
Transregional Coordination of Modernization Processes in Implementation of Import-substituting Policy in Russia

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Abstract:

The article presents results of the research on modernization strategies implemented in Russian economy. Authors have identified three dominating approaches: institutional, innovation-technological and import-substituting modernization.

They have stated that import-substituting modernization in Russia is ongoing in terms of sanctions, a shortage of investment resources, insufficient home demand and significant regional differentiation.

This necessitates strict coordination in modernization processes. To achieve this, authors have proposed a toolkit for transregional coordination in modernization processes to implement import-substituting policies based on integral indicators.

Findings confirm that regions, in their efforts to achieve modernization targets, use their potential in a inefficient and counterproductive manner. One might use the developed toolkit as a classifier of regions and sectors of economy by criterion of dynamics in modernization processes, as well as a basis for indicative planning.

Keywords: *Import-substituting Modernization, Transregional Coordination*

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1. Introduction

The model of a passive growth based on commodities exports has run its course and is no longer able to bring high rates of economic growth in Russia (Gorodetsky, 2018; Orekhovsky, 2017). Today, in a difficult economic situation, as its primary objective, Russia faces a need to ensure the sustainable long-term economic growth based on innovative modernization (Stepanov, 2018). Large-scale modernization in almost all the sectors of economy brings to the forefront a search for solutions to the problem of coordination for processes that the market is coping extremely slowly with.

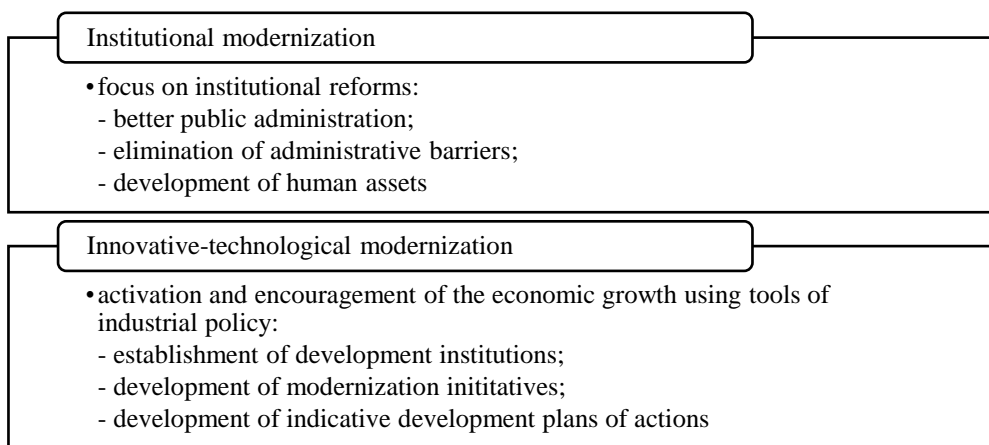
Despite high importance of import-substituting modernization, researchers have not paid so much attention to its performance assessment in its dynamics. The assessment of modernization in specific regions and sectors of economy comes down to an assessment of their innovative capacity. This does not provide a complete idea of dynamics in ongoing processes, makes transsectoral and transregional coordination difficult. The development of a toolkit for a comprehensive analysis of these processes would make it possible to achieve better management in modernization processes, which is a research objective herein.

2. Literature Review

2.1 Review of modernization in pre-sanctions period

Modernization is a subject of fierce debates in Russian academic circles. At the same time, researchers agree that Russia is lagging behind the developed countries of the West and needs profound changes. Main controversies are about strategies that we need in order to achieve economic growth targets (Figure 1).

Figure 1. Modernization strategies in Russian economy in pre-sanctions period



Source: (Polterovich, 2008)

Supporters of the institutional approach to modernization are strong in their statements that the government should start modernization with reforms. Solved objectives of modernization, as supporters of the institutional approach think, in the future will make it possible for the market to cope with structural imbalances on their own. Shastitko *et al.* (2008) point out to the idea that modernization of institutional mechanisms is possible if there is a developed infrastructure in place. Followers of the innovation-technological approach think that in terms of technological backwardness and poor performance of economy, efforts of institutional reforming would not yield an expected result. The innovative capacity refers to a combination of natural historical, and socio-economic development factors in a region, available resources and a tempo of innovation processes (Zemtsov *et al.*, 2015).

It was often that people thought that the only proper way of modernization was a transition from the raw-materials export development paradigm to diversification of the production and export patterns by increasing a share of high-tech industries (Chernova *et al.*, 2017; Komarova *et al.*, 2018). At the same time, Russia has over a long period failed to solve problems that relate to of research, development and innovations: despite higher research expenditures in Russia, the share of home expenditures only slightly increased over the twenty-year period, from 0.85 to 1.1% of GDP. It means that in 2016, Russia took the 35th place in the world (The World Bank, 2018). Practitioners have offered a number of other indicators to evaluate innovation activities (Hollanders and Es-Sadki, 2017; Brenner and Broekel, 2011; Doloreux and Parto, 2005; Fritsch and Slavtchev, 2011). They have also developed transregional ratings of innovative development (Abdrakhmanova *et al.*, 2017; Baburin *et al.*, 2016).

2.2 Import-substituting modernization in terms of sanctions

In terms of sanctions, the long-term modernization strategy of Russian economy has undergone changes and is currently looking like a policy of import-substituting modernization. Authors believe that the modernization strategy and import substitution policy are only effective if there are competitive export-oriented industries in place. Russian economists (Kadochnikov *et al.*, 2016) share this idea, arguing that import substituting would contribute to much more wide-spread well-being if import-substituting products are globally competitive or become competitive soon in the market. Besides, in the development of the import substituting strategy, one needs to consider that Russian enterprises are strong participants in global value chains (Mau, 2016).

In general, in terms of the long-term modernization strategy, import substituting seems to be a tool that makes it possible to make the industrial capacity higher (Manturov, 2016). Better performance is a prerequisite of efficient modernization, and it is difficult to achieve it without correspondingly increased wages, eliminated imbalances in various sectors of economy and without significantly upgraded skills of employees (Manturov, 2014).

Many countries, both developing, like BRICS members (Aregbeshola, 2017), and the developed ones, have introduced import substituting policies. Many economists have supported such practices. In particular, Ahmad (1978) said that it would be only possible to achieve economic development and industrialization by developing the local import substituting capacity. Moreover, many researchers consider import substitution a catalyst of economic diversification (Shafaeddin and Pizarro, 2007). To achieve this objective, strong government intervention and introduction of some kinds of protectionism are inevitable (Schmitz, 2007). There are also opponents of import substituting. Neoliberal economists have criticized the policy (Krueger, 1978; Balassa *et al.*, 1986; Persky *et al.*, 1993). Chang (2012) said that almost all of the rich countries had used tariff shelters and subsidies to develop their own sectors at early stages of their development. The USA, Great Britain, South Korea, Taiwan, Japan, and other countries introduced export support strategies for home industries.

Thus, main directions in the medium and long term strategy of import-substituting modernization are as follows: 1) active industrial policy aimed at a priority development in key production fields (Bodrunov, 2015); 2) long-term focus of manufacturing industries on the external demand and a gradual increase in non-commodity exports, as well as a reduction of inefficiently imported intermediate products; 3) priority growth rates in mechanical engineering for modernization purposes in the processing sector; 4) selective import-substituting (Manturov, 2016).

It is impossible to achieve such a large-scale objective of innovative modernization in economy without transregional coordination and interaction.

3. Materials and Methods

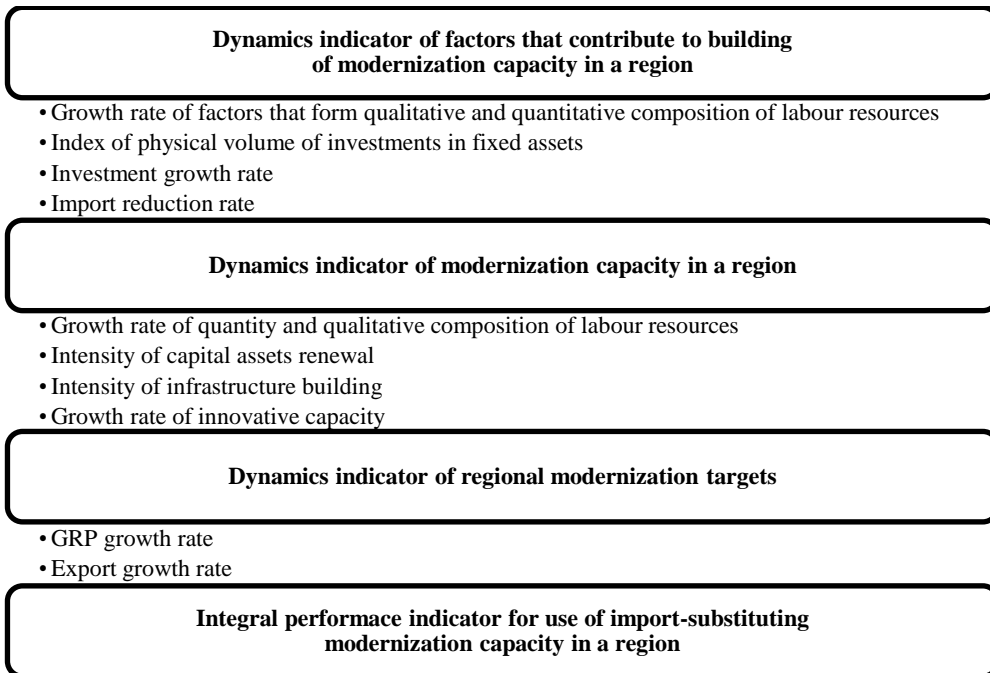
The approach, that we have proposed, is an assessment of dynamics in regional import-substituting modernization based on identified indicators and the integral indicator of performance dynamics in the use of regional modernization capacity. Upon the analysis of economic and geographical factors, we have identified four clusters of Russian regions with distinct innovative capacity: the largest agglomerations with the developed innovative capacity, large urban regions, northern regions with low population density, and high specific indicators of innovativeness, peripheral regions with minimal innovative capacity. Baburin *et al.* (2016) and Žižka *et al.* (2018) confirm spatial differentiation of the regional innovation capacity in Russia, while Tereshchenko (2018) points out to significant layering among regions by modernization parameters, which means unemployment of resources.

According to our methodology, the modernization result means achieved goals and strategic objectives set for the development of Russian economy: ensured rates of the economic growth, structural transformation of economy and creation of export-oriented high-performance production facilities in its basic sectors. Researchers indirectly assess institutional and macroeconomic terms of business activities using indicators of corporate demography, where the corporate survival rate is important

(Kuzmin and Guseva, 2016). This aspect reflects a level, at which the environment supports entrepreneurship. At the same time, the increased number of newly registered enterprises says of increased business activities.

Each model's indicator relies on groups of macroeconomic indicators that describe the most significant aspects of the phenomenon (Figure 2). A semantic meaning of each indicator describes positive processes, i.e. a higher value of the indicator corresponds to the positive dynamics in a process and should contribute to an increasing value of the indicator. We have achieved uniformity and compatibility of indicators owing to a transition from their absolute values to relative ones, i.e. their growth rate.

Figure 2. Composition and structure of dynamics indicators in import-substituting modernization of a region



As a technique for a calculation of integral indicators, we have used the deterministic (functional) method (Filipishyna *et al.*, 2018), in case of which an effective indicator looks like a product of factors. Each dynamics indicator, according to our technique, is calculated as a weighted geometric average by the following formula:

$$I_i = \sqrt[\sum f_i]{(X_1)^{f_1} (X_2)^{f_2} \dots (X_n)^{f_n}}, \quad (1)$$

where X_1, X_2, \dots, X_n are chain growth ratios that parts of the integrated indicator, n is a number of growth ratios, and f_1, f_2, \dots, f_n are weighting factor (Table 1).

Table 1. Values of Model's Weighting Factors

Indicators	Weighting factor, %
<i>Integral dynamics indicator of factors that contribute to building of modernization capacity in a region</i>	100
<i>Growth rate of factors that form a quantitative and qualitative composition of labour resources in a region</i>	40
Population growth rate in a region	20
Intensity of qualification training provided to personnel	20
<i>Quality dynamics in institutional and macroeconomic environment in a region</i>	10
Growth rate of the corporate birth rate	10
<i>Growth rate of investments in fixed assets in a region</i>	40
Index of a physical volume of investments in fixed assets	40
<i>Region's import reduction rate</i>	10
Import reduction rate	10
<i>Integral dynamics indicator of modernization capacity in a region</i>	100
<i>Growth rate of quantitative and qualitative compositions of labour resources in a region</i>	25
Growth rate of the average annual number of employed	10
Growth rate of a number of high-performance jobs in a region	15
<i>Intensity of fixed assets renewal in a region</i>	25
Dynamics of changes related to available fixed assets as of the end of the year compared to the value of the previous year, percent	10
Dynamics of fixed asset renewal index (compared to the value of the previous year, percent)	15
<i>Intensity of regional infrastructure building</i>	20
Growth rate of a length of railways and highways per 1 sq. km of a region's area	10
Growth rate of a share of organizations that have a broadband Internet access	10
<i>Growth rate of innovative capacity in a sector</i>	30
Growth rate in a number of developed advanced production technologies per number of employed	10
Growth rate in a number of used advanced production technologies per number of employed	10
Growth rate of corporate innovative activities	10
<i>Integral dynamics indicator of regional modernization targets</i>	100
GRP growth rate	70
Export growth rate	30

The performance indicator that relates to the use of import-substituting modernization capacity in its dynamics (I) is calculated as the ratio of the complex indicator of dynamics that modernization target indicators have (I_{IIT}) to the geometric mean of dynamics of the factors that contribute to modernization capacity building ($I_{\phi IT}$) and the dynamics indicator of modernization capacity (I_{IM}):

$$I = \frac{I_{\text{ЦП}}}{\sqrt{I_{\text{ПМ}} I_{\text{ФП}}}} \quad (2)$$

4. Results

We had chosen five subjects of the Russian Federation (located in different parts of the country) in order to pilot the method. There are the Central Federal District (evidence from the city of Moscow), the North-Western Federal District (evidence from the Pskov Region), the Southern Federal District (evidence from the Krasnodar Territory), the Ural Federal District (evidence from the Sverdlovsk Region) and the Far Eastern Federal District (evidence from the Amur Region). See descriptions of regions in Table 2.

Table 2. Characteristics of Russian Regions

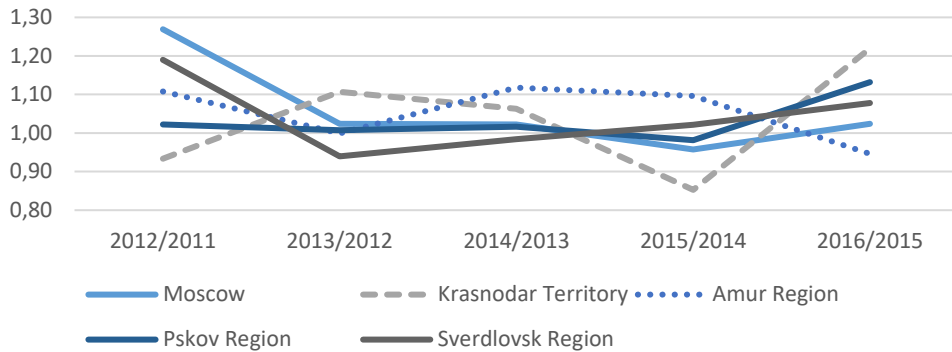
Region	Share of GRP in GDP, %	Share of enterprises and organizations in a region, %	Industrial output share, %		Investments in fixed assets in a region, %	Average corporate survival, years
			extractive industries	processing industries		
Russia	100	100	100	100	100	7.3
CFD	34.85	36.69	9.76	35.36	26.00	7.4
NWFD	11.27	12.93	6.60	13.10	11.37	7.5
SFD	7.07	7.54	2.22	6.52	7.60	8.1
NCFD	2.60	2.77	0.20	1.09	3.32	8.9
VFD	14.98	16.83	14.39	20.36	16.63	7.0
UFD	13.51	8.18	37.96	12.01	18.70	7.5
SFD	10.30	10.91	15.35	9.94	9.62	6.7
FEFD	5.42	4.15	13.52	1.62	6.75	7.1

Notes: CFD - Central Federal District, NWFD - North-West Federal District, SFD - Southern Federal District, NCFD - North Caucasus Federal District, VFD - Volga Federal District, UFD - Ural Federal District, SFD - Siberian Federal District, FEFD - Far Eastern Federal District.

Source: (Regions of Russia, 2017; Kuzmin, 2018).

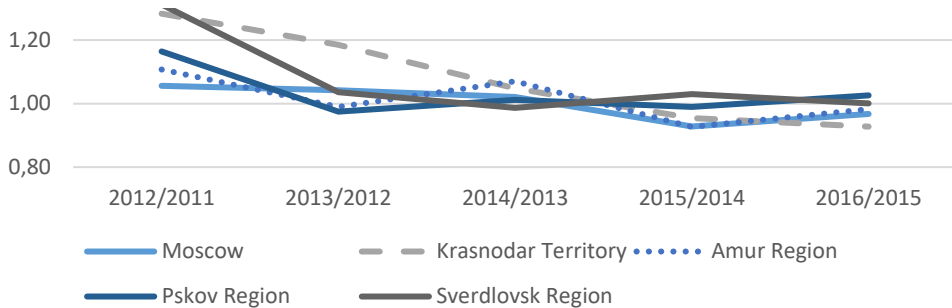
An evaluation and analysis of dynamics of the factors that contribute to modernization capacity building have shown either no dynamics (the Sverdlovsk Region, the Krasnodar Territory, the Amur Region), or its slowdown (Moscow) (Figure 3). In the Pskov Region, there is a slowing down, but only due to a clearly lower import, most likely due to an obvious decrease in the demand from enterprises and the population for imported products as real earnings are getting down.

Figure 3. Dynamics indicator of the factors that contribute to regional modernization capacity building



Indicator dynamics of import-substituting modernization capacity, upon the decrease or no growth in 2013-2015, demonstrated an upward trend in all of the regions in question, except for the Krasnodar Territory (Figure 4). The indicator growth depended on the growth in the indicators that describe a renewal of fixed assets and growing innovation capacity.

Figure 4. Dynamics indicator of regional modernization capacity



The dynamics indicator of modernization targets has shown a weak growth in the Sverdlovsk Region and a barely noticeable growth in the Amur Region, while other regions in question had either a slowdown of its decline (Moscow and the Krasnodar Territory), or its ongoing decline (the Pskov Region) (Figure 5).

The performance dynamics indicator of the use of import-substituting modernization in 2014-2016 remained unchanged for Moscow, the Sverdlovsk and Amur regions, dropped in the Krasnodar Territory and grew for the Pskov Region. At the same time, the growth was exclusively due to the proportionately higher decrease in capacity (Figure 6).

Figure 5. Dynamics indicator of regional modernization targets

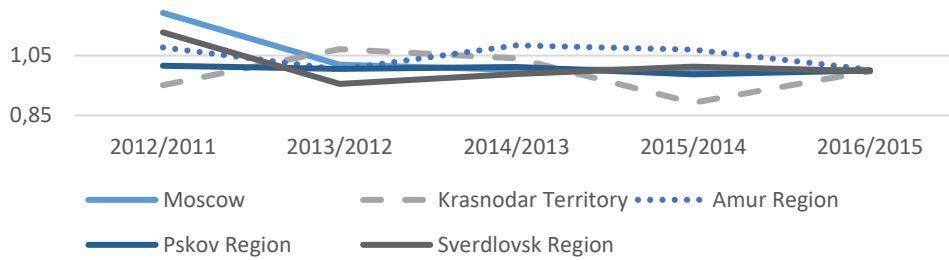
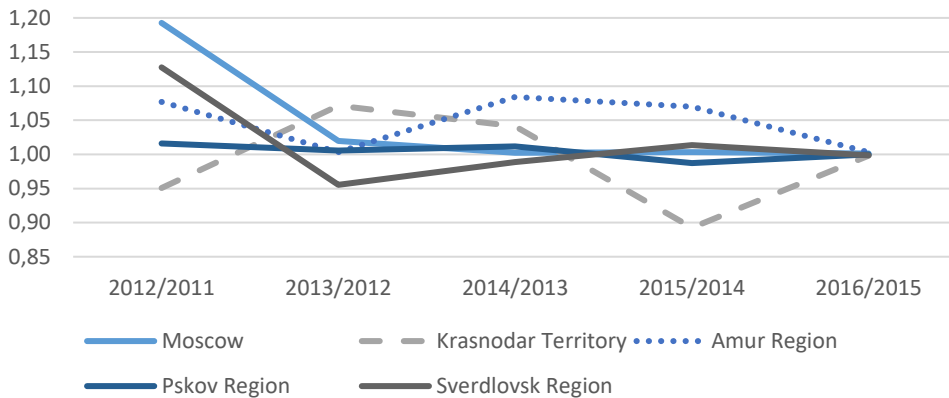


Figure 6. Performance indicator of use of region's import-substituting modernization capacity



It is clear that dynamics in regional modernization processes differs depending on many factors, including long-standing socio-economic conditions. Findings confirm the inefficient and unreasonable use of available resources. Many researchers point out to this and this says of ineffective management in processes of regional modernization (Sysoev, 2013).

5. Discussion

The experience of catching-up development (that economies have) has a common feature. All countries at an initial stage of modernization used indicative planning, although to different extents, paying a considerable attention to cross-sector coordination. Strategic indicative planning has the following objectives: coordination of large-scale re-equipment in sectors, coordination of macroeconomic and regional policies with modernization goals and objectives, coordination of a resource requirement and improvement of development institutions.

The development and subsequent implementation of the import-substituting modernization concept require grounded regional development strategies based on a comprehensive analysis and assessment of a development level and features of a

region, as well as its innovative and investment capacity. They also require harmonized interregional relations and interdependencies, reasonably selected directions for the modernization development and evaluated promising results that the strategy implementation can give. Successful solutions to problems of import-substituting modernization in Russian economy depend, first, on taking into account the specifics of particular regions when we develop modernization solutions. Second, they depend on identified ways of efficient distribution of resource flows for their subsequent concentration in the most important areas (Matveeva and Nikitaeva, 2012).

Thus, indicative planning is essentially a permanent platform for coordination of strategies. Indicative planning has a transitional nature as an intermediary institution, a role of which gets lower upon the achievement of modernization targets (Polterovich, 2008).

6. Conclusions

Large-scale modernization in economic sectors brings to the forefront a search for solutions to the problem of coordination that modernization processes require. The identification of factors that form the modernization capacity, as well as indicators that describe the existing capacity and modernization results makes it possible to identify causal relationships between ongoing processes. This makes it possible to predict regional dynamics for the nearest future. A combination of import substitution and modernization processes in economic sectors with goals and objectives of the structural transformation makes it possible to use the developed methodology as a tool to substantiate decision-making on the development of the measures that we need to take in order to implement projects of import-substituting modernization at a regional level.

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