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Research paper

A Factor Analysis of Models for Regional Development

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Abstract

This paper explores some of the key regional characteristics of the formation of market relationships that influence the overall economic situation in the country. The author examines regional units characterized by there being latent sources of cumulative growth within a multilevel stratified unit that incorporates a group of business entities engaged in a homogeneous type of economic activity which may initiate a multiplicative effect based on the capacity for systemic or developmental innovations, as well as a group of business entities associated with a propulsive sector through the "input/output" relationship, which ensures the translation of a multiplicative effect in the direction from higher territorial establishments to lower ones. The paper discusses the activity of key organizations within a recipient region with a view to identifying potential growth areas that could become the basis for the development of import substitution at the mesolevel, which are engaged in activity within the framework of traditional spheres of economic activity.

Keywords: *region, development, economy, effectiveness, management, production, resources, territorial production complex.*

1. Introduction

Processes of formation of sound market relations in Russia `have given rise to numerous issues, in resolving which the government will have to factor in special regional characteristics as well. In fact, it is a failure to take proper account of regional factors that have actually been behind the insufficient effectiveness of the nation's reformative market transformations [1].

Theoretically, the regional economic policy is aimed at optimizing a region's spatial arrangements from a macroeconomic perspective [2]. Therefore, underestimating – much less ignoring – the regional characteristics inherent in the formation of market relations may have a negative effect on the nation's overall economic situation. In this regard, it is worth noting that identifying growth poles and propulsive sectors in regions may provide a "push" to the development of economic processes, helping to boost the employment rate and improve the operation of interrelated sectors of the economy. Thus, when an economy is characterized by uneven development, it is always possible to identify so-called propulsive sectors, a nation's more dynamically developing sectors that could help stimulate the development of its entire economy, serving as growth poles. Note that, in the process of concentration of production, propulsive sectors are focused in one place or area, referred to as a growth area or center (e.g., Silicon Valley in the US or Bangalore in India) [3]. A collection of growth poles forms an economic nucleus, which may incorporate other elements as well.

2. Main Part

The prime causes of the need to form an economic nucleus are limited resources and potential and numerous acute social and economic issues that have yet to be resolved. With that said, in a relatively short term, when the limitedness of global resources becomes a key issue, the potential for the use of economic nucleus theory will be even greater.

In putting in place an economic nucleus, one may come across two major difficulties: 1) the impulse may be directed not at all regions that need support but mainly at highly developed ones, with which a link will be established from propulsive sectors within growth poles; 2) one may face a shortage of resources (financial and labor). To forestall this, the process of formation of a nucleus needs to be managed in a measured manner in order to attain a maximum effect [4]. In conditions like these, financial management becomes a top priority, followed by labor resources and equipment, materials, and supplies.

Back in the day, Soviet economic researchers were in no position to set priorities in managing these objects, as things were regulated stiffly by the government [5]. There was no freedom of manipulating the resources. By contrast, things are totally different in a free-market economy, where much greater significance is attached to the effective management of an area's financial resources [6].

The redistribution of investment into growth poles will facilitate a synergy effect and result in boosts in production in the region, as well as improvements in social indicators and boosts in residents' quality of life. These circumstances give relevance to creating a regional nucleus and then managing the process.

The issue of formation and sequestration of "nuclei" (sometimes referred to as regional production complexes) within regional economies, which often feature complexes of sectors, has been brought up by economists more than once, from different angles. However, until recently most theoretical recommendations lacked sufficient depth and therefore could not be employed readily in practice (e.g., growth pole theory), or had been in wide use under conditions of the Soviet centrally planned economy but failed later to be adapted to the Russian free-market economy.

Essentially, the theory of economic nuclei emerged in the 1960s in the West. Back then, the theory of polarized development was a narrow focus area in regional research. Today, the concept of growth poles forms the basis of regional programs in many countries around the world. A significant contribution to the development of the theories of growth poles and economic nuclei has been

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made by Russian regionalists as well. These scholars have, in particular, pointed up the similarities between a choice in countries with an advanced free-market economy in favor of growth poles and the Soviet principle of creating "industrial foci" and regional production complexes.

A regional production complex is an economically integral fusion of interlinked and interdependent production operations by various sectors of the economy that emerges and develops in a certain geographic area. The term was first introduced into the scientific discourse in 1947 by prominent Soviet economist and geographer N.N. Kolosovskii within the context of a centrally planned approach to economics. In a sense, a free-market analogue of the term 'regional production complex' is the term 'economic cluster', which was first introduced during the 1960s by renowned American scholar M.E. Porter.

Key elements in regional systems and subsystems in populated localities are their centers (nuclei), which are of a subordinate nature [7]. Thus, in regional studies, an economic nucleus is often seen as a collection of "growth poles" playing a key role in economic development. This is especially pertinent when it comes to transitional social/economic processes and states, i.e. conditions when an economic system is shifting from one relatively sustainable state to another.

The theory of polarized development, which is a key focus area in regional research, reached its greatest popularity during the 1960s in the West. Between the two key forms of interaction between any nucleus and any periphery – a direct effect, or modernization (i.e. the spreading of development impulses from the nucleus to the periphery), and a reverse effect, or dependence (i.e. the subjugation of the periphery to the nucleus) – the focus was deliberately placed on the first one. The theory of polarized development substantiates the laws governing the territorial concentration of the population and businesses in certain main elements capable of influencing the surrounding regions and stimulating their development [4]. The theory's proponents have drawn attention to the benefits of concentrating various production operations, especially "dynamic", propulsive sectors, in several centers, which, as per their estimates, can generate a significant economic effect.

The growth pole concept forms the basis of regional programs in many countries around the world. Initially, the creation of various types of poles and growth centers used to be aimed at galvanizing economic activity in backward peripheral regions.

Polarization at the regional level used to be viewed mainly as a means of territorial deconcentration at the macro level capable of abating the explicit dominance of particular superregions or centers.

During the period between the late 1960s–1970s, there was a decline in scholarly interest in the concept of growth poles, but there was an increase in interest in concepts and theories dealing with the process of continual reproduction of unevenness in the development of countries and regions and the causes behind the persistence of backwardness [8]. The focus was placed on the second form of relations between the center and the periphery – a form of dependence. In the West, the centre-periphery concept is credited to J. Friedman [9]. Based on the concept, the unevenness of economic growth and the process of spatial polarization inevitably result in disproportionate dealings between the center and the periphery. The periphery is not a homogeneous field. It is subdivided into the so-called internal, or proximal, sub periphery, which is closely linked with the nucleus and actually receives from it impulses for development, and the external, or distant, one, which the nucleus has virtually no mobilizing effect on. The center and the periphery are linked at any spatial level with flows of information, capital, goods, and manpower [10]. It is the direction of these flows that determines the nature of the interaction between central and peripheral establishments, turning economic space into a semblance of a force field. A driving force that helps ensure the continual development and reproduction of the system of centre-periphery relations is the continual quality transformation of the nucleus through the generation, implementation, and diffusion of innovations.

The dissemination of innovations, including information, takes place hierarchically in three major directions: from leading economic regions (the nation's heartland) to those on the periphery (the nation's hinterland); from highest-level centers to secondary-level ones; from large cities, as polarization nuclei, to contiguous areas [1].

J. Friedman has identified a set of major factors governing the steadiness of the core's dominance over the periphery. On the one hand, continual innovative activity creates favorable conditions for its future development specifically within the core's boundaries, ensuring maximum access to all kinds of contacts and connections.

Accordingly, along with an agglomeration effect, there is a psychological effect, which ensures further modernization and proper transformation of the center's economy. On the other hand, if the center continually keeps pumping the resources out of the periphery, it may weaken the latter, augmenting and reinforcing the differences between the two.

The concept of growth poles owes its in-depth development to French scholars F. Perroux and, his disciple, J.R. Boudeville. F. Perroux's general theory is predicated on three major concepts: a dominant economy, harmonized growth, and an overall economy.

The starting point in F. Perroux's theory is the "domination effect", which implies changes in the essence and forms of relationship between economic units. This effect leads to the "polarization of production" around a sector (a "growth pole") where economic units act as parts of a single entity (a "macro unit"). As a consequence, erratic, "aggressive" competition goes away, while there are improvements in the efficiency of work performed by partners.

F. Perroux views economic space as some of the kind abstract inhomogeneous force field wherein there are at play certain centripetal forces, directed toward centers (or poles or foci), and centrifugal ones, which emanate from them. Each focus has its proper field, which is set in the field of other centers; associated with foci are functional growth poles.

A growth pole is a concept that is not so much spatial as it is functional (a carrier of dynamics), although in the practice of economic activity it is most prominent in traditional geographic space specifically and is normally based on industrial sectors. It is an industry that has a major effect on the development of other sectors, maintains a close production relationship with them, and facilitates economically effective concentration [11]. Thus, being directly associated with growth theories, the concept of growth poles is focused not on causes behind but just forms of manifestation of economic and social processes. This theory and concepts it employs not only serve to explain the unevenness of economic development but point the way to relevant solutions to regional issues – via the creation of artificial growth poles or areas in less developed regions.

With regard to growth pole theory, there are other views as well which supplement and develop the theory's initial tenets. For instance, J.R. Boudeville transports the theory into the plane of specific economic production operations and specific regions and provides a regional construal of growth poles. The scholar amalgamates space and functions into a single concept – "polarization of space". However, not every regional center is a growth pole – only those where there are propulsive sectors. The objective of the development of regions implies the search for sectors that will give a push to development across the entire regional system. J.R. Boudeville has shown that one may view as growth poles not only collections of enterprises from leading sectors but specific areas as well. A growth pole may be construed as a geographic agglomeration of economic activity or as a collection of cities that possess a complex of fast-developing production operations. The scholar may be regarded to have laid the geographic groundwork for the functional concept and linked space and functions with a common feature – polarization. It follows from this that, by any means, not every regional center or hub can be a growth pole, but only those

that are home to propulsive, leading sectors and are capable of long-term self-sufficient development, of exercising control over their entourage, and of conveying to this entourage relevant development impulses [1].

The widest use has been made of the following two terms – 'growth pole' and 'growth center'. In a sense, this draws a line between the functional and geographic parts. A growth pole is a collection of sectors, while a growth center is a geographic rendering of a pole, i.e. a specific center or a city.

Among the proponents of F. Perroux's ideas, as per Yu.M. Pavlov [12], is Spanish scholar J.R. Lasuén, who has focused on the development of the theory of urbanization and development based on the theories of growth poles and innovation diffusion. Specifically, the scholar has proposed the following definitions of the term 'growth pole':

1. A growth pole is a regional (rather than national) hub of enterprises (rather than sectors) that is linked with an export-oriented (rather than a leading) sector within a region's economy and is located within one or several geographic clusters (concentrations) within that region.
2. A system of growth poles and each growth pole individually grow via impulses generated by national demand, conveyed through the region's export-oriented sector, and perceived in the course of competition among poles.
3. A growth impulse is conveyed to peripheral, secondary, sectors through market relationships (rather than relationships associated with supply and consumption) among enterprises, and is conveyed to the geographic periphery in the same way, if inclusive of deployment factors.

Growth pole theory gained development in works on development axes by P. Pottier. This theory holds that areas located between growth poles which provide a transportation linkage receive additional growth impulses owing to boosts in cargo and freight traffic and the development of infrastructure. This turns them into development axes (corridors).

Thus, it may be concluded that, despite a variety of approaches to developing growth pole theory proposed within the scholarly community, most of these ideas have had a common basis. The concept of growth poles is grounded in the notion of a leading role played by the economy's sectoral composition – above all, leading sectors. Centers and areas across the economic space that house enterprises from leading sectors become poles of attraction for factors of production since they can ensure their most effective use [13]. This leads to the concentration of enterprises in one place and formation of poles of economic growth. It is worth noting that one of the key methods employed in regional policy in developing nations is the creation of growth poles or growth centers.

The policy of creating growth poles for the purposes of regional development is aimed at the careful choice of one or several potential poles in a problem region. It is into a place like this that new investment is directed, instead of getting distributed indiscriminately across the entire region [14].

Theoretically, a growth pole is a potential development center intended to facilitate economic growth within a poorly polarized region, whereas, practically speaking, one will pick a center that is most favorable in terms of resources and geographic location. Subsequently, after getting fitted out with relevant infrastructural facilities and production enterprises, a growth pole will eventually turn into a growth center [15].

There are two major types of growth centers. The first one includes centers intended to initiate migration and investment from a hypertrophied primary industrial hub (or the only one there is). Usually, there are not so many centers of this kind – normally, between one and three. The second type brings together multiple small centers that are created in backward agrarian regions with a view to their future industrialization and faster economic development.

Based on the concept of polarized growth, impulses that shape the territorial production structure emanate from growth poles, which are centers of concentration of production.

The power of influence exerted by poles depends on what they are like and what kind of impulses emanate from them: development of production relationships (technical polarization), expansion of market relationships (monetary polarization), and social pull (psychological polarization) 16].

All three forms of a center's influence on the environment are interrelated, yet practically their proportional relationship varies from pole to pole and even within the context of a single center at various stages in its development.

3. Conclusion

Thus, having examined the terms 'propulsive sector' and 'growth pole', employed by various scholars in the literature, it may be concluded that growth poles are areas where major industrial sectors are concentrated and where propulsive sectors are deployed, with their key purpose being to facilitate the development of various elements in the economy. With that said, propulsive sectors are leading sectors that are characterized by maximum volumes of production, influence economic development, and possess dynamicity.

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