

**STRUCTURAL CHANGES IN THE GDP OF RUSSIA IN 1995-2015:
SECTORAL APPROACH**

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Abstract, The article provides the results of the analysis of structural changes in the Gross Domestic Product (GDP) of Russia for 15 years (from 1995 to 2015) from the point of view of types of the economic activity, contributing the most to the total GDP of the country: gross and retail sales, car and consumer equipment repair, manufacturing, transport and communication, real estate transactions, mining operations, construction. A special attention is paid to the impact of the economic crises of 1998 and 2008 on the GDP of Russia. In the course of the calculation the impact of every type of the economic activity and structural shifts in the GDP dynamics is assessed. The estimation of the impact of structural changes is made taking into account the conditions under which an optimal structure of the distribution of resources in the economy of Russia would correspond to the real one. The quantitative parameters of the structural shifts (share, index, velocity) are calculated. In order to determine the static and the sliding base the statistic methods were used.

Key words: real (nominal) gross domestic product, structure, type of economic activity, growth rate, stagnation, financial and economic crisis, structural policy.

1. Introduction

The structure of the national economy is not always constant: some industries and types of production are characterized by a rapid development, their share keeps growing, the others to the contrast slow their growth rates and stagnate. The structural changes both have a spontaneous character and are regulated from the part of the state in the course of the realization of the structural policy, being part of the macroeconomic policy. The basic management methods of the state structural policy are federal target programs, state investments, purchases and subsidies, various tax exemptions for enterprises, regions and groups of industries.

In the course of the transition from the planned economy to the market one the structural shifts in the Russian economy most vividly were manifested in the changes of proportions between industries. The process of emergence of new industries in the national economy and the proportion changes between industries was termed in scientific papers as the “transformation of the economic structure” which is reflected in

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structural shifts and is assessed by the dynamics of absolute weights in the production of the gross domestic product (GDP). The sectoral changes arising in the process of appearance of new technologies and knowledge lead to the changes of structural relations between the elements of the economic structure. They determine new goals and functions of the management and development, a new quality and management methods [Marjanovic, V. (2015)].

When studying structural changes in economic systems their quantitative parameters are used: weight, velocity and index which allow showing and managing structural changes and also allow forecasting the directions of the development of economic systems. Quantitative parameters of structural shifts should be assessed from two points of view: material and monetary ones. The structural shifts in the economy can be assessed only in relative indices, percents or weights (changes in structure always occur only in relation to something: other industries, regions and so on). The structural shifts in the economy are determined by changes in the demands and interests of some agents of groups regardless of their economic characteristics (quantity of working population, volume on investment or production) [Echevarria, C. (1997); Thakur K.S. (2011)].

2. Literature Review

The study of the methodology and techniques of the analysis of structural and sectoral changes in the national economic system, the assessment of their quality, the explanation of the influence of the economic crises of 1998 and 2008 on the sectoral structure of the GDP of Russia from the point of view of types of economic activities, priorities and goals of the modern structural policy of Russia was made in the works of the following Russian scientists: Bayer A., Belousov D.R., Krasilnikov O.Yu., Kuznetsova V.E., Lyakin A.N., Malkina M.Yu., Mitsek S.A., Mitsek E.B., Sivelkin V.A., Sukharev O.S., Yudina M.A. and others.

The theoretical and analytical aspects of the structural changes of the GDP under the influence of industrial disproportions, the international experience of the criteria of the structural policy are studied in the scientific papers of the following authors: Echevarria C., Foster-McGregor N., Marjanovic V., Singariya M.R., Thakur K.S., Verspagen B.

The informational and statistical base of the research became the data of the Federal Service for State Statistics of the Russian Federation and the authors' calculations.

The methodological base of the solution of scientific goals within the systematic and evolutionary approaches became the use by the authors of the general scientific and specific methods of research and knowledge: comparative method, subject and object method, historical and logical analysis, statistical method, method of expert estimation.

3. Results

3.1 Influence of the economic crises of 1998 and 2008 on the structure of the GDP of Russia.

The intensity and the orientation of structural changes in the Russian economy varied during the whole period of the post socialist development. The GDP is a generalized index that characterizes the scale of the economy of the country and the rate of the economic growth used for international comparisons. The GDP shows the

final result of the production activity of economic entities or residents which is calculated by the value of goods and services produced by these economic agents for final use.

According to the estimates of the Organization for Economic Cooperation and Development (OECD) and the Statistical Office of the European Community (Eurostat) for the period from 1995 to 2015 the highest rate of the GDP of Russia was observed in 2014 it was \$675,30 billion, and the index by 48.5% higher than its lowest rate of 1998 or \$327,60 billion. (Figure 1).

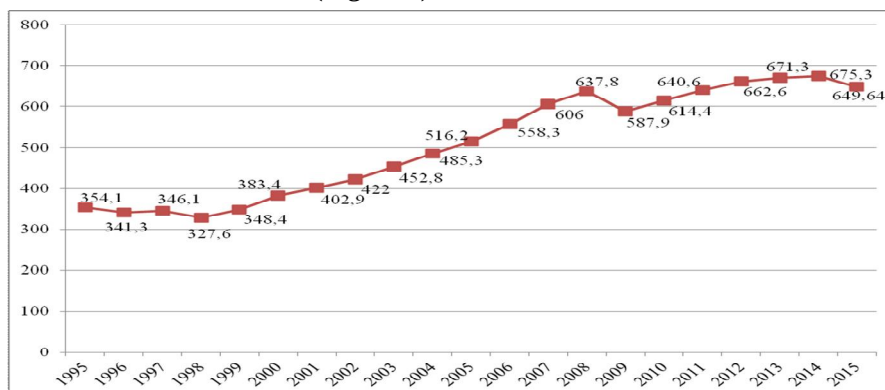


Figure 1. GDP of Russia in 1995–2015, billion \$ in constant prices

Source: made on the basis of the data: GDP of Russia. URL: <http://investorschool.ru/vvp-rossii-po-godam>.

In the Figure 2 the curve characterizing the change of the GDP of Russia from 1995 to 2015 in billion rubles is shown.

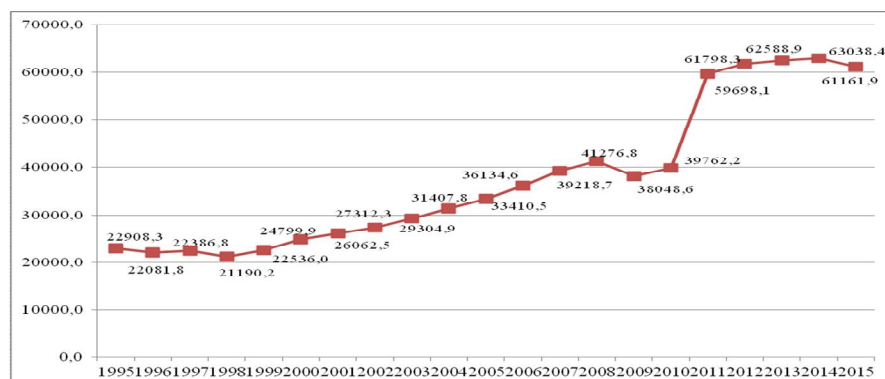


Figure 2. GDP of Russia, 1995-2015, billion rubles in constant prices

Source: made on the basis of the data: National accounting. Gross domestic product. Federal Service for State Statistics. URL: www.gks.ru. http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#.

Both the figures 1 and 2 have a similar wavelike look. The periods of the lowest rate of the GDP of Russia coincide also in the assessment of OECD and Eurostat and also in the estimates of the Federal Service for State Statistics of the Russian Federation.

The growth rates of the GDP of Russia during the analyzed period had both positive and negative values (Figure 3). The highest value (10.05%) was recorded in 2000 and the lowest (– 7.8%) in 2009.

In 1995-1996 the limitations of demand having a negative impact on the production of intermediate goods (equipment, construction materials) gave a negative

rate of the production of fuel and raw materials due to the impossibility to buy and to pay for them at the previous manufacturing level and also the negative rate was due to the contraction of supplies in the mining industries necessary for the support of the mining production.

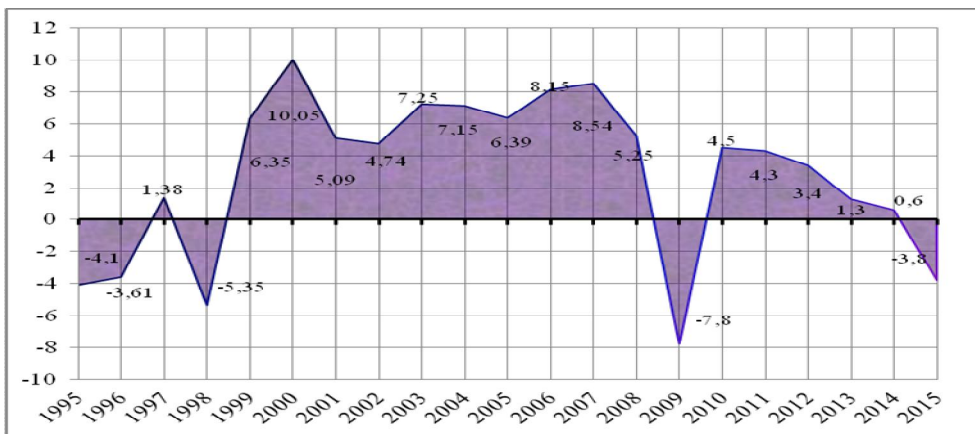


Figure 3. Growth rates of GDP of Russia in 1995–2015.

Source: made on the basis of the data: GDP of Russia. URL: <http://investorschool.ru/vvp-rossii-po-godam>

In the late 1990s the improvement of the environment in the world market allowed slightly increasing the production in raw material industries (chemical and metallurgical ones) and allowed stabilizing the production of the oil and gas.

By mid 1990s some positive structural changes were observed. It was the growth of the rate of the services in the GDP of Russia, the dynamic increase of the weight of the trade and food services, finance, credit and insurance; the considerable reduction of the volume and the weight of the military industrial complex in the GDP [Lyakin, A.N. (2013); Malkin, M.Yu. (2015); Yudina M.A. (2014)].

In 1995–2015 the most considerable fall of the GDP took place in the post crisis year of 2009 (92.2%) that became a direct consequence of the financial and economic crisis in Russia of 2008 and the considerable increase was observed in 2000 (110%) after the crisis of 1998 (Figure 4).

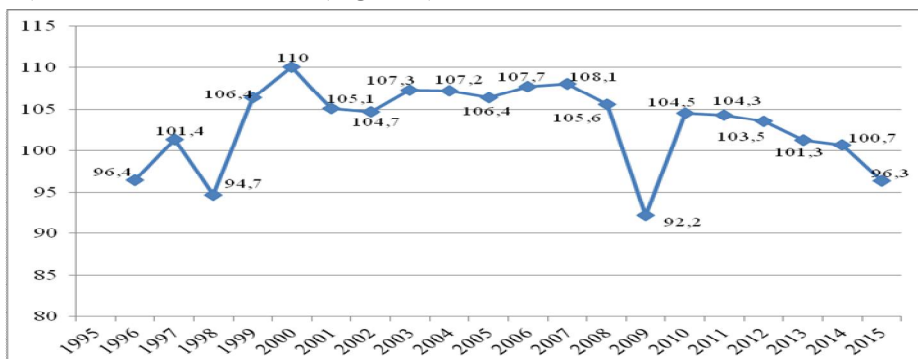


Figure 4. Dynamics of the real GNP of Russia in 1995–2015, % to the previous year

Source: made on the basis of the data: National accounting, Gross domestic product. Federal Service for State Statistics: www.gks.ru. http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#.

In general the considerable impact of two economic crises of 1998 and 2008 on the dynamics of the GDP of Russia is observed. The crisis of 1998 was the

consequence of the “economy of nonpayments”. The share of the production turnover in the monetary form in August of 1998 made up only 25% (50% was barter, 25% were defaults) and this consequently led to the stagnation of the production and the dilution of the income base of the budget. In May 1998 a new wave of decline was observed.

At the same time in 1998 a number of systematic resources for development existed that allowed the real sector of the economy adjusting promptly to a new macroeconomic situation. It included considerable (25–50%) reserves of idle production facilities and labour force; a low level of wages; considerable volume of the competing import of consumer goods of the lowest price group that was easily replaced by internal production; considerable price rent in export industries appeared as a result of the depreciation of the ruble that was later distributed between the export production and the government by means of the introduction of the export fine and the modernization of the payments system for natural resources; a low level of the monetization of the economy that provided a relatively low inflation index of the expansion of money supply; the degree of the load of the competitive part of production facilities in some industries that reached 90–95%.

Correspondingly the depreciation of the ruble led not only to a new wave of the economic excitement but also to an inflationary upswing. The inflation shock had as a result the contraction of the real inflationary and consumer demand, the reduction of the certainty of prospects of development of all economic agents.

In 1998 the most vulnerable chains of the Russian economy turned out to be those the development of which was expected to become the basis for the economic growth and the sustainability of the economic situation, i.e. banking sector and financial markets suffered from the withdrawal of liquidity from the market; quickly developing construction sector in cities; manufacturing especially investment oriented; budgetary system that had deficit when a number of expenses were cut [Belousov, D.R. (2010)].

Structural and industrial changes in the GDP of Russia in early 1990s took place at the background of the general crisis in the economy of Russia. The contraction of the military production by 65% was accompanied by the reduction of the manufacturing of the civilian production. The structural shifts that took place obviously had a negative impact. The weight of the light and food industries contracted sharply almost twice and the weight of the fuel and energy complex grew. The reduction of the production of the advanced technology products was observed in all the industries. The provision of the services to the population reduced faster than the production of the consumer goods. The share of the expenses for research and development decreased. The weight of the population working in the science and scientific service reduced. [Economic review (2009)].

Financial and economic crisis of 2008–2010 of Russia was part of the world financial crisis. According to the assessment of the World bank the Russian crisis of 2008 began as the crisis of the private sector triggered by excessive loans of the private sector under the conditions of the “triple shock”: changes of the conditions of the foreign trade, capital withdrawal, toughening of the conditions of foreign loans.

The “impact” of the global crisis in Russia was harder than in the economies of other countries. The main reasons are: “American financial catastrophe” which influenced negatively all the markets and financial systems of developing countries; oil

prices drop at the considerable dependence of Russia on its exports; political mistakes of the Russian government [Bayer, A. (2008)].

A specific factor in the development of the crisis in Russia was the existence of a considerable foreign debt of Russian companies which reached in the autumn of 2008 \$527 billion. According to the data of the Central bank of Russia the Russian companies were expected to pay in the fourth quarter 2008 to foreign creditors \$47.5 billion. In 2009 the sum of foreign debt payments was expected to be \$115.7 billion [Debt reserves (2008)]. Taking into consideration the percentage the Russian banks and companies which were supposed to pay the investors and creditors till the end 2009 (or \$163.2 billion) that made up one forth of all foreign liabilities of Russia.

A considerable negative impact for Russia as a netto exporter of the hydrocarbon raw materials became a sudden drop of the Urals oil price lower than 70 \$ per barrel (the level of oil price that was taken as a criteria in 2009 for a deficit free budget). The first who found problems with the financing were large Russian companies which were incapable of finding loans in western banks and the companies which were subject to forced sales of repurchase agreements as a result of the drop of the value of the shares mortgaged in banks for obtaining credits.

The development of the Russian economy in 2009 took place in the direction of the realization of two key decisions. First, this was the introduction of the upper limit of the fluctuation of the exchange rate of the national currency that found its reflection in the level of foreign exchange futures. Second, it was the transfer to the policy of “expensive money”: an average level of the discount rate of providing loans for credit organizations increased from 7.6% to 16% and the volume of loans offered by the Bank of Russia via auction reduced. This measure was taken for the reduction of the pressure on the currency market and for the inflation restraint. In 2009-2010 the dynamics of the money supply was observed both in the sales of currency for gold and foreign currency reserves and in crediting by the Bank of Russia of the commercial banks. Such a reduction was accompanied by the contraction of the money supply.

In 2001–2008 the dynamics of the growth of the real GNP of Russia was found in the span from 104.7% to 108.1% and beginning from 2008 a stable decrease of the dynamics of the real volume of the GNP and of the rate of growth of GNP which made up (–7.8%) took place. In 2015 the rate of growth of the GNP became almost equal to the GNP of 1996 and made up 96.3%. The growth rate of the GNP in that period was negative and made up (–3.8%). The financial and economic crisis of 2008 and 2009 led to structural changes in the economy of the Russian Federation [Belousov, D.R. (2010)].

On the one hand the dynamics of the industrial production was created under the influence of the reduction of the domestic demand and on the other hand it happened thank to a favorable situation in the foreign market for export oriented industries. The growth of the manufacturing of the export production contributed to a relative stability in the real sector of the economy. A number of industries (especially the gas industry) offset the contraction of the domestic demand by means of entering the foreign market.

The impact of the scientific and technical progress on the changes in the sector structure of the economy takes place in the form of the distribution of production resources and also publicly indispensable labour costs between different industries and activities. The basis of the changes of industrial weights of production is presented on

the one hand by technological shifts and on the other by the sophistication of social needs. [Mitsek, S.A., Mitsek, E.B., (2014); Sukharev, O.S., (2014); Foster McGregor, N., Verspuden, B. (2016); Singariya, M.R. (2014)].

3.2. Structural and industrial changes of the GDP of Russia: trends and specificity.

The transformation took place in the structure of the Russian economy in 1995-2014. New manufacturing industries appeared, the correlation between the existing industries changed. In order to find new regularities of the development of the structure of the economy it is necessary to analyze the structural changes in the intersectoral level.

The share of such type of the economic activity like gross and retail sales, car consumer equipment repairing in the total volume of the GDP in 1995 made up 18.8% and it was several times higher than the impact of other industries. All these types of activities up to date are remaining the leading industries. In 2003 their contribution reached the maximum of 22.1% but by 2014 the reduction to 17.3% took place.

In the manufacturing industries, construction, transport and communication the situation was similar. In 1995 these industries made correspondingly 16.9%, 12.3% and 9.2%. In 2014 the shares of the mentioned above industries were 15.6%, 8.7% and 6.5% correspondingly. The impact of the type of economic activity "Real estate transactions" on the GDP of Russia increased in 2014 in comparison with 1995 6 times. In 1995 it was 2.2%. In 2014 it made 12.2%. The minimal level was recorded in 1997 and made up 1.9%. The impact of the activity "extraction of mineral resources" grew by 1.8% in 2014 in comparison with 1995. In 2014 the weight was 10.3% and in 1995 it was 8.5% (Table 1).

Table 1. Dynamics of different types of economic activity (industries) in the formation of the GDP of Russia in 1995–2014, %

	1995	2000	2005	2008	2010	2014
S1: Trade Services	18,8	20,3	19,5	20,6	18,1	17,3
S2: Manufacturing	16,9	18,5	18,3	17,2	16,4	15,6
S3 T and C	12,3	10,4	10,2	9,4	9,7	8,7
S4 Real Estate	2,2	5,2	9,9	11,0	11,4	12,2
S5 Mining	8,5	8,9	11,1	9,2	10,4	10,3
S6 Construction	9,2	6,6	5,3	6,4	5,7	6,5
S7 Other	32,1	30,1	25,7	26,2	28,3	29,4
<i>Total</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>

Source of data and more detailed information at Table A1 in the Annex.

On the basis of the obtained data about the GDP of Russia in general and in industries in particular, the structural changes can be found in the analyzed types of the activity. For a more detailed idea about these structural changes that took place in the economy of the country from 1995 to 2014 let's use the method of structural shifts [Sivelkin, V.A., Kuznetsova, V.E. (2002)]. Let's analyze such parameters of the structural changes like weight, velocity and index of the structural change (Table 2, Figure 5) in the industries mentioned above industries (with the highest share in the total volume of the GDP).

Besides the evolution of the shares it is very important to see the evolution of

production per capita. As seen in Guisan(2014) The evolution of Russia and former USSR, for the period 2000-2010, was positive, with increase around 50% of production per head in manufacturing. That study estimated an econometric model showing the important positive impact of manufacturing on non manufacturing output. Besides it includes international comparisons of production, investment and savings per capita. Table A2 in the Annex shows the evolution of production per capita by sector in Russian Federation for the period 1995-2014.

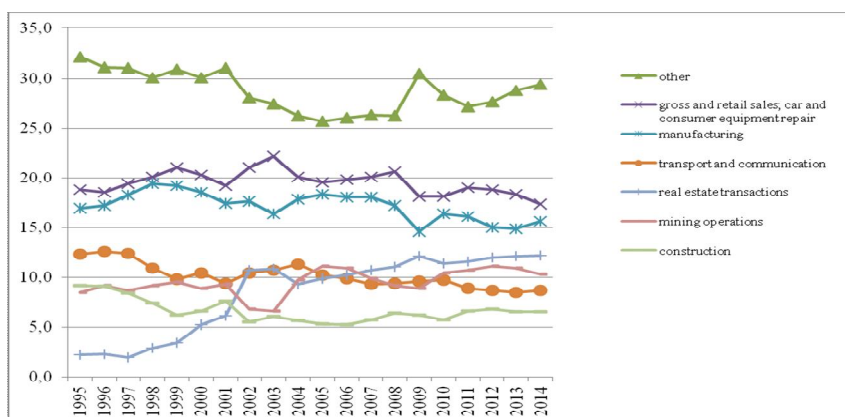


Figure 5. Change of the impact of types of economic activity (industries) in the creation of the GDP of Russia in 1995–2015, %

Source: made on the basis of the data: National accounting. Gross domestic product. Federal Service for State Statistics. URL: www.gks.ru.

http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

Table 2. Qualitative parameters of structural changes in the economy

Indices characterizing structural changes	Parameter	Formula
Weight of structural change	It is determined by a number of economic elements making up a structural change in the natural or monetary terms	$M = P - P_0$, is found like a difference of values of the analyzed index in the current year (P) or in base (P_0) in periods
Index of a structural change (I)	It shows the dynamics of the structure expressed as a percentage (%)	$I = \frac{M}{P_0}$ is calculated as a relation of the weight of the structural shift to the basic value of the economic index for a certain period of time
Annual average velocity of the structural change (V)	It reflects the tempus of the deceleration of the structural change or its acceleration in average for a year of period	$V = \sqrt[\tau]{\frac{P}{P_0}} - 1$

The indices of the weight of the structural change in the static base are negative for industries: gross and retail sales; car and consumer equipment repair;

manufacturing, transport and communication, construction. Their dynamics is questionable and changes from the growth to the slowdown. The lowest value was observed in 2006 in construction industry (−4,0%) (Figure 6) what shows the lowering of the share of the construction industry in the general volume of the GDP. For this industry the weight of the structural shift during the whole period under analysis has negative values confirming the crisis manifestations in it. The positive dynamics is observed in the industries “Mining operations” and “Real estate transactions” and the last index increased almost tenfold by 2014. For these industries the weight of the structural changes in the sliding base is positive and shows the best results.

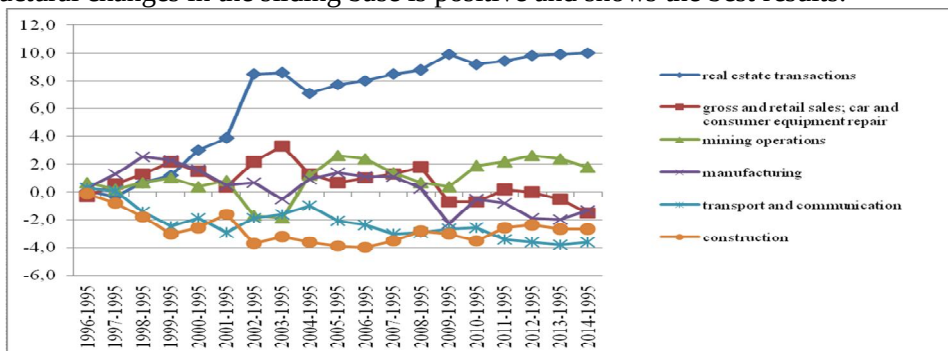


Figure 6. Dynamics of structural changes from the point of view of types of economic activity in the GDP of Russia (statistical base) in 1995–2015, %

Source: made on the basis of the data: National accounting. Gross domestic product. Federal Service for State Statistics. URL: www.gks.ru. http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

The value of the weight of the structural change in the sliding base has a various directional amplitude from (−3%) to (+5%) what shows the absence of a natural development and a high dependence of industries on the market situation (Figure 7). The indices of the structural changes in the GNP in the static base are located in the negative zone for industries 1, 2, 3, 6. The diagrams are presented by the curves whose shape changes from downswings to upswings that shows an uneven impact of the industries on the GDP (Figure 8).

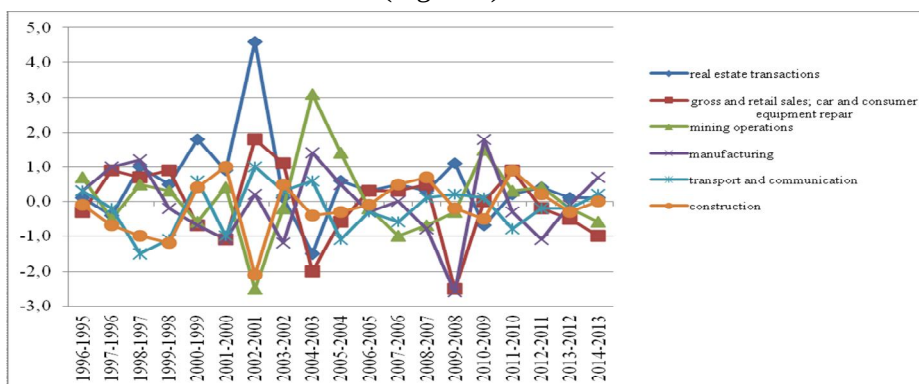


Figure 7. Dynamics of structural changes from the point of view of the weight of different types of economic activity in the GDP of Russia (sliding base) in 1995–2015, %

Source: made on the basis of the data: National accounting. Gross domestic product. Federal Service for State Statistics. URL: www.gks.ru. http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

During 1995–2015 structural changes in the economy of Russia took place. The weight of some industries increased (gross and retail sales, car and consumer goods

repairing) the weight of others decreased (construction, transport and communications).

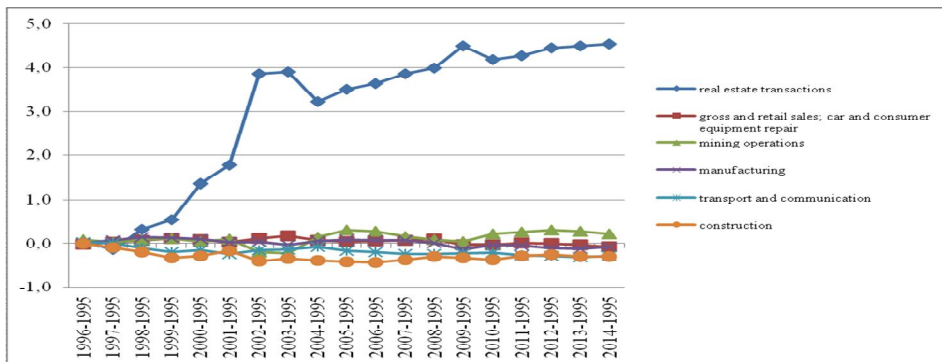


Figure 8. Index of structural changes from the point of view of types of economic activity in the GDP of Russia in 1995–2015, %

Source: made on the basis of the data: National accounting, Gross domestic product, Federal Service for State Statistics. URL: www.gks.ru. http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

The velocity of the changes in the GDP is decelerated in due course to (–1.5)% for the types of economic activity “Transport and Communications” and “Construction” and this index increased to 23.9% by 2014 for the industry “Real Estate Operations” (Figure 9).

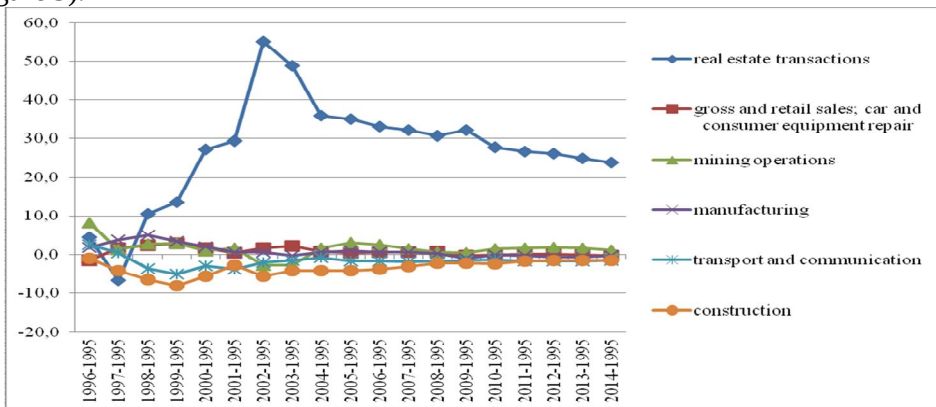


Figure 9. The velocity of the structural change in every type of economic activity in the GDP of Russia in 1995–2015, %

Source: made on the basis of the data: National accounting, Gross domestic product, Federal Service for State Statistics. URL: www.gks.ru. http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

In the total volume of the GNP of Russia the highest index despite the fluctuations remains for the “Gross and retail sales”, “Car and consumer goods repairing”. The given index changed slightly from 18.8% in 1995 and in 2014 it was only 17.3%. The weight of the activity “Real estate operations” in the GNP of Russia grew from 2.2% in 1995 to 12.2% in 2014. The similar situation is observed in this industry with the index of the weight of the structural change according to the share of the GDP. It changed from 0.1% in 1995 to 10.0% in 2014 in the static base.

In the sliding base the situation is quite opposite. The indices of all the six industries fluctuated and the highest rate (4.6%) was observed in 2002 in comparison

with 2001. The lowest rate was (−2.6%) in comparison to 2008.

In 2009 the growth rate of the GDP made up the lowest rate (−7.8%) during the whole analyzed period. The change of weights of structural shifts in the sliding and static bases shows an uneven development of industries and the growth of indices in one year is accompanied by their drop in the following year and their redistribution between industries. Consequently structural shifts in the industries took place.

Thus during the whole analyzed period the qualitative indices of the analyzed industries changed: gross and retail sales, car and consumer equipment repair, manufacturing, transport and communication, real estate transactions, mining operations, construction. The most obvious changes took place in the activity “Real estate operations”. This is obvious judging from the point of view of the weight of structural changes in the GDP (in the static base) which changed from 0.1% to 10.0%. The minimum was in 1996 (−0.3%) having attained the maximum of 10% in 2014 (the highest weight in all analyzed types of economic activity).

According to the weights of structural changes in the share of the GNP (in the sliding base) the maximum was (−1.5%) in 2004 and the maximum of 4.6% was observed in 2002. It was the highest rate. The index of the structural change according to the share in the GNP changed from 0% to 4.5%. This is the highest rate from all analyzed types of economic activities and keeps since 2012. The velocity of the structural change was the lowest (−6.8%) in 1997 and the highest (55.2%) in 2002.

The weight of the activity “Real estate operations” in the total volume of the GNP during 1995 – 2014 occupies the third place (Figure 5, Table 3) together with the activity “Transport and communication”. Its meaning was the lowest in comparison with other types of economic activity for the period 1995–2000 (1.9% and 5.2% correspondingly) after that this index grew till 12.2% in 2014.

Table 3 . Indices of types of economic activity “Transactions with real property” in Russia from the point of view of structural changes

Indices / Year	Minimum				Maximum		
	1995	1996	1997	2004	2002	2012	2014
Weight of structural change according to the weight in the GNP (static base)		−0,3%					
Weight of structural change according to the weight in the GDP (sliding base)				−1,5%	4,6		
Index of a structural change according to the weight in the GDP	0%					4,5%	
Velocity of the structural change			−6,8%		55,2%		
Weight of the industry in the total volume of the GNP			1,9%				12,2%

On the basis of the data of the Table 3 it is seen that minimums coincide in 1997 taking into consideration the velocity of the structural change and the share of the type of economic activity in the total volume of the GNP and the maximum coincide in 2002 for the index of the weight of the structural change judging from the weight in the GNP (in the sliding base) and the velocity of the structural change.

4. Conclusion

The structural and industrial changes in the economy are an ongoing process. If it reflects the development of real needs of the society and the adjustment of the economy to their best satisfaction, the process acquires a progressive character. The realization of the structural transformation of the economy provides the balance of a natural character. It is the basis of a sustainable and efficient economic growth and the development of the country.

The specificity of the structural transformation of Russia in 1990s consisted in the fact that it was implemented under the conditions of the transfer from the planned economic system to the market one and it was inevitably accompanied by the crisis of the forms and mechanisms of the economy, by a deep downswing in all the industries of the economy, by a sharp reduction of the life standard of the population, by the changes of priorities of the economic policy of the state. The structural changes took place both under the conditions of the liberalization of the economy, development of market methods of the economy and under the conditions of the changes of forms and methods of the state impact on the economy, considerable reduction of state expenses and centralized crediting. It is important that the solution of structural changes was smoothened by the availability in the country of unique natural resources, by a high scientific and technical and personnel potential.

Structural changes in early 1990s took place spontaneously as the process of the search of the correlation between the market demand and supply. During this period the Russian government detached considerably from the solution of structural problems and only by the mid of 1990s the acuteness of the problem gradually reduced, market mechanisms started working in the segment of consumer goods, construction of dwelling units, means of production. The structural reform in Russia started focusing on the realization of its basic tasks: curbing and liquidation of inefficient and unsatisfactory productions for the market economic requirements, development of modern efficient and competitive productions and types of activity, perspective industries, creating the economic potential of the country.

The most vividly the basic tendencies of the development of the economy of Russia in 1995–2015 being the result of market transformation of the national economic system are reflected by the changes in its industrial structure that was changed both in natural (number of employed) and in monetary indicators (production, investment). The comparison of these parameters allowed displaying basic changes in the industrial structure of the economy and this led to considerable structural changes in the GNP.

In recent 15 years the changes took place quickly for the increase of the weight in the GNP of Russia of the types of economic activity connected with the service sphere, such as the operations with real estate, gross and retail sales and this is typical for the industrial and not for the post industrial phase of the economic development of a state.

However the study of the structural changes in the GDP of Russia is handicapped by the fact that in its official structure there are considerable virtual and informal sectors of the economy and the share of each can eventually reach 30%. The source of virtual and informal relations and corresponding changes in the structure of the GNP is the substitution of the content of the micro, meso and macro changes by the content of the nano shifts. Also there was the exchange of the interests of the state,

region, enterprises by the interests of persons and the directors of the enterprises. As a result the basis of all these shifts are nano interests that are not typical for the industries and the state. These changes are also misshaped. They have a very low weight and potential but due to this fact they are unstable and insubstantial. The reduction of the informal and virtual part in the price of the production is observed. It is possible to increase the weight of the virtual and informal sectors in the official structure of the GNP by means of the strengthening of the economic control at all levels and also by making legal of a part of structural elements of the informal sector of the Russian economy.

The problem of overcoming the unevenness of technical and technological equipment of different sectors of the Russian economy remains and within each a more serious attention is paid to civil sectors. The development of the structural policy should be based on the regularity of the contemporary scientific and technical progress taking into consideration industrial cycles of different duration, changes of the correlation during cycles between traditional and newest types of production, dynamics of the demand for their production in the domestic and world markets.

As the experience of developed countries show, the results of the structural transformation of the national economy, the increase of its efficient functioning are considerable and obvious if they are accompanied by a constant growth of the role and the importance of intangible elements of production resources (scientific knowledge, information, qualification), which actively complete and use material elements (raw materials, energy, technology).

The governmental structural policy of Russia is supposed to be directed on the following aspects: reduction of the weight of mining industries in favour of manufacturing; liquidation and changing the specialization of the unnecessary and inefficient enterprises; support of industries and enterprises creating principally new goods (services) and goods with improved consumer and operational characteristics; improvement of technological structure of material production on the basis of the replacement of earlier technologies and fixed assets by new ones what provides the considerable change of tempus and proportions of the investment process (growth of the volume of investments, including foreign ones by means of provision of state guarantees, reduction of the terms of the investment payback, increase of the weight of investments, realized in modern technologies before all in science intensive industries); active introduction of energy saving technologies; reduction of ecologically damaging enterprises; changes of the structure of production due to the growth of the share of the production with a high level of manufacturing (higher added value); accelerated development of industries of the production and social infrastructure.

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Annex

Dynamics of different types of economic activity (industries) in the formation of the GDP of Russia in 1995–2014, %

Source: made on the basis of the data: National accounting. Gross domestic product. Federal Service for State Statistics: www.gks.ru. http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

Table A1.1. Period 1995-2004

№	Economic activity (industry) / Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
1	gross and retail sales; car and consumer equipment repair	18,8	18,5	19,4	20,1	21,0	20,3	19,2	21,0	22,1	20,1
2	manufacturing	16,9	17,2	18,2	19,4	19,2	18,5	17,4	17,6	16,4	17,8
3	transport and communication	12,3	12,6	12,4	10,9	9,8	10,4	9,4	10,4	10,7	11,3
4	real estate transactions	2,2	2,3	1,9	2,9	3,4	5,2	6,1	10,7	10,8	9,3
5	mining operations	8,5	9,2	8,7	9,2	9,5	8,9	9,3	6,8	6,6	9,7
6	construction	9,2	9,1	8,4	7,4	6,2	6,6	7,6	5,5	6,0	5,6
7	other	32,1	31,1	31,0	30,1	30,9	30,1	31,0	28,0	27,4	26,2
Итого		100	100	100	100	100	100	100	100	100	100

Table A1.2. Period 2005-2014

№	Economic activity (industry) / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	gross and retail sales; car and consumer equipment repair	19,5	19,8	20,1	20,6	18,1	18,1	19,0	18,8	18,3	17,3
2	manufacturing	18,3	18,0	18,0	17,2	14,6	16,4	16,1	15,0	14,9	15,6
3	transport and communication	10,2	9,9	9,3	9,4	9,6	9,7	8,9	8,7	8,5	8,7
4	real estate transactions	9,9	10,2	10,7	11,0	12,1	11,4	11,6	12,0	12,1	12,2
5	mining operations	11,1	10,9	9,9	9,2	8,9	10,4	10,7	11,1	10,9	10,3
6	construction	5,3	5,2	5,7	6,4	6,2	5,7	6,6	6,8	6,5	6,5
7	other	25,7	26,0	26,3	26,2	30,5	28,3	27,1	27,6	28,8	29,4
Итого		100	100	100	100	100	100	100	100	100	100

Table A2. Production per capita by sector in Russian Federation: 1995-2014

	1995	2000	2005	2008	2010	2014
S1: Trade Services	2326	2852	3769	4945	4127	4303
S2: Manufacturing	2091	2599	3537	4129	3739	3880
S3 Transp. and Com.	1522	1461	1971	2257	2212	2164
S4 Real Estate	272	731	1913	2641	2599	3035
S5 Mining	1051	1251	2145	2209	2371	2562
S6 Construction	1138	927	1024	1536	1300	1617
S7 Other	3971	4229	4967	6290	6452	7313
Total	12370.1	14050.9	19325.9	24006.0	23107.8	24873.9

Note: Elaborated applying shares of table 1 to the values of GDP per capita at constant 2011 USD PPP international). Source: Elaboration from WB(2017). World Development Indicators.

After a decrease for the period 1989-1995, manufacturing experienced an important increase for 1995 to 2008, a decrease in 2008-2010 and a recovery for 2010-2014. The evolution of non manufacturing production per capita experienced a similar evolution.