

Modernization Paradigm of New Industrialization Research

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Abstract—The paper considers the modernization paradigm as one of the theoretical platforms for the study of the currently emerging scientific paradigm of new industrialization. As a result of generalization of scientific research conducted by both domestic and foreign scientists, the authors of the paper single out the essential characteristics of structural, industrial (production, technological), spatial, and institutional modernization.

Keywords—new industrialization; modernization paradigm; structural modernization; industrial modernization; spatial modernization; institutional modernization.

I. INTRODUCTION

We regard the new industrialization as a twofold process, on the one hand, of innovative renewal of basic industries (*modernization*), and, on the other, the creation of new high-tech industries (*neo-industrialization*). For the industrial regions of Russia and other countries, the process of high-tech modernization of basic industries plays an important role in ensuring new industrialization. In this regard, we consider it important to understand the key provisions of the theory of modernization, which are the scientific platform for understanding the process of new industrialization.

II. LITERATURE REVIEW

The concept of “paradigm” was proposed by the American scientist T. Kuhn to designate the leading representatives and methods for obtaining new data during periods of extensive knowledge development [1].

The modernization paradigm of the study of socioeconomic dynamics received impulses of its formation more recently in the 50–90s of the 20th century mainly in the works of foreign authors, such as M. Weber [2], W. Rostow [3], D. Lerner [4], M. Levy [5], S. Eisenstadt [6], E. Giddens

[7], T. Parsons [8], S. Black [9], D. Bell [10], S. Huntington [11], R. Inglehart [12], V. Zapf [13], G. Thernborn [14], and others.

The transition of Russia to the liberal market model of development from the beginning of the 90s of the 20th century, which required a radical transformation of economic relations, strengthened the scientific interest of domestic authors in understanding the laws, processes of modernization, including economic ones. In this direction, it should be noted the works of A. G. Aganbegyan [15], Ye. G. Yasin [16], S. Yu. Glazyev [17], V. A. Tsvetkova [18], A. A. Akayev [19], V. L. Inozemtsev [20], and others.

Within the *regional economy* studies, key provisions of the modernization paradigm are involved in the work of such representatives of the Ural scientific school, as A. I. Tatarkin [21], O. A. Romanova [22], Ye. G. Animitsa [23], N. Yu. Vlasova [24], Ye. B. Dvoryadkina [25], Zh. A. Yermakova [26], and others.

As a result, scientists have formed a “substantial theoretical basis for considering criteria and phases, stages and types, rates and nature of modernization processes” [27, p. 87].

In turn, “the use of well-established, time-tested provisions of the modernization theory allows regionalist-scientists to understand the reasons of the transformation of regions in time and space, to formulate and substantiate signs of identification of regional modernization processes, to suggest their systematization, as well as to characterize and classify the conditions and factors contributing to the improvement of regional competitiveness” [27, p. 88].

Although the majority of researchers presents the concept of “modernization” in a macroeconomic context as “the process of transforming a traditional society into a society characterized by the use of computer technology, rational and secular attitudes, and a high level of differentiation of the social structure, there are many nuances in understanding the content and scope of this process. Specialists are forced to admit that

the concept of “modernization” is not very clear, allows for some ambiguities in the interpretation of its content, but nevertheless, it is more convenient to use than other terms” [28, p. 42].

In a concentrated form, the economic meaning of modernization is disclosed in the economic encyclopedia, edited by academician L.I. Abalkin, as “updating the facility, bringing it in line with the new requirements and standards, requirements specification, quality indicators. Machines, equipment, and technological processes are mainly subjected to modernization” [29, p. 439]. In the same vein, the economic content of modernization is interpreted in the economic dictionary of B. A. Raizberg, L. Sh. Lozovsky, Ye. B. Starodubtsev [30, p. 344], in the encyclopedic edition of G. S. Vechkanov and G. R. Vechkanov [31, p. 344], and others.

Considering the interdisciplinary nature of the research object, *we understand the modernization of the regional economy as a set of processes of quantitative and qualitative transformation (improvement) of economic activity based on innovative renewal, as a result of which progressive shifts occur, the regional economy acquires modern features, increases its adaptive capabilities, overcomes the backlog in socioeconomic development, and moves to a new stage of evolution.*

Formulating the author’s position, we focus on the fact that as a result of the modernization changes caused by innovative and technological changes, the regional economy acquires qualitatively new facets, new content, enhances its adaptation and competitive opportunities.

It can be concluded that the most active modernization processes were studied by Russian scientists in the 1990s. It was at this time that a market economy was being formed, and it was necessary to link the development of a market economy and modernization. In subsequent years, the interest of domestic scientists faded somewhat, as new problems emerged that needed to be investigated.

Within the scientific subject of the study of regional economics, structural, spatial, industrial (production, technological), and institutional modernization is of the greatest interest.

III. STRUCTURAL MODERNIZATION

Our study of the scientific literature allowed revealing signs of identification of the structural modernization processes of the regional economy: *an increase in the regional economic indicators of the share of industries (types of economic activity) of the fifth and sixth technological paradigms; an increase in the proportion of finished products with a high share of value added and innovative products in the total output of enterprises in the region; an increase in the share of knowledge-intensive industries in the structure of the region’s economy.*

When conducting a structural modernization of the regional economy, scientists see the following difficulties. “Firstly, there is an intra-national specialization of the regions, by virtue of which production in a number of regions will be focused on the extraction of minerals in any variant of the

development of the national economy. Secondly, the possibility of diversifying production and developing manufacturing industries, even in regions with a predominantly processing specialization, substantially depend on the competitiveness of production, the availability of a market for production distribution, conditions for doing business in the region, and its investment attractiveness. It is possible to expect an increase in the degree of product processing in regions where processing will be economically efficient, and today, the general situation in the country is such that at modern technological level, production conditions (high degree of monopolization, tax regime, etc.) and the level of labor productivity, an increase in the degree of processing of raw materials does not necessarily lead to an increase in the share of value added in the final product” [32, p. 17-18].

IV. RESULTS AND DISCUSSION

In scientific research, spatial modernization (transformations of a territorial nature) is interpreted as the design and assimilation of a new model of spatial development and management of the Russian economy, through which it will be possible, on the one hand, to create a “framework of regional (republican, county, provincial, district) and territorial (urban, regional) centers of economic growth, capable of forming and transmitting innovative impulses of economic development to the adjacent subjects; and on the other hand, to manage these processes, relying on market institutions, bringing deep and marginal regions and territories to the accelerated development trajectory” [33, p. 4].

We observe that modern regional science identifies the following major areas of spatial modernization, improving the conditions for the spread of innovation, creating a favorable environment for raising the population’s standard of living: “the creation of a sustainable spatial framework for a variety of advanced development zones capable of transmitting innovations to the vast periphery of the country, combined with an effective policy of alleviating regional social inequalities. Perspectives implementation priorities may be different in goals and mechanisms, objects and nature of problems” [34, p. 77]. In particular, Professor N.V. Zubarevich identifies the following priorities and mechanisms for the spatial modernization of Russia: reliance on modernization centers, determined on the basis of competitive advantages and reduction of barriers to their development; system support of major and largest cities, urban agglomerations as translators of innovations; development of industrial infrastructure, allowing to reduce the economic distance; using the institutions of federalism as a mechanism for coordinating regional interests; application of social policy and human development as a tool for smoothing interregional differences” [34, p. 77-85].

In a concentrated form, the content of spatial modernization consists in the creation of an institutional environment by the State for modernization through various *development institutions*, as well as in the formation of a *polycentric* spatial structure of the economy, which is supposed to be done by identifying and supporting the development of *economic growth centers*. These include, first

of all, the largest and large cities, which should transmit innovations to the periphery and contribute to the “implementation of the network effect around such centers, as well as new potential centers of competitiveness growth. These are marginal territories as mouthpieces and translators of Russia’s geopolitical interests, deep territories and small cities as necessary participants of cluster projects and solutions, rural territories as new centers of competitiveness arising from the formation of a diversified economy..., and self-development processes are considered as the main driving force of modernization of the spatial structure” [32, p. 39-40] with a focus on endogenous growth factors.

Spatial modernization is represented by the creation of *business areas*, typical examples of which are technology parks, special (specific) economic zones, manufacturing and industrial parks, transport and logistics centers, specialized retail and warehouse zones, etc. in the world and domestic practice and science.

V. CONCLUSION

In the framework of in-depth studies of Corresponding Member Zh.A. Yermakova has revealed two fundamentally different approaches to the understanding of technological modernization: as a local process of improving something (improving or strengthening the design of a machine); as a broad process of introducing new approaches or strengthening the existing ones, improving the phenomena of economic and socio-political life (modernization theory) [35].

In the first sense, technological modernization mediates a narrow, technocratic approach and does not reflect the features of the current stage of STP. In the second case, the modernization process is treated as universal and global, during which traditional societies become industrially developed ones. At the same time, the formation in the developed countries of the knowledge-based economy attaches particular importance to the innovation component of the modernization process and makes it necessary to clarify a number of aspects.

In an extended interpretation, technological modernization is defined as an interrelated change in the material and technological base of a complex of industries based on the introduction of technological innovations and the development of regional inter-sectoral innovation links in specific areas of specific industries. The proposed definition reflects the qualitative changes in the technological base of the region’s industrial complex based on the transfer of the most important achievements of science and technology to production.

The researchers highlight the processes of *institutional modernization*, the key characteristics of which are transformations of relations between the State and business “about ownership, its effective management and the establishment of transparent rules: who is responsible for what in socioeconomic development. If we proceed from official statistics, an institutional revolution occurred in Russia as a result of privatization in a short time: private property ousted the state one from all the main resources of economic growth”

[36, p. 11], what is traced by indicators of employment, cost of fixed assets, cost of fixed capital, etc. According to scientists, “institutional modernization is the process of penetration of the market infrastructure in each enterprise, its climate change, and not just a mechanical change of ownership forms” [36, p. 11]. The authors note that at the present stage, the institutional modernization of the State and business is at the initial stage of development in Russia.

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The current economic situation clearly indicates that the modernization of Russia and its regions (macroregions) should be achieved through the implementation of a new industrialization policy.

Our study has shown that the modernization paradigm is the most important theoretical foundation for the study of new industrialization processes, which allows identifying the criteria and phases, stages and types, rates and factors of high-tech industrial production in the country and its regions. The provisions of industrial modernization, the consequence of which are structural, spatial, institutional modernization, are of particular interest in our study.

The development of industry is a key factor in the modernization of the economy of Russia and its industrial regions (macroregions).

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