Formation of Industrial Policy Under Uncertainty Growth

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Abstract. With the growing global uncertainty index caused by unforeseen shock scenarios from viral exposure, as well as the rapid development of new digital technologies, it is necessary to find effective ways to manage production activities. The relevance of the study is to justify the need to institutionalize the forms and methods of directive management of the economy to increase its innovativeness and competitiveness, in accordance with the characteristics of each country. The research purpose is to reveal the nature of modern discussions regarding the methods regulating economic processes and to justify the increasing role of industrial policy of states in combination with ensuring freedom of enterprises. The methods include a retrospective analysis of the forms and methods regulating economic activity, a comparative analysis justifying the scenarios of industrial revival on a new technological and social base under centralized state planning and management. As a result, incentives for production and investment activities in high-value added industries are justified using industrial policy tools (investment, tax, financial, administrative regulation, etc.).

Keywords: Competitiveness · Crisis · Development · Industrial policy · Institutionalization · Uncertainty

1 Introduction

At present, profound transformational shifts are taking place in the scale and models of reproductive activity of business entities at the level of world and national economies. Representatives of economic authorities and business are to understand the essence of the changes to develop new lines and directions of development, competencies, methods of organizing production. It is no coincidence that in the scientific and business environment there is increasing interest in the search for effective methods and ways to develop the potential of manufacturing sectors that are adequate to modern challenges of the development of society, the world economy, science and technology, and natural factors.

The exhaustion of purely market mechanisms and models for the priority organization of high value-added industries requires the identification of new ways to boost the business activity of industrialists and entrepreneurs based on focused policy that ensures clear and stable operating conditions on the planning horizon of up to three to five years. In the global economy, the interdependence of firms in individual countries

has become strong. The links of a single cross-border value chain, the jumps of uncertainty for them are more synchronized due to the general dynamics of production and consumption, regulatory instruments. In such large integration entities as the European Community, NAFTA, Mercosur, as well as the Eurasian Economic Union (EAEU), close trade and economic relations between the participants lead to more rigorous synchronization of the uncertainty factor caused by unforeseen shock phenomena, such as a modern oil crisis or social stagnation due to the coronavirus pandemic.

The argument has become significant regarding the growing role of unforeseen large-scale factors provoking uncertainty around the world, because of which both domestic production and global value chains will suffer, weakening production links especially in less developed countries of the world that do not have high scientific and technical potential. To avoid a particularly negative scenario of a fall in GDP due to a loss of a place in global value chains, national economies need to switch to production of higher value-added goods, import-substituting policies and increase domestic consumption, which will promote a new economic order using state policy decisions.

2 Methodology

In the course of the study, the authors applied the retrospective analysis of the forms and methods of managing countries with different types of economic activity, attitudes toward freedom of enterprises, a meaningful economic interpretation of the implemented industrial policy, and the characteristics of the economic practice of leading world powers. Changes in distribution of centers of economic power in world economic geography, mainly caused by Industry 4.0, as well as by significant social and humanitarian shocks in the form of a deadly virus pandemic, an oil market crisis, local wars, and West-East sanctions, are considered.

In the business agenda and specialized literature, it has become a habitual place to exploit the terminology of national economic egoism, protectionism, promote various restrictive measures in sanction and counter-control regimes for political purposes, decline in living standards under the influence of the global crisis, etc. The increased macroeconomic uncertainty in the ways and methods of economic development compel even developed capitalist countries to introduce and strengthen directive methods regulating economic activity. The implemented measures of direct and indirect support of private enterprises are more inherent in doctrines of socialism than the concept of “pure capitalism” in the version of the Washington Consensus, and contribute to the revival of industry on a new technological and social base under centralized state planning and management.

3 Results

Since 2011, many researchers note that international value chains have stopped expanding, their volume growth has almost stopped today. According to Ahir, Bloom and Furseri [1], this change along with the digital transformation of industry has been

caused by the growth of the uncertainty factor. They showed that from 2008 to 2011, the World Index of Uncertainty (VIN) grew by 200%, and in today's environment of deep geo-economic shock caused by the coronavirus pandemic, the suspension of industrial production and limited human mobility, it has grown even more. Under a high degree of uncertainty regarding the favorable business environment and the deteriorating business environment, the willingness of companies to invest in the development of production and to hire workers, as well as to carry out industrial research and development (R&D), is declining. In the consumer market, people are objectively intensifying their tendency to save, they are reluctant to spend money since there is lack of understanding the favorable nature of ongoing changes and a clear increase in unemployment.

The experience of countries successfully implementing industrial policy, especially in the face of growing uncertainties, shows that all of them used import substitution, but at the same time they focused on exporting products to the world market. They are characterized by systemic measures to attract foreign investors and to form the global competitiveness of their enterprises and their products. The most successful of them were embedded in global value chains, making extensive use of various forms of cooperation, strategic alliances, while maintaining their independence and economic security. The main approaches to the formation of industrial policy are presented in Table 1.

Table 1. The content of industrial policy in scientific works of specialists

No.	Author	Definition	Key features
1.	Tolkachev and Teplyakov	Russia needs reindustrialization policy, not only import substitution or export-oriented development [16]	We need new industrialization
2.	Tatarkin	The system of relations between state and municipal authorities, business entities, scientific organizations and civil institutions regarding the formation of a structurally balanced, competitive industry	We need institutionalization of the competitive industry on the innovative basis, the intellectual core of which corresponds to the latest technological structure [15]
3.	Rubenstein	The synthesis of relations between the state and business entities aimed at the formation of the competitive industry [10]	We need collaboration policy to improve the competitiveness of industrial enterprises
4.	Simachev, Kuzin, Kuznetsov, and Pogrebnyak	Allocate separate types: – industrial policy in the open economy, – compensatory industrial policy, – technological industrial policy [12]	We need structure industrial support measures in the categories of sustainability, innovation and international competitiveness

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Table 1. *(continued)*

No.	Author	Definition	Key features
5.	Larionova	A system of measures aimed at developing the national economy, the latest technologies and products with a high degree of processing, modern information and other services, human capital [8]	Industrial policy is considered as part of socio-economic policy of the state
6.	Spring, Hughes, Mason, and McCaffrey	Industrial policies can prevent disruptions to production systems as technology innovations become commercially viable products	Industrial policy should expand its conceptual scope, contribute to a change in the institutional structure of the economy, and organize active interaction with applied research organizations and universities [14]
7.	Shyu, Joseph, Ding	Super-efficient technologies and intensified global competition have generated the desire for industrial revival through relevant active policies in many countries	It is authorized by the state to use certain acceleration instruments of industrial development that are most suitable for the conditions of individual countries [11]

Source: authors.

With the increasing role of public administration in the specialized literature, one can come across various definitions of industrial policy. Some interpret it as a condition for modernization and revitalization of economic growth, assistance in carrying out structural reforms. In many ways, this approach identifies it with economic policy, depriving industrial policy of its subject of study. Others define it as a separate component of general economic policy, along with financial, tax, etc. In Russia, with the beginning of market reforms, following liberal concepts prevailing in the leading capitalist countries, until recently, measures to support the structural transformations of high-tech types of economic activity were ignored by officials and scientists. However, in recent years such measures of “industrial policy” have received increasing support in developed economies, especially in the manufacturing sector, which has been heavily influenced by technological innovations. A comparative analysis of innovation policy under revitalization of the industrial sector showed differentiation of specific tools in relation to different countries: in the USA, preference is given to demand-side policies and public services; in Germany, scientific and technological development is being added to this; in China, this is additional environmental and regulatory policy.

According to the definitions in Table 1, the tools of industrial policy include methods of various functional links of state regulation (investment, tax, financial, administrative regulation, etc.). Industrial policy has no separate, own tools. This erodes to some extent the boundaries and essential characteristics of industrial policy. In addition, while characterizing the experience of applying industrial policy, it is

important to justify the necessity, the direction of its use and the political factor. Despite a wide difference in approaches, all of them have common characteristics:

- need for state influence is determined in one form or another,
- certain prioritization system is singled out either in a sectoral context, or for individual functions of the economic mechanism,
- orientation to the long-term (strategic) perspective,
- comprehensiveness, that is, coverage of a wide range of measures and areas of activity.

In macroeconomic terms, government policy to support the economic activity of industrialists and entrepreneurs will help reduce risks for large corporations in developed countries by stimulating re-sharing processes (returning production capacities to the territory of parent companies). On the other hand, the “reverse pulling” of production and technological lines of transnational corporations into their national borders will negatively affect the industrial appearance of regions – their former locations, mainly in countries with developing economies. In addition to this, in the context of widespread digital transformation, the previous policy of moving production of added value to countries with cheap labor (Asia, Latin America, Russia recently) is currently changing to organizing its own production in countries with developed economies which have fully automated production lines with the prospect of lowest paid workers - robots.

Under the crisis and a high level of uncertainty, the role of industrial policy of the state as an organizing and guiding principle in the structural modernization of high value-added industries will increase in the interests of increasing the competitiveness of domestic enterprises. For this, we introduce various traditional measures, methods of stimulating an increase in the organizational and economic level of the activity of economic structures in the interests of the national economy: financial, regulatory, administrative, technical, foreign trade, labor, social, etc. Objectively, industrial policy is designed to reduce the level of uncertainty for enterprises in the spontaneous market environment and to increase their adaptive abilities to conditions of high turbulence in the business environment, to provide flexibility in modifying successful tools and methods of production and business activities.

It is no coincidence that industrial capital, evaluating future events with a high degree of probability as extremely negative for successful entrepreneurial activity, like the oil crisis of the 70s of the last century or the global financial and economic crisis of a decade ago, very carefully proceeds with new investments, being not sure of state support. For example, capital would never have gone into our domestic agricultural production if it had not outlined the possibility of successful investment and making big profits (the state program for leasing agricultural machinery, the program for supporting food export) gave impetus.

4 Discussion

In the studies of specialists, much attention is paid to the coordinating role of the state, as well as to the problems of improving the efficiency of manufacturing industries, which generate a high level of development in accordance with socio-economic interests of the country in the given period. In the conditions of economic crisis of both in our country and on a global scale, there are many uncertainties regarding forecasts for the global economic development, the goals of scientific and technological development in the face of challenges of Industry 4.0. We need an adequate design of industrial policy based on differentiation of approaches, accounting interests of specific actors of industrial and entrepreneurial activity, industrial complexes.

Andreoni and Chang [2] confirm the debatable nature of modern concepts of industrial policy. Its main theories, which were formed in the analysis of consistent development over the past few decades, revolve around three fundamental provisions regarding:

- roles and structural interdependencies of economic sectors, the conjugation of the processes of actors arising under industrialization,
- need to harmonize economic policy of a set of institutions promoting the industrial agenda,
- recognition of the role of the state in managing economic policy, its policy measures in combination with its entrepreneurial function.

These authors talk about the need for strategic coordination of interactive measures of industrial policy, coordinated interaction of management structures at the national economy level [2].

The work of Andreoni, Chang and Scazzieri [3] points out the need to update the discussion agenda on the content and form of industrial policy, focused on establishing the relationship of structures, institutions and policies. It should consider historical traditions of industrial relations, aspects of industrial, technical and market relations, as well as political economy. It is proposed to consider industrial policy in a broader aspect, within the framework of a holistic structure of socio-economic and political relations of society.

Landesmann and Stöllinger [7] note that the world economy is undergoing rapid structural changes. There are steady changes in the position of countries in global value chains, and they suggest discussing the importance of creating appropriate industrial policies for countries at different stages of development. In the context of financial and economic crises, middle-income countries are especially vulnerable to “structural external imbalances”, uncertainties, and therefore the policy of supporting their productive forces is of great importance.

Eikhoff [6] emphasizes the so-called new industrial policy (declared in the European Union), aimed at “increasing the importance of the service sector (thermalization) on a global scale and at preventing the possible consequences of the form of de-industrialization and the associated reduction of jobs”. It should fulfill the following two tasks: to restore lost ground in traditional areas of the domestic market (automotive, steel production, shipbuilding), to ensure the entry and conquest of new foreign

markets (genetic engineering, biochemical production, etc.) At the same time, considering the characteristics of these types of regulation in more detail, they can be defined as one or another modification of the vertical or horizontal industrial policy.

In turn, Bianchi and Labory [4], analyzing the nature and dynamics of four industrial revolutions experienced by capitalism, the characteristics of the introduced technological and technological innovations, show how radical structural changes occur in industrial policy in the medium term and in production organization methods.

Wu, Zhu, and Groenewold [17] based on a review of China's industrial policy, carried out through central planning for a five-year perspective, note its rigidly prescriptive nature of carrying out the levels of management of national economies and regions. This approach significantly increases the level of production.

A special study by Meckling and Nahm [9] is devoted to green industrial policy for alternative transport technologies, especially electric vehicles, which solve the problem of reducing greenhouse gas emissions. The authors rightly note that such declarations for environmental friendliness of production, the corresponding modernization of industry will promote export opportunities of auto-producing countries and will successfully participate in the competition.

Cheah and Ho [5], while studying 153 public-private technology transfer projects in the context of the Singapore economy, found that project financing through industrial policy and public funding for research and development significantly affects the results of innovation activities.

Ślusarczyk [13] emphasizes the importance of discussions in favor of new industrial policies to develop economies in the crisis. On the materials of industrial enterprises of the European Union, the author confirms the need to formulate new goals of industrial policy aimed at increasing the competitiveness of enterprises of the EU countries in the global economy, exploiting mainly the results of high-tech industry.

5 Conclusion

The industry of the developed country (for example, Russia of the Soviet period) has a highly differentiated complex of industries with both powerful mining and developed manufacturing industries. However, over the years of market reforms, due to various reasons, the state of the manufacturing industry has deteriorated significantly and, even though government authorities are trying to increase the role and share of manufacturing in the industrial structure of the industry, the share of manufacturing does not grow, and the share of extractive industries in gross value added has upward trend. In view of this, the formation and implementation of industrial policy should solve the systemic problem of restoring the proper technological level of manufacturing industries, especially machine-building economic activities. It is necessary to bring the level of contiguity of the technological structure of manufacturing industries to the level of advanced developed countries. At the same time, to neutralize the negative features of catch-up development, it is necessary to consider current geo- and macroeconomic conditions and make extensive use of modern tools of innovation, namely, focus on

breakthrough innovations, ensure faster growth of investments in the middle and final stages of technological chains, and facilitate the participation of domestic enterprises in global value chains.

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