

The impact of demographic processes on forming student body in Ukraine

El impacto de procesos demográficos en la formación del estudiantado en Ucrania

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ABSTRACT:

It has been founded that the main threats to the economic security of Ukrainian universities and the system of higher education as a whole are the lack of student body, which has been caused by negative migration and demographic processes, as well as the nonconformance of the higher education system to the needs of economy. These processes are factors that led to a decrease in the level of economic security of universities.

Keywords: Student body, economic security of university, migration processes, demographic situation

RESUMEN:

Se ha constatado que las amenazas principales a la seguridad económica de las universidades ucranianas y al sistema de enseñanza superior en general son la falta del estudiantado. Ha sido causado por la migración negativa y procesos demográficos, así como la disconformidad entre del sistema de enseñanza superior y las necesidades de la economía. Estos procesos son factores que llevaron a una disminución en el nivel de seguridad económica de las universidades.

Palabras clave: Estudiantado, seguridad económica de la universidad, procesos migratorios, situación demográfica

1. Introduction

Recently, in scientific thought, in particular, in the works of such scholars as: O. Zotova et al. (2006); V. Kovrehin (2016); V. Vodianova (2010); V. Bogomolov (2006); M. Stepko et al. (2004); I. Vakhovych et al. (2014); V. Antoniuk (2015) who studied the issues of economic security of the countries of the post-socialist space, more attention has been paid to the issues of economic security of higher education as a system in general, as well as individual universities in particular. This is due to the fact that one way or another, the economy merges with security, risk, and every action of the intellectual system, which orientates itself in the flow of fast-changing knowledge, it is necessary to always check for the possibility of a set of threats and risks.

It should be noted that the external environment of a modern university is developing at a faster pace than a toolkit, through which analytical information can be obtained to manage its economic security. Considering this, analysis and forecasting of threats to the economic security of the higher education system as a whole and of the individual university as an element of this system, which is conditioned by changes in the external environment and global trends in socio-economic development, is of particular importance.

Despite the diversity of approaches to systematization of threats and criteria of economic security of universities, the results of scientific research presented in the research literature do not cover the entire spectrum of modern problems, which impedes the creation of an effective mechanism for counteracting and neutralizing these threats (Zotova et al., 2006; Vodianova, 2010; Bogomolov, 2006). In addition, the scientific work of the vast majority of scientists is aimed at studying internal threats, leaving out the attention of those generated by the external environment and potentially destabilizing the higher education system of the country in general, and not just some of its elements, which are universities of different levels.

Trends and prospects for the development of higher education in Ukraine are determined by a number of problems, dangers and risks, the main of which are (Kasych, 2013; Stepko et al., 2004; Vakhovych et al., 2014): insufficient level of financing the universities; low level of material and technical base of universities as a result of fixed assets depreciation; insufficient level of investment in university development; low wages of scientific and pedagogical staff; disproportions in financing students training in different regions of Ukraine; insufficient pace of implementing the innovative directions of knowledge economy development. In addition, it should be noted that under the conditions of globalization and integration processes, the educational system of Ukraine falls under the influence of factors that, on the one hand, open up new opportunities for development, and on the other hand, generate new risks and threats that are especially dangerous for Ukraine through the consequences of socio-economic and political crises.

Taking into account the above, the purpose of this study is to analyze and systematize the factors reducing student body in Ukraine as a major threat to the economic security of Ukrainian universities.

The methodological basis of the study is a combination of the conceptual issues of systematic approach in the study of economic phenomena and processes (for the study of higher education in Ukraine as a complex socio-economic system), dialectical (in order to identify the main socio-economic trends and justify their impact on the level of economic security of Ukrainian universities) and statistical methods (in order to analyze the main indicators of socio-economic development and, in particular, the development of higher education in Ukraine).

2. Methodology

The statistical method of research allowed to analyze the main indicators of socio-economic development of Ukraine, as well as investigate factors and trends in the development of higher education, which became the basis for the forecasting the number of students of Ukrainian universities of the III-IV accreditation level for 2019-2023. The system approach was used for studying the peculiarities of higher education development in Ukraine as a complex socio-economic system. The dialectical method describes the socioeconomic processes that take place in Ukraine from the point of view of their impact on the level of higher education system economic security.

3. Results

3.1. The long economic crisis in Ukraine

The analysis of statistical data and research papers devoted to the issues of Ukraine's economic security and its individual elements allowed us to conclude that there has been a significant deterioration in the socio-economic situation in the country during recent years,

as evidenced by the following indicators (Derzhavna sluzhba statystyky Ukrainy): the index of physical volume of GDP illustrates the fall of 39,9% during 1991-2016; the inflation index is an indicator of a significant devaluation of the national currency during the years of Ukraine's independence; the index of real wages, which, despite some increase in 2016-2017, in 2017 decreased by 9% comparing to 2013; the share of consumer spending increased from 60.6% in 2003 to 93.0% in 2017, while the share of expenditures aimed at increasing financial assets in 2003 amounted to 6.8% in the structure of household expenditures, and in 2017 this indicator became negative; the share of population with per capita equivalent gross revenues per month below the actual subsistence level in 2015-2016 exceeded 50%, and in 2017 it was only 34.9%. This allows us to conclude that more than a third of Ukrainians actually fell below the poverty line.

3.2. Labor and academic migration

The reaction of the Ukrainian population to a significant deterioration of economic conditions has been the intensification of migration processes. Thus, the results of research by scientists in the framework of the project "Monitoring of Ukrainian migration: forced and labor mobility" (2015-2016) (Drbokhlava & Yaroshevych, 2016, p. 30), as well as "Migration in Ukraine: Facts and Figures" (2016) (Mizhnarodna orhanizatsiia z mihratsii, 2016), confirm the presence of the following migration trends: the growth of the emigrants number in Ukraine with a reduction in the number of immigrants and, as a result, the loss of a part of the economically active population; the reorientation of migration flows to the EU countries due to the reduction of migration to the Russian Federation.

Experts point out the specific features of migration processes in 2014-2016 (Drbokhlava & Yaroshevych, 2016, p. 30-32): the growing popularity of education in the EU; increase in the number of Ukrainians who plan to work abroad, especially among young people; the desire to avoid military service.

It should be noted that the causes of the phenomena considered include the consequences of the military conflict in the East of Ukraine and the economy crisis deepening, among which are the following: rising unemployment and inflation, falling living standards and the corresponding increase in poverty; considerable limited possibilities to get a job according to the received education, skills and experience.

The study of the main motives of labor and academic migration (Drbokhlava & Yaroshevych, 2016; Mizhnarodna orhanizatsiia z mihratsii, 2016) suggests that the very difficult economic conditions in Ukraine are one of the main reasons for the low level of competitiveness of Ukrainian universities in the European market of educational services and, consequently, a significant reduction in the number of applicants. To solve this problem, at the stage of reforming the system of higher education, it is necessary to develop measures aimed at maximizing the use of existing competitive advantages, namely: deepening and diversifying cooperation with countries interested in academic immigration to Ukraine (Turkmenistan, Azerbaijan, Iraq, China, Morocco, Nigeria, Jordan etc.); establishing partnership relations with the universities of the EU countries for the purpose of realization of the projects which give the opportunity to receive the European diploma while studying in Ukraine.

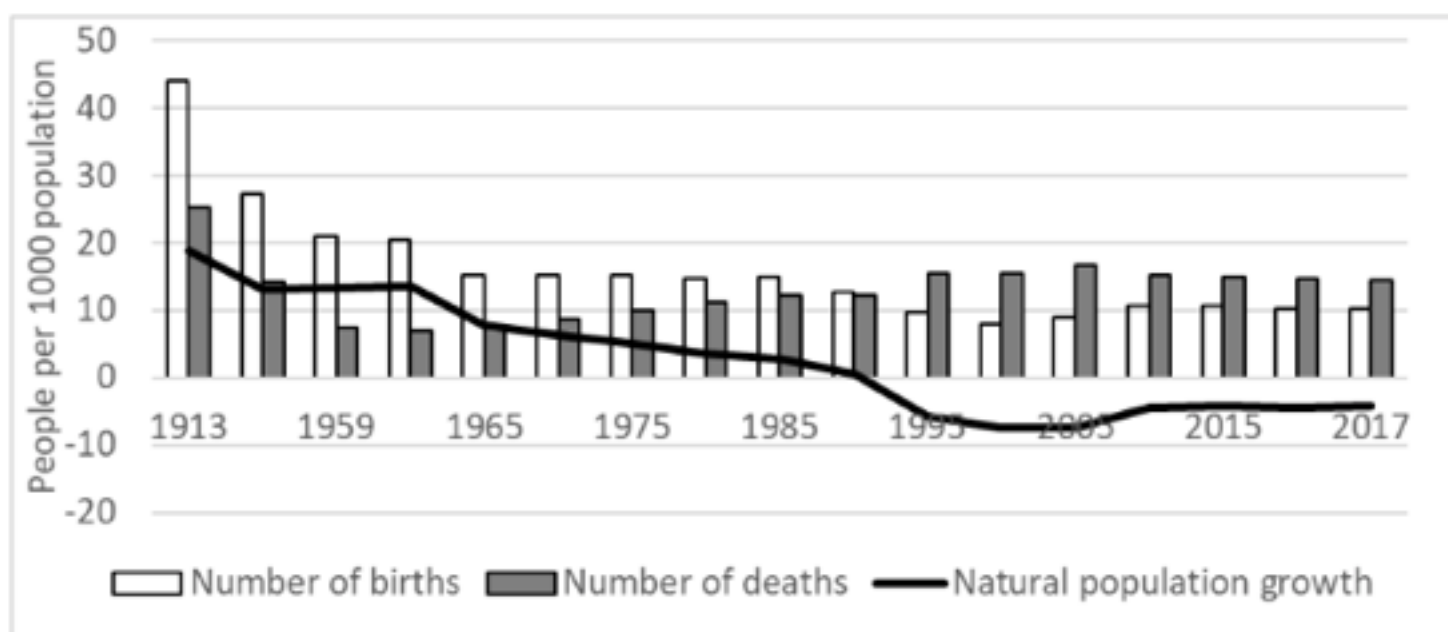
At the same time, the decline in the amount of working population in recent years has led to insignificant labor market deterioration. Thus, the level of unemployment in the ILO methodology during the years 2013-2017 grew by 2.2 points, with a reduction in the level of registered unemployment by 0.4 points (Derzhavna sluzhba statystyky Ukrainy). It should be emphasized that the market situation stability of labor force is explained by the negative migration and demographic increase of the population and the simultaneous decrease in the number of employed population in all types of economic activity (Derzhavna sluzhba statystyky Ukrainy).

3.3. Demographic situation in Ukraine

It should be mentioned that the decline in the number of applicants due to negative migration processes occurs in a difficult demographic situation, which also constitute a

menace to the economic security of Ukrainian universities and Ukraine as a whole. The dynamics of the general fertility rates, mortality and natural population growth in Ukraine (Figure 1) indicates a decline of the demographic situation in Ukraine since the early 90's of the XX century, as there is a negative natural increase (loss) of the population.

Figure 1
Dynamics of general fertility rates, mortality and natural population growth in Ukraine



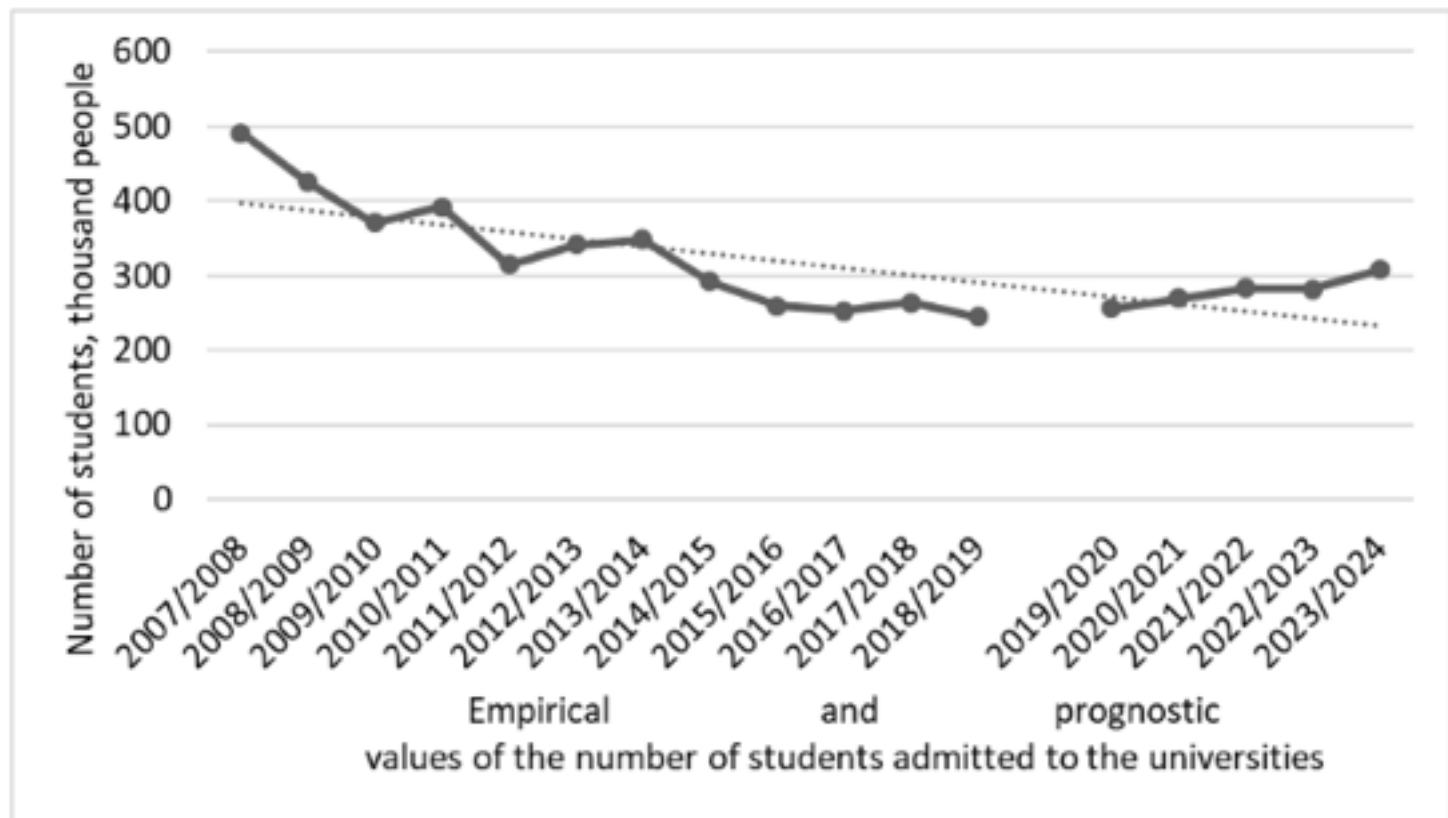
Constructed by the authors according to Derzhavna sluzhba statystyky Ukrainy

The significance of the demographic situation impact in Ukraine on the number of students admitted to universities of the III-IV accreditation level and, thus, on the level of their economic security is confirmed by the results of regression analysis, in which the indicator of the number of births (thousand people) was determined by an independent variable in the period from 1990 to 2000, and dependent - an indicator of the number of students admitted to universities of the III-IV accreditation level (thousand people) for the period from 2007 to 2017 (for the analysis, the levels of the series of dependent and independent variables have been used with a lag of 17 years). As a result of regression analysis using the IBM SPSS Statistics computer program, the basic mathematical functions (linear, logarithmic, quadratic, cubic, power, etc.) revealed a dense direct relationship between the number of births and the number of students admitted to the universities of III- IV accreditation levels. Thus, according to a linear regression model, the linear Pearson correlation coefficient (r) is 0.957 and indicates the existence of a strong direct link between the factor and the resultant traits. The statistical significance of the model ($p < 0,001$) is very high. Thus, the use of a linear model to characterize the dependence between the investigated variables is appropriate and allows us to form a linear regression equation that looks like:

where y is the number of students admitted to the universities of the III-IV accreditation level in the year t , thousand people; x - number of births in Ukraine in the year $t-17$, thousand people.

Consequently, the analysis shows that the number of children born (with a lag of 17 years) is a significant factor determining the number of students admitted to universities of the III-IV level of accreditation. Using this regression model allows you to accurately predict the number of students admitted to university. Figure 2 shows the empirical data from 2007 to 2018 and the projected values for the admission of students to Ukrainian universities of the III-IV accreditation level (for the forecast period 2019-2023).

Figure 2
Empirical and prognostic values of the number of students admitted to the universities of Ukraine of III-IV level of accreditation, thousand people



Calculated and constructed by the authors according to (Derzhavna sluzhba statystyky Ukrainy))

According to the forecast data (Figure 2), since 2019, a gradual increase in the number of students is expected due to the growth of fertility rates in Ukraine in 2002-2006. The forecast of the number of admissions to vocational education and training institutions also illustrates the tendency to increase this indicator over the period of 2020-2023 (Britsyna, 2017). However, it should be noted that such a tendency can be expected provided that other factors contributing to the formation of student body of Ukrainian universities remain unchanged. Given the aggravation of the economic and political situation in the country, which may increase the outflow of university entrants to European countries, the situation in Ukrainian higher education can deteriorate significantly. This demands from the government immediate action aimed at keeping the young population, which is the main source of forming and increasing of the country's human capital.

It should be noted that the demographic situation in Ukraine is not unique. Trends in population aging, declining birth rates and a corresponding reduction in the number of university students are characteristic of the vast majority of EU countries, other developed countries and the countries of the former USSR, as evidenced by the studies presented in the papers (Zelikova, 2014). So, as stated in the pages of the electronic edition of "Korrespondent.net", "...the population of European countries is on average older than residents of other parts of the world. The employees of the Berlin Institute of Population and Development came to this result in a social research". This, as the publication states, may cause a number of problems, including problems with the payment of pensions and social assistance in the future, problems with the search for highly skilled personnel. In 2015, the mortality rate in the 28 member states of the EU has exceeded the birth rate for the first time since the Second World War. However, according to forecasts, the population of the European Union will continue to grow and increase from 510 to 529 million people by the middle of the century due to immigrants from other countries (Zhurnal «Korrespondent.net»). In particular, the current migration crisis and its associated population influx into the EU (and, therefore, the outflow of population from the countries of origin of migrants) have positively influenced the demographic situation in Europe. The study also revealed the demographic heterogeneity of Europe: in the countries of Central, Western and Northern Europe, relatively high fertility and immigration rates are expected in the nearest future. The countries of Southern and Eastern Europe, by contrast, are threatened by demographic losses. As for Ukraine, the number of children, as mentioned in (Zhurnal «Korrespondent.net»), for 25 years (including 2017) has decreased by half in the country.

Thus, today, according to the authors, the threat to the economic security of Ukrainian universities, the loss of a potential student body, is determined by the effect of negative

demographic and migration processes, which, in turn, are the result of a long-term economic and political crisis, a significant deterioration in the living standards of population.

3.4. Trends in higher education development

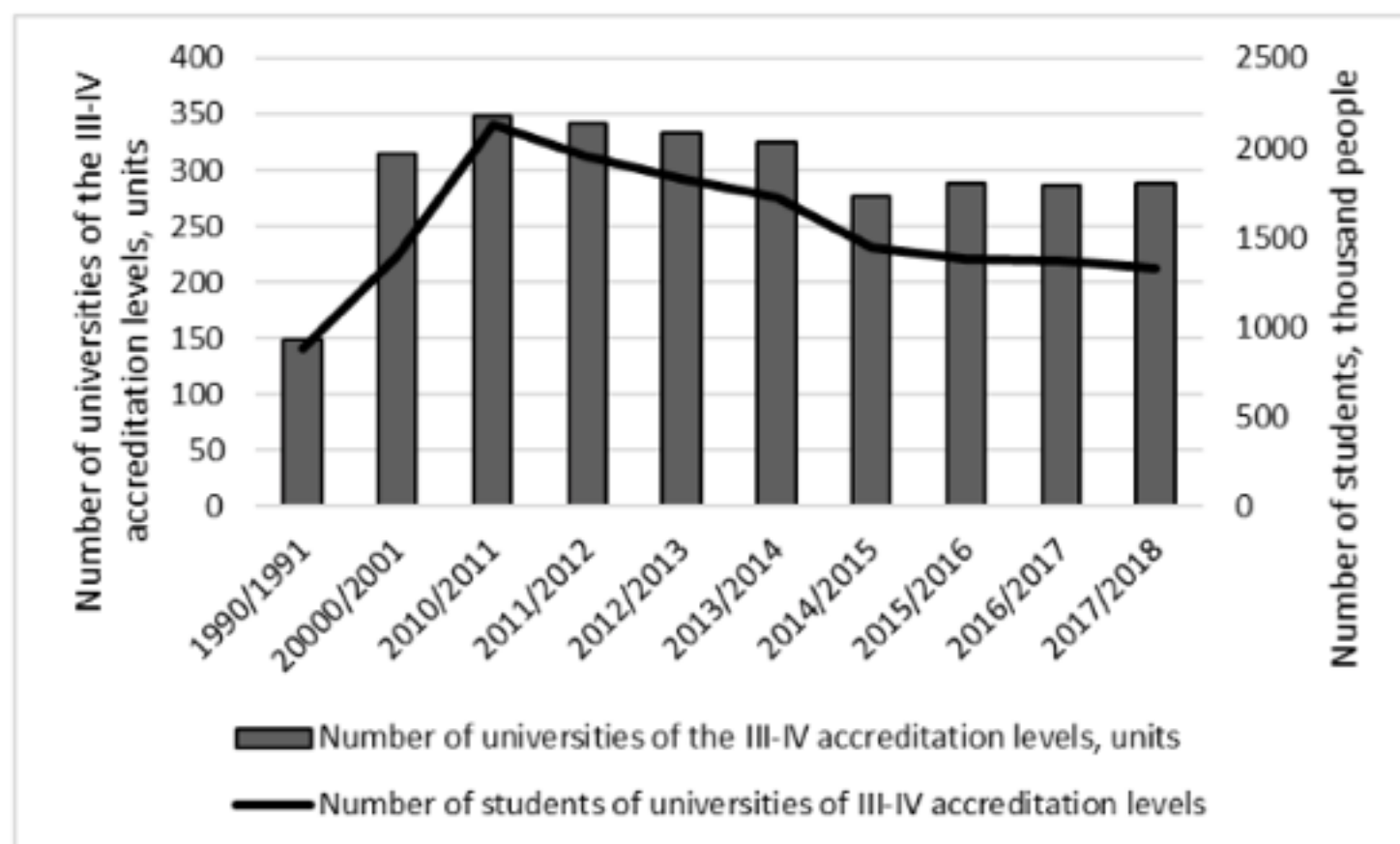
The imbalance of higher education system and labor market development complicates the strained situation on the educational services market in Ukraine which is also a significant threat to the economic security of universities. One of the reasons for the lack of effective interaction of Ukrainian universities with the labor market subjects is the lack of the economic system development forecast and the corresponding forecast of the personnel needs structure in the macro- and meso-levels, as well as in the context of certain types of economic activity, which leads to structural imbalances in the training of specialists in the system of higher education and the actual needs of employers in the workforce. The solution of this problem occurs at the level of individual universities by studying applicants' inquiries and the current needs of employers in specialists of different areas, which is effective only in the short term and does not ensure the achievement of the strategic goals of socio-economic development of individual regions and the country as a whole.

The incompetence of the higher education system to the needs of economic actors is aggravated by the influence of such factors as obsolete material and technical basis, low scientific potential of a number of universities, insufficient level of information and others (Antoniuk, 2015, p. 134).

In order to analyze the factors of the higher education economic security, statistical data on the student body dynamics and the number of universities of the III-IV accreditation levels (Antoniuk, 2015) have been studied. As shown in Figure 3, starting in 2012, the number of universities of the III-IV accreditation levels began to decrease, which was influenced by a number of objective factors of systemic action (market, demographic, socio-economic, and political, including events related to the situation in the Crimea and in the East of Ukraine).

Figure 3

Dynamics of the number of universities and the number of university students of the III-IV accreditation levels



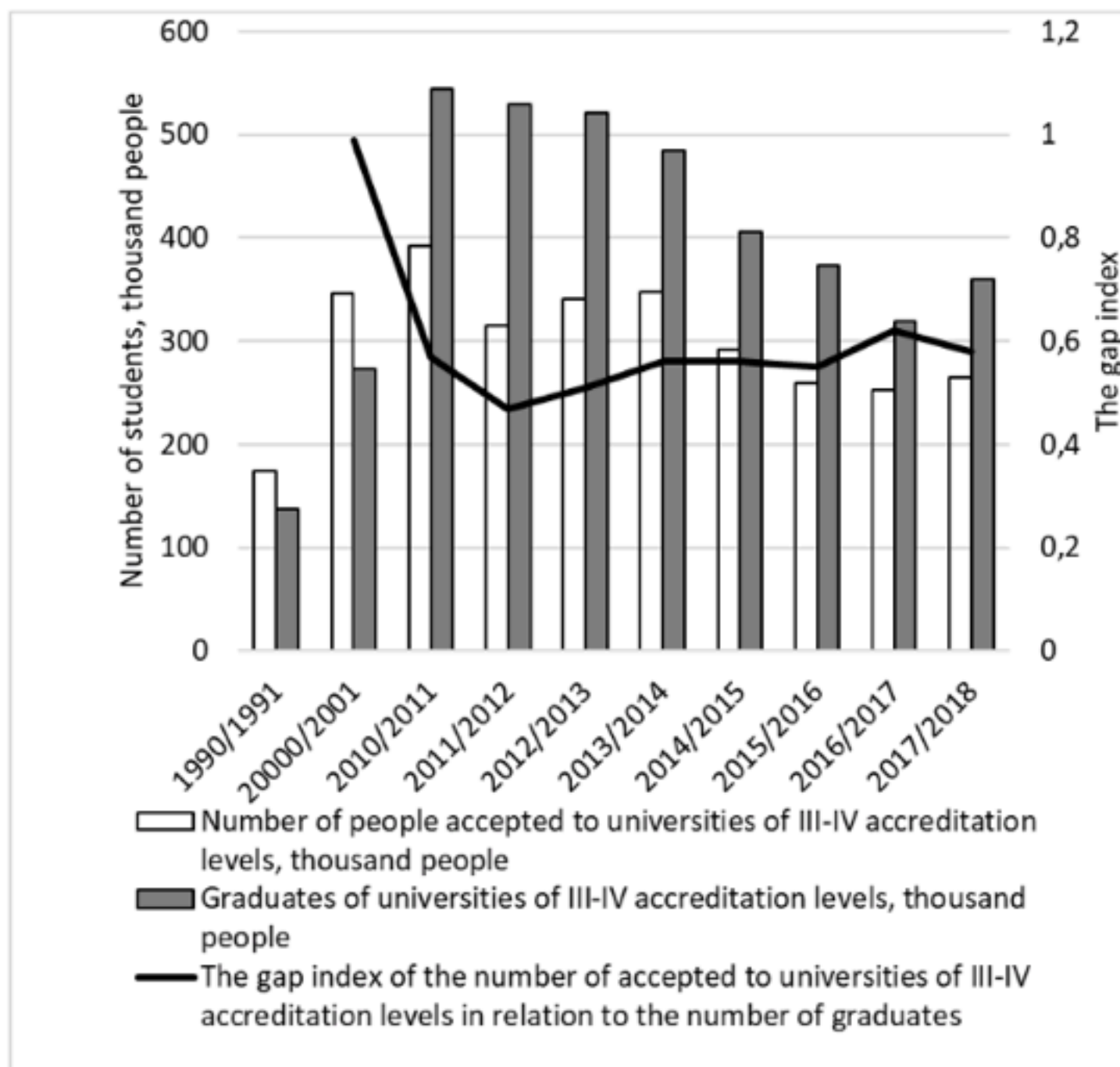
Constructed by the authors according to Karmazin, 2018;
Derzhavna sluzhba statystyky Ukrainy

According to the data of the given time series, the largest number of universities was in the 2010/2011 academic year (349 universities), after which there was a reduction of universities by 17.2%, which number in 2017/2018 was 289 higher education institutions. A

similar tendency is observed in the number of student body studying at Ukrainian universities (Derzhavna sluzhba statystyky Ukrainy): their number grew and reached the maximum value in the 2007/2008 academic year, when 2372.5 thousand people studied at universities of III-IV accreditation levels (the highest number for all years of Ukraine's independence). After this year, the gradual shortage (until 2010/2011 academic year) began, and from 2011/2012 a more rapid reduction in the number of university students can be observed due to the negative dynamics of the acceptance and graduates rates, shown in Figure 4.

Figure 4

Dynamics of acceptance and graduates rates by group of universities of III-IV accreditation levels



Calculated by the authors according to the data of the State Statistics Service of Ukraine Derzhavna sluzhba statystyky Ukrainy

The analysis of acceptance and graduates rates for the group of universities of the III-IV accreditation level indicates a critical gap in the growth rate of the people accepted to universities and the graduates, which began in 2000/2001 academic year with the rate of 0.99, and in recent years ranges from 0.47 to 0.62.

4. Conclusions

Thus, the current socio-economic situation in Ukraine is characterized by a tendency to outflow the labor force abroad, most of which are young people who leave to get education and employment, which leads to a decrease in the level of economic security of both individual universities and higher education system of the country as a whole. The main threats to the economic security of Ukrainian universities and the system of higher education

are the lack of student body as a result of negative migration and demographic processes, as well as inconformity of services provided by higher education institutions to the needs of economy. The above requires the reform of the higher education system in order to increase the competitiveness of Ukrainian universities both in the national and international educational services markets.

According to the "Strategy on reforming higher education in Ukraine till 2020", its main objective is "the creation of an attractive and competitive national higher education system integrated into the European higher education area and the European research area" (OSVITA.UA, 2018). At the same time, Ukrainian universities remain uncompetitive in the European educational services market, as evidenced by an increase in labor and academic migration of Ukrainians to EU countries, and the attractiveness of Ukrainian universities for foreign students from countries such as Turkmenistan, Azerbaijan, Iraq, India, Nigeria, Morocco, Jordan, China, Georgia, Uzbekistan, Turkey is explained, first of all, by the low cost of studying and living in Ukraine (Mizhnarodna orhanizatsiia z mihratsii, 2016, p. 23; OSVITA.UA, 2018).

This suggests that in the global socio-economic space the task of ensuring competitiveness and economic security should be considered as one of the state priorities, since education fulfills an important social function - preservation and increase of human capital as a key factor of competitiveness and sustainable development of Ukraine. This, in its turn, makes it necessary to monitor the state of the environment in order to develop strategic measures aimed at preventing threats and reducing risks, using additional opportunities for raising the level of competitiveness and economic security of higher education. To do this, it is necessary to develop a scientific and methodological support for the forecasting, monitoring and analyzing threats and opportunities of the higher education system and individual universities in the context of providing economic security, the formation of adequate conditions for a strategic management system of higher education in conditions of high turbulence of the environment. This will allow building an effective system of ensuring the economic security of the national system of higher education on the basis of taking into account existing and predicting potential threats and will create the basis for increasing the competitiveness and viability of national higher education system as an element of national security of Ukraine.

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