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TRENDS AND OUTLOOKS

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R95 **RUSSIAN ECONOMY IN 2017. TRENDS AND OUTLOOKS** / [Alexander Abramov etc.; Doctor of sciences (economics) Sergey Sinelnikov-Murylev (editor-in-chief), Doctor of sciences (economics) Alexander Radygin]; Gaidar Institute for Economic Policy. – Moscow: Gaidar Institute Publishers, 2018. – 544 p. – ISBN 978-5-93255-530-9.

The review "Russian economy in 2017. Trends and outlooks" has been published by the Gaidar Institute since 1991. This publication provides a detailed analysis of main trends in Russian economy, global trends in social and economic development. The paper contains 6 big sections that highlight different aspects of Russia's economic development, which allow to monitor all angles of ongoing events over a prolonged period: the socio-political issues and challenges; the monetary and budget spheres; financial markets and institutions; the real sector; social services; institutional changes. The paper employs a huge mass of statistical data that forms the basis of original computation and numerous charts confirming the conclusions.

Reviewers:
Lev Yakobson, Doctor of sciences (economics), professor, first pro-rector, NRU-HSE;
Alexey Vedev, Doctor of sciences (economics), Head of Structural Research Laboratory, RANEPA.

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A. Abramov, I. Aksenov, A. Radygin, M. Chernova

4.3. The public sector of the Russian economy: it's size and dynamics[1]

Two main channels can be pointed out whereby the state participates in value added chains: through the operation of companies with state stakes, and through the services (in a broader sense of the work) produced by enterprises with state stakes and budget-funded organizations. Consequently, the assessment of the state sector scope inside the national economy consists, as a rule, of two components: an analysis of the relative share of biggest companies with state stakes – state-owned enterprises (SOE) in a country's aggregate economic statistics (the scope of state ownership); and an estimation of the input of the general government sector (GGS)[2] in GDP.

The relative parameters of the SOE sectors operating in different countries have become one of the most well-studied issues in the framework of research projects and statistics, thanks to the efforts of the Organization for Economic Co-operation and Development (OECD). However, there also exist some serious limitations, like the irregularity of available data concerning the input of SOEs in GDP, or lack of a single methodology for calculating that index. The relevant data on SOEs in Russia, with regard to that index and several other indices (capitalization, number of employed persons, proceeds, etc.) are only fragmentary or based on approximate expert estimations.

There is no single approach, either, to understanding and measuring the general government sector's input in GDP. On the one hand, for a long time already this index has been applied in the systems of national accounts in many countries, in the production account for institutional sectors of the national economy. On the other, its input is frequently measured from the point of view of redistribution of financial flows by the state, i.e., the relative amounts of aggregate state revenues generated by taxes, property ownership, operations with assets, proceeds generated by production of services, etc., or the corresponding items on the expenditure side. In our opinion, such a broad approach to calculating the input of the public sector results in an overestimation of the general government sector's input in GDP, because the beneficiaries of the expenditures of the centralized funds are largely households and private businesses.

The presence of some unresolved issues in the estimation of the inputs of both SOEs and government bodies in GDP makes it difficult to correctly calculate the aggregate input of the public sector in GDP. It can be said that this issue remains unresolved both with regard to the public sector in Russia and to its comparative estimation relative to other countries. Here we will attempt to elaborate a more precise methodology for estimating the inputs in GDP of different sectors of the national economy where SOEs are present, and then, on the basis of available empirical data, to compare the public sector's input in GDP in Russia and other

[1] This section was written by Alexander Abramov, IAES-RANEPA; Ivan Aksenov, IAES-RANEPA; Alexander Radygin, the Gaidar Institute, IAES-RANEPA; Maria Chernova, RANEPA.

[2] According to the Russian Classification of Institutional Sectors (KIES) introduced by the Federal State Statistics Service (Rosstat), the general government sector (GGS) consists of two types of institutional units:

1) government units of all levels – ministries, government departments, services, agencies, government extrabudgetary funds, etc.;

2) non-market non-profit institutions financed and controlled by the state (schools, hospitals, recreational institutions, etc.).

countries, and to analyze the movement of the corresponding indices over the period 2006-2016.[1]

4.3.1. The estimated inputs in the national economy of state-owned enterprises

The official statistics in the majority of countries, Russia including, lacks a unified definition of companies with state stakes. In recent years, useful results in that area have been achieved by the OECD, which has acted as a methodological center, pooling the statistical data of the public sectors of many economies. As an upshot of that activity, a uniform term *state-owned enterprise* (SOE) has emerged. According to the OECD Guidelines on Corporate Governance of State-owned Enterprises, as amended in 2005 and 2015,[2] a legal entity is recognized to be a SOE if the state exercises its right of ownership thereto understood as 'exercise of control'. Based on this approach, a SOE is an organization controlled by the state as the sole owner, which holds a majority or a significant minority block of shares (a stake in the charter capital) amounting to not less than 10 percent. This definition is not a 'canonical' one, it gives rise to many technical questions, i.e., the specific forms of control or their quantitative confirmation, but the term itself is, nevertheless, quite appropriate and is now becoming increasingly widespread in the studies on this subject conducted in different countries.

The notion of control as a criterion to be applied in defining a SOE may imply a variety of forms of state participation in an enterprise, some of these forms being non-transparent. If one relies on the information disclosure rules for issuers of securities introduced in Russia, the best way to describe control-based relations would be through the institutions of direct and indirect state ownership. *Direct ownership* means that the shares (or stakes) held in state ownership are disposed of by the empowered government bodies, including the RF Federal Agency for State Property Management (*Rosimushchestvo*). *Indirect ownership* means that the control of a stake in a company is exercised through the Bank of Russia, state corporations, holding companies, banks, and state enterprises.

In an indirect state ownership model, the state may own a company through a chain of organizations. In this case, when estimating the size of a state stake, a more complex methodology will be needed. The size of a block of shares (or a stake) in a company studied as part of an indirect state ownership model is calculated as the sum of state stake in the core company, the stake held by the core company in its first generation subsidiary, the stake held by the latter in a second generation subsidiary, and so on, all the way down to the company under consideration. In this connection, an additional rule is applied: any majority (above 50 percent) blocks of shares (or stakes in the charter capital) of the core company owned directly by the state are assumed to be 100 percent stakes. In every case, the length of ownership chains for the purpose of indirect ownership calculation is determined on the basis of an expert

[1] See also Abramov A., Radygin A., Chernova M. Companies with State Stakes in the Russian Market: Their Ownership Structure and Role in the Economy // *Voprosy ekonomiki*. 2016. No 12. P. 61-87; Abramov A., Radygin A., Chernova M., Entov R. State Ownership and Efficiency Characteristics // *Voprosy ekonomiki*. 2017. No 4. P. 5–37; Abramov A.E., Aksenov I.V., Radygin A.D, Chernova M.I. Modern Approaches to Measuring the State Sector: Methodology and Empirics // Economic Policy, 2018, No 1, February, No 2, April.

[2] Guidelines on Corporate Governance of State-owned Enterprises. Paris: OECD Publishing, 2005; OECD Guidelines on Corporate Governance of State-Owned Enterprises. Paris: OECD Publishing, 2015.

estimation, with due regard for the possibility to trace the relevant stakes in the official reporting documentation of the companies[1].

As Rosstat does not apply the category of *state-owned enterprise* (SOE) in its official statistics, we assessed the economic parameters of SOEs based on a sample of 208 biggest private and state-owned Russian companies, for which financial reports are publicly available. In 2016, these companies accounted for 94.5 percent of total equity capitalization, and 20.1 percent of the aggregate proceeds in the Russian economy.[2] Our data analysis encompasses the period from 2006 through 2016.

In 2016, out of the 208 legal entities included in the sample, only 106 had the status of a SOE;[3] of these, 86 were companies with majority state stakes, where the state directly or indirectly held more than 50 percent of voting shares; the remaining 20 were companies with minority state stakes, namely blocks of shares amounting to 10-50 percent. In the group of 106 SOEs, 'non-public' companies prevailed, i.e. issuers of ordinary shares not listed on the MICEX. Among the 106 SOEs, only 34 companies (32.1 percent) were public joint-stock companies (PAOs), the remaining 72 (67.9 percent) were non-public. In addition to PAOs and JSCs, this sample included state unitary enterprises (SUE),[4] limited liability companies (LLC),[5] three state corporations – *RUSNANO* Corporation, State Corporation *Rostec*, and *Rosatom* Corporation.

Our approach to analyzing the scale of state ownership in Russia based on a sample of SOEs and the national economic indices released by *Rosstat* in its official reports is compatible with the methodologies applied in a similar study of the role of SOEs in the world's 40 biggest economies conducted by the OECD.[6] That study, participated by the government economic departments of many states, on the basis of samples of biggest SOEs analyzed their relative shares in the total capitalization indexes and their personnel numbers. That study lacks the

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[1] The methodology for a detailed calculation of the size of blocks of shares (or stakes) in indirect ownership was suggested in [Abramov A., Radygin A., Chernova M. Companies with State Stakes in the Russian Market: Ownership Structure and Role in the Economy // Voprosy ekonomiki. 2016. No 12. P. 61-87.]. In their study, the authors reviewed a sample of 114 biggest Russian companies, including 61 SOEs, over the period from 2006 through 2014. This study, which uses a larger sample observed over a longer period, makes it possible to compare the indices of Russian SOEs with those of SOEs across 40 countries, on the basis of data as of 2015, recently published in [The Size and Sectoral Distribution of State-Owned Enterprises, Paris: OECD Publishing, 2017.].

[2] Rosstat data contain two different estimates of aggregate proceeds in the Russian economy. One of them is cited in the statistics entered in the national accounts, and the other is entered in the aggregate proceeds data for different sectors of the national economy. Thus, for example, in 2016 the total sales volume in the system of national accounts amounted to RUB 178.5 trillion, while in accordance with Rosstat's Central Statistics Database, the total proceeds of organizations with all forms of ownership amounted to RUB 230.7 trillion. In our calculations for the corresponding years, we applied the proceeds index taken from the Central Statistics Database, because it provides data relative to each form of ownership, and so these data can be compared with our estimations based on our study sample of SOEs.

[3] Because of the changes in the ownership structure of Russian companies, their reorganization and absence of publicly available reporting data for several companies for some years, the number of SOEs in the sample varies from year to year, amounting to 70 in 2006, to 82 in 2007, to 85 in 2008, to 96 in 2009, to 98 in 2010, to 103 in 2011, to 109 in 2012, to 107 in 2013, to 110 in 2014, to 105 in 2015, and to 106 in 2016.

[4] FSUE Russian Post, SUE Mostransavto, FSUE Rosmorport, Federal State Enterprise *Specialized Railroad Security Service of Russia*, FSUE Main Military Engineering Administration No 6, FSUE Main Administration for Construction of Roads and Airfields of the RF Ministry of Defense, SUE Vodokanal of St. Petersburg, SUE Fuel and Energy Complex of St. Petersburg, SUE Mosoblgaz, FSUE Center for Operation of Space Ground Base Infrastructure, etc.

[5] UAZ, Farmpreparat, METRO Cash and Carry, Volkswagen Group Rus, Japan Tobacco International Russia, MERLION, Avtotor Group, NISSAN Manufacturing Rus, and O'KEY Group.

[6] The Size and Sectoral Distribution of State-Owned Enterprises, Paris: OECD Publishing, 2017

corresponding data for Russia. All the calculations were made as of year-end 2015. In our sample for that year, Russia had 105 SOEs.

The aggregate by-country data describing the number of SOEs, their estimated value and personnel number, are shown in *Table 11*. The indices are calculated separately, with and without the SOE indices for China, because the latter differ significantly from the parameters observed in the other countries. Besides, the pooled OECD estimates do not include data for Saudi Arabia, because these are incomplete.

In 2015, in 39 countries there were a total of 2,443 SOEs, with estimated value of approximately USD 2 trillion, or 4.0 percent of total capitalization of public JSCs in these countries. In the same year, China reported 51,300 SOEs with estimated value of USD 29.2 trillion, which is 3.6 times more than the total capitalization index of public companies in China's economy (which ranks 2nd in the world relative to that index). In Russia, 105 SOEs were identified with estimated market value of USD 175 billion, or 36.9 percent of the total capitalization index of all shares listed on the MICEX.[1]

The OECD's by-country SOE sample, less China, in 2015 employed 9.2 million personnel, which on the average amounts to 1.1 percent of the total number of employed persons in the national economies; and the same index, China including, is 24.5 million, or 1.9 percent of the total number of employed persons. In Russia, SOEs employed 3.8 million persons, or 5.4 percent of the total number of employed persons in the national economy.

Table 11

Selective indices of SOEs in 41 countries, as of year-end 2015

	Number of SOEs	Company value, billions of US dollars			Personnel number		
		SOE	Public stock market capitalization – total	Input of SOEs, percent	SOE	Country's total	Input of SOEs, percent
1	2	3	4	5	6	7	8
Argentina	59	28	56	49.2	130,776	13,282,300	1.0
Australia	8	14	1,187	1.1	42,607	9,746, 800	0.4
Austria	10	5	96	5.1	72,491	3,602,100	2.0
Brazil	134	145	491	29.6	597,505	68,150,900	0.9
Canada	44	30	1,593	1.9	83,462	15,185,600	0.5
Chile	25	21	190	10.9	50,361	5,868,200	0.9
Columbia	39	23	86	26.8	33,033	10,808,900	0.3
Costa Rica	32	13	n.d.	n.d.	43,013	1,556,200	2.8
Czech Republic	133	29	n.d.	n.d.	133,826	4,162,100	3.2
Denmark	21	**	**	**	18,728	2,520,000	0.7
Estonia	66	**	**	**	26,026	581,900	4.5
Finland	47	**	**	**	72,391	2,088,200	3.5
France	51	77	2,088	3.7	826,967	23,324,400	3.5
Germany	71	72	1 716	4.2	370,440	35,821,900	1.0
Greece	42	83	42	198.2	42,927	2,341,300	1.8
Hungary	370	9	18	51.5	148,193	3,748,400	4.0
Iceland	35	**	**	**	3,636	160,000	2.3
India	270	339	1,516	22.3	3,284,845	288,808,600	1.1
Ireland	25	10	128	8.0	39,079	1,615,000	2.4
Israel	28	n.d.	244	0.0	57,114	3,205,700	1.8
Italy	20	208	587	35.3	499,765	16,988,400	2.9
Japan	8	82	4,895	1.7	256,265	56,899,500	0.5
South Korea	56	218	1,231	17.7	147,833	14,248,900	1,0
Latvia	71	**	**	**	49,962	782,300	6.4

[1] The estimated aggregate value of Russian SOEs, in contrast to that of some other countries, e.g. China, is somewhat understated because it is based only on data on capitalization of public companies listed on the MICEX. Out of 105 SOEs in our sample, only 33 companies were registered as public in 2015.

Cont'd

1	2	3	4	5	6	7	8
Lithuania	128	**	**	**	40,711	1,169,800	3.5
Mexico	78	21	402	5.3	73,686	34,327,500	0.2
The Netherlands	29	83	728	11.4	110,400	6,896,500	1.6
New Zealand	37	29	74	39.1	36,214	2,008,700	1.8
Norway	55	108	194	55.6	230,601	2,460,500	9.4
Poland	126	16	138	11.4	128,016	12,632,500	1.0
Slovakia	113	n.d.	n.d.	n.d.	60,471	2,054,400	2.9
Slovenia	37	13	6	207.1	47,052	762,100	6.2
Spain	51	37	787	4.7	94,635	14,761,900	0.6
Sweden	49	37			124,133	4,343,300	2.9
Switzerland	4	45	1,519	2.9	106,883	3,946,100	2.7
Turkey	39	63	189	33.1	438,990	17,879,100	2.5
UK	16	115	3,879	3.0	153,604	26,395,800	0.6
USA	16	-22	25,068	-0.1	535,981	139,208,000	0.4
China	51,341	29,201	8,188	356.6	20,248,999	657,253,800	3.1
NASDAQ OMX Nordic Exchange*	n.d.	113	1,268	8.9	n.d.	n.d.	
total (less China)	*2,443*	*2,023*	*50,418*	*4.0*	*9,212,622*	*854,343,800*	*1.1*
total (including China)	*53,784*	*31,224*	*58,606*	*53.3*	*29,461,621*	*1,511,597,600*	*1.9*
Russia	**105**	**175**	**473.7*** **	**36.9**	**3,671,564**	**68,495,000**	**5.4**
Saudi Arabia	24	139	421	33.1	25,906	10,925,900	0.2

* Pooled stock exchange data for Denmark, Iceland, Latvia, Lithuania, Finland, Sweden, Estonia.

** To avoid duplicated results, in the 'total' rows, the SOE value and stock market capitalization data for Denmark, Iceland, Latvia, Lithuania, Finland, Sweden, and Estonia are entered as aggregate value in the row *NASDAQ OMX Nordic Exchange*.

*** Capitalization index based on MICEX data for 2015 divided by the annual average USD exchange rate, in rubles.

Source: data on SOEs in 40 countries, less Russia [The Size and Sectoral Distribution of State-Owned Enterprises, Paris: OECD Publishing, 2017]; SOE sample data for Russia, collected by the RANEPA Institute of Applied Economic Research; public share market capitalization – World Development Indicators (WDI). URL: http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators; by-country personnel data – Passport (Euromonitor International) URL: http://go.euromonitor.com/passport_.html.

The countries shown in *Fig. 18* (less China) are ranked by the number of their SOEs operating as of 2015. By the number of companies in its sample (105), Russia was 8th among a total of 40 countries. The number of SOEs in the other major developing economies was as follows: 270 in India, 134 in Brazil, 126 in Poland, 78 in Mexico, 56 in South Korea, 39 in Turkey. The number of SOEs in the developed countries was markedly lower than in Russia, in particular 51 each in France and Spain, 49 in Sweden, 47 in Finland, 44 in Canada, and 16 each in the USA and the UK. On the basis of this data it can be assumed that the size of Russia's sample of SOEs is representative, given the available statistics on SOEs in the 40 countries included in the OECD study.

Among these samples data, China stands somewhat apart, because in 2015 it numbered a total of 53,784 SOEs. The distinctive feature of the Chinese model, as noted by Ronald Coase and Nina Wang,[1] is that it envisaged a one-time specification and transfer of rights to the relevant economic subjects without an accompanying privatization of the state stake. This is the reason why in the ownership structure of the innumerable commercial enterprises scattered across rural and urban areas, there still remain stakes held by the state and local-self-government bodies, which is manifest in the very sizable sample of SOEs representing that country.

[1] Coase R., Wang N. How China Necame Capitalist. [In Russian]. Moscow: Novoye Izdatel'stvo. 2016. P. 261–264.

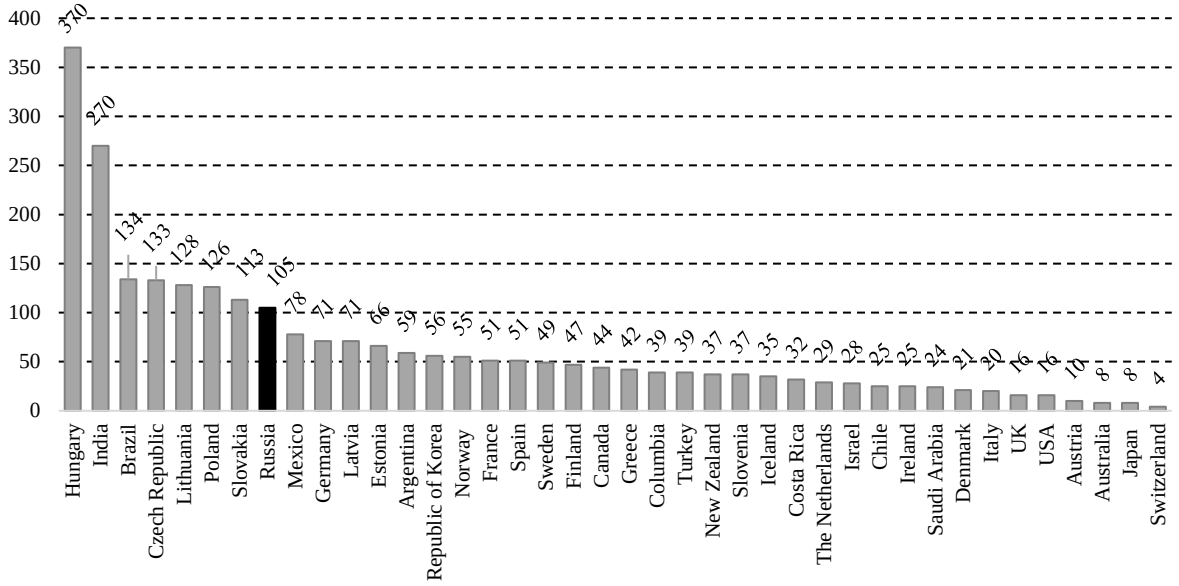


Fig. 18. The number of SOEs in samples studied in different countries in 2015, units

Source: calculations based on OECD data [The Size and Sectoral Distribution of State-Owned Enterprises, Paris: OECD Publishing, 2017]; for Russia, the sample data collected by the RANEPA Institute of Applied Economic Research are applied.

Fig. 19 demonstrates the SOE value indices, in US dollar terms, for different countries, less China. The market capitalization index of Russian SOEs in 2015 amounted to USD 175 billion. By this criterion, if we disregard China, with its staggering total estimated value of SOEs amounting to USD 29.2 trillion, Russia falls behind only the following three countries included in this sample: India (USD 339 billion), South Korea (USD 218 billion), and Italy (USD 208 billion). At the same time, by the capitalization index of its SOEs, Russia was ahead of several major economies where the share of government ownership was traditionally high: Brazil (USD 145 billion), Saudi Arabia (USD 139 billion), Norway (USD 115 billion), Japan (USD 82 billion), France (USD 77 billion), Germany (USD 72 billion), and Mexico (USD 21 billion). It must be remembered, however, that in the group of Russia's 105 SOE, the resulting index of USD 175 billion was in the main contributed to by only 33 public JSCs whose shares had market value based on their high quotes.

Fig. 20 shows the value indices of SOEs in terms of their share in the market capitalization index of each country. In 2015 in Russia, this index amounted to 36.9 percent, the average for 39 countries (less China) being only 4.0 percent. In China, the ratio of the value index of SOEs to the total capitalization index of that country's market (second in the world in terms of its size) was as high as 356.6 percent, which can be explained by the already mentioned characteristic feature of the Chinese economy. If we disregard China, Russia's share of the value index of SOEs in the total capitalization index will be one of the highest among the countries with liquid stock markets. In 2015, Russia's index was significantly above the corresponding indices for Italy (35.3 percent), Turkey (33.1 percent), Brazil (29.6 percent), India (22.8 percent), Poland (11.4 percent), and Mexico (5.3 percent).

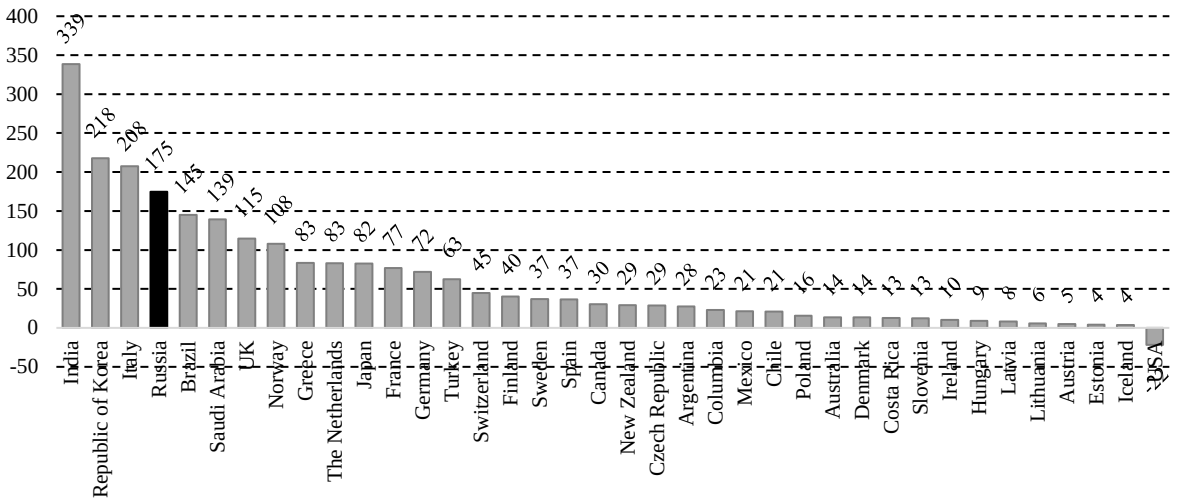
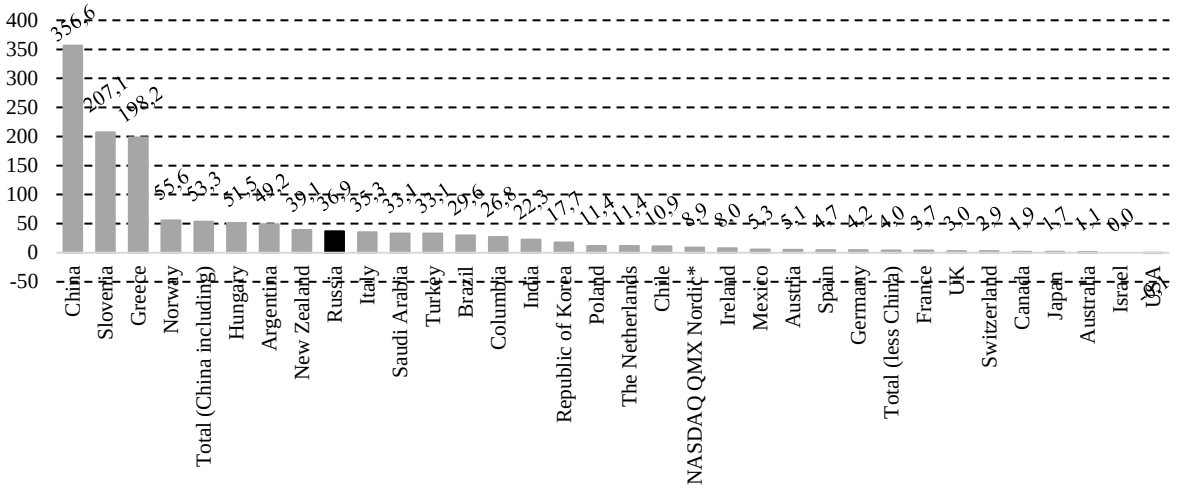


Fig. 19. Value of SOEs in different countries in 2015, billions of US dollars

Source: calculations based on OECD data [The Size and Sectoral Distribution of State-Owned Enterprises, Paris: OECD Publishing, 2017]; for Russia, the sample data collected by the RANEPA Institute of Applied Economic Research are applied.



* Finland, Denmark, Sweden, Estonia, Latvia, Lithuania, Iceland.

Fig. 20. The value index of SOEs in different countries in 2015, as a percentage of the total market capitalization index of public companies

Source: calculations based on OECD data [The Size and Sectoral Distribution of State-Owned Enterprises, Paris: OECD Publishing, 2017]; for Russia, the sample data collected by the RANEPA Institute of Applied Economic Research are applied.

Fig. 21 presents the inputs of SOEs operating in different countries in the total number of persons employed in each economy in 2015. Russia's index of 5.4 percent was found to be one of the highest among the 40 countries included in the OECD sample. The corresponding average index for all these countries, including China, was only 1.9 percent. By the input of SOE personnel in the total number of employed persons, Russia was behind only three countries – Norway (9.4 percent), Latvia (6.4 percent), and Slovenia (6.2 percent). At the same time, by the same index, Russia was ahead of some other countries with a high input of the

public sector in their national economies: Hungary (4.0 percent), France (3.5 percent), Finland (3.5 percent), China (3.1 percent), Sweden (2.9 percent), Turkey (2.5 percent), Germany (1.0 percent), Brazil (0.9 percent), and Mexico (0.2 percent).

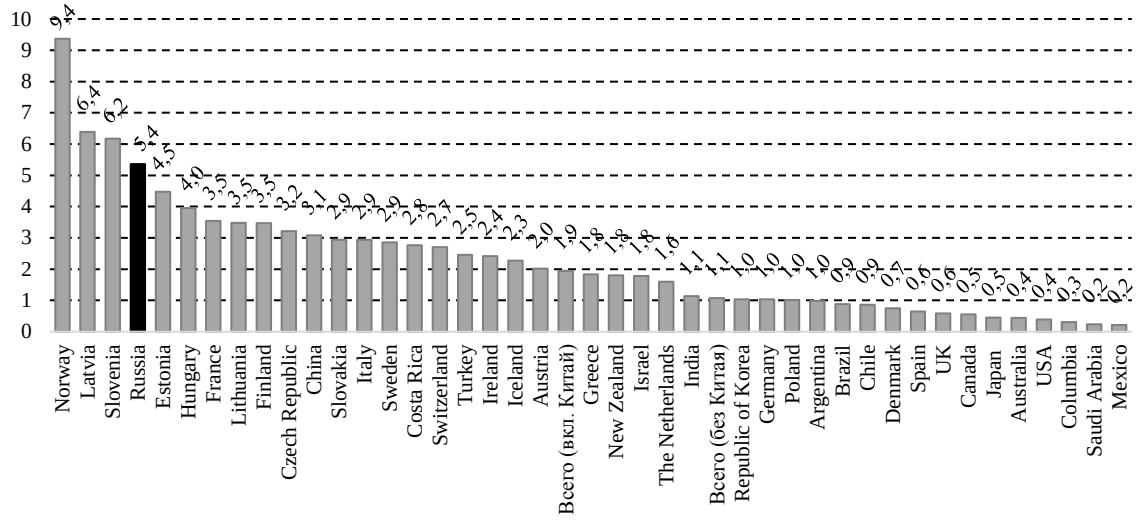


Fig. 21. The inputs of SOE personnel in the total number of employed persons in different countries in 2015, percent

Source: calculations based on OECD data [The Size and Sectoral Distribution of State-Owned Enterprises, Paris: OECD Publishing, 2017]; for Russia, the sample data collected by the RANEPA Institute of Applied Economic Research are applied.

At present, on the basis of the available OECD statistics on SOEs operating in different countries, it is not possible to correctly assess the year-on-year movement patterns of the public sector in the entrepreneurial sphere. The relevant estimates can be presented only for Russia, derived on the basis of the time series in our SOE sample over the 11-year period from 2006 through 2016.

Fig. 22 shows the movement patterns, in Russia, of the indices describing the inputs of SOEs in the total market capitalization index, the number of employed persons in the total economy, and proceeds in the total economy. Over 11 years, the input of the capitalization index of SOEs in the total capitalization index of the Russian stock market shrank only slightly, from 50.0 percent in 2006 to 48.7 percent in 2016. At the same time, the changes displayed by that index were cyclical: it was notably on the decline during the period of the Russian stock market's growth, but in the post-crisis year 2009, and then in 2016 during the stock market's rebound, it displayed dramatic surges. Evidently, this 'rebound phenomenon' had to do with the more substantial support provided by the government to biggest SOEs, by comparison with other companies, during the acute phase of the crisis.

The input of SOE employees in the total number of employed persons in Russia's total economy, which was shown (see *Fig. 23*) to be among the highest in the world, also displayed an obvious trend towards long-term growth. Over the 11-year period, this index for SOEs increased from 2.3 percent in 2006 to 5.8 percent in 2016, or 2.5 times.

The input of SOEs in the total economy's proceeds also increased, although at a more moderate rate compared with the growth rate of the SOE personnel. That index increased from 9.2 percent in 2006 to 11.5 percent in 2016, i.e., approximately by 1/4. It should be noted that the input of proceeds generated by SOEs began to decline specifically from 2012 onwards,

when the Russian economy was entering the period of recession – from 13.7 percent in 2011 to 12.4 percent in 2015. In addition to all the other factors, this could be caused by the declining performance level of these companies compared with the private sector of the economy.

The year-on-year data on capitalization, the number of employed persons and proceeds for the SOEs included in our sample over the period from 2006 through 2016 are presented in *Fig. 22* and *Annex 1*.

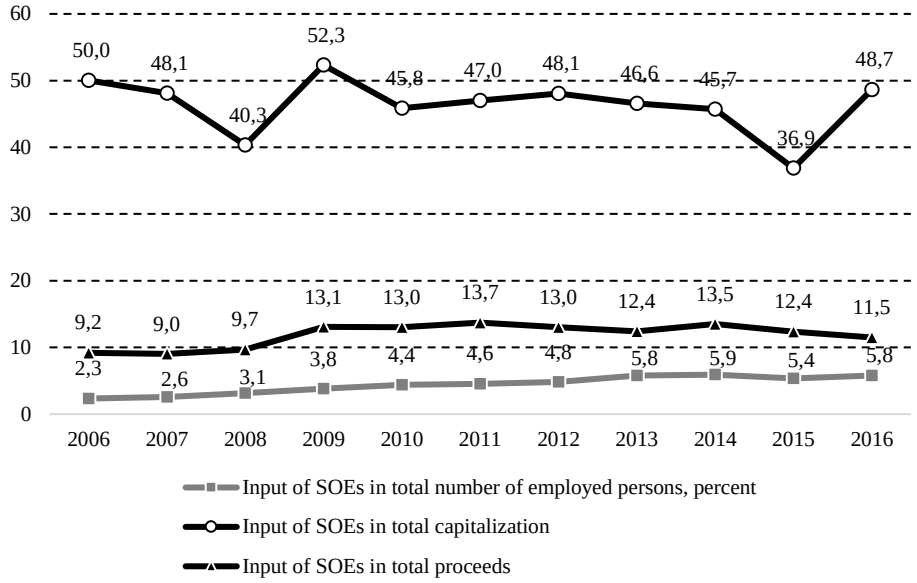


Fig. 22. The inputs of SOEs in the capitalization index, total number of employed persons and total proceeds in Russia in 2006–2016, percent

Source: calculations based on the sample data collected by the RANEPA Institute of Applied Economic Research.

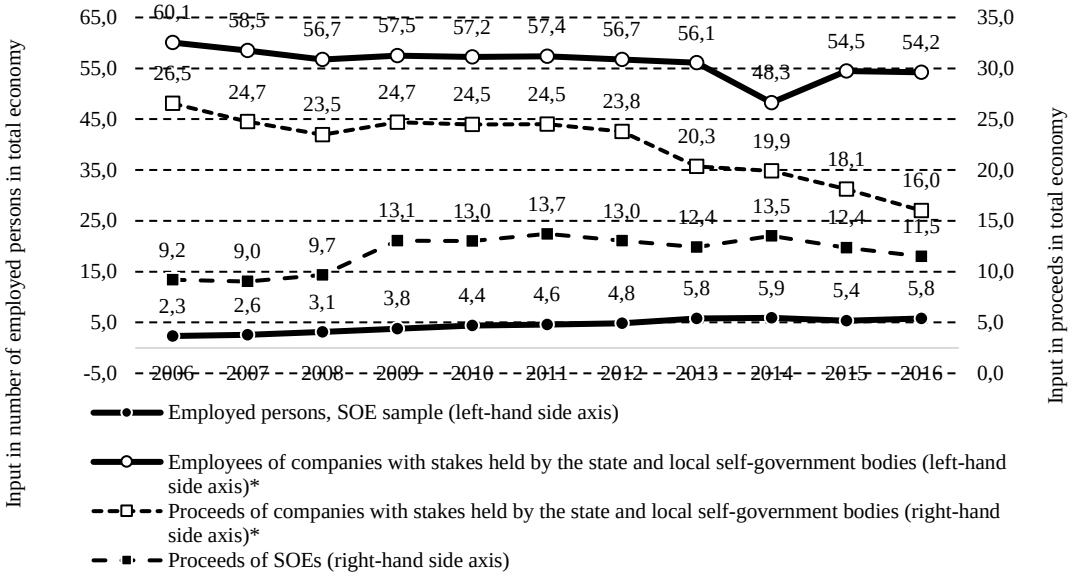
The data on the number of personnel and the amount of proceeds generated by SOEs across our sample can be set against the corresponding data for a broader group of organizations with state stakes released by Rosstat. In this dataset, there are organizations in federal ownership; in ownership by subjects of the Russian Federation; in municipal ownership; in mixed ownership by Russian residents; and in joint Russian/foreign ownership. The latter may include joint ventures with foreign capital and either state-owned or private stakes on the Russian side, as such entities do not always require the participation of government units. According to Rosstat data, [1] the number of organizations[2] in federal ownership plunged from 6,823 in 2006 to 2116 in 2016, or by 69.0 percent. Over the same period, the number of organizations owned by RF subjects shrank by 7,518 to 3,303, or by 56.1 percent; that of organizations in municipal ownership – from 17,116 to 13,067, or by 23.6 percent; that of companies in mixed ownership by Russian residents – from 14,227 to 11,336, or by 20.3 percent; and that of organizations in joint Russian/ foreign ownership, on the contrary, increased from 12,030 to 24,590, or 2.1 times.

In *Fig. 23*, the relative data on the number of employed persons and amount of proceeds for our SOE sample are set against the aggregate data on all organizations in federal ownership,

[1] URL: http://cbsd.gks.ru/

[2] In accordance with the classification of legal entities by type of ownership, Rosstat recognized the following categories: legal entities registered as commercial organizations; state unitary enterprises (SUEs); joint-stock companies; production co-operatives; non-profit organizations; and consumer co-operatives.

ownership of RF subjects, municipal ownership, mixed Russian ownership, and joint Russian/foreign ownership. On the basis of these data, it becomes evident that in terms of personnel number and proceeds, the gap between the SOEs included in our sample and all the other organizations entered in the Rosstat records is very significant. Thus, for example, in 2016, the input of SOE employees in the number of employed persons in the total economy amounted to 5.8 percent, while the same index for the entire group of organizations in Rosstat's dataset was 54.2 percent; the relative inputs in total proceeds amounted to 11.5 and 16.0 percent respectively. However, this soaring index demonstrated by Rosstat data could largely be explained by the inclusion therein of the group of companies in foreign/Russian ownership where, strictly speaking, the presence of government units among the owners is not mandatory.



* Companies in federal, subfederal and local self-government ownership; companies in mixed ownership and joint ownership by Russian and foreign entities.

Fig. 23. The input in Russia's national economy of SOEs and organizations owned by federal, subfederal, local self-government bodies, together with companies in mixed ownership and joint ownership by Russian and foreign units, by their number of employed persons and proceeds, percent

Source: calculations based on the sample data collected by the RANEPA Institute of Applied Economic Research.

If the data on the number of employed persons and proceeds are recalculated for the more narrow sample of organizations entered in Rosstat's statistical records, without the companies in joint ownership by Russian and foreign entities, the parameters of SOEs included in our sample will display significantly closer similarities, especially with regards to proceeds (*Fig. 24*). In 2016, about 20.5 percent of the reported average staffing number in Russia was accounted for by the enterprises in federal, subfederal and local self-government ownership, and by enterprises in mixed ownership. The comparable index for SOEs was 5.8 percent. At the same time, both SOEs and the enterprises included in Rosstat's sample generated approximately comparable amounts of proceeds. Moreover, in 2016, the relative index of proceeds generated by SOEs – 11.5 percent of the total proceeds index in the national economy –

was above the corresponding index for Rosstat's sample, which amounted to only 10.1 percent of the same base.[1]

These results prove that our SOE sample is sufficiently representative to provide a reliable estimate of the input in total proceeds, and consequently in GDP, of all Russian state-owned enterprises. As for the number of employed persons, our SOE sample does not include those companies where the output per worker is low, or those that generate no proceeds. In the latter case, the system of national accounts places such state-owned enterprises in the institutional sector as government units, where their input in GDP is calculated on the basis of their wage costs. In this study, their input in GDP will be entered not in the SOE sector, but in the general government sector.

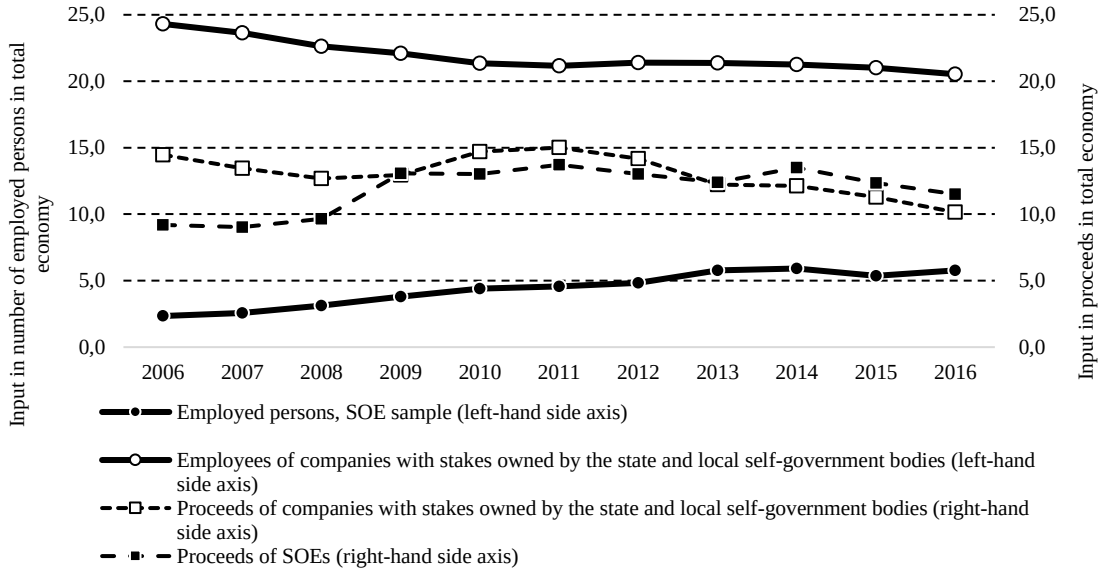


Fig. 24. The input in Russia's national economy of SOEs and organizations in federal, subfederal, and municipal ownership, together with companies in mixed ownership, by their number of employed persons and proceeds, percent

Source: calculations based on data released by Rosstat and the sample data collected by the RANEPA Institute of Applied Economic Research.

4.3.2. Estimation of the input in GDP of state-owned enterprises

There exist different methods of estimating the relative share of SOEs in Russia's GDP. Usually, such calculations are either based on a narrow sample, or made without disclosing the calculation methods. Eurostat published a specialized methodology for deriving such estimates on a company level.[2] The calculations of a company's input are largely based on its reported profits and losses. Output is calculated as the sum of proceeds, growth of stocks reserves, growth of produced fixed assets, net result of asset resale, growth of unfinished production, growth of goods for resale, and other operating profits. Intermediate consumption consists of purchases of raw materials and other materials less their stocks, other purchases and other

[1] This difference can probably be explained by the presence, in our SOE sample, of companies with stakes indirectly owned by the state, which are not taken into account in Rosstat's sample.

[2] Eurostat. Essential SNA: Building the basics. Luxembourg: Publications Office of the European Union. 2014.

transaction costs. The amount of value added generated by a company is calculated as the difference between output volume and intermediate consumption. With due regard for the specificities of national accounting systems, certain technical adjustments to this methodology can be made.

Nevertheless, this methodology is rather complex, it requires that the reports submitted by companies be compatible with the International Financial Reporting Standards (IFRS). Methodologically, it is more difficult to estimate the input of SOEs in GDP, because the reports of such companies must provide data compatible with the IFRS. Regretfully, by far not all the SOEs, even among those that have been selected for our samples, actually publish such data. A generalized estimate of the input of SOEs in GDP based on our sample was derived as follows. At the first stage, we applied the Eurostat methodology to calculate, for the period 2006–2016, the inputs of the two biggest non-financial SOEs – Gazprom and Rosneft – in total proceeds and in GDP. After that, by dividing their input in GDP by their input in total proceeds, we derived a multiplier factor, its average value for the 11-year period being 2.2. By multiplying this value by the input in total proceeds of all the SOEs included in our sample, the input of the latter in GDP can be calculated.[1]

Additionally, we calculated the input in GDP of the value added created by SUEs. To achieve this, on the basis of data taken from the SPARK information system[2] we calculated the amount of proceeds received by SUEs, and then, by applying the same factor of 2.2 (input in GDP/input in total proceeds) to the amount of proceeds received by state-owned enterprises of this type, we derived their value added index.[3] To avoid duplicated results, we did not include data for some of the organizations contained in our SOE sample in our calculations of the aggregate indices of SOEs.

The results of our calculations are shown in *Fig. 25.* Over the entire 11-year period, the input in GDP of the value added index of SOEs increased from 20.2 percent in 2006 to 25.3 percent in 2016. After the financial crisis it jumped from 21.3 percent in 2008 to 30.2 percent in 2011, but later on slid to 25.3 percent in 2016. Over the same period, the input of SUEs in GDP shrank from 2.5 percent in 2006 to 1.5 percent in 2016. That drop was caused primarily by the ongoing privatization processes and various reorganization procedures in that sector, especially in 2011–2016.

According to other expert estimations, in 2015 in Russia, the input in GDP of companies with state stakes amounted to approximately 29–30 percent.[4] Somewhat similar data, although derived on the basis of a different methodology, were published by the IMF.[5] According to these estimations based on data for 26 biggest SOEs, that index in 2012 amounted to 28 percent.

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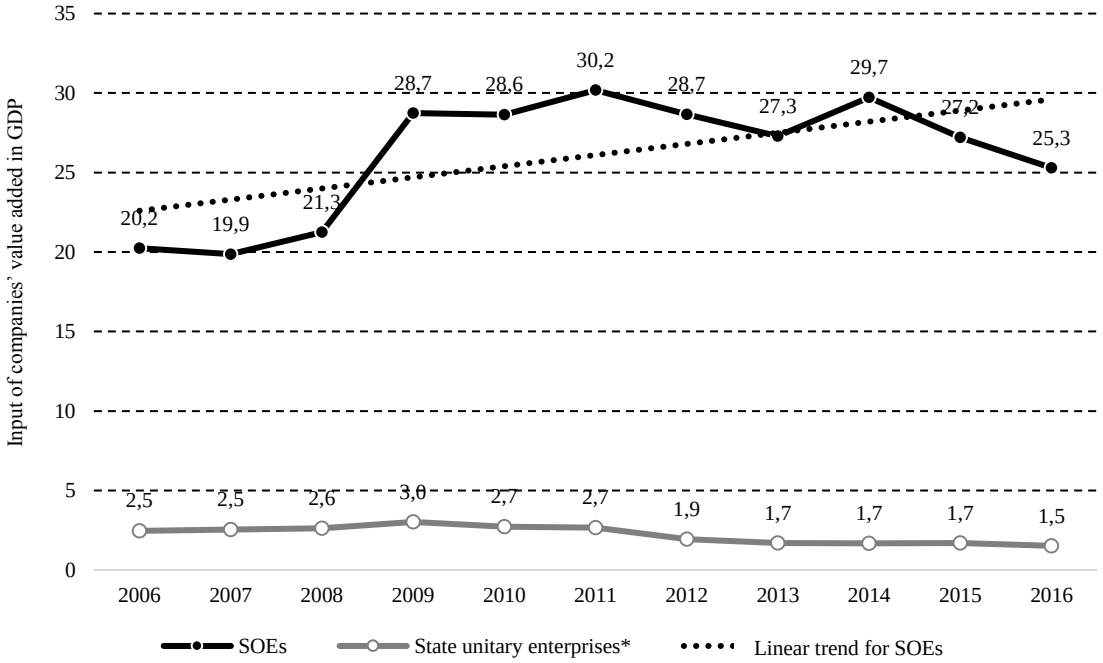
[1] In terms of economics, this factor is applied in order to eliminate, by comparing the input of biggest SOEs in the total economy's proceeds and GDP, the effect of the proceeds index calculated by Rosstat on the basis of the broadest possible database.

[2] Hereinafter, we apply data taken from the SPARK information system, available at http://www.spark-interfax.ru/ru/about.

[3] In this case, these are SUEs owned by the Russian Federation, subjects of the Russian Federation, and local self-government bodies. Data for both commercial and non-profit organizations are included; data for the SUEs transferred to state corporations are not included.

[4] Estimates presented at *The Gaidar Forum 2016: Russia and the World. Looking to the Future* on 14 January 2016 (the panel discussion 'Publicly-owned Companies – Economic Powerhouse or Deterrent?'. www.gaidarforum.ru).

[5] Hughes R., Josephs T., Karolova V., Krivenkov V., Ljungman G. Russian Federation: Fiscal transparency evaluation. // IMF Country Report. No 14/134. 2014. P. 16.



* Less data for FSUE Russian Post, SUE Mostransavto, the FSUE Rosmorport, Federal State Enterprise *Specialized Railroad Security Service of Russia*, FSUE Main Military Building Construction Administration No 6, FSUE Main Administration for Construction of Roads and Airfields of the RF Ministry of Defense, SUE Vodokanal of St. Petersburg, SUE Fuel and Energy Complex of St. Petersburg, SUE Mosoblgaz, FSUE Center for Operation of Space Ground Based Infrastructure, and some other SUEs included in our SOE sample.

Fig. 25. The estimated inputs in GDP of the value added indices of SOEs and SUEs, percent

Source: calculations based on the financial reports submitted by SOEs and data distributed by SPARK.

Our data on the input of Russian SOEs in GDP can be compared with available international estimations. According to data released by the OECD,[1] in 2009 in 25 of its member states, a total of 2,050 SOEs produced approximately 15 percent of GDP, including 20–30 percent of GDP in transition economies. Russia's corresponding index for the same year was 28.7 percent, which is near the established ceiling for the developing economies.

According to the estimates released by the World Bank,[2] in 2006 across the group of developing countries, SOEs generated 15 percent of GDP in Africa, 8 percent in Asia, and 16 percent in Latin America, which was significantly below the input of SOEs in the Russian economy over the same year. In China, the input of SOEs in GDP shrank from 37.6 percent in 1998 to 30 percent in 2010, which roughly corresponds to the input in GDP of Russian SOEs over the same year (28.6 percent). As demonstrated by the IMF estimates for the 20-year period[3] that ended in 2015, the input of SOEs in Chinese total industry's value added index declined from 40 to 16 percent. In India, the input of SOEs in GDP shrank from 17.5 percent in 1993–

[1] The Size and Composition of the SOE Sector in OECD Countries. OECD Corporate Governance Working Paper 5, 2011. OECD, Paris.
[2] Corporate Governance of State-owned Enterprises: A Toolkit. The World Bank, 2014.
[3] Lam R., Rodlauer M., Schipke A. Modernizing China. Investing in Soft Infrastructure. International Monetary Fund, 2017.

1994 to 13.1 percent in 2006–2007. In contrast to China and India, in Russia the input of SOEs in GDP displays an upward trend.

Thus, in terms of the number of big SOEs, Russia ranks 8th among the 40 countries included in the OECD sample (less China). The number of SOEs in Russia is 105, the average index per country in the OECD sample (less China) being 64. By the number of SOEs in absolute terms, Russia was behind only four countries, China including. In 2015, the capitalization index of Russian SOEs was USD 175 billion, while the sample's average (less China) was USD 62 billion. In terms of the relative value of its SOEs in the capitalization index of public companies, Russia was behind only seven countries, China including. In 2015, this index of Russian SOEs amounted to 36.9 percent, its average for the entire sample (less China) being only 4.0 percent. In terms of the input of the personnel employed by SOEs in the total number of employed persons, Russia was behind only three countries, China including. In 2015, that index for Russia amounted to 5.4 percent, the sample's average, China including, being 1.9 percent.

All these facts confirm the assumption that in Russia, in terms of their size, business value, and personnel number, SOEs *as a group weight more than the similar companies operating in most of the other major economies in the world*.

An analysis of the movement patterns displayed by the indices describing the scale of activity of SOEs in Russia over the period 2006-2016 revealed the following regularities. The input of SOEs in the market capitalization index of Russian issuers of shares during that period was fluctuating between 36.9 and 52.3 percent, depending on the cyclical behavior of Russia's economy. On the whole, that index demonstrated a slightly downward trend; in 2016, it amounted to 48.7 percent.

The total proceeds of the Russian economy and the total number of employed persons therein over the period 2006–2016, on the contrary, showed a trend towards increasing the role of the public sector. The input of SOE personnel in the total number of employed persons jumped from 2.3 percent in 2006 to 5.8 percent in 2016. A more moderate growth rate over the same period was demonstrated by the per-unit SOE proceeds – that index increased from 9.2 percent in 2006 to 11.5 percent in 2016. The input of SOEs in the total capitalization index of Russia's stock market declined from 50.0 percent in 2006 to 48.7 percent in 2016. Growth in the number of personnel employed by SOEs was not accompanies by a similar growth in sales volume, while the input of SOEs in the aggregate capitalization index over the same period even declined.

The multiplier method described above, where the relevant factor is derived as the ratio of the input of two biggest non-financial SOEs in GDP to their input in total proceeds, makes it possible to estimate the input of SOE sector in GDP. This index points to growth of the input of SOEs in the creation of new value, from 20.2 percent of GDP in 2006 to 25.3 percent of GDP in 2016. In this connection, it becomes obvious that our sample, which consists of only 105 biggest SOEs, represents just a fraction of all the companies with state stakes operating in the Russian economy. However, we believe that our estimates describing the inputs of the companies included in the sample both in GDP and in the total economy's proceeds are sufficiently representative, because the amount of proceeds generated by the SOEs included in our sample is practically the same as the total proceeds of all the companies in federal, subfederal and municipal ownership, as well as those in mixed ownership, entered in Rosstat’s dataset.

It is rather difficult to make a comparative analysis of the input of SOEs in GDP, as there are no systematically arranged fresh data for many countries. However, a comparison with available random data for some other countries demonstrates that the input of Russian SOEs in

GDP is among the highest, relative to all the other datasets included in our analysis. Besides, as far as Russian companies are concerned, this index was characterized by an upward trend in 2006–2016.

Our estimates of the inputs of SOEs in total proceeds and GDP should, most likely, be regarded as a conservative variant, i.e., as the estimated floors for these indexes' values. It has some value, however, because it relies on an analysis of financial reports of 105 SOEs, including the consolidated financial reporting data of public corporations included in our sample.

Meanwhile, the question as to the size of the inputs in total proceeds and GDP of other SOEs, which were not included in our sample, remains open. The selection of companies entered in the SPARK information system makes it possible to approximately estimate the inputs in total proceeds and GDP of the state-owned companies on Russia's Top 100 list, relative to their proceeds volume. Besides, the SPARK database offers a more accurate by-sector distribution of SOEs.

In each sector of the national economy, we analyzed the indices of 100 biggest companies (relative to their annual volume of proceeds) and estimated the input of aggregate proceeds generated by companies controlled by the state. C*ompanies controlled by the state* were understood as the companies operating either under direct or indirect control of the state (taking into account all ownership levels, if those levels secured state control of a subsidiary). The companies with a state stake less than 50 percent+1 share were not included in the sample.

Compared with our relatively small sample of SOEs, the methods employed in processing the statistics in the SPARK sample have several distinctive features. The amount of proceeds for the latter is estimated on the basis of non-consolidated reporting data. This approach results in overestimating the actual indices stored in the system relative to the indices disclosed by big corporations in their reports prepared in accordance with the IFRS.[1] Due to the somewhat erroneous nature of the by-sector classifier, the selection of companies controlled by the state across various industries may result in errors, which have to do with duplication of the available information of one and the same company. The actual use of SPARK data is very complicated and time-consuming, and so it is relatively difficult to calculate the proceeds of companies controlled by the state for the entire period from 2006 through 2016. In this case, the estimated amounts of proceeds for different groups of companies were obtained for 2015, and these are presented in *Annex 2*.

According to our calculations, the highest input of the public sector in the economy, estimated on the basis of proceeds indices obtained for a broader sample of biggest companies, less the sector of budget-funded institutions, amounted to 39.8 percent (*Table 12, Annex 2*). *Table 12*, based on data for 2015, also demonstrates the relationship between the inputs of SOEs in total proceeds and GDP, calculated for the sample of 105 companies (a conservative estimation of the input of SOE), and the maximum values of these inputs determined on the basis of a broader sample taken from the SPARK information system.

The differences in the estimated proceeds indices are caused not only by the differences in the sample size, but also by the differences in the estimated amounts of the total economy's proceeds in the denominator. If the same proceeds base is used as denominator, the gap between the two estimated indices describing the input of SOEs in total proceeds becomes notably shorter – 12.4 percent in the conservative estimation, and 17.9 percent in the maximum variant

[1] Thus, for example, according to the consolidated reported data, the amount of proceeds generated by PJSK Gazprom in 2016 was RUB 6.1 trillion, while the added-up proceeds reported separately by the holding company and its subsidiaries (according to SPARK data) yield the sum of RUB 9.3 trillion.

based on SPARK data. If we multiply the inputs of SOEs in total proceeds in the conservative and maximum variants by the factor of 2.2, thus converting these indices into those describing inputs in GDP, the resulting input of SOEs in GDP based on data for 2015 will be 27.2 percent in the conservative variant, and 39.4 percent in the maximum variant based on SPARK data.

The use of non-consolidated corporate data taken from the SPARK information system made it possible to correctly distribute between sectors the subsidiaries of holding companies (e.g., the subsidiaries of PJSC Sberbank, PJSC Russian Railways, and other holding companies that produce IT services were placed in the IT sector; the subsidiaries offering education services were likewise placed in the corresponding sector, and so on).

Due to the obvious imbalance, in Russia's national economy, in favor of mineral resources extraction sectors, a general (averaged) estimation of the public sector's size, without a proper by-industry (sectoral) analysis, may produce a seriously distorted picture. In order to obtain more correct estimations of the role of the public sector, we performed a by-industry analysis of Russian companies based on their annual proceeds volume.

Table 12

The conservative and maximum inputs of SOEs in GDP, based on the sample of 105 SOEs and the sample of companies controlled by the state (SPARK data), estimated for 2015

	Calculations for SOE-105 sample (conservative estimations)	Calculations for SPARK (maximum level)	
		data incomparable with SOE-105	data comparable with sample SOE-105
1. Proceeds of SOEs, trillions of rubles	25.6	37.1	37.1
2. Proceeds for each sample, trillions of rubles	207	93.3	207
3. Input of SOEs in proceeds (country 1 / country 2 * 100), percent	**12.4**	**39.8**	**17.9**
4. Factor, relative to GDP	2.2		2.2
5. Input of SOEs in GDP (country 3 * country 4), percent	**27.2**		**39.4**

Source: calculations based on sample data collected by the RANEPA Institute of Applied Economic Research and SPARK data.

The index of maximum input of the public sector in the economy based on the proceeds of biggest companies varies significantly between sectors. In fact, in each of the following four sectors (energy, transport, mineral resources extraction, and finance), the input of the proceeds of state corporations in the total proceeds of 100 biggest companies is near or above 50 percent. Meanwhile, these 400 biggest companies operating in four sectors (100 in each sector), taken together, generate more than 30 percent of the total proceeds of all Russian companies (*Table 13*). This proportional distribution pattern largely determines the prominent role of the state in the national economy.

Table 13

The by-sector distribution of companies depending on their proceeds and the input of the public sector

Sector	Public sector input (input of state corporations in total proceeds of top 100 companies in each sector), percent
Transport	83.0
Energy	70.9
Mineral resources extraction	70.0
Finance and insurance	46.8

Amenities	31.9
Machine-building, automobile building	30.9
IT, communications, mass media	22.7
Building construction and construction materials	18.4
Real estate activities	15.9
Education*	11.8
Healthcare*	11.5
Chemical production	9.3
Consulting, legal and other services, security services	8.5
Accomodation and food service activities	6.7
Other**	4.9
Metallurgy, metal product manufacturing, metal ore mining	4.4
Culture, arts, sports, lotteries*	3.5
Pharmaceutics	2.6
Forestry, logging, wood processing	1.3
Trade	1.1
AIC and food industry	1.0
Light industry	0.7

* Less the sector of budget-funded institutions.
** Including the incorrectly placed OKVED codes that actually belong to other groups.
Source: calculations based on sample data collected by the RANEPA Institute of Applied Economic Research.

The conclusion concerning the prevalence of the state in four sectors of the Russian economy is largely compatible with the trends observable in other major economies. As demonstrated by the OECD sample of 40 countries, in terms of personnel number and value, the highest relative shares of SOEs were noted in the infrastructure sectors (electricity, natural gas production and supply, transport, and telecommunications), as well as in the financial sector. In 2015, the input of personnel employed by infrastructure SOEs in the total number of personnel employed by SOEs across all countries, less China, on the average amounted to 70 percent; the input of infrastructure SOE in the total market value of companies with state stakes was 51 percent. The SOEs operating in the financial sector accounted for 26 percent of the total market value and 8 percent of the total number of personnel employed by all SOEs. Over the same year in China, infrastructure SOEs accounted for 56 percent of the total number of personnel and 25 percent of total market value in the SOE sector. The inputs of financial SOEs in China amounted to 11 percent of the total number of personnel and 58 percent of the total market value of all state-owned companies.

In view of the dramatic variance in the index describing the input of SOEs in total proceeds across different sectors of the Russian economy, it is necessary that this specificity be taken into account when planning further steps in the sphere of privatization and government property management. In those sectors where SOEs generate less than a third of total proceeds, the state may completely withdraw from their ownership structure, thus creating appropriate conditions for competition. As for the sectors like transport, energy, mineral resources extraction, finance, amenities, where SOEs generate the bulk of proceeds, the withdrawal of the state may be more gradual.

4.3.3. The public sector estimation

The estimation of the public sector's share in GDP, in addition to the input of SOEs, also includes the input of the general government sector (GGS). Overall, this sector can be defined as the input equivalent to the value of public services, paid or unpaid, produced for the benefit of society. If these are paid services, the amount of value added can be derived by adjusting the amount of proceeds by material costs (revenue method) or by incurring the value added components of expenditures (wages and salaries, and some other expenses). If services are free, they are valuated on the basis of compensation of employees.

However, the questions as to how the input of the GGS in GDP can be estimated, and how the corresponding indices can be compared across different countries, have remained open. By way of example, we can point to the estimation methodology employed by the IMF in its overview of the Russian economy.[1] Its results are shown in *Table 14*. The methodology is actually simple: in one variant, the revenue, and in the other – the expenditure of the consolidated budget is added to the corresponding indices of extrabudgetary welfare funds. In both variants, the relevant data are augmented by data on a few extrabudgetary units/entities and the value added indices estimated for 26 biggest state-owned companies. Revenues in the budgetary sector consist of taxes and social contributions, property incomes, revenues generated by the provision of paid services (or work), confiscation mandated by the law, gratis transfers to the budget, incomes generated by operations with assets, and some other types of revenues. Expenditures in the budgetary sector are made up of compensation of employees and the associated social contributions and benefits, purchase of work, services, debt servicing, gratis transfers to organizations and other budgets, welfare expenditures, and some other expenditure types. The records of revenues and expenditures in the budgetary sector are kept by the Federal Treasury and are reflected in public reports in the form of consolidated financial reporting data of public-legal entities of the Russian Federation, budget-funded and autonomous institutions.

IMF experts have come to the conclusion that, taken together with the SOE sector, the input of the GGS in Russia's GDP amounts to 68 percent, which is significantly above the corresponding estimates for other countries. Thus, for example, in one of the IMF publications[2] it is stated that in the majority of developing countries, the input of the private sector in GDP is 60 percent, i.e., the share of the public sector is no more than 40 percent. According to another publication,[3] the input of the private sector in China's GDP is likewise 60 percent, while that of the public sector is only 40 percent.

In our opinion, the input of the GGS in Russia's GDP as shown here is grossly overestimated. Some components of the aggregate revenue and expenditure indices reflected in the Federal Treasury's reports are not directly linked to the value added actually created by the general government sector in the national economy. Thus, for example, the expenditure index here includes the social benefits paid to households, the cost of work and services bought from other sector of the economy, debt servicing, and operations with assets, those being the items that it would have been more logical to enter in the report as part of revenues received by other sectors of the economy. The revenue side also includes tax receipts, social security contributions, property incomes and other payments, which are then redistributed in favor of households and businesses, and so they can hardly be treated as the value added created by the GGS. In this case, the GGS acts as an intermediary in the distribution of these resources. Consequently, its value added consists only of the expenses incurred in the course of its upkeep (the upkeep of government units and budget-funded institutions), and of the even smaller amount of the value added created as a result of production of paid services by government units or budget-funded institutions.

[1] Hughes R., Josephs T., Karolova V., Krivenkov V., Ljungman G. Russian Federation: Fiscal transparency evaluation. // IMF Country Report. No 14/134. 2014.

[2] IMF Survey: IMF Facilitates Debate on Private Sector, Growth, Jobs in Mideast. IMF Survey. November 27, 2013. URL: https://www.imf.org/en/News/Articles/2015/09/28/04/53/socar112713a.

[3] Ding H., He H. A Tale of Transition: An Empirical Analysis of Economic Inequality in Urban China, 1986–2009. // IMF Working Paper. WP/16/239. 2016.

Table 14

Russia: IMF estimates of public sector institutions and finance in 2012, percent of GDP

	Number of units	Revenue[1]	Expenditure[1]	Difference[2]	Net transfer input	Net difference
		1	2	3 = 1 – 2	4	5 = 3 – 4
I. General government (consolidated data)	**40,063**	**44.4**	**41.4**	**3.0**	**-0.8**	**3.8**
Central government (consolidated data)	**16,878**	**30.4**	**27.7**	**2.7**	**-4.0**	**6.6**
Consolidated budget of central government	12,402	22.4	20.2	2.2	-11.5	13.7
Budget-funded and autonomous institutions	4,389	2.5	2.7	-0.3	0.3	-0.6
Welfare funds	87	13.5	12.7	0.7	7.3	-6.5
Governments of RF subjects (consolidated data)	**23,185**	**25.0**	**24.6**	**0.4**	**3.2**	**-2.8**
Governments of RF subjects	83	16.3	16.1	0.3	-1.1	1.3
Local self-government	23,102	8.6	8.5	0.1	4.2	-4.1
II. State-owned companies (consolidated data)	**41,891**	**28.6**[3]	**28.6**[3]	**-0.1**	**0.8**	**-0.9**
Unitary enterprises	22,440					
State corporations	308					
Joint-stock companies	8,344					
Other state-controlled units	10,799					
III. Public sector (consolidated data)	**81954**	**71.3**	**68.3**	**3.0**	**0.0**	**3.0**

[1] Consolidated revenue/expenditure at subsector and sector level, including internal flows between subsector/sector.

[2] Net borrowing / lending.

[3] Estimations by IMF experts are based on the annual reports of 26 biggest state-owned companies.

Source: Hughes R., Josephs T., Karolova V., Krivenkov V., Ljungman G. Russian Federation: Fiscal transparency evaluation. // IMF Country Report. No 14/134. 2014. P.15.

Thus, the IMF estimations based on consolidated financial data reported by the Federal Treasury need, at least, to be seriously adjusted. These adjustments will be discussed below, together with the possible variants of calculating the input of the GGS in GDP.

It seems that in order to obtain more correct results, we should compare the quantitative parameters of *three different variants of measuring the input of the GGS in GDP*.

Variant 1 relies on GGS estimations based on the production account in the system of national accounts (SNA). This approach is simpler than that applied by IMF experts. In the production account, Rosstat reflects the value of the input of the GGS in GDP, calculated by the revenue method. Of course, it can be argued, as a separate issue, if indeed all the units financed by the government are actually included in the general government sector in the system of national accounts. Nevertheless, it should be admitted that the value added created by the GGS is being entered in records, and moreover, these records are kept in accordance with the international accounting standards. In other words, the GGS indices derived on the basis of the SNA for Russia may indeed be applied in international comparative studies of the scope of the public sector in different countries.

Variant 2 relies on the method applied by [Hughes R. et al., 2014][1]. However, in contrast to the estimations by the IMF, where the index is shown only as of 2012, we calculated its movement pattern, by applying the same methodology, over the period from 2011 through 2016, i.e., the entire period for which the initial reporting data are available on the Federal

[1] Hughes R., Josephs T., Karolova V., Krivenkov V., Ljungman G. Russian Federation: Fiscal transparency evaluation. // IMF Country Report. No 14/134. 2014.

Treasury's official website. The slight deviation of our results for 2012 from the corresponding estimations obtained by the IMF can probably be explained by the subsequent corrections entered by the Federal Treasury in its reports.

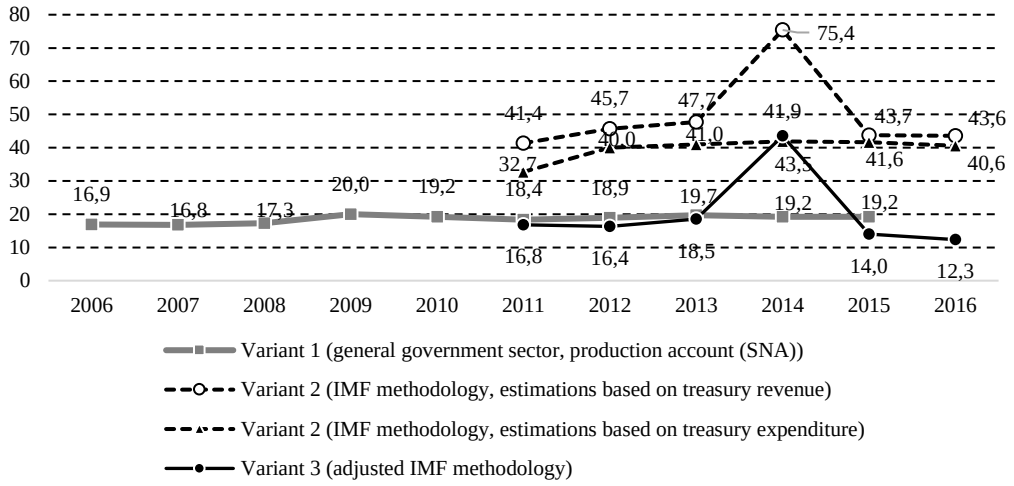
Variant 3 implies the use of the same method as applied by the IMF, with certain adjustments. Thus, the input of the GGS is estimated not on the basis of the total sum of the budgetary system's revenue and expenditure, but only the items 'compensation of employees', 'employers' social contributions', 'other expenses' and 'before tax operational result'. These indices, in our opinion, more accurately describe the amount of value added created by the GGS.

The calculated results based on all the three variants are shown in *Fig. 26* and in *Annex 3*. As can be seen in *Fig. 26*, the estimated input of the GGS in GDP in Variant 2 is significantly higher than the corresponding values obtained in Variants 1 and 3. At the same time, these values (Variants 1 and 3) are relatively close. Thus, in 2015, the input of GGS in GDP was 41.6 percent in Variant 2, 19.2 percent in Variant 1, and 14.0 percent in Variant 3.

The different variants of calculating the input of the GGS demonstrate notably different movement patterns of that index. While in accordance with the estimations based on the IMF methodology (Variant 2) the budget-funded sector's input in GDP increased from 32.7 percent in 2011 to 40.6 percent in 2016, or by 7.9 percentage points, the estimations for the same period based on the adjusted methodology demonstrate a plunge from 16.5 to 12.3 percent. This can be explained by the accelerated growth, after 2008, of the government expenditure component – the transfers earmarked for the payment of social benefits to households – that in accordance with the adjusted methodology is not included in total government expenditure.

In our opinion, out of the three variants, the most reliable one is the estimation of the input of the GGS in GDP in Variant 1, which is based on Rosstat's official statistics reflecting the value of services produced by the public sector of the economy and entered in the production account. These data are obtained directly from the reports submitted by organizations operating in the budget-funded sector of the economy, in accordance with the established international standards of the System of National Accounts. They are comparable with similar estimations recognized in other countries, available for a longer period, and on the average are close to data derived from indirect estimations of the input of the GGS in Variant 3.

In *Fig. 27*, the input of the GGS in Russia's GDP, as estimated in Variant 1 for 2015, is compared with the corresponding indices for 39 countries. Russia's index amounts to 19.2 percent of GDP, which roughly corresponds to the average index for this group of countries. Thus, the average for the OECD sample is 19.7 percent, and that for the 28 member states of the European Union – 18.6 percent. The highest input of the GGS is noted in the Scandinavian countries (Finland, Denmark, Iceland, Sweden and Norway), where it amounts to 28.4, 27.8, 26.6, 26.1 and 24.8 percent of GDP respectively. The lowest input of the GGS is observed in India, Ireland, Mexico, Germany and South Korea, where it amounts to 12.2, 12.2, 12.6, 14.3 and 14.3 percent of GDP respectively.



Note. In Variants 2 and 3, due to the limitations of the published reports of the Federal Treasury, data are available only for the period 2011-2016 [URL: http://datamarts.roskazna.ru/razdely/konsolidirovannye-dannye-po-ppo-i-uchr/konsolidirovannyj-finansovyj-rezultat-publichno-pravovyh-obrazovanij-rf-budjetnyh-i-avtonomnyh-uchrezhdenij/?paramPeriod=2016]. Variant 2, in accordance with the IMF methodology, is based on the total revenue and expenditure index. In Variant 1, data for the period 2006-2015 were taken from the reports for each institutional sector based on the SNA [URL: http://www.gks.ru/bgd/regl/b17_15/Main.htm]. The revenue surge in Variants 2 and 3 can probably be explained by the entry of proceeds of sales, by the RF Government, of foreign currency from the RF Reserve Fund.

Fig. 26. The inputs of GGS in GDP estimated in accordance with different methodologies, percent

Source: calculations based on sample data collected by the RANEPA Institute of Applied Economic Research.

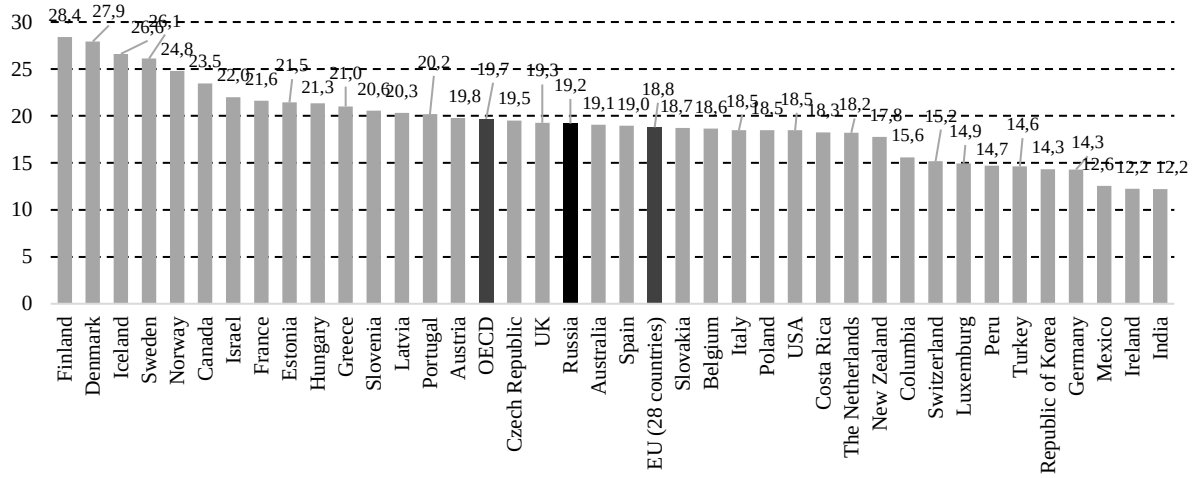


Fig. 27. The input of the GGS in GDP in 2015 across different countries, percent

Source: calculations based on data released by OECD.Stat [https://stats.oecd.org/], for Russia – based on data released by SNA Rosstat [URL: http://www.gks.ru/bgd/regl/b17_15/Main.htm].

Table 15 and *Fig. 28* demonstrate the movement patterns of the input of the GGS in GDP across the same 39 countries and Russia over the period from 2006 through 2015. In Russia, the input of the GGS in GDP increased from 16.9 percent in 2006 to 19.2 percent in 2016, or by 2.3 percentage points. The arithmetic mean for the OECD member states over the entire

11-year period remained stable, at a level close to 19.2 percent in 2006, or 19.7 percent in 2015. The average input of the GGS in GDP across the 28 member states of the European Union over the same period changed from 18.4 to 18.8 percent. Thus, in accordance with this criterion, Russia's index in 2015 was at the same level as in the high-income countries. The movement patterns of the inputs of the GGS in GDP in the major developing economies over the period 2006–2016 were multi-vectored. In India, this index plunged from 19.5 percent in 2006 to 12.2 percent in 2016; in Poland – from 19.5 to 18.5 percent respectively. It moved in the opposite direction in Mexico, rising from 10.6 percent in 2006 to 12.6 percent in 2016, and in South Korea, rising from 13.7 to 14.3 percent respectively. Thus, in Russia, the growth rate of the input of the GGS in GDP over the period under consideration (by 2.3 percentage points) was one of the fastest in this group of countries. By meeting this criterion, the Russian economy reached the level of developed economies (OECD member states).

Table 15

The input of GGS in GDP in different countries over the period 2006–2015, percent

	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
1	2	3	4	5	6	7	8	9	10	11
Australia	17.7	17.6	17.9	18.4	18.1	18.3	18.4	18.2	18.4	19.1
Austria	20.1	19.4	19.9	21.3	21.1	20.5	20.4	20.4	20.2	20.2
Belgium	17.6	17.3	17.9	18.9	18.5	18.6	19.0	19.3	19.1	18.6
Canada	21.6	21.7	22.1	24.5	23.9	23.5	23.4	23.3	22.8	23.5
Czech Republic	20.8	20.0	20.1	21.5	21.3	20.7	20.3	20.6	20.0	19.5
Denmark	26.2	26.2	27.0	30.1	29.6	28.8	28.8	28.4	28.2	27.9
Estonia	17.2	17.1	19.8	22.3	21.4	19.8	19.6	20.1	20.7	21.5
Finland	25.2	24.6	25.6	28.7	28.7	28.4	29.2	29.6	29.5	28.4
France	20.8	20.5	20.6	22.0	21.9	21.7	21.8	22.0	21.9	21.6
Germany	13.4	13.1	13.4	14.6	14.5	14.3	14.4	14.5	14.4	14.3
Greece	20.2	20.7	20.9	23.1	22.1	21.2	21.7	20.8	20.9	21.0
Hungary	21.7	21.0	21.7	22.5	22.1	21.1	20.9	20.9	21.3	21.3
Iceland	26.6	25.9	26.5	27.7	27.7	27.6	27.7	27.3	27.2	26.6
Ireland	16.3	16.8	18.6	20.1	19.0	18.3	17.5	16.8	15.9	12.2
Israel	23.8	23.0	22.9	22.5	22.3	22.1	22.4	22.2	22.2	22.0
Italy	18.5	18.1	18.6	19.7	19.5	18.9	19.0	19.2	18.9	18.5
South Korea	13.7	13.8	14.4	14.7	13.9	13.9	14.1	14.3	14.4	14.3
Latvia	19.8	19.5	21.7	21.8	21.1	20.6	19.7	19.9	20.0	20.3
Luxembourg	14.0	13.4	13.9	15.5	15.0	14.7	15.3	15.2	14.7	14.9
Mexico	10.6	10.6	10.9	12.1	11.7	11.6	11.9	12.3	12.3	12.6
The Netherlands	18.0	17.8	18.2	19.9	19.8	19.3	19.3	19.1	19.0	18.2
New Zealand	17.8	17.6	18.8	18.9	18.7	18.6	18.4	17.9	17.8	17.8
Norway	19.6	20.1	19.7	22.9	22.7	22.2	22.1	22.5	23.3	24.8
Poland	19.5	19.1	19.5	19.4	19.8	18.7	18.5	18.6	18.8	18.5
Portugal	21.4	21.0	21.3	22.8	22.2	21.6	20.4	21.0	20.4	19.8
Slovakia	17.3	15.8	15.5	18.2	17.7	17.6	17.4	17.8	18.2	18.7
Slovenia	19.5	18.3	19.1	21.1	22.0	22.5	22.4	21.7	20.8	20.6
Spain	16.5	17.1	18.1	19.6	19.7	19.8	19.3	19.3	19.1	19.0
Sweden	26.2	25.6	26.2	27.5	26.3	26.1	26.8	27.0	26.7	26.1
Switzerland	13.9	13.5	13.8	14.7	14.5	14.6	14.9	15.1	15.1	15.2
Turkey				15.3	15.3	14.4	15.1	14.8	14.8	14.6
UK	19.7	19.6	20.4	22.0	21.7	20.8	20.5	19.9	19.5	19.3

Cont'd

1	2	3	4	5	6	7	8	9	10	11
USA	19.1	19.3	20.2	21.3	21.2	20.7	20.0	19.3	18.8	18.5
OECD – arithmetic mean	19.2	18.9	19.5	20.8	20.5	20.0	20.0	20.0	19.9	19.7

European Union (28 countries)	18.4	18.2	18.7	20.1	19.8	19.4	19.4	19.4	19.1	18.8
Brazil					19.2	19.0	18.9	19.3	19.5	
Peru		11.6	11.6	13.4	12.6	12.1	12.8	13.4	14.2	14.7
Columbia	14.0	13.9	14.0	14.9	15.0	13.8	14.3	15.1	15.2	15.6
Costa Rica	13.7	13.4	14.2	16.4	17.4	17.7	17.8	18.4	18.2	18.3
India	19.5	18.2	16.6	16.2	15.9	14.4	12.2	11.8	11.4	12.2
SAR			22.5	24.1	24.5	24.4	24.7	24.8	24.9	
Russia	16.9	16.8	17.3	20.0	19.2	18.4	18.9	19.7	19.2	19.2

Source: calculations based on sample data collected by the RANEPA Institute of Applied Economic Research.

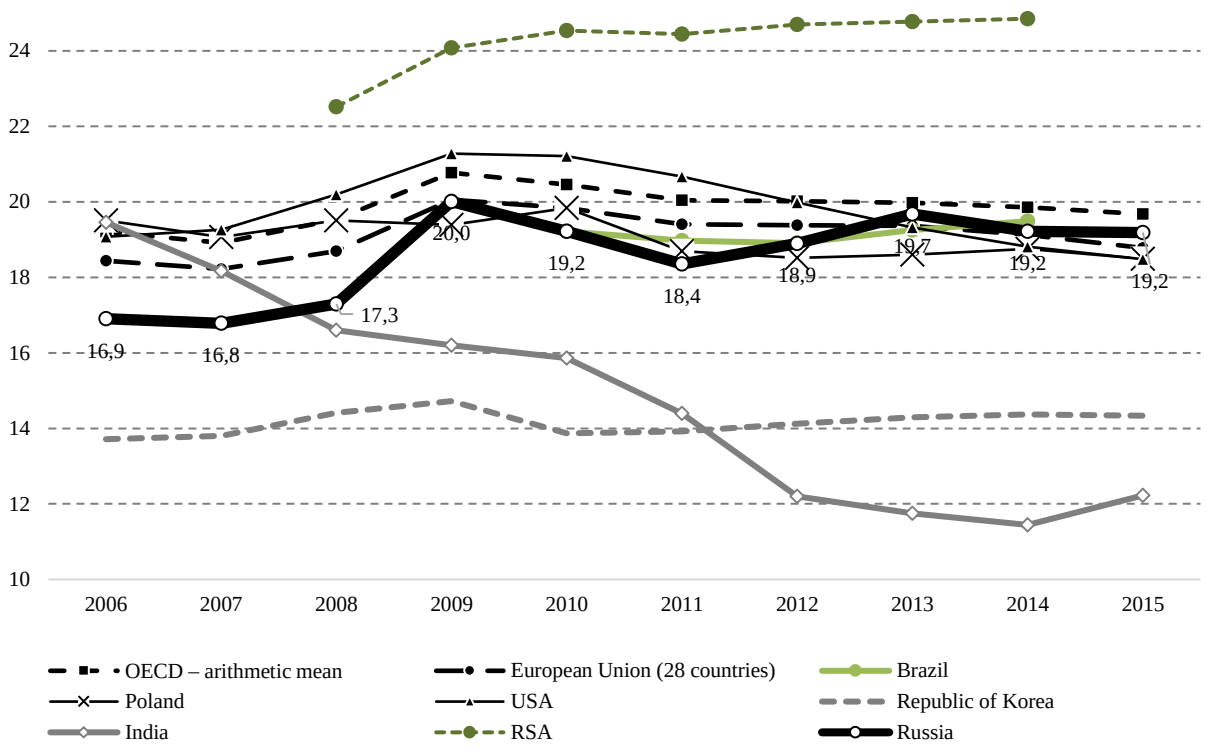


Fig. 28. The input of the GGS in GDP in 2006–2015, percent

Source: calculations based on data released by OECD.Stat

Thus, the index that most closely reflects the input of the GGS in GDP is the one calculated on the basis of the production account in the SNA.

4.3.4. The aggregate estimation of the public sector in Russia's economy

The aggregate estimation of the input of the public sector in GDP consists of three components: the input of SOEs; the input of the GGS; and the input of value produced by state unitary enterprises (SUEs). These three components are shown in *Fig. 29*. The bulk of the total input, relative to the size of the public sector, belonged to SOEs, their input in GDP (conservative estimation) increased from 20.2 percent in 2006 to 25.3 percent in 2016. The input of the GGS over the same period also increased, from 16.9 to 19.2 percent. The input of SUEs, on the contrary, shrank from 2.5 to 1.5 percent, which was the upshot of the government

policy aimed at gradual elimination of this organizational legal form, because it usually performs inefficiently.

More detailed statistics describing the input of the public sector (and its various components) in GDP are presented in *Annex 3*.

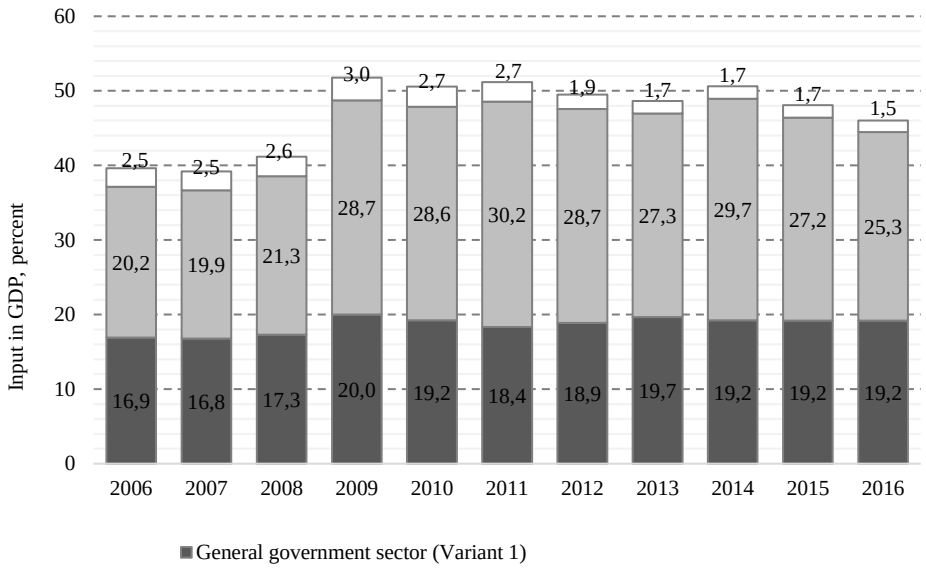


Fig. 29. The components of the input of the public sector in Russia's GDP in 2006–2016, percent

Source: calculations based on sample data collected by the RANEPA Institute of Applied Economic Research.

The total input of the public sector in GDP, including the inputs of SOEs, SUEs and the GGS, increased from 39.6 percent in 2006 to 46.0 percent in 2016 (*Fig. 30*). In this connection, the movement pattern displayed by this index reveals several regularities. The most robust growth rate was observed after the financial crisis of 2008 – from 41.2 percent in 2008 to 51.8 percent in 2009, in part in response to the government measures designed to support those SOEs that were important for the smooth functioning of the entire system, and primarily the big ones; the other growth-triggering factor was the rapid recovery of prices for raw materials in the international markets. The shrinking input of the public sector from 50.6 percent of GDP in 2014 to 46.0 percent in 2016 was caused by the reduced input of SOEs in GDP resulting from the plunging prices of mineral resources and the ruble's weakening. All these changes demonstrate that the most volatile component of the public sector's input in GDP is that of SOEs, which are very susceptible to the shocks in foreign raw materials markets, and this pass-through effect is reflected in the GDP index.

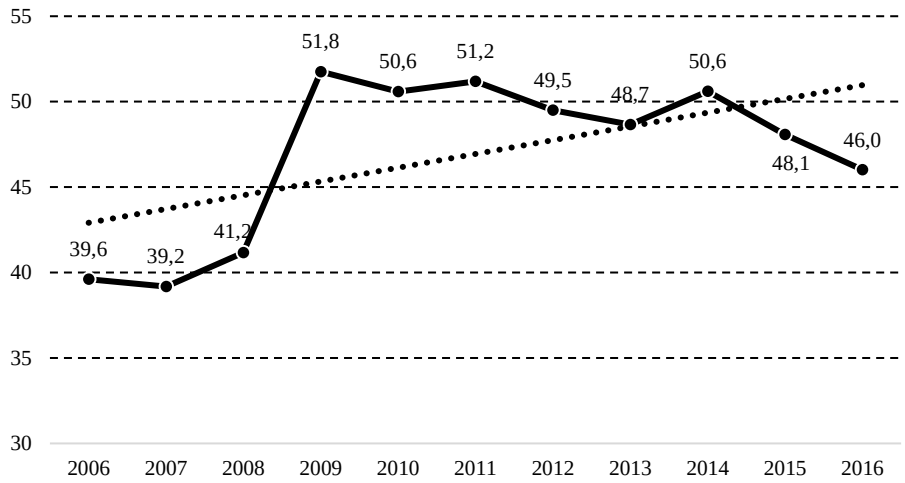


Fig. 30. The total input of the public sector in Russia's GDP in 2006–2016, percent

Source: calculations based on sample data collected by the RANEPA Institute of Applied Economic Research.

In a number of studies, the input of the public sector in GDP is estimated to be higher that it follows from the calculations presented here. According to the estimates[1] released by the RF Federal Antimonopoly Service (FAS), the aggregate input of government units and state-owned companies in Russia's GDP in 2015 amounted to approximately 70 percent, whereas in 2005 this index had been not higher than 35 percent. At the same time, the FAS, regretfully, does not disclose the methodology applied in its calculations. According to the calculations published by the IMF,[2] the size of the public sector in Russia, including budget-funded organizations, as of 2012 was estimated to be 68 percent (the share of SOEs being about 28 percent and that of the GGS -40 percent of GDP).

Besides, our estimations of the input of the public sector in GDP turned out to be somewhat higher than the corresponding index (35 percent in 2010) derived by the EBRD[3].

In China, according to the IMF, this index IMF is about 40 percent. In the IMF publication it is stated[4] that in the majority of developing countries the input of the private sector in GDP is 60 percent, i.e., that of the public sector is not more than 40 percent. If we look at the corresponding index for Russia after the 2008 crisis, when it was at 51.8 percent in 2009 and 46.0 percent in 2016, it can be noticed that its value is 6–12 percentage points above the level considered to be typical of the countries with developing markets. This gap could be even wider, given the lack of transparency in the defense-industrial complex and some other non-public segments of the Russian economy.

[1] Report on the State of Competition in the Russian Federation for the Year 2015. Moscow. Federal Antimonopoly Service. 2016.

[2] Hughes R., Josephs T., Karolova V., Krivenkov V., Ljungman G. Russian Federation: Fiscal transparency evaluation. // IMF Country Report. No 14/134. 2014.

[3] According to EBRD data, the input of the public sector of Russia's economy in GDP increased from 30 percent in 2005 to 35 percent in 2010. These data are very instructive from the point of view of tracing the input's dynamics, it should be said, however, that as far as the scope of the Russian public sector is concerned, they appear to be understated [Crisis and Transition: The People's Perspective. Transition Report 2011. EBRD, 2011.).

[4] IMF Survey: IMF Facilitates Debate on Private Sector, Growth, Jobs in Mideast. IMF Survey. November 27, 2013. URL: https://www.imf.org/en/News/Articles/2015/09/28/04/53/socar112713a.

The upward trend displayed in 2006–2016 by the input of the public sector in Russia's GDP is an alarming phenomenon. It should be noted that this upward movement happened due to the increasing number of both SOEs and the expansion of the GGS. Unfortunately, due to absence of systematic data on the public sector in other economies, we cannot say just how typical this trend has been on an international level. However, as was mentioned earlier, India in recent years has been demonstrating shrinking inputs not only of the public sector (from 17.5 percent in 1993–1994 to 13.1 percent in 2006–2007), but also of the GGS (from 19.5 percent in 2006 to 12.2 percent in 2016). In China, over a 20-year period that ended in 2015, the input of SOEs in total industry's value added shrank from 40 to 16 percent.

At the same time, the methodology for estimating the input of the public sector in GDP presented here cannot be regarded as a sufficient tool to be employed in assessing the overall role of the state in a national economy. Rather, it assesses the role of the state as a direct participant in the new value creation process. However, in addition to that role, the state can also actively participate, e.g., in redistributing primary incomes across the institutional sectors of the economy, or financial resources across society, and these functions should be borne in mind when attempting a comprehensive study of the direct and indirect influence of the state in the economic sphere.

Annex 1

The capitalization, employee numbers and proceeds of Russian SOEs over the period 2006–2016

	Measur. units	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1.1. Russian stock market capitalization	billion s of rubles	25,482	32,740	11,017	23,091	28,975	24,551	24,657	25,256	22,838	28,733	37,748
1.2. Capitaliza-tion of SOEs	billion s of rubles	12,747	15,759	4,444	12,082	13,283	11,544	11,851	11,759	10,435	10,596	18,366
1.3. Input of SOEs in total capitalization index	percent	50.0	48.1	40.3	52.3	45.8	47.0	48.1	46.6	45.7	36.9	48.7
2.1. Number of employed persons in total economy	thousands of persons	67,174	68,019	68,474	67,343	67,493	67,644	67,968	67,901	67,813	68,495	68,400
2.2. Number of persons employed by SOEs	thousands of persons	1,573	1,755	2,142	2,557	2,964	3,085	3,279	3,920	4,010	3,672	3,951
2.3. Input of SOEs in total number of employed persons, percent	percent	2.3	2.6	3.1	3.8	4.4	4.6	4.8	5.8	5.9	5.4	5.8
3.1. Proceeds, total economy	billion s of rubles	60,460	75,281	87,605	83,450	102,597	120,183	140,774	174,224	185,319	207,014	234,302
3.2. Proceeds of SOEs	billion s of rubles	5,564	6,798	8,463	10,898	13,360	16,488	18,342	21,607	25,035	25,586	26,933
3.3. Input of SOEs in total proceeds	percent	9.2	9.0	9.7	13.1	13.0	13.7	13.0	12.4	13.5	12.4	11.5

Source: calculations based on sample data collected by the RANEPA Institute of Applied Economic Research.

Annex 2

The input of the state in the economy (less the sector of budget-funded institutions)

Industry	Total proceeds of 10,000 biggest companies (billion s of rubles)	Total proceeds of 100 biggest companies (billion s of rubles)	Concentration (input of proceeds of top 100 companies in total proceeds of top 10,000 companies), percent	Total proceeds of top 100 state-controlled companies, by sector				Input of total proceeds of state-controlled companies (out of top 100) in total proceeds of top 100 companies in each sector, percent
				companies controlled by RF (billions of rubles)	companies controlled by RF subjects (billions of rubles)	companies controlled by municipalities (billions of rubles)	SOEs, TOTAL (billions of rubles)	
1	2	3	4	5	6	7	8	9
Fishing	332	239	72	-	-	-	-	0.0
Forestry and logging	224	107	48	0.4	2.5	-	2.9	2.7
Crop and animal production	2 527	763	30	16.3	14.2	-	30.5	4.0
Coal mining	870	830	95	5.2	-	-	5.2	0.6
Crude oil and natural gas production	26,760	22,819	85	16,978.3	-	-	16,978.3	74.4
Metal ore mining	1,109	999	90	1.5	-	-	1.5	0.2
Other mineral resources extraction	546	442	81	195.3	0.5	0.7	196.6	44.4
Mineral resources extraction - servicing	1,292	1,031	80	410.4	-	-	410.4	39.8
Foodstuff manufacturing	4,931	2,036	41	-	-	-	-	0.0
Beverage manufacturing	787	637	81	8.5	13.8	-	22.4	3.5
Tobacco product manufacturing and sales	1,363	1,362	100	-	-	-	-	0.0
Textiles	197	120	61	1.4	-	-	1.4	1.2
Clothing	220	126	57	0.5	-	-	0.5	0.4
Leather products	74	60	81	0.3	-	-	0.3	0.5
Paper	517	394	76	-	-	-	-	0.0
Wood processing	513	282	55	4.7	1.5	-	6.2	2.2
Printing	291	159	55	4.5	0.6	-	5.1	3.2
Furniture	269	125	46	-	-	-	-	0.0
Petroleum products	2,941	2,913	99	389.7	-	-	389.7	13.4
Chemical production	2,410	1,857	77	98.4	-	-	98.4	5.3
Rubber & plastic products	1,015	455	45	-	-	-	-	0.0
Pharmaceuticals (manufacturing and sales)	2,339	1,683	72	5.8	37.4	-	43.2	2.6
Cement, glass and other biulding construction material manufacturing	1,467	503	34	20.9	-	-	20.9	4.2

Cont'd

1	2	3	4	5	6	7	8	9
Metallurgy	4,655	4,271	92	168.5	66.2	-	234.6	5.5
Metal product manufacturing	1,316	459	35	17.1	-	-	17.1	3.7
Machine-building, electronic, optical, electrical equipment manufacturing	4,006	1,803	45	1,002.8	-	-	1,002.8	55.6
Transportation equipment manufacturing and sales	2,552	2,328	91	334.0	-	-	334.0	14.3
Other finished products	257	166	65	14.5	-	-	14.5	8.7
Machinery and equipment repair and assembly	732	313	43	65.5	5.7	-	71.1	22.7
Electricity, gas, steam supply	7,651	5,044	66	3,394.6	183.0	-	3,577.6	70.9
Water supply	402	246	61	-	106.6	71.9	178.5	72.6
Waste management and remediation activities	753	385	51	20.5	2.5	-	22.9	6.0
Construction	10,118	2,881	28	495.3	106.4	-	601.7	20.9
Trade	31,122	8,805	28	97.7	-	-	97.7	1.1
Transportation and storage	10,718	6,731	63	5,405.7	180.2	-	5,585.9	83.0
Accomodation and food service activities	1,087	473	43	16.8	12.0	2.9	31.7	6.7
IT and communications, mass media	3,954	2 447	62	547.9	7.9	-	555.8	22.7
Finance and insurance	15,593	13,574	87	6,348.8	-	-	6,348.8	46.8
Real estate activities	2,593	550	21	53.5	21.6	12.6	87.8	15.9
Consulting, legal and other services, security services	2,708	447	17	34.1	3.9	-	38.0	8.5
Education*	139	40	29	4.5	-	0.3	4.8	11.8
Healthcare*	591	191	32	8.3	13.6	-	22.0	11.5
Culture, arts, sports, lotteries*	286	148	52	3.3	1.8	-	5.1	3.5
Other**	5,640	2,034	36	100.4	-	-	100.4	4.9
TOTAL	***159,866***	***93,279***	**58**	***36,276***	***782***	***88***	***37,146***	**39.8**

* Less the sector of budget-funded institutions.

** Including incorrectly placed OKVED codes that actually belong to other groups.

Source: calculations based on data released by SPARK.

The estimated public sector's input in Russia's GDP in 2006–2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1. Gross domestic product, billions of rubles	6,917	33,248	41,277	38,807	46,309	60,283	68,164	73,134	79,200	83,233	86,044
2. General government sector											
2.1 Variant 1 – calculations based on production account (SNA) [a]											
billions of rubles	4,549	5,580	7,138	7,765	8,901	11,063	12,880	14,392	15,225	15,969	16,520[б]
percent of GDP	16.9	16.8	17.3	20.0	19.2	18.4	18.9	19.7	19.2	19.2	19.2[б]
2.2 Variant 2 – calculations based on IMF methodology[c]											
2.2.a Revenue side											
billions of rubles						24,937	31,152	34,867	59,718	36,400	37,479
percent of GDP						41.4	45.7	47.7	75.4	43.7	43.6
2.2.b Expenditure side											
billions of rubles						19,730	27,286	29,984	33,174	34,661	34,909
percent of GDP						32.7	40.0	41.0	41.9	41.6	40.6
2.3 Variant 3 – adjusted IMF methodology[d]											
billions of rubles						10,109	11,151	13,529	34,477	11,635	10,622
percent of GDP						16.8	16.4	18.5	43.5	14.0	12.3
4. value added of SOE, based on conservative estimations											
billions of rubles	5,450	6,605	8,773	11,149	13,266	18,194	19,539	19,954	23,538	22,632	21,760
percent of GDP	20.2	19.9	21.3	28.7	28.6	30.2	28.7	27.3	29.7	27.2	25.3
5. value added of state unitary enterprises (SUEs)[e]											
billions of rubles	665	841	1,079	1,172	1,260	1,604	1,322	1,235	1,319	1,409	1,307
percent of GDP	2.5	2.5	2.6	3.0	2.7	2.7	1.9	1.7	1.7	1.7	1.5
6. public sector value added – total[f]											
billions of rubles	10,664	13,026	16,989	20,085	23,428	30,861	33,741	35,581	40,082	40,018	39,587
percent of GDP	39.6	39.2	41.2	51.8	50.6	51.2	49.5	48.7	50.6	48.1	46.0

[a] SNA – System of National Accounts.

[b] Estimations for 2016.

[c] [Hughes R., Josephs T., Karolova V., Krivenkov V., Ljungman G. Russian Federation: Fiscal transparency evaluation. // IMF Country Report. No 14/134. 2014. P.15]. The input of government units was estimated as the total revenue and expenditure of the Consolidated Financial Result of Public-Legal Entities of the Russian Federation, Budget and Autonomous Institutions for 2012, published by the Federal Treasury.

[d] Calculations based on the Consolidated Financial Result of Public-Legal Entities of the Russian Federation, Budget and Autonomous Institutions, published online by the Federal Treasury since 2011. It contains data on compensation of employees and employers' social contributions, other expenses, and operational result before taxes.

[e] Calculations for those SUEs whose proceeds are recorded in the SPARK information system, with due regard to the total economy's average proceeds to value added ratio. These do not include several big SUEs (i.e., post office Russia, etc.); data for the latter are included in the SOE sample.

[f] The input of the general government sector in GDP is calculated in this table in accordance with Methodology 1.

Source: calculations based on sample data collected by the RANEPA Institute of Applied Economic Studies.