

Vestnik MIRBIS. ISSN 2411-5703. URL: <http://journal-mirbis.ru/>

№ 2 (22)' 2020, DOI: 10.25634/MIRBIS.2020.2

For citation: Vasiliev, A. N. Formation, role and opportunities for the development of the construction industry in the modern economy of Russia. A. N. Vasiliev. Vestnik MIRBIS. 2020. No. 2 (22). P. 27–36. DOI: 10.25634/MIRBIS.2020.2.3

Receipt date 04/28/2020

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FORMATION, ROLE AND OPPORTUNITIES FOR THE DEVELOPMENT OF THE CONSTRUCTION INDUSTRY IN THE MODERN ECONOMY OF RUSSIA

Abstract. Relevance of the research is determined by the current unstable situation in the Russian economy, as well as the demand for comfortable housing, convenient conditions for business, industrial requirements towards digitalization and innovations.

The goal of research is to identify possible scenarios and governmental actions facilitating economical recover of Russia based on retrospective data. The leading approach to the study of this problem is a qualitative analysis allowing to comprehensively consider the situation.

The article presents the results of the analysis of the current state of the construction industry in Russia and provides recommendations for solving economic problems taking into account social situation and provision of housing and comfort level in the country. The materials of the article are of practical importance for researchers who are interested in the historical formation of the position of the construction industry in modern Russian economy, existing treats and opportunities as well as recommendations of the government policy influenced by the internal demand and Fourth Industrial Revolution.

With proper organization and management, the pace of housing construction can be increased to 8-10% per year in approximately a three-year period. The solution of the housing provision problem in the Russian Federation in compliance with urban policies of United Nations sustainable development goal would rise the quality of life of the population being a guarantee for further economic and social development and ensuring the sustainable foundation for the confident and reliable future.

Key words: construction industry, transformation, state support, SME, digitization, government policy, Industry 4.0, housing provision.

JEL: L52, L7, L74, L78, M21

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Introduction

The level of economic development of the country might be quite fully measured by one indicator – the size of the gross domestic product (GDP) measured at purchasing power parity (PPP) per capita.

According to the World Bank, GDP per capita in Russia in 2016 reached \$24 789. The lowest rate among developed countries is observed in Greece – \$26 800. Russia's indicator is 30% lower than Spain (\$36 300), which is one of the largest countries in developed Europe and the closest milestone for Russia to achieve in terms of level of economic development.

As for the most developed countries in the world (USA, Japan, Germany, England, France, Italy, Canada), the lowest rate is \$38 400 in Italy and the highest is \$57 600 in the USA (1.5–2.3 times higher than in Russia). Thus, in terms of economic development, Russia lags behind the lower group of developed countries by 30% and on average 2 times – from the

most developed countries.

However, the quality of life standard cannot be characterized by one indicator. There is also an indicator of the volume of tangible goods and services allocated from GDP to the welfare of the population. Thus it is the current consumption of goods and services as well as investments to improve the life of the population, f.e. investments in real estate [Aganbegyan 2020]. But the focus on the virus has distracted the government all over the world from its watchdog function on other matters of public [Donati 2020]. The spreading of Covid-19 seems to have taken away decision-makers from pursuing the roadmap pictured in the past. Sales plummeted to zero demand in many sectors coupled with an unknown future may now push the construction industry to potentially one of its worst times [Izadi Moud 2020]. There needs to be a shift in paradigm of work we do and the state support the business receives in the construction and adjacent industries.

Moreover, the trend of digitization, automation and the increased use of Information and Communications Technology (ICT) have been envisioned as the main concept of the industrial progress in Russia. Comparing the progressions between multiple industries, the construction industry is reluctant in incorporating innovative technologies into its common practices because of the numerous challenges. A comprehensive review is conducted to identify the main industry problems, which delay the implementation of Industry 4.0 related technologies within the construction industry and opportunities, attained in the long run. The critical factor affecting the successful implementation is the social and technical factors [Wesam 2020]. Current paper looks into the current socio-economic situation in Russia and in particular the challenges for the future of the construction industry as a critical sector and essential gear to turning the economic recovery of the country [Alaloul 2020]. The study presents future scenarios of managing existing and future economic risks with lessons learned basing on the historical trends [Gichuyia 2020].

Research methodology

The research method is a qualitative analysis allowing to draw judgments regarding the future development of the construction industry based on retrospective data. In this study the economic well-being within the country is considered as a set of constituent components (industrial development, political directions, technological innovations, social indicators), as well as their properties and signs that change over time. The article presents the results of the analysis of the current state of the construction industry in Russia and provides recommendations for solving problems taking into account current economic and social situation, the comfort of housing in the country. The materials of the article are of practical importance for researchers who are interested in the development of the construction industry in Russia.

This scoping literature review is performed to provide an overview and summary of current studies that focus on situation in construction industry in Russia that has been formed during several decades. The stylized facts are conducted in the form of a relative analysis by comparing annual published articles from the Scopus and Web of Science (WoS) resources search engine. The number of publications covering this topic is wide enough. Some of them are mainly focused on a particular issues such as implementation of Industry 4.0, state policy and incentives supporting the industry [Key lessons...

2017], The methodological framework by Arksey and O'Malley (2005) was used for the scoping review, which involved five stages: (1) identifying research questions; (2) identifying relevant studies; (3) selection of the study; (4) charting the data; and (5) collating, summarizing, and reporting the results [Arksey and O'Malley 2005].

Results

In developed countries consumption of the material goods and services comprises 70–75% of GDP, i.e., \$20 000–25 000 per capita for the lower group of developed countries and \$30 000–40 000 for the developed countries (G7). However, this indicator does not characterize the effectiveness of using these funds for a real increase in wellbeing. For example, in the USA both relatively (16% of GDP) and absolutely (2.2 trillion dollars) is spent on healthcare, which is 1.5–2 times higher than in other developed countries of the world. At the same time the United States significantly lags behind the advanced countries in terms of average life expectancy – 79 years – versus 81–84 years in Spain, Italy, France, Great Britain, Germany and Japan [Aganbegyan 2018]. Therefore, comprehensive indicator of the quality of life should include not only the sum of tangible goods and services in the volume of GDP, but also the average life expectancy and the quality of education.

UNDP classification (the UN organization) named it "index of social (human) development". In 2015 this index was the highest (92–94 points) in Norway, Australia, Switzerland, Ireland, Germany, the USA, the Netherlands, and Denmark. Russia takes 50th place with 79.8 points (a similar indicator for Croatia, Montenegro, Oman, Romania, Uruguay). The lowest rates, 40 or less, are in Nigeria, Chad, the Central African Republic, Mozambique, and Guinea. The ranking involved 188 countries.

Historically the lowest point of the transformation crisis in the Russian economy was passed in 1998, and since 1999 the improvement of economic indicators has begun. GDP, industry, investments, and other economic indicators have grown. The lowest point in terms of social indicators was reached in 1999 when there was a residual increase in retail prices by 37%. Improvement of social indicators began in 2000. Therefore, transformational crisis ended in default and financial crisis dated 1990–1998/1999 and it grew from financial to a full-fledged socio-economic crisis.

This ten-year crisis is comparable to the Great Depression in the United States in terms of the depth of the drop in indicators and in duration it has no analogues in history. During the 1990–1998 trans-

formation crisis GDP decreased by 1.8 times in Russia while in other countries during this period showed economic growth: developed countries – 1.5–2% per year, and developing countries – 5–6% per year correspondingly [Sipil 2002]. By 1998, the Russian Federation moved to 10th place, passing ahead China, Germany, India, France, Italy, the UK and even Brazil.

Towards the end of this period, the socialist administrative-planning system of management switched to a market based on the mass privatization of enterprises and organizations. The share of state ownership in GDP production was reduced from about 90% (in Soviet Russia) to 35% (in 2005). In many aspects it was facilitated by a fourfold devaluation of the ruble against the dollar. Hence exchange rate increased from 6 rubles (July 1998) up to 25 rubles (at the end of 1998).

The devaluation led to the same increase in import prices, including consumer goods, which share in import, was about 30%. The increase in import prices was necessary in order to return currency expenses for the production and supply of imported products to Russia. At the same time, the level of domestic prices reached only 84% and set at 2.3 times lower than the corresponding import prices. Since the real incomes of the population in the crisis of 1998–1999 decreased by 27%. The vast majority of industrial enterprises lost profit during the crisis and lost funds allocated in the largest private bankrupt Russian banks. Neither the population nor the enterprises had the opportunity to buy imported goods. Therefore, the volume of imports decreased from \$ 72 billion in 1997 to \$ 58 billion in 1998 and \$ 40 billion in 1999. At the same time, import of consumer goods decreased significantly [Fakhrutdinova 2014].

As a result the demand of the population as well as enterprises and organizations has switched from imported products to cheaper domestic products of lower quality. Since 1999 mass import substitution has begun. In 1999–2000 import-substituting industries made a huge leap forward, especially ferrous metallurgy – 32%, chemical industry – 39%, engineering – 34%, timber industry – 28%, light industry – 46%, food industry – 15% [Aganbegyan 2018]. This was facilitated by the advantage of lower prices for import-substituting products.

Subsequently, after the crisis of 1998–1999 a boom in the economy (since 1999) and the social sphere (since 2000) began. In the next two years (2001–2002) oil prices fell slightly, so export indicators showed \$ 102 billion in 2001 and \$107 billion in 2002. The advantage of local product was reduced to a minimum. Since 2001 imports returned again dis-

placing the vast majority of import-substituting enterprises from the market. Import volume increased from \$40 billion in 1999 to \$45 billion in 2000, \$54 billion in 2001 and \$61 billion in 2002.

The pace of import-substituting industries decreased by 3–4 times in 2001/2002. For example, metallurgy grew at 3%, the chemical industry – 1.6%, engineering – 2.0%, the timber industry – 2.4%, and light industry even decreased at 3.4% .

The ten-year economic and social recovery in 1999–2008 was broken by the deep financial and socio-economic crisis that began in the fourth quarter of 2008 and continued till 2010. The basic economic and social indicators were restored and even surpassed. However, construction industry as well as the stock market has not reached the indicators of pre-crisis level.

Three-year economic growth ended unexpectedly. The economy moved firstly to two-year stagnation (2013–2014), and then (largely depends on sanctions against Russia and the EU and the USA) and a significant reduction of oil prices at the initiative of Saudi Arabia and OPEC countries) to a two-year recession (2015–2016) [Frenkel 2019].

The strategic goal of demographic situation indicators for this period was a significant growth. The reason for it is the historical tendency as well. The fertility and mortality level were gradually converging until it crossed in 1992. Thereafter both trends began to diverge in different directions. Scientists called this phenomenon the “Russian cross”. The country has dramatically shifted from high population growth over a long time to a significant unprecedented depopulation [Kashepov 2004].

During the above transformational period the part of the economy that formed the intellectual services (education, healthcare, computer science, etc.) rapidly grew. The share of industrial production and its contribution to GDP decreased. The role of human capital has steadily increased in national wealth.

Nevertheless, according to the UNESCO rating, one of the worst indicators in Russia concerns the level of R&D expenditures. The costs include not only government, but also private expenses for research and development. Russia takes 32nd place out of 91 in this ranking (approximately at the level of Brazil, Hungary, Tunisia, South Africa, Serbia). Higher places are occupied by Italy, Spain. Following Russia are Turkey, Poland, Iran.

Securing population with comfortable housing is one of the most important social tasks for the development of society, a key characteristic of the level of well-being of people, their quality of life.

In the developed countries 40% of total nominal family income is basically spent on the housing expenditures which consist of repairs and maintenance, council rates, loan repayments, taxes, insurance, utilities, electricity and water consumption charges insurance. The severity of the housing problem in Russia is evidenced by the fact that the average provision in 2016 was 24.9 sq.m. Data vary significantly by region [Grushina 2019]. Regions with the worst housing provision: Moscow, Republic of Ingushetia, Dagestan, Chechen Republic, Republic of Tuva. In developed and developing countries where the provision of housing and comfort level is much higher than in Russia a huge volume of housing is commissioned annually.

Housing is a priority commodity for investments because prices are rising rapidly. In 2000-2007 with minimal inflation in developed countries (1–2% per year) housing prices rose by 60%. There was a fall in the crisis of 2008–2009. It was restored back to the pre-crisis level in 2012 and then exceeded it. In the USA, for example, in 2000–2015 prices rose by 76%, in France – by 110%, in Canada – by 156%, in the UK – by 168%, in Australia – by 210%.

According to international experts, the Russian housing market is the weakest in the world. According to the governmental strategic plan this sector of the economy should increase in 2 times during the next 5 years, not only because Russia lags behind highly developed countries but also behind many developing in terms of the housing provision. The level of housing provision in Russia is 20 square meters per one human only, whereas in USA – 70 meters per one person. It does not have investment potential, has low profitability, therefore investments are associated with high risk. In this regard, the vast majority of housing transactions in Russia is the purchase of housing for personal needs, while in England and Germany a significant portion of housing is purchased to increase funds. So demand for real estate among wealthy citizens in Western Europe increased by 15% in 2015–2016. Half of the housing purchased is an elite class.

Taking into account that a significant increase in oil prices in the near future — over \$ 70 per barrel — is hardly possible, the external environment will be accompanied by the economic stagnation especially after COVID-19 changed the plans of business entities and government. Therefore, the country need to rely on the mobilization of appropriate resources for the resumption of economic growth in the future.

A significant economic trigger of this growth may be a sharp increase in housing construction with an

annual growth of 8–10% in the next 5–10 years. During the period of the largest housing construction in 2015, the volume of investments was 2.2 trillion rubles. 14% of all investments in fixed assets (according to general statistics) or 12% in fixed capital accumulations (according to national accounts).

It should be noted that the share of investments in housing construction in the total gross fixed assets in Russia is the smallest among other countries (the USA – 25%, Germany – 29.9%, Spain – 30.1%, Italy – 25.1%, Canada – 31.4%, the UK – 23%, Finland – 28.3%, France – 31.7%). The Russia's indicator is two times lower than that of developed countries. Speaking about Europe, the expenditures on a real estate construction costs in Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Romania, Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Republic of Kosovo, Albania, Northern Macedonia, Bulgaria are also 20% higher than in Russia. It should be noted that construction is always associated with related industrial sectors and infrastructure. Thus, annual expenses to the utility networks in Russia are 250 billion rubles.

Since the 2014 crisis, lending to SMEs has been declining for three years. Considering last three years the volume of loans to small and medium-sized businesses in Russia increased by 15% in 2015 against the background of lower interest rates and the action of preferential state programs [Peremitin 2018].

The rate on short loans to non-financial companies was at a record low in 2019 since October 2011. The Bank of Russia published data on weighted average interest rates on loans to non-financial organizations in September 2019. It turned out that in July the interest rate on loans dropped to 8.7%, was the lowest in almost eight years. Just in October 2011 it was at the level of 8.6%. However the profitability of business was 30% in 2011 whereas became 6-8% in 2018. Hence not only citizens have a limited opportunities to buy a flat, but also SMEs have not appropriate support. The construction companies do not have funds for the development and innovations of the materials, optimization of supply chains and logistics taken into account modern digital requirements. The industry lives on old fixed assets and is not able to compete with imports. Furthermore, the norms of the national state standard (GOST) become easier for producers and worse for the Client.

The financial stability of SMEs could significantly facilitate the development of the construction industry [Industry 4.0... 2015]. For example, reduction of the interest rates on long-term lending because 5-7 years is the project payback period. Thus, the

business will have money for investment in fixed assets and human capital.

Key problems of the construction industry today are high level of taxes, lack of the investment, as a result lack of the construction orders and customer insolvency, high cost of the materials due to worn-out machines, low level of innovations, digitalization, data analytics, high interest of the commercial credit, lack of the qualified staff and employees specialized in construction process. All of these problems allo-

cate production at 2.0 level. Whereas transformation of the construction industry in the Russian Federation should also be accomplished in the context of the Industry 4.0 formation [Terelyanskiy 2018]. The Figure 1 below presents main global trends influencing the Engineering & Construction Industry [Shaping the Future... 2016]. Current position of Russia at each dimension might be a good ground for further research.



Figure 1. Global trends – Importance for and Impact on the E&C Industry
 Source: [Shaping the Future... 2016]

There are obvious reasons for change dictated by economic conditions. In order to catch up the developed countries in the total housing stock Russia has to rise housing provision by 2–2.5 times by building an additional 3–4 billion sq. m of comfortable housing. It will provide a certain decrease of outdated housing stock.

In order to reach the goal set by the President of the Russian Federation Mr. Putin, 120 million sq. m will be built by 2025 and the volume of housing construction should rise by 8-10% per year during the next 5 years. There is possibility to achieve indicators of housing provision and comfort level of developed countries keeping a fast pace of development and ensuring 30 sq. m per capita by 2030.

How real is the 8 percent annual growth in hous-

ing? During the period of 2000–2008 housing construction in Russia had been more than doubled – from 30.3 million to 64.1 million square meters. m. The average annual growth rate of housing construction during this period was 8%. At the same time, the share of state housing decreased from 12 to 5%. The introduction of private property at the same time increased from 19.3 million to 53.9 million sq.m with more than 10% average annual rate of housing commissioning. A list of appropriate measures facilitating further positive evolution of the housing construction industry is presented below.

- reconstruction and development programmes for poor families. Good example might be a programme in South Africa (Cape town) where government provided houses for free for a low in-

come families in poor districts. State support in a view of the introduction of tax incentives, low interest rates for housing construction companies and other benefits;

- demand encouragement, reduction of the housing prices, interest rates for population and easy conditions for the provision of a mortgage loan, the development of more profitable forms of home acquisition (for example, through savings housing banks), as well as mass construction of tenement houses provided on a favorable terms for rent;

- measures for creation of conditions for mass participation of citizens, especially in rural areas and small urban settlements, in individual construction from prefabricated block structures, technical connection to communications, the construction of a foundation, construction skills training;

- production in compliance with Industry 4.0 requirements and technical measures, industrial development, supply chain and logistics optimization, implementation of robotics, a sharp increase of the efficiency and quality [Maskuriy 2019];

- organizational and economic measures aimed at the simplification of all aspects of housing construction, from the provision of land to the approval of the construction project, technological connection to communications, etc.

Consequently, a fundamentally new improved and updated housing construction program should be launched in every constituent entity of the Russian Federation separately depending on the current stage of development. Correspondingly, a number of legislative acts should be adopted, stimulating expansion of existing firms and appearance of new construction organizations, especially small and medium units, facilitate registration, receive land plots, coordinate projects, attachment to communications, etc.

Thereby there is a need for a whole system of legislative acts similar to those developed and adopted in a fairly short time for the development of a mortgage in Russia. Even if average housing price drops down, an increase of housing construction volume by 2–3 times in case of a mass shift to a low-rise buildings from lightweight structures will require additional financial injections.

Current volume of investments exceeds 2 trillion rubles. A maximum of 1–1.5 trillion rubles is additionally required for the double growth of volume of housing construction, and to triple – an additional investments of 1 trillion rubles. In addition there are associated industries (public utilities, social facilities) and as a result required supplementary expenses in

infrastructure. Hence, it will double the total amount of additional investments.

With proper organization and management, the pace of housing construction can be increased to 8–10% per year for approximately a three-year period. The solution of the housing provision problem in the Russian Federation in compliance with urban policies of United Nations sustainable development goal would rise the quality of life of the population being a guarantee for further economic and social development and ensuring the sustainable foundation for the confident and reliable future.

Conclusion

The government policy towards further recover of the economy may have the following directions. Firstly, 3 trillion rubles can be used by replacing the irrevocable financing of federal and regional budgets for the development and implementation of projects under the governmental goal “National Economy” and partially with other expense items. In other words the process of issuing a low interest loan at 3–5% per annum with compensation to large banks a significant share of the credit rate. Bank assets are the country's main “money bag”. Last year it reached 96 trillion rubles and was in 2.5 times higher than all public funds. 70 trillion rubles constitute the assets of state-controlled banks. Only Sberbank has 30 trillion rubles on its account which is 1.5 times the size of the federal budget.

As a result 3 trillion rubles will be released in a view of funds from the consolidated budget, of which 100 billion will have to be spent on interest rates, and 2.9 trillion can be used to fight COVID-19 infection and compensate for lost incomes of the population and business.

Following the example of developed countries ensuring low-interest loans guaranteed by the state is a rational approach. This is the most effective way to help businesses, especially small and medium, as well as regions.

The second major source of funds is part of the foreign exchange reserves. The volume of reserves without a national welfare fund, part of which is already in use, exceeds \$400 billion, of which 100 billion can be borrowed (the state spent 211 billion during the crisis of 2009 with almost the same amount of foreign exchange reserves). It is not necessary to use all this amount in 2020. The remaining 300 billion gold and foreign exchange reserves are more than enough to ensure the financial security and sustainability of the country.

The third source is a possible bond loan of 2–3 trillion rubles for the financing of the production of

cars and real estate construction. Households willing to buy new cars or buy new house on preferential terms at the price and interest rate of loans and mortgages could have acquired this loan during 1–3 years in the required amount. Such extremely beneficial loan aims to finance the industries. People, in its turn, will spend less for a car or housing purchase. Moreover, the population of Russia has 40 trillion rubles savings and hundreds of billions of dollars stored in offshore and other foreign accounts.

If these sources are not sufficient, Russia can resort to borrowing funds by the state. Russia is one of the few countries with a foreign economic debt of 3% and a domestic debt of 15% GDP. Without any risk this debt can be increased up to 30–40% (safe

international standard – 60%). For comparison: the external and internal debt of European countries surpasses 150%, the USA and Japan – 200%, and China – 250% of GDP. Russia could borrow money from international financial organizations, individual countries with large foreign exchange reserves, from the largest banks and investment firms.

Summing up it is very important to use these new sources of additional funds since they are necessary not only to improve the current unfavorable situation, but even more important – in the future, to overcome stagnation, switch to an innovative development path, increase incomes, and ensure social-economic growth on the basis of the scientific and technological re-equipment of the country.

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ЭКОНОМИКА: ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ

Вестник МИРБИС : международный научно-практический журнал. ISSN 2411-5703. URL: <http://journal-mirbis.ru/>.
№ 2 (22)' 2020, DOI: 10.25634/MIRBIS.2020.2

Ссылка для цитирования: Vasiliev, A. N. Formation, role and opportunities for the development of the construction industry in the modern economy of Russia // Вестник МИРБИС. 2020. № 2 (22). С. 27–36. DOI: 10.25634/MIRBIS.2020.2.3

Дата поступления 28.04.2020 г.

УДК 338.012, 338.27, 338.24

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СТАНОВЛЕНИЕ, РОЛЬ И ВОЗМОЖНОСТИ РАЗВИТИЯ СТРОИТЕЛЬНОЙ ОТРАСЛИ В СОВРЕМЕННОЙ ЭКОНОМИКЕ РОССИИ

Аннотация. В данной статье рассматриваются факторы, влияющие на процесс цифровизации государственных и частных предприятий. С помощью статистического анализа на его уровне в одной из самых развитых стран Европы, Финляндии, как предприниматели в частном и государственном секторах сталкиваются с этим процессом. Данная статья является главным субстратом этого исследования, которое направлено на определение этих факторов, в обществе в целом и в человеческом капитале. Процесс цифровизации происходит по-разному в зависимости от культуры, уровня образования, научно-технического развития, экономического уровня, безопасности цифровых услуг и т.д. Потребности заинтересованных сторон государственного и частного секторов являются факторами, влияющими на уровень усвоения технологических изменений в сторону цифровой эпохи. Весь этот процесс перемен и то, как человечество сталкивается с ним, составляют цифровую культуру.

Ключевые слова: цифровизация, цифровая культура, инновации, коммерция, интернет, цифровая экономика, технологии.

JEL: L52, L7, L74, L78, M21

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