

Innovative-oriented neo-industrialization as an imperative to the development of the Russian economy

I.V. Minakova

Faculty of Public Administration and International Relations
Southwest State University
Kursk, Russia
irene19752000@mail.ru

O.I. Solodukhina

Faculty of Public Administration and International Relations
Southwest State University
Kursk, Russia
kuznecova_olja@mail.ru

T.N. Bukreeva

Faculty of Public Administration and International Relations
Southwest State University
Kursk, Russia
tnbinchina@yandex.ru

Abstract— In developed countries, the view prevails that industrial production is losing its central importance in the economic system, and it is being replaced by a rapidly growing tertiary sector. However, world practice shows that industrial production is currently the most efficient sector of the economy. Neo-industrialization is possible only under conditions of innovation implementation. The paper proves the fact that a share of cutting-edge knowledge embodied in technologies, equipment, personnel training, and manufacturing process management in developed countries makes up from 70 to 90% of GDP growth. Introduction of innovations has become a key factor of market competition giving progressive companies an opportunity to reach excess profits based on assignment of intellectual rent arisen by the monopoly usage of more advanced technologies. Nowadays, Russia faces a problem to form advanced engineering and manufacturing systems. At the same time, the Russian economy does not have an operating system of state stimulation of innovation development. The factors constraining the innovation-oriented development of industry in Russia are exposed thus: expensive energy resources, inefficient taxation system, insufficient money supply, unused human capital, quality of administration. The necessary measures which ensure the transition to a neo-industrial development with sustainable growth of the main indicators of national production and consumption have been identified.

Keywords – *neo-industrialization, industrial production, industrial policy, innovative development, innovations*

I. INTRODUCTION

Nowadays, one of the most promoted concepts in the framework of the globalization project is a concept of a post-industrial society. Its main characteristic is the reorientation of the production structure from the industrial sector to the service sector. In this model, industry and agriculture are rated as archaic structures. They are supposed to be replaced by new service industries. The increased importance of service sector

is accompanied by the structural shutdown of industry and construction, agriculture and forestry. However, the task of ensuring the national economic security of Russia makes it necessary to reconsider the orientation of the service restructuring by firstly fine-tuning the industrial sector. This strategy would allow Russia to reduce the degree of economic dependence on external factors, and create an independent foundation for sustainable development accordingly.

Except for the Great Depression, since the beginning of 20th century, the share of industry in the global gross domestic product had increased consistently (Fig. 1) [8].

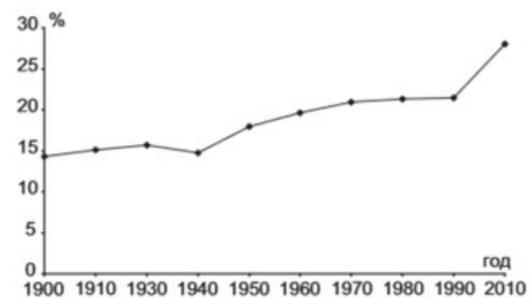


Fig. 1. Share of industry in the global GDP

Thus, in spite of post-industrialists' forecasts, the world is entering a neo-industrial phase of development, not a post-industrial one. At the same time, the dynamic industrial development of Russia is possible only on the basis of the introduction of up-to-date innovations.

It was the factor of innovation that ensured economic progress through time. At present, in all considered highly developed countries, the share in GDP growth has an upward trend. On average, in the EU, the value of the innovation factor reached half of all components of GDP growth by the beginning of the new millennium. In Germany and Austria, it

has recently reached 67% [7]. It was not the market, but targeted management efforts that ensured the West European (especially German) effect of innovation.

The research purpose is to identify the factors constraining the innovation-oriented development of industrial production in Russia and to identify ways of neutralizing their influence.

II. RESEARCH MATERIAL AND METHODS

During the research process the following research methods were employed: universal methods of scientific cognition including the empirical and theoretical levels of scientific knowledge, analysis and synthesis, a systematic approach, and conceptual modeling. In addition, methods of scientific research such as dynamic and structural analysis, and the construction of logic circuits were used. The information and empirical part of the research was formed on the basis of data provided by the Federal State Statistics Service; research results of the World Bank; analytical reviews published in periodicals, domestic and foreign literary sources, and additional material from scientific research institutes.

The concept of post-industrial society was developed in the works of such foreign researchers as Z. Brzezinski, R. Katz, M. McLuhan, Yoneji Masuda, J. Martin, A. Toffler, A. Touraine, D. Bell, and others. The problems of neo-industrialization are analyzed by Yakunin VI, Sulakshin S. S., Bagdasaryan V. E. [8]. The works of the following Russian and foreign scientists and economists are devoted to innovation issues and innovation activities: S.U.Glaziev [13, 14], V.V. Ivanter [6], V.L. Inozemtsev [5], Ch. Greenhalgh [1], M. Rogers [1], and G.M. Peter Swann [2].

Practical significance of the research is concerned with developing recommendations that can be used to improve the process of strategic planning and current management of innovation development of the industrial sector in Russia. The authors' theoretical ideas and research results are applicable to the activities of government bodies at various levels.

III. RESEARCH RESULTS

The fact that the forced servicization is accompanied by total economic degradation is evidenced by the trend of 'industrial rebound' in a number of post-Soviet republics. As soon as the economic decline stopped, entering the growth phase, the share of added value of industrial sector in GDP of the certain countries began to increase: the more stable the industrial production was restoring its position, the higher the economic growth turned out to be. On the contrary, in the countries where the decline was not stopped, there was a further contraction of industry (Moldova, Kyrgyzstan, and Tajikistan). Therefore, the deindustrialization of the 1990s was not a transition to a new post-industrial way of life, but a reduction of the basic potentials of post-Soviet economies mainly connected with the industrial sector [8]. At the present time, the important direction of the country's development is neo-industrialization based on industrial development and introduction of new advanced technologies.

Innovative development is fundamental to the restoration of industry today.

Back in the 1960s, science in the West actually functioned independently of the economy sphere. With the exception of the military-industrial complex, it was not involved in the development of economic sectors. As the researches notes, during this period, state scientific policy had cultural features. Reorientation of scientific research for satisfying practical needs and economic challenges began in the West in the second half of the 1960s. Science has become defined as a factor of economic growth. In accordance with this approach, developments are primarily stimulated that are aimed at increasing the growth and competitiveness of products. Finally, in the late 1990s, science and technology policy was finally transformed into an innovative one emulating the West.

Unlike business, states consider R&D as a sector with long-term economic returns. Active support of renewable energy engineering programs illustrates this fact; the German 100,000 solar roof program involves state subsidies for research on solar energy to the tune of half-a-billion Euros.

Special attention is paid to seed-stage financing of the development and implementation of innovations, which, as a rule, constitute up to 30% of the total project cost. In the West, the system of innovative incentives of industry includes such traditional financing instruments as targeted subsidies, grants, mortgage lending, etc. A state innovation procurement practice builds confidence of product implementation and contributes to the success of its rapid introduction into industrial production. In EU countries this kind of procurement provides 16% of gross domestic product [7].

At the same time, there is a significant lag in the financing of scientific research in Russia compared to developed countries. In the 1990s, Russia's scientific policy was based on 'the Gaidar imperative' – 'Science will wait'. In terms of percentage of science expenditure in GDP, Russia is ranked in the upper thirties, along with Greece, New Zealand and Slovenia [9].

In addition, there is a 'technological lag'. The results of basic research are embodied in specific technologies over half a century: Applied developments come to industry and change it in 15–20 years' time. This is clearly shown by innovations in the defense complex - on average, 10 years pass from the start of financing a new weapon project to it being supplied to an army.

It is necessary to pursue a reasonable industrial policy for solving these problems. A policy of reduction of extraction and consumption of natural resources and energy to the level of the national industry needs should be put in place. At the same time, the right to extract oil and gas should be granted to companies on a competitive basis with payment to them per unit of extracted raw materials; the products themselves should belong to the state.

The prices of gasoline, fuel oil, gas, electricity and utility services at least should be halved due to the removal of adventitious costs, inefficient management and excessive taxes on domestic energy consumption. This would be the most

important factor in raising the competitiveness of Russian industry and increasing the well-being of the population [3].

It is advisable to change the order of interaction of the state with mining companies: the right to extract oil, gas, etc. should be given to companies on a competitive basis with a fixed fee per unit of extracted raw materials. At the same time, the raw material remains under state ownership and must be sold at world prices without involving offshore companies and intermediaries.

The Russian tax system needs to be improved. First of all, it is necessary to modernize the income tax and value added tax.

The introduction of a progressive income tax is one of the main measures to improve the socio-economic situation in Russia. According to the calculations of the Institute of Social and Economic Studies of Population of the Russian Academy of Sciences, if Russia had an average European progressive tax scale, Russia's GDP would be 30-50% higher than in reality [12]. The greater the income of the population, the greater the demand for goods will be thus ensuring GDP growth. At the same time, Keynes's Psychological Law of Consumption states 'when aggregate real income is increased, aggregate consumption is increased, but not by as much as income'. As a rule, these funds are transferred overseas for purchasing real estate, luxury goods such as yachts and football clubs, or simply deposited in foreign banks, which also does not contribute to the production and GDP growth in Russia.

In such conditions, the introduction of progressive taxation will increase the marginal propensity to consume in the Russian economy [10]. The last one will ensure the growth of GDP, including industrial production.

The biggest problem tax affecting industrial development in Russia is VAT. However, VAT is one of the main sources of budget revenues. In 2015, the amount of collected VAT was RUB 4.1 trillion; it's 32% of federal budget revenues [11]. The materiality of VAT for the state budget requires special attention to the methods and procedure for reforming this tax. It is a paradox, but a taxation base of the value-added tax is not the added value, but the cost of goods sold. Another paradox: VAT is charged on advances, i.e. when value added has not yet been created. The existing methods of calculating VAT and its administration system give to unscrupulous taxpayers great opportunities for tax evasion and create additional problems for good faith taxpayers. The numerous conflicts between tax authorities and taxpayers are related to VAT. At the same time, the actual collection of VAT does not exceed 30% [11]. It seems to us necessary to introduce the 'value added' indicator as the main reporting indicator of enterprise activities. According to some economists, it is advisable to establish a unified VAT rate equal to 8%; reduce the number of VAT exemptions; calculate VAT as a product of value added and tax rate; cancel the VAT refund for exporting raw materials; 50% of VAT reinvested regionally. The implementation of the proposed measures will improve business climate, significantly reduce the number of subsidized regions, increase the collection of VAT from 30%

to 90% and give the budget an additional RUB 2.0-2.5 trillion [11].

The reasonability of the proposed measure is confirmed by the report 'U.S. corporate tax policy for the 21st century' of the Office of Tax Policy of the US Department of the Treasury. The next issue is social contributions of enterprises, the nominal rate of which is 30% of the wage fund. This charge is very high for enterprises with low and medium wages and with high-value-added products. In this regard, it seems necessary to establish a flat rate of social contributions equal to 20%. Reducing the nominal rate of social contributions by 1.5 times (from 30% to 20%) will have a positive effect on business climate and on the competitiveness of industrial enterprises.

Calculations show that due to the implementation of these measures in 2018 the additional revenues of the budget will be in the range of 4.0 to 5.5 trillion rubles: improvement of income taxation will bring 2-3 trillion rubles, improvement of VAT - 2-2.5 trillion rubles [11]. In future, incomes will grow due to the growth of the taxable base and the improvement of business climate in Russia. These funds could be used to stimulate innovation in industrial enterprises.

The most important factor constraining the industrial innovation in Russia is the quality of administration.

The 7th post-industrial techno-economic paradigm will be based on management science, virtual information technologies and innovative economics created on its basis. Currently, Russia is an importer of various management strategies; it does not have its own effective idea. Therefore, in this matter, Russia is in the catching up process. This upsets the balance and rules out the principle of healthy competition between countries.

The Russian educational system is based on training of humanities scholars and middle-ranking managers. Training of specialists in natural science and technology is carried out only by state universities, the share of the experts in these fields is reducing, and as a result, the number of professional personnel capable of contributing to the development of the domestic industry is rapidly declining. In case of the country's transformation, existing intellectual capital may emigrate. Repeated historical upheavals, revolutions and coups which led to a massive fall in living standards caused widespread waves of emigration.

At the beginning of the 20th century, members of nobility left the country; in the 1990s, a large number of experts in technical and of natural sciences left Russia. Working population reduction can be caused by two circumstances: demographic decline and emigration of intellectual capital. It can have negative effect for reindustrialization, for which human capital is no less important than the material basis of production.

Russia is the only country of a G20 group with a net reduction of a number of scientists and engineers, research institutes and project entities. According to the statistics of recipient countries, Russia's loss from 'brain drain' is evaluated by several million educated people, including 250 thousand scientists in advanced fields [4].

Therefore, this problem can be solved by generating a demand for innovations from the real sector of the economy. Countries having experienced so-called economical miracles confirm the need for forced increase investments up to 35–45% of GDP [7].

The main source of financing the growth of investment efficiency was the multiple expansion of credit organized by the state through controlled emission of money under the state and private entities obligations in order to finance investments in modernization, development and expansion of advanced industrial and technological systems. This implies the need of reorienting monetary policy for the needs of economic development through the creation of a multi-channel mechanism of targeted credit under the state and private entities obligations to introduce advanced technologies for manufacturing expansion.

In order to overcome scientific and technological stagnation, R&D expenditures should be doubled. This task should be solved by combining the growth of state expenditures on implementation of appropriate science and technology policy with the stimulation of the private sector's innovative activity, tax incentives, infrastructure development and credit expansion.

As world experience has shown, a powerful impulse for renewal of fixed capital is required to bring economy to the waves of innovation. However, the level of investment and innovation activity required for this is twice as high as the current Russian financial and investment system has.

IV. CONCLUSION

The phenomenon of a 'service society' is not universal and phasic by its nature. It is geographically localized within the countries of 'golden billion'; and it is absolutely not acceptable for Russia. At the moment Russia needs a competent industrial policy pursued within the framework of neo-industrialization. Responsible government administration should be aligned in accordance with the objective trend - the priority of industrial production.

This implies the need of reorienting monetary and fiscal policy for the needs of economic development and incentives for enterprises introducing new technologies.

The economic development policy should review:

- the reduction of interest rates and the creation of mechanisms for refinancing of capital investment and innovation activities;

- the introduction of progressive income taxation, the modernization of the VAT system, tax exemption for enterprises investing business profit in manufacturing expansion, R&D implementation and introducing new technologies.

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