

# Socio-Economic Analysis of Disproportions and Disbalances of the Raw Material Export Model in Post-Soviet Russia

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**Abstract:** The article provides a socio-economic analysis showing how the export-raw material model of economic growth adopted in post-Soviet Russia affects the socio-economic situation within the country in the context of an unprecedented global recession that is gaining momentum due to COVID-19. As a working hypothesis, the authors propose that the Russian Federation, where the extraction and export of mineral raw materials are the basis of its social and economic growth, has led to numerous production imbalances. This not only lowers the quality and growth potential of Russia's future GDP but also undermines its macroeconomic stability and makes its national economy prone to oil shocks due to the dramatic global recession and lower demand for hydrocarbons. The paper builds a linear regression model to assess the dependence of Russia's GDP on oil exports from 1996 to 2019. Besides, the authors obtained statistically significant regression equations confirming the theoretical assertion that the dependence of the rates of socio-economic growth on the export of natural raw materials reduces the quality and efficiency of state and public institutions since those in power are trying to legislatively facilitate their access to resources, which, in turn, significantly reduces the potential for economic growth. The article confirms the need for a transition to a new (neo-industrial) socio-economic paradigm since this will help overcome the production imbalance that has developed in the Russian economy, ensure long-term socio-economic growth, and increase its efficiency. Proposals are formulated for the formation of economic conditions for neo-industrial economic development, the basis of which should be innovativeness, environmental friendliness, and inclusiveness.

**Keywords:** The Great Lockdown, Unprecedented global recession, Raw materials export model, Socio-economic growth, Neo-industrial paradigm.

## INTRODUCTION

### Introduce the Problem

The Great Lockdown due to the coronavirus pandemic (COVID-19) resulted in a new global recession that, at the time of writing, is gaining momentum. According to B. Coulton, chief economist at the large American corporation Fitch Ratings, this has the likelihood of being a “recession of unprecedented depth” for the period after the Second World War, and it will be twice as serious as the 2009 recession (Fitch Ratings, 2020). IMF analysts expect it to be the sharpest recession since the Great Depression of 1923–1933. According to their forecast, global GDP will decline by 3% in 2020 against previously expected growth of 1.3%. In absolute terms, it will exceed the aggregate GDP of countries such as Germany and Japan (International Monetary Fund, 2020). At the same time, GDP forecasts (both global and for a particular country or a region) are constantly being revised, usually to a more negative scenario. This can be explained by the multidimensional nature of the new global recession, driven by the complex interdependence of its key factors. The latter include

the shocks to the healthcare system, a sharp reduction in the demand of the real estate sector, a drop in the final consumption, a contraction in external demand, a change in capital flows, and a sharp decline in oil prices.

Following the global financial and economic crisis of 2008 and 2009, the COVID-19 pandemic has once again highlighted the need for a state policy aimed at “growth” (Aleksashenko, 2019: 26-27; Grigoriev, 2014: 419-420; Spence, 2013: 49), which will remain “the focus of all systems in the coming decades” (Fücks, 2016: 76). According to British professor T. Jackson, economic growth is necessary as “it plays an important role in maintaining economic and social stability ... It largely determines our rights – for example, to health care or education, which are a prerequisite for prosperity” (Jackson, 2013: 53).

Given the effects and consequences of the Great Lockdown and the main factors of the new global recession, it seems “useless to pursue the old growth, that is, the resource-intensive one with debt financing” (Fücks, 2016: 24). Under the current conditions, the transformation of the economic paradigm is an extremely relevant issue, which would require changing the trajectory of development and a transition to a new model of economic growth empowered by internal driving forces, new sources, and factors (Movchan,

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2019: 259; Ponkratov *et al.*, 2019). In this context, the global recession of 2020 should give an impetus to such changes.

### Explore the Importance of the Problem

The current difficult social and economic situation in Russia was generally predictable and has been driven not only by the effects and consequences of the Great Lockdown but also by the raw materials export model of economic growth that emerged during the recent reforms. The obvious external risks to this model are a serious recession in the global economy and a sharp decline in oil prices, which threats have actualized due to COVID-19.

Along with this, raw and monetary growth of GDP due to inflation of petrodollars triggers internal destabilization factors such as the disintegration of raw materials, technologies, mining, and manufacturing sectors; long-term and short-term interest; monetary and commodity ratios; consumption and investment, science and production as well as property and income (Gubanov, 2016; Kormishkina, Kormishkin, and Koloskov, 2016a).

The combination of the indicated external shocks and internal destabilizing factors that occurred due to the COVID-19 pandemic has seriously aggravated the economic situation in the Russian Federation and reduced the chances of quickly emerging from the deepening economic recession. According to Russian experts' forecasts, with the gradual removal of quarantine restrictions and an increase in GDP due to the government policies aimed at restoring consumer and investment demand, the likely drop in Russia's GDP in 2020 varies (depending on the scenario developed) from 0.8% to 3.0%. IMF experts believe that this figure will be 5.5%. The analysts at McKinsey & Company estimate it at 3.8%–10.2% ("The Impact of COVID-19 on the Russian Economy" Review).

The largest previous drops of the Russian economy were recorded in 1998 (-5.3%) and 2009 (-7.8%) (Aleksashenko, 2019: 18). The looming recession in Russia is therefore likely to be comparable, according to international experts, with the economic crisis that took place in the United States in 1929–1933. Under the current conditions, the "humiliating dependence on raw materials" of the Russian economy becomes a political factor that necessitates the government measures aimed at "growth." The current growth model is not appropriate for the national economy, since it

means exacerbating problems instead of solving them. In this article, we consider the macro-structural imbalances characteristic of the raw materials export model of economic growth in Russia as a systemic factor in the exacerbation of the current economic crisis.

### Background/Literature Review

The issue of economic growth is one of the most debated topics in modern economics. Most fundamental theories of growth have been developed since the 1950s. These are such theories as post-Keynesian (M. Bruno, N. Caldor, R. Nurkse, and J. Robinson), neoclassical (J. Fei, W. Lewis, and G. Ranis), institutional (G. Myrdal, T. Schulz, and H. de Soto), and left radical (S. Amin and A. Emanuel). In the 1990–the 2000s, the New Growth Theory (R. Lucas and P. Romer) and the concepts of inclusive and green growth (P. Krugman and R. Fücks) focused on qualitative factors of economic growth, reflecting the general trends and patterns of the modern era.

Despite the wide range of opinions on the essence of economic growth, economists agree on its great importance for social production in any economic system. What is more, researchers believe that economic growth reflects the process of product development over a given period (Schumpeter, 2007: 132-137). In this regard, it is of value to mention the interpretation of economic growth proposed by American economist S. Kuznets (1955, 1966, 1971). Kuznets won the Nobel Prize in 1971 for his empirically sound explanation of this phenomenon, which led to a new, deeper understanding of not only economic and social structure but also the development process. The key element in this definition of growth is the phrase "long-term increase in productive capacity," which denotes the ability to carry out production under the current specific conditions of development (Kuznets, 1955, 1971). In this sense, growth is associated with all basic elements of social development, including institutional, political, and social components along with the economy. This understanding of growth highlights the problem of "geosphere limits to growth," formulated by a group of scientists (Meadows, Meadows, and Runders, 1972; Meadows, Randers, and Meadows, 2012) in their two reports to the Club of Rome entitled "Limits to Growth" and "Beyond Growth." This idea is crucial for explaining the impact of huge reserves of natural resources (oil, natural gas, and other minerals) on the economic growth and development of a country (Aleksashenko, 2019; Fücks, 2016; Jackson, 2013;

Spence, 2013). It is also of help in estimating the risks and threats of the raw materials export model of economic growth (Brunnschweiler and Bulte, 2008; Gubanov, 2012; Manevich and Slutskin, 2018; Sachs and Warner, 2001).

Considering the dialectical interconnection between the efficiency of economic growth and the quality of economic development over a long-term interval (Schumpeter, 2007), we can assume that not every GDP growth is good for society. According to many Russian researchers, the raw, monetary growth of GDP should be considered a destabilizing factor in the country's economic development (Aleksashenko, 2019; Gubanov, 2012; Sukharev, 2019).

In this regard, even before the onset of the global COVID-19 pandemic, Russian scientists came to believe that it was necessary to change the paradigm of economic development and to establish a new model of economic growth. However, the agreement has not been reached, and economists are still actively discussing this issue, maintaining the traditional opposition of "liberal" and "Keynesian" approaches.

In our opinion, to build a qualitatively new model of economic growth, the first one should describe the previous model and understand the reasons for its exhaustion.

### **State Hypotheses and Their Correspondence to Research Design**

As a working scientific hypothesis, we assumed that the post-Soviet Russia, where the extraction and export of hydrocarbons and mineral resources is the basis of economic growth, formed productive imbalances that not only reduce the quality and potential of GDP growth over the long term but also undermine macroeconomic stability in the country. Besides, such imbalances make Russia's national economy subject to oil shocks in the context of sharp recessions in the global economy and a drop in physical demand for hydrocarbons (Chikunov *et al.*, 2019).

Under the conditions driven by the COVID-19 pandemic, to come out of a multidimensional recession into the trajectory of sustainable development Russian economy must replace the raw materials export model with a neo-industrial economic paradigm.

### **METHOD**

To test the hypothesis that the raw materials export model of economic growth adopted by Russia is an

internal destabilizing factor of its economic development and, therefore, may hinder combating the current recession, we used the following *methods*:

*Correlation and regression analysis*, which we applied to build a linear model describing the dependence of Russia's GDP volume (Y) on the volume of oil exports (X). We used the materials of the Federal State Statistics Service of the Russian Federation (n.d.) for the period from 1996 to 2019 as the input data for its calculation. The statistical significance of the created model was confirmed with an F-test, and its parameters were verified with a t-test. Also, we calculated an average relative approximation error to confirm the predicted significance of the linear model built.

*Building an econometric model* that included several regression equations to assess the impact of natural resources (oil, gas, and other minerals) on the quality of state institutions and the efficiency of economic growth. We constructed regressions with the least-squares method (LSM) and the two-stage least squares (2SLS). We chose GDP per capita as an indicator reflecting economic growth. The methodological basis of the model was the concept of the "Dutch disease," the term introduced by the journal "The Economist" in 1977 (Spence, 2013: 152), and the so-called concept of the "resource curse," the development of the well-known works of J. Sachs and A. Warner (2001), and Brunnschweiler and Bulte (2008). Table 1 presents the variables used in the model and their symbols.

### **RESULTS**

We performed a retrospective analysis and systematization of the main theoretical approaches to the essence of economic growth and defined it as an integral component of economic development and a necessary condition for increasing the level and quality of life of the population in the country. Out of the four factors determining the growth of the economy — labor, natural resources, capital, and scientific and technological progress — in the long term, the latter is now considered the decisive one. However, in modern Russia, natural resources, primarily oil production and export are considered the basis for ensuring economic growth. Comparative dynamics of Russia's GDP and oil exports are shown in Figure 1.

A drop in world oil prices leads, at best, to a sharp slowdown in the growth of the Russian economy, like in

Table 1: Symbols of the Variables Used

Symbol of the variable	Description of the variable	Source
Minxp	The average share of annual export of mineral resources in the GDP of the Russian Federation for the period from 1996 to 2017	GDP World Bank data (n.d.)
Latitude	The absolute value of the geographical latitude of the country ranges from 0 to 1	La Porto et al.
Tariff	Average tariff rate for imported goods over the period from 1996 to 2017	World Integrated Trade Solution System (n.d.)
Isubsoil	The logarithm of proved reserves of mineral resources in the Russian Federation in 2000, in USD per capita	World Bank (n.d.)
Goveffect	The indicator reflects the quality of public services and the degree of independence from political pressure; ranges from -2.5 (weak) to +2.5 (strong)	World Governance Indicators (European Commission, n.d.)
Lgdp95	The logarithm of GDP per capita in 1995	World Bank (n.d.)
Presid	Binary variable: 1 (presidential regime); 0 (parliamentary regime)	World Bank (n.d.)
Plur00dp	Binary variable: 1 if the parliament is composed according to the rule of the relative majority; 0 if the proportional rule is applied	Kunisova and Rose-Ackerman, 2005
G9617	The average growth of GDP per capita in the Russian Federation for the period from 1996 to 2017	Russian Statistical Yearbook, 2019

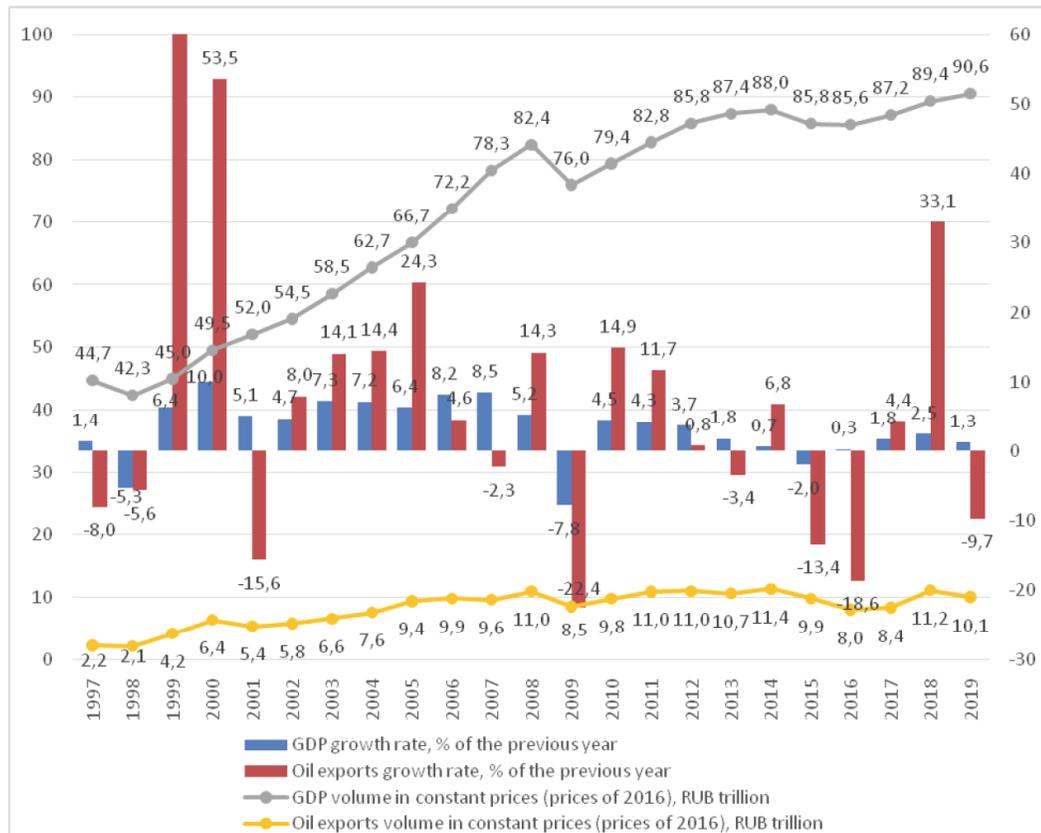
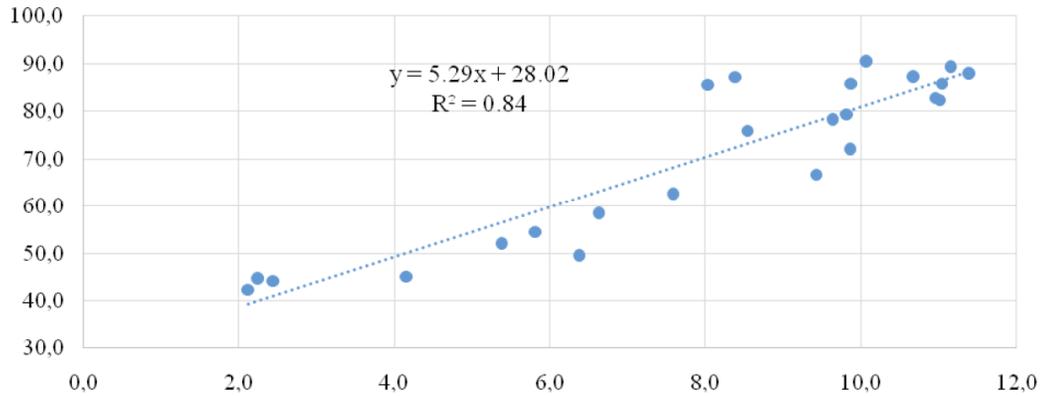


Figure 1: Dynamics of Russia's GDP and the value of Russia's oil exports over the period from 1997 to 2019.

late 2001 - early 2002. In the worst-case scenario, it may result in a full-blown crisis or an autonomous

recession (which happened in 1998, 2008-2009, and 2014-2016). This drop in oil prices makes the economy



**Figure 2:** A linear model of the dependence of Russia's GDP volume on the value of oil exports (for the period from 1996 to 2019).

vulnerable and susceptible to so-called "oil shocks." In 2020, oil prices repeatedly dropped due to the COVID-19 pandemic, which, along with other reasons, leads to a reduction in oil production.

Russia's GDP is directly proportional to the value of oil exports (including crude oil and oil products). This conclusion is confirmed by the linear model we constructed (Figure 2), which has the following form:

$$Y = 5.29X + 28.02 + \varepsilon, \quad (1)$$

where:

Y is Russia's GDP volume in constant prices (prices of 2016), RUB trillion;

X is Russia's oil exports volume in constant prices (prices of 2016), RUB trillion;

$\varepsilon$  is a random value.

As the constructed model demonstrates, an increase in oil exports by RUB 1 trillion is followed by Russia's GDP growth estimating RUB 5.29 trillion. Following the Chaddock scale, the correlation coefficient is 0.92, which indicates a strong relationship between the variables. The value of the coefficient of determination suggests that Russia's GDP volume from 1996 to 2019 depended on the value of oil exports for 84%, and for 16% on other factors not included in the model. The F-test at the significance level of  $\alpha=0.05$  exceeds the critical value ( $F=114.1$ ;  $F_{cr}=4.28$ ). Therefore, we can consider the result statistically significant, and the model is reliable. We can regard the parameters of the model  $a_0$  and  $a_1$  statistically significant according to the t-test at the significance level of  $\alpha=0.05$  (for  $a_0$ :  $t_{a_0} > t_{cr}$  ( $6.6 > 2.07$ ); for  $a_1$ :  $t_{a_1} > t_{cr}$  ( $10.68 > 2.07$ )). The average relative error of the

approximation does not exceed the critical value of 10% (8.07%) and indicates the high predictive accuracy of this model.

Also, the constructed linear model (1) indicates not only the raw materials and monetary growth of the Russian economy but also the faint possibility of economic development of the country and the reduced growth potential of Russia's real GDP. This conclusion is confirmed by the calculation data presented in Table 2, which reflects, among other aspects, the persistent contradiction between the growth quality of the Russian economy and the human potential accumulated in the country from 1996 to 2019.

The situation indicated above is primarily because the raw materials export model of economic growth that evolved in the post-Soviet Russia is steadily reproducing various imbalances. In our opinion, the imbalances listed below have the greatest destabilizing impact on the socio-economic development of the country.

### **The Ongoing Breakup Of Russia's Public Production into Export- and Internally Oriented Sectors, Exacerbating the Structural Imbalance of Its National Economy**

This imbalance developed in the Russian economy during the transitional crisis of the 1990s, when, along with the traditional sector serving the domestic market, the export-oriented (mainly related to energy and raw resources) sector emerged. The structure of the economy formed over the next two decades, and the manufacturing industry and high value-added sectors (high-tech industries) took a marginal position in it. This conclusion is confirmed by official factual data (calculated according to Russian Statistical Yearbook 2019).

**Table 2: Comparative Analysis of Real GDP Growth Rates and the Index of the Quality of Economic Growth in the Russian Federation from 1996 to 2019**

Year	GDP growth index (in market prices), % to the previous year	GDP deflator, % to the previous year	Economic growth quality index	Human development index (United Nations Development Programme. Human Development Reports, n.d.)
1996	96.4	145.8	-11.69	0.702
1997	101.4	115.1	-9.79	0.704
1998	94.7	118.6	-4.51	0.703
1999	106.4	172.3	-10.33	0.710
2000	110.0	137.6	-2.76	0.721
2001	105.1	116.5	-2.24	0.727
2002	104.7	115.5	-2.30	0.733
2003	107.3	114.0	-0.92	0.740
2004	107.2	120.1	-1.79	0.746
2005	106.4	119.2	-2.00	0.752
2006	107.4	115.8	-1.14	0.759
2007	108.1	113.5	-0.67	0.767
2008	105.2	118.0	-0.12	0.774
2009	92.2	102.0	-0.11	0.771
2010	104.5	114.2	-0.09	0.780
2011	104.3	115.9	-0.11	0.789
2012	104.0	108.9	-0.05	0.797
2013	101.8	105.3	-0.03	0.803
2014	100.7	107.5	-0.07	0.807
2015	98.0	107.2	-0.09	0.813
2016	100.2	102.8	-0.01	0.817
2017	101.8	105.3	-0.03	0.822
2018	102.5	111.1	-0.08	0.824
2019	101.3	103.8	-0.02	n.a.

The raw materials sector has a relatively small production potential (in 2018, 2.3% of the total number of people employed in the economy and 12.8% of the fixed assets) provided 13.2% of Russia's GDP, almost half of the income of the federal budget and over a third of the country's cargo turnover. In 2018, return on assets increased to 17.27%, compared to 11.6% in the post-crisis 2010. The average monthly nominal accrued wages in this sector amounted to RUB 83,100, and in the sector of crude oil and natural gas production – to RUB 127,700. In addition to this, following the adopted dividend policy, Russian oil companies (for example, Rosneft) made record payments to its shareholders in 2020 despite a catastrophic market decline due to the COVID-19 pandemic. Its total amount estimated 50% of the net profit of the company, according to IFRS (Romanov, 2020: 7).

*To put that in context:* in 2018, the manufacturing sector employed 14.1% of the total labour force, compared to 16.9% in 2007 and 14.9% in 2010; this sector had 9.9% of fixed assets; the return on assets in 2018 was 5.99%, compared to 14.3% in 2007 and 8.2% in 2010, while the average monthly nominal accrued wages of the employees were RUB 40,700.

This situation naturally leads to an outflow of resources (labor force, fixed assets, and investments) from the low-income manufacturing sector to the highly profitable raw materials and other internally oriented sectors of the Russian economy (trade, banking, financial, and public sector fulfilling social obligations and other functions). As the analysis showed, in relative terms, the outflow of the labor force from the manufacturing industry significantly exceeded the outflow of fixed assets (according to our estimates for

the period from 1996 to 2018, it amounted to -3.6% and -1.2%, respectively).

This means that the raw materials export system may demonstrate some nominal economic growth, but it is not accompanied by development, since it takes place within a strategically inefficient trajectory, creating the so-called effect of chreod (funds and technologies are updated mainly through imports). This reduces the competitive advantages of the Russian economy, shifting it to the category of a secondary economic partner focused on the supply of raw materials to other countries, in particular hydrocarbons (Senchagov, 2015: 52; Semin *et al.*, 2019).

### **Imbalances in the Structure of the Elements of Russia's National Wealth, Which Slow Down Economic Growth**

An important feature of wealth as an economic category is that it acts both as a result and a prerequisite for socio-economic development (successive production cycles), which form not only its material culture but also its main and highest value – the individual. The very concept of national wealth is constantly enriched with all novel economic, social, and environmental aspects of social development. The views on the content of national wealth and its productive role are evolving under new ideas about the sources, driving forces, factors, and mechanisms of economic growth as well as its goals and priorities. The trends of humanization, inclusiveness, and green economic development are the leading ones. Against this background, it is no coincidence that modern economists are increasingly interested in the role of the individual and their qualitative characteristics in the creation of wealth. The above mentioned in many respects refers to natural resources and the preservation of the natural habitat, which are no longer understood as an inexhaustible supply of “natural gifts,” but as a completely finite resource, the normal state and renewal of which is the limit for well-targeted forms of economic activity. The understanding of national wealth should comply with these new ideas, only then this category can become the basis for determining the long-term potential of economic growth.

Given the global trends and development patterns outlined above, it seems crucial to redirect macroeconomic policies and to change the structure of the elements of national wealth. At present, in Russia, about 65% of national wealth accounts for natural resource potential, about 15% – for human resources,

and 20% – for physical potential (Sukharev, 2019: 25). The latter is quite worn out (for reference: in 1996, the wear of fixed assets in the real sector of the economy amounted to 36.3%, in 2000 – 42.4%, in 2007 – 46.2%, in 2010 – 47.1%, and in 2018 – 46.6 %). Under the current conditions, to solve this problem, the emphasis should be placed on human potential. In our opinion, this can be achieved provided that the abundant resource (natural resource potential) is converted to a relatively cheap one (energy resources within the country cannot have the same worth as the world price), and a rare resource (intelligence) should become a well-paid one.

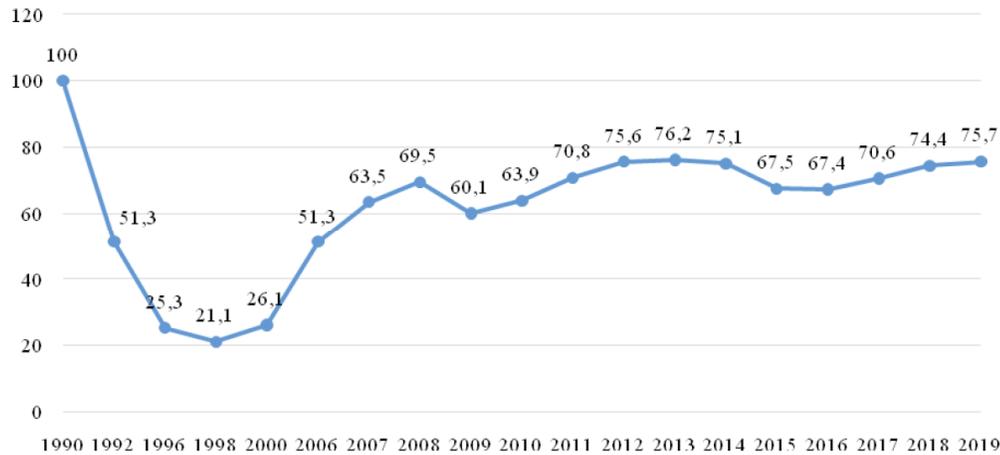
### **The Imbalance between Investment and Current Income from the Sale of Natural Resources**

According to the analysis performed, over the period from 2000 to 2018 in the Russian economy, focused on the raw materials export model, consumer demand was the main factor ensuring growth rates; total investments had some influence only in several years of this period.

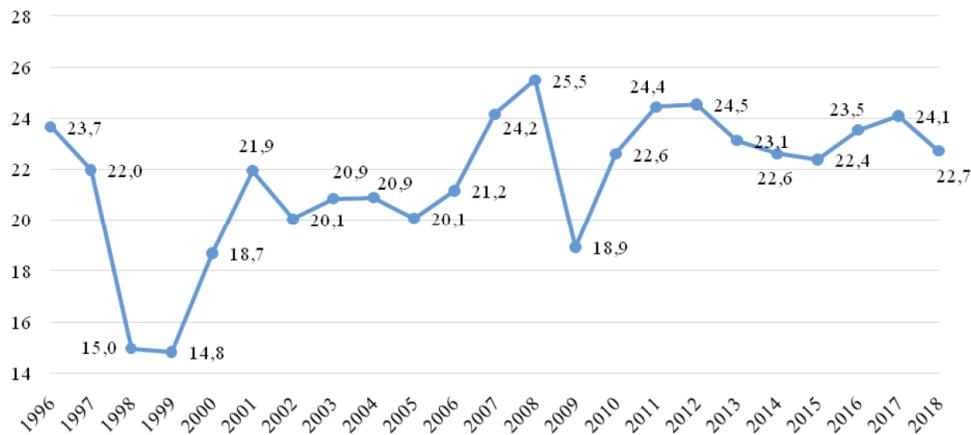
Russia experienced a sharp reduction in investment in fixed assets (up to 21.1% compared to the level of 1990) in the 1990s under the influence of the transformational recession, accompanied by a significant drop in GDP (approximately 43-43%) (Figure 3).

According to the principle of acceleration, such a sharp drop in capital investment during the specified period was due to radical changes in the investment mechanism. The latter occurred when investments in fixed assets were no longer financed from the state budget, but from internal funds (depreciation charges and profit). When this transition took place, the share of unprofitable enterprises in the real sector of the economy was high (44.4% in 1999), and the financing for new capital investments was carried out in crisis mode. The country's economy was in a vicious circle, as the principles of acceleration and the multiplier affected each other in such a way that they generated a cumulative deflationary spiral.

As a result, the structure of GDP underwent dramatic changes: the share of gross investment in GDP – a generalizing, comprehensive indicator of economic and investment security – decreased from 38.7% in 1990 to 22.7% in 2018 in the volume of its end use, which corresponds to the level of the 1960-1970s (Figure 4).



**Figure 3:** Dynamics of investment in fixed assets in the period from 1990 to 2019 (incomparable prices, the value of 1990 as 100%).



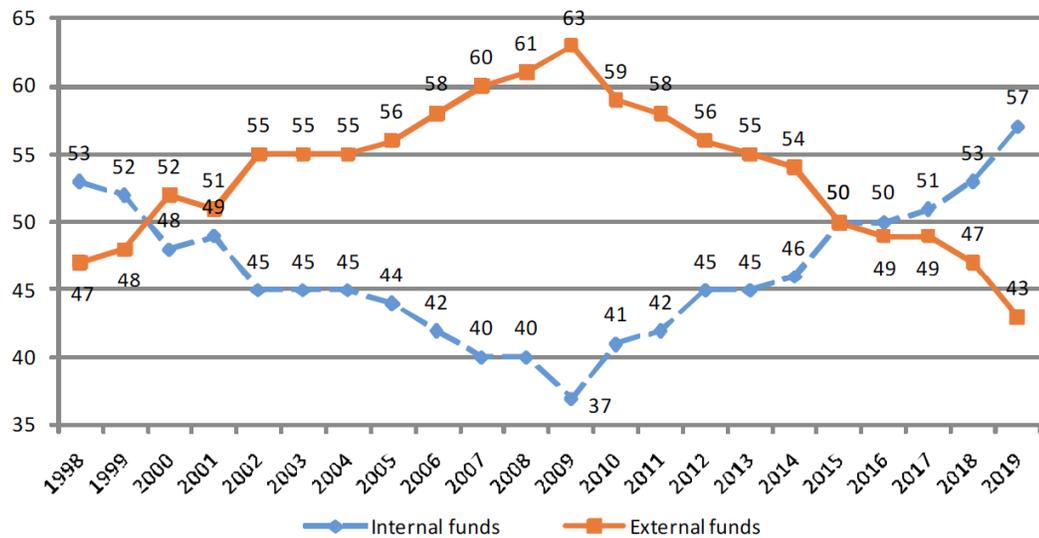
**Figure 4:** Dynamics of the share of gross capital in Russia's GDP from 1995 to 2018, % (Russian Statistical Yearbook, 2019).

At the same time, when capital-intensive industries (for example, fuel and raw materials) prevail in the structure of the national economy, these values of the abovementioned indicator are insufficient for overcoming economic stagnation and re-industrialization (especially considering the strong deterioration of fixed assets). However, the developed countries that carried out a structural restructuring of their economy maintained a high level of investment in fixed assets for a long period (Takhumova *et al.*, 2018). For instance, until the 1970s the rate of gross accumulation in post-war Europe was at least 25%, and in Japan – 30%. In China, during the period of maximum investment activity from 1987 to 1996, the share of accumulation in GDP reached 32–34% with the annual GDP growth rate of 6–10% (Kormishkina, Kormishkin, and Koloskov, 2016b). At present, Russia has a lower level of gross fixed capital accumulation than newly industrialized countries and the CIS countries.

Until 2004, Russia hardly considered the possibility of intensifying investment activity. The situation changed radically in 2005 due to the growth of gold and foreign exchange reserves and the creation of the Stabilization Fund. The state acquired free capital, part of which had to become (and this was done) the reserve to be used in case of a negative (crisis) economic situation, and another part was to be allocated for innovative renewal and the development of production. Unfortunately, this has not happened yet.

As for the structure of financing investments in fixed assets according to the sources of funds in modern Russia, there have been no fundamental changes, compared to the 1990s. Despite the accelerated development of the banking sector and other financial institutions, the share of equity increased from 53% in 1998 to 57% in 2018 (Figure 5).

This trend plays a crucial role in reducing investment risks and increasing investment activity.



**Figure 5:** Dynamics of the structural composition of investments in fixed assets by sources of financing from 1998 to 2014, %.

However, due to the effects and consequences of the Great Lockdown of 2020, Russia is expecting a large-scale reduction in investment. According to the forecasts of various credible international agencies (for example, McKinsey & Company), it is to fall by RUB 2.1-3.9 trillion (in 2016 prices) depending on the scenario. When making macroeconomic decisions in these conditions, one should find ways to increase investment in fixed assets, as well as to stimulate investment in people.

If fixed capital and human potential have been experiencing difficulties by the time of the recession, then the inadequacy of the transmission mechanism of state economic policy can dramatically increase the negative effect of poverty preservation (absolute and relative).

In addition to the above, we consider it viable to highlight the impact (in the terms of economic growth) that the national economy's focus on raw materials has on the quality and efficiency of state institutions functioning. For this purpose, we constructed an econometric model, which can also be used to empirically confirm the effect of the well-known "resource curse" and the symptoms of the "Dutch disease" in the economy. We considered the theoretical and methodological base of this model in Section 2 "Method" of this article. The variables used (according to the World Bank indicators) are presented in Table 1. We determined GDP per capita for the statistical display of economic growth.

Table 3 assesses the impact that the dependence on raw materials export has on the quality of state

institutions. For this purpose, we selected the following control variables: political regime (presid), election rules (plur00dp), and customs duties (tariff), which characterize the degree of the economy's openness.

According to regression (1), the presidential political regime is more likely to be dependent on natural resources than the parliamentary one. Under this regime, if a country has its natural resources, the quality of state institutions is lower for the simple reason that there are much more opportunities for the political lobby of the elites, and the latter, in turn, pursue the possibility of quick enrichment through the export of natural resources.

Regression (2) highlights the importance of controlling the variables responsible for the political regime in the country. Without such control, as follows from regression (3), the quality of state institutions is significant at a 1% level. Consequently, the data in Table 3 indicate that effective and high-quality state institutions in the country stimulate a decrease in the export of natural resources, which means that they reduce dependence on them.

The data presented in Table 4 illustrate the dependence of economic growth on the country's possession of natural resources (oil, gas, and/or other minerals), as well as on their exports. According to the calculated regressions, the very existence of a country's natural resources increases the potential for economic growth (at a 10% significance level). For reference: in practice, this relationship is demonstrated, for example, by Norway, Canada, Australia, Qatar, and Saudi Arabia, which rank high in international

**Table 3: Regression Analysis of the Impact of Natural Wealth on the Quality of State Institutions**

Control variables	Calculated regressions		
	(1)	(2)	(3)
const	-0.100*** (0.031)	-0.081*** (0.030)	-0.100*** (0.027)
isubsoil	0.015*** (0.003)	0.015*** (0.003)	0.022*** (0.003)
presid	0.034** (0.016)	0.023 (0.020)	
plur00dp	-0.003 (0.016)	-0.002 (0.016)	
tariff	0.001 (0.002)		
goveffect		-0.011 (0.011)	-0.038*** (0.010)
Number of observations	56	56	72
F-statistic	7.46**	7.72**	24.64***
R2	0.43	0.44	0.52

Note: minxp is a dependent variable for all regressions. All regressions are LSM. The standard error is indicated in parentheses. The indicated \*, \*\*, \*\*\* are statistically significant at the 10-, 5-, 1% level, respectively.

**Table 4: Regression Analysis of the Dependence of Economic Growth on Natural Resources Exports**

Control variables	Calculated regressions		
	(1)	(2)	(3)
const	4.491*** (0.887)	8.290*** (1.720)	16.826*** (6.038)
minxp	-1.801*** (1.330)	4.206 (6.107)	0.310 (3.609)
isubsoil	–	0.015 (0.099)	0.139* (0.079)
Lgdp91	-0.261*** (0.107)	-0.863*** (0.230)	-2.101** (0.860)
goveffect	–	1.047*** (0.376)	3.055 (1.568)
Endogenous variable		minxp	Goveffect
Number of observations	87	57	72
F-statistic	4.19**	3.95***	4.31***
R2	0.09	0.12	0.02

Note: the dependent variable for all regressions is g9617. Regression (1) is LSM; regression (2)-(3) is 2SLS. Standard errors are given in parentheses. The indicated \*, \*\*, \*\*\* are statistically significant at the 10-, 5-, 1% level, respectively.

competitiveness ratings and have a high standard of living. We would like to note that the export of natural resources, according to the regressions obtained, has an indirect effect on economic growth through the quality of state institutions.

The failure to notice this dependence on economic growth in a country with substantial natural resources on the quality of state institutions makes it impossible to maintain the growth potential of the economy for a long period and to ensure its sustainable development (Ponkratov *et al.*, 2019).

## DISCUSSION

We analyzed the specifics of the model of the raw material of economic growth in post-Soviet Russia and concluded that its further preservation would mean, in

the words of P. Krugman, the extension of depression, that is, the long-term functioning of the economy in the situation of reduced opportunities (Krugman, 2017: 25) even if oil export prices go up. It should be noted that since 2012 the growth model of the Russian economy, with gross consumption as the main driver, has ceased to support domestic demand proportionally to the dynamics of prices for hydrocarbons and other natural raw materials. Against this background, under the influence of the effects and consequences of the Great Lockdown due to the COVID-19 pandemic, creating a new economic paradigm that among other things, can transform the growth model of its economy, becomes an extremely urgent and fundamental task for Russia.

We believe that Russia should create an efficient model of economic growth based on the neo-industrial paradigm of modern development proposed and

substantiated by the editor-in-chief of scientific journal *Economist*, Professor S. S. Gubanov (2012), which is gaining a wide professional and public recognition in the country. In contrast to the concept of a “post-industrial society” popular among scientists, which tries to “extract” the material core, isolate it from the material base as the basis for development, this economic paradigm has the accumulated powerful industrial and technological basis, highly intellectual human capital, and science as a direct productive force. This means it can accommodate a genuine “knowledge economy” and create a “politically sovereign, cost-effective, and socially just” society (Kormishkina, Kormishkin, and Koloskov, 2016c). This paradigm is based on the principles of humanistic development, inclusive society, and the fact that the interests of social capital are more important than profit maximization – the main motive of private capital.

This conceptual approach to the trajectory of socio-economic development reflects the quintessence of the neo-industrial perception of the content of the new model of economic growth. We believe that, within the economic paradigm under consideration, the most important criteria for a neo-industrial model of Russia's economic growth should be:

- *Innovation* (application of scientific or other types of knowledge; continuous scientific and technological changes).
- *Sustainability* (growth without destroying the environment, along with the reduction in the “ecological footprint” and “environmental debt”).
- *Inclusiveness* (improving the wellbeing of the largest possible groups of the population, providing equal opportunities to all groups of people).

In other words, this implies creating an investment growth model. The responsible (environmental and social) investment will be its main driving force and will reflect the general trends and patterns of the modern era. Environmental investments, which are of fundamental importance for solving the problem of “geosphere limits” of growth and maintaining growth potential, are a specific type of economic resources (monetary and material investments) aimed at:

- Improving the efficiency of the use of natural resources, which enables saving them (for example, efficient use of energy, waste reduction, and recycling).

- Replacing traditional technologies with environmentally friendly or low-carbon technologies that function following the principles of a closed resource cycle (for example, renewable energy sources, and industrial production of raw materials from waste).
- Improving ecosystems and the environment (climate adaptation and restoration of forests and wetlands) (Kormishkina *et al.*, 2019).

From political and economic perspectives, the social investment reflects the socio-economic attitude to the investment of financial and other resources of a person, their diverse relations, and, in social objects, to increase human potential and ensure social development (level, lifestyle, life expectancy, public health, as well as educational and professional potential).

Such a view of environmental and social investment calls for a combination of traditional market mechanisms based primarily on the competition tools and effective methods of state regulation when developing a set of applied macroeconomic policy measures. The latter should be aimed at eliminating the causes of the economy's deterioration and not just changing the situation.

## CONCLUSION

The recession, which is gaining momentum in the Russian economy under the influence of the Great Lockdown, has once again proved that the country should abandon the raw materials export model of growth. The focus should be shifted from the consumer and non-investment demand to the neo-industrial one, representing, in fact, the investment model of economic growth. The potential of the previous model has long been exhausted due to its low efficiency and the destructive influence of various productive imbalances that predetermined a series of Russia's systemic failures, the autonomous recession going on until 2016, and the current decline in social production. Under these conditions, the main objective is to find the optimal way to create a new growth model in the Russian Federation.

Summarizing the above, the authors consider it necessary to note that the increment of scientific knowledge of this research is as follows:

- 1) In substantiating the insolvency of the export-raw material model of economic growth that has

become established in modern Russia, which is not capable of subordinating the country's resource and economic potential to the prospect of inclusive sustainable socio-economic development of the country and its transition to a neo-industrial society;

- 2) In the advancement and theoretical substantiation of a scientific idea about the need for a transition to a new scientific paradigm based on the accelerated modernization of the economy with a view to the subsequent transition of the Russian Federation to neo-industrial development;
- 3) In the assessment of the impact of natural resources on the quality of work of state institutions based on the constructed econometric model;
- 4) In the theoretical substantiation of the main criteria of the neo-industrial model of economic growth - innovation, environmental friendliness, inclusiveness.

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