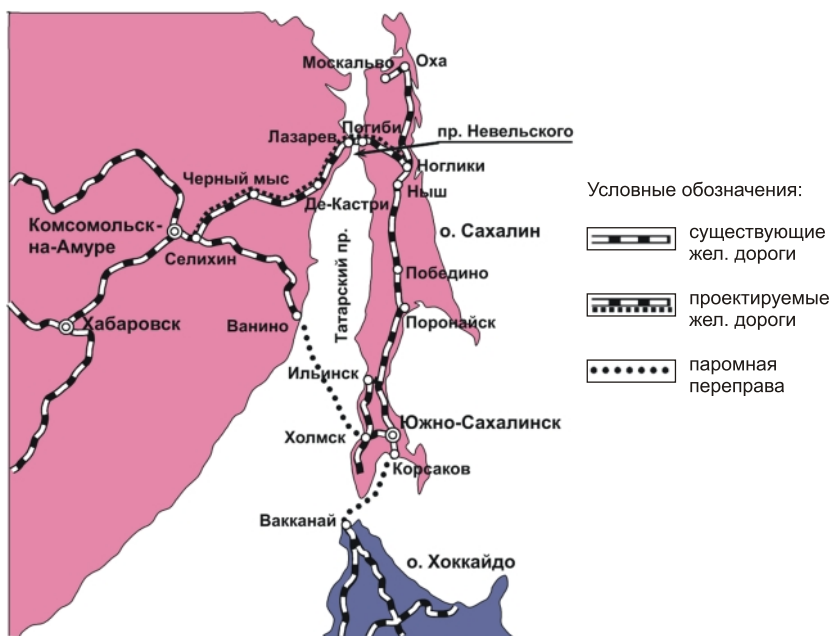
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**E.B. Kibalov, A.A. Kin**

# ON THE PERFORMANCE OF THE «SAKHALIN – MAINLAND» RAILWAY PROJECT

*The article views a problem of establishing ground transportation that connects Sakhalin Island to mainland Russia through the prism of history: from the imperial era to the present day where the Sakhalin–Mainland railway project is interpreted as a breakthrough component in the strategy of streng-*

*thening Russia's trade and economic ties with Asia-Pacific and, above all, Japan. We emphasize that the project cannot be cost-effective if it is confined to building a bridge or a tunnel across the Nevelskoy Strait and focuses only on the Sakhalin Railway. It is also necessary to incorporate a bridge across the La Perouse Strait in the project, which will provide access to the Japanese railway network and allow container traffic from Japan to Europe via Russia. With this approach, the Sakhalin–Mainland federal project becomes international, and its successful implementation will not only meet the project's economic objectives but also solve Russia's political and military strategic problems in the Pacific.*

**Keywords:** railway project; the Nevelskoy Strait; the La Pérouse Strait; transport corridor; economic goals; non-economic goals; complicated decisions; project expenses; the Japan–Korea Undersea Tunnel

*The publication is prepared within the priority XI.172 (project No. XI.172.1) according to the research plan of the IEIE SB RAS*

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$$\text{var} \begin{pmatrix} u_t \\ v_{1t} \end{pmatrix} = \begin{pmatrix} \sigma_u^2 & -\alpha_2 \sigma_u^2 \\ -\alpha_2 \sigma_u^2 & \sigma_v^2 + \alpha_2^2 \sigma_u^2 \end{pmatrix}.$$

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$$\begin{aligned} \alpha_1 &= -\text{cov}(u_t, v_{1t}) / \sigma_v^2, \\ \alpha_2 &= \text{var}(u_t) - \sigma_v^2 \alpha_1^2, \\ &= \text{var}(v_{1t}) - \sigma_v^2. \end{aligned}$$

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**A.V. Kostin**

## **METHODS OF MEASURING THE SHADOW ECONOMY AT THE REGIONAL LEVEL**

*Studies show that the share of the shadow economy in Russian regions varies between 11 and 85 percent. Large economic differentiation at the regional level keeps the problem of choosing methods for measuring the shadow economy current. While there is a fairly large number of studies on measuring the shadow economy at the country level, it is not enough at the regional one. Moreover, it is impossible to use all methods for the regional level without adjusting. The article considers methods of measuring the shadow economy through the prism of their potential applicability to evaluating the hidden gross regional product. We point out that the most often used methods for measuring the shadow economy at the regional level are the balance, the electricity consumption, and the MIMIC methods. The monetary method appeared to be not applicable at the regional level; the method of fuzzy sets was not applied to regions but has a high potential if the internal evaluation mechanisms are fundamentally refined.*

**Keywords:** methods of measuring the shadow economy; regional economy; balance method; monetary method; MIMIC method; dynamics of the shadow economy

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	99,4	107,8	103,9	103,8	102,8	100,9	100,5	96,2
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**B.V. Melent'ev**

### **POSITIVE COMPROMISES IN CONSTRUCTING INTERREGIONAL INPUT-OUTPUT TOOLS FOR FORECASTING ECONOMIC DEVELOPMENT**

*Based on extensive experience in modeling the economy of the regions and in experimental calculations for forecasting economic development, the article determines the real area of use of interregional input-output models and defines approaches to bring existing scientific instruments closer to the solutions of relevant applied problems. The current economic and mathematical models limit the possibilities of theoretical modeling but allow obtaining the forecasts that experts need at present. From experience gained, the latest modifications of interregional input-output tools provide forecasts for the economic develop-*

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*ment in material and financial composition, not only maintaining compliance with the classical principles of economic theory, but also fixing new provisions on the possible obtaining of numerical values of the national economic efficiency and agreeing them with the commercial efficiency of manufacturing industries.*

**Keywords:** interregional input-output optimization models for forecasting economic development; forecast; finance

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**P.M. Pershukovich**

## **ASSESSING AND REGULATING FOOD SOVEREIGNTY AND SECURITY FOR SIBERIAN POPULATION**

*The article presents a methodology for assessing food sovereignty and food security as exemplified by agro-industrial production in the Siberian Federal District. The assessment of food sovereignty rests upon the official market basket and corresponding consumption patterns approved by the Russian Government, as well as the population size. Official per capita food consumption patterns are determined in physical and value terms, regarding the prevailing market prices. We identify the total costs for all food products and compare them with the actual average per capita spending on groceries.*

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*In general, food self-sufficiency is not provided if expenses are equal to or greater than the total cost of food products. We show that a social eco-economic system engaged in food production experiences external threats and natural hazards, which leads to risks and losses and, ultimately, changes the system performance indicators. Relying on the methodology designed, the article assesses the level of food self-sufficiency and food security for the SFD population and considers issues of state support and regulation.*

**Keywords:** food sovereignty; food security; food self-sufficiency; assessment; consumption patterns; social eco-economic system; market failures; governmental support; state regulation

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	1990	2010	2016
	110	95–105	96
	82	70–75	73
	405	320–340	325
, ./ / .	292	260	260
	18,2	18–22	22
	40	24–28	24
,	9,1	10–12	12
	97	95–100	90
	146	120–140	140
,	114	90–100	100

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2 2010 . 593 //

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2016 . 614. – URL: [http:// www.consultant.ru/document/cons\\_doc\\_LAW\\_204200](http://www.consultant.ru/document/cons_doc_LAW_204200); [4].



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	1990	1995	2000	2006	2010	2014	2016
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110,0	105,5	107,7	98,2	93,8	88,3	92,1
119,0	121,0	118,0	107,3	101,5	95,4	98,7
56,0	50,0	48,0	50,6	45,9	54,3	77,3
-1,3	0,1	-0,1	0,7	0,1	0,4	1,9
0,9	-1,2	-1,0	-0,5	-0,8	0,6	5,7

， / / 。

70,7	49,7	41,3	71,1	81,1	86,4	90,4
75,0	55,0	45,0	66,9	79,0	84,7	88,2
45,0	41,0	46,0	42,6	51,0	52,7	48,1
1,6	1,4	1,1	-1,0	-0,6	0,3	-0,4
4,2	0,8	0,6	0,6	2,5	2,7	0,6

， / / 。

389,3	188,1	162,2	222,2	252,2	262,5	258,7
386,0	253,0	216,0	244,4	262,5	265,5	272,6
139,0	129,0	136,0	153,7	220,7	242,0	140,4
-0,6	-0,2	0,7	-0,8	-0,8	-0,7	-1,9
1,1	0,1	-0,3	1,6	1,2	3,0	3,0

， / / 。

81,4	89,8	95,9	61,2	55,2	50,2	50,0
106,0	124,0	118,0	73,1	66,3	58,5	60,0
66,0	66,0	78,0	56,9	29,6	22,3	29,0
0,1	0,1	-0,9	0,04	-0,1	-1,5	0,6
-1,1	-0,4	-0,3	-2,9	-1,1	-0,4	0,2

	1990	1995	2000	2006	2010	2014	2016
, / / .							
	87,6	55,7	65,7	77,4	84,7	86,0	91,3
	89,0	76,0	86,0	88,0	96,5	97,7	105,0
	68,0	75,0	74,0	56,9	62,3	71,3	61,0
	0,03	-0,3	-0,6	-1,5	-1,1	-0,9	-1,1
	-0,5	5,9	2,5	1,2	0,9	0,9	0,5
, / / .							
	291,3	217,8	181,7	186,4	201,0	216,7	230,8
	297,0	214,0	229,0	206,0	221,0	216,0	229,0
	102,0	209,0	204,0	94,0	103,0	126,0	70,0
	-0,5	0,2	0,2	-0,5	-0,7	-1,0	-0,6
	-0,4	-0,7	0,7	-0,1	-0,01	1,4	-1,0
, / / .							
	53,6	29,3	32,3	30,7	32,1	33,7	36,6
	47,0	32,0	35,0	31,8	32,5	31,3	32,0
	19,0	13,0	21,0	16,0	15,9	12,8	16,9
	-0,8	-0,5	1,1	-0,1	-0,4	0,3	0,1
	-0,2	0,7	1,3	-1,4	-1,3	-1,2	-1,1
, / / .							
	10,1	6,4	9,7	11,4	11,2	10,8	11,2
	10,2	7,4	10,0	10,7	11,2	10,5	11,0
	4,3	2,0	5,9	5,0	6,3	5,2	5,2
	0,4	-0,3	0,8	-0,4	0,04	-0,1	-0,1
	-2,4	-1,1	-0,4	-1,1	-1,0	-1,4	-0,2

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 2003: . – URL: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1138625359016](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138625359016);

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 2016 . ( -  
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		*			
		2006	2010	2014	2016
		, / / .			
		22,3	24,3	24,8	23,8
		17,0	21,2	22,3	21,5
		37,8	25,2	26,1	24,5
		2,2	–0,8	–1,3	–0,9
		5,6	2,1	5,2	1,3
		, / / .			
		56,7	72,5	76,6	70,9
		52,7	70,2	76,0	72,7
		37,4	58,6	59,1	51,4
		–0,6	0,1	–0,1	–0,3
		–0,2	–0,3	0,3	1,0

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[http://www.gks.ru/bgd/regl/b10\\_101/Main.htm](http://www.gks.ru/bgd/regl/b10_101/Main.htm) ;  
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	1990	1995	2000	2006	2010	2014	2016
	<b>35,5</b>	<b>52,0</b>	<b>49,4</b>	<b>34,1</b>	<b>32,9</b>	<b>31,9</b>	<b>35,5</b>
	35,0	49,8	53,0	35,6	33,8	33,3	36,1
	31,4	48,6	49,4	33,3	35,1	34,7	36,8
	35,2	53,9	49,4	34,0	30,1	34,0	34,9
	...	...	41,5	27,7	24,3	32,9	30,6
	32,9	48,8	49,4	31,7	30,8	28,3	31,7
-	...	...	...	25,7	24,6	22,9	29,9
-	...	...	...	23,4	28,1	25,3	26,7
	27,1	49,0	53,9	30,9	35,4	37,4	40,6
( )	28,6	43,5	49,7	31,5	36,9	34,7	33,2
	32,2	46,4	46,2	35,4	31,9	36,2	34,1
	36,0	46,1	55,4	40,2	37,2	31,6	42,6
	27,8	52,2	46,3	32,6	29,8	27,3	32,3
	...	...	68,6	36,9	48,1	35,4	32,5

\* : - .  
 2003: . . – URL: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1138625359016](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138625359016) ;  
 . 2017: . . – URL: [http://www.gks.ru/bgd/regl/B15\\_14p/Main.htm](http://www.gks.ru/bgd/regl/B15_14p/Main.htm) .

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<sup>3</sup> .: *Statistical Yearbook of Finland 2017*. – URL: [http://www.stat.fi/tup/julkaisut/tiedostot/julkaisuluettelo/yyti\\_stv\\_201700\\_2017\\_17863\\_net.pdf](http://www.stat.fi/tup/julkaisut/tiedostot/julkaisuluettelo/yyti_stv_201700_2017_17863_net.pdf) .

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4. . . , 1967. –  
264 .

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 , . – URL: [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0018/74421/E82161R.pdf](http://www.euro.who.int/__data/assets/pdf_file/0018/74421/E82161R.pdf) .



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 . – 2002. – 4 (37). – . 137–153.
  6. . . . ( -  
 ). – URL: <http://www.econom.nsc.ru/ieie/SMU/conference/articles/> .doc  
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 (167982, , , 26, e-mail:  
[mikusheva@iespn.komisc.ru](mailto:mikusheva@iespn.komisc.ru); [mikusheva2205@mail.ru](mailto:mikusheva2205@mail.ru)).

DOI: 10.15372/REG20180305

*Region: Economics & Sociology, 2018, No. 3 (99), p. 77–96*

**T.Yu. Mikusheva**

## **DIFFERENCES IN STAPLE FOOD CONSUMPTION AMONG THE NORTHERN REGIONS OF RUSSIA**

*The article analyzes the actual amount of food consumed by the northern Russian population in comparison with rational norms and national averages. We examine the differences in staple food consumption among the northern regions using the following statistical characteristics: mean value, range of variability, coefficient of skewness, and kurtosis. We identify that the inhabitants of the North under-consume certain food groups relative to the proposed standard. Their diet lacks complex carbohydrates, plant foods, eggs, and dairy products. The article establishes that the northern regions are characterized by asymmetric food consumption development, with increasing differences between regions rich and poor in mineral resources. We show that at present, the population of the North is largely limited in receiving proper nutrition by economic accessibility. We propose, on the one hand, to develop guidelines on rational nutrition for the northern population considering extreme environmental conditions and, on the other, to ensure the physical and economic accessibility of the recommended product set.*

---

**Keywords:** the North; regions; food products; per capita consumption; regions differentiation; product availability

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2006–2015 . [4],  
[5; 6].  
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	1989	2002	2010	2012	2013	2014	2015	2016	2017
‘ , ‘	147,0	145,2	142,8	143,1	143,3	143,7	146,3	146,5	146,8
:									
‘	34,0	23,8	21,7	22,2	22,8	23,4	24,4	25,0	25,5
%	23,1	16,4	15,1	15,5	15,8	16,3	16,7	17,0	17,4
:									
‘	6,1	7,6	4,5	4,3	4,1	4,0	4,0	4,0	4,0
%	4,1	5,2	3,2	3,0	2,9	2,8	2,7	2,7	2,7
‘ , ‘	21,0	20,1	19,3	19,3	19,3	19,3	19,3	19,3	19,3
:									
‘	5,5	3,5	3,2	3,3	3,4	3,5	3,6	3,7	3,7
%	25,9	17,6	16,6	17,1	17,6	18,0	18,5	18,9	19,3
:									
‘	0,9	1,1	0,6	0,6	0,6	0,6	0,5	0,6	0,6
%	4,4	5,7	3,3	3,1	3,0	2,9	2,8	2,9	2,9

29,5 , – 27,2 20,1% ( . 1). -

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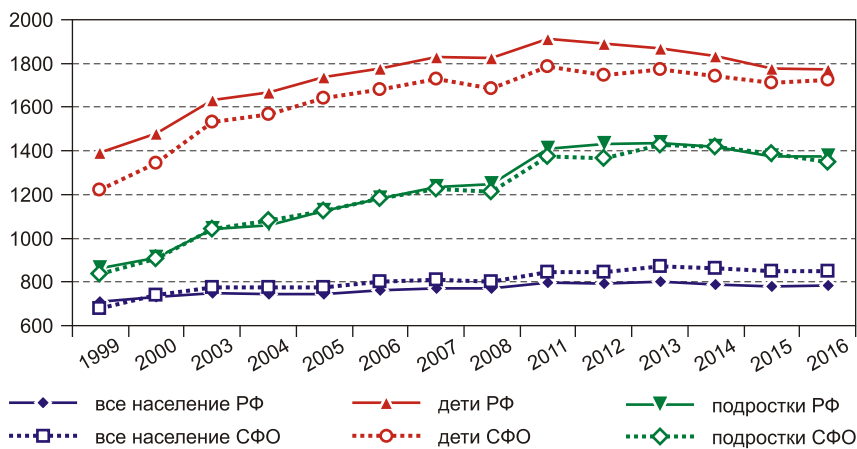
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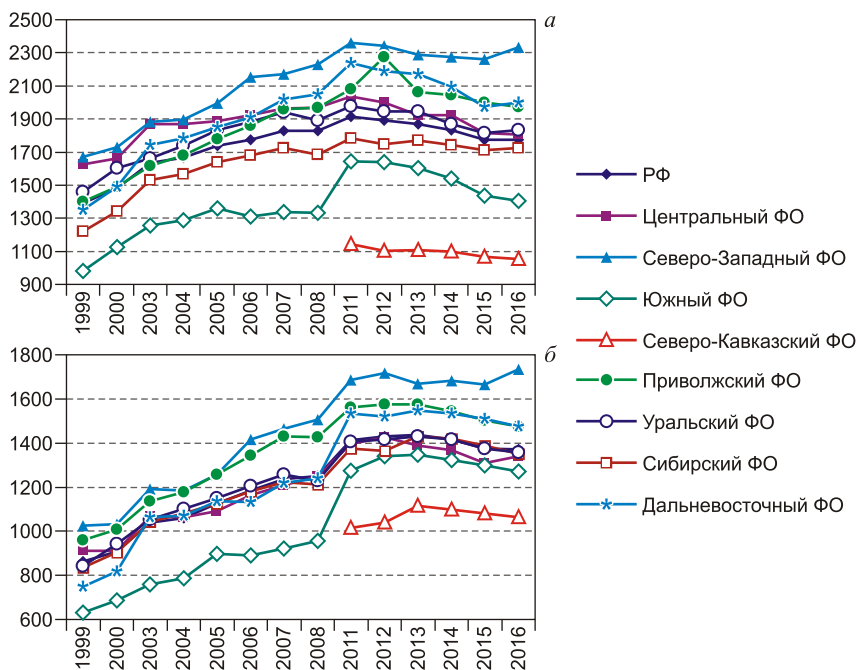
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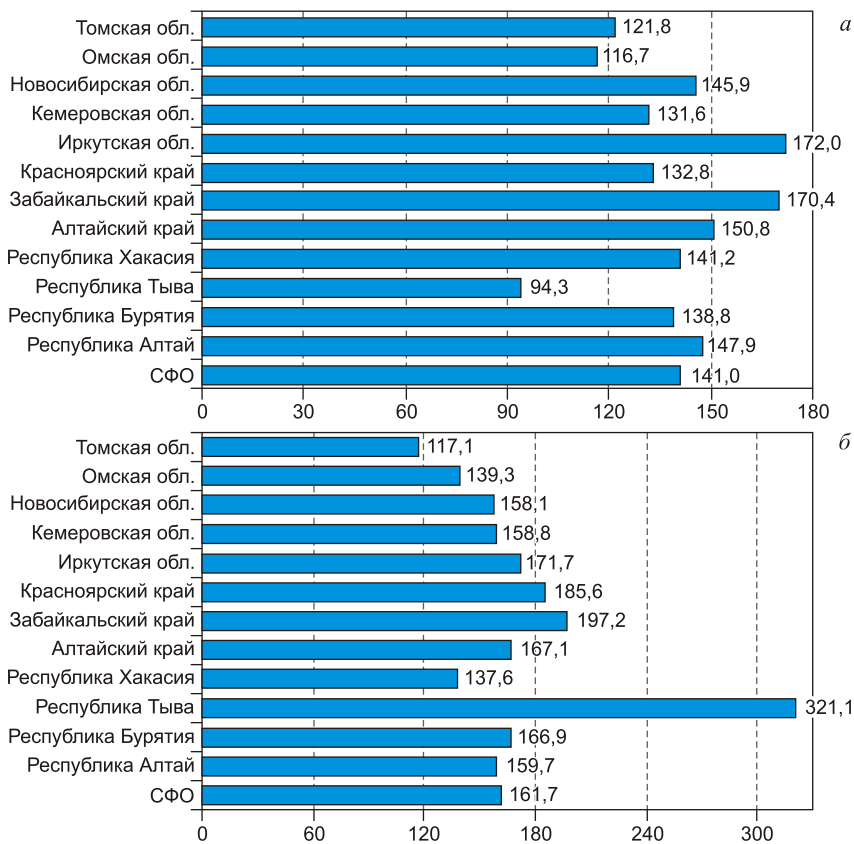
2. ( ) ( )  
1999–2016 . (

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XI.179 ( XI.179.1.1)

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DOI: 10.15372/REG20180306

*Region: Economics & Sociology, 2018, No. 3 (99), p. 97–119*

**S.V. Soboleva, N.E. Smirnova, O.V. Chudaeva**

## **FEATURES OF THE CHILD AND ADOLESCENT MORBIDITY DYNAMICS OF THE SIBERIAN FEDERAL DISTRICT IN THE CONTEXT OF RUSSIAN TRENDS**

*The work is devoted to studying child and adolescent primary morbidity dynamics in the Russian Federation with Rosstat data. It is important to separate this age group out since its morbidity not only characterizes*

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*the current situation but also makes it possible to predict the state of health of the entire population in the future. We put major emphasis on child and adolescent morbidity in the Siberian Federal District as the most problematic in terms of health and population morbidity per basic classes of diseases. A significant place in the study is given to morbidity along the classes of diseases that make the main contribution to the younger generation mortality. The peculiarity of the methodological approach to the research is that, unlike the numerous works characterizing the physical condition of certain child and adolescent groups in a variety of territorial objects, this study estimates the morbidity from the position of public health and demographic potential formation. It is shown that there was a significant deterioration in the health of the younger generation, expressed in a high incidence rate; and this incidence rate was well ahead of that in adults. In the Siberian Federal District, the growth rate of child and adolescent morbidity was above the national average.*

**Keywords:** child and adolescent health; national security; morbidity; structure of morbidity; main classes of diseases; dynamics of morbidity; factors of morbidity

*The publication is prepared within  
the priority XI.179 (project No. XI.179.1.1)  
according to the research plan of the IEIE SB RAS*

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Ссылка на работу	Объем выборки		Тип данных	Зависимая переменная	Объясняющие переменные								
	Кол-во стран	Временной диапазон			GSS	NS	GNS	GS	PGNS	PGS	TGNS	TGS	PTGS
Ferreira, Vincent [12]	93	1970–2001	Панельные	$\bar{C}_{it} - C_{it}$	+	+	+	+					
World Bank (2006)	54; 69; 74; 74; 78	1970–2000	Пространственные	$PV\Delta C$	+	+	+						
Ferreira, Hamilton, Vincent [11]	64	1970–2001	Панельные	$PV\Delta C$	+	+	+						
Mota, Domingos [16]	1 (Португалия)	1990–2005	Временные ряды	$\bar{C}_{it} - C_{it}$ $PV\Delta C$	+	+	+				+	+	
Blum, McLaughlin, Hanley [9]	1 (Германия)	1850–2000	Временные ряды	$PV\Delta C$		+	+	+			+	+	
Greasley, Hanley, Kunnas et al. [14]	1 (Великобритания)	1765–2000	Временные ряды	$PV\Delta RW$		+	+	+	+		+	+	+
Greasley, Hanley, Kunnas et al. [15]	1 (США)	1869–2000	Временные ряды	$PV\Delta C$		+	+				+	+	
Oxley, Hanley, Greasley et al. [18]	3 (Германия, США, Великобритания)	1870–2000	Временные ряды, панельные	$PV\Delta C$							+		+

$GSS -$  (gross savings);  $NS -$  (net savings);  $GNS -$  (genuine savings);  $PGNS -$  (GNS adjusted for population growth);  $PGS -$  (GS adjusted for population growth);  $TGNS -$  (GNS adjusted for measure of technological progress);  $TGS -$  (GS adjusted for measure of technological progress);  $PTGS -$

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	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	5,1	5,0	4,0	3,1	1,2	1,6	1,7	1,0	1,3	-0,3	-0,6
	27,9	24,5	22,1	15,4	11,9	14,7	14,6	9,2	4,4	-0,1	1,8
	4,4	3,8	2,6	1,5	0,4	1,2	1,1	0,6	0,4	0,5	-0,1
	13,5	13,9	11,4	8,7	8,5	11,5	8,9	4,8	1,2	0,1	-0,1
	52,7	48,8	34,1	20,4	5,0	26,1	26,4	13,4	2,4	-3,4	-8,6
	26,5	25,7	22,1	16,4	8,0	10,8	9,4	2,7	-0,8	-1,9	-3,8
	88,3	87,5	67,7	34,7	8,6	32,7	31,0	20,0	-5,9	-21,2	-28,5
	47,9	40,1	21,8	6,2	-8,6	8,8	12,9	5,7	-3,6	-10,2	-16,7
	59,7	45,8	20,8	-10,4	-31,5	13,7	11,5	-0,4	-14,9	-23,5	-13,6
	93,4	73,6	51,9	35,4	13,5	37,1	34,0	8,1	-4,0	-20,5	-26,6
	58,2	49,4	37,1	21,4	12,0	23,9	24,7	9,8	2,4	-9,6	-18,4
	19,6	13,6	6,4	1,6	-3,0	3,9	6,5	6,5	3,3	-3,6	-2,1

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	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	1,9 (25,6)	2,0 (29,6)	2,7 (32,6)	4,2 (42,1)	4,5 (41,4)	4,0 (37,8)	4,7 (42,5)	6,8 (55,8)	4,7 (35,9)	4,9 (36,2)	5,4 (36,0)
	7,4 (13,3)	7,5 (13,0)	11,9 (18,2)	13,8 (19,5)	14,5 (19,8)	12,8 (20,0)	17,1 (25,8)	18,3 (25,9)	17,6 (24,8)	17,3 (24,0)	14,7 (20,9)
	1,0 (11,1)	1,0 (10,7)	1,5 (14,3)	1,5 (11,7)	2,1 (14,7)	2,9 (20,2)	3,5 (22,6)	3,6 (23,4)	5,1 (31,5)	5,7 (33,6)	6,5 (36,8)
	5,8 (20,1)	8,3 (25,8)	14,0 (36,6)	11,6 (27,6)	8,1 (19,2)	7,0 (16,4)	11,2 (23,5)	16,2 (31,2)	16,7 (29,6)	13,1 (22,5)	15,2 (24,9)
	12,5 (12,5)	15,7 (14,9)	20,5 (16,5)	27,7 (18,8)	32,4 (21,3)	23,5 (16,7)	27,1 (18,0)	32,4 (21,2)	36,3 (22,8)	38,6 (23,1)	38,8 (22,8)
-	14,2 (26,6)	14,1 (26,1)	16,7 (25,8)	23,0 (31,4)	29,4 (35,8)	22,9 (29,1)	22,6 (27,3)	24,8 (26,4)	30,6 (31,7)	24,4 (26,1)	27,3 (31,6)
-	48,1 (15,1)	60,0 (17,6)	69,8 (16,7)	87,2 (18,0)	129,4 (29,9)	139,5 (35,2)	145,1 (27,7)	154,7 (28,7)	180,8 (35,4)	163,9 (32,1)	141,1 (26,1)
.	25,1 (13,5)	30,6 (15,3)	53,8 (22,8)	82,9 (31,2)	79,8 (31,0)	59,5 (24,5)	62,6 (23,1)	70,7 (24,2)	82,2 (25,8)	87,7 (27,1)	85,8 (24,9)
.	51,8 (24,3)	64,1 (28,0)	65,7 (26,9)	76,6 (26,5)	90,1 (26,7)	59,1 (21,8)	80,5 (25,9)	100,7 (29,1)	116,9 (37,7)	89,9 (33,1)	88,6 (31,2)
-	28,3 (16,9)	31,9 (17,5)	40,4 (19,1)	63,2 (26,2)	81,4 (30,6)	57,6 (25,6)	62,5 (26,0)	69,2 (25,1)	74,8 (23,8)	80,1 (24,0)	80,6 (23,7)
.	21,4 (12,7)	30,1 (17,6)	33,3 (17,8)	43,2 (22,1)	48,5 (23,8)	32,4 (18,2)	36,8 (19,4)	41,8 (20,1)	47,7 (22,5)	44,1 (19,6)	38,2 (16,8)
.	21,2 (18,4)	15,7 (12,7)	28,4 (21,1)	48,8 (34,5)	50,8 (34,8)	40,2 (30,9)	40,1 (28,4)	48,3 (31,4)	48,6 (30,3)	43,2 (26,4)	42,8 (26,3)

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	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	1,2 (16,5)	1,3 (18,8)	1,4 (17,1)	2,5 (25,3)	3,5 (32,2)	3,7 (35,1)	3,8 (34,1)	5,8 (47,5)	3,7 (27,8)	3,8 (27,9)	4,2 (28,0)
	3,2 (5,8)	2,4 (4,2)	7,1 (10,9)	7,9 (11,2)	9,0 (12,4)	9,0 (14,1)	12,0 (18,1)	12,6 (17,8)	11,5 (16,1)	11,2 (15,5)	7,8 (11,2)
	-0,1 (-0,8)	0,2 (2,8)	1,1 (9,9)	0,9 (7,0)	1,0 (7,2)	2,5 (17,8)	2,7 (17,9)	2,8 (18,1)	3,9 (24,1)	4,0 (23,7)	5,2 (29,5)
	3,6 (12,6)	4,7 (14,5)	11,0 (28,8)	7,0 (16,7)	3,1 (7,3)	3,0 (7,1)	6,3 (13,1)	11,2 (21,5)	11,0 (19,5)	7,1 (12,2)	9,6 (15,8)
	6,0 (6,0)	8,1 (7,7)	12,3 (9,9)	18,9 (12,8)	23,6 (15,5)	17,0 (12,1)	17,8 (11,8)	21,2 (13,9)	25,6 (16,1)	27,4 (16,4)	27,8 (16,3)
-	8,6 (16,2)	7,6 (14,0)	8,9 (13,7)	12,5 (17,1)	20,2 (24,5)	17,2 (21,8)	13,7 (16,5)	16,2 (17,3)	21,2 (21,9)	13,8 (14,7)	16,4 (19,0)
-	28,4 (8,9)	38,1 (11,2)	47,9 (11,5)	61,9 (12,8)	103,1 (23,8)	117,0 (29,5)	111,3 (21,2)	117,9 (21,9)	138,9 (27,2)	118,1 (23,1)	91,6 (17,0)
.	9,1 (4,9)	12,3 (6,1)	35,9 (15,2)	62,5 (23,5)	59,6 (23,2)	39,4 (16,2)	29,2 (10,8)	33,9 (11,6)	38,2 (12,0)	50,1 (15,5)	41,0 (11,9)
.	37,3 (17,5)	44,2 (19,3)	43,2 (17,7)	50,7 (17,5)	63,9 (18,9)	36,9 (13,6)	53,5 (17,2)	70,8 (20,5)	85,0 (27,4)	56,0 (20,6)	53,9 (19,0)
-	15,5 (9,3)	15,0 (8,2)	23,9 (11,3)	43,9 (18,2)	62,4 (23,5)	42,5 (18,9)	42,6 (17,7)	47,8 (17,3)	50,5 (16,1)	56,5 (16,9)	57,7 (17,0)
.	14,1 (8,4)	21,6 (12,6)	24,4 (13,0)	33,5 (17,2)	38,5 (18,9)	24,5 (13,8)	25,6 (13,5)	29,7 (14,3)	33,8 (15,9)	28,9 (12,8)	23,0 (10,1)
.	12,4 (10,7)	5,7 (4,6)	18,1 (13,5)	34,2 (24,2)	36,8 (25,2)	28,9 (22,3)	24,6 (17,4)	31,1 (20,2)	28,8 (18,0)	22,0 (13,5)	20,9 (12,9)

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	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	2,9 (39,3)	3,6 (53,4)	4,2 (50,6)	5,6 (56,0)	6,1 (55,8)	6,5 (61,8)	6,6 (59,2)	8,7 (71,1)	6,8 (51,2)	6,9 (51,0)	7,1 (47,9)
	5,9 (10,6)	5,7 (9,8)	11,0 (16,8)	13,8 (19,4)	14,7 (20,1)	14,1 (22,0)	16,8 (25,3)	15,2 (21,4)	14,5 (20,2)	15,2 (20,8)	12,4 (17,6)
	2,4 (27,5)	2,8 (30,5)	3,9 (35,7)	4,1 (32,4)	4,2 (30,1)	5,9 (41,2)	5,7 (37,6)	6,3 (40,6)	7,8 (48,6)	8,3 (49,1)	9,2 (51,8)
	3,0 (10,2)	3,0 (9,3)	10,0 (26,2)	6,7 (15,9)	2,8 (6,6)	3,5 (8,2)	5,8 (12,1)	10,5 (20,1)	11,0 (19,6)	12,1 (21,1)	9,2 (15,1)
	17,4 (17,4)	20,4 (19,4)	27,8 (22,4)	35,3 (23,9)	40,4 (26,6)	33,4 (23,7)	33,4 (22,2)	40,8 (26,6)	46,8 (29,4)	48,0 (28,8)	48,7 (28,6)
	11,4 (21,4)	10,1 (18,7)	12,4 (19,2)	14,8 (20,3)	23,8 (28,9)	21,0 (26,7)	16,5 (19,9)	15,6 (16,6)	19,9 (20,6)	13,6 (14,6)	17,2 (19,9)
	18,4 (5,8)	29,8 (8,7)	39,2 (9,4)	62,4 (12,9)	99,1 (22,9)	99,2 (24,9)	60,9 (11,6)	54,0 (10,0)	61,6 (12,1)	35,7 (7,0)	7,4 (1,4)
	15,9 (8,5)	22,9 (11,5)	48,4 (20,5)	78,8 (29,6)	72,3 (28,1)	46,8 (19,3)	29,0 (10,7)	22,0 (7,5)	16,6 (5,1)	29,4 (9,1)	13,4 (3,9)
	-3,2 (-1,5)	-7,9 (-3,5)	-12,6 (-5,2)	-5,9 (-2,1)	10,5 (3,1)	-9,5 (-3,5)	5,0 (1,6)	15,5 (4,5)	25,1 (8,1)	-10,8 (-4,0)	-6,8 (-2,4)
	27,2 (16,3)	25,3 (13,8)	36,4 (17,2)	59,8 (24,8)	79,7 (29,9)	58,8 (26,1)	60,1 (25,0)	69,3 (25,0)	76,1 (24,1)	85,1 (25,4)	83,8 (24,7)
	23,4 (13,9)	33,5 (19,6)	38,6 (20,6)	49,0 (25,1)	52,3 (25,7)	38,2 (21,5)	38,1 (20,1)	44,8 (21,6)	50,7 (23,9)	48,1 (21,3)	40,0 (17,6)
	-18,0 (-15,6)	-16,6 (-13,4)	-1,2 (-0,9)	13,1 (9,2)	13,8 (9,4)	12,3 (9,4)	2,8 (2,0)	3,0 (1,9)	-0,6 (-0,4)	-4,3 (-2,7)	-5,8 (-3,6)

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	1	p-value	Within R-squared
«                  »	0,059	0,1399	0,018
	0,075	0,1676	0,02
	0,209	0,0057	0,06
	0,218	0,0003	0,105

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**E.A. Syrtsova**

## **VERIFYING THE RESULTS OF GENUINE SAVINGS ASSESSMENT IN REGIONS**

*The article suggests an approach to verifying the results of genuine savings assessment in regions based on econometric modeling. It describes a methodology for calculating the components of genuine savings regarding the existing statistical accounting system and evaluates the sustainable development of Siberian regions over the past ten years. We design a model to link genuine savings and future consumption. Having evaluated the model, we confirmed two hypotheses: first, genuine savings growth leads to an increase in the future well-being; secondly, the components of genuine savings are estimated correctly. Therefore, based on the proposed approach to assessing genuine savings, it is possible to formulate a methodology for calculating them as an indicator in the statistical accounting system of Russia, at which point the indicator can be included in the national program of following the principles of sustainable development as one of the sustainability indicators for decision-making in regional policy.*

**Keywords:** natural resource economics; sustainable development; genuine savings; econometric modeling; regional economy

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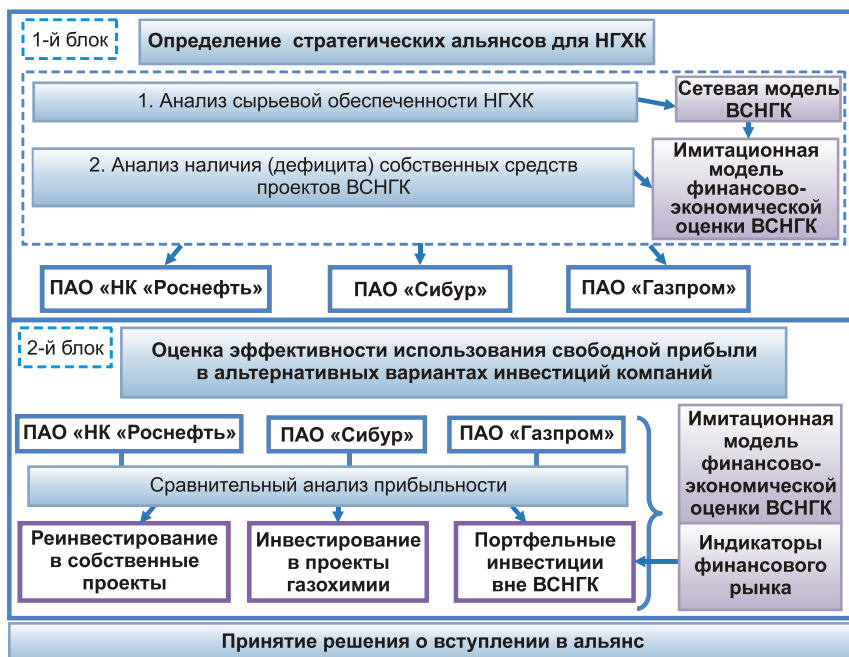
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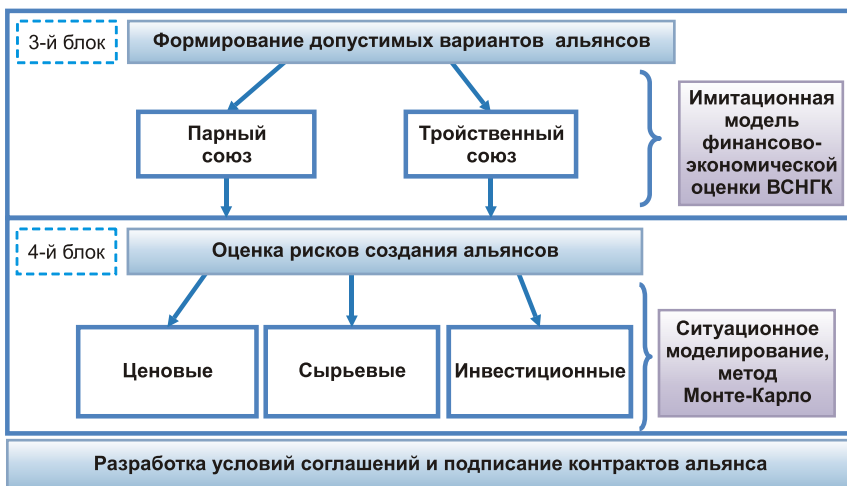
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**E.O. Grechina, N.I. Pliaskina, V.N. Kharitonova**

**ESTABLISHING CONDITIONS FOR A STRATEGIC  
ALLIANCE OF RAW MATERIALS COMPANIES  
TO IMPLEMENT GAS CHEMICAL CLUSTER  
PROJECTS IN THE RUSSIAN EAST**

*The key task of the State plan for the Development of Gas and Petrochemical Industry in Russia for the Period up to 2030 (Plan-2030) is the search for constructive forms to coordinate the strategic interests of extracting companies in new oil and gas provinces of the Russian East with the interests of participants in the projects aimed at creating the East Siberian and Far Eastern gas/petrochemical clusters. The article assesses strategic interests of Gazprom PJSC, Sibur PJSC and Rosneft Oil Company PJSC by analyzing their corporate strategies. We propose a methodical approach to designing a scheme for the formation of various strategic alliances among companies with the network and imitation models of the investment program of the East*

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*Siberian Oil and Gas Complex megaproject. The article carries out a scenario analysis to test the efficiency and risks related to consolidating free profits from extractive industries used to create gas chemical clusters. Through the example of the project for the Amur gas chemical complex, we estimate possible risks of Sibur allying with Gazprom and Rosneft extracting companies.*

**Keywords:** East Siberian Oil and Gas Complex megaproject; strategic alliance; network and simulation models; project financing; alternative scenarios

*The publication is prepared within the priorities XI.172  
(project No. XI.172.1.1) and XI.174 (project No. XI.174.1.3)  
according to the research plan of the IEIE SB RAS*

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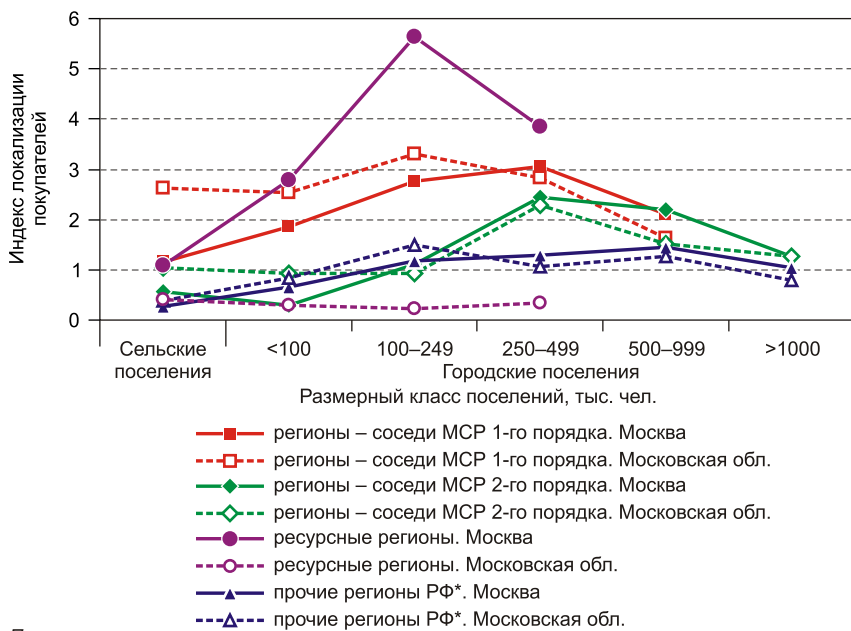
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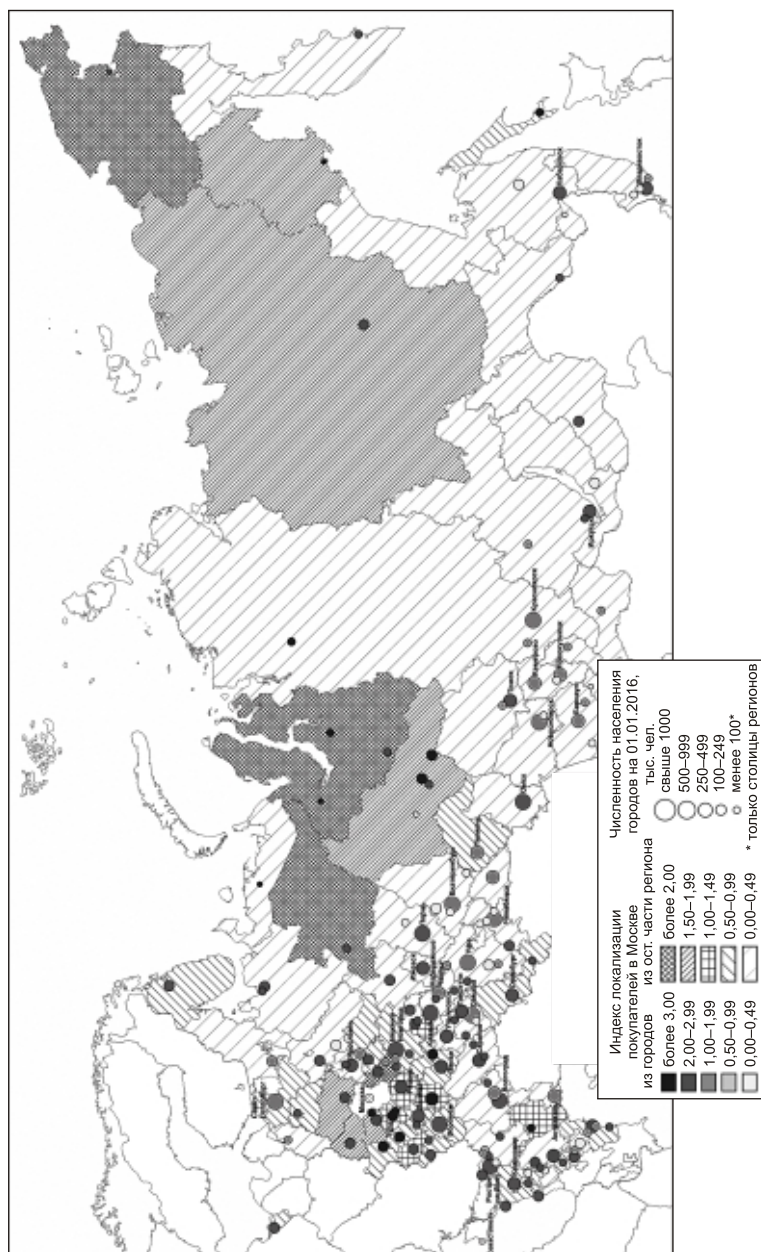
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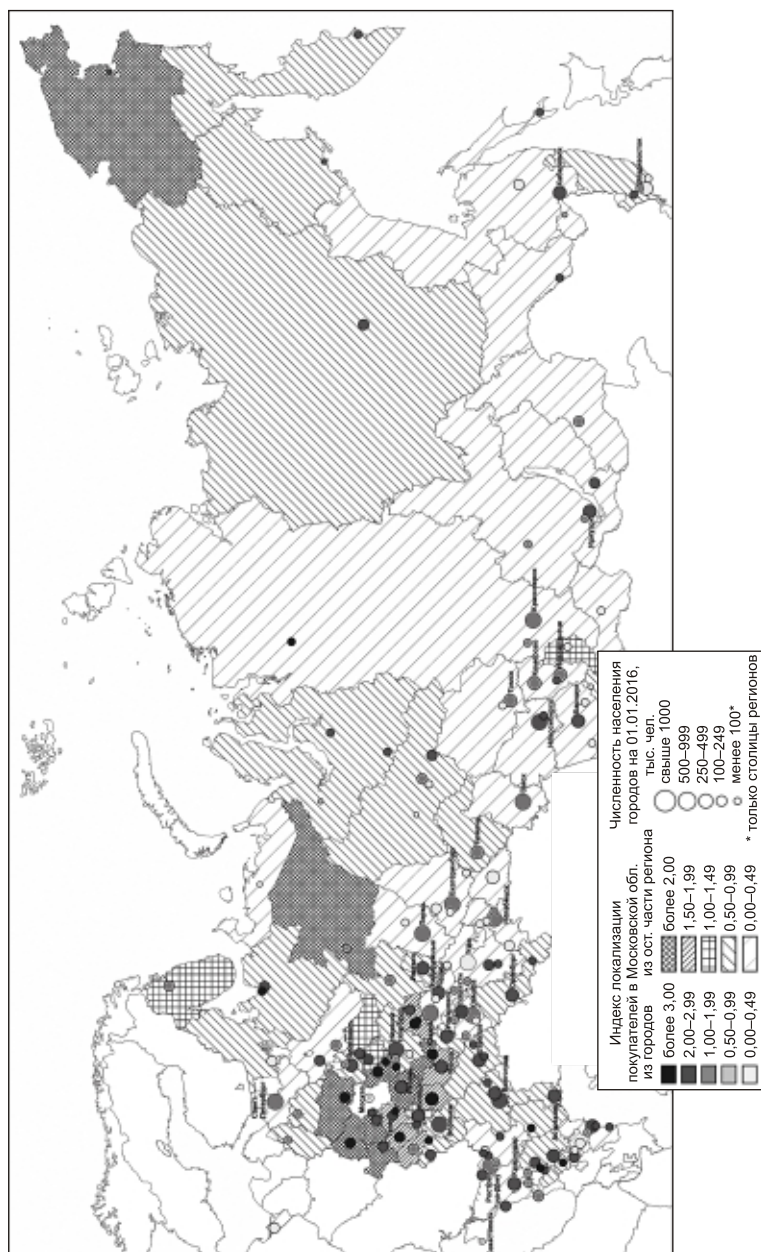






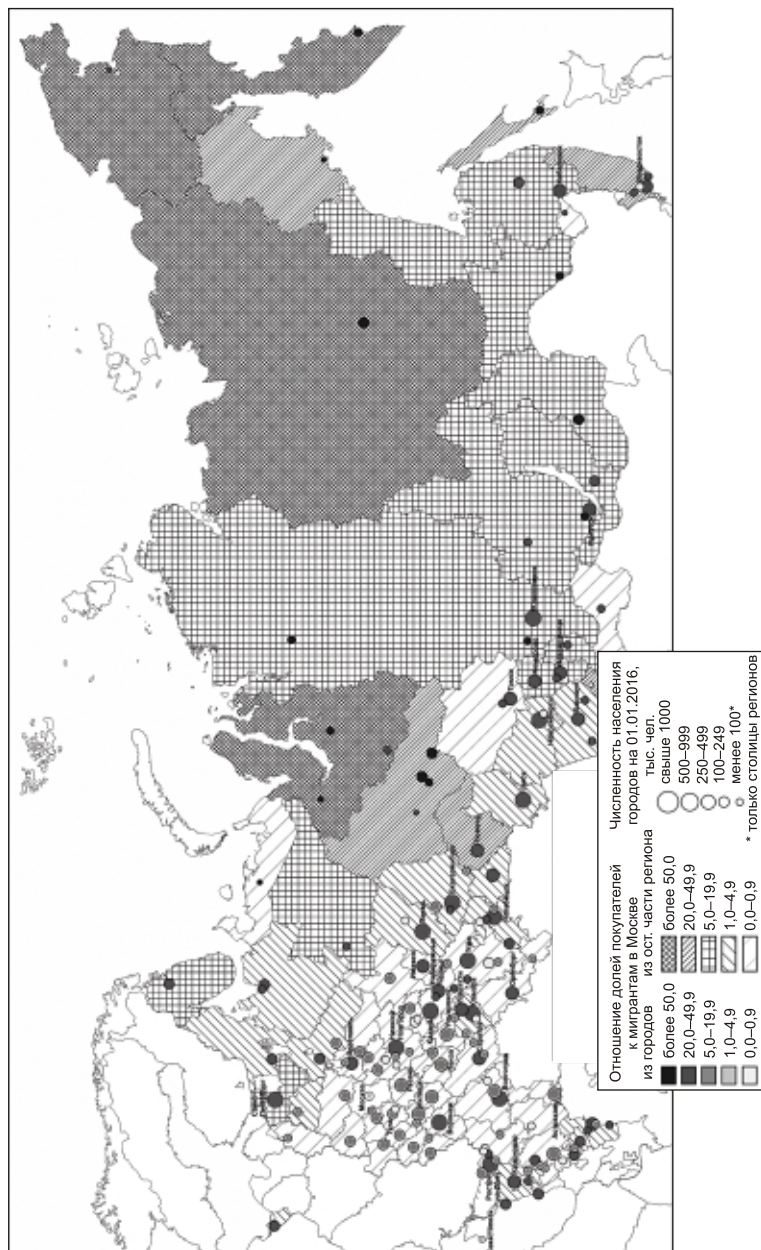
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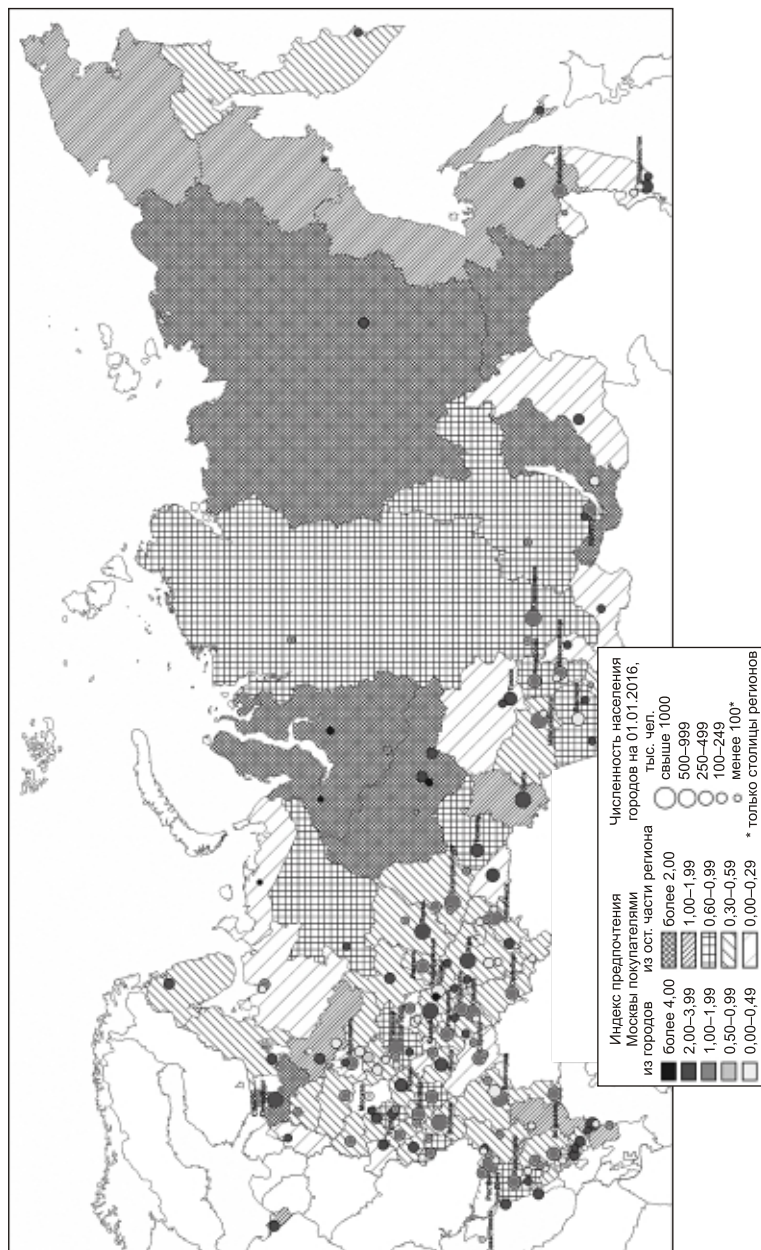


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**N.K. Kurichev, E.K. Kuricheva**

**MIGRATORY AND INVESTMENT ACTIVITY OF RUSSIAN  
CITIZENS IN THE REAL ESTATE MARKET OF MOSCOW  
AND MOSCOW OBLAST**

*Drawing from the data on the home buyers' addresses, we estimate the purchasing activity of Russians in the primary real estate market of Moscow metropolitan area (MMA) and compare it to their labor migration activity. The objects of analysis are 149 cities and 80 «rests of regions». This article is the first ever to examine the peculiarities of migration and investment behavior with differentiation between cities and rural areas, between size classes of settlements and individual large cities. Thus, the paper makes it possible to fill a gap in assessing the mobility of the factors of production, namely capital and labor. We reveal a sharp contrast between settlements of different sizes in terms of how they interact with the metropolitan agglomeration. The bigger the settlement, the less is the intensity of labor migration to the capital; the intensity is decreasing in a rapid and monotonous manner. The activity of foreign buyers depending on the population of the city where they reside varies non-monotonously, with a maximum for cities with a population of 250-500 thousand people in the real estate market of Moscow and 100–500 thousand people in Moscow Oblast. For MMA, small towns and rural areas (except for Khanty-Mansi and Yamal-Nenets Autonomous Areas) are a source of labor resources while their buying activity in the real estate market is weak. Cities with a population of over one million practically do not create an inflow of labor migrants and show moderate activity in the Moscow real estate market. Moscow Oblast interacts through labor migration and housing acquisitions with smaller settlements than the «premium» real estate and labor markets of Moscow. The attraction of Moscow Oblast is rapidly decreasing with distance, extending to the first- and second-order neighbors, while Moscow's influence spreads throughout the country.*

**Keywords:** housing construction; primary real estate market; home buyers; Moscow agglomeration; migration; labor and capital mobility; spatial differentiation; size classes of settlements

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*This study was performed within Scientific Research Plan of the Institute of Geography, Russian Academy of Sciences, «Shifts in the Territorial Organization of Society at the Transition to Postindustrial Stage of Development» (No. 01201352495, 0148-2018-0010)*

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**T.B. Bardakhanova, A.S. Mikheeva, A.K. Tulokhonov**

## **IMPROVING ECONOMIC INSTRUMENTS FOR WATER RESOURCES MANAGEMENT IN A REGION**

*The article examines the use of economic instruments for water resources management in the Republic of Buryatia and gives recommendations for their improvement. The research methodology is based on an integrated approach, analysis of instruments to meet the goals of water policy, complete its objectives, and satisfy efficiency criteria. We identify the development problems of the water sector and the main economic instruments to regulate its operation. It is concluded that the instruments used are ineffective and poorly comply with the goals and objectives of water policy and socioeconomic development policy of the Republic of Buryatia. We show ways to improve instruments for water resources management.*

**Keywords:** Baikal region; the Republic of Buryatia; water resources; economic instruments; fees; water rate; water pollution charges; subsidies

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	<b>1,56</b>	<b>30046,8</b>	<b>16015,6</b>	<b>4,8</b>
	1,78	6415,8	4389,2	5,9
	0,13	124,4	56,0	97,1
	5,42	1162,9	514,1	0,7
	0,81	255,2	93,1	...
	1,99	1065,7	441,3	...
	1,40	3331,7	1363,1	...
	1,20	1302,0	1031,7	...
	2,02	5777,3	2798,7	9,7
	2,07	4995,1	2269,3	...
	1,72	4687,3	3742,8	16,0
	1,06	2924,7	1416,4	...
	1,20	2375,0	1313,2	...
	1,90	2045,5	975,9	0,3
( )	1,60	1535,0	870,8	...

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	2018	2019	2020	2021	2022	2023	2024	2025
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,	9969	10130	10294	10461	10630	10803	10978	11155
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-	478	2026	3088	5230	6378	8102	9880	11155
	77	324	494	837	1021	1296	1581	1785
	124	527	803	1360	1658	2107	2569	2900
	0	0	0	0	0	0	0	0
( )	9768	9279	8997	8264	7952	7400	6828	6470
, , .	11,3	8,8	15,3	9,3	12,8	13,0	8,0	1,4
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	-	0,4	0,4	0,4	0,4	0,3	0,3	0,3
	2,0	2,0	-	-	-	-	-	-
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-	9,3	6,4	12,9	6,9	10,3	10,7	7,7	1,1
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	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
,								
.	1,6	6,7	10,2	17,3	21,0	26,7	32,6	36,8
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, .	12,0	12,2	12,4	12,6	12,8	13,0	13,2	13,4
, %	11,7	35,5	45,2	57,9	62,3	67,3	71,2	73,3
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, %	4,8	20,0	30,0	50,0	60,0	75,0	90,0	100,0

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	2018	2019	2020	2021	2022	2023	2024	2025
, %	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0
, %	26,0	26,0	26,0	26,0	26,0	26,0	26,0	26,0
- , %	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
- ( ), %	98,0	91,6	87,4	79,0	74,8	68,5	62,2	58,0

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	2018	2019	2020	2021	2022	2023	2024	2025
, : , - -	9969	10130	10294	10461	10630	10803	10978	11155
478	2026	5147	10461	10630	10803	10978	11155	
77	810	2265	5021	5528	5941	6257	6693	
124	527	1338	2720	2764	2809	2854	2900	
0	100	200	300	400	500	600	700	
( )	9768	8726	6558	2520	2072	1719	1466	1095
, , :	29,9	57,1	92,4	4,9	5,0	4,9	5,0	5,0
-	0,4	0,4	0,4	0,4	0,3	0,3	0,3	0,3
2,0	2,0	-	-	-	-	-	-	-

	2018	2019	2020	2021	2022	2023	2024	2025
-								
-	26,3	53,1	90,3	2,9	2,9	3,0	3,0	3,1
-	1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6
,	1,6	10,7	28,8	61,9	66,4	70,1	73,1	77,0
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-	12,0	12,2	12,4	12,6	12,8	13,0	13,2	13,4
,								
, %	11,7	46,7	70,0	83,1	83,9	84,4	84,7	85,2
-								
, %	4,8	20,0	50,0	100,0	100,0	100,0	100,0	100,0
, %	16,0	40,0	44,0	48,0	52,0	55,0	57,0	60,0
, %	26,0	26,0	26,0	26,0	26,0	26,0	26,0	26,0
-								
, %	0,0	14,5	13,0	11,0	17,1	24,4	32,2	44,8
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	13,6	0,6	34,8	1,5	25,8	65,8
	0,4	3,2	1,2	9,2	0,5	1,3
	2,4	7,2	6,0	14,5	4,7	11,9
	0,5	4,7	1,3	13,9	1,0	2,6
	2,2	8,1	5,5	24,9	4,3	10,9
	6,8	9,0	17,2	20,4	13,4	34,2
	2,6	3,0	6,7	7,3	5,2	13,3
	12,6	3,0	32,2	7,6	23,2	59,2
	10,1	4,1	25,8	10,0	20,1	51,2
	10,6	6,4	27,4	13,2	18,9	48,0
	5,9	3,6	15,1	8,6	11,8	30,0
	4,8	5,1	12,3	12,3	9,6	24,3
	4,2	4,0	10,6	11,2	8,2	21,0
( )	3,1	3,1	7,9	7,9	6,2	15,7







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**V.M. Gilmundinov, T.O. Tagaeva**

## **ESTIMATION OF THE POTENTIAL PROCESSING OF HOUSEHOLD SOLID WASTE IN THE SIBERIAN REGIONS**

*The paper is concerned with the current trends and further prospects in the field of household solid waste (HSW) in the regions of Siberia with domestic and world experience. We demonstrate the weakness of the institu-*

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*tional environment that emerged in the sphere of HSW circulation. It is shown that the institutional environment is a key factor hindering the development of modern waste processing forms. We suggest an aggregated approach to scenario simulating of HSW circulation, the application of which allows obtaining estimates of the required capital investments for the Siberian regions. The endorsement of this approach indicates high requirements to the return on sales of secondary material resources and lack of incentives to invest in an increase of household solid waste processing, which significantly limits the effectiveness of government measures to reform the industry.*

**Keywords:** household solid waste; utilization; waste; landfill; waste treatment; capital investment; institutional environment; treatment potential; Siberia

*The publication is prepared within the priority XI.170 (project No. XI.170.1.1) according to the research plan of the IEIE SB RAS*

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### **DAMAGE COMPENSATION TOWARDS INDIGENOUS SMALL-NUMBERED PEOPLES OF YAKUTIA FOR LAND INDUSTRIALIZATION**

*The article examines the experience of ethnological expertise in the Republic of Sakha (Yakutia) and assesses the performance of this institute for protecting the rights of indigenous small-numbered peoples of the North when carrying out major investment projects. It is the first to estimate damage mitigation for 1 square km of the land or water area withdrawn from the traditional economy per 1 member of the indigenous minority group. We compare compensation amounts with the annual incomes of community members, as well as with actual payments in other regions. We show the shortcomings of ethnological expertise and propose options for improvement. The article substantiates a need to expand the list of ecosystem services. A conclusion is that, when assessing damages in the event of worsening conditions for traditional economic activities, it is necessary to apply a different approach, namely an evaluation of the impact on community sustainability.*

**Keywords:** the North; community; indigenous peoples; damage; compensation; expertise; land tenure; local ecosystems

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## **DEVELOPING THE METHODOLOGY OF THEORETICAL AND APPLIED RESEARCH OF SPATIAL SYSTEMS**

*The article describes the findings and research plans of the Territorial Systems Department at the Institute of Economics and Industrial Engineering SB RAS. The main areas of its work include as follows: expounding on the theory of territorial production complexes; designing a methodology for forecasting and analyzing the development of problem regions; applied research of Russia's spatial development based on interregional input-output optimization models; elaborating on the theory of spatial equilibrium and models of interregional economic interactions; analyzing and forecasting inter-level relations in the «national economy–regions» system within Project SIRENA; measuring and forecasting spatial distribution of economic activity in Russia; modeling and applied studies on the socio-economic development of Siberia and the Russian North in the system of interregional input-output and level-to-level interrelations; analyzing the impact of institutional design on the proportions of national and regional spatial development.*

**Keywords:** territorial systems; interregional cooperation; spatial proportions; Russia; Siberia; region

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