A N N A L E S
UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA
LUBLIN – POLONIA
VOL. XLVIII, 4 SECTIO H 2014

The University of Banking of the National Bank of Ukraine, Kyiv, Cherkasy Institute of Banking

MYKHAILO GEDZ

Spatial paradigm as a methodological basis for the study of regional development

Przestrzenny paradygmat jako podstawa metodologiczna dla badania rozwoju regionalnego

Keywords: space, space paradigm, economic space, spatial creations, region, globalization

Słowa kluczowe: miejsce, paradygmat przestrzeni, przestrzeń gospodarcza, kreacje przestrzenne, region, globalizacja

Problem statement

There are several methods of regional research but in a world which is constantly changing and which consists of interdependent elements, it is important to understand the role of space. Continuity of social and geographical space is based on unity of interests and targets in a human society. In terms of globalization it is important to study spatial method, which would help to understand interdependency between the new spatial systems and the existing formations and their influence on regional economic systems.

1. Recent studies and publications analysis

An important influence on studies about spatial paradigm, determining its role in global and regional intersectoral cooperation, and application of results to Ukrainian reality was made by studies of Ukrainian and foreign researchers O. I. Amosha,

V. N. Vasylenko, B. M. Danylyshyn, M. I. Dolishnii, S. I. Dorohuntsov, S. P. Sonko, M. I. Fashchevskyi, L. H. Cherniuk, N. N. Nekrasov, P. R. Kruhman, which are characterized by deep insights into researched problems.

2. Definition of previously unsolved aspect of the general problem

The studies by authors mentioned above played an important role in defining the ways of spatial paradigm application to study the process of cooperation between different subjects, which fill the space, and regional formations. However, an important role should also be given to the studies and generalization of modern ideas about organization and development with regard to spatial formations. Since transformation in economic space leads to deformation, and the results of deformations are new special formations, it becomes important to study characteristics of those new formations, which can be permanent or can change due to continuous deformations.

3. Objective of the study

The objective of the article is to reveal the essence of spatial paradigm, evolution stages of the term "space" and reasoning for usage of spatial paradigm in research about development of regional systems.

4. Main material

The current stage of research is characterized by appearance of a wide range of new activities based on progressive principles and ideas that shape the style of scientific thinking of the coming age.

The development of concept of an object or phenomenon is a complex process, sometimes contradictory, and it is based on the allocation of distinguishable points on a single principle. Specialization, differentiation, division are basic processes for traditional development of a new field of research. However, in the last period it can be clearly seen that the increase in knowledge leads to the development of new ideas not based on divergence but on interdisciplinary synthesis and specialization – acquiring detailed knowledge and skills by concentrating on activity in adjacent areas. Thus, there is a complication in nature of cognitive activity aimed at developing objective knowledge of reality.

Key economic ideas are adjusted with bright signs of spatial transformations. All research areas evolve adequately to the needs of society and the requirements of real time. The evolution of social and economic processes, resulting in their intensification and complication, changes our understanding of them. Thus, this stage of

scientific knowledge is identified as an interdisciplinary synthesis stage, based on the production of new integrated spatial research environments. Fields of economics, which evolved independently, not only acquire basic properties of fundamental sciences, but also new qualitative characteristics. Spatial paradigm is one of those new integrated interdisciplinary fields. The solution of one of the fundamental problems of thinking – creation of mental spatial and temporal ordering of the world – makes it possible to create new theories in a vague and intuitive way. Scientific search is based on the new visions of the world arising from the root-cause analysis or mutual influence of new objects, events or trends in the spatial and temporal points or areas.

As a fundamentally new foundation and starting point of the research spatial methodology was adopted. It studies the process and results of activities within subjects of spatial development (including the regions of Ukraine, associations of economic interaction, municipalities). The subjects are based on principles of self-development and economic relations with regional entities (territories with special status, closed territorial entities, techno, science and technology parks, areas of implementation of special programs) [9, pp. 95–96].

As of now the generalization of knowledge about relationships and patterns of human activity in economic, natural and social environments did not finally result in creation of superconstruction as an integrated, multi-level, and complex system of organized instructions, which has fundamental functions for the life of mankind and leads to sustainable development. The intent of mankind to transform the conditions of its existence, at best, leads science to strengthening the ideas of sustainable development theory in its original anthropocentric sense.

Theoretical understanding of the object of study should be based on the concept formed in various fields of scientific knowledge. It should be noted that the category of "space" is universal and serves as a general scientific term because it is present in most of the conceptual apparatus of science.

In economic studies close attention is rarely given to the disclosure of the concept of "space" because it belongs to philosophical conceptual categories. Consideration of space was there since the ancient philosophers. However, the first incorporation of spatial factors in the humanities occurred and has played a fundamental role in geography.

Spatial patterns of life that lay at the heart of horology were suggested by Kant. Later, Karl Ritter justified horology principle that has transformed the geography from the "science of placing objects to the science of filling space" [8, p. 5]. Approach related to space as a form of existence of matter is characteristic of geography since its creation, and in the first quarter of the 20th century it was put by Hettner as a methodological concept that has gained popularity under the name of horology. According to Hettner, geography explores filling of space [5, p. 41], and with its subject new spaces and areas are found. In 1979, William Tobler formulated geographical rule that sounded like this: "there is a relationship between everything but the things that are closer are more connected to each other than those far away" [10].

It should be noted that consideration of space in a broader, philosophical sense extends. Many sciences today tend to recognize the space as an important factor. However, even in 1890, Marshall confirmed the role of space, noting that the functioning of the market is determined by variation in the area of space and time, but the effect of time is more fundamental than space.

This idea has been popular until 1950 when Walter Isard opposed it to the statement that the rejection of the factor space compresses everything in the economy to the point, transforming economic theory to the "wonderland without spatial dimensions". The debates about whether the space is a geographic facilitator or an explanatory function have not ended yet. Currently, the role of spatial effects is apparent in the regional economy and taken into account in the study of processes of regional development, high-tech innovation, urban economy, performance of the public sector, fiscal policy, international trade. But still too often the term "space" is replaced by its narrower view – physical space.

Nowadays the spatial component is examined mainly by foreign scientists, leading work in two basic directions. The first one is based on the maximum approximation of models to reality, and the other – on dynamic approach. The first attempt was to provide realism to the two models by Walter Christaller and August Losch by minimizing assumptions regarding the homogeneity of distribution of supply and lack of interdependence between the choice of locations and production. Further interpretation of economic relations demanded the organization of a new paradigm of "urban networks". The theoretical innovation within this paradigm should be considered, for example, breaking the link between the size of the city and its functions as proposed by W. Christaller.

The second trend in the theoretical development of modern science is to promote a dynamic approach because time has the same value as space. The attempt to implement time components in space research was done in two ways, based on different interpretations of the concept of "time": a traditional chronological time and rhythm of innovative phenomena occurring in the area. Introduction of chronological time in spatial analysis was challenging because it required mathematical and methodological tools that have only recently become available to scientists. Here may be mentioned the theory of nonlinear dynamics of city outlined in the context of chaos theory, synergetic theory and analysis "hunter – victim".

Time is seen through the prism of innovation as a long and continuous process of creation, which is characterized by heterogeneity, irreversibility, consistency, and cumulativeness. It is also perceived as rhythm learning processes, innovation and creativity.

Thus, modern science has been increasingly using the categories of "space" and "time", but in most cases they were understood being one type only. As you know, scientific knowledge aims at absolute that provides relative with its true meaning. Also on the contrary, without solution to this problem there is always a danger to accept as general some particular form of existence of the phenomenon.

Formation of new scientific fields often involves synthesis or division of existing scientific knowledge in various fields. Synthesis of macro approaches creates spatial paradigm, aimed at determining the movement of systems in time and space. Moreover, the growing divergence of sciences led to the incorporation of the above categories in their true philosophical sense. As a result, the category of "time", "space", "space-time" is the base of research in the field of modernization of economic regions' space.

Studies associated with the construction of the theoretical and methodological foundations of spatial paradigm that explores patterns of evolution and functioning of the socio-economic spatial objects of different hierarchical levels include those by V. N. Vasylenko, B. M. Danylyshyn, A. G. Granberg.

The analysis of literature indicates the growing interest of scientists to spatial factors. However, analysis of modern concepts of space indicates that the problem of comprehension of its nature and, accordingly, its conceptual definition remains completely unresolved. In this regard, it is necessary to identify the concept of "space", hence the existence of a special phenomenon in the specific historical conditions.

It should be noted that the study of regional processes can be divided into at least three aspects: the nature of economic activity, structure and relationships among economic agents. In most cases, only the first of these aspects is studied, while the last two are ignored. Meanwhile, the development process can be evaluated solely on the basis of an integrated approach, achieved within a spatial paradigm. It appears that this methodology assumes not a formal study of "general" abstractions and their specific relationship to each other, but puts unity, complementarily, etc. as an imperative.

As part of the spatial paradigm categories of "space" and "time" have such properties as flexibility (empirical universality) and absolute completeness. Their philosophical understanding due to universality enables determining universal properties. At the same time, every form of ideology (economics, art, sociology, etc.) considers these notions at a specific angle by abstraction and finding its specific subject. The definitions of basic concepts that are given with the active participation of interdisciplinary philosophy are used as preliminary, initial for the solution of specific private questions, therefore, not moving exclusively into disciplinary branch of philosophy.

Also it is important to note not only the outline of the specific nature of the spatial paradigms, which is specified by ideology, but also the difference in the objective perspective of each component: 1) "space", 2) "time", 3) "space-time".

In this case, the line between the spatial paradigm and classical approaches to the study of regional dynamics is so thin that it implies the use of interdisciplinary categories as a starting point emphasizing their special place in the general knowledge, not allowing complete mixing object-subject areas of various sciences and transforming only the vector of a problem field.

Equally challenging is the study in terms of time coordinates. Thus, if the spatial component allows the identification of results, the timing – highlights the transformation of development determinants in the historical process and allows to determine the nature of the process, which is equally important.

In terms of the purpose of research, time seems to be as important as space. The role of time is considered in the studies by Ye. G. Animits, V. P. Ivanytskyi, Ye. V. Peshina which noted that "the basis for the further development of methodological tools for the study of social processes, including regional aspects, can be found in cyclical wave methodology" [1, p. 41] and consider time as the dominant in wave cycle methodology.

The existence of cycles determines changes in economic processes. With the increase of level, size and complexity of building a system, the scale of its own time should also change.

Recently one can find a growing number of works, which interpret a region as not a unit of geographical space but of social and economic space [7, p. 117]. Distinguishing the concepts of "space" and "region", it is important to say that the region is a fragment of space that has a well-defined and limited area with certain characteristics that are significant and important for the national economy.

A significant contribution to the distinction between "space" and "region" was made by J. Boudeville, who proved the conclusion that region and space cannot be used interchangeably since space is characterized by discontinuity unlike region [2]. Interpretation of the term "region" is often emphasized by its connectivity with the administrative-territorial division, while administrative and territorial divisions do not correspond to natural divisions. Thus, the comparative characteristic of the region shows the presence of attributes, not characteristic of space.

The concept of regional development in the context of providing a common space is studied differently. Thus, in the classic version one considers the transformation of the regional morphology, but in the case of study of spatial development the functional nature of the regional system with respect to macro-level space is analyzed. By analyzing the properties that determine the difference one should consider two fundamentally important differences for the region: its role in the national economic system of the country and connectivity to its geographic location.

Based on research, we can state that there are studies that somehow raise the question of formation and development of certain types of space. Recently, science increasingly emphasizes the importance of studying the spatial factor. The splash of regional research was in the middle of the 90s, due to features of the "new" society. There are studies aimed at exploring the regional space in the context of the theory of networks. The biggest advancement in this area is contributed to the studies connected to the studies of effective geopolitical space that is being studied in the theory of large multidimensional spaces. This doctrine is developed on the foundation of geophilosophy and it explains effective geopolitical space as "multidimensional space of coherence, which establishes creative boundary energy for country or region" [4, p. 42]. The major strategic resource that provides efficiency is a communicative feature of multidimensional space.

Spatial approach to determine the parameters of economic development of multisized areas was a response to the challenge of globalization. In the West, there are strong scientific schools, which solve theoretical and practical problems of space-time

organization of the productive forces in the territory. Examples of recent publications include the results of empirical research in the economic space of the European Union [6, pp. 121–136], the formation of a strategic plan and conditions of state regional spatial development policy [11, pp. 56–68], and the influence of inter-territorial and inter-regional economic interactions.

In the scientific literature there are two types of economic spaces. The first type of space is characterized by a strong internal structure and poor connectivity with the outside world, which is influenced by the state according to the container theory of society (containers created by class, religious and ethnic groups that resist globalization). The second type – the transnational spaces – is created by migration and leads to contradictions such as "globalization – regionalization", "unity of interaction – fragmentation", "centralization – decentralization" [9, p. 61].

Transformation of the level of social development implies finding systems of beliefs, which reflect the new contemporary and adequate understanding of phenomena and processes aimed at solving global problems. Their characteristic is a comprehensive planetary scope, affecting various aspects of development. The above defines a return to the global space as a category that reflects the most important properties and relationships of objects and phenomena, and also allows us to identify the conceptual foundations of the regions built in global space as an integral part of world civilization and national integrated macro system.

Global problems unfolding in today's economic environment, have a vivid interdisciplinary character, which explains the study of regional dynamics trajectories based on using a number of approaches based on the principle of complementarity. Moreover, based on the synthesis of theories and ideas it is necessary to develop a space-time approach that will expand the possibilities of identifying, analyzing and solving global problems within object-subject area of the regional economy.

It should be noted that the spatial paradigm does not make the task of building a "comprehensive" interpretation of concepts and ideas, but attempts to identify new spatial formations, layers and environments, disharmonious development of which provokes the emergence of global problems, inducing instability. It aims to create a strategically oriented network effects, frames, structures, centres, fields, clusters, patterns in the institutional space that provides a positive synergistic effect ("overflow" of innovation), the dynamics of development and includes hierarchical spatial integrity (population) that evolve dynamically [3, p. 100].

The problem of maintaining the integrity of our state is solved in several ways. The first one involves studying the processes of interaction between the different subjects that fill the space, as well as relationships with local entities (territories with special status, closed territorial entities, techno, science and technology parks, and regions of implementation of special programs). The second way is aimed at identifying and adapting research to current trends of regional development. Activities of scientific research provoke contradictions that can be clearly seen "globalization – regionalization", "unity – fragmentation", "centralization – decentralization".

Without questioning the need for this kind of research, it should be noted that in the current situation, an equally important role should be dedicated to research and synthesis of modern ideas regarding formation and development of spatial entities – components of a single Ukrainian space.

Transformations of economic space lead to deformation. The results of deformation in economic space are new spatial structures. Thus, one can see an increasing role of understanding patterns, trends and mechanisms of evolution not only of economic space as a whole, but also separate spatial formations. Hence, spatial paradigm should focus on studying the properties of spatial entities that are maintained or generated due to continuous deformations.

Let us consider the types of spatial entities. In this context, we should note that the region is considered by the author as a kind of spatial entity. Spatial entities are areas of economic activity, usually with a network structure that is characterised with strong interconnection, which generates a synergistic effect and the ability to make a significant influence on the environment. The vivid contrast can be seen if spatial formations are compared with expolar structures (family farming, petty commodity production, "second" and the shadow economy), which was done by English historian, economist, sociologist *T. Shanin*.

In terms of architecture of space structures, there are three options for their study. The first option – combinatorial – based on their decomposition using partition into elementary entities and identifying synergistic effects. An example is the decomposition of a boundary space, which includes the following components: traditional for industrial type of relations – international relations characterized by usual mechanisms of domination that operate on the basis of internal standards, international relations and international law; network spaces formed by globalization that create special areas for use of power and control; local, not integrated into the global order of zones and areas in which the domestic relations ordering methods are applied [11, p. 57]. The second option assumes the analysis of the interaction of factors that shape the structure, with emphasis on the theory of networks. The third option is based on the study of the set without decomposition in terms of "openness", "isolation", "connectivity", etc.

Region is considered by the author as a spatial entity, a distinctive feature of which is the geographical localization. Introduction of this feature in relation to the regions is due to the need to manage, which is known to have served as a basis for partition of the physical space. The principle of control cannot be implemented in relation to areas that do not have geographically defined boundaries, although administration area may not coincide with the boundaries of business.

However, studies on the identification of the nature and patterns of development of space, including economic space are usually carried out only on individual cases. Fragmentation of studies often does not provide a holistic view of the nature of economic space and essence of real purpose for its change and transformation.

Conclusions

Summarizing, it is fair to say that spatial effects play an important role in new economic realities. Organization of methodological base for realization of spatial paradigm in terms of regional development is very relevant and up-to-date under conditions when there is no regulatory and economic base and there is an urgent need of such scientific instrument, which would enable organization of an accurate information base for preparation and implementation of efficient management decisions aimed at ensuring sustainable development on territories of any scale. An important role should be given to research and generalization of modern ideas with regard to organization and development of spatial formations since they are the components of a single Ukrainian space and they influence the economic development of its regions.

References

1. Animitsa, E.H., Ivanitskijj, V. P., Peshina, Eh. V. (2005) *V poiskakh novojj paradihmy rehional'noho razvitija* [In Search of a New Paradigm of Regional Development]. Ros. Akad. Nauk, Ural. otd-nie, In-t filosofii i prava, Tsentr problem federalizma. Ekaterinburh: UrO RAN.
2. Boudeville, J.R. (1961*) Les espaces economiques*. Paris: P.U.F.
3. Danylyshyn, B.M. (Ed.) *Ekonomichnyi prostir i dynamika rozvytku produktyvnykh syl Ukrainy: teoretyko-metodolohichni osnovy doslidzhennia* [Economic Space and Dynamics of Ukrainian Productive Forces Development: Theoretical and Methodological Research Foundations]. K.: RVPS Ukrainy, NAN Ukrainy.
4. Derhachjov, V.A., Vardomskijj, L.B. (2011) *Rehionovedenie* [Regions Study]. M.: JuNITI-DANA.
5. Hrodzynskyi, M.D. (2005) *Piznannia landshaftu: mistse i prostir* [Knowledge of Landscape: Place and Space]. K.: VPTs "Kyivskyi Universytet".
6. Kruhman, P. (2005) *Prostranstvo: poslednijj rubezh* [Space: the Final Frontier]. Prostranstvennaja ehkonomika, Vols. 3, 121–136.
7. Nekrasov, N.N. (1978) *Rehional'naja ehkonomika* [Regional Economy]. M.: Ehkonomika.
8. Sonko, S.P. (2003) *Prostorovyi rosvytok sotsio-pryrodnykh system: shliakh do novoi paradyhmy* [The Spatial Development of Social and Natural Systems: Way to a New Paradigm]. K.: "Nika-Tsentr".
9. Surnina, N.M. (2003) *Prostranstvennaja ehkonomika: problemy teorii, metodolohii i praktiki* [The Spatial Economy: Problems of Theory, Methodology and Practice]. E. H. Animitsa. Ekaterinburh: Izd-vo Ural. hos. un-ta.
10. Tobler W., Zitan Chen A. *Quadtree for Global Information Storage*. Geographical Analysis. 1986. 18. Vol. 4, pp. 360–371.
11. Vasilenko, V.N. (2006) *Arkhitektura rehional'noho ehkonomicheskoho prostranstva* [The Architecture of Regional Economic Space]. Donetsk: OOO "Juho-Vostok, Ltd".

Spatial paradigm as a methodological basis for the study of regional development

The article researches the evolution of the concept of "space" that is evolving and self-developing cyclically at each point where there is an informational program of development. The article defines

spatial paradigm as a methodology that examines the process and result of the economic and spatial development based on principles of self-development. The article proves the difference between the space and the region in the economic concept of these terms. The article determines concept of economic space, and identifies its two types: the first is characterized by a strong internal structure and weak interconnectivity with the world, the second type – the transnational spaces – is shaped by migration and leads to contradictions such as "globalization vs. regionalization". Also the article determines that the spatial paradigm does not put before itself the task of building a "comprehensive" interpretation of concepts and ideas, but realizes an attempt to identify new spatial formations, layers and environments, disharmonious development of which provokes the emergence of global problems, inducing expression of instability.

Przestrzenny paradygmat jako podstawa metodologiczna dla badania rozwoju regionalnego

W artykule zbadano ewolucję pojęcia przestrzeni, które rozwija się cyklicznie na każdym etapie informacyjnego programu rozwoju. Paradygmat przestrzenny określono jako metodologię, która analizuje przebieg i wynik rozwoju gospodarczego i przestrzennego opartego na zasadach samorozwoju. Wskazuje różnicę między pojęciami przestrzeni i regionu w koncepcji ekonomicznej samorozwoju. W artykule przybliżono pojęcia ekonomicznej przestrzeni i zidentyfikowano dwa jej rodzaje. Pierwszy charakteryzuje silna struktura wewnętrzna i słaba łączność ze światem. Typ drugi – transnarodowych przestrzeni – jest kształtowany przez migrację i prowadzi do takich sprzeczności jak „globalizacja v. regionalizacja". W artykule podkreślono też fakt, że w paradygmacie przestrzennym nie stawia się zadania polegającego na budowaniu kompleksowych interpretacji koncepcji i pomysłów, ale podejmuje się próbę identyfikacji nowych formacji przestrzennych, warstw i środowisk, których nieharmonijny rozwój prowokuje powstawanie globalnych problemów, wywołując wrażenie niestabilności.