СУЧАСНІ ПРОБЛЕМИ РЕГІОНАЛЬНОГО РОЗВИТКУ

MODERN PROBLEMS OF REGIONAL DEVELOPMENT

REGIONAL INNOVATIVE SYSTEMS AND CLUSTERS ANALYSIS: METHODOLOGICAL PROBLEMS

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Козак Ю.Г., Лебедева С.М., Барановська М.І. Регіональні інноваційні систем та кластерний аналіз: методологічні проблеми.

В статті описаний стан сучасної глобалізації економіки та розглянуті три типи інноваційних систем. Ідея різноманітних видів знання «дихотомія» була відзначена в методах аналізу РІС і оцінки кластерів як найбільш плідним у теоретичному аспекті.

Ключові слова: глобалізація економіки, регіональні інноваційні системи, регіональні кластери.

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В статье описаны состояние современной глобализации экономики и показаны три типа инновационных систем. Идея различных типов знания "дихотомия" была отмечена в методах анализа РИС и оценки кластеров как наиболее плодотворная в теоретическом аспекте.

Ключевые слова: глобализация экономики, региональные инновационные системы, региональные кластеры.

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The state of the modern globalizing economy is described and three types of innovative systems are shown in the article. The idea of different types of knowledge "dichotomy" was highlighted within the methods analysing RIS and clusters appraisal like the most fruitful in theoretical aspect.

Keywords: globalizing economy, regional innovative systems, regional clusters.

Unconventional directions in economic regionalistics folded in 70-80th of XX century (M. Amendola, Y. Yaffard, D. Becattini and other) have opened new direction in development of spatial development. Generalizing and investigating vast empiric material, regionalists, is "evolutionists" [1] gave the realistic explaining to the economic phenomenon of appearance in the separate regions of Italy, France and Switzerland of "oases" of economic prosperity in the situation of deep cutback of economic activity of 1979th. Giving up the traditional theory of allocation of production factors, evolutionists based on the approach pawned the idea of technical progress evolution. Its meaning is in confession of innovations as a result of difficult co-operation of managing subjects, its mutual educating, gradual accumulation of preparation and doing business. Firstly in economic science this process was noticed and described by Adam Smith, and later by Alfred Marshall in the categories of "industrial district" [2]. It flows within the framework of theory that is not necessarily coincided with the borders of economic – or policy-economic education. Sometimes such an association is formed by centuries, and now days this process in the separate corners of planet accumulated new maintenance, as managing subjects within its limits of the geographical environment create relations, combining a competition with a mutual collaboration, expressed by formulas of learning lei doing, learning lei using, learning lei interacting. Such an association has got dissemination for the evolutionists of the "territorial-production system".

Idea of evolutionists got wide confession among the regionalists. It was noticed by Group of European

researches of innovative environment functioning by European Union aegis [3].

Supporters of neoclassical school, accepted conclusions of evolutionists in relation to meaningfulness of internal institutional factors in regional development, and at the same time they specified on an underestimation by evolutionists of exogenous factors being outside of the regions. Alluding to the experience of creation and functioning of technopolicies (Silicon Valley in the USA, etc.), they assert that without permanent and massed support from outsourcing development of innovative environment of regions is impossible. These sources within the framework of "global corporate network" are under control of Transnational Corporations. Region can not attract external investments and public in a necessary volume of innovative production distribution without participating in this network. Therefore, it considers "plugged the basic sign of regional cluster in the global corporate network" [4]. The presence of this sign presents possibility to managing region becoming a full-fledged member and network society and to participate in creation and appropriation of highly "technological cost" during great while. On the contrary, M. Castels considers, "firms and organizations without accepting of network rules of game (in the field of business, mass-media or policy), leave a competition, 'cause it is not ready to application of new model of management" [5]. Decisions about accepting (or not accepting) these "rules", dart out in financial centers and headquarters of corporations [5]. In Castels opinion strengthens a tendency to polarization of social structures both into countries (including the most developed) and in an international scale.

However, not all regionalists accede to such a pessimistic interpretation of spatial development. Swedish regionalists B. Asheim and L. Coenen within the investigating European experience offer the vision of scenarios of revivifying of innovative development, creating and grounding its own typology. They are work out methodology of clusters identification based on differentiation (distinction) of separate types of the regional innovative systems depending on the types of the knowledge applied in the concrete areas of economic activity [6]. Two terms are used today in economic regionalistics to denote the modern globalizing economy. First one has been offered by Lundvall in 1992d "learning economy" [7], and second one is a "knowledge economy" usually applied by the officials of Organization of Economic Collaboration and Development (OECD). Swedish economists take up these distinctions as not semantic and rich in content. Its follow from taxonomy i.e. differentiations (confessed OECD) between the types of knowledge finding application in industries of production of low, medium and high-tech industries. Really the "charmed" results contemplation of higher level of technologies (for example, an informatics or pharmaceutics sphere) is becoming to ignore an exclusive character of application and won't be able

to be equated (as it is sometimes done by some regionalists) to distribution of "learning economy".

That is not the only difference of the first kind from the second one. The first type ("learning economy") means the continuous process of introduction in the production of the technologies based on the already before knowledge gained. It is the dynamic process of the mutual educating and collaboration of suppliers and consumers, based on the new combinations of this knowledge. This process engrained in an environment socially and territorial and accompanied by the receipt of income during a process. Its participants do not ignore wide distribution of ordinary (conservative) skills and "informal" (not "coded") knowledge. Such type of knowledge finds application in industries and regions with the middle and subzero level of "closeness" of satiation regional research centers supplying with the newest ("radical") innovations. Distinctive quality of "learning economy" is a "shocking capacity" for application of profitable innovations by the presence of the "grabbing educating" [6]. The national economy of Denmark and other North European countries can exemplify such economies. They are distinguished by high capacity for absorption and distribution of knowledge, although potencies of radical (ultramodern) innovations creation and their application are expressed much weaker for them [8]. In a long-term prospect, certainly, increasing difficulties influencing on reproduction and height of "learning economy" can appear, because innovations in imitation form will not be able to provide convincing competitive edges in globalization economic system. Addition of such type of knowledge the process by the "learning economy" becomes to inevitable. However, quickness and efficiency of such educating determined by efficiency of "learning economy". There is a permanent necessity to pay an attention to both the process of creation of fundamentally new knowledge and in an equal degree to the process of educating and competence to those, who uses it in a dynamically developing and quickly changing modern globalization economy.

The second type of knowledge mainly consists of the newest achievements of scientific thought, opening new ways in technology, carries more static character. This knowledge exist as the "supply" accumulated, mainly by scientific centers, and these supplies can't always find quick and wide application. The level of such knowledge is usually formally measured by the amount of university centers, research institutes in a region. Scientists-professionals ("analysts") are busy there. The results of their activity are not measured by the amount of the received income. Therefore B. Asheim and Z. Coenen (after S. Laestadins) [9] determine this type of knowledge as "analytical" unlike the first, adopted by "synthetic". From the philosophical point of view of knowledge of the second kind("analytical") obtained on advantage on the basis of general scientific principles an analytical way while the first kind – by

an accumulation and study of empiric material and on the basis of synthesis of the conclusions and data received. Swedish regionalists made a table demonstrating distinctions of these types of knowledge that facilitates authentication and classification of different types of the innovative systems (table 1).

Table 1. Distinction of types of knowledge (synthetic / analytical) [10]

Synthetic	Analytical
Innovation by application of combination existent knowledge	Innovation
Large value of distribution, problem of a connection and combining of knowledge (technological), mostly by an inductive way	Large value
Interactive educating with participation suppliers and clients	Research
Predominance unofficial knowledge, touching more concrete know-how, ability and practical art	Predominance
In advantage there are innovations that bringing return	More radical innovations

Thus, the analytical type of knowledge more corresponds to the necessities of those industries where the newest achievements of science have an especially important value, where the knowledge "production" on advantage is based on "cleanly" research processes informally instituualising establishments. Genetics, biotechnology and informatics can exemplify it. Both of knowledge types break through a road in spheres most receptive to one or another type of knowledge. Corporations have their own research subdivisions usually, however, they simultaneously in an innovative process widely does not draw on scientific accomplishments of universities and other research centers. A "consumption" and "producible" knowledge of this kind have "coded" character mostly. Informal knowledge and skills find application also, however its use is inferior to the major task: to the process of innovations production. "Coding" of knowledge takes place for a number of reasons: the consumption of knowledge and ideas is based mostly on a revision and selection of already conducted kinds of researches, the process of knowledge receipt and their application is organized more formally (it is documented in lectures, in the files of computers, envisaged and protected by patent bureaus). Knowledge using takes form of new products or processes. Here are produced more radical innovations than in the conditions of predominance of the first kind of skills.

Unlike analytical, the synthetic type of knowledge takes greater application in those sectors of production, where innovations come forward as an application of already existent knowledge or as a new combination of such knowledge. Often it takes place when a necessity to decide specific production-technique problem exists. A machine-tool construction, special engineer and shipbuilding can exemplify that. Such cases products carry piece's character or produced by maximal series. Research subdivisions play a less considerable role here then the first kind. The collaboration of enterprises takes place with universities, but it takes place mainly as

drawing on the separate results of scientific researches, however here goes about the results of not basic researches, but back side. The process of knowledge production flows by induction, but not deduction, i.e. as testing, experimentation, computer images or verification of conclusions a practical way. Sometimes knowledge finds application as a decision of complete technical problems and confirmed by patents often. Certainly, skills, ability and informal knowledge have more considerable role to this kind, than to analytical one. In a number of cases synthetic knowledge is the result of the experience purchased in the workplace in the process of the interactive educating. This kind by comparison to the first one contains more concrete know-how that is necessary to production and transmission of knowledge. Such transmission comes true by professional and technical schools and training on workplaces. This type of innovative process is orientated on the increase of efficiency and search of new production-technique decisions or on the improvement of consumer properties of products. All of this is accompanied by the receipt of additional income from the innovations directed to modification of existent foods and processes in advantage.

In the real life this type of knowledge exists in the regional innovative systems (RIS) that consisting on institutional infrastructure supporting innovation and productive structure of region. Putting "dichotomy" of knowledge in basis, B. Asheim classified the innovative systems dividing them into three types.

First type on a name of the "territorial engrained innovative system" is used by synthetic type of knowledge mainly. Innovations arise up on the limited space by the process of experience exchange and professional knowledge with nearby firms on the basis of geographical closeness and productive "likeness" mostly without the direct co-operating with knowledge generating establishments. On the properties this type is nearest to the "path to RIS" named by Cooke[11]. The networks of small enterprises of the Italian area as Amelia-Romania can serve the most prime example of such system.

Second RIS type is adopted by the "regional network system". Firms and organizations here are also engrained in the region specific and differ in capacities for the mutual educating and collaboration on the basis of geographical and productively-sale closeness. But all of it is complemented by the institutional infrastructure specially created in a region including research centers, training-centers and other local institutes engaging in introduction in the firms of innovations, and also designing and stimulant a collaboration between firms and public organizations (for example, with the chambers of commerce, business-centers). Network-making system is often named on "RIS ideal type": it is the regional cluster of firms, surrounded by regional "supporting" institutional infrastructure. Network approach is typical for Germany, Austria and Scandinavian countries.

Third type of RIS is named on "regionalized national system". It has a low of differences from two enumerated types. Firstly, considerable part of industrial production and institutional infrastructure is functionally integrated in the national and international innovative systems, i.e. innovative activity flows in advantage with participation factors being outside a region. Exogenous factors play a considerable role of this model of development. This type could be named like "guided RIS". The "closeness" of scientific centers of large universities, another scientific establishments and research subdivisions of corporations is very high here. These are base for generating of more radical (advanced) innovations based on the scientifically-analytical method of researches with scientists-regionalists engaging in this process from different countries and world regions. "Clusterization" of laboratories and research departments of large firms and/or state research institutes in the created "scientific parks" and technopolicies placed usually in "family" universities and technical colleges is the evident example of the national innovative system regionalizing. However, as experience testifies, all of them have the limited connections with local industry. Scientific parks exemplify the specially created innovative institutes including firms with the high level of providing the resources of knowledge and competent skilled composition, but these firms are deprived capacity for a fruitful collaboration with the environment. Technopolicies of the developed countries (France,

Japan, Taiwan) is characterized by the low level of innovative collaboration between local firms and "knowledge generators". In those rare cases, when scientific parks "become" overgrown with the innovative systems, that is the result of purposeful activity of public institutes at national level.

This circumstance specifies on importance of endogenous factors, reflecting the socially engrained capacity for self-realization and to plugging in the process of borrowing and application in economic activity of useful knowledge once again.

First results to the stated we mark following. "Dichotomy" of different types of knowledge allows more clearly and pragmatic description of the clusters type. It opens possibility not only to the scientific classification of functioning clusters but also can serve as an instrument of the strategic regional planning with the acceptance of the weighed decisions that is able to define ways of spatial development. Methodology of the innovative systems using is versified by application to the study of the North European clusters specific.

Summing up to the stated, we will mark the following. The idea of different types of knowledge "dichotomy" is fruitful in theoretical aspect. It allowed to describe the types of the innovative systems and corresponding to them types of clusters more relief and pragmatic. It is set that the most successful is the "regional network system", leaning on advantages of the "synthetic" type of knowledge, organically related to the endogenous factors of development. Application of "analytical" type of knowledge on the region level brings success only with the active position of the state based on realization of the national science-innovative programs. The role of international financial centers and Transnational Corporations in realization of these programs European regionalists can't find.

At the same time these researches on the examples of the Scandinavian clusters demonstrate the value of the use of ordinary ("conservative") knowledge potency in the interactive educating and business collaboration process, support its role in a conquest and maintenance of competitive edges. This way judgments that "full-fledged" members of network society opens application only of "exclusive" (radical) innovations is refute.

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