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**RESEARCH OF COMPETITIVE ENVIRONMENT PECULIARITIES  
OF INVESTMENT AND INNOVATION DEVELOPMENT OF  
UKRAINE REGIONS**

**Abstract.** This article provides an evaluation of investment attractiveness of the economy and industry of Ukraine. The regional concentration of investments has been considered. It has been proved that a high level of differentiation in the areas development serves as a repulsive factor of attracting foreign investors. There has been used the methodology applied for evaluating the investment attractiveness of regions. By results of its usage the Ukraine's areas have been grouped according to the level of investment attraction, the directions of innovative development programs have been formed. The particular groups of regions have been defined: the group with innovative self-sufficiency level, where centers of scientific and industrial potential of the country are concentrated; the group of regions with average level of attracting investments that are able to provide domestic market of Ukraine and partly the foreign market with innovative products; the group of regions mainly with medium or low levels of investments attraction, that are able to provide innovative products partly for domestic market and areas with low level of investments attraction, that will require significant financial costs, development of specific individual measures for state support of innovation activity.

**Keywords:** investment attractiveness, industrial, source and regional structure of investments, comprehensive assessment of level of market investments concentration, cluster analysis, strategy of innovative development of areas

Formulas: 0, fig.: 5, tab.: 2, bibl.: 23

**JEL Classification:** E29, G24, L12, R11

**Introduction.** Reinforcement of globalization processes of social and economic relations in terms of localization and regionalization is primarily linked to changes in methods and technologies for industrial production as a result of scientific and technological progress and increased competition between manufacturers at the national and global markets. Intensification of innovation accelerates changes in the world economy structure. Scientific and technological progress in the developed countries and the global financial system built in accordance with their own interests led to changes in the international differentiation of labor. Developed countries that took on innovative commercial and financial functions of creating new product allocated the functions of direct production to less developed countries.

**The aim of the article** is to study the peculiarities of the competitive environment in Ukraine's investment market by region, to identify priority strategies for the innovative processes development. The aim is disclosed with the help of the following aspects: determining industrial and regional structure

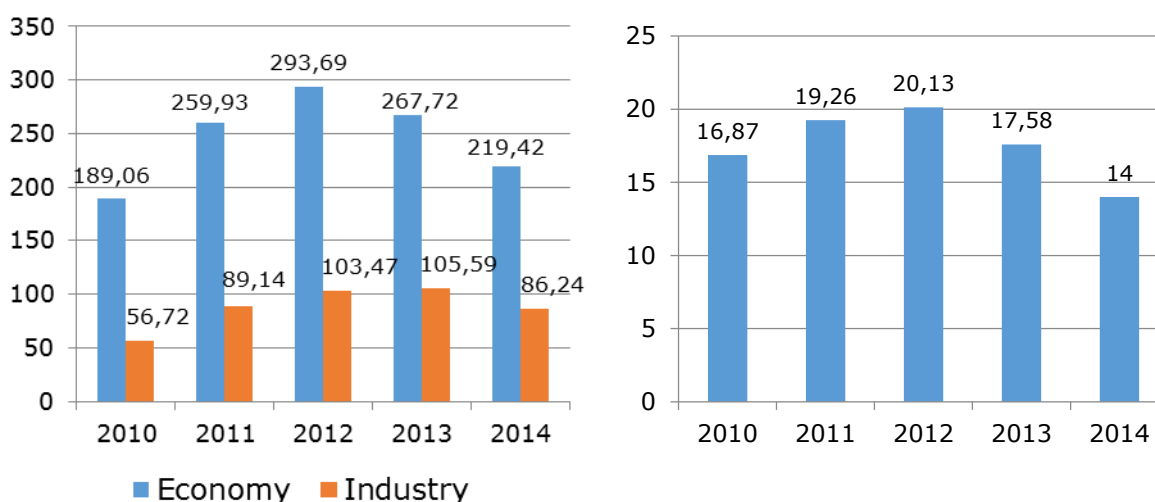
and source of investments in Ukraine; studying the concentration rate of investments in the regions; classification and creation of innovative strategies for areas development.

**Literature review and the problem statement.** The peculiarity of Ukraine's investment environment, compared to the most developed countries, is a highly uneven regional growth. This inequality is largely determined by the specifics of each region, which is characterized by specialization, particular geographical position and innovative potential. In terms of transition to the new economy the innovative capacity rate and the efficiency of its usage provide potential opportunities and growth prospects of the economy system.

The issues of investment and innovation region development, the sources of areas' competitive advantages have been studied in a significant number of scientific works of domestic and foreign researchers, such as: Bunyak N. [Bunyak 2011], Vetrakova Y. [Vertakova; Polozhentseva; Trusova; Zhurova 2014], Geyets V., [Heyets; Shynkaruk; Artmyova 2012], Dalevska N. [Dalevska 2013], Dźwigoł H. [Dźwigoł 2010; Dźwigoł 2013; Dźwigoł 2015a; Dźwigoł 2015b; Dźwigoł 2016], Zavadskiyh G. [Zavadskiyh 2014], Karmazina N. [Karmazina 2014], Kutsenko V. [Kutsenko 2015], Martianov M. [Martianov 2015] and others. However, the issues related to the selection and processing techniques for the applied evaluation of regions' investment attractiveness that can serve as a basis for developing innovative programs of the areas are not studied enough, which resulted in choosing the research topic and setting objectives.

**Research results.** Defining the tasks of technical modernization of production is closely linked to the promotion of investment resources. But peculiarities in the formation dynamics of industrial and regional investment structure impose restrictions on meeting the challenges of structural change.

According to Fig.1, the rate of investments growth in Ukraine's economy from 2010 to 2014, in general, was 16.05%. In industry it was 52.03%, in GDP it was 39.81%. And at the end of the period it amounted to 219.74 billion UAH, 86.24 billion UAH and 14% respectively.



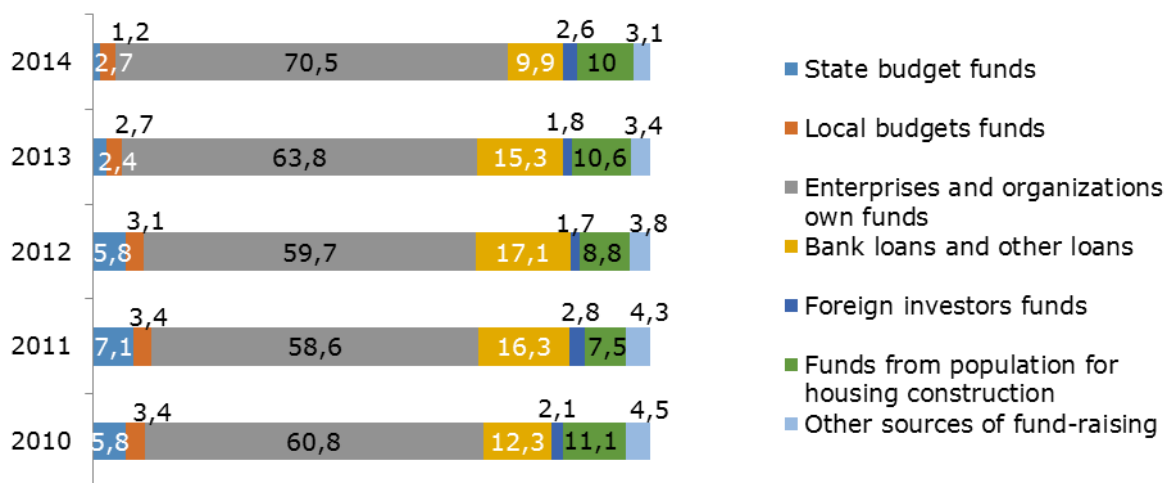
a) current prices, billion UAH

b)%, GDP

**Figure 1** – Investments in fixed assets in Ukraine for the period of 2010-2014

Source: composed by the author on the basis of data from [Statistic Information]

The defining trend of financing innovation is limitation of its own financial resources and sources of raising funds. The main fund-raising source for reproduction (support/expansion of core activities) of domestic enterprises are bank loans and own funds (Fig. 2).



**Figure 2** – Structure of fixed capital investments by source of financing

Source: composed by the author on the basis of data from [Statistic Information]

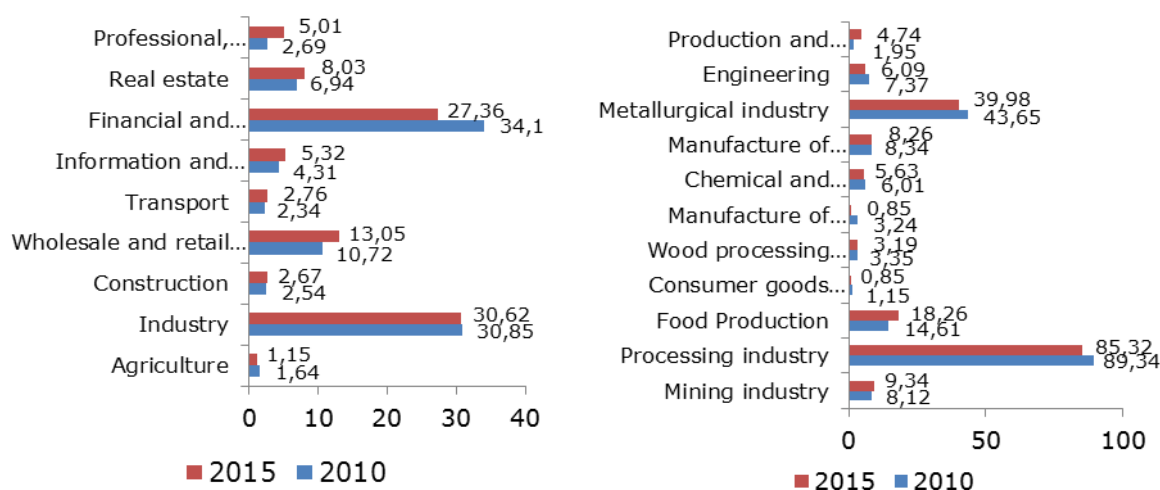
More than a half of total amount of financing capital investments in industrial enterprises accounts for their own funds, which at the end of 2014 reached a value of 70.5% (in 2010 – 60.8%). Over the period of 2010-2014 the increase of own funds share was accompanied by a simultaneous decrease in the share of bank loans and state budget funds at 1.24 and 2.14 times (from 12.3% to 9.9% and from 5.8% to 2.7% respectively).

The economy of Ukraine experiences the shortage of long-term investment resources, which is partly covered by foreign investors' finances. The share of foreign investments in the structure of investment sources is considered to be the smallest, compared with others. And within 2010-2013 years it tended to decrease. Whereas in 2010 it amounted to 2.1%, in 2013 it dropped to 1.8%. As of 12.31.2016 Ukraine received 43.37 billion USD, which is 13.68 billion USD less in comparison with 2014 and confirms the fact of decline in foreign investments.

Industrial distribution of foreign investments is unsatisfactory from the standpoint of the progressive restructuring of the country's manufacturing industry (Fig. 3).

At the end of 2015 the share of FDI in agriculture, industry and financial sector had to reduce and correspond to 1.15%, 30.62% and 27.36%. This trend was reinforced by the stagnation of industrial production, high risks of capital loss, reduction of capital and branches of foreign banks, lack of relevant information on the market environment, low agricultural productivity and increasing number of loss-making enterprises. The growth of investment in information and telecommunication technology, professional, scientific and technical activities ( $Tg$  – 123.43% and 186.24% respectively) creates favourable conditions for the emergence, development and operations of groups of people who are bearers of intellectual, artistic and creative capital. Ukraine occupies the first position in Europe in IT sector, which employs about 90,000 persons and

comprises more than 1,000 IT companies, 100 research centers of global companies from various fields (telecommunications, software, gaming industry and e-commerce [Fedets; Naumenko, 2016]. However, only with high-tech means of production the added value may be made.



**Figure 3** – Structure of foreign direct investments (FDI) in the economy and industry of Ukraine by economic activities

Source: composed by the author on the basis of data from [Statistic Information]

According to the data in Fig. 3, Ukraine's industry is represented by primitive forms of production inherent in the primary economic and technological society and the raw-materials orientation. Thus, despite a slight decrease at the end of 2015, foreign investments in processing industry amounted to 85.32%, while in metallurgy only to 39.98%. The proportion of mining industry increased at 1.2 times, from 8.12% in 2010 to 9.34% in 2015, production and distribution of electricity – at 2.4 times (1.95% and 4.74% in 2010 and 2015 respectively). Having such distribution of foreign investments as in economy, so as in industry, will not contribute to positive structural changes in production [Zveryakov, 2016].

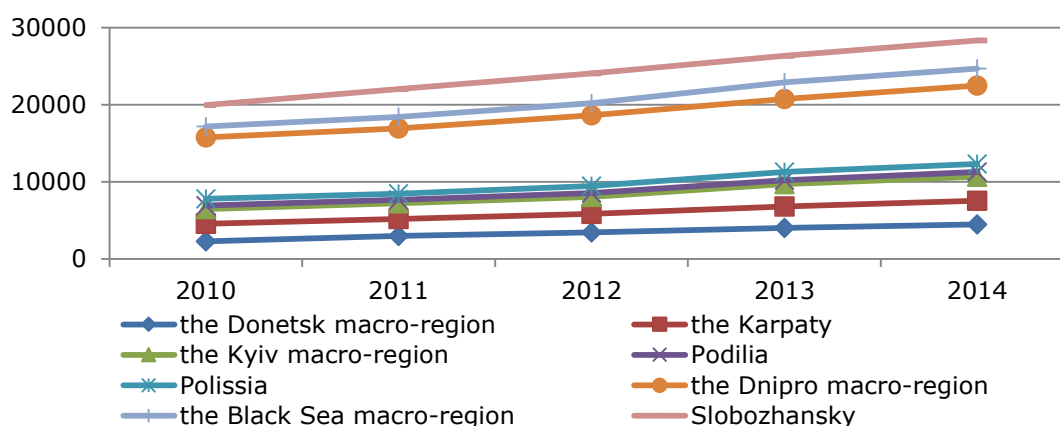
For Cyprus, the largest investor of Ukraine, the majority of investments as of 31/12/2015 account for financial and insurance activities, which is 27.09% (or 3,182,200,000 USD). Its contribution to the industry is 22.04% (2588, 6 mln USD), particularly in the processing industry is 79.90% (2.0633 billion USD). The Netherlands share of investments in IT and telecommunications is 32.07% (1.7997 billion USD), in the industry of Ukraine it is 30.16%. 76.71% (1.2982 billion USD) of its amount account for processing industry. Foreign direct investments (equity) of Germany in processing industry amount to 99.24% (4.8188 billion USD) [Zhuk, 2015]. Summing up the foregoing, we can conclude that foreign countries are not interested in the development of Ukrainian production, especially the industrial one.

The index of investment attractiveness of Ukraine, according to estimates of the European Business Association, as of 16.07.2016 was 2.88 points out of possible 5 points, which is less 1.23 times than in 2010 (3.4 points) [European Business Association, 2016]. Advantages of Ukraine [Fedets; Naumenko, 2016], as an object of investment for foreign capital, are in its *favorable location*

(Ukraine is the sixth largest world's consumer market in Europe), *low production costs* (wages, energy resources, raw materials and other production costs are much cheaper in dollar equivalent than in China and Central, Eastern and Western Europe), *rapid delivery* (Ukraine has a strategic location for doing business with the EU in the field of agriculture, textile production and small machinery).

In the scale of the investment market of Ukraine some regions compete in attracting investment, the use of which contributes to the expansion of production activities, to the income increase of the regional budget out of taxes, to the efficiency measures in the social sphere, to the improvement of investment attractiveness, creating additional capacity for attracting foreign investors. The objective for state authorities is to achieve a balanced development of all regions, focusing on economically depressed areas.

The assessment of competitive environment in the investment market will be considered using indicators of concentration level that represent shares of the top five market participants (regions); the Herfindahl-Hirschman index; the level of inequality of investments attracted by each region (dispersion of market shares) and the Tideman-Hall index (Fig. 4, Table. 1).



**Figure 4** – Capital investments in macro-regions of Ukraine for the period of 2010-2014, mln UAH

Source: composed by the author on the basis of data from [Statistic Information]

According to the data presented in the figure, there is an evidence of uneven area distribution of capital investment, much larger amounts of which are concentrated in the Dnipro (Dnipropetrovsk, Zaporizhia region), the Black Sea (Odessa, Kherson, Mykolayiv) and Slobozhansky (Kharkiv, Sumy, Poltava) macro-regions. Industrial specialization of the areas is represented by electric power industry, metallurgy, chemical industry, machinery, fuel industry, consumer goods and food industries. Low concentration of capital investments in all regions is confirmed by calculations provided in the Table.1.

Over the period 2010-2014 Dnipropetrovsk, Donetsk, Kyiv and Odessa regions are the largest in terms of capital investment attracted with the change of its place in the ranking. In 2010 the top five included the following regions: Dnipropetrovsk, Donetsk, Kyiv, Odessa and Lviv. Since 2011 Kyiv, Dnipropetrovsk, Donetsk regions were designated as three major ones. Lviv and Odessa regions occupied the fourth and fifth place. In 2012, ranking of the top five regions consisted of Kyiv, Donetsk, Dnipropetrovsk, Odessa and Kharkiv

regions. In 2013 the first three places again were occupied by Kyiv, Dnipropetrovsk, Donetsk regions. Odessa and Luhansk regions occupied the fourth and the fifth places.

Over the researched period there has been a decline in dispersion of market shares, which indicates a decrease in the level of investment gap in fixed assets and a trend in regions' alignment in terms of investment efficiency.

**Table 1** – Dynamics of investment concentration indexes in regions of Ukraine

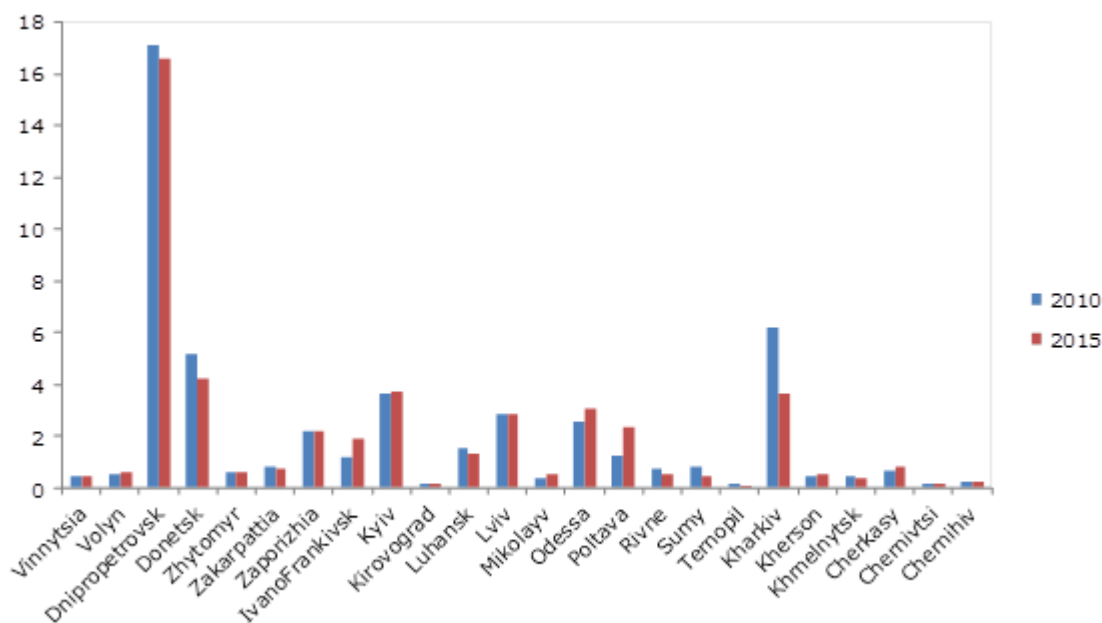
Indexes	As of 31.12:				
	2010	2011	2012	2013	2014
Investment in fixed assets					
Share of the top five regions	46.8	18.6	25.9	19.4	23.0
Herfindahl-Hirschman index by macro-region	1,408.3	1,446.3	1,463.6	1,457.0	1,390.6
Dispersion of market shares	0.0035	0.0028	0.0027	0.0027	0.0027
Tideman-Hall index	0.0701	0.0563	0.0506	0.0525	0.0583
Foreign Direct Investment					
Share of the top five regions	67.6	69.7	77.1	65.3	65.2
Herfindahl-Hirschman index by macro-region	2,214.9	2,176.1	2,164.6	2023.0	2,021.9
Dispersion of market shares	0.0115	0.0108	0.0104	0.0053	0.00058
Tideman-Hall index	0.1115	0.1046	0.0951	0.0759	0.0727
Investment by economic activity					
Share of five largest sectors	69.5	68.5	72.1	73.3	74.9
Herfindahl-Hirschman index by sector	1,400.6	1,677.5	1,762.0	1,819.5	1,837.9
Dispersion of market shares	0.0039	0.0043	0.0050	0.0056	0.0057
Tideman-Hall index	0.1306	0.1318	13,84	0.1285	0.1540

Source: composed by the author on the basis of data from [Statistic Information]

The investment market by the direction of foreign direct investment (FDI) meets the high concentration criteria by the results of the Herfindahl-Hirschman Index calculated by macro-region (it is > 1800 and is 2,214.9 and 2,021.9 in 2010 and 2014 respectively). The largest volume of foreign investments is concentrated in Dnipropetrovsk, Kharkiv, Donetsk, Kyiv and Lviv regions (Fig. 5).

Foreign investors are not interested to invest capital in all regions of Ukraine due to the high level of differentiation in areas' development. The share of investment in each region of Ukraine with an equal distribution corresponds to 4.16%. The Herfindahl-Hirschman Index, in case of normal distribution, is up to 416.66. Successful foreign investment into regions is provided by active increase of investment potential that requires serious domestic investment in economic and social spheres.

According to Table 1, during 2010-2014 there has been a steadily high level of investment concentration. And therefore, there are a number of priority areas, in which investments are mainly made: industry, construction, transport, wholesale and retail trade, agriculture. Equal distribution of investments among the seventeen types of economic activity corresponds to the Herfindahl-Hirschman Index 588.23, while the share of investment which is aimed at every type of activity is 5.88%.



**Figure 5** – Share of the region in total foreign direct investment, %

Source: composed by the author on the basis of data from [Statistic Information]

The trends that characterize the concentration rate from 2010 to 2014 are still the same nowadays, so the upward trend of market concentration should be considered while implementing regional investment process. On the one hand, sectors and regions, where significant investments are concentrated, are characterized by higher efficiency and relatively low risk. On the other hand, they possess higher competition level, whereas access to other markets for investors can be simplified. In regions with relatively low concentration rate and lower investment attractiveness, it is necessary to create conditions for attracting investment by providing increased security, improving the legal framework, individual work with investors and others.

By results of multivariate cluster analysis 1 and 2 groups of regions have been classified as economically developed regions (Table. 2).

Indicators for analysis were selected as follows: GRP per capita population, mln UAH, capital investments per capita, volume of innovation product per capita, mln UAH and foreign direct investment per capita population, USD.

The group with high level of investment attraction in 2014 included innovative self-sufficient regions that can provide the most effective investments of public investment resources to the development of their innovation potential in conditions of complex measures of state support of innovation activity for the current and short term.

These regions can supply with innovative products both domestic and foreign markets. They have own resources to create revenues. In terms of capital investment Kyiv region is considered to be the most attractive for investors, as 20% of dynamic companies are concentrated there.

Regions with an average level of investment attraction require relevant expenses, financial resources, preferential taxation and a set of measures for state support of innovation not only for the current, short term but for the long term [Kutsenko, 2015].

**Table 2** – Grouping of regions according to investment and innovation development in 2014

Name of Regions group	Characteristics of innovation potential of regions	Strategy of innovative development of regions
Group 1. "High level of investment attraction"		
"Regions-leaders": Dnipropetrovsk, Kyiv, Poltava	Concentration of centers for scientific and industrial potential of the country	Set of long-term measures aimed at the gradual increase of investment and innovation potential
Group 2. "Medium level of investment attraction"		
"Regions-followers": Donetsk, Zaporizhia, Kharkiv, Odessa, Ivano-Frankivsk, Lviv, Sumy, Cherkasy	Providing domestic and partly foreign market of Ukraine with innovative products	Development of high-tech industries with significant export potential [Rud; Koretsky, 2004]; rapid formation of innovative infrastructure attracting industrial, banking and commercial capital integration of "education-science-production" stages
Group 3. "Mostly medium or low level of investment attraction"		
"Average regions": Mykolayiv, Vinnytsa, Kirovograd, Volyn, Chernihiv, Zakarpattia, Luhansk, Khmelnytsky, Zhytomyr, Kherson, Rivne	Raw materials orientation	Implementation of organizational and economic measures aimed at development of "new generation" production which is in demand abroad by purchasing licenses for highly advanced technologies followed by the further creation and development of their scientific, technical and industrial capacity
Group 4. "Low level of investment attraction"		
"Regions-outsiders": Ternopil, Chernivtsi	Lack of developed industrial and scientific basis	Development of high-tech products that were previously produced in developed countries using own innovative capacity of the region; rational integration of state and business sectors

Source: author's own project work using Statistica 10.0 according to sources [Statistic Information]

Areas with mostly medium or low level of investments attraction require large financial resources and development of special measures for state support of innovation activity in the future that would be partly able to provide domestic market with innovative products.

Group of regions with low levels of attracting investment requires considerable financial costs, development of specific individual measures of state support for the phased development of innovation activity.

#### **Conclusions and prospects for the further research.**

To sum up, we have to say the following:

1. Investment environment and innovative potential identify areas of using own or borrowed resources. A key issue is a study of using innovation as a means of economic development, state regulation and support of innovative



processes, justification and appropriate strategies to achieve this goal, method of implementation and financial support.

2. State support through direct financing causes essential budget constraints and is not consistent with innovation priorities. The existing finance mechanism, which is dominated by self-financing, reduction of external sources of attracting funds, providing mining, low- and medium-technology industries with significant funds, put brakes on existing technological structure of the economy, progressive structural changes, which determines the need to improve mechanisms for funding science, technology and innovation activities.

3. Taking into consideration peculiarities of investment and innovative processes in Ukraine's regions, basic objectives of innovation strategies include the following [Rud; Koretsky, 2004], [Martianov, 2015]:

- creation of scientific, technical and institutional prerequisites for radical technological upgrading of economy;
- using of credit and investment mechanisms to encourage the development of high-tech sectors of economy; the establishment of industries that implement technological modes V and VI; share increase of modern high-tech products that can compete in local and global markets of goods, services, technologies;
- operation of regional innovation infrastructure facilities, such as science parks, technology/innovation transfer centers clusters, together with priority sectors of economy, the policy of attracting foreign and domestic investment in cluster formation;
- cooperation programs with the World Bank, the European Bank for Reconstruction and Development and other international financial institutions to attract funds for a quality upgrade of economic framework and the policy of regional development;
- creating conditions for cooperation between local participants of innovation process; attract domestic investors, risk-sharing between the participants of innovative programs;
- creating departments for economic development in regional (local) administrations.

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