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Ukrainian Economics

Actual Research Problems in Eastern Europe

edited by
Magdalena Borys
Ganna Kharlamova

Lublin 2013

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INTRODUCTION

Today global economic and financial problems occupy the central place in the life of almost all countries over the world. A special place belongs to the question of strategies finding for sustainable development with the preservation of national security and interests of sovereign states. As far as the globalization metamorphosis and the challenges faced by countries, that are in the process of building their own political, economic and techno-industrial identity (case of Ukraine, particularly), has provided fundamental importance for the questions of strategy, content and resources of reforms system. Currently the foundation of a market economy is formed in Ukraine. A critical mass of market reforms is already accumulated. This opens up the real prospects for dynamic growth and qualitative development of Ukraine's economy, improvement of the population living standard.

The proposed book *Ukrainian Economics* – the result of creative achievements of scientists of Ukraine who care about national interests. Putting on the purpose to disclosure the state, trends and topical issues of Ukraine's economy, difficulties in the implementation of national policy, defining strategic priorities and main directions of development of Ukraine at present and for the future, the authors tried to cover the most important aspects (problems) of socio-economic development of Ukraine.

The book represents current research on the state of economic science of Ukraine in the modern conditions. Particular attention is paid to the analysis of economic security of Ukraine in the aspect of its integration into the EU, assessment of the importance of a social innovations in employment potential development and human capital formation, mechanism of efficient management of Ukraine's agrarian sector of economy; as well, book chapters deal with the problems of enterprises in the recreation sector of the economy as the future competitive advantage direction of the state economic policy.

For researchers, graduate students, doctoral students, all interested in modern-day problems of economic science in Ukraine.

Magdalena Borys
Ganna Kharlamova
Editors

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FOREIGN ECONOMIC SECURITY OF UKRAINIAN REGIONS UNDER INTERREGIONAL COOPERATION WITH THE EUROPEAN UNION

While the openness of European integration of Ukrainian regions is increasing, their interaction with regional economic systems of European countries is activated, and regions become quasi-subjects of international relations, which leads to increasing their effect on economic security. Excessive openness of the economy, import and technological dependence intensify the negative effect of internal threats to economic security that arise in the process of intensification of foreign trade at the regional level. They are caused mainly by structural deepening of regions' deformation under the influence of the global financial crisis, low adaptability of regional economies to the threats to the environment, ineffective regional and sectorial policies, imperfect institutions and the absence of an effective mechanism of international regions' cooperation.

Intensification of interregional cooperation between Ukraine and the European Union member countries, as a tool of strengthening economic security by combining the competitive potential of industries and sectors of border regions and regions that do not have a common border with European countries, is especially up to date. The introduction of new forms of cooperation requires the development of appropriate diagnostic methods of economic security of the region and optimization of international cooperation, and needs the research on measures to minimize threats to socio-economic development of local areas in terms of European integration.

1.1. RELATED WORKS ON ECONOMIC SECURITY OF UKRAINE

Diagnostic problems of economic security at the regional level are described in the works of leading scholars. The authors of the comprehensive evaluation model, analysis and forecast of the economic security of the region based on a system

of indicators that characterize the dependence of the region on external changes, included indicators of openness of the economy, attracting foreign investment, dependence on imports of strategic resources into their works [1]. To estimate the external security at the regional level Z. Herasymchuk calculates the index of foreign openness of the region, on which the grouping of regions of Ukraine according to hazard, risk, threat and security states was conducted [2]. The formation of economic security of the globalized region is explored by L. Yaremko. In her publications she offers the system of regional economy indexes' dependence on certain types of international economic activity for the evaluation of the foreign economic relations security [3].

Russian scientists have developed a general algorithm for the evaluation of regional crises and their impact on the national economic security [4]; reasonable rules and procedures for determining assessments of territory conditions from the standpoint of economic security, which include external security diagnostic of the region by the indicative ratios of exports to the gross regional product (GRP), the ratio of exports and imports, the import share of food in their consumption [5].

Despite the fact that in the scientific publications methodical approaches to assessment of the economic security of the region are studied, the method of estimating external security in the form of quality characteristics of foreign trade of internal regions is not grounded, making it difficult to assess the impact of threats on the level of external security of the region and the development of effective sectorial forms of interregional cooperation.

1.2. THE DEFINITION OF FOREIGN ECONOMIC SECURITY

The aim of the study is to assess the foreign security of regions of Ukraine and to ground the ways of its strengthening through activation of interregional cooperation with the European Union countries.

The external security is defined as the state of compliance of foreign economic activity with national interests, which ensures minimization of losses of the state from negative external economic factors and creation of favorable conditions for economic development through active participation in the global division of labor [6]. At the regional level the foreign security is associated with the ability to achieve economic development through the maximum use of the advantages of the international division of labor and cooperation, and with the ability to provide a positive value of the trade balance in the long run [2].

Interregional cooperation affects the economic security of the region through strengthening of all its components. However, given the characteristics of this cooperation as a sectorial, it can be argued that at the initial stages its impact will be more noticeable for industrial, scientific, technological, investment and foreign components of the economic security of the region, and less tangible – for others. This suggests the presence of primary and secondary effects of influence of interregional cooperation on regional components of economic security. Primary effects arise due

to the direct effects of measures within interregional cooperation (joint projects, exchange of experts, investment income, etc.).

Secondary effects are caused by indirect influence of interregional cooperation on those components of economic security that are not directly connected. Enhancing production cooperation of industrial enterprises as a result of interregional projects directly affects the increase in industrial production (industrial security), which, in turn, is a prerequisite for improving living standards (social security) and co-financing within the project funded by the EU programs, it also reduces the threat of lack of funds in the local budget to finance the project (financial security). The introduction of new technologies into industrial enterprises and growth of research intensity of cross-border and transnational projects strengthen not only production and foreign security of the region, but also energetic security – through energy saving technologies.

Given the peculiarities of interregional cooperation as a new form of international cooperation based on the joint use of sectorial competitive advantages of regions participating, the foreign security of the region is defined as a state of foreign trade, which provides the implementation of socio-economic interests of the territory by the synergistic effect of international cooperation that enhances the ability of a regional system to counter internal and external threats.

1.3. THE EVALUATION METHOD OF THE SECURITY OF FOREIGN REGIONS

To assess the security of foreign regions we apply the method of evaluating the level of economic security of Ukraine [6], with the additions that will take into account the features of the regional foreign trade and its quality characteristics.

Methods for evaluating the level of economic security include the following indicators of foreign security [6]:

1. the share of imports in domestic consumption state,
2. the share of food imports in domestic state consumption,
3. the proportion of raw materials and low degree of processing the export in total exports products,
4. the proportion of the country's leading partner in the total foreign trade,
5. import-export ratio,
6. the ratio of export/import to GDP.

The first two indicators are useful for assessing the economic security at the regional level, so a set of indicators of foreign economic security of the region will include only the fourth, fifth and sixth parameters.

To evaluate the quality characteristics of foreign trade and including the impact of the threats of scientific and technological nature to the level of external security of the region instead of the third parameter we will include the following indicators:

- the share of high-tech products in exports (imports) of goods (the ratio of high-tech exports (imports) to total exports (imports) of goods),

- the proportion of exported products in total sales of new innovative products to the market rate of technological dependency (ratio of imports and exports of high-tech products).

According to the classification of economic activities, which is harmonized with the classification of economic activities of the European Union, knowledge-based products of high-tech and medium-tech industries include: chemical production, manufacture of machinery and equipment, manufacture of telecommunications equipment, office equipment manufacture, production of electrical machinery and equipment, medical production, measuring and optical devices, automobile production, production of space and other vehicles [7]. Consequently, the study of foreign security areas must take into account the sales of such product groups: pharmaceutical products, electrical machinery, spacecraft, optical and photographic instruments and devices.

The indicators x_i are evaluated according to the data of regional offices of statistics on foreign trade and innovation activities and their normalization is carried out, thus it is proposed move to the scale of measurement in which the values of the indicators are within the range from 0 to 1. Thus, in order to ensure uniform orientation of indicators we divide them into two groups: stimulants and non-stimulants. Standardization of statistics, which for indicators-stimulants as a normalization value will be chosen the maximum rate among all regions of Ukraine for 6 years (for years from 2006 to 2011), and for performance of non-stimulants – minimum value. Thus, guidelines of statistics will produce the formulas (1.1) and (1.2) that will take into account the positive and negative trends in foreign trade of regions in the calculation of the integral index of foreign security:

$$X^{S}_{norm_i} = \frac{X_{stat_i}}{X_{\max}}, \tag{1.1}$$

$$X^{D}_{norm_i} = \frac{X_{\min}}{X_{stat_i}}, \tag{1.2}$$

where:

X_{stat_i} – statistically significant indicator of external security of the region,

$X^{S}_{norm_i}$ – normalized values of stimulant indicators of external security of the region,

$X^{D}_{norm_i}$ – normalized values of non-stimulant indicators of external security of the region,

$X_{\max}$ – maximum values of indicator of foreign security among all regions within the period,

$X_{\min}$ – minimum values of indicator of foreign security among all regions within the period.

Using principal component analysis model in the program "Statistics" the weights are calculated that determine the degree of contribution of each indicator in the integrated index of external security of the region. Integral index of foreign security must form linear convolution and is calculated according to [6] as:

$$I_i = \sum_{J=1}^{m} a_{ij} \; z_{ij} \qquad (1.3)$$

where:

a_{ij} – weights that determine the impact of the *j*-th parameter on the integral index of *i*-th sector of the economy,

z_{ij} – normalized values of statistics indicators.

In order to establish the boundaries of intervals of external security's level of different states of the region (normal, threatening, pre-crisis, crisis) for each indicator we determine the optimal threshold, and the lower and upper value, based on the methodological recommendations [6], research of the scientists [1 – 4], the results of author's expert survey, and the experience of the European Union countries. The normalized threshold value and optimal lower and upper values of the indicators of foreign security are calculated by applying the approach to evaluation of indicators over the maximum or minimum value, respectively, for indicators-stimulants or non-stimulants.

The weighted sums method defines the integral index of foreign security threshold and optimal lower and upper values of the indicators. Weights coefficients of contribution of each indicator into the integral index of foreign security are calculated as the average of the regions of Ukraine for five years. As a result, we obtain the value of the integral index of foreign security, which allows to identify the regions as with low, optimal and high levels of foreign security:

- **optimal state** is defined by integral indexes within the upper and lower optimal values (from 0.167 to 0.282);
- **crisis level** is characterized by the integral index of foreign security less than the lower limit value (from 0 to 0.122);
- **upper limit condition** is defined by integral index whose value exceeds 0.304, which corresponds to the upper threshold;
- **pre-crisis level** is characterized by the integral index values smaller than the lower threshold value (from 0.122 to 0.166),
- and **upper threshold condition** is defined by the integral index, which is in the range between the upper optimal and upper limit values (from 0.282 to 0.304).

Table 1.1. Integral index of foreign security of Ukrainian regions in 2006–2011

The regions of Ukraine	Integral index of foreign security					
	2006	2007	2008	2009	2010	2011
Upper limit state of foreign security (I>0,304)						
Chernivetska	0,271620	0,411152	0,442898	0,431485	0,499602	0,382133
Sevastopol city	0,286768	0,324534	0,378403	0,366235	0,383774	0,344956
Upper threshold condition of foreign security (0,283<I ≤0,304)						
Ternopilska	0,262449	0,229421	0,27173	0,312456	0,327949	0,289577
Chernihivska	0,240186	0,290312	0,306751	0,296491	0,24164	0,283768
Optimal state of foreign security (0,167<I ≤0,282)						
Vinnitska	0,219673	0,241805	0,210776	0,199337	0,217316	0,224752
Volynska	0,284437	0,212253	0,208582	0,213062	0,191424	0,186795
Donetska	0,189801	0,167563	0,174589	0,258008	0,225101	0,211765
Zakarpatska	0,237888	0,209298	0,30363	0,223954	0,261518	0,23616
Zaporiz'ka	0,177983	0,231613	0,245002	0,291401	0,268061	0,247017
Zhytomyrska	0,217101	0,212183	0,220655	0,193449	0,210721	0,227687
Kirovogradska	0,294909	0,238528	0,294443	0,529368	0,45036	0,260031
Mykolaivska	0,208578	0,225545	0,253500	0,251362	0,292348	0,195385
Poltavska	0,309282	0,292053	0,216082	0,234436	0,253524	0,210424
Rivnenska	0,22892	0,254932	0,239799	0,215288	0,219048	0,200643
Sumska	0,223864	0,227318	0,132113	0,203017	0,169443	0,185000
Kharkivska	0,161358	0,168259	0,200765	0,279527	0,295332	0,267099
Khersonska	0,284264	0,285598	0,256400	0,357870	0,319052	0,234564
Khmelnytska	0,270609	0,243444	0,220972	0,225361	0,220399	0,168869
Cherkaska	0,302739	0,306206	0,218346	0,223443	0,268378	0,216523
Lower threshold state of foreign security (0,123<I ≤0,166)						
AR of the Crimea	0,235303	0,287566	0,371183	0,259711	0,192656	0,165633
Ivano-Frankivska	0,282406	0,165287	0,139047	0,191798	0,172069	0,124658
Kyivska	0,14502	0,390577	0,172749	0,114994	0,132402	0,129024
Luganska	0,238223	0,190944	0,13144	0,234966	0,141592	0,148723
Lvivska	0,186533	0,175184	0,14269	0,194669	0,168646	0,164705
Kyiv city	0,143059	0,160429	0,162798	0,106825	0,117581	0,146353
Lower limit state of foreign security (I ≤0,122)						
Dnipropetrovska	0,157042	0,165028	0,145587	0,109692	0,103662	0,114917
Odeska	0,242528	0,108382	0,114254	0,08592	0,105113	0,116725

Source: Own calculation based on: [8 – 11]

1.4. THE INTEGRAL INDEX FOREIGN SECURITY FOR UKRAINIAN REGIONS

Analyzing the dynamics of indexes of regions' foreign security during years of 2006 – 2011 (Table 1.1), a conclusion was made about the strengthening of security in 2011 compared with the previous year in Vinnytska, Zhytomyrska and Sumska Oblast (regions). Deepening of crisis took place in Crimea Republic, Ivano-Frankivska, Kyivska, Lvivska, and Khmelnytska Oblast. Acceptable condition of external security is observed in the regions with a combined index with the range of upper threshold. The decrease in the integral indicator shows its approximation to the optimal values and consequently – the improvement of the external security of Ternopilska Oblast.

The highest value of the integral index of foreign security is in Chernivetska Oblast and the City of Sevastopol, which indicates excess of some indicators-stimulants to upper thresholds. Specifically, in these regions the share of exported products in total sales of innovative products exceeds 70%, which is somewhat contrary to the interests of the regions. Apart from these individual values – non-stimulants are higher than the upper threshold value or less than the lower threshold value. For example, the proportion of Sevastopol leading partner country's total foreign trade in 2011 amounted to 32.7% at the upper threshold value of 30%, and rates of export and import dependence are equal to 11.1% and 7.2% respectively, which is below 30% (lower threshold).

The indicators' value and their dynamics of change characterize the impact of foreign security threats on the integral index. Thus, the export-import coverage ratio reflects risk of unbalancing the economic system of the region due to a sharp decline in exports, which was caused, for example, by loss of external markets for goods and services. The implementation of this threat leads to a reduction in the production of export-oriented industries, and in the case of an increase in imports – the threat of losing a share of the domestic market is rising due to lack of protection of domestic producers and to increase of import dependence. Index of leading partner country's total foreign trade share value characterizes the degree of diversification of foreign trade and the threat of a sharp decline in exports due to loss of cooperative ties, anti-subsidies and special measures for Ukrainian products.

Coefficients of export (import) dependence characterize the level of openness of the economy of the area, and the increase in the values of this index reflects the realization of the threat of increased dependence of socio-economic development on foreign economic relations. One of the international competitiveness indicators of industry production is the share of exported products in total sales of innovative products, which also determines the influence of the threat caused by a decrease in the quality or lack of scientific and technological innovation.

Indicators of share of high-tech products in exports (imports) of goods describe the qualitative structure of foreign trade in the region and reflect the growing threats to realize its raw and low-tech component of exports and increased dependence on imported high-tech goods, which partly indicates the low competitiveness of high-tech products and insufficient development of import-substituting production. The coefficient of technological dependence (the ratio of imports and exports of high technology products) is associated with the implementation of the threat of regional

economy dependence on imports of high-tech goods, which, in turn, affects the development of the national scientific and technological sphere.

1.5. THE COEFFICIENT OF SENSITIVITY

The evaluation of the effect of individual threats to the integral index of foreign security will highlight the most dangerous of them and will help to develop measures to reduce them in the process of interregional cooperation.

The investigation of dynamic processes in the economic system and sensitivity of output parameters to changes in the input parameters is offered by Y. Harazishvili. The investigation is conducted using sensitivity coefficients [12], which is defined as the impact of the deviation of the independent variable Δx_i on the dependent variable *y*:

$$U(t, x_i) = \lim_{\Delta x \to 0} \frac{y(t, x_{i,0} + \Delta x_i) - y(t, x_{i,0})}{\Delta x_i} = \frac{dy(t, x_{i,0})}{dx_{i,0}} \approx \frac{\Delta y(t, x_{i,0})}{\Delta x_{i,0}}. \quad (1.4)$$

The equation (1.4) allows to determine the spot elasticity as limit value of arc elasticity provided that growth factor *x* tends to zero. In order to avoid inconsistencies and enhance the probability of calculation results of the integral index of sensitivity of industrial security to the impact of each threat we should use arc elasticity coefficient, which determines the percentage change of function resulting into percentage change argument:

$$E(y_{i,x_i}) = \frac{\Delta y_i}{\Delta x_i} \cdot \frac{x_i}{y_i}. \quad (1.5)$$

According to equation (1.3) an integrated index of foreign security (I_{FS}) during the studied time interval *t* is defined as a function *f* of indicators set (x_i):

$$I_{FS}(t, x_i) = f(x_1, x_2, ..., x_i). \quad (1.6)$$

Using the functional dependence of the integral index of foreign security on a set of indicators obtained during the processing of data using the principal component model in the program "Statistics", we calculate the coefficient of sensitivity (elasticity) within year *t* based on the approach described in [13] by the formula (1.7):

$$K_S = \frac{\Delta I_{FS}}{\Delta x_i} \cdot \frac{x_i}{I_{FS}}, \quad (1.7)$$

where:

ΔI_{FS} – the difference between the actual value of the integral index of foreign security and the index value after the change of the statistical indicator value by 1%,
Δx_i – size of changes of statistical indicator value in %,
x_i – actual (initial) values of statistical indicators,
I_{FS} – actual (initial) value of the integral index of foreign security.

As a result of calculating the sensitivity of the integral index of foreign security to the changes in indicators using cluster analysis is conducted by grouping regions according to the impact of threats (Table 1.2).

The first group is formed by the regions, the state of foreign security of which is moderately sensitive to the changes in most indicators. Closest to the center of the cluster is Vinnytska Oblast, which characterizes the basic for this group of regional patterns of foreign security as a result of threats: the average sensitivity to changes in the coefficient of dependence on exports, the share of exported products in total sales of innovative products, the share of high-tech products import, absorption factor of export-import, and low sensitivity to changes in the proportion of high-tech products in exports of goods and rate of technological dependency.

In the areas that are included in the second group, there is a high sensitivity of the integral index of foreign security to the changes in the proportion of high-tech products in exports, the average sensitivity to changes in the coefficient of export dependence, and low – to changes in the proportion of high-tech products in importing goods, technological dependency ratio, the proportion of exported products in the total sales of innovative products.

The third group consisted of regions with high sensitivity integral index of foreign security to the changes in the proportion of exported products in total sales of innovative products, the average sensitivity to changes in the share of high-tech products in exports of goods, and export dependence ratio, and low sensitivity to all other indicators.

In a separate group there is selected Sumska Oblast, where the level of foreign security is most sensitive to changes in the scientific and technical aspects of foreign trade, namely the share of exported products in total sales of innovative products, the share of high-tech products in exports and imports of goods, rate of technological dependency.

Results of grouping the regions by the sensitivity of the integral index of foreign security to the changes in indicators should be considered when developing a strategy for economic security of interregional cooperation for the substantiation of the areas and industries of joint projects. Development of schemes of regions' participation in interregional cooperation involves the use of two approaches: strengthening cooperation between regions with similar problems in foreign economic activity on the basis of mutual reinforcement of similar competitive advantages, cooperation of regions with different problems in foreign trade due to their competitive potential complementarity.

For example, when defining areas of cooperation of Lvivska Oblast (region) there should be included the participation of enterprises of the region in realization of high-tech projects of export industries. This approach will increase the level of foreign security in Lvivska Oblast through increasing the exports' level, particularly,

the proportion of high-tech goods, as well as reducing imports of high-tech products in the case of import-substituting production capacity.

Table 1.2. The coefficient of sensitivity of integral index of foreign security for Ukrainian regions

The regions of Ukraine	Ratio of export-import	Share of a leading partner country's total foreign trade, %.	Ratio of export dependence, %	Ratio of import dependence, %	The share of exported products in total sales of innovative products, %	The share of high-tech products in exports of goods, %	The share of high-tech products in imports of goods, %	Coefficient of technological dependence	Distance to the center of the cluster
1 cluster									
Vinnytska	0,150	0,142	0,188	0,154	0,108	0,015	0,168	0,067	0,0462
Dnipropetrovska	0,271	0,182	0,121	0,046	0,204	0,055	0,069	0,044	0,0588
Donetska	0,389	0,211	0,043	0,046	0,191	0,007	0,087	0,023	0,0989
Zhytomyrska	0,108	0,252	0,145	0,097	0,248	0,035	0,065	0,045	0,0602
Ivano-Frankivska	0,153	0,129	0,225	0,045	0,016	0,105	0,205	0,114	0,0651
Kyivska	0,077	0,372	0,205	0,030	0,132	0,102	0,065	0,011	0,0793
Kirovogradska	0,068	0,196	0,129	0,116	0,178	0,029	0,179	0,097	0,0475
Luhanska	0,138	0,058	0,048	0,024	0,108	0,012	0,558	0,042	0,1567
Lvivska	0,600	0,274	0,161	0,044	0,085	0,175	0,148	0,046	0,1616
Odeska	0,057	0,223	0,237	0,046	0,067	0,076	0,267	0,018	0,0660
Poltavska	0,273	0,151	0,046	0,058	0,127	0,008	0,267	0,065	0,0732
Rivnenska	0,083	0,207	0,252	0,037	0,212	0,037	0,072	0,092	0,0638
Khersonska	0,128	0,076	0,227	0,177	0,158	0,128	0,023	0,033	0,0865
Chernivetska	0,053	0,228	0,286	0,074	0,151	0,198	0,119	0,062	0,0769
Chernihivska	0,060	0,151	0,132	0,069	0,185	0,012	0,333	0,049	0,0776
Kyiv city	0,032	0,510	0,145	0,039	0,100	0,117	0,041	0,005	0,1279
2 cluster									
Volynska	0,057	0,199	0,152	0,022	0,009	0,447	0,033	0,072	0,0739
Zakarpatska	0,033	0,061	0,069	0,022	0,0001	0,736	0,019	0,058	0,1169
Ternopilska	0,031	0,033	0,261	0,084	0,097	0,392	0,011	0,069	0,0720
Khmelnytska	0,103	0,093	0,269	0,108	0,054	0,338	0,017	0,028	0,0914
3 cluster									
AR of the Crimea	0,052	0,266	0,237	0,045	0,334	0,043	0,014	0,002	0,0705
Zaporiz'ka	0,149	0,122	0,041	0,046	0,472	0,034	0,066	0,066	0,0555
Mykolayivska	0,078	0,109	0,121	0,075	0,502	0,006	0,094	0,009	0,0519
Kharkivska	0,056	0,077	0,063	0,065	0,349	0,315	0,042	0,029	0,0863
Cherkaska	0,091	0,147	0,153	0,062	0,327	0,032	0,147	0,034	0,0442
Sevastopol city	0,032	0,078	0,139	0,120	0,360	0,121	0,024	0,012	0,0377
4 cluster									
Sumska	0,072	0,084	0,137	0,075	0,502	0,555	0,545	0,472	0,2316

Source: Own calculation

1.6. CONCLUSIONS

The results of the research became the bases of forming the following conclusions. Based on the calculation of the integral index of foreign security of the regions of Ukraine for the period of 2006 – 2011 there were identified nine regions with an optimal state of foreign security. Pre-crisis state was observed in 7 regions, which are characterized by the upper threshold value of the integral index, crisis state – in 2 regions of the upper limit, and 9 regions – with lower limit values of the integral index. In most regions of Ukraine the foreign security level is beyond the optimal values, which requires the development of control measures for international cooperation of regions to influence on the key indicators of foreign trade and to help them approach the optimal values.

The calculation of arc elasticity coefficient, which determines the percentage change in the level of security regarding the percentage changes in indicators of foreign trade, allowed us to determine the degree of sensitivity of the integral index of foreign security to the changes in relevant indicators for the regions of Ukraine in the years of 2006 – 2011 for the effective implementation of interregional cooperation between Ukraine and the EU on the bases of high-tech projects we should take into account the sensitivity of the integral index of foreign security to the changes in such indicators as the share of exported products in total sales of innovative products, the share of high-tech products in exports (imports) of goods, and the rate of technological dependency.

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2

THE INVESTMENT COMPONENT OF ECONOMIC SECURITY: THE CASE OF UKRAINE

The paper deals with the dichotomy and the cointegration of two categories: economic security and its investment component. The scope of this paper is to propose author's original complex and easy to use working procedure of investment climate's attractiveness estimation (at the level of regions, economic activities, and industries of a state) that could be useful for a potential investor and a governor at the regional and industrial levels, for enhancing the economic security of a state.

2.1. INTRODUCTION

Nowadays the undoubted fact is that an important condition for sustainable economic development of the country is active and controllable investing activity [1 – 3]. The level of investment opportunities, investment attractiveness and efficiency of investment processes in general are strong indicators of the national economy itself.

Investing based on the knowledge. Reliable assessment and analysis of the investment climate allow for better guidance of regional and sector investment flows, to improve the business climate, to reduce risks of investing and strategic planning, to conduct a relevant and flexible investment policy and effective investment marketing. However, there is not any unified method of assessment of investment attractiveness of regions, industries and enterprises that could be "one-size-fits-all" (for all states or at least for some groups of states). Moreover, there are still no exact frames and terminological forms for investment component of the economic security [3 – 4]. The open discourse is actual: *what is primary; what is causality in this; what is more broad term; what is the most appropriate term for "investing" – safety or security*.

First of all, the aim of the paper is to clear the terminology for investing component of the economic security and to determine the direction of impact between them, and, secondly, to offer reasonable, from a theoretical and methodological point of view,

method of the investment climate's assessment based on the ranking evaluation of the components of investment attractiveness. The selected approach defines the following stages:

I. To identify the conceptual range and to clarify categories.
II. To draft components of the investment climate and the investment potential.
III. To match a system of indicators and methods for assessment of investment attractiveness.

2.2. CATEGORIES: SECURITY VS. SAFETY

No unambiguous definition, unified term of the investment security, was created either in national, or in foreign scientific literature [5]. The author attempted to build our logic scheme of definitions from the simple to complex, from the small to large. The Institute for Security and Open Methodologies (ISECOM) defines security as "a form of protection where a separation is created between the assets and the threat" [6]. This includes the elimination of either the asset and the threat [7] and but is not limited only to those elements. The definition of safety is broadly used – the state of being "safe", the condition of being protected against physical, social, spiritual, financial, political, emotional, occupational, psychological, educational or other types or consequences of failure, damage, error, accidents, harm or any other event which could be considered as non-desirable [8]. Thus, latter definitions can be rephrased:

- **security** is the process or means of delaying, preventing, and otherwise protecting against physical or human, external or internal defects, dangers, loss, criminals, and other individuals or actions that threaten, hinder or destroy an organization's "steady state" and deprive it of its intended purpose for being;
- **safety** is the condition of a "steady state" of an organization or place doing what it is supposed to do.

Using this generic definition of safety it is possible to specify the elements of a security program. That gives the ability surely put the implication: safety → security. And to bind the term *safety* but not *security* to the investing. Thus, logically it can result, that the direction of impact supposes to be: investment safety → economic security. Therefore, through the terminological analysis the following thesis was introduce: *the investment safety is a factor of ensuring the economic security.*

The definition of the investment secure component of the state as the level of correlation between the export volume of investments abroad and received investments that meets the needs of the domestic economy and maintains a positive balance of payments is widely spread [3, 9 – 11]. The author propose shorter and more exact definition following the latter analysis. Thus, the investment safety is a normative concept. It complies with situation-specific definitions of what is expected and acceptable. Investment safety can be limited in relation to some guarantee or a standard of insurance to the quality and harmless function of an object, organization or state. The investment safety can also be defined as the control of recognized hazards

to achieve an acceptable level of investment risk (for an investor as well as for a recipient).

The definition could be followed by the exact computational analysis, could have the following form: the investment safety – is an investment potential of the state – as the level of ability to attract investments and the level of socio-economic development of the state under the influence of investment inflows. Placing the latter in math symbols, the following function can be proposed:

$$\text{Economic security} = f(\textit{investment safety}) \qquad (2.1)$$

2.3. THE DYNAMIC OF INVESTING COMPONENT OF THE ECONOMIC SECURITY

The author came to the result that the analysis of the economic security should be preceded by the analysis of its components – particularly, the investment component proposed in this paper.

Considered the case of Ukraine shows that trend dynamic of foreign direct investments (FDI) has the increasing tendency over the years 1995 – 2012, but the increase of the investment indicator is mostly non-linear, but a curve-like polynomial or exponential one (Fig. 2.1). This tendency supposed to continue in 2013 as the forecast shows.

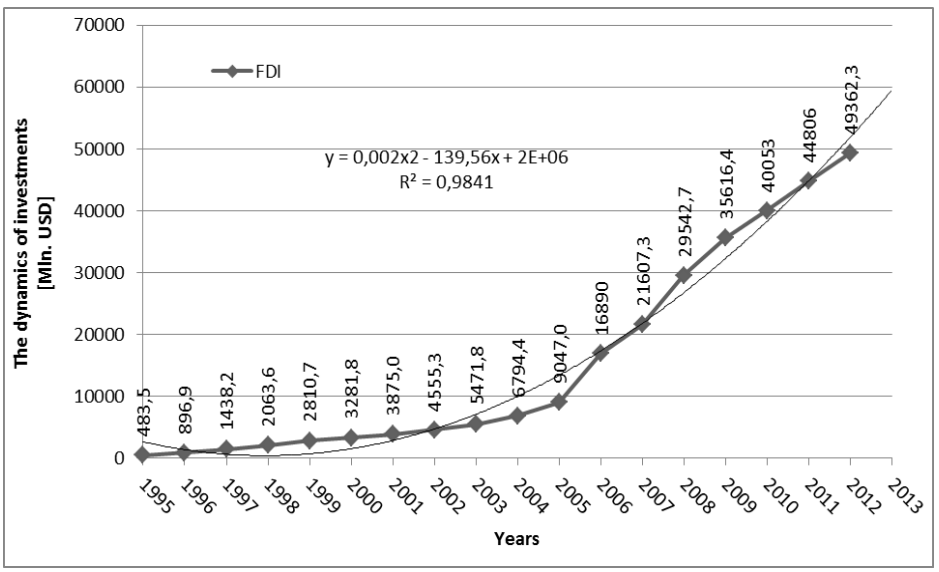

Fig. 2.1. Forecast: the dynamics of investment inwards in Ukraine
Source: [12]

To analyze the dynamic of an estimated indicator of the investment safety for the case of Ukraine (estimations made on the base of broadly used in Ukraine methodic [13]) the following equation will be used:

$$L_{is} = I/GDP * 100\%, \quad (2.2)$$

where:

I – sum of capital investments and FDI,

GDP – Gross Domestic Product.

According to marginal value of $L_{is} \geq 19 – 25\%$, the decreasing tendency can be observed (Fig. 2.2). Consequently there is the weakening of the state's investment safety.

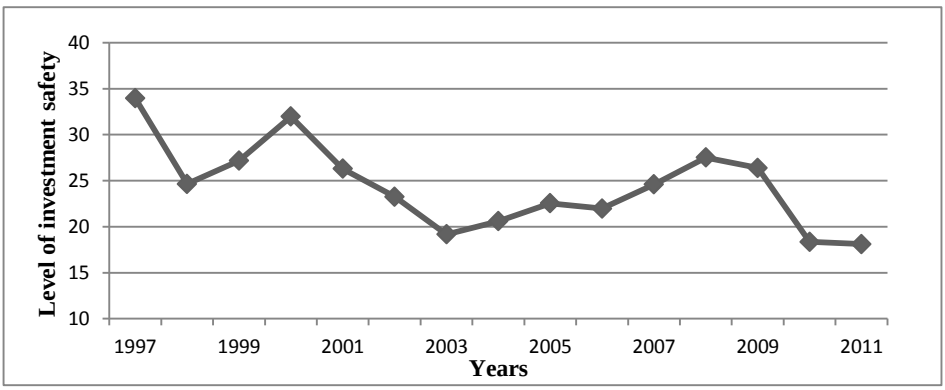

Fig. 2.2. Forecast: the dynamics of investment inwards in Ukraine
Source: [14]

There is an obvious question – the similar tendency line could be considered as the economic security trend. However, there is no exact statistically observed indicator for the economic security – its dynamic can be observed through some indicators that are considered to be representative for the aims. For giving the answer, the author proposed to analyze following graphs of world co-dynamic of investment indicators and main economic indicators, mostly rating indexes and estimations (ranks) of the authoritative agencies, that are supposed to consider as representative (Fig. 2.3 and Fig. 2.4).

The graphs allow to make some conclusions about the co-development and coincide of the investment safety indicators dynamic and economic security indicators development. Some lag in the reaction was considered. However the author assumed that the list of indicators took into consideration above is not full for the description of the economic security and the investment safety in its complexity, but, in any case,

it gives surely enough evidence to put the hypothesis: *the investment safety and the economic security highly mutually affect each other*.

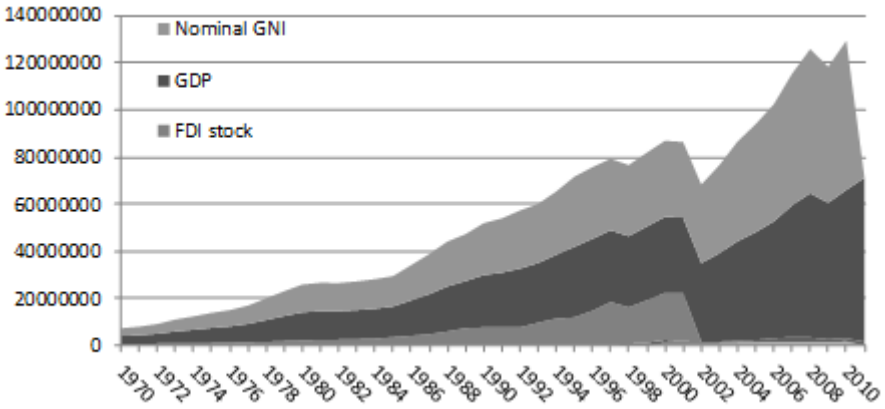

Fig. 2.3. Forecast: the dynamics of investment inwards in Ukraine
Source: [15]

Fig. 2.4. Co-dynamic of FDI and economic indicators – world data (logarithmic data)
Source: [15]

The application of Causality Granger test (Table 2.1) for the accepting or rejecting of the presented hypothesis gave results presented on Fig. 2.5. The analysis of world indicators of the economic security proved its priority to the investment safety (in period of observations: 1970 – 2011).

The interesting result is that world trends are not obviously spread on every state level, so for Ukraine (in period of 2002 – 2012) the Granger test proved strictly mutual causality between the investment safety and the economic security. This gives

the unique possibility by means of the exact estimation and improving of the investment situation (climate, potential) to enhance economic security of the state.

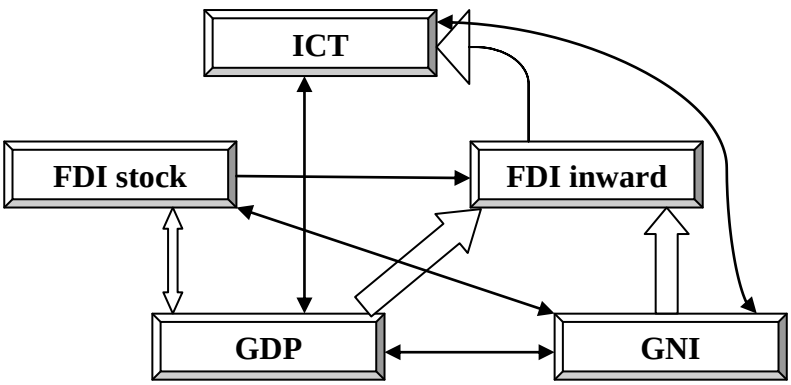

Fig. 2.5. Affection links – results of Granger test
Source: Own work

2.4. ESTIMATION TECHNIQUE

Based on the arguments presented in previous sections, the most exact method of estimation of the investment safety (particularly, the investment potential, investment climate) can be develop for Ukraine and in a such way to apply the best governing practice for transferring through the increasing of investing to the enhancing of the investment safety and, thus, to come to more strength economic security of the state – Ukraine.

It is fully understandable, that the investment climate of the host country is constantly under the influence of transformations and changes. Assessment of the investment climate, in fact, is a market instrument for optimizing the flow of capital, based on well-defined set of indicators that are analyzed. The development of methodology for such estimation technique of investment objects should begin with the specification of economic terminology. The universal definition of such categories as "investment attractiveness", "investment potential", "investment activity" and so on in the literature on the subject (mostly domestic, national literature) is still unclear. There is an open question – which of them offers a broader concept.

Taking into account proposed definition for investment safety, the following definition of the category "investment climate" is proposed: a system of investment relations, which are shaped under the impact of wide range of interrelated processes of economic, political, social, psychological, innovative, infrastructural, regulatory, environmental, criminal nature. The following elements are reflected in general:

- as objectively existing capacity of the country (region, industry, enterprise) for investing activity (characterized as investment potential);

- as the level of expected return and challenges for investments in the object (investee) (characterized as investment risks);
- as existing investment processes in the country (characterized as an investment activity).

Thus, the investment climate is define as a system of conditions for investing in the country, which integrally combines such components as the investment potential, the investment risk and the investment activity of its regions, economic sectors, industries and individual companies.

Beside the author proposed to defer the main categories as follows:

- Investment activity of the investee – the intensity of investment involvement in it.
- Investment potential of the investee – objectively existing features of the object that help it to compete with other similar objects (competitors for investments) on the bases of the availability of economic, social and other objective conditions that are important for investment activity of the object. It refers to narrow meaning of "investment potential". In broad terms, the investment potential of a state (like Ukraine) – a level of ability to attract investments and the level of socio-economic development of a state under the impact of investment inflows.
- Investment risks of the investee – conditions under which incomplete realization of the investment potential of the investee is possible because of some negative factors of internal or external influence.
- Investment attractiveness of the country – a country's image and position in the global movement of investment capital compared to other countries-recipients of investments arising from the investment potential and the investment risk of its individual economic and territorial components, i.e. the dynamics of the investment climate [16].

Thus, the investment climate of the investee (country, region, sector) is considered as its sustainable state (the mirror of the investment safety), and the attractiveness is so-called its “body language”, “mimic”, signal to investors, the invitation to take part in investing. From this perspective, there is an economic and philosophical juncture of investment agenda: the investing – as the economic process and as a dialectical aspect of classical philosophy. Dialectics of the investment process are observed in the aspect of the Law of mutual transition of quantitative changes in quality: qualitative changes occurring in the objective world are made only on the basis of quantitative changes [17]. In other words, imposing the Law on investment agenda is: changes on the investment climate (quantitative changes) cause a change of investment attractiveness (qualitative change), which in future may change the investment safety due to a jump – the transition from old to new quality [18]. So the method of security planning horizons and capabilities based planning on the dialectical pair “economic security-investment safety” can be outlaid in this way:

- HORIZON 1: 1 – 5 years – enhancement of the existing capabilities – improving of the investment climate, increasing of the investment attractiveness,
- HORIZON 2: 5 – 10 years – improvement or replacement of the existing capabilities – enhancing of the investment safety,
- HORIZON 3: 10 – 30 years – building new strategic capabilities – the enhancing of economic security.

The approach allows distinguishing between the investment climate and the investment attractiveness: and not only between their content but also between their future implementation. Hence, there is a dialectical interdependence between the investment climate and investment attractiveness. If the object of study is the investment attractiveness, then it acts as the result factor in the statistical and mathematical models, and the investment climate – as a factor.

The investment attractiveness from the point of view of a potential investor should be considered as a multilevel system that includes country, region, economic sector, industry, enterprise, and project. The balance of these levels for different investors may have different meaning and coherence. In most cases, investors are interested in all levels of competitive advantages at such meaningful location scale: from general to specific. Priorities may vary depending on the purpose of an investor.

It should be notice that the history of assessment of state-recipient's investment attractiveness (IAt) or the investment climate (IC) has just nearly 50 years [19 – 20]. One of the first can be called world investment survey of Harvard Business School (1969). Reasonable to that their set of indicators was not enough adequately to display the whole range of conditions that usually are taken into account by investors. Further development of methods of comparative evaluation of investment attractiveness was devoted to including a larger set of quantitative (statistical) indicators and expansion of the system parameters that are estimated by experts.

Among the foreign methods the following can also mention: BERI index, evaluation ratings of advanced global economic journals such as "The Economist", "Fortune", "Euromoney", and the most authoritative expert agencies "Moody's", "Standard & Poor's". These techniques are based on applying the method of expert estimates and differ mainly by a list of factors taken into consideration to examine.

Over the last decade in the CIS, mainly in Russia and Ukraine, appeared a lot of new domestic and adapted to national realities foreign-borrowed methods of estimation of investment attractiveness.

Among them are the following best-known: "Expert–RA" Agency's method [21], method developed by the team of authors of Ministry of Economy (RF) and RAS [22], N. Klimova's method (1999) [23], I. Blank's method (1995) [20], Institute of Reforms' method (2000) [24]. The following assessment approaches to IAt were not conducted for industries and groups of enterprises, but just for regions.

In addition, there are some periodic domestic methods of evaluation of investment attractiveness like: Protskiv (2005) [25], Haydutskyy (2004) [26], method of expert-analytical center "Socium" (2005) [25 – 26], Kharlamova (2003, 2004, 2005) [14, 16, 29], Kurenkova (2011) [30], Kamaltdinova and Leonov (2012) [31]. Their periodic

character follows the fact that these methods were conducted only once or twice, for the particular data base of objects, but they are interesting for productive criticism, which gives the impetus to further research.

Despite the increasing number of scientific publications, a certain uniformity of approaches is observed. Though the main shortcoming of the existing studies is the lack of consistency, complexity of the approach. In addition, among (mainly domestic) researchers still have no consensus on how to assess the investment attractiveness and how to define it as a concept. There is a poor amount of papers about the correlation and co-integration of the investment climate's estimation and the investment safety.

Development of a method for the assessment of investment attractiveness that will meet current trends in regional and industrial developing is possible only through a thorough selection of a set of variety of indicators on the basis of which the investment attractiveness will be determined. The criteria for selection of statistical indicators are following:

1. Indicator must be relevant, adequate to the realities.
2. Indicator should have a clear quantitative expression, be compact, dynamic, and relatively predictable.
3. Indicator should be available for rating-making person, so easily reached in open access – the official statistical publications or the official web-sites of statistical agencies. Firstly, this requirement is stated because of the need to save time and financial costs for monitoring, and secondly, to guarantee reliability and adequacy of the results.
4. Indicator should be available to get "fresh" data for monitoring areas (semi-annually, annually).

Thus, a potential investor may self-sufficiently demand to specify (or output) parameter in the model and to calculate rating on the desired level using the proposed estimation technique.

Based on the detailed characteristics of the motivational factors the author proposed to systematize indicators for the analysis of investment attractiveness of regions (sectors, industries). Fundamentally, it should take into account as objective statistics as well as the subjective requirements of investors, meeting of which is essential for high-image ratings of investment attractiveness of the region or industry. It should be noted that some indicators can be positive from the standpoint of classical economic performance, but for investors it will be unacceptable. Conversely, indicators that in the overall point of view are negative, can have a positive value for the investor. Systematics of the indicators and the nature of their evaluations should be take into account not only the present interests of investors, but also meet their investment strategies and to comply with the economic policies of the host country.

All statistical indicators of objects (regions, sectors, industries) were systematized due to three components of investment attractiveness of the investee: investment potential (IP), investment activity (IA) and investment risk (IR), which in its turn include such relevant factors:

- IP: PC – industrial capital, InP – innovative potential (innovation environment), InstP – institutional potential, InfrP – infrastructure potential, HC – human capital, NGP – natural and geographical potential, CP – consumer potential, FP – financial potential;
- IR: SR – social risks, ER – economic risks, EcoR – environmental risks, CR – criminal risks;
- IA: IF – investment inflows; RIA – indicators of retrospective investment activity.

Involving the indicators of retrospective investment activity is an important innovation proposed by the author, as the proposed method is original and has the significant advantage over other methods. Under the terms of moving investment environment the determination of long-term rate of investment attractiveness is quite problematic as the main factors are under constant changes. Though the author suggest just the point ranking (for a year) of investment objects (regions, sectors, industries) on the basis of investment attractiveness, but in view of retrospective investment activity of objects.

The procedure for calculating an integral estimation of investment attractiveness based on formalizing of operations of comparison including 8 stages is proposed (Table 2.1).

The basic principle is to put in the base of the author ranking system ("skating") the principle of absolute (mostly) majority.

The proposed approach can be considered as adequate to the stated objectives of the study. No-engaging the subjective "expert weights" is the clear advantage in favor of the use of author's ranking system for integral assessment of investment attractiveness, because of undoubted objectivity of the results.

From a practical point of view authorial complex evaluation technique of the investment climate attractiveness does not require especially significant human and financial costs on collection and formation of the data base and direct monitoring of the investment climate in a host state-recipient. It is fully based on the information resources that are available in the public access. The easement of calculation processes for rating assessment is implemented by using of MS Excel, Statistica application. Thus, the authorial method, despite its simplicity, makes it possible to receive in-line rating product.

As well the author considers that it is appropriate to represent the results of ratings in dynamics of changes: calculate annual rankings, to get new charts and assess the movement of objects in the ranking as "success" (or "failure") of implementation of the strategic investment decisions. The principle of the dynamic evaluation of ratings of investment attractiveness must be "dynamic of the rating instead of the rating of dynamics" (because the latter usually does not reflect the real picture of quality and quantity changes in the investment area of the country). In general, the construction of dynamic ratings is appropriate in terms of the assessment not only per a certain time, but also accounting of dynamic changes that occur over time. Such approach allows more solid conclusions regarding retrospective, current, and hence, also a prospective

investment situation in the region (sector, industry) that gives the motor for enhancing the economic security (particularly in the state, like Ukraine or other CIS states).

Table 2.1. The procedure of calculating an integral assessment of investment attractiveness

Stage	Description
Stage 1.1.	Selection of statistics: $\{x_{ni}\}$
Stage 1.2.	Standardization of indicators: $x^*_{ni} = \frac{x_{ni}}{x_n}$
Stage 2.	Correlation analysis (ρ) as a criterion for selection of indicators: $\rho \geq \pm 0{,}5$, $\rho \rightarrow$ max, for exclusion of multicollinearity (factors – indicators of IP and IR groups, the dependent variable – indicator of subgroup IF)
Stage 3.	Establishment of the database $\{x^*_{ni} \mid \rho_{x^*ni} \geq \pm 0{,}5\}$ – adjusted and standardized data set
Stage 4.	Clustering of objects by each indicator using k-means cluster analysis
Stage 5.	Application of the author's ranking technique for objects on the level of factors
Stage 6.	Apply authorial ranking system for giving an integral assessment to each object at the level of three integral components of IA_t (IP, IR and IA) (assigning each object to a particular area of investment attractiveness), putting a certain place in the ranking to each object
Stage 7.1.	Calculation of the effectiveness of the investment potential's realization for the object (E) as the ratio of its investment activity to its potential: $E = IA_{t+1} / IP_t$
Stage 7.2.	The calculation of Spearman's rank correlation coefficient (η) or the degree of density of correlation (ρ IP-IA(+1)) between the integral assessment of investment potential and the investment activity in the next period
Stage 8.	Presentation of the results, application of a marketing approach to develop investment strategies for further positioning and promotion of rated objects

Source: Own work

Thus, the investment component of economic security determines the initial conditions for the development of investment policy, on the one hand, and its result on the other. For the world level the author can suppose the superposition of economic security for the investment safety, but for the states, like Ukraine, the author receive the evidence of mutual effect in the analyzed period, that could be actively used through the exact estimation of the current and dynamic investment climate and further application of regulatory measures for its investment attractiveness improvement. Subsequently, it could result in horizon to the enhancing of investment safety and economic security of a state.

2.5. CONCLUSION

To summarize, the author proposed the concept and system of integral assessment of investment attractiveness, which reveals the sequence of evaluation procedure that results from application of marketing approach to the analysis of the results with the advance to develop strategies to attract potential investors and to enhance in future the investment safety of a state. The main advantages of the proposed estimation technique are:

- elimination of the dependence upon expert opinions and weighting coefficients chosen from expert reasoning;
- clearly definition of categories, which are considered: investment climate, investment activity, investment attractiveness, investment potential, investment risk, investment safety;
- formation the assembly of indicators that characterize the degree of favorability of investment climate. Because of its specification these indicators supposed to act as elastic to changes in the investment situation;
- structuring of method due to levels of the economy through an integrated monitoring of the investment climate.

It has to be mention that this complex authorial estimation technique was the first proposed such complex method in Ukrainian scientific and practical activity and received its recognition in science and practice here.

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3

SOCIAL INNOVATIONS IN EMPLOYMENT POTENTIAL DEVELOPMENT AND UTILIZATION

Considering a new paradigm of social and economic development, that is realized in the concept of economy socialization, innovation development tasks become particularly relevant. Due to the fact that, over the period, policy attention turned from a pure technological innovation to a wider vision of social innovation in the economy, the noted tasks got new accents. And even though each type of innovation is related to national employment potential's quality control to certain degree, the social development of innovations is a feasible need in today's economy. This problem arises with particular poignancy in developing countries like Ukraine. The reason is that inadequate attention to social innovation is one of the factors which weaken the motivation of the population to develop their capabilities and improve their performance. In its turn this situation creates a basis for dangerous social consequences.

3.1. PROBLEM STATEMENT

Social innovation is a relatively new concept in economic research. Its various aspects have been the subject of research conducted by both researchers and public administration representatives since the end of the twentieth century. At that time within the framework of progress assessment public administration started to use such indicators as the Human Development Index (HDI) [1] and interrelated social and economic indicators: Happy Planet Index [2], Index of Sustainable Economic Welfare (ISEW) [3], Genuine Progress Indicator (GPI) [4], Newsweek's the world's best countries index [5]. Social direction of economic development received even greater recognition in 2007, when Jeff Skoll and his foundation, the Skoll Centre for Social Entrepreneurship, together with other partners jointly organised an International Forum on Social Entrepreneurship in the UK. The Forum provided a venue for leading

academics, policy-makers, and social entrepreneurs to focus a research agenda and immediately got the name "Davos of social innovation".

Given the modern world experience of the innovative provision of social and economic processes, the aim of this study is to investigate the relevant fields of social innovation and the possibilities to apply them in the development and utilization of employment potential in Ukraine.

3.2. THE CONCEPT OF SOCIAL INNOVATION

Development is usually treated as a definite qualitative improvement. However, it is not only employment potential development, which is very challenging in Ukraine today, but also its effective utilization. For instance, according to the method described by the author in earlier researches, in particular in [6], one can state that the utilization of labour capacity of economically active population is unsatisfactory (Table 3.1). This causes low productivity indicators comparing to developed countries.

Table 3.1. Definition of the Results of Employment Utilization in Ukraine in 2007 – 2010

No.	Indices	Years			
		2007	2008	2009	2010
1	Employment-to-population ratio	0,94	0,94	0,91	0,92
2	Labour utilization rate	0,985	0,979	0,939	0,956
3	Productivity factor	0,161	0,163	0,143	0,143
4	Employment potential utilization rate	0,149	0,150	0,122	0,126

Source: own work based on [7]

Today, there are numerous prerequisites to continue the trend of labour productivity values insufficient for further development. Primarily, those are high depreciation and slow fixed capital renovation, maintenance of informal employee-employer relationship, the lack of motivation of employees, etc. At the same time, the slowdown of economic development and limited use of the labour pool potential are accompanied by further devaluation of the skilled labour role in Ukraine and weakening of the motives to participate in social production.

In addition to the continued existence of negative internal manufacturing trends, the possibility of the state budgeting for the programmes of market reforms is also limited. In the given circumstances, the necessity to find new ways not only to come out of a recession but also to ensure the qualitatively new stage of development emerges. One can consider the introduction of social innovation to be such a new way of progress by the experience of developed countries.

In particular, as of today well-known cyclical theories of economic development proved that each new economic cycle is associated with the lifecycle of a certain innovative product. In its turn, a certain process, product or another innovation arises only when the society has gained enough knowledge to create them, and this is always the result of social investment.

The scientists from the United Kingdom, primarily from Oxford school, conduct most of the fundamental studies on social investments. At the same time, nowadays the social innovation concept gained ground not only in scientific community but also in business. In order to facilitate their practical implementation the practitioners create relevant websites of consulting companies, collect and disseminate appropriate analytical information.

Main idea of social innovation is as follows: Social innovation refers to new strategies, concepts, ideas and organizations that meet social needs of all kinds-from working conditions and education to community development and health [4]. Modern socially-oriented business uses the following slogan: "Social enterprises are businesses that are changing the world" [8].

It is recognized that social investment creates social capital and social value which is equally important as economic value. Ultimately in 2013 the Social Stock Exchange is preparing for launch in the United Kingdom. The Social Stock Exchange is a unique venture that will allow investors to trade exclusively in companies with social and environmental goals [9].

3.3. RESEARCH RESULTS

The need for change, including ensuring the social innovation and the development of the social capital of the society, is recognized in Ukraine on the state level as well.

The Programme of Economic Reforms for 2010 – 2014 is an example of this statement. The Programme encompasses a wide range of strategic transformations in the following five areas:

1. Creation of basic preconditions for economic growth.
2. Having in place "most favoured treatment" regime for businesses.
3. Upgrade of infrastructure and primary economy sectors.
4. Preservation and development of human and social capital by raising effectiveness and stability of social security, improving quality and affordability of education and health care services.
5. Raising effectiveness of the public administration [10].

The implementation of all programme tasks involves the use of innovation. However, the provision of the fourth area of strategic transformation is simply impossible without social innovation. Following up upon the noted objectives in the field of scientific, technical and innovation development, the 2nd stage of the reform envisaged, in particular, "the implementation of the modern mechanisms of state support for innovation activity" by the end of 2012 [10].

Even though the programme implementation period of this task has already been finished, it is very hard to name the examples of the modern mechanisms of "state support" for innovation in Ukraine. If certain projects are financed by public funds, they are focused primarily on the relocation projects' support in well-known innovation areas. On the contrary, the development of such direction as social innovation has not been

tracked in official statistical surveys yet. The statistics of "organizational innovation" can register appropriate work methods of enterprises. However, it is not possible to point out those organizational innovations that have a social purpose today, as apart from new ways of work place arrangement they may include "the implementation of new organisational methods in the activity of the organization or in the external relations' organization" [11]. Nevertheless, as of 2010 there are only 10.2% of such enterprises in Ukraine [12].

In general, according to the trends of innovation activity of domestic enterprises, one can see that the strategy called "the pursuit of innovation" prevails; this strategy is indeed the true differentiating factor that separates the leaders from followers. Hence, even for those enterprises that introduced only technological innovation, the largest share was activity with the purchase of machinery, equipment and software (74.7% of all enterprises with technological innovations). Only 27.5% of enterprises held training for innovation activity. The percentage of the internal research and development financing out of all innovation costs was only 10.1% in 2010, the rest of the costs covered the purchase of the external innovations' results in different forms: external knowledge, machinery and equipment, external R&D [12]. Thus, one can assume that domestic entrepreneurs primarily finance the development of external social innovation. The benefits of their own development are undervalued and the strategy of "innovative advance" is irrelevant for today.

Obviously, the actual results of innovation activity of enterprises, especially in the field of social innovation, can differ greatly due to the prevalence of unregulated employment in Ukraine. A significant segment of this labour market uses social innovation in the field of working conditions and work place arrangement: distant employment including freelance, other forms of network interactions that promote the mobility of employees, development of creative abilities and a better use of their employment potential.

The lack of detailed monitoring of social innovation in Ukraine can be explained by their low incidence. However, according to the foreign experience in social innovation implementation, it can be assumed that key directions are as following:

- development of social responsibility at all levels of interaction in the society;
- promotion of social investments, including those in vocational training;
- development of social entrepreneurship;
- promoting interaction between social partners, in particular through ensuring availability of information services.

The part of such directions is interrelated. First of all, this applies for social entrepreneurship and social investment. It is common practice in social relations when a lack of budget funds to finance the educational or health care programmes is offset by the corporate programmes of personnel social development. After Muhammad Yunus won the Nobel Peace Prize 2006 for pioneering a new category of banking known as micro-credit, one of the social entrepreneurship types – social micro-loans received general acceptance.

In general, the concept of social entrepreneurship is the nearest to social innovation in their modern understanding. Therefore, in order to analyse their most popular

objectives in the developed countries, one can use the data of a specially conducted British survey, that sought to explore the difference social enterprises are trying to make, asking organisations about their main social and environmental objectives [13]. According to the data of sociological surveys the "top ten" aims and objectives of social entrepreneurship include the following:

1. improving a particular community (25%),
2. creating employment opportunities (24 %),
3. supporting vulnerable people (23%),
4. improving health and well-being (22%),
5. promoting education and literacy (19 %),
6. addressing social exclusion (18%),
7. protecting the environment (16 %),
8. addressing financial exclusion (13 %),
9. supporting vulnerable children and young people (10 %),
10. providing affordable housing (10 %) [13].

The respondents could choose multiple objectives of social entrepreneurship that are implemented with their participation. At the same time, one can see that there are several aims and objectives of social entrepreneurship which are the most relevant for the United Kingdom business. Those include improving a particular community, promoting education and literacy, improving health and well-being, addressing social exclusion, in particular indirectly – by creating employment opportunities. Simultaneously, many socially oriented businesses are focused on supporting vulnerable people: even though it does not facilitate their development, but allows obtaining sustenance in difficult periods in life.

Within the implementation of social programmes in Great Britain, as in Ukraine, there are similar problems of corporate social projects' perception by state authorities. Despite the fact that social entrepreneurship exonerates the state from the part of responsibility for the welfare and development of the citizens, but 61% of social enterprises feel that their views are not taken into account by government [13]. According to the British experience, one can consider financial constraints to be one of the main objective prerequisites for the slow development of social innovations, such as the corporate social investment. Access to finance and cash flow problems dominate the concerns of social enterprises in the United Kingdom – 44% of respondents were still hampered by the availability and affordability of finance while analysing the most significant barriers to the organisation's sustainability and/or growth [13].

Under such circumstances, so-called "third sector organisations" could become one of the alternatives in the social investment development. Those embody the organisations driven by a social or environmental mission rather than profit, including voluntary and community organisations, charities, social enterprises, faith groups and mutual [9].

In Ukraine, Ukrainian Social Investment Fund (USIF) is one of the few entities that conduct consistent activity in this field. The Fund declares that it "supports community strengthening and facilitates regional capacity building on effective implementation of social development programmes on community level" [14].

Today the USIF activities are mainly focused on the promotion of social infrastructure development. The implemented projects include those declared as "Social Investment Fund", "Capacity Building of the Poorest Ukrainian Communities", and "Innovative Social Care Services Microprojects". The total of investment resources is quite significant – not less than 1.5 million USD. At the same time, the budget of "Social Investment Fund" Project for 2002 – 2008 was 77 million USD [14]. The positive trend is that a significant share of the financing were grant means from the international social funds. However, the possibility of public control over the funds' spending is weak. In particular, the USIF web-site provides detailed information regarding the preparation and publication of methodological recommendations, and the projects of regulatory documents. Each project focuses on training courses and practical consultations for the representatives of communities and social workers, including those with the participation of foreign specialists. Nevertheless, the practical results that were anticipated the most, either come down to the recovery of the objects of social and communal infrastructure, or are formulated very generally, for example: "85% of the local communities that have cooperated with USIF initiated new activities" – "Capacity building of the poorest Ukrainian communities" Project, 2005 – 2009 [14].

In the meantime, the creation of the one of the few specialized social development funds in Ukraine is a sign that there is a study of the citizens' social needs and their settlement is not presented solely by some common measures as social assistance or others, even with regard to the existing issues in the project implementation. The development of information infrastructure within the framework of individual projects, the formation of new associations and other organizations on local level aiming to strengthen interaction with local authorities could eventually have a positive impact on the effectiveness of social dialogue.

By all means, social innovation can be implemented not only by well-known intermediaries. However, it is very hard to trace the efforts of the special funds or business structures towards the implementation of social innovation not only because of their insignificant commonness but also because of the insufficient understanding of this type of innovation.

3.4. INVENTORS IN PEOPLE AS AN EXAMPLE OF SOCIAL INNOVATION

For example, one of the modern trends of social innovation Investors in People (IiP), also borrowed from the United Kingdom. IiP is a nationally recognised framework that helps organisations to improve their performance and realise their objectives through the effective management and development of their people and as of today it has been successfully used in various organizations from more than 70 countries of the world [15]. The introduction of such HR management technology allows not only to enhance the efficiency of labour management, but also to create a new form of interaction within the organization.

Since 2007 the Ukrainian National Committee International Chamber of Commerce has been facilitating the implementation of the standard in Ukraine. Nonetheless,

as of today only four Ukrainian enterprises have received the Investors in People certificate: "Mahistr & Partnery" ("Master & Partners") – Company in 2007; "Business-Link" – Educational Company in 2008; "Odeskyi morskyi torhovelnyi port" ("Odessa Sea Trade Port") – State Enterprise in 2009; "PLASKE" – Transport-Forwarding Company in 2010 [15, 16].

At the same time, the standard specialises in transforming business performance through the improvement of human resources management. Working with Investors in People is proven to improve not only social performance, but also productivity and profitability.

To achieve recognition against the "Investors in People" Standard, an organisation needs to demonstrate that it meets the criteria, known as indicators, in the field of HR management. This is not only a staff costs' management, but also the quality of communications, feedback, the recognition of the people's contribution to the organisation, as well as the awareness regarding the nature and impact of the work.

The framework is based on three main principles:

1. Plan – developing strategies to improve the performance of the organization.
2. Do – taking action to improve the performance of the organization.
3. Review – evaluating the impact of its investment in people on the performance of the organization.

Each principle has clear indicators underpinning them [17]. In order to confirm the effectiveness of such social innovations, one can look at the results of research on the efficiency of "Investors in People". The study was designed to explore the impact of achieving accreditation for the Investors in People Standard on business performance. The sample consisted of a total of 1,600 companies, equally divided between recognised public sector organisations, recognised SMEs (5 – 249 employees), recognised large employers (250+ employees) and non-recognised companies. Changes made by Investors in People recognised "IiP organisations profit twice higher as opposed to other companies" [15].

According to the study, the companies stated the changes where IiP has been influential for the profit increase as a result of the introduction of the innovative approach in the field of HR management. They are the following:

- changes in the field of training and development (32% % of recognised companies made this type of change),
- changes in appraisals and feedback (28% of recognised companies),
- involvement and empowerment – people are encouraged to take ownership and responsibility by being involved in decision-making. (91% of employers).

Other economic results of social investment are as follows:

- labour productivity growth (73% of the companies),
- professional skills improvement (74% of the surveyed companies),
- standard requirements' goal is continuous improvement – improvements are continually made to the way people are managed and developed (71% of the leading industrial groups).

An indirect recognition of the effectiveness of such field of social innovation is also the fact that 94% of surveyed employers see value in continuing to be recognised by IiP, and 71% of industrial groups' leaders point out that Investors in People requirements were crucial or very influential for the continuous improvement and development of their organizations [15].

3.5. CONCLUSIONS

Despite all the advantages of the new technologies in HR and social management in the enterprises, they are undervalued in Ukraine. The prerequisites for the slow development of social innovations can be either objective, as access to finance and cash flow problems and lack of effective informational contacts with consulting organizations and business entities, or subjective where the first and the foremost is the low social responsibility of business in social and labour relations. However, the preservation of traditional approaches to personnel as to "a cheap resource", on which the employer may save the money, not only in development programmes, but primarily basing on the spread of shadow remuneration of labour, seriously impairs not only the employees' quality of life, but also the economic results of the employers who are not using social innovations, and thus simply cannot appreciate their benefits.

Therefore, social innovations' facilitation is one of the key areas of scientific research and organization of cooperation between social partners within the framework of the further social and economic development prospects in Ukraine. The state and its specialized representative entities – the Ministry of Social Policy of Ukraine, the Committee on Economic Reforms, and others should become the main responsible actors in the implementation of this task.

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4

THE GLOBAL SCIENTIFIC AND INNOVATIVE SPACE: UKRAINIAN DIMENSION

The purpose of the article is to determine the place of the national science and innovation sector in the international scientific community. To achieve the defined goal, a comparative analysis of the twenty countries, which represent almost all regions of the world, as well as the main types of economies in terms of development, in terms of the dynamics of the indexes and the positions of these countries in major international economic and scientific innovation rankings was held.

4.1. PROBLEM STATEMENT

In the time when the global economy faces a number of significant and interrelated challenges, that could hamper a genuine upturn after an economic crisis, the R&D sector becomes a main source of qualitative growth. Precisely the development of high technologies and science-based production are able to provide high competitiveness in the world market.

Private sector and global companies become more powerful engine of innovation development, but state-owned national and regional policy plays an important role – through direct support for research and innovation projects, indirect (fiscal measures) and contextual support (development of innovation system) as well as through active dissemination of relevant knowledge and a platform for cooperation.

All of the above are extremely important for Ukraine because the existing approach to science and innovation sector leads to a gradual retardation of our country from others. The reason for this lays not so much in a lack of internal development, but in the rapid, outstripping pace of the marked sectors' development in other countries.

In order to assess the existing threats and perspectives of the national science and knowledge-based production development, a comparative analysis of the positions of Ukraine and other countries in major global ratings, which determine the degree of innovation development, is conducted. In international practice for such an assessment the most used are the following indexes:

- Global Competitiveness Index, GCI – survey conducted by the World Economic Forum;
- International Innovation Index, which is calculated by experts Boston Consulting Group, USA;
- Global Innovation Index, GII, which is calculated by the analytical center Lausanne business school INSEAD, Switzerland.

These indexes are calculated for the vast majority of national economies and include a large number of indicators, which allows conducting a detailed analysis of countries in various fields. In addition to global indexes there are numerical indicators that focused on detailed assessments of a particular area or a limited group of countries, such as: European Innovation Scoreboard Summary Innovation Index, Networked Readiness Index, ICT Development Index, Global IT Industry Competitiveness Index, Knowledge Economy Index, E-Government Readiness Index, Human Development Index, Global Talent Index and so on.

4.2. THE GLOBAL COMPETITIVENESS INDEX

The Global Competitiveness Index is based on a combination of publicly available statistical data and the Executive Opinion Survey conducted by the World Economic Forum together with a network of partner organizations. The 20 countries' ranking according to those sub-indexes that reflect the topic of this study were analyzed (Table 4.1).

As it can be seen from the Table 4.1, the top-10 occupied by the Northern and Western Europe countries. United States, regardless of their global innovation centers status and general improvement in competitiveness, continue to fall in the ranking during four years in a row, shifted two places down to seventh position. Japan occupies the last place in the top ten, although it remains the second rated economies of Asia Region. Among the main reasons of the countries' rating positions deterioration is macroeconomic instability, poor access to finance, inflexible labor markets, but also a great role plays the lack of innovation.

Large emerging economies, namely BRIC, show different figures. China, despite slight decrease in the rating on three positions, continues to be the leader of the group. India and Russia also somewhat reduced their positions. But the competitiveness of the Brazilian economy is growing – the country moved up in the rating by 5 positions.

Among the countries of the former USSR, Ukraine (73 place) is located at the seventh position. Ahead of it: Estonia (34), Lithuania (45), Azerbaijan (46), Kazakhstan (51), which improved up significantly by 21 positions, Latvia (55), and Russia (67). In comparison with the previous year significant improvements in the domestic economy can be noted – Ukraine has moved up nine places at once.

The result of the GCI subindexes and indicators analyzing allow to identify the most critical areas, as well as to detect perspective directions of reform in science

and innovation sectors. By almost all indicators, presented in Table 4.1[1], Ukraine is in the middle of the 144 countries' list, which means that its economy has some potential for further growth, especially given the positive trend of ranking positions. However, among the selected countries, Ukraine takes the last places except such indicators as "Labor market efficiency" and "Higher education and training". In the first case Ukraine is ahead of such highly developed countries as France and South Korea, as well as Brazil, Czech Republic, Hungary, India and Russia. In second case it outpaces the BRIC countries. This is very important because it shows the level of availability of the country's intellectual resources and also indirectly indicates the presence of the appropriate conditions for their further development.

Subindex "Labor market efficiency" consists, among others, of such indicators as "Efficient use of talent" and "Brain drain". According to the "Efficient use of talent" value, Ukraine is on the 80th place, the worst value were achieved only by Hungary (89) and India (104). "Brain drain" indicator puts Ukraine on the last place among the 19 selected countries and on the 131st place in the overall ranking. Leaders among the sample countries to attract and retain intellectual resources are the United Kingdom and the United States of America.

Subindexes "Innovation" and "Technological readiness" consist of indicators that are important for the assessment of innovation. Therefore, it is expedient to conduct a more detailed analysis of these indicators (Table 4.2 and Table 4.3). In subindex "Innovation" Ukraine improved its place by 3 positions and thus, moved to the first half in the overall ranking. However, it is obvious that Ukrainian economy is still in a group of outsiders, because the second part of the rating includes the countries of the "third world" in which there is practically no scientific sector and the sector of higher and even secondary education underdeveloped (mostly African, South Asian and Oceania regions). In the 19th countries' ranking Ukraine outperforms only Russia and Kazakhstan.

Indicator 12.01[2] "Capacity for innovation" reflects the way in which the country gets new technology: exclusively from licensing or imitating foreign companies; by conducting formal research and pioneering its own new products and processes. Primacy by this indicator (among 19 countries) belonging to Japan. Ukraine is losing its position – it shifted at once 16 positions down, from the 42nd at the 58th place. Thus it became penultimate between Russia and Kazakhstan. However, the most profound was the fall of Ukraine by indicator 12.03 – "Company spending on R&D" – by as much as 29 positions, so its last place in the ranking is not surprising (Russia and Kazakhstan respectively by the 15th and the 17th places, the leader is Japan). By value of 12.02 indicator "Quality of scientific research institutions" Ukraine strengthened its position by 8 points, but it is still only third from the end (ahead of the Russia and Kazakhstan).

[1] Presented in Table 4.1 *trend* factor indicates position changes comparing to [1]
[2] Number of indicator in subindex "Innovation"

Table 4.1. Dynamics of subindexes and indicators of the Global Competitiveness Index, 2012 – 2013 (*Source: own work based on [1]*)

№	Country	The Global Competitiveness Index		Innovation		Technological readiness		Labor market efficiency		Higher education and training	
		Ranking	Trend	Ranking	Trend	Ranking	Trend	Ranking	Trend	Ranking	Trend
1	Finland	3	1	2	1	10	2	15	0	1	0
2	Sweden	4	-1	4	-2	1	1	25	0	7	-5
3	Germany	6	0	7	0	15	-1	53	11	5	2
4	United States	7	-2	6	-1	11	9	6	-2	8	5
5	United Kingdom	8	2	10	3	7	1	5	2	16	0
6	Japan	10	-1	5	-1	16	9	20	-8	21	-2
7	Austria	16	3	13	3	17	-2	32	-3	18	0
8	Korea, Rep.	19	5	16	-2	18	0	73	3	17	0
9	France	21	-3	17	0	14	-1	66	2	27	-7
10	Israel	26	-4	3	3	29	-8	40	-16	28	-1
11	China	29	-3	33	-4	88	-11	41	-5	62	-4
12	Czech Republic	39	-1	34	-1	31	0	75	-33	38	-8
13	Poland	41	0	63	-5	42	6	57	1	36	-5
14	Brazil	48	5	49	-5	48	6	69	14	66	-9
15	Kazakhstan	51	21	103	13	55	32	19	2	58	7
16	India	59	-3	41	-3	96	-3	82	-1	86	1
17	Hungary	60	-12	37	-3	49	13	79	-13	49	-4
18	Russian Fed.	67	-1	85	-14	57	11	84	-19	52	0
19	Ukraine	73	9	71	3	81	1	62	-1	47	4

Table 4.2. Indicators of the sub-index "Innovation" (*Source: own work based on [1]*)

№	Country	Innovation	Capacity for innovation (12.01)	Quality of scientific research institutions (12.02)	Company spending on R&D (12.03)	Government procurement of advanced tech products (12.05)	Availability of scientists and engineers (12.06)	Patent's quantity (12.07)
1	Finland	2	4	13	3	14	1	3
2	Israel	3	6	1	6	6	9	4
3	Sweden	4	5	9	5	12	4	1
4	Japan	5	1	11	2	48	2	5
5	United States	6	7	6	7	15	5	12
6	Germany	7	3	10	4	21	40	7
7	United Kingdom	10	12	3	12	45	12	18
8	Austria	13	9	21	13	50	30	10
9	Korea, Rep.	16	19	24	11	33	23	9
10	France	17	10	15	19	49	22	14
11	China	33	23	44	24	16	46	38
12	Czech Republic	34	22	26	28	122	43	28
13	Hungary	37	45	20	103	110	50	27
14	India	41	42	39	37	83	16	63
15	Brazil	49	34	46	33	53	113	48
16	Poland	63	54	45	88	101	58	43
17	Ukraine	71	58	64	104	97	25	51
18	Russian Fed.	85	56	70	79	124	90	44
19	Kazakhstan	103	92	108	94	71	104	65

Indicator 12.05 displays the effectiveness of the policy in technological innovation stimulation through the government procurement decisions. For this indicator, Ukraine has strengthened its position by 15 points and ended up in the 15th place. It shows that Ukrainian government procurement decisions foster technological innovation in the country much more effectively, comparing to previous years.

Indicator 12.06 "Availability of scientists and engineers" calculation's is based on the number and availability of scientists and engineers. For this indicator Ukraine has traditionally strong position: the 25th place among 144 countries (moved up on 26 positions) and 10 among the sample countries.

What concerns the number of patents (indicator 12.07), Ukraine shows poor results among the selected countries – only India and Kazakhstan have worse positions[3]. In absolute terms, the number of applications per million population is as following: the three leaders Sweden – 311, Finland – 277, Israel – 235; China – and Russia 6,5 – 5,4; Ukraine – 2,1; and at the last place is Kazakhstan with the number of patent applications 1,1 per million population.

Sub-index "Technological readiness" (or pillar 9) includes seven indicators, in the presented study the following components are analyzed:

- "Availability of latest technologies" (indicator 9.1, to what extent the latest technologies are available in the country).
- "Firm-level technology absorption" (indicator 9.2, to what extent businesses in the country absorb new technology: aggressively absorb or not at all).
- "FDI and technology transfer" (indicator 9.3, to what extent foreign direct investment (FDI) bring new technology into the country: whether FDI is a key source of new technology or not).

The value of this sub-index confirms the dominance of low and medium technological structures, as well as the unfavorable investment climate in Ukraine. For indicators 9.01 and 9.02, Ukraine takes the 15th place among sample countries and outpaces Russia and Kazakhstan. Russia was the last in the ranking on all three indicators. As for the indicator 9.03, Ukraine is in the penultimate place. But at the same time, there is a positive temporal dynamics – all three indicators moved more than 10 positions up.

4.3. INTERNATIONAL INNOVATION INDEX

International Innovation Index is a generalized indicator for measuring the level of innovation in the country, developed jointly by Boston Consulting Group (BCG), the National Association of Manufacturers (NAM) and the Institute for Manufacturing (an independent research center affiliated with NAM). National Association

[3] Number of applications filed under the Patent Cooperation Treaty (PCT) per million population

of Manufacturers called it "the most significant and comprehensive assessment of its kind" [2 – 5].

Table 4.3. Indicators of the sub-index "Technological readiness"

№	Country / Subindex	Technological readiness	Availability of latest technologies	Firm-level technology absorption	FDI and technology transfer
		9	**9.01**	**9.02**	**9.03**
1	Sweden	1	**1**	1	23
2	United Kingdom	7	6	23	35
3	Finland	10	3	6	87
4	United States	11	14	14	43
5	France	14	16	35	59
6	Germany	15	17	16	80
7	Japan	16	11	4	67
8	Austria	17	13	13	51
9	Korea, Rep.	18	26	11	83
10	Israel	29	22	5	14
11	Czech Republic	31	43	49	18
12	Poland	42	95	112	58
13	Brazil	48	50	47	24
14	Hungary	49	55	64	12
15	Kazakhstan	55	90	91	85
16	Russian Fed.	57	129	141	135
17	Ukraine	81	80	69	109
18	China	88	107	71	77
19	India	96	47	40	44

Source: own work based on [1]

The methodology of this index addresses both the business outcomes of innovation and government's ability to encourage and support innovation through public policy.

The last study was conducted in 2009 and included a comparison of "innovation attractiveness" of 110 countries. In general, the index includes twenty-four indicators which, according to BCG experts, are the most significant factors affecting innovation (namely tax incentives for research, the abolition of restrictions on the movement of foreign capital and labor, the active involvement of highly qualified technician from outside, investments in the academic training within the country, state financing of infrastructure development and the development of industrial clusters).

The BCG ranking is based on general International Innovation Index, which evaluates the level of "innovation friendliness" in the country (overall score). General index addresses both incoming resource factors (innovation inputs) and the resulting indicators of innovation (innovation performance).

Innovation inputs measure such factors as:

1. Fiscal policy (R&D tax credit, taxation level, government R&D funding).
2. Innovation environment (state of education, work force quality, infrastructure quality, business surroundings).
3. Other policies (education policy, trade policy, regulation, intellectual property policy, immigration policy, infrastructure policy).

Table 4.4. BCG International Innovation Index Rankings, 2009

Country	Ranking	Overall score	Innovation Inputs Score	Innovation Performance Score
Korea, Rep.	2	2.26	1.75	2.55
Finland	7	1.87	1.76	1.81
United States	8	1.80	1.28	2.16
Japan	9	1.79	1.16	2.25
Sweden	10	1.64	1.25	1.88
United Kingdom	15	1.42	1.33	1.37
Israel	16	1.36	1.26	1.35
Austria	17	1.15	1.38	0.81
Germany	19	1.12	1.05	1.09
France	20	1.12	1.17	0.96
China	27	0.73	0.07	1.32
Hungary	31	0.51	0.80	0.18
Czech Republic	32	0.41	0.88	-0.10
India	46	0.06	0.14	-0.02
Russian Federation	49	-0.09	-0.02	-0.16
Poland	52	-0.12	0.22	-0.44
Kazakhstan	60	-0.23	-0.51	0.07
Ukraine	64	-0.45	-0.13	-0.73
Brazil	72	-0.59	-0.62	-0.51

Source: compiled by the author according to the source [2]

These inputs drive performance by either supporting or hindering the efforts of companies and industries. To evaluate innovation performance next outputs are measured:

1. R&D results (R&D investments, intellectual property generation, publication and knowledge transfer, commercialization of innovation).
2. Business performance (high-tech exports, labor productivity, market capitalization of listed companies).
3. Public impact of innovation (employment growth, investment, business migration, economic growth).

In the Table 4.4, the values of the International Innovation Index for the list of the studied countries are shown.

The general conclusion to be drawn from the analysis of the index is: the best results illustrate those countries in which governments support companies in three major ways: by boosting their payback on innovation, by supporting their innovation activities, and, most important, by improving the innovation environment. In addition, governments can play a role by encouraging the development of industry clusters, which

can improve the innovation environment. Government's support and development policy of science and innovation must be multidirectional to achieve a synergistic effect which ensures innovative leadership of the country.

In Ukraine there is a broad approach to innovation, which narrowly defined it as simply technical innovation. However, technical innovation is only a small part of the wide innovation process. And, as international experience shows, it is not possible without marketing, information technology, organizational, and financial innovation. That is why there is no coincidence that Ukraine occupies only 64 place out of 110 countries in the ranking of the International Innovation Index (between Panama and Egypt). Ukraine penultimate place among the sample countries is largely due to the lack of a systematic approach to innovation.

4.4. GLOBAL INNOVATION INDEX

Global Innovation Index (GII) was introduced by International Business School INSEAD in conjunction with WIPO (World Intellectual Property Organization) as an annual survey of a set of indicators of innovative development around the world. In 2012, GII, which is calculated from 2007, covers 141 countries, which together produce 99.4% of world GDP and where 94.9% of the world's population inhabit [6 – 8].

Global Innovation Index consists of a number of variables that describe in detail the innovative development of countries at different levels of economics' development. Since the success of the economy is connected, firstly, with the innovative potential, and secondly with the conditions for its implementation, GII is calculated as a weighted sum of ratings of two groups of parameters (with minimum value at 0 and maximum at 100):

- Resources and conditions for innovation (Innovation Input): institutions, human capital and research, infrastructure, internal market sophistication and business.
- Achieved practical results of the innovation (Innovation Output): the level of technology and knowledge economy, the results of creative activity.

Thus, the overall score is the ratio of costs and returns that allows objectively evaluate the effectiveness of efforts to develop innovations in a particular country. Innovation Efficiency Index (a part of GII) shows which countries embody innovative ideas into practical results successfully than others. From this point of view, first places belong to the countries with quite high innovation performance, despite less developed innovative environment and lack of human capital, such as China and India.

GII consists of more than 80 indicators, thus it is expedient to perform overall score and major sub-indexes for the sample countries (Table 4.5).

In the GII 2012 Sweden and Singapore maintain their positions as number 2 and 3 for 2011 (at the 1st place is Switzerland). The leaders are followed by Finland and United Kingdom. The USA are round out the top ten. The country still remains an innovative leader; however, it shows some downshifts in such areas as education, training and innovation development. As a result, in 2012 ranking the U.S. moved 3 positions down.

In comparison the GII and GDP per capita all countries can be divided into the following groups:

1. "Innovation leaders" group. It includes countries with high income, such as Sweden, UK, USA, Germany, Israel, South Korea, France, Japan, Czech Republic and Hungary. In these countries a stable and innovative infrastructure is built and investment in human capital is provided, which creates favorable conditions for knowledge level growth, technology improvement and creativity development.
2. The group of "innovators-followers" includes countries with middle and low income: China, Poland, Ukraine, India, Russia and Kazakhstan. They demonstrate the growth of innovative achievements in the improvement of institutional structures, innovation infrastructure, human capital development and also deep integration with global financial and other markets, although the progress is not equal in all of the named segments.
3. The third "gapping" group includes those countries, which have poor developed national innovation systems (both high- and middle-income countries).

Table 4.5. Global Innovation Index Rankings (2012)

Country	**GII**		**Innovation Input**	**Innovation Output**	**Innovation Efficiency Index**
	Ranking	**Score**	**Ranking**	**Ranking**	**Ranking**
Sweden	2	64.8	3	2	18
Finland	4	61.8	6	5	30
United Kingdom	5	61.2	5	6	44
United States	10	57.7	9	16	70
Germany	15	56.2	23	7	11
Israel	17	56.0	17	13	38
Korea, Rep.	21	53.9	16	24	69
Austria	22	53.1	21	21	48
France	24	51.8	22	26	64
Japan	25	51.7	18	28	88
Czech Republic	27	49.7	31	23	22
Hungary	31	46.5	37	29	41
China	34	45.4	55	19	1
Poland	44	40.4	41	50	80
Russian Fed.	51	37.9	60	49	43
Brazil	58	36.6	69	52	39
Ukraine	63	36.1	78	47	14
India	64	35.7	96	40	2
Belorussia	78	32.9	80	75	66
Kazakhstan	83	31.9	67	105	131

Source: compiled by the author according to the source [8]

Regional leader in innovation among countries surveyed in 2012 year were: USA, Israel, North Africa and West Asia, India in Central and South Asia.

BRIC countries (Brazil, Russia, India and China) show predominantly positive trend, however, they must continue to invest in innovation, to fully achieve their

potential. China by indicators in such key areas as knowledge and technology development (the second only to Switzerland, Sweden, Singapore and Finland) is a leader among BRIC countries. However, China has weaknesses in its innovation infrastructure.

The second place in the rank by the level of innovation development among BRIC economies takes Russia. It has high scores in such categories as "Knowledge creation", "Human capital and research", "Business sophistication". According to the experts' opinion (despite the fact that for some indicators there is not much progress in GII ranking; e.g., lack of institutions' development (93 place), bad market sophistication (87) and creative activity (84)) Russia has good chances to catch up with the world technological leaders in the nearest future. Acceleration of innovation activity allows applying the powerful intellectual potential to change the resource oriented economy and to accelerate socio-economic development in general.

As for Brazil, it worsened its positions in innovation more than any other BRIC economy.

Ukraine takes the 63rd place in 2012 in the overall ranking that puts it between Macedonia and India. Ukraine's strengths lay in such factors as knowledge development ("Knowledge and technology outputs", the 30th place), human capital (48), business sophistication (51). Hinder the development of innovations deficient institutions (117), unsatisfactory infrastructure (98), insufficient market sophistication (68), poor results of creative activity (83). Ukrainian strengths and weaknesses are shown in Fig. 4.1.

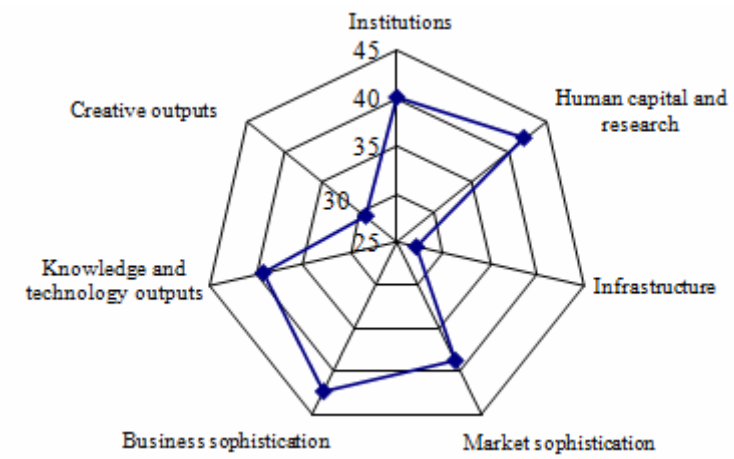

Fig. 4.1. Strengths and weaknesses of the innovation development of Ukraine
Source: [8]

As can be seen from Fig. 4.2, the biggest barriers for innovation development of Ukrainian's economy are undeveloped infrastructure and institutions. The innovation-leaders' experience clearly shows critical importance of innovation activity support provided by the governments, after all precisely innovation is what sustains economic growth. Implementing policy of reducing cost for innovation through the economic crisis

(particular by Ukrainian government) leads to the loss of productive capacity of the state in the long term. It is therefore necessary to develop long-term policy in science and innovation, which will ensure sustainable economic growth.

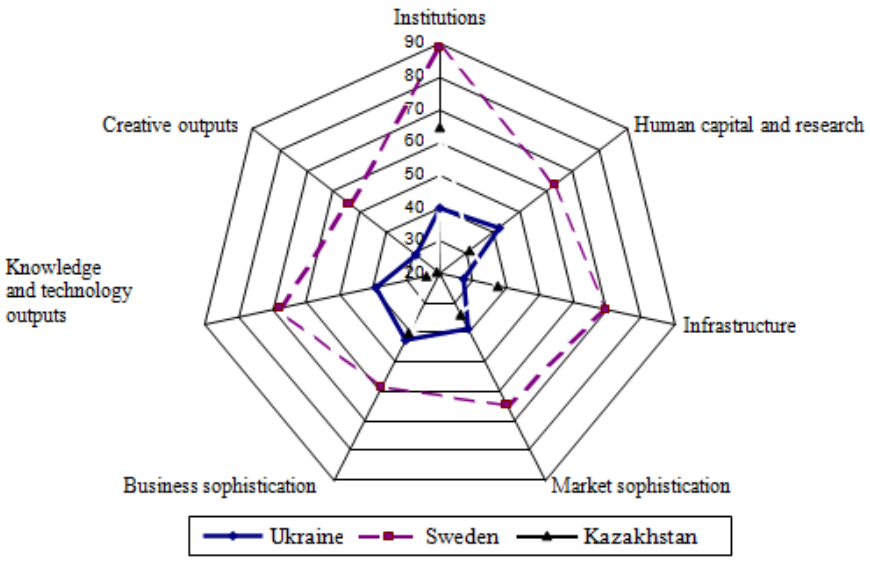

Fig. 4.2. Comparison of innovative development indicators
Source: [8]

Table 4.6. Ukraine's Rating position on the main international indexes that characterize the level of development of science and innovation

Index and last survey data	Ranking/ dynamic	Countries in survey	Leaders/outsiders
Innovation Capacity Index, Global Consulting Network, 2011	61 (↓)	130	Sweden – 1; Brazil – 81, India – 88
Human Development Index, The United Nations, 2011	76 (↓)	187	Norway – 1, USA – 4; Brazil – 84, China – 101, India – 134
Knowledge Economy Index, World Bank, 2012	56 (↓)	145	Sweden – 1, Finland – 2; China – 84, India – 110
Global Talent Index, Heidrick & Struggles, 2011	43 (2015 forecast ↑ +1)	60	USA – 1, Finland – 3, Sweden – 7; Kazakhstan – 53
ICT Development Index, International Telecommunication Union (UN), 2011	67 (↓)	155	Korea – 1, Sweden – 2; China – 78
Networked Readiness Index, World Economic Forum, 2011	75 (↑)	142	Sweden – 1, Finland – 2, Kazakhstan – 55, Russia – 56, Brazil – 65, India – 69

Source: own work based on [9 – 11]

The result of twenty economies analyses (based on three most valuable international indexes of innovative development) makes possible to define the level

of science and innovation development in those countries. In addition, in Table 4.6 the values of the other ratings are shown, which also evaluate the level of development of certain elements of the innovation system in Ukraine.

In the column "Leaders/outsiders" as leaders are countries that occupy the first position in the overall ranking, but as outsiders – the last of the twenty countries of the sample comparatively to Ukraine.

4.5. CONCLUSIONS

Thus, the value of general and industry indexes, which characterize the development of science and innovation, demonstrate Ukraine's lag practically by all indicators of world trends in marked areas. Regrettably, the dynamics of the vast majority of indicators remain negative. Development of science and innovation inhibits the following factors:

- underdeveloped institutional environment;
- low efficiency of public policy support and incentives;
- inadequate legal regulation, especially in the tax and administrative procedures;
- low intensity of competition in the local market;
- slow development of ICT.

Even by those indicators that show positive tendencies, Ukraine lags behind advanced international trends. Traditionally strong remain Ukraine's positions in such areas as human resources (public expenditure on education, a high share of people with higher education, as well as graduates in science and engineering), knowledge and research outputs, and patent activity. However, in international comparison Ukraine is far behind in innovation development.

In conclusion we defined six steps that government can take to encourage, support, and advance innovations:

1. Business environment improvement.
2. Intellectual property rights protection.
3. Free competition ensuring.
4. The work force strengthens.
5. International cooperation in innovation, different barriers removal (capital, labor, technology, knowledge transfer etc.).
6. State – business – science – education cooperation.

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5

MECHANISM OF PUBLIC ADMINISTRATION IN COOPERATIVE ASSOCIATION DEVELOPMENT OF UKRAINIAN AGRARIAN SECTOR OF ECONOMY

The article is devoted to public administration mechanism in co-operative development and examines the transformation processes in agrarian sector of Ukraine through creation of new cooperative associations. The mobilization of present economic resources and regulatory mechanisms upon overcoming problems which agrarian sector faces and experience in establishing cooperative associations are highlighted. Lessons learnt from the recently emerging cooperatives in Ukraine are presented.

5.1. INTRODUCTION

In the beginning of the 1990s, after the declaration of Ukraine's independence the real entrepreneurial activity was launched. The start of social and economic reforms accelerated expansion of business initiative, on the one hand, and the burden of out-dated administrative methods in conjunction with the absence of proper cooperative legislative basis, on the other hand. In 1997 the progressive cooperative law was adopted in Ukraine in order to permit cooperative institutions to function as business entities. This legislation needs some improvements and adjustments, but solution based only on cooperative judicial support and legalization cannot solve all the problems. It is connected with the fact that in spite of long cooperative history the cooperative principles in the former Soviet Union were misused, first of all in agricultural sector, and that is why in many cases potential members are afraid to join new cooperatives because of the negative history of collective farming.

There is a void of leadership at the farmer level, in many cases farmers do not trust each other. The past Soviet system made the farmers get used to expect outside dependency. That is why cooperative building is an important, but as yet not fully achieved component of business development in Ukraine. The history of industrial

cooperative associations in Ukraine dates from more than one hundred years ago. The first agricultural co-operative was created in Ukraine in 1865 in Poltava. On the eve of the revolution there were in the Russian empire 11 500 cooperatives with an overall membership of 1.1 million individual farmers. After the Revolution in 1917 the co-operatives were liquidated and their assets expropriated. During the new economic policy of Soviet Government there was a period of revival and strong development of the co-operative movement. Thus, at the end of 1924 there were in the Soviet Union 23 500 cooperatives. These first-level cooperatives and their unions were active in many agricultural sectors and held significant assets – including processing plants, elevators, repair shops and power stations. But the collectivization of the 1930's and after World War II in the Western Ukraine - put an end to the agricultural co-operatives.

The collective farms in the USSR were organized as "cooperatives of a new type". These false co-operatives were completely involuntary and had nothing in common with agricultural co-operation. The experience of inter-kolkhoz enterprises, such as rayon inter-farm feed milling plants, is a little closer to co-operation: the objective of these enterprises – rendering services to their members – was similar to that of service cooperatives; however they remained subordinate to the centralized command system [1]. The main cooperative principle, that anyone who wants to join a cooperative can do it voluntarily, was violated. There were only two forms of agricultural collective enterprises: kolkhozes (soviet stile cooperatives) and state farms (sovkhozes). Practically, those kolkhozes which were totally inefficient became state farms and the state had to deal with their debts. The members of the kolkhozes had to work collectively and they were allowed to own small plot of land usually near their house and limited number of livestock to work there after they contributed labour to a collective farm. The collective farms depended heavily upon state subsidies as there were no real incentive for their members to work efficiently. Another problem was that the member-patrons had limited control over managerial decisions. Soviet collective farm managers used their positions of power, connections and influence to obtain preferential treatment from government authorities first of all in their own interests.

5.2. UKRAINIAN COLLECTIVE AGRICULTURAL FARM STRUCTURE

When Ukraine became independent the struggle for substitution of artificially created collective system in agriculture was initiated by reformers with a purpose to promote a private sector in agriculture. Based on the Decrees of the President of Ukraine the organizational-legal reform in agriculture was implemented. As a result of this reform in 2002 on the basis of 10 933 reorganized collective agricultural farms appeared 14 730 farmer's households, 2 901 private farms, 6 761 economic partnerships, 33 254 agricultural cooperatives mainly in crop production and 500 other agricultural entities.

Farmers households

Farmers households appeared as there were many collective farms which could not exist as a single entity, so their assets were divided among current members and alive pensioners which before their retirement were the members of the farm. On average one household farm received for ownership from 4 to 25 hectares of land depending on the area of Ukraine. For the majority of household farmers it was impossible to establish an agricultural entity as private farm or other enterprise as they did not get equipment to cultivate their land. Usually they lend their land to private farmers and private agricultural enterprises being involved mostly in small livestock production as it does not require so much equipment. Some of the farmers were able to get a credit mostly from the Ukrainian State Private Farms Support Fund established by the resolution of the Cabinet of Ministers of Ukraine. These farmers could get necessary equipment to operate as a private farm.

Private farms

Private farms being better equipped are able to cultivate not only their own land but apply to the Local Village Council and receive land up to 50 hectares from its reserve for eternal utilization without a right to sell it or use for non-agricultural purposes. Many of the private farmers rent up to 1000 hectares of land from private householders with a condition that land agreement is signed for a period less than 50 years.

Economic partnerships

Economic partnerships were organized in agricultural sector when two or more private farmers or the members of a reorganized collective farm agreed to operate as a partnership. Together they provide or borrow capital, reach decisions by mutual agreement and are mutually responsible for repayment of debts. They divide the income or share the losses among themselves according to the agreement.

Agricultural co-operatives

Agricultural co-operatives is a voluntary union of individuals, legal entities into another legal entity on principles of membership, union of share contributions, participation in joint agricultural productive activities and provision of services mostly to its members.

Other agricultural entities

Other agricultural entities are usually function as agro departments included in a big industrial company and produced products are consumed mainly by its employees.

5.3. THE RESULTS OF THE RESEARCH

In 1995 Ukrainian Government launched property reforms for developing non-governmental sector of economy including restructuring the agrarian complex [2]. Those collective farms which were financially sustainable had been incorporated and became either investor oriented or profit keeping enterprises. Some state farms went through difficult process of transformation into a collective farm for further incorporating. But there were many heavily in-debt collective farms which could not exist as a business entity therefore they were privatized and divided among former members. The farmers at these farms had no choice as to withdraw with their land share and to receive a cow in exchange for their assets share or for the debts on salary.

In agricultural entities the number of cows during the reform period has reduced in 3.7 times as a result of disruption in agricultural infrastructure. First of all, a collapses of State feed providing program and increase of fodder costs by 12 – 22%. During this period of time prices of energy resources increased in more than 4 times. For example in cost of milk production in 1990 energy cost accounted for 4%, but in 2011 this indicator raised to the level of 26 – 37%. The average annual milk yield in these entities has reduced in 1.5 – 2.0 times. Reduce of milk productivity per cow together with reduction of the number of cows resulting in loss-making of milk production in the country.

Comparative analyses of the livestock shows that in residential farms the number of cows and pigs was 1.8 and 1.9 times more as compared to that of agricultural entities. This difference led to the situation when major livestock production in Ukraine is made by residential and small household producers. They produce 2.7 times more meat, more 3.9 times milk, 3.3 times more pork and 1.6 times more eggs than agricultural entities.

In the research author came to the conclusion, that major livestock production is concentrated in small residential farms including smallholders. Smallholders have always been significantly more productive in animal husbandry than collective farms – the more so recently following a decline in collective agricultural enterprises production. The number of cows and annual milk yield per cow in small farms increases further. But these producers do not have any advantages that gives large volume operation to use the produced milk properly. In order to get this advantage the most active small dairy farmers create co-op initiative groups, which need Western know-how in co-operative management and experience in developing cooperative associations of real owners, where people unite voluntarily if they see the common interest. Lessons learnt from the recently emerging cooperatives in Ukraine contributed to the revival of historical traditions of co-operation and to building up a cooperative movement enabling agricultural producers to withstand the present crises and make progress for the future. Overwhelming majority of the cooperatives developed in Ukraine are involved in agricultural crop production. Some of these cooperatives in the reality are cooperatives only on the paper. Ukraine urgently needs the cooperatives models for its Animal Husbandry as in general it is less profitable and organized.

Types of agricultural cooperatives developed in Ukraine are following:

A. Cooperatives for common operation on the market:
    1. Warehousing co-ops:
        i. cooperative grain elevators,
        ii. cooperative fruit and vegetable ware house.
    2. Marketing cooperatives:
        i. fruits and vegetables.
    3. Purchasing cooperatives:
        i. consumer cooperatives,
        ii. farm supply.
    4. Credit:
        i. credit unions.
B. Cooperatives for common utilization of means of production:
    1. Production:
        i. machinery-pooling co-operatives,
        ii. machinery agreements.
    2. Processing co-ops:
        i. feed milling,
        ii. milk processing.

Cooperatives for common operation on the market help their members to find profitable outlets or affordable supplies on the market. They conduct marketing after storage or processing if possible. The main strategy of such cooperatives is to generate maximal volumes of products and activities to win a strong position on the market. There are several types of such co-ops in Ukraine:

Warehousing cooperatives provide storage service for their members either grain or fruit and vegetable producers. The collective farms have their own storage facilities, but private farmers had no choice as to store their products in unreliable or expensive conditions as state grain elevators, or sell them just after harvest for lower prices. The members of a cooperative realize that it is to their advantage to store and market products collectively when the prices are favourable for them.

Marketing cooperatives are involved in assessing the volume of the products the members are committed to deliver them. Professor W. Black wrote that "this type of cooperatives market member' products by purchasing products from them, handling products on a separate account and bargaining with buyers for price and conditions of sale" [3].

Purchasing cooperatives provide members with fuel, spare parts, fertilizers, seeds, pesticides, chemicals, veterinary drugs, seamen for artificial breeding or compound feed on a cost basis.

Credit cooperatives attract financial resources from their members paying them dividends and provide credits both for members and non-members on different conditions. Author supports a statement, that these financial institutions are especially valuable when there are no other sources of getting credits or investments.

Cooperatives for common utilization of means of production help small private farmers to solve problem when the size of the farms makes impossible to get own

production or processing facilities. Activities of such cooperatives involve machinery-pooling and processing of raw materials.

Production cooperatives own farm production assets and land. Members contribute their land, their labour, their assets. Members working in such cooperative receive their salaries and dividends from the co-op. In machinery-pooling cooperative the members join their own resources or get a credit to get equipment they cannot buy separately. In order to load this equipment at full capacity the service is provided for both members of a co-op and non-members.

Processing cooperatives provide processing services to agricultural producers, bringing together financial resources and optimal volume of produce. Cooperative members find it economically efficient to process their products together. These types of cooperatives were organized in feed milling and dairy processing businesses.

One of the latest trends in our scientific work is development of co-operative unions in milk industry of Western Ukraine. This project was started to help small private milk producers, which appeared instead of reformed large collective farms to sell their milk. In such a way private milk producers can successfully compensate for the decrease in milk products in Ukraine.

Nowadays milk production on large scale farms is unprofitable, productivity of the cows is low and their number is decreasing. At the same time the number of cows in the small private farms is increasing and their productivity is 3 – 4 times higher than productivity of the cows in restructured collective farms. But the problem is that the private producers are not sure whether they will be able to sell their milk. During 9 months of 2012 small milk producers in Khmelnitskiy province could not sell more than 120,000 tons of milk-dairy products produced from this amount of milk could be sold at the market for up to 70 million UAH (13 million USD) and the farmers would receive 30 million UAH (5.5 million USD) for their marketed milk.

As first step for dairy business integration in Khmelnitskiy province in 2009 *Khmelnitskiy Milk Association* was created. This Association conduct following activities:

1. Presentation of the interests of the members and protection of their rights.
2. Providing information on the latest technologies in milk production and processing.
3. Providing information about suppliers of equipment, additives, new products.
4. To protect members from the un-loyal competition and state officials' arbitrariness.
5. Support of the cooperation between producers, processors, scientific institutions and trading companies [4].
6. Search of investors and partners.
7. Publication of the information leaflets.
8. Organizations of the technical seminars, workshops, conferences.
9. Training tours in Ukraine and abroad.

Based on this information, Podillya milk processors Association has developed "*Podillya milk*" program. It deals with promoting the idea of unification of local processors and milk producers and creating one entity with an intention to create 20 milk

collecting and primary processing stations. The cost of the project is about 300 000 USD. Goals of such project would be:

1. Achieving deep milk processing, increasing the assortment of the products produced and increasing the number of new products with the help of cooperation among the producers and integration of the producers into one entity.
2. Creation of a regional milk collection and distribution system. In such a way, by creating milk cooperatives, it will help people to solve their problems locally [5]. By analysing and generalizing these problems at the association meetings its members could address them either rayon or oblast administration in order to solve problems of livestock industry. Solving the problems will make the people confident that they can influence their own lives and will encourage them to concentrate their efforts on dairy farming.
3. Creation of a regional "*Dairy herd improvement*" program, which would control health of the animals and provide assistance in the fields of feeding the animals and selection. It could also help to improve the dairy cattle by educating the farmers, spreading genetic material and sharing experience.
4. Creation of a general system of record keeping will decrease costs related to it 10 times and allow broadening the product line.
5. Introduction of a system of internal standards that comply with current quality requirements will allow the enterprises to gradually solve quality problems.
6. Creation of marketing and sales service will guarantee good sales of products with "*Podillya Pershij*" trademark. It will allow to promote products more efficiently.

Newly organized association established *Milk processing cooperative*, which is involved in effective milk assembling, processing of raw milk and transportation of ready-made products for marketing. With this purpose relations with existing milk processing plants were established which due to absence of raw materials do not work or work with underemployed capacity. The principal function of these dairy plants is to process cooperative milk and cream into marketable products such as butter, milk powder and cheese. But for effective cooperation of milk producers and processors a model, which will allow them to build mutually beneficial relations in vertical integration, is needed.

At present the co-operative rents processing facilities in exchange for shares. Some dairy plants lend cooling equipment to the co-operative to create dairy collecting points. Newly created local milk processing cooperatives in Ukraine are not engaged in a comprehensive sales program, do very little advertising, if any; and ordinarily do not store members products to try to get higher market prices through delayed sales.

Podillya Milk Association was the initiator of this project. The association tries to find entrepreneurs interested in this idea and, along with local state administration, it will try to solve problems related to this project. This program cannot and should not be realized using only entrepreneur's efforts – this program was developed not only for business firms. It deals with a large number of social problems – the program gives a lot of peasants an opportunity to earn some extra money, it will stimulate them to be more

active and promote creation of cooperatives that would produce fodder, milk and meat. With the help of these cooperatives fodder market will be gradually created, which will, in turn, create conducive conditions for specialization and development of the existing farms and creation of new farms, which would concentrate their efforts on livestock production and, by achieving a new level of efficiency, will be able to receive higher profits for their high-quality products. New joint entity for milk collecting and processing will work under *Podillya Milk Association* supervision and will be called "cluster".

There are two options that can be used when organizing a cluster's activities:

- 1st option – there must be departments for milk purchasing, veterinarian and animal science support and technological control in the region where the processing enterprise or the cluster is located [6].
- 2nd option – analogous departments should be created in the places where there is a large quantity of milk that has not been processed in order to process it where the necessary processing facilities exist. Milk collection structure is presented at scheme in Fig. 5.1.

At the scheme in Fig. 5.1 milk laboratory is an independent cluster unit that is responsible for analysing milk and dairy products' quality [7]. It provides recommendations on improvement of the quality of the existing milk and dairy products. Veterinary laboratory is an independent cluster unit that is responsible for analysing the animals' health condition and feed quality. Based on these tests it makes recommendations. Transport department provides for transportation of the milk from milk-receiving facilities to the consumers. Department of commerce deals with purchases of agricultural products (except for milk) and trade of vital goods.

Accounting department deals with collecting payments and paying suppliers, keeps all the necessary tax records as well as other records. Regional milk collection coordinator coordinates work of at least four milk-receiving facilities. Milk-receiving facility receives milk from 600 – 800 cows. It has its own inspector, veterinarian and vehicles for milk collection.

An inspector at milk laboratory has such obligations:

- Receives the milk by weight.
- Collects probes for tests, makes the necessary tests, classifies the milk, cools and stores it, takes it to the milk tanker [8].
- Keeps records of the milk received according to its quality; makes payments according to invoices.
- Purchases agricultural products.
- Provides for reliable transporting of the milk from the initial milk-receiving facilities.

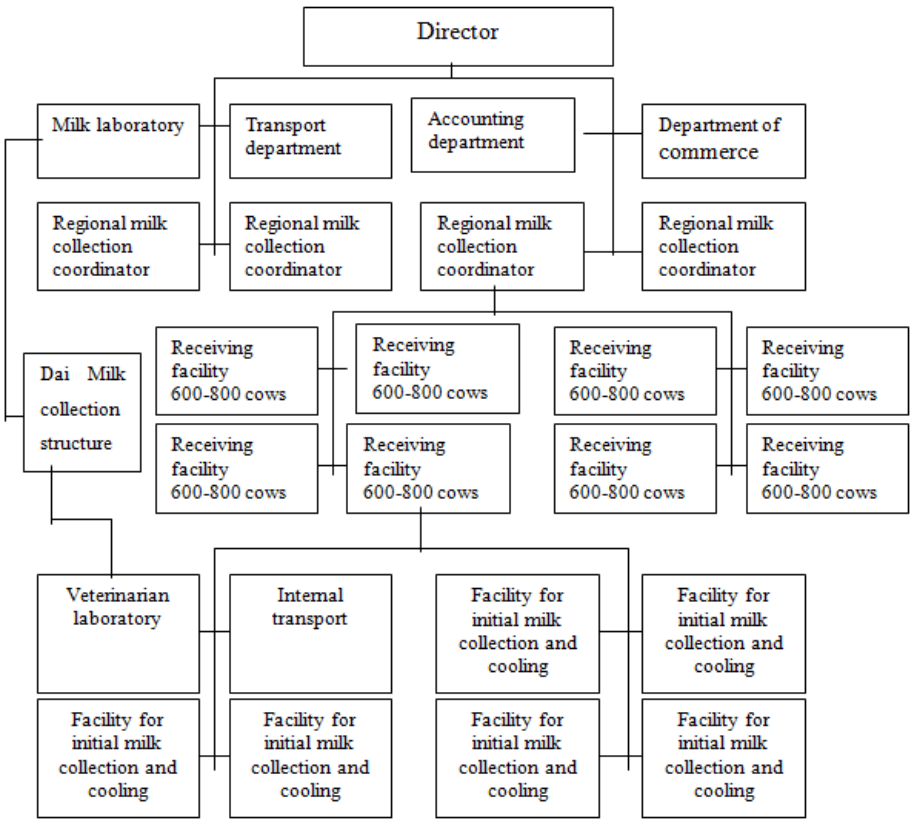

Fig. 5.1. Structure of dairy collecting point
Source: own work

A veterinarian has such obligations:

- Is responsible for health condition of the animals and cures them.
- Inspects livestock keeping and milking conditions, makes recommendations on feeding improvement and, if necessary, develops rations for some farms [9].
- Deals with artificial insemination and keeps the herd-book of his region.

Initial milk-receiving facility is responsible for such operations:

- receives the milk by weight;
- collects probes for tests, makes the necessary tests, classifies the milk, cools and stores it, takes it to the milk tanker.
- Keeps records of the milk received according to its quality; makes payments according to invoices.

Work of the facility is organized by the livestock cooperative. The main goal for this cooperative is to incorporate their members and involve new ones in member-oriented structure which operates at cost and is owned, capitalized and controlled by member-patrons as users, sharing risks and benefits proportional to their participation [10].

In 2011 about 80% of milk in Ukraine was produced by small private dairy farms, but less than 10% of this milk is delivered to the dairy plants. Smallholders, especially those far from cities, use much of it to feed calves and pigs. Collecting it and making more dairy products for many smallholders, who now have no wages from the collective farm and no other source of income, is a question of survival. In most villages they have also lost access to selection and breeding services including artificial insemination points. Many smallholders have problems finding feed for the cows because no longer collective farms provide it as it used to be in the past. These farmers urgently need to form a united system which could include milk production and gathering, its sorting, processing, marketing of ready-made products and access to different services such as artificial insemination, breeding and feeding.

5.4. CONCLUSIONS

Competitiveness of the Ukrainian agrarian sector of economy can be achieved when the producers of agricultural products would be able to supply stable amount of standard goods at the world market. This task can be fulfilled only through cooperative building when small producers process and market their products together. Therefore development of service cooperatives is one of the main priorities for Agricultural sector of Ukraine.

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6

INSTITUTIONAL BARRIERS OF COMPLEX-PROPORTIONAL DEVELOPMENT OF THE REGIONAL LABOUR POTENTIAL UKRAINE

One of the most important problems facing humanity nowadays is providing of the world economy progressive and proportional development. The instability is the inevitable result of deepen disproportionation processes of socio-economic development the same way as the crisis of national economic reproductive system is the result of its increasing structural and parametric contradictions. Therefore, the searching of global economic development proportionality is the problem for all unstable economy countries. The relevance of the proportionality problem is compounded by the fact the new quality of economic growth in Ukraine related to changes in the proportions of the economic system. Thereby, public policy that does not realize the potential complex-proportional development may not be effective and constructive.

6.1. PROBLEM STATEMENT

The complex-proportional development processes are a kind of a pivot that permeates the entire economic system. These cover the production relations and productive forces of society, and especially the employment potential as the main productive force and a key determinant of effective dynamics of socio-economic development.

The new proportions creation of employment potential is not just a change of the old ones, but the realization of a deep transformation process for the formation of the new forms of social motion. The complex-balanced development of labour potential is not a purely economic but general social phenomenon. The mutual dependence of proportions and labour potential quality of reproduction of regions and economic development proportions are indisputable. Thereby, providing complex proportional development of labour potential reproduction influences the acceleration of economic growth, the achievement of desired values of sustainability, the implementation of decent living standards for country.

The theoretical, methodological and applied issues of employment market transformation and human resources development have been investigated by I. Hnybidenko, O. Grishnova, V. Onikienko, E. Libanova, L. Lisogor, J. Smith, T. Zajac, A. Colot, M. Semikina [1, 6 – 9]. A significant contribution to the theoretical and practical developments of structural change and to the employment situation of the market economy were made by leading foreign scientists such as D. Bell, J. Galbraith, P. Drucker, K. Clark, A. Pigou, A. Toffler, J. Schumpeter. The academic and the methodological disquisitions of the structural changes belong to many Ukrainian economists, among them should be mentioned of S. Bandura, D. Goddess, I. Bondar, V. Geytsa, A. Zak, E. Libanova, I. Lukinova, S. Mochernogo, V. Onikienko, I. Petrova, V. Petyuha, O. Amosha, L. Shaulska [10 – 12]. However, the comprehensively balanced development of labour potential as a scientific category remains aside deep research. Basically, it is considered in relation to aspects of regional development.

6.2. THE STRUCTURE OF THE LABOUR POTENTIAL

There is a variety of views on the interpretation of the complex-balanced development category, which indicates the necessity of its investigation through multi-directions of science. Complex-balanced development is the integrative category. When it comes to the development of labour potential, authors assume, this category is the most appropriate and legitimate. The employment potential itself is an integral dynamic system which includes demographic, economic and social subsystems that are integrated by the community employment [1]. In addition, the employment potential as a complex system characterizes polystructure, in particular, mutual intertwining of different quality subsystems that form several interconnected hierarchical structures. Labour potential exists in time and space, so it's constantly changing.

Therefore, from authors' point of view, the investigation of this concept should include consideration of its major structural elements.

The economic system is a dynamic unity that is created by interaction of its components. The system does not lose its stability even through its constant developing that is embodied in the concept of "proportion".

Elements and proportions stipulate each other, the character of the interaction between the elements forms the whole system, the relations in this system depends on the nature of the elements, of its quality and quantity; on the other hand, the properties of the elements, its quality, place, role and importance generally depend on the system of relations in which those are located and on the proportion in general.

Changing elements, its quantity and quality determines the changes of proportions, and the emergence of the new proportions causes corresponding changes in the elements that it includes. Those have new properties, new qualitative and quantitative characteristics.

Interconnection between elements and proportions is a unity of opposites: the elements that are in a continuous interaction with each other tend to fluctuate, the structure is – remain stable, unchanged. Formation of the new proportions marks

a transition to a new qualitative state, a new stage of development. Elements create content (the most important of its side), the structure acts as a form (its internal side). The dialectic relationship of elements and proportions is a specification of the dialectic relationship of form and content, its specific aspect.

In the broadest sense the complexity is considered as the interconnectedness of the most important components [5], that complement each other: the change (or disappearance) of one of them affects the other and affects the development. However, the comprehensive development means the equilibrium and proportionality of the system components that actually provide its optimal structure, in particularly, appropriate the proportion between all its elements, coordinated structural development.

The structure of the labour potential is a broad and multifaceted concept. Up to now in the literature category of "structure" is defined as one that generally reflects the structure, the internal shape of the system, in particularly, relatively stable relations that exist between its elements. In the context of indigenous word meaning "structure", that corresponds to the system, internal and extended order [13], that gives some parts of the relationship, structural changes should mean the change in the structure and relations of subsystems labour potential.

The structure of the labour potential is characterized by heterogeneity, which corresponds to the hierarchy and to the proportions between its components. Partial proportion integrated into one integrative structure in the total labour potential. The latter is a complete set of relations. A feature is the presence of complex relationships, some components of which may even belong to different classes. Thanks to them, similar relationship is emergent attributes overall proportions; it cannot be reduced to a simple sum of partial structures. The concept of integrative proportions are not denied the necessity of studying partial structures but only confirms the complementarity and inclusiveness obtained with the results. At the present level of development of the theory of labour potential directly studied mostly only partial proportions. These are the means of knowledge of integrative proportions. The analysing research of the proportions of individual connections or relationships are a complex and inefficient because of the risk of loss associated emergent aspects of the structure of the labour potential that cannot be detected at the level of individual relationships. In general, systems theory approach qualifies as learning without theory.

6.3. THE CHANGES IN THE LABOUR POTENTIAL

The changes in the proportions of the labour potential are manifested in the form of the position changing of the elements, particles, proportion and quantity characteristics.

Structural aspects of the labour potential is manifested both through quantitative growth, and because of certain qualitative changes in the labour potential. Changing the proportions of the labour potential are qualitative changes in the relationship between comparable elements of this potential due to irregular dynamics of the ratio of their quantitative characteristics. It is possible to distinguish the point where a change in

the structure of the labour potential into a structural shift. These limits should be considered in terms of the philosophical law of transformation of quantity into quality. Changing the proportions of the labour potential manifested in the form of changes in the ratio of size and spatial characteristics (particle weights, proportions) between the elements of the economic system.

The proportions change is a category of macro-level, but it occurs at all levels of management. This structural shift in the macroeconomic system of labour potential is reduced to a simple quantitative sum of its parts and, as any unit, it has a new integrated quality.

The proportions change, interacting with each other, can both strengthen and weaken. Other things are equal imposition of unidirectional complex-proportional increases of the resulting changes in the structure and differently directed (opposite) – weakens, resulting in a complex interaction coefficient corresponding proportional development of the economy.

The shift in the structure of the labour potential is a complex system of interdependent change's proportions occurring under the influence of the existing technical basis, social mechanisms of production, distribution and exchange in accordance with social needs, available resources and the level of performance achieved labour. As the synonym structural changes often used: reform reorganization, restructuring, modernization and transformation.

In turn, the progressive structural changes can be classified according to the several criteria, in the criterion of compliance with modern international trends in the development of post-industrial society, the criterion under the current Competitiveness and Innovation under the criterion of model development.

According to the selected criteria it can be considered as a progressive structural changes in the labour potential of the regions as follows:

1. Proportions according to the current trends in the development of post-industrial society. These are the most fundamental, long-term changes that are linked to changes in the proportion of the world economy and employment potential of individual countries as a whole in promising areas that have just started to emerge in developed countries and the need to consider long-term development programs in Ukraine and its regions.
2. The proportions of the labour potential that meet the criteria of current competitiveness of the sector and country. Competitive industries and sectors may already be for Ukraine and its region's locomotives of the labour potential.
3. The proportions of the labour potential that meet the criteria of innovation. These structural changes occurring in all levels of economic systems (from micro to global), are the essences of modern structural modernization of the economy and the foundation of modern development.

6.4. THE DEVELOPMENT OF THE LABOUR POTENTIAL

Formation of socio-economic proportion's employment potential can be called one of the main objectives of the regional development, because those determine the quality of life of the population, the degree of satisfaction of material and spiritual needs of man. It may be noted that the socio-economic proportion is the result of reproductive cycles with a high degree of localization, that their formation is influenced by regional factors.

The concept of highlights from the general population changes are associated with updating the proportions of its internal structural and functional changes, transformation into something new, different. Development – a lengthy process, such that the accumulated, irreversible, progressive changes in a complex system object's rather large intervals. In particular, L. Melnyk [14] synthesized to substantiate the concept of "development" – is irreversible, directed, regular changes based system of internally inherent mechanisms of self-organization.

Based on the system theory and modern system paradigm of labour capacity [3 – 4], in authors' opinion: complex-balanced development is the significant changes in the internal structure of the system, the laws of relationships in a set of interrelated elements, the individual parts of which are proportional, hierarchical subordinations between them, ensuring the integrity of the system as a dialectical unity of quantitative and qualitative characteristics of its condition.

Such changes determine changes in main (integrated) system qualities and the emergence of a new quality of labour potential in general.

The researches and publications of such prominent scholars as O. Hrishnova, M. Semykina, L. Shaulska [1 – 2, 9, 11 – 12, 15 – 17] found numerous problems and difficulties in the process of reproduction of labour potential: lack of involvement in the processes of social production, the relatively high presence of stagnant unemployment disparity's professional training, crisis in the processes of natural reproduction population areas of the group became widespread and covered all his directions, etc. This stipulates the investigation of mechanisms and factors of labour potential development.

The processes of integrated development, formation and changing of the labour potential proportions of the regions are influenced by so-called structure factors, including the necessity to emphasize institutional ones.

Institutional form creates the foundation of the national economy and better economic relations between the subjects of different hierarchical levels of the national economic system. Institutionalization provides coherence and consistency of changes in the proportions of labour capacity as a local economic system within the region and within the institutional model of government. Also institutional form is the basis of competitiveness of the region as an economic complex in general, and efficient development of labour potential in it. Therefore, the effectiveness of the mechanism of complex-proportional development of labour potential in Ukraine is largely dependent on the degree of institutionalization of industrial relations as an important factor of the development of this potential.

During independence of Ukraine there have been much issues for the institutional design of the labour market. Mainly the legislation on employment is formed,

the infrastructure is created to promote employment of the labour force mediation, the vocational guidance and the vocational training for the unemployed and the system of material support of unemployed during the job search are also done. The implementation of unemployment insurance in Ukraine State Social is important.

Ukraine has provided the proper development of the legal and institutional framework that enables the social partners to participate actively in trilateral and bilateral negotiations, consultations and coordination on a range of issues and conclude collective agreements. The Law of Ukraine "*On the social dialogue in Ukraine*" is in force nowadays in the country.

The system of social dialogue in labour market was created also in Ukraine. It allows the main social partners – employees and employers to defend their interests, and it allows the state to prevent most acute forms of social confrontation.

However, at the present stage of institutional environment development, that is characterized by the quality of public and private institutions, the weakest economy of Ukraine is not only in comparison with the developed economies of the world, but also in the group of post-socialist camp countries and focused on efficiency.

Global process of labour market institutionalization in Ukraine has its own specifics, it runs difficult and controversial, it is accompanied by erosion of already established institutions. This operation is inefficient. Changes in labour relations, in particular – rising unemployment, increases differentiation and declines real incomes and its impact on the proportions of the structure of the labour potential reproduction by complexity and ambiguity estimates. In general, the situation in the Ukrainian labour market is characterized as institutionally unbalanced because of the absence of effective institutions that could provide the conditions for market equilibrium [7 – 8, 18].

As it indicates the experience of the post-reform labour market formation in the current structure of laws, government agencies and other organizations that nominally serve institutional infrastructure of the labour market does not have any full-fledged institutional framework, no reliable basis of regulation.

However, according to the investigations, including [7, 10], the problem of overcoming of the sharp contradictions between the old and the new economic and social institutions, achieving consistency and coordination of objectives and activities, mutual adaptation of different socio-economic groups their implementation in the new model of economic relations are a key of Ukrainian society; institutional factor is one of the most influential in the labour market and human development in the Ukrainian economy.

The following problems were discovered during the study:

1. Imperfection, contradictory and outdating and therefore, ineffective institutions and labour laws. This nominal formal institution has not ever been able to become a full-frame institutional mechanism for modernizing labour markets and complex-proportional development of labour potential.
2. Poor marketing and logistics systems within the infrastructure of the labour market; there is a considerable evidence of vocational qualification imbalance in labour supply and future needs of an innovative economic model.
3. Against the backdrop of economic and financial opacity increases opacity and social and labour relations. Formal regulated by legislation, agreements and

treaties, relations between the social partners generally coexist simultaneously with informal. The different types of management of enterprises in Ukraine practically do not involve the citizens.

4. Weakness and lack of consolidation of trade unions as representatives and advocates that is not real alternative, nor reliable partner as an institution that fully represents the interests of employees in dealing with employers. The small awareness of Ukrainian workers on social dialogue is very important to the country.
5. Ineffective functioning of social dialogue on the labour market in Ukraine in terms of achieving its objectives, the presence of systemic problems in the organization, lack of clear rules and mechanisms for its economic security. It remains uncertain of the important issues of social partnership, as the rules and safeguards contained in the terms and agreements at various levels, their scope and principles of their adoption, the rights and obligations of all parties to the contractual relationship; responsible for the failure of signed contracts and agreements, etc. Institutes and attributes of social partnership in most cases actually "draw" solution prepared by the executive. Because narrowed understanding of social dialogue, of its role is often limited to organizational issues, leaving aside the pressing problem of providing decent work and the formation of socially responsible entrepreneurship, integrated and balanced development of labour potential.
6. Concentration of the social dialogue primarily at the national level, while at regional and other levels, it is less formed. Social dialogue at the local level has a weak effectiveness. Unspecified role of trade unions regional level who have actually their primary organizations, since they are included in the regional sectorial unions (especially the trade unions, which are not members of the Federation of Trade Unions of Ukraine). Therefore, the tripartite agreement of the regional level, is taken with the participation of regional trade union committees.
7. Underdevelopment and extremely poor prevalence of business social responsibility in modern Ukraine. Unequal access to resources, illegitimate corporatism, inequality of opportunities leads to monopolization of social dialogue powerful political and economic groups, generating reluctance of employers to take on obligations under the social partnership, "temptation" interaction with a strong partner – the executive, impunity concerning the non-provisions of the collective agreement, the desire to remove the maximum profits by reducing labour warranty, lowering payment under the value of alternative labour market abuses and violations of labour laws at the time of employment; mass leverage of labour and concealing accidents.
8. Proper full social guarantees and benefits required by law, the weakness of the state apparatus, weighed down by corruption. Despite the fact of the control of labour law by several ministries, enterprises of all forms of ownership have been numerous violations of labour laws and generally to respect that employers are very selective. Most authorities come with employers in latent alliances, trying to reduce the demands of trade unions and social dialogue

adopted by the joint decision is not perceived by the government as binding. In fact, authors can state transformation of the state of defence of national interests in defence of their own corporate interests, and that – inactive for levelling social dialogue towards protecting the interests of employees as a vulnerable subject of social and labour relations.

9. The weakness of the state apparatus, burdened by corruption. Although the observance of labour legislation controls several ministries, enterprises of all forms of ownership have been numerous violations of labour laws, and generally, its observance is selective. In fact, the state is inactive "alignment" social dialogue towards protecting the interests of employees as the weaker party and became a defender of national interests in defence of their own corporate interests.

The optimization of the interests of the social partners is extremely important as the national model in the field of labour relations as socially responsible and formed with the main principles of modern institutions and highly positive experience of countries that have managed the creation of effective mechanisms for reconciling the interests of the main actors of industrial relations as a condition of complex-proportional development of labour potential.

6.5. CONCLUSIONS

The objectives of labour market institutions in the context of investigation problem, as authors assume, are:

- providing the necessary coordination of economic and legal methods of regulating employment potential;
- organizational interaction of all components of the labour potential, ensuring its integrity and proper orientation;
- promotion of individual categories and groups by the institutional instruments motivation to preserve the health and accumulation of knowledge, skills and abilities that contribute to the growth of labour productivity and income growth affects its owner;
- promoting of employment, high professional activity, mobility and competitiveness of the labour force in the labour market;
- overcoming of "opaque market" imperfections and opening the information for employers, employees and society through modern information systems creation;
- analysis of processes and phenomenon of the labour market, forecasting the development of various aspects of the labour potential.

The process of changes managing in institutional support economic interests of the main actors of industrial relations needs to implement a way to improve the quality of industrial relations as a space of complex-proportional development of labour

potential of the country. The quality of social and labour relations is determined by their ability to reach a consensus paths and institutional means to ensure optimum development of labour potential of the regions as a prerequisite for achieving macroeconomic stability, increase productivity employment and sustainable development of Ukraine.

Therefore, authors can draw the following conclusions. In order to harmonize labour potential reproduction towards achieving comprehensiveness and proportionality of all its elements is essential to the national model of relations in the workplace has become socially responsible and formed with the main principles of modern institutions and good practices developed countries that have created effective mechanisms for human resources development. Today, social institutions should learn practical tools for implementation of its new features, define clear parameter's responsibility for achieving real results.

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7

IMPROVEMENT OF THE MECHANISM OF THE UKRAINIAN FORESTRY MANAGEMENT UNDER THE CONDITION OF SUSTAINABLE DEVELOPMENT

The condition of the whole network of forest roads under the forestry management of Ukraine has been analysed and the methods to improve the transportation infrastructure have been suggested in order to provide an intelligent use of forest resources. The course of action has been offered in order to solve the problems within the woodworking industry and the furniture trade of Ukraine. The suggestions on how to develop and improve the competitiveness of Ukrainian woodworking and furniture trade branches on the domestic and international markets have been gathered. The idea to found the Forestry Development Foundation which will be under the State Administration of Forest Resources of Ukraine and coordinated by the Ministry of Agrarian Policy and Food of Ukraine has been suggested.

7.1. INTRODUCTION

The effective use of the Ukrainian forests is impossible without providing them with a proper transportation. At this moment Ukraine should develop its transportation infrastructure. The small density of forest roads in Ukraine causes low standards of forestry production, reduced usage levels of forest resources, and unsatisfactory social and living conditions of the forestry workers.

Financing the forestry industry under the condition of the market system management leads to the necessity of upgrading the financial and economic mechanisms of the industry by specifying the components of the mechanism, searching for its tools and evaluating the transitional process of the industry to its self-financing and self-sufficiency.

7.2. RELATED RESEARCH

A number of researchers worked to solve these and related issues. M. B. Byzova explores the mechanism of state forest management as a set of management procedures that generates managerial decision making and its implementation, is the only multi-level system consisting of a specific management mechanisms [1]. O. I. Furdychko in his work [2] explores reform: financial, economic, legal, organizational and administrative arrangements in the field of forestry. O. A. Golub explores the development of the market mechanism, the state forest management and financing problems [3]. In his writings I. M. Sinyakevich [4] emphasizes that in conditions of market relations greening forest requires reformation of the economic mechanism of functioning based on economic development tools. Z. O. Tolchanov in his works [5], carry out analysis of the key issues that need to improve organizational and administrative, institutional and governance mechanisms controlling forest Ukraine. The mechanism of distribution functions of management forests between public authorities at different levels is not perfect and needs resolution. Combining by companies of the State Agency of forest resources of Ukraine functions of forest resources and control over this process does not comply with the fundamental requirements and functional principles of government. Analysis of the publications of these authors gives grounds for further research in this direction.

The previous studies did not pay enough attention to the problem of construction of forest roads in order to provide an intelligent use of forest resources. Moreover, not enough attention was paid to the analysis of the woodworking industry and furniture trade of the Ukrainian forestry management, which are very important for the agrarian part of the Ukrainian economy.

7.3. THE PROBLEM STATEMENT

The main goal of this article is to study the condition of the transport infrastructure of the forestry industry and to propose the mechanism and methods to prove technical and economical expediency of building new forest roads.

Furthermore, the analyse of the woodworking and furniture trade branches of the forestry management will be presented and the steps of the state policy on highly technological and competitive products, which will meet the international ISO standards in order to enter the world markets, will be proposed.

Finally, author will propose the reforms in the system of the forestry financing based on the self-sufficiency and financial independence due to the incomes from forestry activities.

7.4. THE RESEARCH RESULTS

The construction of the forest roads is very significant not just for the processes of using the forest, restoration and protection of the forest, but also for the general development of the region and for improvement of the living and working conditions of the residents of the region. It is the perspective goal of state policy to start managing the forestry based on constant development due to effective improvement of the usage of forest resources, tourism and recreational potential of the Ukrainian forests.

At this time the network of the forest roads in Ukraine is underdeveloped. The density of the road network in the mountainous regions is from 2 to 2.5 times lower than the same indicator in the EU countries and from 4 to 5 times less than in the mountains of the Czech Republic and Austria and other highly developed European countries. The density of the road network amounts 7.7 km per 1000 hectare of the forest. Ukraine should build 200 000 km of forest roads in order to raise the level of Ukrainian forest roads to the Czech standard.

Because of the underdeveloped transportation infrastructure, about 40 000 000 cubic meters of the forest are mature and overripe mountainous forest ranges, which are exempt from the public use as technologically inaccessible. This way the principles of the constant development of the forestry in Ukraine are difficult to apply.

The area of 17 000 hectares of the forest (1.7% of the forest territory of Ukraine) includes zones which face diseases and plant pests and that can cause 15 000 000 cubic meters of timber to lose its technical quality. The average density of forest roads in the majority of the companies of the forest industry does not match the standards predetermined by the Law of Ukraine '*About the Moratorium on the Clear Cutting in Fir and Beech Forests on the Mountainous Slopes in the Carpathian Region*'. As for certain parts of the forest, the access there has been unavailable since 1998 [6].

The construction of forest roads is one of two priority tasks when it comes to the efficient use of forest resources, which were defined by the State target-oriented program called '*The Forests of Ukraine*' for the period between 2010 to 2015. According to that program Ukraine plans to spend 567 000 000 Ukrainian hryvnia (UAH) to build forest roads, however the specialists claim that the amount is insufficient to create a perfect transportation infrastructure. Therefore, the state-budgeted forest companies themselves should search for the financial means to build new forest roads, including investors and international grants [7].

Technical and economic reasons of the expedience of new forest roads:

1. The main criterion to determine the expedience of the new forest roads is the operational load of lumber in closely connected woodlands. The pre-planned forest projects and recreational significance of the areas, which are adjacent to future forest roads, have to be taken into consideration.
2. The construction of forest roads connecting forests, which are exempt from public use, will enable private companies and businessmen to develop the logging sites for wood harvesting.

In order to intensify the process of improvement of the transportation network in the mountains, it would be reasonable to solve such problems as:

1. To bring contractors who are focused on:
    - The use of local building materials.
    - The shift work with a 1.5 shift schedule.
    - The reduction of the construction cost by routing the roads on the hillsides.
    - The use of local manpower.
2. The construction objects, which are planned to be built on the hillsides, should be chosen ahead of time. As a result of examination of plantations and construction objects and having studied the technical and economic reasons, it is planned to build 70 % of new roads on the hillsides. It will let lower the risk of damaging the roads by floods and it will lower the cost of work due to a reduced number of bridges and retaining walls.
3. To define the following financing means for construction, reconstruction and major repairs of the forest roads:
    - Money from the country's budget.
    - Personal money of the permanents users of the forest.
    - The money of the investors who are users of timber products and invests into the recreational and sport industries.
    - Loans.
4. The substantial background for making the principles of the constant forestry development work is the construction of the optimal network of the forest roads across the Ukrainian Carpathians by reaching its density to be not less than 1 km per 100 hectares of the forest at a certain designated period of time.

The forestry and the woodworking industry are important for the Ukrainian economy: in 2011 their share in the general volume of the industrial production was about 1.3%. The main task of the country's woodworking industry is to overcome the competition with foreign manufacturers, to overcome the absence of highly technological equipment and release of products which are of poorer quality compared to imported analogues. As for the worldwide export of timber products, it is mainly controlled by the industrially developed countries. The largest participants of the international trades of timber products are such countries as Canada, Germany, the USA, Sweden, Finland and China.

Ukraine's position is very low on the world's market of processed timber products, timber for pulp and paper products. For example, it covers only 1.1% of the whole lumber market. The low competitiveness of the Ukrainian timber products is linked to its poor quality. This indicator is influenced by the unsatisfactory technical and technological level of production. The Ukrainian forestry lacks highly efficient equipment which would enable the production of competitive products manufactured according to the demands of the world market. The majority of machinery and equipment is out-dated in all respects. Hence, at this time the participation of Ukraine in the world trade of timber products is not equal to the potential of the country.

Export is one of the main goals for the development of the country's forestry. The main importers of Ukrainian forest products are Russia, Belorussia, Poland and

Germany. The leading part of the export as an important direction in implementing the external economic potentials of Ukraine can be defined by several aspects:

- The participation of the country in the international division of labour and in the system of the world's economic relations is defined by the import of the products from other countries as well as by production and supplying the world market with its products, by competitiveness of its products on the foreign markets, by the standard customer properties, standard quality of the products and the level of expenses according to the world's standards.
- The volume of the export determines the ability of the country to receive foreign currency which is necessary for updating of the economy, for paying for imported goods, which the country cannot afford to produce or does not have enough favourable conditions to do so.

Therefore, the development of the export potential forms the conditions under which it is possible to provide economic, food and financial security for the country. Export means a lot for any country's economy. After all, it is one of the main means of income for the country's budget [8]. The main task when it comes to improving the competitive ability of the Ukrainian woodworking branch is to improve the image of the Ukrainian producers and to increase the quality of their products which would match the best European examples according to the demands of the modern market. Consequently it can compete with the imported products on Ukrainian internal market as well as considerably expand the sales market abroad. According to the data from the State Administration of Forest Resources in the year of 2011, the general area of the forest fund in Ukraine is 10 800 000 hectares, out of which only 9 700 000 hectares are covered with forest plantation. It is necessary to increase the average amount of forests on the territory of the country, which is 15.7% and that is 4.3% under the optimal number and it is considered to be insufficient compared to other European countries (the amount of forests in Poland – 28.6 %, Germany – 30.1 %, Italy – 32.7 %, Sweden – 60.3 %, Finland – 64.7 %). In order to reach the optimal level of forests in Ukraine (which on average should be 20% with adjustments for different regions), the forest plantation should be increased by 2 400 000 hectares [9]. There is another problem while managing the forestry in Ukraine. It is the problem of illegal, which means uncontrolled deforestation. In Europe, the indicator of the illegal cutting of the forest does not exceed 3%, in Canada and the USA – 1%, in Japan – 3 – 5%. As for Ukraine, according to the unofficial data, this indicator reaches 10 – 15%. That way, the realistic timber reserve which is economically reasonable for stocking is really not that large [10].

7.5. PROPOSED REFORMS OF THE SYSTEM

To develop the woodworking industry of Ukraine the following improvements are needed:

- to improve the current laws,

- to update the out-dated equipment,
- to provide soft loans,
- to focus our production on export,
- to attract foreign investments into the industry,
- to secure the country's support.

To secure the competitiveness of our woodworking industry and furniture trade it would be reasonable to implement the actions which result in providing some discounts for woodworking businesses; in setting reduced income tax rates; in certification and moderate state support for the effective businesses, which increase domestic and foreign investors' trust in them; in stimulating the businesses to enter the international markets and to produce highly technological and highly competitive products which will match international standards [11].

The payments for forest resources and forestry services for the private businessmen should be the main sources of financing and improvement of the management result. Such a situation would be in accordance with the current laws on enterprises and business in Ukraine. According to current laws, the payments for the use of forest resources is fully transferred to the state and local budgets, which does not help the economic boost to the market economy and it does not motivate (as well as it does not force) the subjects of the management to increase the proper productivity. A portion of the payment for using forest resources (including the payment for each cut-down tree) should be transferred to the local council as a land fee, however it is not implemented. All taxes and charges are transferred to the general account of the country's budget. There are other considerable drawbacks here like a small payment for a cut-down tree and its transfer to the general fund of the country's budget and centralized financing of the industry. One of the major reasons, why the efficiency of using land is low in the forest, is the fact that the country keeps on applying out-dated Soviet systems of centralized state management of the forestry instead of implementing a personalized responsibility of the subjects of management [11].

The fee for a special use of the forest resources should exist, but it should be paid to the special fund (for example, The Forestry Development Foundation), instead of the country's budget. That special fund will be managed by the State Administration of Forest Resources of Ukraine in order to finance certain forestry projects in the future. This fund should also receive the money which is obtained for fining illegal deforestation and damages to forestry and hunting management.

Changes which are suggested to be made in the system of industry financing:

- To cancel financing from the budget for the forestry of the Carpathian Mountains, Polissia and forest and steppe regions. It will liquidate the incoming cash flow and will let make the managing terms equal and will raise motivation, will provide higher investments, will enable an efficient regulation of the fee amounts for the resources based on the situation on the timber markets, terms of harvesting and delivery of the timber.
- To delegate the collection of payments for forest resources to the State Administration of Forest Resources in Ukraine. The income from the forest

resources should be accumulated in the centralized fund and should be focused only on the needs of the forestry.

- To direct purpose-oriented financing to the needs of the forestry in the protected forests (Steppe, Crimea), to the objects of protected natural funds, target programs of reforestation and construction of roads, inventory of the forests, science and education.

In order to improve the economic results of the forestry management and of the transition of the state forestry companies to the market environment, author recommends:

- To base the activity of the state forestry offices on the principles of self-accounting and financial independence due to the profit from forestry activities. To some extent it will comply with the conditions of the market economy and it will stimulate the subjects of management to increase proper productivity.
- To separate lumber production from forestry management by auctioning industrial structures.
- To raise a fee for one cut tree to 2.5 times according to the market price and start the sale of timber by arranging auctions.
- To create the Forestry Development Foundation which will be under the State Administration of Forest Resources of Ukraine.

However it is necessary to foresee that the income of this Foundation will be used by the State Administration of Forest Resources of Ukraine to make the income of the forestry companies equal, for building forest roads, for improvement of the methods of forestry management. The distribution of the funds of the Forestry Development Foundation is to be coordinated by the Ministry of Agrarian Policy and Food of Ukraine and controlled by the Ministry of the Economic Development and Trade of Ukraine.

7.6. CONCLUSIONS

A proper network of forest roads will give an opportunity to use the forests effectively and to restore and protect them. It will help solve some interwoven problems which have to do with forestry management, forest harvesting, recreational complex and environmental protection.

To secure the competitiveness of domestically made timber and furniture products, it is reasonable to introduce movements to provide the woodworking companies with privileges; to set reduced income tax rates; to certify and to include partial state support for effective projects, which will make the domestic and foreign investors trust them more; to stimulate businesses to enter the international markets due to the production of highly technological and competitive products which meet international standards.

The forestry industry should be financed by means from the Forestry Development Foundation which is under the State Administration of Forest Resources of Ukraine and

coordinated by the Ministry of Agrarian Policy and Food of Ukraine and controlled by the Ministry of Economic Development and Trade of Ukraine. This way it will be possible to avoid reciprocal cash flow [5].

The activity of the state forest companies should be based on the principles of self-sufficiency and financial independence due to the income from the forest activities, which will, to some extent, agree with the terms of the market economy and will stimulate the subjects of management to increase appropriate production.

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8

FEATURES OF TYPIFICATION OF SANATORIUM-RESORT ENTERPRISES OF UKRAINE

Health resort activity – is a particular kind of human activity as well as a specific branch of national economy [1]. Historically it has been developed in such a way that this activity is turned to be a very complex and controversial fraction of market: according to one aggregate of characteristics, it refers to the branch of medicine and health care, as to another one – to the branch of tourist activity. From the one part, it is an important constituent of renewal of the nation's labour potential, from the other part, it is a strategically important activity, replenishing the national budget.

For today, national health resort and wellness enterprises are subordinated to two ministries – the Ministry of Health and the Ministry of Infrastructure of Ukraine that, actually, defines hereof an ambiguousness of treating this aggregate of enterprises and their structure. As a result, there is a divergence in notions and methodological instruments of available regulations of Ukraine relating the activity of legal entities, involved in health resort branch.

8.1. PROBLEM STATEMENT

Such national and foreign scientists as T. Tkachenko, O. Liubitseva, V. Stafiichuk, P. Koval, N. Alieshugina, G. Andrieieva, R. Bogadurova, A. Kolesnik, A. Getman, M. Shulga and others have dedicated their research to the issues of development and performance of health resort branch. [2 – 6]. However in the researches mentioned above as well as in the regulations [7 – 23] relating the activity of health resort and wellness establishments in Ukraine there are the dissimilarities relating the denomination of the present group of enterprises, as well as their classification and definition of their types. Consequently, the entities of this branch do not actually have their appropriate and consistent term base.

Today, health resort institutions in Ukraine have been marketing their services as just medical and recovery ones, defining their major objective referred to providing recovery and health resort treatment. At the same time, the market economy conditions will require new approaches to managing the entities of health resort branch entrepreneurship that is strengthening the importance of general approach to their classification and types' definition. Accordingly, the objective of this article is division and elaboration of the typical characteristics of the entities of health resort activity, as well as definition of their inner characteristics.

Before investigating a methodological approach to the typification of the entities of health resort activity, it should be noted that in the article health resort institutions are considered as being independent economic entities, which are legal entities, and herein will referred to as "health resort and wellness enterprises".

8.2. THE NATIONAL REGULATIONS FOR HEALTH RESORT AND WELLNESS ENTERPRISES

To create a universal interpretation of the terms for health resort branch, the settled positions relating creation and usage of the definitions "typology" and "typification" are significant to be defined in here. Therefore it would be appropriate to present the author's conception of these terms. Typology – is a method of scientific experience that is based on identification of either resemblance or distinction among an aggregate of consistent social-economic conditions based on revealing their essential characteristics. At the same time, typification – is a result of typological grouping according to characteristics or criteria, which are based on the analysis of the essence of social-economic condition, inter alia it should reflect the branch-wise specificity (production and trade activity characteristics). That is, the typification – is one of the approaches to classification of economic entities that is based on the aggregate of classification characteristics, which reflect the peculiarities of activity of an enterprise of a certain sphere of activity.

To elaborate the branch typification for health resort and wellness enterprises, there should be analysed their interpretation in the national regulations (Table 8.1).

The Law of Ukraine "On Resorts" indicates that the health resort institutions are health care institutions, located at the territories of resorts, shall render a sort of treatment, prevention and rehabilitation services for citizens applying natural curative resources. The list of health resort facilities and spheres of their specialization have be approved by the central executive body on health care issues [11] (this list has been approved [13]). It should be noted that according to the latest amendments to the Principles of legislation of Ukraine on Healthcare – the phrase "curative-prophylactic care" has been replaced by the phrase "medical care" [12]. It means that providing medical services (medical care) is an essential condition for the activity of healthcare institutions, and correspondingly for the health resort facilities, which are referred to them. The medico-sanitary support of health resort activity (Article 67) and

the recreation (Article 68) are distinguished in section VIII of this document. Article 68 specifies that the owners and managers are required to create a healthy and safe environment for recreation, physical and wellness training, observe the legislation on health care and sanitary-hygienic standards, ensure that the people who recreate, have got appropriate medical care. Thus to take one example, this document denotes availability of health resort services as well as wellness (recreation) services and makes it necessary to distinguish in between them. According to functional characteristics, there should be distinguished two types of enterprises – health resort enterprises and wellness (recreation) enterprises.

However, according to the National Standard of Ukraine "Tourist services, accommodation facilities" (DSTU 4527:2006), the Order of the State Statistics Committee dated 14.12.2011, № 345 and the Resolution of the Cabinet of Ministers of Ukraine № 1206 (1206-2001-п) dated 18.09.2001, health resort enterprises refer to accommodation facilities.

When comparing the existing types of health resort enterprises, it should be noted that in DSTU 4527:2006 it is distinguished in between such a type of enterprises as wellness center and resort hotel for treatment. Herewith a type of enterprise as wellness center is not included in the structure suggested by the Ministry of Health. According to its essential characteristics it corresponds to the health and wellness resort. However, it would be reasonable to include resort hotels in the list of health resort enterprises: this type of enterprises should have the conditions for rendering of medical and prophylactic services as well as treatment.

Also in this document there has been distinguished such an accommodation facility as *kurhotel*, which is to be located at the territory of resort and have facilities for recreation and wellness. If one follows this definition, then such a type of enterprises should be referred to wellness (recreation) enterprises in compliance with The Principles of legislation of Ukraine on Healthcare.

However, the authors of DSTU 4527:2006 mean that a *kurort hotel* is an aggregate of enterprises, which differ in their essential characteristics and require separate approaches to treating them.

Today new trends of prophylactic and health-improving medicine, which include spa and wellness tourism, have been dynamically introduced and developed. As for the international classification it makes complicated that particular categories, namely "spa destination" and "spa mineral spring", are neither applied nor explained in Ukraine, and the term "spa resort" in the Ukrainian practice mean the site or area, whereas by the European standards a "spa resort" is an institution, and the site or area is defined as "spa city", "spa area" or "resort-city" [19].

Hereafter one should come to conclusion that the word "spa" is frequently treated to determine spa-facilities and shall include features of medical tourism (e.g. health resort institutions in the CIS or traditional curative spa in Europe), as well as one-day spa facility (e.g. trendy beauty salons) or spa hotels, which to a wide extent belong to a subcategory of wellness tourism [19].

Table 8.1. Definition of the entities of health resort activity and their typification in regulations

Regulation title	Entity denominations/enterprise types
The Law of Ukraine "On Resorts"	Health resort institutions
The Regulation of the Ministry of Health of Ukraine № 385 dated 28.12.2002 "On ratification of the list of institutions of health care; physician, pharmacist positions and junior specialist positions having got a pharmaceutical education in the institutions of health care"	**Health resort institutions** (Balneal hospitals, therapeutic mud-baths hospital (incl. one for children), resort polyclinic, children wellness centre, international children centre, health resort (incl. one for children, one-field, multi-field, specialized), health resort for children and parents, health and wellness centre
The Resolution of the Cabinet of Ministers № 1206 (1206-2001-п) dated 18.09.2001 "On integrated program of social and economic development of Velyka Yalta in the capacity of a resort of national importance"	**Resort and recreation institutions** (health resorts, resort hotel for treatment, resort hotels for recreation, children wellness camps, tourist hotels, camping, tourist camps)
The Order of the State Statistics Committee of Ukraine dated 14.12.2011 № 345	**Specialized accommodation facilities** (health resort, children health resort, resort hotel for treatment, children all-year-round wellness facility (children center), health and wellness centre, balneal hospital, mud-baths hospital, balneal and mud hospital (incl. one for children), vacation house, resort hotel for recreation, 1 – 2 day stay facility and similar facility (except for tourist camps)
The National Standard of Ukraine "Tourist services, accommodation facilities" (DSTU 4527:2006)	**Corporate Accommodation facility** (recreation facility, vacation house, children's camp, kurort hotel, resort hotel, health and wellness centre, health resort
The Principles of legislation of Ukraine on Healthcare, the Law of Ukraine (amendments in compliance with Acts N5036-VI (5036-17) dated 04.07.2012)	**Enterprises for recreation and health improvement** (vacation house, resort hotels, tourist camps, other facilities, institutions and organizations, whose activity is connected with providing recreation for population)

Source: own work

Following the guidelines of the WTO [19], health resort and wellness institutions (health resorts, resort hotels for treatment, vacation houses, tourist camps and other) belong to the tourist industry, and citizens as well as foreigners, who use the services of these institutions, are considered to be tourists.

In Europe, the spa industry is no longer a constituent of the health care system. On the other hand, hotels have been dynamically incorporating into the spa industry, and

for them the creation of spa areas turned to be a conceptual issue of their branding and marketing. Moreover, the hotels' representatives are concerned that, while adopting traditional spa services (health and wellness of therapeutic nature), they do not have corresponding scientific and methodological grounds that ease their position as compared with traditional health resorts [19].

Thus, taking into consideration both national and international experience, it should be offered to refer kurort hotels as well as spa hotels to the category of healthcare enterprises.

Since the term of health resort enterprises is just applied in the CIS, the approaches to this issue in some separate countries of the CIS should be considered. In the Russian Federation in accordance with the National Standard "Hotels and other accommodation facilities", other accommodation facilities include [16]:

- Kurort hotel – an accommodation facility, located at the territory of spa resort, which with its own facilities shall render additional wellness services with application of natural attributes, including treatment procedures. The spa resort, stated herein, – is an area, which possesses natural curative resources and available conditions for their application;
- Tourist camps (recreation facilities), recreation centers – enterprises, which provide accommodation service, as well as the possibility and relevant facilities for going in for sports, wellness, may include restaurants and shops;
- Boarding house – enterprises, which provide accommodation with meals.

In the Russian National Classification of Economic Activities OK 029-2007, (NACE Ed. 1.1) the activity of health resort enterprises is distinguished (85.12.1). This group includes health resort activities (attributed to treatment, prophylactic and wellness arrangements) and provision of stay (accommodation, meals, etc.) [17]. Health resort facilities include: health resorts, resorts, wellness centers, resort hotels for treatment, health and wellness centers, therapeutic mud-baths, balneological clinics, children's health resorts, health resorts for parents with children, health and wellness camps, etc.

In the regulation on national certification for health resort and wellness enterprises in the Republic of Belorussia there exists a distinct division for health resort organizations and wellness ones [18].

Thus, health resort enterprises include: health resorts, students' health and wellness resorts and preventive children's rehabilitation and wellness centers. Wellness enterprises include: wellness resort, wellness centre (complex), wellness camp, vacation house (camp) and resort hotel. Thereby, the status of either a health resort organization or a wellness should be appropriately confirmed by the national certification.

8.3. TYPIFICATION OF HEALTH RESORT AND WELLNESS ENTERPRISES

Consequently, on the grounds of the assessment of existing variants of typification for the health resort and wellness enterprises, the author's vision regards typification is suggested at the Fig. 8.1.

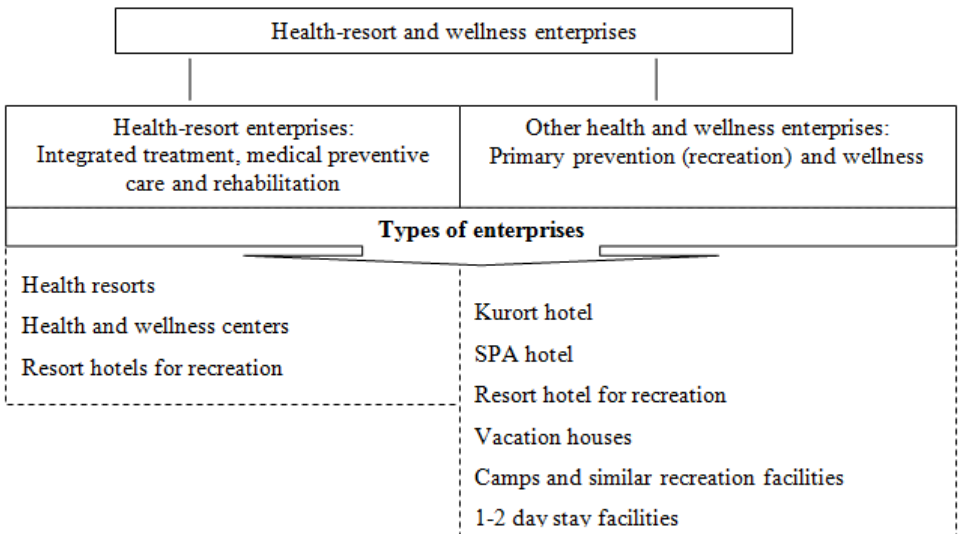

Fig. 8.1. Typification of health resort and wellness enterprises
Source: own work

Thus, the health resort and wellness enterprises should be divided into two categories according to their functional features: the health resort enterprises and the wellness ones. Each of them, in its turn, include various types depending on:

- availability and integrity of medical services,
- specificity of catering,
- lodging conditions,
- methods and quality of service provision,
- regulations for providing health resort services,
- characteristics of the area of lodging.

Consequently, when defining the terminological essence of different types of health resort enterprises one should take into consideration the characteristics of the area of their location.

The terms: resort, health and wellness area, recreational and suburban area, have been distinguished in regulations and scientific literature. Namely, in the Law of Ukraine "On Resorts", Article 1, it is stated that a resort is "a developed natural area on the lands of recreational assignment, which has natural curative resources, available buildings and

constructions with infrastructure required for exploitation of these resources, applied with the purpose of treatment, medical rehabilitation, disease prevention and recreation and is subject to particular protection" [11].

That is, the characteristics of a resort should be following:

- Availability of curative resources duly confirmed.
- Availability of the infrastructure objects intended for exploitation of the mentioned resources and as well as for treatment of people.
- Declaration of a health and wellness area being a resort according to the procedure provided for by the legislation, defining its boundaries and the right for the use of its natural resources.

Health and wellness area herein is considered to be a natural area, which has got mineral and thermal waters, therapeutic mud, mineral wax, brine of estuaries and lakes, climate and other natural conditions favourable for the treatment, rehabilitation and prevention of disease. However, lawyers take a note that the availability of required infrastructure is not indicated in here, i.e. this area, unlike a resort area, does not always have the conditions required for the treatment and rehabilitation of people, and correspondingly, the legal status of the resort. Namely, these health and wellness areas are defined in the capacity of reserve areas, at the territory of which the resorts can be created in the future [6].

In the Article 62 of the Law of Ukraine "On Environmental Protection" it is stated that resort and health and wellness areas are considered to be the areas, which have definite natural treatment attributes: mineral springs, climatic and other conditions, which are favourable for the treatment and rehabilitation of people.

The concept of recreational areas (territories) is defined in Article 63 of the same Law [20]: they are recognized as the areas of land and water space, destined for organized mass recreation and tourism. Thus-wise, natural resources of recreational areas have got some inherent qualities (uniqueness, availability of health recreational properties, aesthetic appeal), which have a healthy effect for the human, restoring his vital, psychophysical, mental strength and ability to work. According to the above recreational areas are used exceptionally for the purpose of recreation, wellness, and tourism and meeting aesthetic and cultural needs of the people [20].

In the Land Code of Ukraine (Article 51) it is stated that the lands of recreational functionality are the land plots of green areas and green spaces in cities and other localities, tourist and ecological paths, marked routes, land plots occupied with the territories of vacation houses, resort hotels, facilities of physical culture and sport, tourist inns, camping, yacht clubs, stationary and tented tourist camps, houses of fishermen and hunters, children tourist stations, children and sport camps and other similar facilities, as well as the land plots provided for cottage building and construction of other constant recreation facilities. According to Article 50, major designation of these lands is – organization of recreation, tourism and sport events for the public [21]. Also in this paper it is distinguished very clearly the essential characteristics of the lands of wellness designation: these are the lands that have natural

healthful properties, which are used or could be used for disease prevention and treatment of people (Article 47).

In accord with the interpretation above, this can be illustrated by this example that the lands of recreational and wellness designation one should refer resorts and health and wellness areas; therefore it is not by coincidence that in Article 49, when determining the boundaries of the activity carried out at these territories, just resorts and health and wellness areas are mentioned.

In the decree "On the approval of the Rules on plantation maintenance in populated areas of Ukraine" dated 10.04.2006 № 105, it is stated that a suburban green belt is a territory outside urban areas, occupied by forests, forest parks and other green planted area that performs protective and sanitary hygienic functions and are places of rest for the population [22].

This document also distinguishes substantial features of recreational area, which, unlike the suburban area, is an arranged area for recreation of people, but its location like city and green planted area has been distinctly pointed out in here.

Summing up the above, all types of health resort enterprises (which include: health resorts, health and wellness centres and in-patient resort hotels) that provide treatment, should be located in resort or health and wellness area.

Based on the research, the definition of different types of health resort and health and wellness enterprises with regard to their functional and territorial characteristics is submitted in Table 8.2.

8.4. CONCLUSIONS

Consequently, making the conclusions of the definitions and characteristics of the national and foreign regulations, health resort and wellness enterprises are the facilities designated for temporary accommodation (in certain cases having a distinct specific medical feature), and at the same time they are a constituent of the tourist industry. Typification of health resort and wellness enterprises is based on functional attributes of the enterprise (range of services offered, mode of service supply, infrastructure, methods and quality of service) as well as on the features of natural conditions and available resources of the area, where the enterprise is located.

Table 8.2. Typification of health resort and wellness enterprises with regard to functional and territorial characteristics

Type of health resort and recreational enterprises	**Definitions**
Health Resort	Specialized accommodation facility that ensures providing services of integrated treatment, rehabilitation and prophylactics applying natural attributes (climate, mineral waters, therapeutic mud, sea bathing, heliotherapy, etc.) in combination with dietary, physiotherapy, medication and other methods of health resort treatment (in regulated regime), located at the territory of the resort or health resort areas
Health and wellness centre	Specialized accommodation facility of health resort type under departmental subordination that provides rendering services of integrated treatment, rehabilitation and prophylactic of diseases, dietary, physical training therapy and other methods of health resort treatment (in regulated regime), is generally located within a resort, recreational and suburban areas or in the premises territories of an enterprise-founder when providing health resort services without discontinuing work, training
Resort hotel for treatment	Specialized accommodation facility, which provides the conditions for general health improvement and recreation (shall have facilities for providing medical and prophylactic services, and treatment), located at the territory of the resort or health recreational area
Kurort hotel	Accommodation facility, which is located at the territory of the resort and have got facilities for leisure and recreation
Spa Hotel	Accommodation facility with spa area, which has got conditions for leisure and recreation and is generally located within the resort, recreational and suburban areas
Resort hotel for recreation	Accommodation facility, designated for leisure and recreation, is generally located within the resort, recreational and suburban areas
Vacation house	Accommodation facility, designated for recreation, located generally within resorts, in recreational and suburban areas with regulated dietary and recreation regime
Tourist camp and other similar recreation facilities	Accommodation facility, designated for recreation, located generally in recreational and suburban areas
1 – 2 day stay facility	Accommodation facility, designated for a short stay, located generally in recreational and suburban areas.

Source: own work

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9

SOCIO-ECONOMIC ASPECTS OF DEVELOPMENT AGRARIAN SPHERE OF UKRAINE

This article deals with the current state of socio-economic development of agrarian sector in Ukraine, the basic prerequisites of employment and income generation farmers, prerequisites diversification of rural economy in accordance with the transition strategy of agrarian sector of Ukraine to sustainable development.

The village has always played a special role in society. While it has always undergone considerable demographic and losses (so only during the XX century rural population decreased by almost half, if in 1913 the share of rural population in the structure of the country's population was 80.7%, then in 2000 – 32.6%), the location of the village in the social development of the country in its progress forward not lost its importance. To ensure sustainable development of the agricultural sector and rural areas it is important to estimate employment opportunities peasants essentially predetermine sedentary in rural areas of local revenues through deductions from their income taxes and businesses that are here, that, in the end, largely determines social and economic development of these areas. If farmers receive income rural areas outside, the village gradually transformed into "guest" place of temporary residence. It is clear that such a scenario livelihoods in agrarian sphere and rural areas gradually to fade as observed recently. Relevance of study determined objectively necessary to determine the socio-economic situation of peasants in Ukraine and solve the existing problems in this area based on a comprehensive analysis of the situation and searching for new organizational and economic opportunities for market adaptation farming, namely the diversification of the rural economy.

9.1. PROBLEM STATEMENT

Various aspects of problem solving and identifying strategic areas of socio-economic development of rural areas covered in the research works of Ukrainian scholars:

V. G. Andreychuk, V. J. Ambrosov, A. Borodin, I. V. Prokopa, V. V. Vitvitskoho, P. I. Haidutsky, O. Poker, V. I. Kutsenko, J. A. Lupenko, M. I. Malik, A. Mogilny, M. K. Orlatoho, I. V. Prokop, V. Ryabokon, V. Yurchyshyn, L. O. Shepotko, P. T. Sabluk et al.

The problem of socio-economic development of agrarian sector is not sufficiently highlighted only in Ukraine but also in the world. Thus, R. Wilczynski said that by 1997 the concept of "socio-economic development of the agrarian sphere" contained only in some scientific publications [1]. Erroneous identification has become common practice for socio-economic development of agrarian sphere and agricultural policy, which resulted in an emphasis on socio-economic development of rural areas for agriculture and neglect of other economic activities (rural tourism, development of services, public services, etc.). In discussions of the relationship between measures of socio-economic development of agrarian sphere and agricultural policy reveal two positions. The development of the agricultural sector, in the opinion of some scholars (P. T. Sabluk, A. M. Onishchenko, V. Yurchishin, V. J. Mesel-Veselyak, B. J. Panasiuk) is an organic component of agricultural policy while other scholars (P. I. Haidutsky, M. F. Kropyvko, V. M. Tregobchuk, etc.) examine the socio-economic development of the agrarian sphere and agricultural policy as independent areas of public policy. P. T. Sabluk believes that the operation of each rural settlement building its infrastructure and income of its residents are ensured by optimizing the use of agricultural lands, regulation of prices for agrarian, agricultural market organization, through the mechanisms of agricultural policy [2]. A. M. Onishchenko and V. Yurchishin also associated socio economic development of the agrarian sphere and of the agricultural policy. In their view, the agricultural structure can be seen from the point to keep it in a systematic display of the socio-political and socio-economic relations in the agrarian sphere that are consistent for a strategic purpose and manifestations of social and political order [3]. P. I. Haidutsky believes that the merger of support to agriculture and rural areas distorts the real picture of support to the agrarian sphere [4]. This view supports M. F. Kropyvko, arguing that sectoral and regional programs should be differentiated, and socio-economic development of the agrarian sphere should be the prerogative of local governments [5]. V. M. Tregobchuk inclined to use Western models use and improvement of rural areas, based on the capabilities of multi ecologically balanced their development and provide differentiation of rural and agricultural development [6].

All scientists explore certain aspects of socio-economic development of rural areas and confirm the important role of diversification of the rural economy to raise the standard of living of the rural population. However, the current poor state of socio-economic status of native villages, the magnitude of this problem, the practical importance and lack of theoretical elaboration necessitate further study of this issue and finding new ways to solve the above mentioned problems.

The purpose of this article is to summarize the results of research and study of the basic problems of socio-economic development of rural areas of Ukraine on the basis of a comprehensive analysis of the current situation in rural areas in order to establish its real economic situation and existing problems that require immediate solutions and find new areas of rural employment.

9.2. THE REDUCTION OF THE RURAL POPULATION

Since 1990 the tendency towards reduction of the rural population, which began in the Soviet era. The pace of reduction of the rural population, which in the 1981 – 1990 years amounted to 1.04% per year, in 1991 – 1995 fell to 0.39%, and later, in 2006 – 2010 rose again to 1.13% . During 1991 – 2010 the rural population had been decreased by 2.5 million and counted 14.3 million at the beginning of 2011. As a result, the village gradually became depopulated and some of them disappear: in the 1991 – 2010 years settlement network was reduced to 388 villages (1.34%). This process is accelerated, in 1991 – 2000 years the average rate was 19.4 "dying" villages per year and in 2006 – 2010 the average increased to 21 villages.

Analysis of urban and rural population of Ukraine was conducted for a more detailed study of the distribution of urban and rural population in the ten economic regions (Table 9.1): Donetsk (Donetsk and Luhansk region), Dnipro (Dnipropetrovsk and Zaporizhia region) Northeast (Kharkiv, Poltava and Sumy region), Capital (Kyiv, Kyiv, Chernihiv and Zhytomyr region), Central (Cherkassy, Kirovograd), Podolskii (Vinnitsa, Khmelnitsky and Ternopil region), Northwestern (Volyn and Rivne region); Carpathians (Lviv, Ivano-Frankivsk, Zakarpattia and Chernivtsi region), Black Sea (Odessa, Mykolayiv and Kherson region), Autonomic Crimea Republic and Sevastopol (city).

Table 9.1. Population on 1 January 2011 by economic regions [in thousands]

Economic region	The urban population	The rural population
Capital	5283,2	1610,8
Northeast	3896,6	1507,8
Donetskiy	5999,5	724,8
Pridneprovskii	4170,6	967,2
Central	1346,2	949,2
Podolskii	2016,4	2035,8
Carpathian	2988,7	3087,5
Northwest	1088,1	1101,6
Black Sea	3061	1599,2
Crimea and Sevastopol (city)	1591,3	753
Total:	**31441,6**	**14336,9**

Source: [7]

Results of this study showing the fact, that most of the rural population lives in the Carpathian, Podolskii, Capital and the Black Sea regions (Fig. 9.1). It should be noted that a significant number of rural population metropolitan area due to large number of common people living in this area, so unquestioningly that the aforementioned economic areas, issues of social and economic security of rural residents is extremely important.

Significant decline in the rural population (one of the indicators of social and economic decline of the village) due to both causes long-term nature and miscalculations made during the market transformation of the agricultural sector. The main factor

deserted countryside and collapsing its settlement network is a natural decline in population. In 1990 it was 3.4% (3.4 persons excess of deaths over births per 1000 inhabitants), and peak (-11.1% o) reached in 2005 due to higher fertility rates, and more recently reduce mortality, natural population decline in rural areas declined in 2010 to 4.4%. At the same time, the demographic projections of the Institute of Demography and Social Studies, in Ukraine in 2050 will reduce the number of rural dwellers, mainly due to depopulation [8].

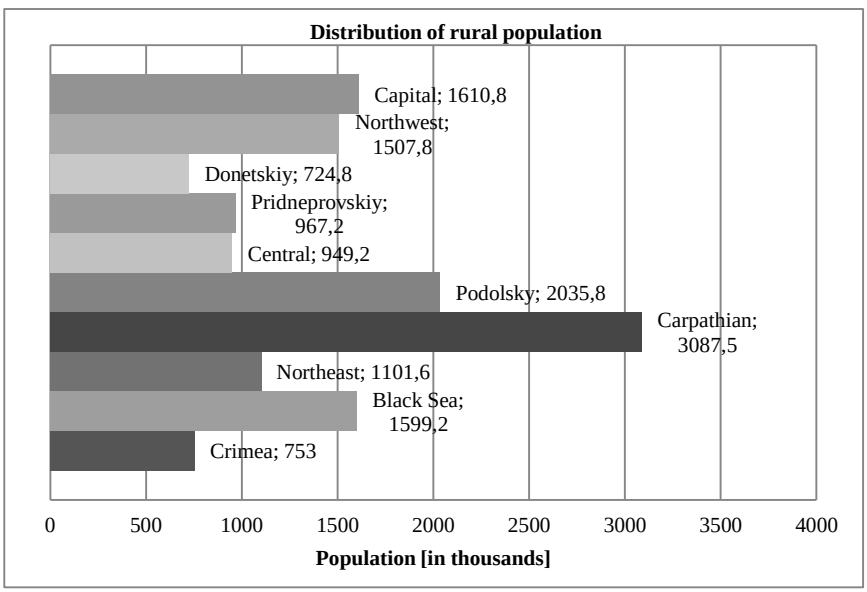


Fig. 9.1. Distribution of rural population on January 1, 2011 by economic regions, in thousands
Source: own work

In some areas depopulation and abandonment of villages had become signs of demographic and settlement crisis. The number of distressed districts rapidly increased: in 1991 there were 112, in 1996 – 121 (up 8% compared to the previous date), in 2001 – 135 (11.6%) and in 2006 – 168 districts (24.4%). According to continuum surveys of villages on the date of 01/01/2011 that periodically (every 5 years) conducts Statistical Committee of Ukraine, the share of children under the age of 18 in the structure of all permanent rural population was 17.2%, and in rural populations numbered from 50 to 100 people share of children was only 14.1%. Unfortunately, the village is aging. Thus, all villages average share of persons aged 60 and over years is 26.6%. Moreover, in the settlements populations up to 100 people, this share exceeds 42%, which according to international standards, indicates a very high level of demographic crisis. If during 1996 – 2000 years in villages was born 10.7% of all newborn, then, during 2001 – 2004 this share was 12.5%. Significantly the number of settlements in which no children under 5 years had raised from 2.5 thousand

at the beginning of 1991 to 3.4 thousand at the beginning of 2011. The number of settlements in which no children under 5 years is currently 11.7% of the total rural settlements [9].

Through typology of rural areas for the purposes of state regulation of their development, scientists of the Institute of Economics of NAS of Ukraine once identified deteriorating settlements and proposed to them to make the policy of state protectionism. The main reason for depopulation of this category of villages is extremely unfavourable living conditions which followed by loss of ability to take part in on their own population demographic basis. Currently, 34.3% of the total number of districts is problematic, compared with 1991, their share increased by 11.1 percentage points. Chernigiv, Sumy and Poltava regions have the most acute demographic and settlement crisis. Concentration of problem areas exceeds 90%. The percentage of such areas in Kyiv and Cherkasy regions is within 60 – 90% and in Zhytomyr, Khmelnytskyi, Kirovohrad, Luhansk and Kharkiv in borders of 30 – 60% [10].

If there would not be taken immediate steps to transition to the rural development on a sustainable basis (primarily to diversify the economy, employment and income), the number of districts demographic and settlement of the crisis could increase to 235 – 245 (48 – 50% of the total). There will be continuous independence territory that is a threat to national security.

9.3. THE STRUCTURE OF AGRICULTURAL EMPLOYMENT

For a substantial narrowing of the scope of employment in the village, main place of employment of the rural population is agriculture. But there is a noticeable decline in employment caused by the contraction mainly labour-intensive industries – livestock, flax, hop and more. While transformational changes in the domestic economy in rural areas was the adaptation of employment without the necessary restructuring, that some adjustment of the rural population to the market environment, and more precisely – survival in the absence of purposeful restructuring of surplus agricultural labour capacity, redistribution of non-agricultural employment to other areas of employment, creation of new jobs. During this period of economic and social upheaval for the population formed the very low employment reasons, it was created only to satisfy essential human needs – food security, financial necessity. However, to talk about the performance of rural employment, a minimum income from it is not achieved yet. Moreover, to understand and meet the needs of workers in the assertion must have a certain, perhaps a very long period of time. Thus, the employment situation and employment opportunities in rural areas today are disastrous for farmers, and most often it is impossible to find a job in the community. But author is stressing on the point that agriculture is important not only as area of employment for villagers. As the practical international experience, more farmers are willing to expand their operations in the non-agricultural sector. Especially it concerns tourism in rural areas [11].

The distorted structure of agricultural employment is characterized by a small number of employees – about 800 thousand people in 2010 compared to 4.2 million in

1990 (Table 9.2). An inflated number of employees, mostly forced, not productive labour in households counted about 2.3 million people in 2010 comparing to 678.4 thousands in 1990 (Fig. 9.2).

Table 9.2. Informal sector employment in the of agricultural production [in thousands]

Indicator	**1990**	**1995**	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Employment people in agriculture, timber industry	4959,8	5257,5	4334,1	3986,3	3633,8	3468,1	3300,1	3131,0	3094,5
%	100,0	106,0	87,4	80,4	73,3	69,9	66,54	63,13	62,39
Number of the employ workers	4281,4	3514,0	2752,8	1418,1	1295,3	1104,2	987,3	893,2	794,7
%	100,0	82,1	64,3	33,1	30,3	25,8	23,06	20,86	18,56
Employment the population in economy	678,4	1743,5	1581,3	2568,2	2338,5	2363,9	2312,8	2237,8	2299,8
%	100,0	257,0	233,1	378,6	344,7	348,4	340,9	329,9	339,0

Source: own work

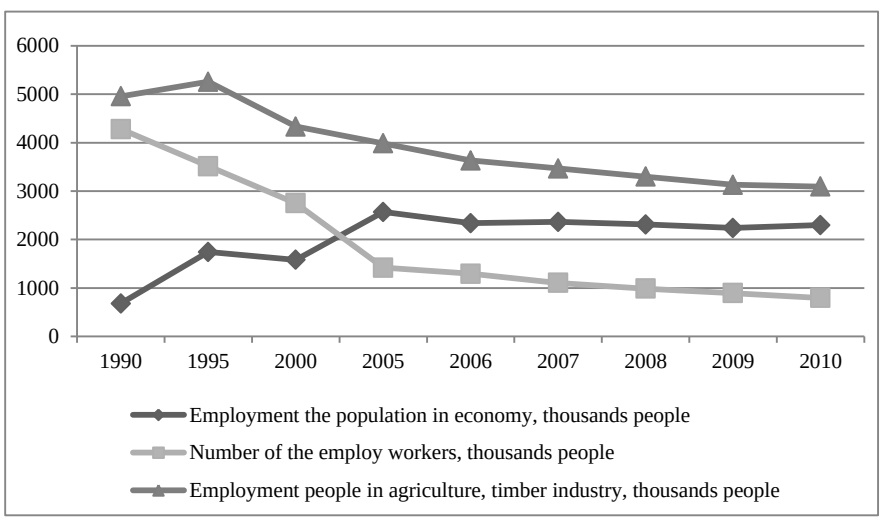


Fig. 9.2. Dynamics of agricultural employment in Ukraine 1990 – 2010 years
Source: own work

The number of employees decreased in the period of 1990 – 2010 and 81.5% of freed workforce mechanically moved to households. The factor that has a significant

impact on the agricultural labour market is seasonal nature of most businesses, which leads to employment of workers in the spring and summer, and release them in the winter. And it causes usually at the beginning and end of the year the increase of volumes registrations of rural citizens in state employment.

Also, it should be noted that agricultural production in 2010 was the main economic activity of the informal sector (65.2% of employment in the sector, or 74.1% of all employees), or almost every second person in the number of employed rural inhabitants [12]. The employment in the informal sector of agricultural production is characterized by:

- It is not registered, not counted in official statistics in full and does not use recognition or support from the state.
- The bulk of the rural population employed in this sector has little capital, low productivity and income.
- Most farmers severely limited in entering the organized markets, access to credit.

Analysing data and the real situation in the agricultural sector, it have to be noted that accounting large volume of employment in households is actually concealed unemployment. Having personal farm is often caused by the refusal to register the unemployed peasants. Evidence of this can be a substantial reduction in the number of registered unemployed among the rural population, it is about 33% in 2009 and 40% in 2010 in circumstances, where the employment opportunities in the rural area increased (Fig. 9.3).

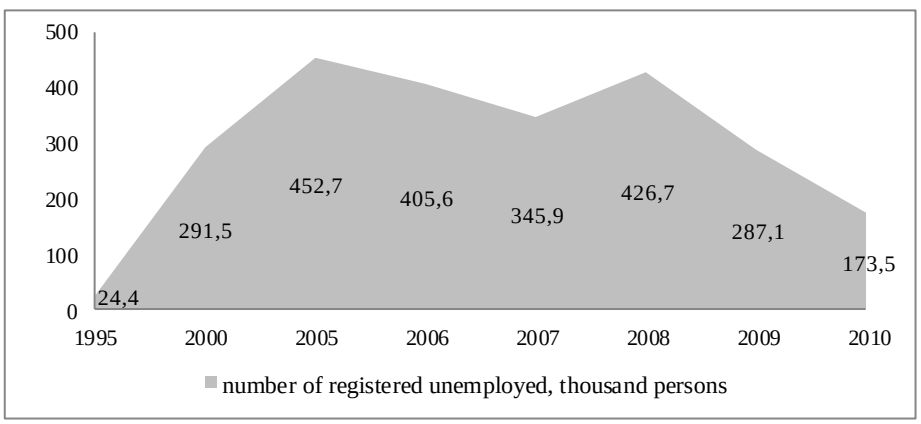
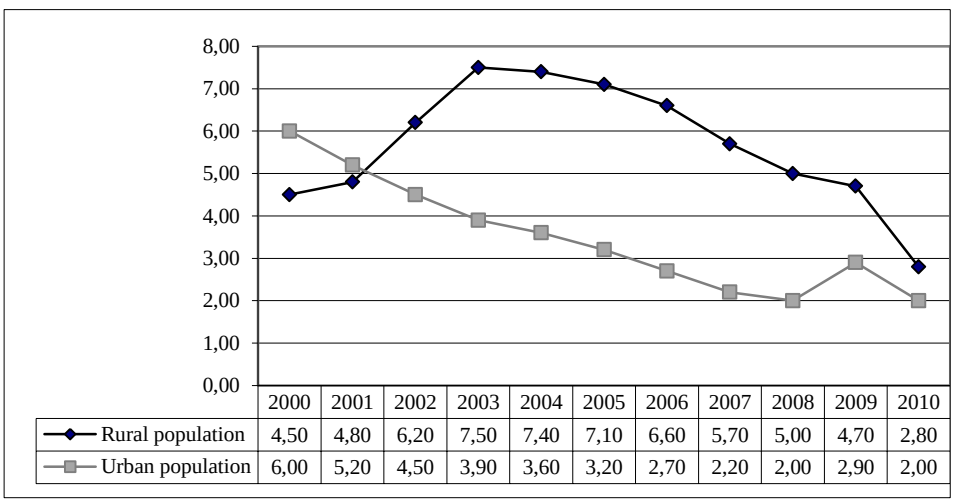


Fig. 9.3. The number of registered unemployed in rural areas, in the years 1995 – 2010
Source: [7]

Registered unemployment in rural areas on average was 4.7% in 2009 and 2.8% in 2010 of the economically active population of working age (Fig. 9.4). A similar numbers

is calculated according to the ILO, bigger than 1.7 times in 2009 and 2.9 in 2010 (respectively 8.2% and 8.1%).

Research conducted by the Institute for Economics and Forecasting of NAS of Ukraine showed that the areas with the lowest employment opportunities for rural enterprises and organizations located primarily in the western and southern parts of Ukraine, where compared to other regions of the best demographics there are very few jobs "organized" in this sector of the economy, especially in comparison with the population of working age. This is particularly the peripheral regions of Volyn, Rivne, Lviv, Zakarpattia, Ivano-Frankivsk, Chernivtsi, Ternopil and Odessa, Kherson and Crimea [13].



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Rural population	4,50	4,80	6,20	7,50	7,40	7,10	6,60	5,70	5,00	4,70	2,80
Urban population	6,00	5,20	4,50	3,90	3,60	3,20	2,70	2,20	2,00	2,90	2,00

Fig. 9.4. The registered unemployment rate in urban and rural areas in 2000 – 2010
Source: [7]

It is clear that employment in the national agricultural production should be reduced. Significant evolutionary structural changes characteristic of growing economies, their transition from stage agrarianism to modern development phases – post-industrialization and the Information Society had been formed and subsequently even more decreased in employment in the agricultural sector, intersectional reallocation in favour of industry and services had observed. Of course, such movement of people should be clarified with statistical calculations in accordance with the methodology of the International Labour Organisation (ILO), national legislative regulations.

It is observed mass phenomenon of the rural residents working out of rural districts. Surveys on population economic activity does not contain data on rural residents who temporarily moved abroad or to work in another area and weren't in households for more than 3 months: they were not surveyed due to prolonged absence. No information about their numbers there. Special studies gives grounds to assert that the employment targets annually go abroad about 1.5 – 2 millions of citizens of Ukraine, among which there is

a significant portion of rural residents. More than before married men and women are involved in the migration process. According to a survey of Ukrainian migrant workers, which was conducted in 2009 in Italy, only 6% of women had no children, while more than 3/4 left home one or two children, and almost 8% left home 3 or more [14]. And while money are earned abroad, usually it is transferred back to home and thus help families to survive or even improve welfare, however, prolonged absence of migrant workers in the household leads to negative social consequences like child neglect, divorce spouses, the decline of morality and so on.

The current field of employment and unemployment in rural areas is causing degradation of labour, professional standards. In 2009, half (50.4%) of the rural population aged 15 – 70 years was employed in simple occupations (urban – 10.9%), and not due to lack of professional education, and lack of appropriate places of employment. Among the unemployed rural residents aged 15 – 70 years (ILO), one third of them are professionals, technical employees, skilled workers.

Also, the study found that today the level of diversification of rural activities is very low and does not solve the problem of massive unemployment in rural areas. This is due to the inaccessibility of resources, poor infrastructure, difficult access to markets, credit, information, complexity of legal registration of business and degradation of human capital, which did not become a major factor in innovation economy.

9.4. FARM STRUCTURE

Modern statistics is structuring agriculture in two categories: the agricultural holdings (including farms) and private farms, among them a leading position occupied by small holdings within one family. Private farms are the basis of income in rural areas, a major area of employment of rural residents, the most massive and flexible form of management that demonstrate adaptability to difficult economic conditions.

According to the survey of households from 1/01/2011 in rural areas of Ukraine were registered 5.25 million households, that is more than one third of the total number of villages operating [9]. Most of them are in the Carpathian economic region (Transcarpathian region – 59.3%, Chernivtsi region – 56.3%, Ivano-Frankivsk region – 54.9%), some areas of Podillia (Rivne region – 50.8%, Khmelnitsky region – 48.6%) and Podolskii (Ternopil region – 55.0%, Vinnitsa region – 53.6%) economic regions. The average size of rural households in 2010 was 2.59 persons.

When considering the economic changes in the rural sector of society, special attention should be paid to the material welfare of individual farms. Welfare is characterized by the level and structure of resources and expenditures with the general socio-economic background: inflation, the minimum wage, living wage, etc.

Rate dynamics of aggregate income of rural households compared to 1990 is difficult due to the lack of relevant information, but its negative trend is evident. For the 2000 – 2010 years period the total resources of rural households increased nominally and per household member in 2010 counted 1167.7 USD, which is 7.3 times

more than in 2000. The CPI aggregate revenues increased approximately 2.7 times, thus significantly improving their structure (Table 9.3).

Table 9.3. The structure of the total resources of rural households in 1990 – 2010

Indicators	**1990**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Remuneration	59,4	16,3	18,7	22,3	23,5	23,9	26,3	27,1	30,3	32,7	32,5	33,7	32
Pensions, scholarships, assistance provided in cash	8,5	13,4	14,2	17,7	21,2	20	24,4	27,5	26,5	26,6	27	28,1	28,5
Income from entrepreneurial activity and employment	-	1,3	1,4	1,8	1,9	2,2	3,7	3,7	4,2	3,8	3,9	4,6	4,8
Revenues from the selling agriculture products	28,8	9,4	13,4	15	14,1	15,8	14,2	13,6	12	11,7	11,1	9,4	10,9
Cost of production from subjects of economic activity and from self-suppliers		44,4	34,9	27,1	23	22,8	16,3	14,6	13,9	12,8	11,2	12,4	12,9
Aid, benefits, subsidies wire	-	3	2,3	1,9	1,5	1,3	1	0,7	0,7	0,7	0,7	0,7	0,6
Other revenues	3,3	12,2	15,1	14,2	14,8	14	14,1	12,8	12,4	11,7	13,6	11,1	10,3

Source: own work

For a certain period the share of income from wages of farmers increased about 1.7 times, from entrepreneurship and self-employment – about 3.4 times, which led to an increase in the share of income – from 54.0% in 2000 to 82.8 % in 2010. This is a positive sign for state of the economy. But improving the income structure is not conducive to the reduction of population differentiation in terms of welfare.

According to the calculations made on the basis of the State Statistics Committee by the Institute of Demography and Social Studies in National Academy of Sciences named after M. V. Ptukha, the poverty level in 2010 compared to 2009 decreased by 2 percentage points and counted 24% in 2010. In same year poverty line per capita reached monthly 944 USD, increasing by 13% compared to the previous year. There were about 10.7 million people (3.5 million households) in a state of poverty, which is 9% less than in the previous year. There were 32% of rural households stated to be poor. Therefore, Ukraine is still a clear dependence of poverty on the type of settlement and residence area households. The population living in urban areas has a lower rate of poverty than poverty in rural areas. Moreover, in recent years there is a significant differentiation in the wellness between urban and rural populations (Table 9.4) [15].

Thus, trend of increasing poverty was observed during the 1999 – 2008 years in rural areas , in 2008 the poverty rate in rural areas was 38.2%. Since 2009 there has been a slight decrease in the level of poverty in the country and in rural areas as well. But despite this, rural poverty is greater in urban areas about 1.8 times.

Defining characteristic of poverty in Ukraine, as in the most transition countries, indicator of the area of residence is used because poverty level increased with decreasing size of the settlement.

Table 9.4. Poverty rates by locality residence [%]

Town residence	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
City	25,4	23,2	22,1	23,0	21,5	21,0	20,8
Village	28,7	35,2	37,9	38,4	38,2	38,0	37,9
Ukraine	**26,4**	**27,1**	**27,3**	**28,1**	**27,0**	**26,0**	**24,0**

Source: own work

National Human Development Report offers a relatively new concept for Ukraine of social exclusion, which can be defined as the process by which certain groups or individuals are not able to participate fully in public life, because of their poverty, lack of basic knowledge and capabilities, or result of discrimination. This separates them from job, income and training opportunities, as well as social and public institutions and activities. They have limited access to power and decision-making bodies and thus often unable to participate in the process of developing and making decisions that affect their daily lives [16]. This study also confirms that the probability of rejection due to low income is inversely proportional to the size of the settlement. Thus, in rural areas the risk is 42% higher than the average and 2.2 times than the risk in large cities. Change in capital reduces the risk of rejection by 64% compared to the average, by 66% in cities and 75% compared to villages (Table 9.5).

Table 9.5. Risk of rejection due to low incomes compared to the average size of settlement, 2008

Type of settlement	**The risk of rejection**
Village	1,42
Small town	1,05
Big city	0,65
Capital (Kiev)	0,36
On average in Ukraine	1,00

Source: own work

Among all types of rural households have the lowest risk of rejection has childless households (only 1% above the national average), while the risk of households with children is higher about 7% than the average.

Just like in the country in general and in the cities, in rural areas the presence of children in the family affects the level of family income. Thus, according to the 2008 year data the appearance in the family of a child increases a risk about 1.4 times, with the second child born it increases about 1.9 times, and with the birth of the third and subsequent children – 2.5 times. Thus, the exclusion of households living in rural areas is more noticeable than in the city, because of low income. Primarily, this is because of a numerous implications which have to meet various needs through access to institutions that provide educational, medical, cultural, domestic and other social

services. The exclusion of peasants from many spheres of social life is not only connected with the inability to meet their needs in education or employment due to lack of developed infrastructure in rural areas, but by lack of money and time. Low income, which is the main source of income from private subsidiary farms and for self-suppliers become discouraged even trips to the nearest town, where is located more developed infrastructure. The lack of opportunities in rural areas of decent work, cultural life, medical care, receiving public services – all together contributes to rural feeling of social isolation, hopelessness and exclusion from public life precisely because of their place of residence.

9.5. CONCLUSIONS

Thus, the author in this article comes to conclusion that the current positive trends for certain standard of living of the rural population is still low as compared to the urban population, and with other countries. The main reasons are: the limited rural labour market, lack of institutional support for small and medium businesses, low wages, some disparities in wages, poor working conditions and so on. To date, private households are the basis of income in rural areas, a major area of employment of rural residents, the most massive and flexible form of management that demonstrates adaptability to difficult economic conditions. The study found that agriculture is important, but not the only area of employment villagers. As the practical international experience, farmers have great potential to expand its activities in the non-agricultural sector. Permanent monitoring of socio-economic development of rural areas and seek opportunities to diversify rural economies in non-agricultural sector outlines the prospects for further research.

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10

INTELLECTUAL CAPITAL FORMATION AND DEVELOPMENT CONDITIONS IN UKRAINE

Definition of Ukrainian macro economy growth requires specification of theoretic-methodological base for future changes. Ukraine cannot take into account global trends refocusing on a new path of development associated with the most significant role of intellectual capital in the development of any country and ensures its competitiveness in global economic processes. The current conditions, in which the formation of its intellectual capital is proceeds, are complex. However, there are a lot of problems, including the formation of an environment of general interest in the work of intellectuals, the transition of educational systems to the next level of work thought understanding the individual needs and desires, personality development, improving people's welfare and quality of theirs life, the development of national projects in the field of implementation of management technologies and social innovation, intensive development of advanced domestic branches of science, ensuring effective linkages between science and economy.

Therefore, the research of the formation of intellectual capital is important for the development of economic policy in any country that claims to have meaningful place in the world's economic system. The article describes the results of research on intellectual capital formation conditions. Authors propose the analysis of venture business as one of the alternative way of intellectual capital today.

10.1. INTELLECTUAL CAPACITY CONVERSION

Intellectual capacity conversion is in the process of reproduction of the intellectual capital. It is an essential process in the formation of the modern knowledge economy [1 – 2]. The system of reproduction of intellectual capital is allocated to the following elements:

- the education system,
- the system of production and recovery of scientific and technical knowledge,
- the mechanism of protection of intellectual property,

- the system measures the development of information and communication technologies,
- public policy of transferring technology from abroad.

Important role in ensuring effective reproduction process of intellectual capital in today's economy plays the state. The new paradigm of scientific and technological developments related to the socio-economic orientation of new technologies, knowledge and practical sets of factors are used for the economic growth of communities to improve their material and cultural living standards.

10.2. PROBLEM STATEMENT

The development of science should be considered as a first priority of social development. Unfortunately, in Ukraine the crisis of science caused by low salaries of researchers, lack of funds for the purchase of modern equipment, resistance to the introduction of scientific developments and other phenomena cause significant loss of highly qualified human resources. The level of interest of enterprises to use innovation rises slowly due to shortcomings in the tax system of the country and the difficulties associated with the riskiness of significant innovative activities in science. Moreover, not enough attention is paid to differential approach to material incentives for scientists to create a dramatic breakthrough "know-how".

Formation and development of post-industrial economy, the growing role of information and knowledge in the production process have a direct relationship to economic progress and social development from solid intellectualization of living.

Regarding to information and knowledge domain, which is the basis for the functioning of the achievements of basic science, this field is in a huge development and has priority in the economies of developed countries in such fields as biotechnology, software, genetics, biochemistry and various information industries.

In particular interest it is the growth of media companies. Besides the fact, that the pace of its growth is impressive, from an economic point of view it also does not supported the development in terms of the industrial system. Media companies do not possess virtually fixed assets, but their achievement is very significant.

Another aspect of structural changes in the modern economy it is a big role of science in the reproduction process of society. As for traditional industrial sectors, the overall development of the productive forces directly reflected in them.

In developed countries the share directly involved in material production is less than 20%, while the share of employment in agriculture does not exceed 10%. Reducing the number of workers in the primary and secondary sectors of the economy is accompanied by the rapid growth of employment in the tertiary sector like services.

However, the actual scope of services is not uniform, and therefore the attention need to pay to changes in the structure of employment within it. In these sub-sectors of the tertiary sector, such as communication and transport, which do not require an employee to specific individual investment, employment growth was not observed.

While in the sub-service, associated with significant individualized product and usage of the special qualities of an employee, including primarily special education and his intellectual capacity, employment grew rapidly.

The reproduction process of society is driven by general economic trends, the increasing role of information in the production process, changing methods of transmission, increasing complexity of financial assets and the way they are transmitted. Thus, the increase of intellectual component products and information of economic processes is observed. Knowledge and information in modern society are the main strategic resources of economic activity.

Accordingly, particular relevance in the modern economy gains intellectual capital research at the national level. Firstly, intellectual capital determines the efficiency of modern production at the country level, since it includes factors that are today characterized by the qualitative contribution to added value. This includes human capital as a combination of knowledge, skills, abilities rights and intangible assets (patents, licenses, know-how, trademarks), and organizational structure, electronic networks and databases, etc.

There is no doubt, that the foundation of the modern economy is the efficient use of human potential, the availability and use of scientific and technological progress (their share in assets, in products, in fact, their ability to produce in the current economic system), the external communication tools in institutional environment. Obviously, all these strategic factors of development of the national economy determine immense practical significance of the formation of the intellectual capital of the country.

Secondly, intellectual capital, as it has been already noted, is an intangible factor. The importance of adequate evaluation of intangible factors confirmed by numerous attempts of scientists to assess. Similar factors at the level of the national economy are sometimes called "soft" factors of economic growth, and they are counted as, according to various estimates, even up to 80% of the growth of national product [3]. This ratio is typical for economically and socially developed countries.

Thirdly, the study of modern post-industrial economy and the types of information are mostly not practical today. Scientists try to look into the future, but do not count the status of present day. As a result, a lot of practical aspects is beyond the scope of research.

As it is well known that the competitiveness at a state level provides efficient use of national productive resources, increasing productivity and using them on that basis, high, constantly rising standards. The condition for the functioning of modern post-industrial society and a major factor in the competitiveness of modern economies is the intellectual capital.

One of the main trends in the modern economy, which is associated with the emergence and implementation of intellectual capital, is to strengthen the role and importance of the state in the economy.

In general, on the one hand, the strategy of state conduct in the modern economy in developed countries is to increase the economic sphere, reducing its direct presence as an owner in all areas, and to provide the same competition opportunity to shape a more efficient economy.

On the other hand, the indirect presence of the state in almost all spheres of the economy is the key to further effective development. The state in post-industrial economy is responsible for the development and implementation of national socio-economic and scientific-technical policy formulation and development of an institutional framework that includes not only legal, but also ethical, moral relationships of people in today's society [4].

The high level of socio-economic development is the basis of appearance, function, and reproduction of intellectual capital. In a country with low income and consumption possibilities of development (and implementation of intellectual capital) is quite limited.

However, it should be noted that some elements of intellectual capital (information, knowledge, education level, professional level, intellectual property) cannot alone provide a high level of competitiveness of the economy of the country. And it is because intellectual capital at the level of the national economy is a complex system of interrelated elements without which the system cannot work properly [5].

10.3. RESEARCH RESULTS

Ukraine, with a strong intellectual capacity and the possibility of its transformation into capital, cannot be involved in the global process of intellectualization of social production. Compulsory basic condition for further development of the national economy is forming in Ukraine effective market infrastructure of modern post-industrial society, which will create the preconditions for its transition to knowledge-intensive and high types production, and ensure the development and reproduction of intellectual capital as the main factor of competitiveness of modern economies Ukraine.

Important role in the formation and development of intellectual capital was remarked in the field of intellectual property thanks to the educational activities.

According to Fig. 10.1, it should be noted that in the period of 2001 – 2010 1 056 specialists was prepared in the field of intellectual property. The positive trends includes the increase of number of qualified training for specialists in the period 2008 – 2010 about 15.6%. The increase describes the dynamics of the development of vocational training and retraining of the intellectual property in the context of the formation of the intellectual capital of Ukraine, which is related to scientific and technical activities.

According to Art. 1 "Key *Terms and Definitions*" of the Law of Ukraine "*On Scientific and Technological Research"* [6], scientific activity is the intellectual creative activity aimed to acquiring and using new knowledge. It should be noted that in the process of market reforms the number of workers employed in scientific organizations, tends to decrease. Corresponding to Table 10.1, it should be noted, that the total number of employees in the core activities involved in the scientific sector, refers only to isolated scholars engaged in scientific and scientific-technical work.

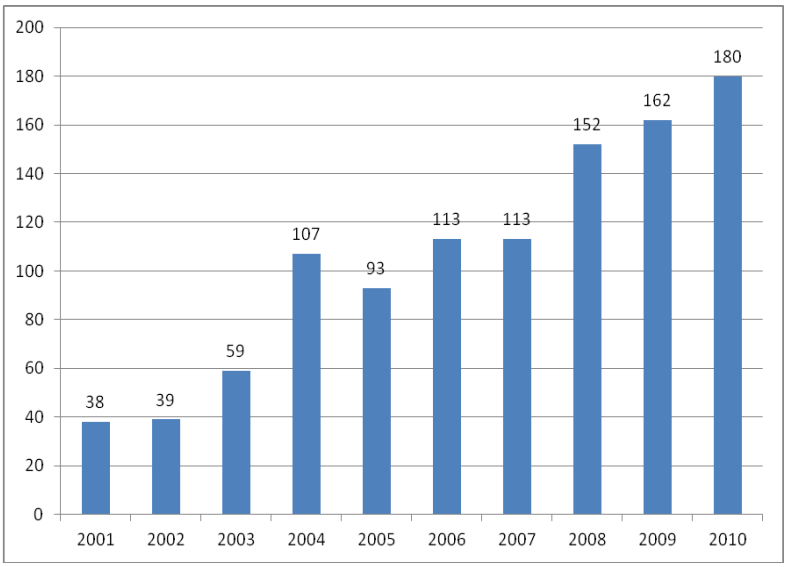

Fig. 10.1. Dynamics of production in "Intellectual Property" in years 2001–2010
Source: own work based on [7]

Table 10.1. Dynamics performance of scientific and technical work in Ukraine in 2000 – 2010

Indicator name	**2000**	**2008**	**2009**	**2010**
The total number of researchers engaged in scientific and scientific-technical work (in thousands)	89,2	85,2	78,8	77,4
PhD degree	4,1	4,2	4,4	4,5
Candidate of Sciences	17,9	17,0	17,0	17,1
The total number of completed scientific and technical work[1], total, (in thousands)	38,3	63,9	62,7	62,5
With the creation of new products	—	6,3	8,5	8,8
Including the creation of new types of equipment	3,9	3,8	3,0	3,8
Including works which used inventions	1,0	0,8	2,1	2,0
With the creation of new technologies	3,6	5,4	7,6	7,3
Including resource saving	1,7	2,2	3,2	3,1
With the creation of new types of materials	1,1	1,2	1,5	1,5
With the development of new plant varieties, animal breeds	0,5	0,8	0,8	0,6
With the development of new methods, theories	2,2	5,4	8,7	8,4
Other works	27,1	45,0	35,6	35,9
Index performed scientific and technical work that falls to one researcher	0,429	0,750	0,795	0,807

Source: Calculated by the author according to [7]

While using the classification of *Committee of Ukraine* on the staff distribution within scientific organizations, the category of personnel categorized as "researchers"

[1] Since 2006, organizations that perform only scientific and technical services was not reported.

has included scientific, engineering and technical personnel, who are professionally engaged in research and development, and are directly involved in the creation of new knowledge, products, processes, methods and systems as well as administrative and managerial staff, that provides direct management of the research process [7].

According to the data presented in Table 10.1, the performance index of scientific and technical work in Ukraine, which accounts for one researcher, reached the highest value in 2010. The index highest value (0.807) compared with value from 2000 (0.429) increased by 53.15%.

It should be noted that in the index of scientific and technical work is in a constant trend of annual growth. But the negative effects include gradual reduction in the total number of researchers engaged in scientific and scientific-technical work. For example, in 2000 there was 89.2 thousand people, and it decreases to 77.4 thousand people in 2010. So for 10 years the total number of researchers decreased by 11.8 million people (this is 13.23%). However, the general trend to reduce the number of scientific and technical worker, the number of doctors gradually increased, and in 2010 their number amounted to 4.5 million people compared with 4.1 million in 2000. In addition, the decrease in the number of candidates from 17.9 thousand in 2000 to 17.1 thousand in 2010 was observed. The process of reducing the number of candidates affects the formation of intellectual capital.

Moreover, a negative factor for the formation of intellectual capital is insufficient funding of scientific and technical work. Financing the scientific and technical work from the state budget covers less than half of the total cost of scientific and technical work. In 2010, the share of funding from the state budget scientific and technical activities was 48.7%. To conduct the work the rest of expenses were covered by: organizations at their own (7.4%), domestic customers (25.8%), foreign countries (15.6%) and other sources (2.4%). This indicates the need to improve the financing of scientific and technical work, including through public procurement pursuant to the priority areas of research that practically affects the formation of the intellectual capital of Ukraine. In addition to funding scientific research for the budget, much of the scientific and technical work are carried out on their own by businesses, organizations (Table 10.2).

Data presented in Table 10.2 shows that from 1995 to 2010, the amount of work performed by enterprises, organizations increased 12 times, including: fundamental – 23.8 times; applied research – 7.7 times, scientific and technical developments – 12.8 times, scientific and technical services – 42 times. In the total costs of enterprises and organizations, the scientific and technical developments were the biggest costs in research and development. Thus, the highest amount was in 2003 – 57.2% of the total cost, but already in 2010 the cost of research and development amounted to 47.9% (the observed decrease is 9.3%). Decrease of those costs was affected by the financial and economic crisis in Ukraine.

Table 10.2. The volume of scientific and technical activities performed by their own in enterprises

Years	Total cost, in millions [UAH]	Including		
		Fundamental research	Application research	
1995	709,3	81,7	209,7	393,5
2000	1978,4	266,7	436,6	1106,3
2001	2275,0	353,3	304,9	1317,2
2002	2496,7	424,8	343,6	1386,6
2003	3319,8	491,2	429,8	1900,2
2004	4112,4	629,7	573,7	2214,0
2005	4818,6	902,2	708,8	2406,9
2006	5354,6	1141,0	841,5	2741,6
2007	6700,7	1504,1	1132,5	3303,1
2008	8538,9	1927,4	1545,6	4088,2
2009	8653,7	1916,6	1412,0	4215,9
2010	9867,1	2188,4	1617,1	5037,0

Source: own work based on [7]

The scientific and technical services are part of the field of intellectual property, product quality and services, consulting services and so on, which contribute to the formation, organizing, development, dissemination and use of scientific knowledge. In 1995 the rate of financing enterprises scientific and technical services amounted to 3.4% of total funding, in 2005 – 16.6%, in 2010 – 10.4%. Therefore, from 1995 to 2010 the increase was 7%. Although the last two years the cost of scientific and technical services decreased, but compared to results from the nineties the growth of this indicator is characterized by the development and implementation of intellectual products and efficient work of intellectual property, which is quite a positive effect on the formation of the intellectual capital of the country. Since the introduction of scientific and technological development in productive activities promotes intellectual capacity, which advanced the usage the latest technology and the commercialization of innovation, it obtains the form of intellectual capital.

The priority of Ukraine is integration into European economic space confirming paramount importance of scientific and intellectual activity in the global competition. For European countries the significant importance is to study and preserve the involvement of the greatest number of qualified professionals in intellectual activity. Based on that fact, the balance of intellectual labour market provides the basic parameters for intellectual capital formation and significantly impact on the competitiveness of the national economy. The demand for intellectual labour market depends on the ability of creating new jobs through new investment and innovation. From the perspective of economic efficiency, additional experts should be engage in production until the rising costs of organizing their work will be lower than the revenue that they bring to enterprise.

The practice of developed countries and progressive enterprises shows that well-organized intellectual work makes profits many times higher than the simple

reproductive labour [8]. Given the ability of intellectual capital to create intellectual products, thus participating in the development of scientific and technological progress directly contribute to increased demand for highly skilled intellectual labour. But at the present stage of economic development in Ukraine excess of supply over demand in the market of intellectual labour is a tendency.

Towards sustainable socio-economic development, all the power and provisions for the formation of the intellectual capital of Ukraine should be used as soon as possible to create sufficient productive forces of society, because the parameters of formation of intellectual capital influence the development of scientific and technological progress and create conditions for the commercialization of knowledge.

The Law of Ukraine "*On the scientific and technical activities*" [6] states that one of the main instruments of state policy in the field of science and scientific and technical activities are public resources. The state should provide budgetary funding of research and scientific and technical activities (excluding defence spending) in an amount not less than 1.7% of the gross domestic product (GDP) of Ukraine [7, 9]. It was assumed that the mentioned article of the Law "will be implemented in stages", that is in the budget for 2010 the founding was planned at the rate of 1.7% of GDP. However, in reality, state funding for science is far from the declared legislative norms.

According to the data [10], European standard spending on R&D in 2010 was 2,06% of GDP (comparing with 1,84% in 2000), while for EU-27 only 2% of GDP (comparing with 1,86% in 2000). While in USA the expenditure on R&D in 2000 and 2010 were respectively 2,69 and 2,79% of GDP, and for world leader – Japan – the expenditure were 3,04% of GDP in 2000 and 3,45% of GDP in 2008.

Referring to other estimates, the country spending on science should be at least at the level of the lower border of the world's standard of expenditure on research and development per one scientist (as of 01/01/2011 it was about 50 thousand USD). If the optimal number of scientists in Ukraine will be considered (there are 120 – 125 thousand people), the science funding for 2012 – 2013 should be no less than 6 thousand millions USD and for innovation – 160 thousand millions USD.

In the nineties of the twentieth century in industrialized countries there was formed the phenomenon of so-called "new economy", which was marked by structural adjustment, the rapid deployment of information revolution and rising incomes in the global economy. The process of globalization embodied in a "high-tech" way of life, the development of information technology and business venture. A measure of the ability of the society to the real market transformation through the creation, implementation and practical implementation of innovation is the degree of innovation processes, which is the main indicator of economic condition of any country. Achieving straight through processing (STP) is the result of targeted innovation policy.

Analysis of key indicators of the European Innovation 2010 ranking proves that innovative leaders in Europe are Sweden, Finland, Denmark, Germany and Switzerland, which together have 60% of the leading positions in the ranking [11]. These economic changes occurred in the last decade. The global economy has given impetus to structural changes in the economy of Ukraine, but today, as statistics show that they are characterized by serious lag from the processes that determines the information economy (5th of technology). The statistics show that, for domestic enterprises in various

industrial branches and various areas are characterized by different technological modes (Table 10.3).

Table 10.3. Innovation Activity in Ukraine in 2005–2010

Index	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Total number of enterprises	10730	11420	10652	9979	10197	11422
Number of industrial enterprises involved in innovation	1470	1359	1193	1417	1397	1462
The share of industrial enterprises engaged in innovation activities, in %	13,7	11,9	11,2	14,2	13,7	12,8
In engineering, in %	27,7	22,2	23,3	21,2	21,1	22,2
In steel industry, in %	31,8	29,7	18,4	20,2	17,0	15,4
in the chemical and petrochemical industry, in %	22,4	21,0	33,3	34,0	34,0	33,3
Innovation by ownership,%						
Private	7,0	10,4	12,1	8,1	8,0	7,9
Collective	17,8	17,1	18,8	16,4	16,1	15,8
State	23,0	21,6	22,7	15,1	15,0	14,9
Municipal	6,4	2,9	4,3	5,0	4,9	4,8

Source: [12]

As data show, 58% of industrial enterprises for the production of products belonging to the 3rd technological generation, 38% of them 4th and only 4% to 5th technological generation [12]. Slightly better situation is in the financing of scientific and technological development: today almost 70% belongs to the 4th and only 23% to 5th technological generation. With innovative cost 60% belong to the 4th generation and 30% – 3rd (e.g. total 90%), and in 5th generation the cost is only 8.6%. For investments that determine the development of the economy over the next 10–15 years, to 75% of the investment can be attributed to the 3rd technological generation and therefore only 20% and 4.5% – to 4th and 5th technological generation.

It should be noted that, as shown in Table 10.3, only 13.7% of the total number of industrial enterprises in 2009 were engaged in innovative activities, while there is a downward trend due to the financial crisis. According to the data, the dominant among industries on innovation are chemical and petrochemical industry (34%) and machinery (21%). And these industry sectors have significantly strengthened their positions since 2004.

10.4. VENTURE CAPITAL

Now the cost of research and innovation grows quickly and beyond the capabilities of one enterprise. In Ukraine, it is supplemented by the fact that many companies have only recently began to emerge from a deep economic crisis.

Consolidation and cooperation within organizations can help to share the high costs and risks of innovation networks between participants. In Ukraine, the venture capital market is about 400 million USD and has no more than a dozen associations working on it. Among them, there are "Western NIS Enterprise Fund" (with 150 million USD in capital allocated by the U.S. government for the development of food industry, agriculture, construction materials, and the financial sector of Ukraine) or "SigmaBlazer" (with the capital of 100 million USD).

Although the development of venture funding originates in Ukraine since 1992, it remains specific and differs substantially from overseas. Ukrainian venture capital inclined, not too diversifying assets implement investment projects using transactions in financial assets and real estate. Virtually, there are no initial investment and investment in innovation, while in developed countries venture capital goes into the innovation sector, in Ukraine is mainly investments in the company.

Venture investors can only be legal entities or individuals or pension funds or insurance companies cannot invest to the venture fund. Unlike other countries, where usually the average investor investment in business grows by serving mostly borrowed funds, in Ukraine the function of venture capitalists is to perform management companies' asset [13].

Activations of this form of business is necessary, but unfortunately the current state of regulatory and legal framework governing the market venture enterprise is very vague and unstable.

10.5. CONCLUSIONS

Great importance in the formation and development of intellectual capital becomes the system of innovation activity of enterprises. A crucial role in this belongs to governance and regulation. The growth of current and future competitiveness of the economy provided innovation, transformation of the economy, technology, social and other fields contribute to the formation of intellectual capital.

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