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## Conference Paper Towards internationally competitive regions in Ukraine: critical assessment

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### Regions in Motion – Breaking the Path 52nd European Congress of the Regional Science Association 4th Central European Regional Science Conference 21<sup>st</sup> – 25<sup>th</sup> August 2012, Bratislava, Slovakia

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### "Towards internationally competitive regions in Ukraine: critical assessment"

### Abstract

Globalisation as a dominant tendency of the XXI century has initiated the rise of the scale and dynamics of economic interactions on the international, national and regional levels. Regions have started to compete as the sources of economic growth since the disproportional levels of their development led to the escalation of the disparities on the global economic platform. Experience of the most successful and highly developed states clearly shows that the growth of the competitive economy on the macro-level is only possible through the accumulation of the regional economic potentials on the meso-level. The notion of international regional competitiveness has been paid attention to in economic and regional science literature, but still there is no one single definition of what a competitive region means. The paper presents the author's own definition of an internationally competitive regional economy as the starting point of the assessment of the regional competitiveness of the Ukrainian economy, its economic potential and regional attractiveness towards FDI. The prospective analysis of the impact of FDI on the local business, of whether MNCs do add value to the local regional growth, situating the regional competitive advantage, of the level of embeddedness of MNCs into regional innovation systems as the primary sources of regional competitiveness is introduced in the paper within the methodology framework of the survey carried out in three regions of Ukraine within the SEARCH Project of the Seventh Framework Programme. Formulation of strategic policies targeting at raising the level of the regional competitiveness stands as a coherent discussion focus.

The paper starts with introduction and literature overview. The second part of the paper is devoted to the methodological approach, followed by the results and future research guidelines. The paper ends up with concluding remarks and references.

**Key words:** regional competitiveness, economic potential, regional innovation system **JEL codes:** E17, F21, O18, R11

### 1. Introduction

Modern economic development is well characterized by the tendency of regionalization, which is expressed in the rise of the autonomy of the regions, seeking to retain their identity and to enhance the role of a region within national and global economy. Regional determinants in the system of factors of international competitiveness of the states play a greater role, resulting in the formation of national regions with high competitive status, world cities, high-tech clusters, which in fact determine the disposition of states in the

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hierarchy of the global competitive relations. The region is becoming a relatively independent economic entity, engaged in competitive relations within both inter-regional interactions and the global market.

Under these conditions, the formation and implementation of effective competitive strategies by the actors of international economic relations, specifically regions, in order to ensure their high competitive status has become a priority for the international arena. International organizations that evaluate global competitiveness also include regions with high competitive status in their ratings (Gardiner B. et al., 2004). Transformation of the process of competitive advantages of the countries around the world, namely its shift from national to sub-national level, puts in front of contemporary scientists and politicians the task of theoretical assessment of the patterns of influence of individual national regions on the rise of international competitiveness of the states and of an effective mechanism of harmonization of regional and national interests in the sphere of external economic relations. International competitiveness of regions is associated primarily with highly innovative productive factors, competitive advantages in high-tech fields, strong presence of national companies in the world markets and the quality of life. A necessary prerequisite for successful realization of the concept of raising international competitiveness of Ukraine is the formation of the strong regional economy based on innovation, providing the breakthrough on the international markets, primarily with high-tech products. The increase of the competitiveness of the regions of Ukraine will depend on how the regions will invest in human capital, implement an active innovation policy and shape an effective regional innovation system, integrated into the global innovation area.

### 2. Literature overview

As it is well known, international competitiveness of regions is reflected through the process of international economic relations. Hence, the evolution of economic thought concerning the competitiveness of regions should be considered, especially in the context of theories of international trade. A. Smith, D. Ricardo, J. Mill, who formulated the principles of absolute and comparative advantage in international trade sought to explain the success of the country in international competition. Swedish economists E. Heckscher and B. Ohlin transformed the principle of comparative advantage by D. Ricardo, proving that if the value of factors of production is the same in all regions, the region is losing its competitive position. Thus, scientists attributed the level of investment, original environmental conditions, technological development and human capital to the factors of regional competitiveness (Heckscher E.F., 1919; Ohlin B, 1933).

Nobel laureates P. Romer and R. Lucas with J. Grossman and E. Helpman contributed to the concept of regional competitiveness, noting in their theory of "new growth" that scientific and technological potential and investment in human capital are key drivers of regional competitiveness. Scientists have argued that any region can be competitive in case the number of registered patents and the level of education are increasing steadily (Romer P., 1994, pp. 3-22). Highlighting the cause and effect relationship between regional competitiveness and economies of scale, P. Krugman in the theory of "new trade" argues that investment in human resources, raise of the level of specialization of the infrastructure, activation of the networks of suppliers and technologies, the effects of agglomeration and urbanization lead to the rise of the economies of scale, and hence competitiveness. P. Krugman also states that the competitiveness of the region is almost entirely dependent on whether the letter would be able to become more productive (Krugman P., 1994, pp. 28-44).

New trends in the development of world trade, technologies, and economic growth required a review of the theoretical concepts of regional competitiveness. The concept of regional innovation systems occurs in the early 90's of the twentieth century as a separate field theory of innovation systems in the works of C. Freeman, B. Lundvall, R. Nelson. It integrates two basic ideas: the systemic nature of innovation and regional dimension of innovation competitiveness of states. In the early XX century A. Marshall has emphasized on the active role of individual actors in the economic development of the national regions and countries. He argued that the model of local development is bipolar and based on effective interaction between two major players in the market: local companies and government institutions. H. Etzkowitz and L. Leydesdorff as a result of introduction of a third component, research institutes, to the bipolar model, have developed a model of a "triple helix" of territorial development, which illustrates the interaction and relationships that arise between companies, research institutes and government organizations within the process of formation of innovation systems (Etzkowitz H. et al., 2000, pp. 109-123).

In the early 90's of the XX century there was a flow of new regional science emphasizing on the need to work locally to compete globally. The most significant in 90's and up to now is the concept of M. Porter, who developed the theory of internal economic growth in his work «The Competitive Advantage of Nations» and the system of factors determining international competitiveness (Porter M., 1990, pp. 77-90). According to the arguments of M. Porter and his famous "diamond" the factors that shape the competitiveness of the country and its regions are factor conditions in the region, the parameters of domestic demand in the region, service related industry (clusters of industries) in the region, strategy

and structure of firms, intrasectoral competition in the region, random events and public policy.

### 3. Methodological approach

The definition of a "competitive region" is extremely important. It is an important reference point for public policy aimed at strengthening the competitive position of the national economy in the world market in the framework of tough international competition. Different scientists, economists and authoritative international organizations interpret regional competitiveness in a different way. Experts of the European Commission state that regional competitiveness is the ability of the region to produce such goods and services that are in demand in international markets and also to provide stable and high benefits to the local population, or in general terms, it is the capacity of the region within the conditions of external competition to provide a relatively high level of income and employment. In our view, international competitiveness of the regional economy means the ability of enterprises of the region to occupy and maintain strong positions in certain segments of the global market in terms of strong economic potential, which provides a dynamic growth of the region and the national economy on the basis of innovation; the developed system of market institutions; considerable intellectual capital and investment resources; the ability to flexibly respond to changing world conditions and to diversify production, accordingly, providing a high standard of living and making a contribution to the improvement of the competitive status of the national economy.

In the theory and practice of international economic relations there are several approaches to assess the competitiveness level of the national economy and the factors, which determine this level of competitiveness. We can group them into the following main sections:

• assessment based on individual factors and indicators, which mainly characterize value production results or the usage of specific resources (European Competitiveness Report, European Innovation Scoreboard, Regional Innovation Scoreboard).

• assessment based on the holistic approaches using both statistical indicators and the results of monitoring of the key factors (IMD World Competitiveness Yearbook, World Economic Forum Global Competitiveness Index, World Knowledge Competitiveness Index, Beacon Hill Institute, State Competitiveness Report, Competitiveness Tree, ECORYS-NEI).

In our opinion holistic approaches are much more important, since they cover key factors, that influence the raise of regional competitiveness and moreover, they comprise

integral methodologies of assessment, which are based on both quantitative and qualitative indicators. Special attention must be paid to the methodology of the World Economic Forum. Given the steady progress of theoretical and applied economic research, the methodology used by WEF to assess international competitiveness is evolving rapidly. The final step in this evolution was the Global Competitiveness Index (GCI) that was developed in 2004 to assess the states growth potential for the medium and long term perspective. Global Competitiveness Index is composed by a combination of accurate statistics and results of the Executive Opinion Survey. Under this method the country competes in 3 stages of development, determined according to the level of GDP per capita (Table 1).

Stages of development	GDP per capita (US\$) thresholds
Stage 1: Factor-driven	< 2,000
Transition from stage 1 to stage 2	2,000 -2,999
Stage 2: Efficiency-driven	3,000-8,999
Transition from stage 2 to stage 3	9,000-16,999
Stage 3: Innovation-driven	> 17,000

Table 1. Subindex weights and income thresholds for stages of development

Source: The Global Competitiveness Report 2011-2012

The level of competitiveness in the first stage depends on macroeconomic stability and effective functioning of public and private institutions, developed infrastructure and high-educated labor force. In the second stage only more efficient technologies that are implemented in the production process of a company form its competitiveness. The third stage of development, i.e. innovation stage, introduces competition on the basis of new technologies. When a country moves to this stage of development, this means that the country can maintain a high standard of living. Thus, according to the method of WEF there are 12 pillars of competitiveness of a country, which "hold" 3 stages of development. The factor stage includes the basic requirements, including infrastructure and macroeconomic stability. Availability of the latest technology and professional training are catalysts at the stage of the innovation-oriented economy.

In 2009, the Foundation "Efektuvne Upravlinya" in partnership with the WEF published Ukraine Competitiveness Report, in which the competitiveness of the 15 regions (oblasts) of Ukraine were analyzed, using the methodology of the GCI. It covers a representative sample from different geographic locations, and regions with different

economic structures and cultural features. Within seven indicators regional statistics was used, namely: inflation, the range of interest rates, fixed telephone lines, tuberculosis, infant mortality, number of persons receiving primary education and personal computers. In other cases, the actual data was used, which was limited due to the lack of the data in some regions. For this reason the results are not published on the tenth component index (market size), although they are taken into account when calculating the GCI. Since the decision in this area applies only to the competence of the central government, a component can not be considered as a factor of competitiveness in terms of specific regions of Ukraine.

According to Ukraine Competitiveness Report 2009, Kiev occupies a leading position as the most competitive region, with the score of 4.17, which is 7.2% above the average in Ukraine. Zaporizka and Odeska oblast were rated 4.16 and 4.11 respectively. The outsider proved to be Zhytomyrska oblast, AR Krym and Zakarpatska oblast with scores 3.69, 3.62 and 3.45 respectively. According to the methodology of WEF the competitiveness of regions is measured in comparison with countries. For example, Kiev is the 63d among 149 economies and is listed after such countries as Croatia and Hungary. Donetsk region with 4.02 rating takes the 82d place in the ranking and is followed by Hungary and Bulgaria. Transcarpathian region is an outsider and takes the 131st place in the overall ranking between Tajikistan and Mali.

In our view, leading of the regions over the countries is economically incorrect, since this makes Kiev region more competitive than Hungary regions which take one of the leading positions in Europe, while the competitiveness of Kiev reaches only the competitiveness of the outsider in Europe. Nevertheless, Ukraine Competitiveness Report 2009 shows that the regions of Ukraine have low competitiveness compared to the international arena in any case, so it is not surprising that Ukraine was rated 82nd in the Global Competitiveness Report 2011-2012 out from 142 countries surveyed, following Macedonia, Botswana and Trinidad and Tobago.

Experts from the Environmental Department of the World Bank in the context of the development of indicators of sustainable development have built up a method of calculating economic potential of a country as a prerequisite of its competitiveness level. The concept of the World Bank focuses on the calculation of the national wealth, including such of its components as: natural capital, industrial capital (assets), human capital, social capital. The long process of socio-economic transformations in Ukraine, focusing on the development of highly socially-oriented economy, necessitates a comprehensive scientific study of existing

and potential national economic systems to identify sources for further development and productive use of economic potential.

As the income index, which characterizes the social product of the country, gross value added, which is produced in the industry, is used. Forecast of this index is formulated on the basis of its actual dynamics and key trends. Thus, the industry value index is estimated as the total sum of incomes of the forecasted and postforecasted periods applied to the current point of time.

$$PV_{industry} = \sum_{t=1}^{T} \frac{I_{t-1} \times g_t}{(1+r_t)^t} + \frac{I_t \times g}{(r-g) \times (1+r_T)^T}$$
Forecasted period post-forecasted period
$$PV - \text{GVA present value of an industry;}$$

$$I_{t-1} - \text{value added, produced in an industry in (t-1);}$$

$$r_t - \text{discount rate for the forecasted period;}$$

$$r - \text{discount rate for the post-forecasted period;}$$

$$t - \text{timeline from one till infinity;}$$

$$T - \text{forecasted period;}$$

$$g_t - \text{value added growth pace t;}$$

$$g - \text{value added growth rate for the post-forecasted period.}$$

The first term of the formula corresponds to the value added in the industry during the forecasted period. Accordingly, the forecasted period is the period for which one predicts the development processes quite accurately. The second term of the formula represents an estimation of the value of the country within postforecasted period, i.e. unlimited period of time. Therefore, value added in this period is discounted according to the Gordon's formula with application of value added to the current point of time. It is very important to discount the flows of value added using the right discount rate. Usually economists use two main types of discount rates: to evaluate the private (financial) and public sectors. It is common that for the purposes of calculating a "private" discount rate the following factors are taken into account: risk-free rate of financing (for the most liquid securities), the rate of inflation and risk premiums. However, for purposes of economic analysis of the processes that take place in the public sector, the private rate is too high or sometimes too low. In this case, it is allowed to use the social discount rate is elected by the so-called "social rate of return on investment", which is determined by the formula:

 $SRRI = r + u \times c$ ,

- r real rate of intertemporal propensities;
- u elasticity of marginal utility of income;
- c growth rate of per capita consumption.

Practical application of the social discount rate is justified by experts of the World Bank considering their view on the economy of the state and society in terms of taking into greater account the interests of the population and future generations. The value of the true norms of intertemporal propensities is similar to the risk-free rate financing and reflects the expectations of the population and the choice between consumption and savings. The risk premium in this model is represented through the indicator of the consumption growth rate per capita, since high growth rates of consumption indicate accelerated economic development, which therefore means that there are higher risks compared to highly developed countries of the world. According to the World Bank estimates, the SRRI for developing countries (Argentina, China, India, and Mexico) is 7-9%, for highly developed countries -4%. The growth rates of the industries are in the forecasted period are evaluated considering their dynamics in the periods, which precede the forecasted period, expert ratings and forecasts and government policy statements.

### 4. Results and future research guidelines

The estimation of the economic potential of the regions (oblasts) of Ukraine includes an assessment of the industrial, trade (commercial), agricultural, construction, transport and communication potentials of the regions, considering the fact that the forecasted period in Ukraine comprises not more than 10 years, which is consistent with the methodology of forecasting of the macroeconomic dynamics of the World Bank. The assessment will be carried out for two scenarios - optimistic and pessimistic. The first scenario is based on the assumption that the growth rate of value added in the regions for the first 5 years of the forecasted period will resume at the same level and match the mean increase from the previous period (2004-2011), over the next 5 years of the forecasted period, growth rates of value added will increase annually by 10% from the last year's figure. The second scenario is of due only if the growth rate of value added the regions for the forecasted period will resume at a lower level than in the previous period and will therefore level up at 50% of the average increase of the previous period (2004-2011). Thus, these two scenarios represent optimistic and pessimistic vectors of Ukraine's economy development after the global financial crisis. To evaluate the economic potential of regions of Ukraine gross value added indicators have been used, adjusted starting from 2001 according to the corresponding annual rates of inflation. Therefore, accumulated GVA indicator in the forecasted period is adjusted to the prices in

2011. Due to the economic recession consumption growth rates per head will decrease and it will take time to get this figure rising gradually, so we used the SRRI of 4% for the first two years of the forecasted period. Over the next eight years of the forecasted period SRRI will increase by 0.5% annually from the last year's levels as consumption dynamics after the economic recovery will improve gradually. In the post-forecasted period discount rate is equal to 4%, because in this period experts of the Ministry of Economy in Ukraine and of the State Institution "Institute of Economic Forecasting of NAS of Ukraine" stipulate that Ukraine's economy will grow constantly and steadily.

Now we will highlight one of the most important components of the economic potential of a country – its industrial and trade (commercial) potentials, since the impacts and interrelations within manufacturing sector and network capital are its basic elements of the formation of strong economic potential and hence strong regional competitiveness. Industrial and trade potentials give us direct access to the future FDI-flows in the manufacturing sector and network capital research in the future analysis.

The total industry potential of the regions of Ukraine according to the optimistic scenario equals 11565502,5 million UAH in the prices of 2011, following the pessimistic scenario this figure is equivalent to 6180024,5 million UAH, which is nearly 47 % less than in the optimistic scenario. In the forecasted period of 2011-2021 the amount of the total industrial value added in the prices of 2011 will be 1771043,7 million UAH relying on optimistic scenario, pessimistic scenario's figure is 1,4 less and makes 1274820,7 million UAH. Moreover, its biggest share will be created within the lat five years. In the postforecasted period the discounted value added will amount 9794458,9 million UAH according to the optimistic scenario, which is 5,5 times more of the figure in the forecasted period. The pessimistic scenario states the figure of 4905203,8 million UAH of the discounted value added, which is 4 times more of the respective figure in the forecasted period.

The total commercial potential of the Ukrainian regions within the framework of the optimistic scenario is 10343856.7 million UAH in prices of 2011 within the pessimistic forecast the figure is almost 3 times smaller – 3708645.9 million UAH in prices of 2011. In the forecasted period 2011-2021 the volume of accumulated added value will be 1196711.0 million UAH in terms of the optimistic scenario and 660508.5 million UAH in terms of the pessimistic scenario. In the post-forecasted period the discounted value added will amount 9238145.7 million UAH if we consider optimistic scenario, which is 8 times more than the corresponding figure in the forecasted period. If we consider the pessimistic scenario in the

post-forecasted there will be 4.6 times more of the discounted value added created than in the forecasted period, namely 3048137.4 million UAH (Figure 1).





Source: Provided by author on the basis of Annex 1.

According to the optimistic scenario the biggest share of the industrial potential belongs to Donetska oblast - 12,3%, which is only 1% less than the share of Dnipropetrovska oblast, which has 11,3% of the industrial potential of the country. Luganska, Kharkivska and Cherkaska oblasts share the third place in the division of industrial potential of Ukraine among its regions with 8,9%, 6,9% and 5,8% of the industrial potential respectively. Kiev region accounts for 4,0% of the industrial potential of Ukraine. Khersonska oblast is an outsider with its share of industrial potential of only 0,5%. If we rely on the pessimistic scenario, the biggest shares of the industrial potential also belong to Donetska and Dnipropetrovska oblasts of 16,9% and 14,5% accordingly. An outsider in the pessimistic scenario is Chernivetska region, with only 0,7% of the industrial potential of Ukraine. According to the optimistic forecast Kievska and Donetska oblasts lead, which have the largest share of commercial potential of the country - approximately 11.1%. They are followed by Kharkiv region, which accounts for approximately 8.9% of the commercial potential. According to the pessimistic forecast Kiev region has 7.1% of the commercial potential of the country, and Donetska and Kharkivska oblasts have 14.1% and 7.8% respectively. An outsider as of both forecasts is Sumska oblast, accounting for only 0.3% of the commercial potential of Ukraine according to the optimistic forecast and 0.6% according to the pessimistic one (Annex 1).

Overall, the calculations of the economic potential of the regions of Ukraine by main economic activity state that the total economic potential of Ukraine in the prices of 2011 according to the optimistic scenario is 30976898.6 million UAH. Thus, if the growth rate of the value added will recover according to its previous levels over the next 5 years and then grow by 10% annually, the economic potential of Ukraine will be almost two times larger than the one if is the growth rate of value added will be only 50% of the average rate of the previous period. The bulk of Ukraine's economic potential will be created within postforecasted period. The largest share of the economic potential of Ukraine belongs to Donetska oblast: according to the optimistic forecast the figure is 3256395.7 million UAH, which makes about 10.5% of the total economic potential of Ukraine. Share of the economic potential of Dnipropetrovska oblast out of the total economic potential of Ukraine is approximately 8.1% in the optimistic scenario. In Kharkivska oblast its economic potential accounts for 7.1% of the total economic potential in the optimistic scenario. If we take into account the positive vector of Ukraine's economic development after the economic recession, the Kievska oblast (excluding Kiev) accounts for roughly the same economic potential as Kharkivska oblast, i.e. 7.1%. The smallest share of the economic potential of the country belongs to the Khersonska oblast - 1.5% (Figure 2).



Figure 2: Economic potential by regions of Ukraine, optimistic scenario

Source: Provided by author on the basis of Annex 1

According to the pessimistic scenario the total economic potential of Ukraine in the prices of 2011 is 16078841,8 million UAH. The economic potential of Donetska oblast is 2093063.2 million UAH, which is 13.0% of the total economic potential of Ukraine. Share of the economic potential of Dnipropetrovska oblast out of the total economic potential of Ukraine is approximately 10.0% in the pessimistic scenario. In Kharkivska oblast its economic potential accounts for 6.8% of the total economic potential in pessimistic scenario. If we rely on the negative variant of the economic development of Ukraine, Kievska oblast (excluding Kiev) is behind Odeska and Poltavska oblasts in terms of the share of economic potential. Chernivetska oblast has the smallest share of the economic potential of the country, only 1.6% according to the pessimistic scenario (Figure 3).



Figure 3: Economic potential by regions of Ukraine, pessimistic scenario

Source: Provided by author on the basis of Annex 1.

The descriptive analysis can only be a first indication of the regional competitiveness. Interestingly, during the last couple of years substantial FDI-flows came to Ukraine. The distribution of FDI-flows is quite regionally explained. The question arises what impact these FDI-flows have on regional competitiveness. This question will be analysed with the help of the results of the enterprise survey carried out in Ukraine by the Institute of Economic and Cultural Geography, Leiniz University Hannover, in the partnership with Kiev National Economic University named after Vadym Hetman within the framework of the project SEARCH: Sharing Knowledge Assets: Interregionally Cohesive Neighborhoods funded by the European Commission within the 7th Framework Programme under grant agreement number 266834. The objective of the SEARCH Project is to analyse the integration process between the EU and the NCs by focusing on the European Research Neighborhood (ERN), thereby improving fundamentally the understanding of institutional framework conditions of the European Neighborhood Policy (ENP) countries, their economic interactions with the EU in terms of people, capital, trade, knowledge, and innovation, in order to improve future definition and implementation of the European Neighboring Policies taking into account that "one size fits all" policy recommendations will not be appropriate due to the bilateral nature of the EU-ENP countries agreements.

The aim of the enterprise survey is to investigate the location choices of FDI in Ukrainian regions, the determinants of FDI presence and to assess the effects and mutual impact of foreign firms' activities on domestic firms and institutions in Ukraine and vice versa. Around 450 companies are planned to be surveyed in 3 regions of Ukraine, i.e. 150 companies in each region: capital region, close to the EU border region and far from the EU border region. The criteria of selection the regions is based on the FDI-flows in these regions and geographical position towards the EU. The criteria of selection of the companies in each region is determined by either food sector or machinery and equipment sector due to the strong presence of MNCs in these sectors; and only production companies, namely those having production sites in the chosen three regions of Ukraine, are selected. Overall, in each region 100 domestic firms and 50 foreign firms are to be surveyed.

Thus, according to the data the State Statistical Committee of Ukraine Lvivska oblast is the first in terms of FDI-flows in the Western part of Ukraine (close to the EU border region) and Kharkivska oblast is the is the first in terms of FDI-flows in the Eastern part of Ukraine (far from the EU border region) (Table 2).

Regions of Ukraine (oblasts)	FDI increase per year, \$ n	e, reduction nillion	FDI cumulatively starting from the beginning of investment on October 1, 2011,	FDI per per cumulativel the beginnin investment,	rson y starting from ng of \$
	2009	2010	\$ million	2009	2010
Western region					
Volynska	63,2	11,7	246,6	321,6	332,8
Zakarpatska	7,3	-1,1	340,1	293,0	291,7
Ivano-Frankivska	134,7	-92,5	622,2	460,8	393,9
Lvivska	240,6 *	75,2	1 363,9	473,2	503,7
Chernivetska	1,7	0,5	63,4	68,6	69,1
Capital region					
Kyiv (city)	2 387,9	2 634,1	24 016,8	7 031,9	7 946,2
Kyivska	178,1	77,5	1 702,8	887,4	935,3

Table 2. FDI distribution by regions of Ukraine

Eastern region					
Donetska	107,8	424,7	2 292,2	366,1	464,6
Luganska	243,3	-6,3	747,3	275,0	274,7
Sumska	85,5	114,1	348,3	207,1	307,0
Kharkivska	472,8	622,7	2 776,7	754,6	985,0

Source: State Committee of Statistics, Ukraine.

At the time of preparation of this article, the enterprise survey is being carried out in Ukraine. Random sampling has been used to select the companies for the survey from the respective sectors. The companies are interviewed face-to-face. Prior to this two questionnaires (one for foreign companies and one for domestic companies) have been developed with closed, likert-scale questions. Both of the questionnaires consist of six blocks: fact sheet block dealing with the general key information about the company and the respondent; location choices and location patterns block for foreign firms and competition and strategy block for domestic firms; business environment block, innovation block, customer-supplier relation block, human capital and skills development block for both of the questionnaires.

After the survey is finished, the results will be analysed and the assessment will show the mutual impact of FDI on the domestic business in the regions of Ukraine. Therefore, the issue of embeddedness of companies into regional innovation systems will be investigated in order to show what impact FDI-flows have on the competitiveness status of the regions of Ukraine.

### 5. Policy implications

Innovations play a crucial role in the ability of countries to respond effectively to the challenges and opportunities of the global economy. Innovations today form the basis of a highly competitive commercial potential, economic potential and therefore, highly competitive national and regional economies. The world economic system of the XXI century depends more from new ideas and talent, than from a developed infrastructure. Therefore, public policy should be developed in such a way that it is powerful enough to stimulate innovation in order to improve the competitive status of the regions and the country as a whole. Innovation policy of highly competitive states is a set of tools that are aimed at improving access to financing of innovation, creation of innovative regulatory framework to ensure the demand for innovation and at strengthening of the interdependence between research institutes and industrial enterprises, thereby stimulating innovative activity of businesses.

The regions of Ukraine in order to be competitive on the international arena are to undergo innovative progress, because otherwise it is impossible to enhance their international competitiveness. The strategy of scientific and technological breakthroughs can not occur without the development of competitive national innovation systems at national, regional, sectoral and inter-industrial levels. Preparation of similar programs has been the normal practice in the EU for a long time. Now they are designed and they operate successfully in nearly 100 European regions and their target areas are IT, biotechnology, nanotechnology, new materials and energy technologies. The main purpose of the State Regional Development Strategy until 2015 and the Law of Ukraine "On Stimulation of Regional Development" is to create conditions for increasing competitiveness of regions, ensuring their sustainable development. In our view, the implementation of these strategic documents should take place, using the experience of the key innovators, namely by building regional innovation systems (RIS), which requires an integrated scientific approach, which consists of the following:

• There should be developed a state program of innovation stimulation at national and regional levels. It is necessary to develop an innovative plan of action as part of the state program of innovation stimulation in order to organize all the actors involved in the development of the innovation potential of Ukraine, as well as all the innovative initiatives, which will lead to a synergy effect in the future.

• The concept of regional innovation systems (RIS) should be created within the framework of the state program of innovation stimulation at national and regional levels. Regional innovation systems should be created as a set of interrelated tasks and measures, aimed at solving major problems of innovative development of each region, some of its industries and communities.

• The local specific environment should be taken into account when developing the RIS in terms of a proper assessment of scientific and technological resources of the region, financial and economic potential, production, social and education possibilities, since all these are important prerequisites for the innovation development of any region. It is important to investigate innovation opportunities and potential of industrial enterprises of the region, as far as research institutes and universities.

• Stimulation of innovation activities of entrepreneurs should be provided at all levels – starting from the government up till regional and local authorities. The priority in innovation development in Ukraine should have information technologies, nanotechnologies, biotechnologies and genetic engineering.

• Financing of innovation activities does play a great role in the development of innovation potential and therefore, high competitiveness status of a country and its regions. Financing can come from regional venture fund, foreign investment, public funds etc. But the formation of the mechanism of financing of innovation projects of different categories should start from the development of the scientifically grounded conditions of commercial funds attraction and social funds attraction aimed at innovative development of regional economies.

• The focus of the national innovation and investment policy should be on the convergence of levels of socio-economic development through effective use of local conditions and resources and integration of regional innovation systems into the global innovation system. Therefore, it is important to create favorable conditions for attracting foreign investment in the depressed areas in order to enhance high-tech production, increase the investment attractiveness of the region through the active use of specific technology areas.

• It is crucially important to promote the development of regional innovation infrastructure. This encompasses in particular information centres, industrial parks, technology transfer centres, business incubators. There is a need to enhance private sector participation in financing of R&D, using a different number of mechanisms. The effectiveness of this approach is confirmed by the experience of many countries, namely aimed at stimulation of the development of high-tech clusters, which will create a platform for radical formation of regional innovation.

• Small and medium size enterprises as the most dynamic and flexible structures of the regional innovation system should be supported by the following: simplification and acceleration of the registration process of business entities, formation of a network of regional business support funds, introduction of concessional lending of small and medium-sized national banks, activation of participation of Ukrainian organizations, institutions and companies in international scientific and technological cooperation.

• There is a definite need to organize a system of direct connections between science and industry. Improving the competitiveness of Ukrainian enterprises is impossible without information on the latest applied and basic research, which requires the closest connection to the academic sector. Is also necessary to promote international, inter-branch and inter-regional scientific and technological cooperation

and development of new processes and technologies that would share the results of research activities between the actors.

### 6. Concluding remarks

By and large, in this article the authors investigate the notion of regional competitiveness using Ukraine and its regions as the subject of analysis. The paper goes with an assessment of the theoretical aspects and up-to-date methodologies of the analysis of the international competitiveness of the regions and its determinants within the conditions of globalization. The results of the study of the economic potential of the regions of Ukraine as one of the drivers of regional competitiveness are provided and finally, the paper comes up with the strategic ways of accumulation of the innovative competitiveness of the regions of Ukraine through creation of the highly competitive national architecture with the promotion of venture capital, research activities and regional innovation infrastructure within the framework "science - business - government". Moreover, the possibilities of future research based on the results of the enterprise survey in Ukraine carried out by the Institute of Economic and Cultural Geography, Leibniz University Hannover, are highlighted within the framework of the SEARCH project of the 7<sup>th</sup> Framework EU Programme focusing on FDI-flows into the regions of Ukraine and their interdependence with the main determinants of the highly competitive status of the regions.

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ANNEX 1.

# Economic potential of the regions of Ukraine by two main economic activities in the forecasted and postforecasted periods

		The economic	potential of (optimi	the regions by istic scenario)	v two main ac	tivities		The economi	c potential of (pessii	f the regions b mistic scenari	oy two main ac o)	tivities
4 	Indu	istry	Tru	ade	7	conomic	Indu	stry	-	Trade		Economic
Ilbraine	Forecasted	Postforecasted	Forecasted	Postforecasted	Forecasted	Postforecasted	Forecasted	Postforecasted	Forecasted	Postforecasted	Forecasted	Postforecasted
	Period	period	Period	period	Period	period	Period	period	Period	period	Period	period
AR Krym	42 819,6	239 645,3	66 243,5	517 066,6	175 351,2	1 045 305,5	30 520,1	120 918,6	35 806,4	168 145,7	121 887,9	485 166,0
Vinnytska	34 304,9	170 236,5	44 190,2	355 864,3	154 619,1	837 043,7	26 518,0	99 366,2	23 160,5	110 669,8	115 731,8	437 247,7
Volynska	25 646,8	210 647,2	51 172,8	377 053,1	118 253,6	786 063,8	13 175,6	63 663,4	29 208,9	132 923,1	75 676,2	316 793,5
Dnipropetrovska	238 132,8	1 063 737,6	53 887,1	356 926,8	434 905,4	2 082 475,1	196 355,0	702 147,6	33 752,3	145 272,9	345 889,2	1 265 878,5
Donetska	273 050,8	1 148 276,6	155 245,3	998 822,1	564 299,6	2 692 096,1	233 082,5	812 024,9	99 575,0	422 313,1	452 114,2	1 640 949,0
Zhytomyrska	35 250,5	215 280,3	34 616,2	259 017,1	104 733,3	603 484,5	23 556,1	97 347,6	19 479,3	89 384,1	74 917,3	291 884,9
Zakarpatska	39 561,7	355 103,4	41 075,2	339 824,5	112 684,9	829 793,7	18 474,9	94 008,2	20 944,6	101 622,0	67 188,8	290 654,5
Zaporizka	100 408,7	502 350,4	60 595,6	543 971,1	213 089,3	1 251 655,5	77 211,4	290 391,9	28 293,5	143 980,3	151 696,8	590 369,4
Ivano-Frankivska	20 078,2	89 949,6	26 564,3	207 709,7	82 491,4	435 223,1	16 527,5	59 175,6	14 334,5	67 378,8	63 266,8	234 312,0
Kyivska	65 947,2	402 965,6	102 198,3	$1\ 059\ 106,4$	271 325,5	1 924 708,7	44 050,9	182 092,4	40 040,0	222 886,8	169 004,2	709 011,4
Kirovogradska	36 034,6	237 226,6	20 191,7	147 469,7	98 753,2	562 004,5	22 684,4	97 332,6	11 618,5	52 624,0	70 908,6	276 413,9
Luganska	155 241,0	878 934,5	22 292,6	122 785,5	223 498,6	1 192 823,9	109 739,5	437 179,0	16 069,5	63 186,8	165 402,7	637 134,1
Lvivska	59 526,7	358 733,6	46 335,8	311 789,8	198 702,8	1 071 163,1	40 184,7	164 986,5	28 643,0	124 281,8	147 387,1	563 837,6
Mykolaivska	64 857,7	390 860,5	42 478,3	336 146,2	163 940,6	979 620,8	28 006,6	105 212,8	22 654,3	107 196,7	97 554,0	379 107,6
Odeska	67 248,2	381 030,2	81 141,9	663 233,3	282 466,4	1 583 795,3	47 511,8	189 345,3	41 891,8	201 863,2	207 023,1	792 094,1
Poltavska	69 303,2	392 673,6	57 175,2	448 420,5	295 884,3	1 584 637,5	83 191,0	325 774,3	30 761,2	144 835,8	182 633,8	719 527,9
Rivnenska	23 060,9	137 863,5	22 104,0	144 790,5	88 571,9	471 123,8	15 662,5	64 054,0	13 972,2	59 798,7	66 308,3	252 036,4
Sumska	59 848,3	309 735,0	5 433,4	21 691,6	100 208,5	458 497,8	45 013,0	171 935,2	4 772,4	16 263,6	82 024,8	293 736,9
Ternopilska	21 060,8	136 454,2	33 313,9	277 323,6	89 876,0	561 240,8	13 432,2	57 169,7	16 878,5	82 183,4	60 321,9	245 513,4
Kharkivska	119 109,4	674 339,4	97 771,0	829 122,0	315 088,7	1 895 185,3	84 200,6	335 431,0	48 581,8	239 086,0	219 565,5	867 901,8
Khersonska	12 946,5	45 634,4	23 370,7	151 142,3	79 097,6	385 679,3	12 122,2	39 240,7	14 927,6	63 475,4	62 793,6	228 812,0
Khmelnytska	24 920,8	145 918,5	25 145,6	179 929,6	98 937,3	526 053,5	17 190,3	69 596,3	14 738,4	66 032,3	74 406,4	281 274,5
Cherkaska	77 431,6	591 623,9	28 929,0	186 063,2	173 235,1	1 087 040,3	42 722,9	198 283,1	18 560,1	78 703,2	115 299,2	473 076,9
Chernivetska	72 985,9	557 656,0	31 919,8	240 159,4	135 216,8	952 890,6	8 489,4	34 787,6	17 869,8	82 243,5	49 857,2	203 788,1
Chernigivska	32 266,8	157 582,4	23 319,5	162 717,0	99 544,7	502 516,6	25 197,7	93 739,3	13 974,4	61 786,4	77 187,4	286 273,0
Total	1 771 043,7	9 794 458,9	1 196 711,0	9 238 145,7	4 674 775,9	26 302 122,7	1 274 820,7	4 905 203,8	660 508,5	3 048 137,4	3 316 046,8	12 762 795,0
Total potential	11 565	502,5	10 434	1 856,7	30 976	898,6	6 180	024,5	3 708	645,9	16 07	8 841,8

Source: Calculations provided by author.