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SCIENTIFIC PRINCIPLES OF MODELLING ENTREPRENEURIAL POTENTIAL OF A REGION

In this article approaches to the "entrepreneurial potential" concept are considered, including the authors' interpretation of entrepreneurial potential of a region. The invariant model of entrepreneurial potential is described, its basic elements are identified and the role of each as a specific mediator is revealed. A specific mediator – a three-level model of entrepreneurial potential in socioeconomic environment has been developed.

Keywords: entrepreneurial potential of a region; invariant model; national, regional and local level mediators; business entities.

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НАУКОВІ ПРИНЦИПИ ФОРМУВАННЯ ПІДПРИЄМНИЦЬКОГО ПОТЕНЦІАЛУ РЕГІОНУ

У статті розглянуто підходи до поняття «підприємницький потенціал», зокрема запропоновано авторський підхід до визначення підприємницького потенціалу регіону. Описано інваріантну модель підприємницького потенціалу регіону, визначено її головні елементи та розкрито роль кожного як певного медіатора. Розроблено специфічний медіатор – трьохрівневу модель підприємницького потенціалу у соціально-організованому просторі господарювання.

Ключові слова: підприємницький потенціал регіону; інваріантна модель; медіатори загальнодержавного, регіонального та локального рівнів; суб'єкти господарювання.

Рис. 1. Табл. 1. Літ. 10.

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НАУЧНЫЕ ПРИНЦИПЫ ФОРМИРОВАНИЯ ПРЕДПРИНИМАТЕЛЬСКОГО ПОТЕНЦИАЛА РЕГИОНА

В статье рассмотрены подходы к определению «предпринимательского потенциала», в том числе предложен авторский подход к определению предпринимательского потенциала региона. Описана инвариантная модель предпринимательского потенциала региона, определены ее главные элементы и раскрыта роль каждого как определенного медиатора. Разработан специфический медиатор – трехуровневая модель предпринимательского потенциала в социально-организованном пространстве хозяйствования.

Ключевые слова: предпринимательский потенциал региона; инвариантная модель; медиаторы общегосударственного, регионального и локального уровней; субъекты хозяйствования.

Problem setting. Entrepreneurial potential of a region is a complicated economic category. Under the conditions of globalization understanding the components of entrepreneurial potential of a region is very important for the economic development of every country. Mutual connections between national economies lead to the need to produce competitive products in each region of any country. Ensuring competitive advantage in a region is only possible under sufficient employment in production, services and works that will be in demand at the global economic market. Experience of other countries shows that entrepreneurship development at the micro- as well as at the macrolevel has a significant influence on the stability of eco-

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conomic life in a country. With rapid changes in the competitive environment, entrepreneurial potential as a dynamic system requires constant analysis of its components, their relationships and evaluation to ensure the target vector of development on a regional level.

Recent research and publications analysis. Entrepreneurial potential was studied by prominent economists such as R. Cantillon (1964), O. Fedonin and O. Oleksiyk (2003), N. Krasnokutska (2005), E. Lapin (2002), I. Repina (1998), J.A. Schumpeter (2011) and J. Thunen (1966). But their studies on entrepreneurial potential identified the latter as economic or production potential.

Research objective. At present there is no integrated economic model for the concept of "entrepreneurial potential of a region". Therefore, it is necessary to give a generalized definition of entrepreneurial potential of a region and identify the methods for its assessment.

Key research findings. Such well-known scientists and economists as R. Cantillon (1964), M. Repina (1998), J.A. Schumpeter (2011), J. Thunen (1966) share a common view that entrepreneurial potential is the potential of an entrepreneur that includes integrated entrepreneurial skills of entrepreneurship carriers, such as professional skills, acquired skills, innovative capacity, functional skills, ability to take risks, striving to innovate and be creative, management skills, independence in choosing and decision-making, the ability to respond to economic changes and current situation, and the skills of adaption to a changing environment.

Analyzing M. Repina's view (1998) on entrepreneurial potential as a combination of labor, material, technical, financial, innovative resources and skills capabilities of managers, professionals and other categories of personnel to produce goods, implementation services (works), receiving maximum revenue (profit) and sustainable functioning and development of a company, it should be noted that the dynamic aspect of this phenomenon hasn't been taken into account.

R. Cantillon (1964), J. Thunen (1966) consider entrepreneurial potential through a combination of functions of entrepreneurs, the main of which is the ability to take risks, thus narrowing the understanding of this phenomenon.

J.A. Schumpeter (2011) wrote that entrepreneurial potential is the process of innovation and creativity, which entrepreneurs are capable of, but he did not pay attention to structuring of this phenomenon.

After examining the researchers' views, we faced the problem of logical justification of the definition of "entrepreneurial potential of a region". Taking into account the scientific principles of economic modelling of phenomena, we introduce the following interpretation of entrepreneurial potential of a region. This is a complex, dynamic, polistrukture system that represents the difference between localized in the economic environment, social and economic resources and businesses with their capital, which affects the stable development and efficient playback of economic setting.

Nowadays creating a private business requires more efforts, since the market is characterized by economic instability, changes in the competitive environment and other macro- and microeconomic factors. The research suggests that entrepreneurial potential of a region (EPR) represents entities engaged in small and medium-sized enterprises (SME's). To complete the implementation of entrepreneurial potential of

a region we need to identify specific mediators and each element which can have dichotomous effects on entrepreneurial potential. In multivariate unstructured models of regional economic development elements of EPR, as shown by our studies, occupy leading positions. This should not cause a skeptical attitude, because it clearly shows the directed motion towards economic expectations of society as an important condition for integration into the global economy. This move will promote economic culture of entrepreneurs. The study of EPR invariant today has good scientific perspectives and certainly practical implications.

The analysis of scientific approaches and works of outstanding scientists and economists allows us offer our own entrepreneurial potential invariant model. Based on the conceptual apparatus of entrepreneurial potential of a region as a multifactorial polistrukture and dynamic system, we consider it reasonable to use as a mediator the well-known principle of invariance (Figure 1). This principle allows determining the extent of stability-variability investigated elements that are in certain correlation with each other. All these relationships describe the structure of the system, and a set of relations between the system as a whole and any object – a function of the system.

The proposed invariant model of entrepreneurial potential of a region illustrates the degree at influence of national, regional and local levels as specific mediators to fluctuations in entrepreneurial potential of a region in a certain socioeconomic environment. Depending on the quantitative and qualitative impact of each mediator on the formation of entrepreneurial potential, it can be fully, partially or not sufficiently realized. Naturally, the content invariant entrepreneurial potential in a particular form may differ in each region. Inclusion invariant model of EPR in the model of economic development in a region is the least asymmetric because there is a dominant mediator there.

A variety of approaches to understanding the essence of EPR allows us consider it as a multilevel and multidimensional concept the meaning of which is revealed in all its complex forms. At the national level resources are the basis for EPR formation, but we note that their presence does not guarantee the achievement of any purpose. The second, equally important component is the ability to mobilize these resources for the implementation of complex operations (business processes), and the set of skills is called "competencies". At the regional level the most important are the restrictions and risks faced by entrepreneurs under the pressure of external and internal environment. At the local level the catalysts are the existing and latent business possibilities. Given three-level model influence on the formation of EPR we propose the following classification of types of its manifestations (Table 1).

This grouping is also not ideal, having some deficiencies, because in today's business environment EPR can also be viewed as a system consisting of smaller subsystems – business units allocated by their importance for the functioning of socioeconomic environment, as well as interchangeable alternative integrated features that enable effective choice for distribution between the elements of the potential for balanced equilibrium in economic arrangement.

We can conclude that entrepreneurial potential of a region depends on the difference between opportunistic population resource and the number of existing businesses. A major part of each region income, as the research of the world's leading experts has shown, is provided by mostly small and medium-sized businesses (SMEs)

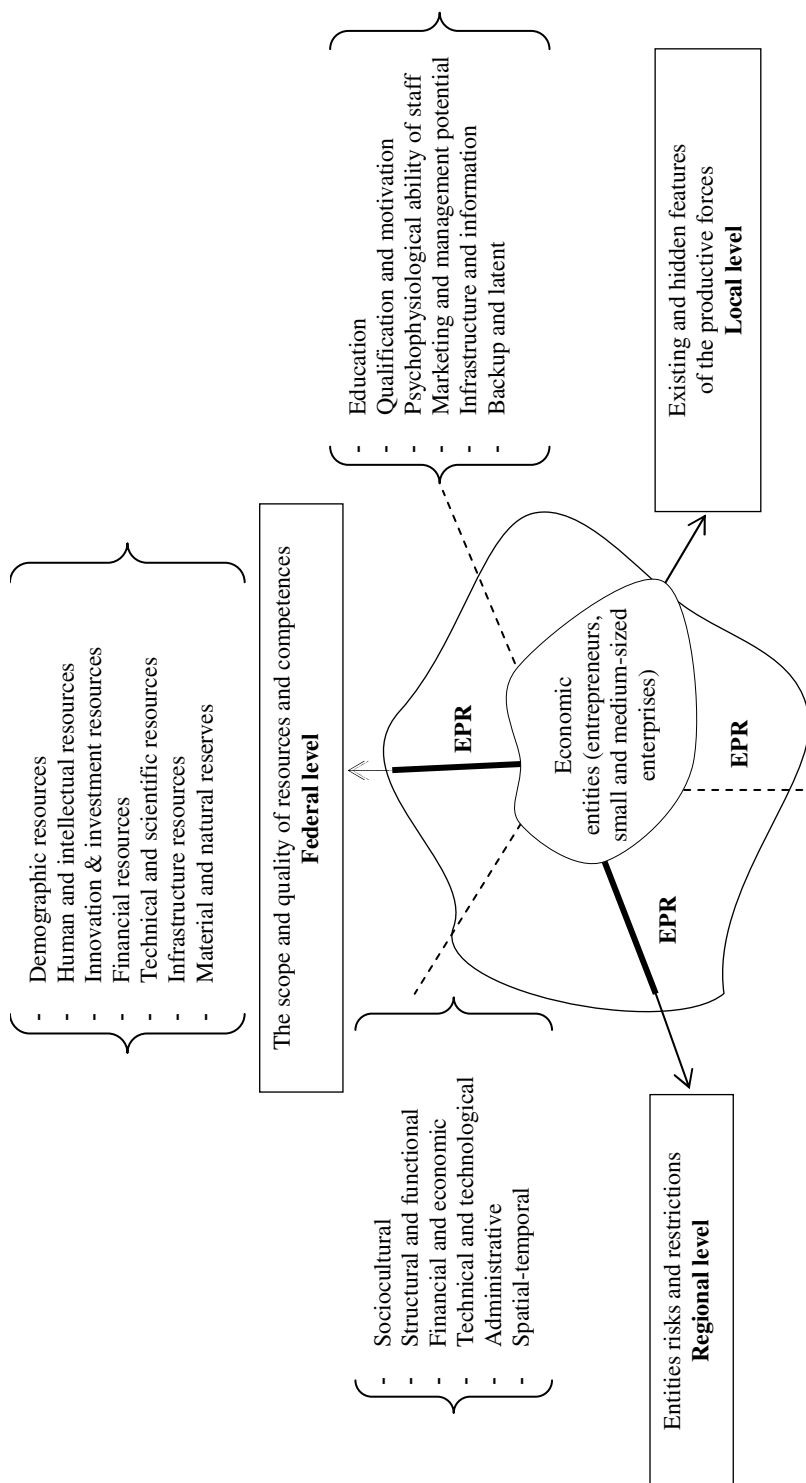


Figure 1. Invariant model of entrepreneurial potential of the region, authors'

and individual entrepreneurs. Investigating European experience we can note that SMEs were in some ways a bulwark against the devastating effects of the global financial crisis. They survived through economic downturn and decline in employment more resiliently than their large enterprise counterparts. Across the EU28 in 2014 some 21.6 mln SMEs in the nonfinancial business sector employed 88.8 mln people and generated 3,666 trln EUR in value added. Expressed differently, 99 out of every 100 businesses are SMEs, as are 2 in every 3 employees and 58 cents of every euro of value added (Annual Report on European SMEs, 2014).

Table 1. Classification of specific manifestations of entrepreneurial potential of a region, authors'

Level	Integral characteristics	Element	Level of realization
Federal	Scope and quality of resources and competences	<ul style="list-style-type: none"> - Demographic resources - Human and intellectual resources - Innovation & investment resources - Financial resources - Technical and scientific resources - Infrastructure resources - Material and natural reserves 	Limited (not realized amount of available resources, the quality of which is low) Sufficient (required) amount of resources involved Excess (huge amount) of resources
Regional	Entities risks and restrictions	<ul style="list-style-type: none"> - Sociocultural - Structural and functional - Financial and economic - Technical and technological - Administrative - Spatial-temporal 	Actual Perspective Acceptable (0.1); Critical (0.01); Catastrophic (0,001)
Local	Existing and hidden features of productive forces	<ul style="list-style-type: none"> - Education - Qualification and motivation - Psychophysiological ability of staff - Marketing and management potential - Infrastructure and information - Backup and latent 	Lack of implementation Partial implementation Full implementation

In Ukraine we can see that in each region the number of SMEs is rapidly growing, but not in the same way as in the EU, USA, China and other countries. For example, in the USA every year people open 600 ths businesses and close 500 ths businesses. But for them it is a common thing. Business owners are very flexible to changes at the market; they are adaptive and can move from one area of activity to another. If an entrepreneur sees that the business does not bring the desired income, he/she closes it and opens another one that can be conceptually different from the previous business. In this country the process of opening and closing business is very difficult comparing to other countries. For example, in the World Bank report Ukraine has the lowest rank on the indicators: ease of doing business – 112th rank from 189; starting a business – 47th rank; procedures – 6th; time (in days) – 21st; cost (% of income per capita) – 1.3; registering property – 97th; protecting investors

– 128th; paying taxes – 164th; trading across borders – 148th; enforcing contracts – 45th; resolving insolvency – 162nd; GNI per capita (in USD) – 3,500 (World Bank. *Doing Business 2014: Understanding Regulations for Small and Medium-Size Enterprises*, 2014). The positive side is that now there is a change of government positions regarding the conduct of doing business, tax burden and supporting domestic producers.

Our study showed that nowadays in Ukraine people have no interest to creating and maintaining business. We found that in Ukrainian regions the number of small businesses per 10 ths of population is low. In regions such as Odesa, Kyiv, Kharkiv, Dnipropetrovsk, Mykolayiv and Zaporizhzhya the number of small businesses per 10 ths of population is much bigger than in other regions ranging in the amount from 75 to 90. Such indicator is not surprising since they are large cities where industries, available human resources, well-developed transport ties are concentrated. The biggest indicator of this is in capital city Kyiv – 290 (State Statistics Service of Ukraine, 2014).

For sustainable development of a region, maximum income, competitive position at the global market it is necessary that percentage of population engaged in entrepreneurial activity in the region should be at least 70%. The difference between localized socioeconomic resources and entrepreneurs is the people who can act as a potential market subject and open own business. Concentration of intellectual capacities and its qualitative changes is possible through partnerships between universities, businesses, research institutions and other market players. These partnerships provide not only the development of science, technology and innovative technologies, but also enhance the economic feasibility of the total entrepreneurial potential. This impacts the sustainable development and efficient economic reproduction.

Conclusions. This study shows that entrepreneurial potential of a region is a complicated economic category. The proposed approach to defining this concept has made it possible to offer the invariant model of entrepreneurial potential of a region. Our research shows that the leading position in the development of economic environment of a region as well as in countries should be occupied by small and medium-sized business – SMEs. For successful realization of entrepreneurial potential in a region we have identified the specific mediators and elements which have dichotomous effects on entrepreneurial potential. In multivariate unstructured models, regional economic development elements of EPR, as shown by our studies, occupy the leading position, indicating the clearly directed movement towards economic expectations of society as an important condition for integration into the global economy. Ukraine by joining the European community has an opportunity to improve its economic performance, using the world economic experience regarding more loyal conditions for business creation, existence and development. This will not only increase employment, but also contributes to budget revenues of a region and the country. Study on EPR invariant at present has good scientific perspectives and practical implications, because this research enables to determine whether economic environment in a region (country) is asymmetric or unbalanced.

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