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## REGIONAL CONVERGENCE AND INNOVATIVE MANAGEMENT

**Abstract.** *Introduction.* The lack of territorial economic and social cohesion demonstrates a strong influence on the growth rate of any national economy. It can be explained by permanent allocation of resources from developed regions towards underdeveloped areas. As a result, underdeveloped areas are not forced to enhance their economy since donated money are used to maintain basic life services; and developed regions meet economic slowdown since money needed for the long-run development are transferred. Therefore, there is an issue of how to provide the regional convergence effectively and efficiently without harmful impact on the national economy. *The purpose* of the research is to outline 5 types of strategies that can be taken by the government in order to provide regional convergence. The offered framework is helpful in order to classify governmental decisions with respect to regulation of regional economy and forecast consequences and further implications of varying regional strategy. Also, the studies pursue the objective to describe the problem preventing regional growth based on innovations and offer alternative solution of its handling. As it refers to the first step of critical thinking approach, obtained results regarding innovative regional development and growth allow the view on the problem of regional convergence to be shifted towards new methods of facilitating spatial cohesion.

*Results.* Instruments of providing regional convergence are to be distinguished according to the ideological foundation underlying their development: optimistic or pessimistic. According to optimistic ideological foundation, the purpose of regional convergence can be achieved. According to pessimistic ideological foundation of regional convergence, overcoming territorial disproportions in economic and social development is impossible. Instruments for regional convergence have different scope. As usual, mechanisms are aimed at total regional convergence. It is offered in the article to concentrate on dotty convergence right across the territorial skeleton of the country. Instruments implemented to make regions convergent allow static indexes (indicators or ratios of regional system development) to be converged instead of dynamic parameters of transformational processes. Design of mechanisms for regional convergence depends on what exact indicators have been chosen to assess convergence efficiency. It is appropriate to pay attention to convergence of innovation development right across the regions of Ukraine since the innovation model of economic growth has been recognized as prospective. Convergence mechanisms can be direct and indirect. They imply direct funding for those industries that were selected by the government to be basic in regional development. Stimulating mechanisms facilitate and support special conditions to activate those processes within the regions that are required for regional convergence being achieved. In considering innovations as a key driver of the economy, it was offered the concept of innovations privatization in Ukraine. It implies benefits for the central government if it delegates the right of possession and disposal of intellectual property and the results of its implementation to the local authorities even if research projects were funded by the government.

*Conclusion.* In Ukraine, the innovative activity system is suffering an excessive centralization, and thus, prevents business from collaborating with research institutions to develop and market innovations. The theoretical results obtained due to the critical thinking approach documents the hypothesis of dotty convergence existing in the sense that at a particular point of time previously selected dots of territorial skeleton should be fixed at the same steady state level of growth and development. Other dots may experience slumps in their growth and development; however, it does not have a harmful impact on the national economy. Over the time these dots should be changed.

**Keywords:** regional development; dotty convergence; innovative management; spatial depression; spatial disproportions.

**JEL Classification:** M31, O13, Q13

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### **РЕГІОНАЛЬНА КОНВЕРГЕНЦІЯ ТА ІННОВАЦІЙНИЙ МЕНЕДЖМЕНТ**

**Анотація.** У статті розглянуто проблеми регіонального вирівнювання для економік перехідного типу. Запропоновано систематизувати стратегії регіонального вирівнювання за такими ознаками, як концептуальна платформа, масштаб вирівнювання, об'єкт вирівнювання, індикатори вирівнювання, механізми вирівнювання. Висунуто та обґрунтовано гіпотезу про можливість застосування стратегії точкового регіонального вирівнювання, що залежатиме від індивідуальних параметрів розвитку регіонів і сприятиме уникненню моделі регіонального вирівнювання «донор-реципієнт» за загального заданого рівня розвитку національної економіки. Дослідження особливостей інноваційного управління розвитком економіки регіонів дозволило обґрунтувати концепцію приватизації та роздержавлення інновацій в Україні, що характеризується зміною моделі участі держави в інноваційних процесах і стимулюванням партнерства наукових установ та бізнесу.

**Ключові слова:** регіональний розвиток, точкове вирівнювання, інноваційне управління, просторова депресія, просторові диспропорції.

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### РЕГИОНАЛЬНАЯ КОНВЕРГЕНЦИЯ И ИННОВАЦИОННЫЙ МЕНЕДЖМЕНТ

**Аннотация.** В статье рассмотрены проблемы регионального выравнивания для экономик переходного типа. Предложено систематизировать стратегии регионального выравнивания по таким признакам, как концептуальная платформа, масштаб выравнивания, объект выравнивания, индикаторы выравнивания, механизмы выравнивания. Выдвинута и обоснована гипотеза о возможности применения стратегии точечного регионального выравнивания, которая будет зависеть от индивидуальных параметров развития регионов и позволит избежать осуществления модели регионального выравнивания «донор – реципиент» при общем заданном уровне развития национальной экономики. Исследование особенностей инновационного управления развитием экономики регионов дало возможность обосновать концепцию приватизации и разгосударствления инноваций в Украине, которая основана на изменении модели участия государства в инновационных процессах и стимулировании партнерства научных учреждений и бизнеса.

**Ключевые слова:** региональное развитие, точечное выравнивание, инновационное управление, пространственная депрессия, пространственные диспропорции.

**Introduction.** The regional convergence and opposite spatial disproportions were always core items of regional policy that has been developed across countries of the world. Ukraine is not an exception; therefore, the process of encouraging regional economies growth is considered to be affected by the paradigm of regional development that is expected in the country. The regional convergence is referred to as the achievement of such standing of the economy when a level of development of separate territories is approximately identical. In fact, the greater contrasts in development of regions are, then the lower level of growth of the national economy is. It can be explained with the fact that conflicts arisen due to depressive regions existing are often handled at the expenses of developed regions slow down since the later provide a huge amount of donations. However, the concept of convergence implies that all regions of a country equally contribute to the national growth owing to intensive use of their productive capacities.

Thus, the balance of regional development for achieving sustainable growth in the long-run period is a topical issue for Ukraine, as the economy striving to be integrated into European community, as well as for other countries.

**Brief Literature Review.** In examining the framework composed of the main research results and outcomes relative to the issue of regional convergence, we can reveal that current scientific advances might be classified according to several types. However, in the light of the article, there is a strong relevance in distinguishing spatial and dynamic concepts of territorial convergence. At the same time, all the concepts explaining the nature of territorial economic cohesion or, conversely, economic diversity could be grouped in a way dependent on why and when a convergence of regions and countries is possible.

Regional convergence is determined by the level of development demonstrated by separate territories. Thus, the factors driving spatial development are automatically causes of regional convergence. One of two branches that provide explanations of spatial development and convergence is spatial concept. Its contributors have shown that regional development and, therefore, convergence depend on: the distance between production facilities and final product markets (Thunen, 1992); the distance between production facilities, market and location of raw materials (Launhardt, 1987), which all together significantly influence transport expenses; all costs of production that must be minimized due to locating production facilities as closer to labor force market, source of raw materials as possible (Weber, 1993). However, A. Losch (1940) made an effort to integrate those concepts and elaborate a simulation model for predicting spatial economic growth and projecting economic regions free of legal geographic boundaries.

In contradiction to the spatial concept of the regional convergence, the dynamic theory of spatial cohesion is represented by one of the most fundamental research work conducted by R. Barro and X. Sala-i-Martin (1992) in which the authors explained the rationale of convergence between underdeveloped and highly developed countries due to the unexpected

tendency of faster growth of poor countries. This phenomenon was lately checked by M. Bartkowska (2012) and A. Riedl (2012) for European regions; however, unlike the previous research where GDP and income per capita were taken into account, indicators of human capital showed strong relationship with the growth rate in poor and reach regions. By extension, when elaborating regional policy, it is useful to employ recent findings in respect to productivity disturbances (Leung & Quah, 1996), convergence clusters (Quah, 1996), modern spatial theories of convergence provided by Rey S. and Janikas M. (2005), conditional convergence (Felsenstein & Beenstock, 2008) and peculiarities of EU convergence (Maza & Villaverde, 2011; Petrakos, Kallioras & Anagnostou, 2011).

In recent years, many derivative research works in respect to generic issue of regional growth and convergence have been conducted by Ukrainian authors. Results of those works are extremely important for Ukrainian regional policy as they address topical sub issues observed in the national economy of Ukraine. Among those results are developed principals of shaping a regional space attractive for foreign and domestic investors by N. Navrotska (2013); methods of fostering business to invest into regional economies and, thus, encourage spatial economic growth by Yu. Komar (2013); strategy of enhancing innovative activity aimed at regional development and growth by V. Shevchuk (2010).

Despite deep studies of the problem, we can see the items which are required to be justified and expected to expand theoretic frontiers – that is, particular issues which are of the top importance for transitive economies like Ukrainian one and concern managerial decisions about how to regulate internal business environment in the country to reach regional convergence. The data base appropriate for statistical analysis to formulate concepts and hypnosis of Ukraine's regional convergence style has not been accumulated over the years of independence. In addition, models to track regional development built with the use of old data might be inadequate and inaccurate as the government regulation more than 20 years ago was principally different. Therefore, beyond the factors and causes of spatial convergence, there are decisive managerial issues vital for the Ukrainian government and other CIS countries authorities. They are focused on choosing a conceptual platform for elaboration of effective regulations and strategies to ensure regional convergence. By extension, topical issues cover innovation processes, which also require a model of collaboration between the government and business to be presented.

**The purpose** of the research is to outline 5 types of strategies that can be taken by the government in order to provide regional convergence. The offered framework will be helpful in order to classify governmental decisions with respect to regulation of regional economy and forecast consequences and further implications of varying regional strategy. Also, the studies pursue the objective to describe the problem preventing regional growth based on innovations and offer alternative solution of its handling. As it refers to the first step of critical thinking

approach, obtained results regarding innovative regional development and growth will allow the view on the problem of regional convergence to be shifted towards new methods of facilitating spatial cohesion.

**Results.** The deep investigation of the conceptual platform has shown that so-called mechanisms or, other words, tools and instruments of the spatial convergence are predominantly framed with some key aspects that, in turn, significantly influence a design of those mechanisms due to their specific theoretical and methodological peculiarities. The analysis of available mechanisms designed for regional convergence allowed them to be systemized and expanded. In addition, the analysis showed advantages, limitations and efficient approach to elaboration of mechanisms for providing regional convergence under conditions of Ukrainian economy (Table).

consumption are being created, and marketing and scientific activities are mutually supportive.

Thus, if regional convergence is considered to be based on innovations created due to making use of national productive capacity, technology and facilitated with national innovative system, then mechanism of technology transfer partially supports domestic producers of innovations. Usually technology transfer facilitates regional development through investment activity and, thus, supports economic development of those countries which innovations are transferred (Figure 1).

The policy elaborated for regional convergence must tend to internal technology transfer that is mainly characterized with distribution of control over intangible assets between private business and the state. It influences how the system of flows of intangible assets is designed in the economy. In turn, this system affects the efficiency of innovative processes and economic convergence.

In fact, being an owner of the rights of control over intangible assets, the state is given the status conflicting with appropriate regulations, which contain norms forbidding the state ownership for such type of resources. By extension, the government control over the intangible assets created due to public financing is likely considered implicit if the government clearly oversees and regulates the overall procedure of spending money gained after innovations having been sold for different purposes. It means that public companies that own considerable production capacity are lack of certain amount of autonomy to manage innovation activity.

Therefore, the government tries to control technology transfer performed by the public companies and institutions as strongly as possible. In return, science and research institutions become passive participants in regional economy, and results obtained through research activity cannot be estimated as complete available intangible asset to the regional economy since they cannot be used. Thus, regional convergence stimulated with innovations in fact suffers from regions disability to guide the development through local control over intangible assets.

Despite recent proclamations about the necessity to create economic and legal conditions for scientific groups so that they can establish start-up businesses for further commercialization of the results obtained due to scientific activity, the regulation of technology transfer has still impeded innovation entrepreneurship, which begins with the local freedom and initiative. The creation of innovative companies like spin offs at public research universities is getting to be impossible because of the lack of special right to be engaged in marketing activity based on the use of intellectual property.

Therefore, opportunities of structural changes in favor of innovative entrepreneurship enhancement are lost for the regional economy. As a consequence, prospective increase in employment due to creating new jobs, improvement of social standards of living and regional convergence, increase in tax revenues to budgets are also not met.

In our opinion, the government should regulate the economic development of the regions and provide their convergence through the stimulation of innovative activity which can be driven by facilitating technology transfer performed by scientific institutions. One of the forceful mechanisms for the government to participate in innovative process taking place in the regional economy is to finance research projects. However, instead of establishment of property rights to control intangible

Table: Mechanisms Aimed at Regional Convergence

Type of Mechanism	Advantages	Disadvantages
<b>1. Ideological Platform Approved for Regional Convergence:</b>		
Optimistic	Regional convergence mechanisms are aimed at achieving the equal level of indicators of territorial development.	It is difficult to monitor and take new factors of destructive impact on regional convergence.
Pessimistic	Regional economy mechanisms are aimed at stimulating development of separate regions. Regional convergence mechanisms are not used.	There is a high probability to lose control over main processes in regions that will cause formation of deep spatial depressions.
Integrative	Mechanisms are aimed at reaching regional convergence given cyclical nature of growth phenomena.	There are difficulties in practical implementation.
<b>2. Convergence Scale:</b>		
Total convergence	Mechanisms provide absolute convergence of all regions across the country.	There are high expenses of implementation.
Partial (dotted) convergence	Mechanisms provide convergence of separate growth dots across the country's spatial skeleton.	Regions at the phase of economic and social depression are observed.
<b>3. Convergence Object:</b>		
Regions economic and social standing	Mechanisms are framed by simple and transparent indicators.	There is lack of relationship with regional dynamic process.
Regions economic and social dynamic	Mechanisms provide convergence of dynamic characteristics of the regional development.	Practical models and tools are difficult to develop.
<b>4. Convergence Indicators:</b>		
Physical	Mechanisms include precisely defined indicators that are simple to use and statistically provided.	Spheres that are taken into account during convergence are restricted; middle processes of regional development are not considered.
Economic		
Social		
Innovative and economic	Mechanisms facilitate convergence of middle process of regional development.	There are high expenses for implementation of the mechanisms which require appropriate information to be provided.
<b>5. Influence:</b>		
Direct	Mechanisms are forceful and provide direct finance support for regional development activities.	Short-run efficiency.
Indirect	Long-run efficiency	There is a risk of low efficiency and high uncertainty of the factors influence

Source: Grouped by the authors

The studies of regional convergence mechanisms demonstrate that efficient overcoming the spatial disproportions is dependent on elaboration of special convergence policy related to innovative progress of regional business environment.

Therefore, regional economic convergence in Ukraine requires mechanisms of integrative regulation of process which allow research inventions to be commercialized and scientific activity to be intensified. Intensification of research activity implies not only increasing patent numbers, scientific reports and awarded scientific degrees, but principally new way of conducting research and getting results. To provide this, leveling mechanisms comprising regions across the country are required to ensure that research activity is aimed at seeking new market niche for regions, innovative products for public

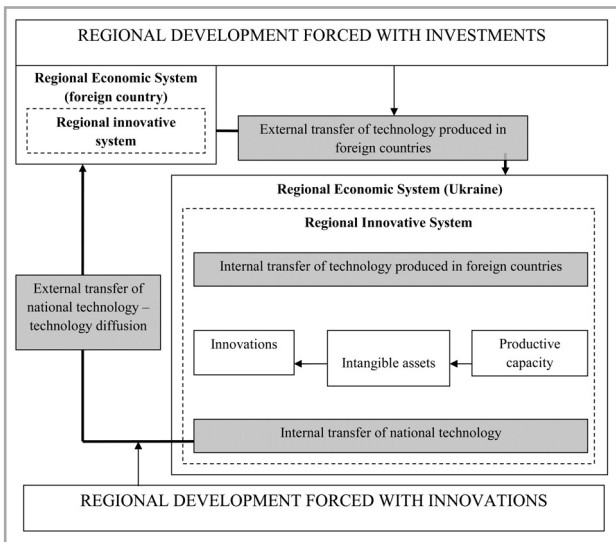


Fig. 1: Relationship between innovation and technology transfer process taking place in regional economy  
Source: Compiled by the authors

assets, the government may have a percentage of the profit gained after innovations being marketed. Incubation conditions in that case refer to a special corridor of values for the government portion of the profit dependent on the term, industry and the amount of dotation provided by the government to the research institution (Figure 2).

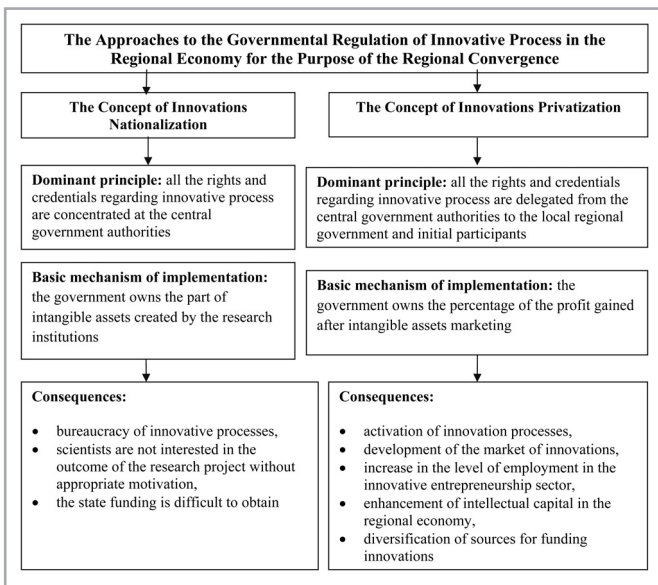


Fig. 2: The approaches to the governmental regulation of innovative process in the regional economy for the purpose of the regional convergence  
Source: Compiled by the authors

Due to the decentralized regulation of innovative development of the regional economy, the central government will not select innovative projects of technology transfer since only the local institution can perfectly know the regional problems, the regional market and makes more efficient assessment of the project to request funding. At the same time a regional consortium «science-government-business» is responsible for the final result of the innovative projects implementation and the level of innovative development of the region.

**Conclusion.** The theoretical results obtained due to critical thinking approach document the hypothesis of existing doty convergence in the sense that at a particular point of time previously selected dots of territorial skeleton should be fixed at the same steady state level of growth and development. Other dots may experience slumps in their growth and development; however, it does not have a harmful impact on the national economy. Over the time these dots should be changed. It means that the dots of growth will be replaced with those dots had been previously in recession. In addition, the mechanisms of stimulating innovative activity is to be find as a key driver of such balanced changing in dots of spatial growth within the territorial skeleton.

However, in Ukraine the innovative activity system is suffering an excessive centralization and, thus, prevents business from collaborating with research institutions to develop and market innovations. A mathematic formalization of changing the balanced spatial growth dots is a subject of further investigation.

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