sciendo

NS global economics

ECONOMICS
Innovative and Economics Research Journal
Volume 12, No. 2, 2024
www.economicsrs.com

FORMATION OF THE BABY ECONOMY AS A PREREQUISITE FOR THE DEVELOPMENT OF THE HUMAN ECONOMY AND ADAPTATION OF THE NATIONAL ECONOMY OF UKRAINE TO THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT

Tetiana Ostapenko[1], Kostiantyn Pavlov[2], Olena Pavlova[2], Svitlana Bortnik[2], Alla Suriak[2], Liubomyr Matiichuk[3]

Received 06.02.2024. | Sent to review 26.02.2024. | Accepted 03.07.2024.

Original article

[1] National Aviation University, Kyiv, Ukraine

[2] Lesya Ukrainka Volyn National University, Lutsk, Ukraine

[3] Ternopil Ivan Puluj National Technical University

Corresponding Author:
Kostiantyn Pavlov

Email: pavlovkostya@gmail.com

JEL Classification: A10, A13, A14, C13, C20, D69, D83

Doi: 10.2478/eoik-2024-0017

UDK: 005.591.6:330.341.1(477)

ABSTRACT

The processes of kinship, gender and age stratification, early learning opportunities, socialization, and the ability to engage in creativity and optimize craft are crucial for developing the education economy. All these factors in the development of the education economy should turn a young person into an economic person with the ability to make effective production, technological, and managerial decisions regarding the development of his or her personality, society, and economic element.

It is worth noting that Ukraine is only forming a baby economy system. There are separate parts of it that the will of the state policy should unite. However, the private production and research sector should also be aimed at cooperating with educational institutions both in terms of production practices and highly specialized career guidance. Also, the education economy should be integrated into global educational processes, especially at the bachelor's and master's levels of university education.

Ukraine is joining global university networks to optimize higher education. Joining exemplary examples of global education should influence the development of Ukraine's national economy in the context of globalization. The processes of kinship, gender and age stratification, early learning opportunities, socialization, and the ability to engage in creativity and optimize craft are crucial for developing the education economy. All these factors in the development of the economy of education and upbringing should turn a young person into an economic person with the ability to make effective production, technological, and managerial decisions regarding the development of his or her personality, society, and economic element.

Keywords: *baby economy, human economy, adaptation of the Ukrainian economy, sustainable development*

1. INTRODUCTION

In economic life, some sectors are characterized by individualizing economic processes (Puška et al., 2020). This is the responsibility of the nano economy as a human economy because economic processes are performed by individual employees, from top managers to workers and local executives, because enterprises consist of individuals whose relationships form business relations (Akimova L., 2019).

Within the nano economy, the baby economy is distinguished, which should be a holistic seg-

ment of the human economy related to the household economy, the baby industry, and the education economy (Dergacheva, V., 2017).

This segment is gradually becoming a relevant system of economic development in general (Radukić et al., 2019). This segment also generates income for the owners, the state, and the regulatory sphere, which must be considered to adapt the economic system to the individualized aspects of the nanoeconomy. This issue is related to the possibility of formulating economic policy and the personal factor in the development of social production (Ostapenko, T., 2017, 2018; Kuzmak, O., & Kuzmak, O., 2023).

Within the nanoeconomy, the baby economy is distinguished since an economic person is not formed immediately in adulthood. A professional, highly qualified personality is formed during the period of formation during upbringing and education in the family and in educational institutions of various levels. The training of a specialist and the socialization of a child are the tasks of the baby economy, on which the nano economy as a whole is based (Koval, M., 2022).

The baby economy is a preparatory stage in the formation of the human economy when a household and its parents provide the first lessons of education, provide the child with everything necessary from the baby industry, and coexist with the education economy (Ehn, J., 2022).

The age of a person belonging to the baby economy is also essential. Learning can and should be lifelong, as evidenced by the innovative foundations of the Bologna Process (Osintsev, N. & Khalilian, B., 2023). However, it is necessary to determine the age at which the transition from the baby economy to the human economy can occur. (Pavlov, K., Pavlova, O. et al., 2021; Pavlov, K., Pavlova, O., Kryzhanivsky, S. & Savchuk, A., 2022; Horvathova, A., & Holomek, J., 2022; Pavlov et al., 2023).

There is no such age; it is a transition from education to work. For example, a young person can graduate from a vocational school at 18 or 19 and go to work, or he or she can graduate from university at 25 and find his or her first job. It is also possible for a young person to enter a postgraduate program, which is a transition from the baby economy to the human economy (Pavlova, O., Pavlov, K., Bortnik, S., Fedashko, T., & Kramar, O., 2023; Pryshchepaa Oksana, Kardasha Oksana, Yakymchuka Alina. and al., 2020).

2. LITERATURE REVIEW

C. Arrow addressed the issue of nanoeconomy development. Moreover, G. Kleiner was the first to note that the baby economy is a component of the nanoeconomy. V. Bazylevych analyzed the formation of the household economy and its management system (George R. Feiwel (ed.), 1987).

Institutional approaches to defining the components of the baby economy are based on the works of R. Coase, F. Knight, D. North, A. Alchian, and G. Demsetz. However, the problem of the interaction between education, family relations and the development of economic systems has not been sufficiently studied in methodological and substantive terms (Ilnytsky, D., 2014; Kleiner, G., 2004; Alchian, A., 1950; Alston, L., & North, D.,1996; Coase, R., 1990; Demsetz, H., 1964; Kurnaz A., 2022; Saqlain, 2023)

The baby economy is becoming the factor determining the dependence of production relations and productive forces on the quality of the conditions for growing up and the formation of the institutional foundations of the baby economy system.

It is known that institutions are the rules of the game, and their subjects are the players who implement these rules. We analyze the baby economy as a holistic institution. This aspect has yet to be studied in the economic literature (Ilychok, B., Karkovska, V., Dziurakh, Y., & Marмulyak, A., 2023; Erić, 2018).

3. AIM OF THE RESEARCH

The purpose of this scientific article is to identify the main aspects of the formation of the baby economy as one of the main prerequisites for the development of the human economy and the adaptation of the national economy of Ukraine based on sustainable development. This goal was outlined in the first place because today, the circumstances of the formation of the baby industry, which should be distinguished as a separate segment of the national economy and regulated by the state policy, need to be better understood.

4. METHODS

The influence of external environmental factors, the economic situation, political imperatives, and legal conflicts, in particular, becomes the basis for identifying these factors as determinants in creating the education economy and the nanoeconomic system. The multivariate analysis reflects the impact of the baby economy factors on the indicators of changes in the gross domestic product per capita in Ukraine (Strishenets, M., Pavlova, O., & Pavlov, K., 2019, 2023).

To quantify the relationship between the nano economy and the factors of the education economy, a multivariate regression was calculated, with the dependent variable being the gross domestic product per capita and the independent variables being the number of students in general secondary education and the number of students in higher education (Osayomi, T., 2013; Masyk, M., Buryk, Z., Radchenko, O., Saienko, V., & Dziurakh, Y., 2023).

The dependent variable, such as the gross domestic product per capita, reflects the conditions for developing the nanoeconomy, as this indicator reflects the human economy. Independent variables form the conditions of educational development within the education economy, particularly in Ukraine.

The coefficient of determination can be positive or negative and tends to be one or zero. If this coefficient tends to one and is positive, there is a strong direct relationship between the phenomena under study. If this coefficient is negative and tends to zero, it means an inverse loose relationship between the phenomena under study (Osayomi, T., 2013; Yakymchuk, A. *et al.*, 2020).

We are building a linear regression model.

The dependent variable is the gross domestic product of Ukraine per capita, UAH.

The vector of independent variables is the number of students in general secondary education institutions of Ukraine (number of people in universities, thousand).

The linear regression model has the following form:

$$Y = a_0 + a_1 \cdot X_1 + a_2 \cdot X_2 \quad (1)$$

The data for 1996-2022 were studied.

Results of the study:

$$Y = 217278.063 - 24.147 \cdot X_1 - 36.633 \cdot X_2 \quad (2)$$

As a result of the regression analysis, an econometric model of the dependence of the development of the nanoeconomy and the baby economy in Ukraine was built.

Call:

lm(formula = GDP ~ ME + HE, data = REG)

Residuals:

Min	1Q	Median	3Q	Max
-27466	-6656	-1177	5479	30162

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	217278.063	16591.618	13.10	2.01e-12	***
ME	-24.147	2.159	-11.19	5.26e-11	***
HE	-36.633	5.843	-6.27	1.76e-06	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 13220 on 24 degrees of freedom

Multiple R-squared: 0.8511, Adjusted R-squared: 0.8387

F-statistic: 68.6 on 2 and 24 DF, p-value: 1.186e-10

Table 1. Input data for building a regression model

Year	*Gross domestic product per capita*	*Number of students in general secondary education institutions*	*Number of people in higher education institutions*
1	2	3	4
1996	1595	7143	922.8
1997	1842	7134	976.9
1998	2040	7078	1110
1999	2614	6987	1210.3
2000	3436	6857	1285.4
2001	4340	6764	1402.9
2002	4855	6601	1548.8
2003	5801	6350	1686
2004	7535	6044	1843.8
2005	9703	5731	2026.7
2006	12076	5399	2203.8
2007	16150	5120	2318.6
2008	21419	4857	2377.5
2009	20564	4617	2364.5
2010	24429	4495	2245.2
2011	29519	4299	2129.8
2012	32002	4292	1954.8
2013	33473	4222	1824.9
2014	36904	4204	1723.7
2015	46413	3757	1438
2016	55899	3783	1375.2
2017	70170	3846	1369.4
2018	84228	3922	1330
2019	94633	4042	1322.3
2020	101138	4138	1266.1
2021	70500	4211	1142
2022	98080	4230	1047

Source: State Statistics Service of Ukraine

5. RESEARCH RESULTS

We emphasize that the starting point for the formation of an economic person is the relationship within households. Family ties become a crucial factor in the acquisition of creative skills and the development of nanotechnology solutions.

Table 2. Characteristics of Ukrainian households

	2010	2016	2020	2021	2022
Average household size, persons	2,59	2,59	2,58	2,58	2,58
Total expenditures per month on average per household, UAH	3073,3	4952,0	9670,2	9523,6	11243,4
The structure of total household expenditures, %	Percentage				
Consumer aggregate expenditure	89,9	92,9	91,3	91,4	91,3
Food and non-alcoholic beverages	51,6	53,1	46,6	48,1	45,9
Non-food goods and services, including:	34,9	36,5	41,5	39,8	42,4
Clothing and footwear	6,0	5,7	5,5	4,8	4,8
Housing, water, electricity, and gas	9,2	11,7	14,6	14,4	15,2
Household items, household appliances	2,3	2,0	1,8	2,2	2,2
Education	1,3	1,1	1,1	0,9	1,0

Source: State Statistics Service of Ukraine

Table 2 shows that households in Ukraine consist of two to three people, not all of whom have children.

Household expenditures have grown over the past decade from UAH 3073.3 (2010) to UAH 11243.4 (2022). The devaluation of the hryvnia against the US dollar and inflation caused this growth. However, personal incomes have also been growing, from 2000 UAH in the 2000s to 15000 UAH in 2022.

For most Ukrainian enterprises and institutions employees, salaries have been indexed, but there are still payments without taxes. (State Statistics Service of Ukraine).

Statistics for 2022 show a decline in these indicators, as the hostilities have led to a decline in personal and household income and higher costs for essential goods and services.

It should be noted that the family budget includes such an expense item as education. It accounts for up to 1.3% of total household expenditures in Ukraine. This is payment for upbringing and education, from preschool to university. A nation whose individuals spend on education has all the prospects for rapid development (Nwaibe, C.I., Ogbuefi, J.U., & Egbenta, I.R., 2022).

The system of internal factors includes heredity, living conditions, a sense of security, early education, socialization, and the opportunity to engage in creativity. External factors, such as legal conflicts, political imperatives, and the macroeconomic situation, are also being formed (Jia, N., 2024). Let us analyze the impact of these factors on the formation and development of the baby economy in Ukraine.

The kinship system within a traditional society plays a significant role in the development of the baby economy. Ukraine has had a genealogical kinship system since the Middle Ages, which forms a branched scheme in the form of a family tree that reflects kinship. The following types of kinship can be distinguished

- biological (blood, physiological),
- social (social and family, fictitious),
- economic (economic), which indicates a hierarchy - from the closest relatives to the conditional relatives and the head of the family business.

Biological or blood kinship in traditional society corresponds to the concept of "clan." Social kinship was distinguished within the same family and outside of it - through marriage (half-sibling), adoption, and the sacrament of baptism. The head of the economic kinship entities is the most productive owner, on whom other family members begin to depend. Small and large families formed the traditional economic culture of Ukrainians (Swiatkiewicz,O., 2022).

It should be noted that such a resource as heredity implies kinship and gender and age stratification in forming the baby economy. The economic characteristics of a person can be created within the framework of tradition within the family and its linear vertical system. Such systems are interdependent, so European values influence the systems developing in different geographical sectors of the world.

For example, the Japanese, at least in their clothing, use European traditions. At the same time, Europe is increasingly turning to older people who represent the "silver economy" and aiming to gain experience from such individuals. Other less developed nations can copy economies characterized by high levels of competitiveness and inclusive development. In Ukraine, it is expected that the leading types of behavior from Europe and America will be imitated.

The economic sense of mutual aid implies the possibility of sharing wealth between different groups of the population, and mutual aid is also characterized by modern Ukrainians who, forced or not, have left to work in other countries and send part of their wealth back home.

These funds make up a significant share of the income of Ukrainian families. A significant number of Ukrainians also have married representatives of other nations. Such international families involve mixing cultures of family relationships and forming a hybrid global family. Ukrainians assimilate into the space of the countries they leave, while Ukrainian traditions become the basis for renewing the cultures of other nations.

The economic content of international marriage relations and the Ukrainians involved in them is that they create households that are producers and suppliers of goods for the whole society and use them themselves, an element of globalization phenomena. A child born into such an international family becomes a cosmopolitan and influences the formation of the nanoeconomy as a global phenomenon through his or her actions. G. Kleiner noted that nanoeconomics is the skill of making effective economic and production decisions regarding the development of a person and his/her environment (family in particular) (Nwafor, B. & Eguruze, E., 2022).

The Concept for the Development of Preschool Education in Ukraine, developed for 2010-2016, is the following resource supported by education economics and early learning opportunities. The concepts of preschool education are spelled out in the Concept, and they are crucial in forming a baby economy system and its component, the education economy. These principles are as follows:

- scientificity with an emphasis on the development of modern scientific achievements in the fields of psychology and pedagogy of preschool education. It should be emphasized that preschool education should be developed within the framework of education economics as a system of knowledge, skills, and competencies to make optimal decisions about one's existence and existence in a family and household;
- personal potential: For effective existence within the education economy, a child must learn to use his or her potential, including economic potential;
- accessibility of education. The world's leading educational technologies should be implemented in preschool education, and every child under the age of six should be able to join them;
- close connection with the globalization problems of humanity and humanity, which all members and centers of the world community must overcome. Their solution can start

from the chosen educational institution when a preschool child understands himself or herself and can try to solve his or her problems by approving productive solutions;

- unity of public and family education. The areas of preschool education should continue the values formed in the family and passed down from generation to generation. For Ukraine, these values include respect for elders, respect for women, respect for learning and scientific achievements, and an individual approach to business and entrepreneurial practice.

This means that, on the one hand, public authorities should support early education in preschools; on the other hand, private kindergartens have the right to exist. All of these institutions should be integrated into the education economy and become a starting point for the further success of preschool children. Socialization is the following resource for shaping the baby economy process. This concept is correlated with another concept, "education," because the conditions for entering an economic society depend on education.

The Concept of "upbringing" is broader, as it also covers archaic, spontaneous processes independent of educators' will. Also, the term "socialization" refers not only to the younger generation but also to agents of all age groups and aims at the socio-cultural adaptation - inclusion - of each individual to the changed social conditions: for example, the inclusion of a woman in a group of married women is also accompanied by a process of inclusion (Hakobyan, N., Dabaghyan, A. & Khachatryan, A.,2022).

Parents' behavior determines the child's social status and future position during pregnancy. Prohibitions and rules became the basis for parents' adherence to certain family traditions of a particular society. Moreover, the correction of these taboos had irreparable consequences: disabled children were born, children born out of wedlock, that is, the category of individuals who are outside the status in traditional society (they have minor rights and are often ignored and despised by society).

The following resource of the baby economy is the ability to create individually or within a group. For the education economy and the nanoeconomy, crafts development is significant. Thus, children were taught those aspects of creativity that influenced the ability to be an artisan. These young people had the opportunity to improve their craft and apply high technology to improve the process and product.

Establishing professional crafts, especially in cities, led to a new sphere of production and a new social layer - urban artisans. The emergence of workshops developed forms of their organization, protected the interests of artisans, and created favorable conditions for the evolution of urban crafts in the Middle Ages. The leading branches of urban crafts were cloth-making, metalwork, and glassware. Factory production replaced crafts during the Industrial Revolution (mid-eighteenth - first half of the nineteenth century). (Strisheniets, M., Pavlova, O., & Pavlov, K., 2023).

All national economies in the world can be divided into traditional and corporate ones: traditional ones involve producing handicraft products (these countries include Italy, Greece, Spain, etc.). The second group of countries with more corporate characteristics produces standardized products that can be bought in different parts of the world. In Ukraine, the artisanal environment was destroyed during the Soviet era. However, today, these crafts are beginning to revive within small businesses, and they are gradually restoring the traditions of producing end products that are usually artisanal. Of course, the craft system of production relations is increasingly focused on unique technologies (Ray, A., 2022).

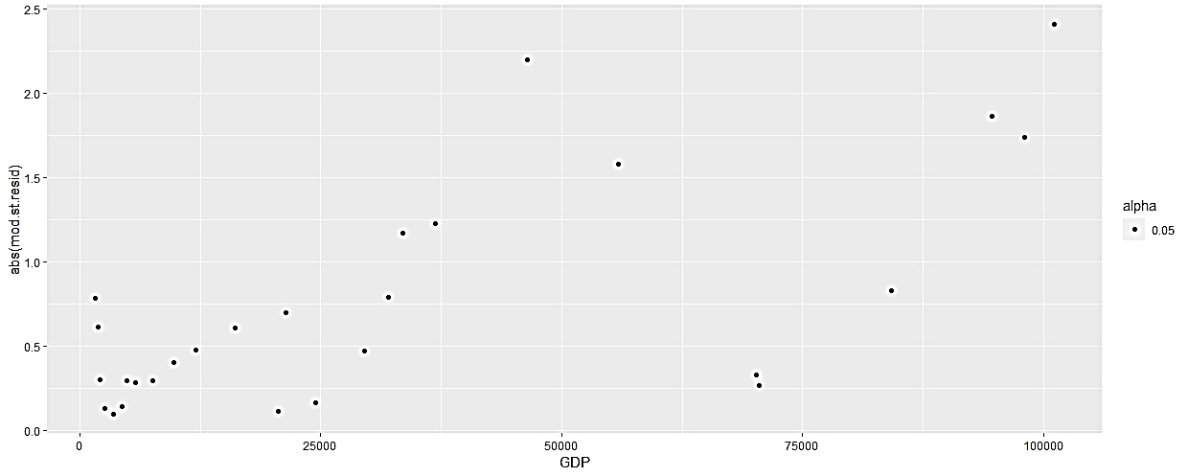
For a small business to survive, it is necessary to pass on the traditions of production processes to descendants; when knowledge is passed down from father to son, and if it is supported

by education, this process becomes the key to success. The education economy is becoming a platform for the creative pursuits of the younger generation, which will become the basis for developing the entrepreneurial environment in their country and the global environment.

6. DISCUSSION

The results show a sufficient quality of the model, all coefficients are statistically significant, and the coefficient of determination (0.8511) is relatively high, which indicates a linear relationship between the factor and target variables. Let us check the model for heteroscedasticity, multicollinearity, and autocorrelation. We check for heteroscedasticity using the Breusch-Pagan test, as shown in Figure 1.

Figure 1. Variance plot of model residuals



Source: Author's development

Breusch-Pagan test
data: mod
BP = 14.386, df = 2, p-value = 0.0007518

Non-constant Variance Score Test
Variance formula: ~ fitted.values
Chisquare = 14.12962, Df = 1, p = 0.00017064

The test showed that the variance of the residuals is variable and heteroscedasticity is present. p = 0,0007518, which gives us a rejection of the homoscedasticity hypothesis.

Checking for multicollinearity of the model using the Belsey method:
Consider the correlation matrix X (Figure 2).

Figure 2. Correlation matrix

	ME	HE
ME	1.000000	-0.260831
HE	-0.260831	1.000000

Source: State Statistics Service of Ukraine

Observing a low pairwise correlation coefficient (<0.3) between a pair of variables, we can conclude that there is no multicollinearity in the system.

Overall Multicollinearity Diagnostics

	MC Results	detection
Determinant |X'X|:	0.9320	0
Farrar Chi-Square:	1.7262	0
Red Indicator:	0.2608	0
Sum of Lambda Inverse:	2.1460	0
Theil's Method:	-0.7151	0
Condition Number:	13.7207	0

1 --> COLLINEARITY is detected by the test

0 --> COLLINEARITY is not detected by the test

For all indicators, the Belsi test shows the absence of multicollinearity.

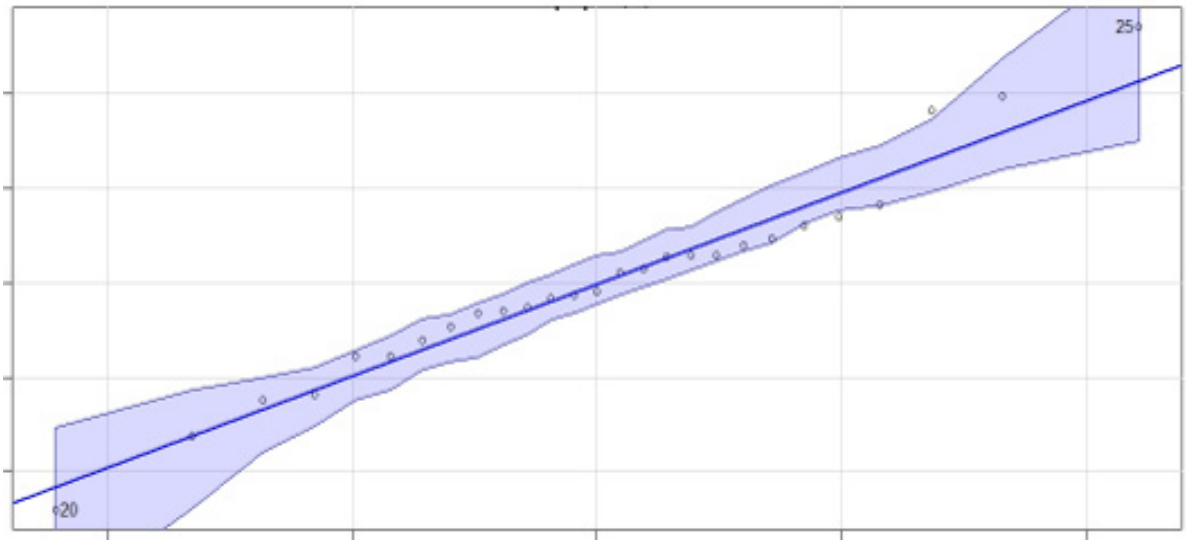
Checking for autocorrelation of residuals using the Durbin-Watson method:

lag	Autocorrelation	D-W Statistic	p-value
1	0.6078488	0.6550543	0

Alternative hypothesis: rho != 0

The results of the Durbin-Watson test confirm the existence of autocorrelation of the residuals in the model (Figure 3).

Figure 3. The presence of autocorrelation of residuals in the model



Source: Author's development

As a result of the calculations using this model, the coefficient of determination, which determines the density of the relationship between the independent and dependent variables, is relatively high and amounts to R=0.8511. The calculated coefficient of determination reflects that the nano economy is significantly influenced by the indicators of the development of the education economy (a component of the baby economy). These calculations determine the dependence and mutual influence between the baby economy and the nanoeconomy, which makes it possible to outline the boundaries of the formation of the nanoeconomy system as a whole.

The results of the multivariate analysis show that Ukraine's gross domestic product, its per capita indicator, has a direct but sufficient dependence on the indicators of the development of the baby economy (mainly the education system). The model shows that GDP per capita depends most on school and university education development. This can be explained by the popularity of educational institutions among parents and their use for children's education and upbringing.

The per capita gross domestic product is the indicator that determines the development of the nano economy, as it is each individual's contribution to the formation of the country's gross domestic product. This determinant depends on education because the higher the education of individuals, the more significant their impact on creating goods and services in a particular country. For many countries, the level of education determines the level of competitiveness. For example, ranking the world's most competitive economies is based on such an indicator as education. For example, the multivariate regression conducted in this study reveals a significant relationship between gross domestic product per capita and the number of school and university students.

Education and training processes become the basis for transforming production factors into active economic behavior. As a result, an individual becomes involved in economic relations within a given society. Education expenditures in Ukraine are formed yearly, and statistics are shown in Table 3.

Table 3. Education spending in Ukraine, 2022

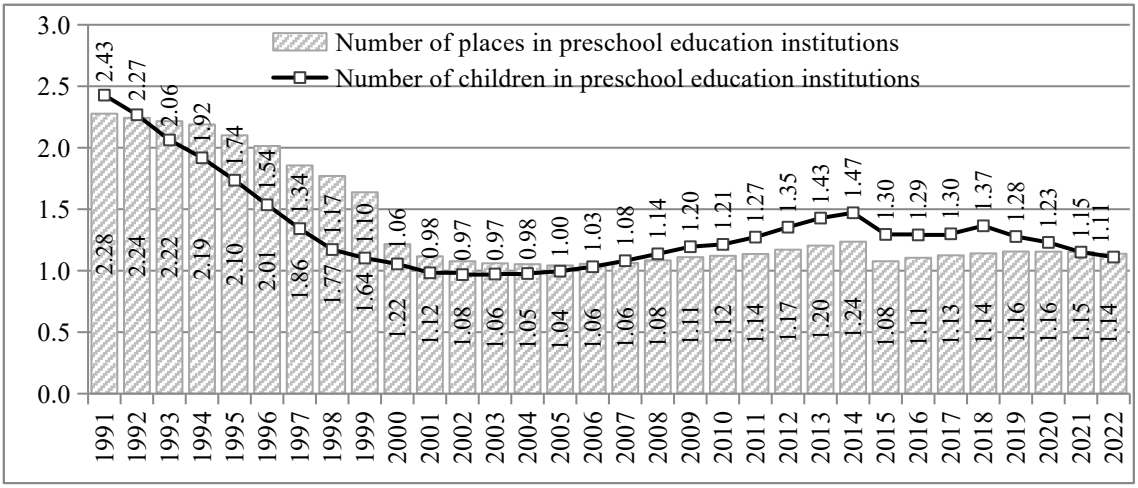
Name	Expenses (UAH thousand)
Preschool education	38373500,9
Primary education	51263408,6
The first stage of secondary education	56972771,3
The second stage of secondary education	18651649,3
Post-secondary not higher education	12571850,7
Higher education	71831481,3
Doctoral studies	3218666,3

Source: State Statistics Service of Ukraine

These data show that most funds are spent on higher education and the first stage of secondary education. This situation is crucial for developing practical skills and mastery of the profession.

The first stage of secondary education requires a playful approach to learning, where classrooms should be appropriately equipped. The economy of education also requires costs within the baby economy, which are significant funds that will pay off in the future.

Figure 4. Preschool education institutions in Ukraine, 1990-2021, number, million

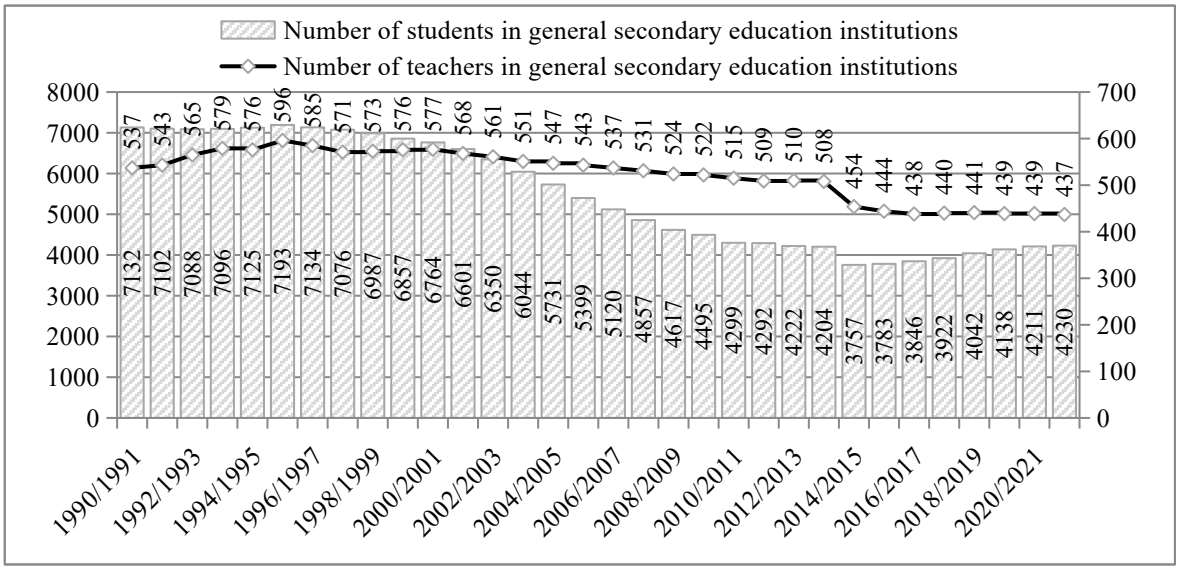


Source: State Statistics Service of Ukraine

Figure 4 shows that the processes of education and training are initiated by preschool education. Thus, until 2005, there were a significant number of vacant places in preschools in Ukraine, and since 2005, there has been a need for more applicants when there are more applicants than the preschool education system can provide.

Education in general secondary education institutions in Ukraine is linked to the demographic situation: a decline in the birth rate has led to a decrease in the number of secondary school students. The number of teachers in schools has also been steadily declining. For the education economy, a decline in school enrollment leads to a decline in class size. Thus, teachers can pay more attention to each student and demand the necessary response to intensify learning. The number of students in Ukrainian schools is shown in Figure 5.

Figure 5. Development of general secondary education in Ukraine, 1990-2022, number of students, teachers, thousand



Source: State Statistics Service of Ukraine

An individualistic approach to education is the basis for developing children's competencies in making optimal decisions in their studies and everyday life. Interactive learning in classrooms with fewer children should have an impact on the effectiveness of the learning process.

The global educational space can be a prerequisite for using advanced educational achievements. At the same time, learning advanced methods in various fields of knowledge provides an opportunity to continue studying at universities in developed countries. Cosmopolitanism is becoming a philosophy of education and the life foundation for developing an economic personality taught in educational institutions of different levels in a particular country.

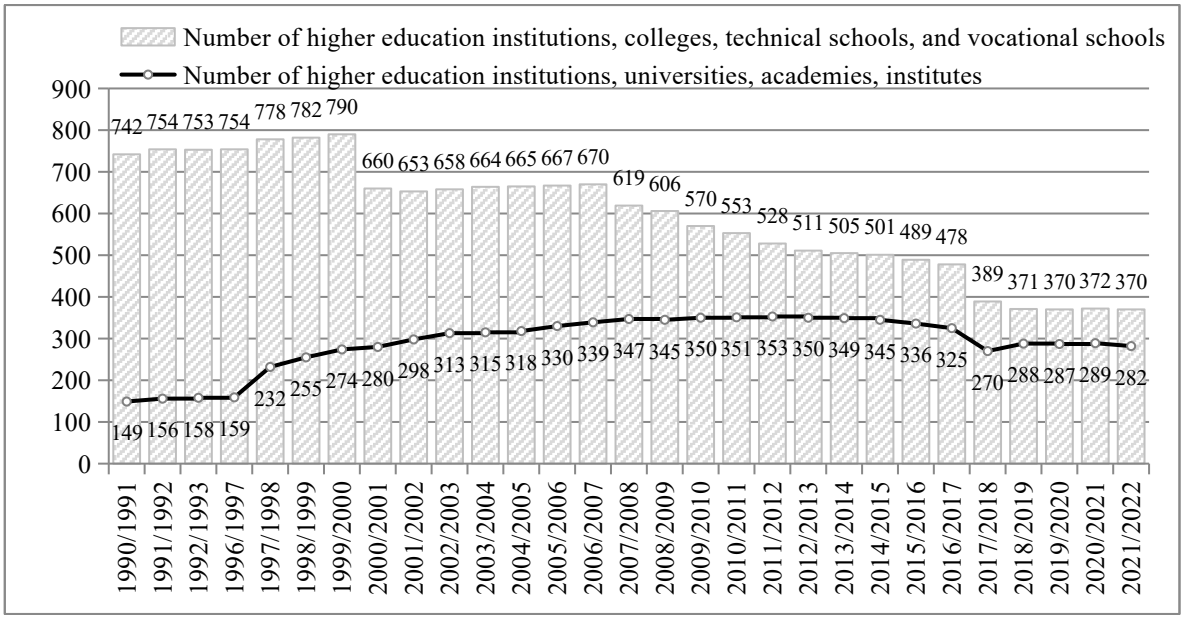
Cosmopolitanism prevails over the narrow knowledge of students of closed systems within the national sphere of knowledge. It is known that studying world languages and literature, mathematics, and natural sciences means being a citizen of the developing world in the context of globalization.

Specific competencies result from secondary education, including humanities, technical, natural, artistic, etc. From the seventh grade onwards, specialization should occur based on acquiring specific skills and relevant competencies. A child who graduates from high school has specific knowledge that can be used to enter a university.

Studying at university allows one to form a personality and become a highly qualified specialist. The Bologna Process is the key to shaping higher education on global approaches, and Ukraine is joining these processes. (Zhadan, O., 2011).

Private higher education, popular in 1990-2000, has faded into oblivion, and the predominance of public educational institutions, with national universities taking the lead, has become the basis of the country's higher education system. According to statistics, in 2019, between 15 and 25% of school graduates did not pass the external independent evaluation, while the rest were potential students of higher education institutions. Ukraine has statistics on the number of universities from 1990/1991 to 2021/2022 (Figure 6).

Figure 6. Higher education institutions of Ukraine, 1990-2022, number of units



Source: State Statistics Service of Ukraine

As seen in Figure 6, the number of colleges, technical schools, and vocational schools has almost halved since independence, and the number of universities has doubled. However, the total number of higher education institutions is gradually declining. These data show the popularity of higher education in our country. An increasing number of school graduates are becoming university students.

The main credo of a university graduate is to apply fundamental knowledge in practice to the

maximum extent possible and make effective professional decisions. Theory must be applied in practice. Moreover, highly qualified specialists should make the most of their knowledge in practice.

Thus, higher education is gradually changing, and in parallel, changes are being made to the manufacturing sector in line with the requirements of the times. In order to have an active education economy, it is necessary to form an educational complex with a system of extensive specialization of the education economy and the corresponding requirements for a future specialist. (State Statistics Service of Ukraine).

In addition, the national education economy should include the global processes of activating the baby and nano-economies. The global innovation space is based on global economic, scientific, and technological innovations, and education is becoming a platform for this.

Where national youth receive their education determines the conditions for integrating specialists into the global labor market. According to the Ministry of Economy, 70,000 Ukrainian citizens are studying abroad.

From 2009 to 2016, Ukrainian students abroad increased by 186%. The most important reasons for choosing to study in Poland are obtaining a European diploma (51%), unsatisfactory living conditions in Ukraine (47%), and obtaining better knowledge (45%). (Efimenko, T., & Sokolovska, A. (Eds.), 2018).

It should be noted that Ukraine is not only a supplier of students but also a recipient of their products. Thus, in the first months of 2018, 25263 international students received invitations to study in Ukraine. The list of countries that sent the youngest people to study in Ukraine is as follows:

1. Morocco - 4254 students;
2. India - 3210;
3. Nigeria - 1987;
4. Turkmenistan - 1724;
5. Egypt - 1161;
6. Ghana - 1136;
7. Algeria - 1115;
8. Pakistan - 950;
9. China - 882;
10. Turkey - 634 (Efimenko, T., & Sokolovska, A. (Eds.), 2018).

The above data demonstrate that Ukrainian education is attractive to foreign youth. The country is actively involved in international educational processes. We send more students than we receive. This situation requires the optimization of educational processes. For the economy of education and its system, families must decide to study abroad, and the preparation takes place at school. (Ostapenko, T., 2017).

Thus, a teenager between the ages of 14 and 15 should already choose a university by the preparatory career guidance program. Moreover, this is the connection between school and university education and their development within the economy of the educational process and upbringing. In addition, sending and receiving students involves the inclusion of our country in global educational networks. These networks determine the possibility of including national higher education institutions in global curricula and improving the quality of education.

Higher education should be optimized in line with global processes. This is an important issue, as according to the world rankings of universities, the first place among Ukrainian universities

is occupied by Karazin Kharkiv National University, 401 - by Taras Shevchenko Kyiv National University, 501 - by Igor Sikorsky Kyiv Polytechnic Institute, 701 - by Kharkiv Polytechnic Institute, 801 - by Donetsk National University and Sumy State University. (QS Top Universities., 2020, May 28).

The formation of an education economy will make it possible to improve education quality and the conditions for providing educational services both within Ukraine and abroad. In addition, optimizing the following educational areas will help improve the quality of the educational process. (Cherevko, O., & Radzikhovska, Y., 2016):

- academic reputation (40% of importance);
- reputation among employers (10%);
- ratio of students to teachers (20%);
- number of publications per lecturer (20%);
- the share of foreign teachers (5%);
- share of foreign students (5%).

The economy of education involves teaching young people to make effective economic and production decisions and to enter adult professional life with knowledge, competencies, and skills that will help them be creative for the benefit of Ukraine and the world. The experience of leading universities shows that it is necessary not only to improve the educational process within the country but also to increase economic development in the country. The high correlation between education and economic development is the basis for forming quality education. (Ostapenko, T., 2018). Table 4 shows the volume of production of industrial products for children in Ukraine.

Table 4. Production of industrial products for children, by type of activity in Ukraine, as of January 01, 2022

Type of industrial product	Units of measurement	Total number in 2021	In % by 2020
Apple juice for baby food	thousand liters.	85031,0	81
Mixtures of fruit and vegetable juices for baby food	thousand liters.	4739,3	106,2
Milk and cream for infant food, condensed and without added sugar or other sweetening substances, with a fat content of more than 1% but not more than 6%, in primary packages with a net volume of not more than 2 liters	tons	22514	100,6
Baby food, packaged for retail sale (except for mixtures of hydrogenated foods)	tons	6597	107,3
Sets and suits for men and boys made of cotton fabric or synthetic or artificial fibers, industrial and professional	thousand unit	1748,0	98,3
Other articles of clothing for women and girls of cotton or synthetic or artificial fibers, industrial and professional	thousand unit	856,0	167,5
Knitted jackets and blazers, machine and hand knitted, for women and girls	thousand unit	320,1	70,4
Knitted suits and sets, machine or hand knitted, for women and girls	thousand unit	153,8	217,8
Knitted dresses, machine or hand knitted, for women and girls	thousand unit	1142,1	83,0
Knitted clothing and clothing accessories, machine-knitted or hand-knitted, for infants (for children not exceeding 86 cm in height), including shirts, onesies, overalls, elastic suits, gloves, mittens and mittens, outerwear	thousand unit	4996,0	97,9
Toys depicting animals and other creatures other than humans	unit	233216	51,3
Toy trains and accessories for them, reduced-size models, assembly kits and other toys for construction	unit	3573292	181,6
Puzzle games	thousand unit	2328,8	85,0

Source: State Statistics Service of Ukraine

As Table 4 shows, children's products have a high level of added value in Ukraine. Such products cost the same as those for adults, which makes their production quite profitable and sales profitable.

In general, goods for children tend to increase in volume. Production volumes of women's and girls' suits and machine- or hand-knitted sets have more than doubled, indicating increased demand and opportunities to sell such products on the Ukrainian market.

Children's clothing is generally produced in large volumes and can be sold abroad.

Ukrainian children's products are competitive and contribute to the country's full integration into the global environment.

Food products for children are also produced in sufficient volumes for the domestic market with high annual change rates.

These products are also promising for export and adaptation to the international environment. Food universities teach disciplines on the technology of food production for children.

These must be very high-quality products with no harmful substances. International standards are in place here, and their implementation will facilitate Ukraine's entry into the global economic environment. It is a symbiosis of family values, the education system, and the production quality.

7. CONCLUSIONS

It should be noted that the baby economy ends with transitioning to the first job after graduation from university or mastering a working profession. A modern young specialist enters the workforce with the ability to create and be creative. The baby economy is closely related to the creative economy, where creative thinking should be instilled in preschool and developed at school and university.

The processes of kinship, gender and age stratification, early learning opportunities, socialization, and the ability to engage in creativity and optimize craft are crucial for developing the education economy. All these factors in the development of the education economy should turn a young person into an economic person with the ability to make effective production, technological, and managerial decisions regarding the development of his or her personality, society, and economic element.

It is worth noting that Ukraine is only forming a baby economy system. There are separate parts of it that the will of the state policy should unite. However, the private production and research sector should also be aimed at cooperating with educational institutions both in terms of production practices and highly specialized career guidance. Also, the education economy should be integrated into global educational processes, especially at the bachelor's and master's levels of university education.

Ukraine is joining global university networks to optimize higher education. Joining exemplary examples of global education should influence the development of Ukraine's national economy in the context of globalization.

The processes of kinship, gender and age stratification, early learning opportunities, socialization, and the ability to engage in creativity and optimize craft are crucial for developing the education economy. All these factors in the development of the economy of education and upbringing should turn a young person into an economic person with the ability to make effective production, technological, and managerial decisions regarding the development of his or her personality, society, and economic element. It should be emphasized that Ukraine is only forming a system of baby economy. Separate parts of the nano- and baby-economy are sepa-

rate, and only the state should unite them. However, the private business and research sectors should be ready to cooperate with educational institutions regarding production practices and narrow professional orientation. In addition, the education economy should be integrated into global educational processes, especially at the bachelor's and master's levels in universities. Higher and secondary education process optimization should be based on the use of practices and experience of global educational networks. Compliance with the educational process examples should complement the development of Ukraine's national economy and its relations with countries worldwide.

REFERENCES

Akimova L., Levytska S., et al. (2019). The role of accounting in providing sustainable development and national safety of Ukraine. *Financial and credit activity: problems of theory and practice*. 3(30), 54-61. https://doi.org/10.18371/fcaptp.v3i30.179501

Alchian, A. (1950). Uncertaintly, Evolution and Economic Theory. *Journal of Political Economy*, 58, 211–221. https://doi.org/10.1086/256940

Alston, L., & North, D. (1996). Empirical Studies in Institutional Change. *Cambrige University Press*. https://econpapers.rec.org/bookchap/cupcbooks/9780521553131.htm

Cherevko, O., & Radzikhovska, Y. (2016). *Diagnostics of economic security of higher education institutions in international rankings*. Investments, practice and experience, 24, 32–36. http://www.investplan.com.ua/?op=1&z=5292&i=6

Coase, R. (1990). *The Firm, the Market, the Law. Chicago*. University of Chicago Press. https://econpapers.repec.org/bookchap/ucpbkecon/9780226111018.htm

Demsetz, H. (1964). The Exchange and Enforcement of Property Rights. *The Journal of Law and Economics,* 7, 11-26. https://www.sfu.ca/~wainwrig/Econ400/documents/demsetz64-JLE-propertyrights.pdf

Dergacheva, V., & Ostroverkha, D. (2017). The role and importance of international outsourcing: Foreign experience and prospects for its implementation in Ukraine. *Economic Bulletin of the National Technical University of Ukraine «Kyiv Polytechnic Institute».* 14. https://ev.fmm.kpi.ua/article/view/108745/103691

Efimenko, T., & Sokolovska, A. (Eds.). (2018). Mechanisms of financing and fiscal incentives to attract investment in science and education. *State Educational and Scientific Institution "Academy of Financial Management".* https://afu.kiev.ua/getfile.php?page_id=1002&num=1

Ehn, J., Horvathova, A., & Holomek, J. (2022). Managing during the crisis: Factors coming from inside the society. *Marketing and Management of Innovations*, 13(3), 172–181. https://doi.org/10.21272/mmi.2022.3-15

Erić, O. (2018). Education and Economic Growth of the Western Balkans Countries. *ECONOMICS - Innovative and Economics Research Jjournal*, 6(2), 27-35. https://doi.org/10.2478/eoik-2018-0021

George R. Feiwel (ed.), 1987. "Arrow and the Foundations of the Theory of Economic Policy," *Palgrave Macmillan Books, Palgrave Macmillan, number 978-1-349-07357-3*, December. https://ideas.repec.org/b/pal/palbok/978-1-349-07357-3.html

Hakobyan, N., Dabaghyan, A. & Khachatryan, A. (2022). Strategies of Post-War Anomie's Overcoming in the Fields of Social Interactions and Business. *Business Ethics and Leadership*, 6(3), 105-112. https://armgpublishing.com/wp-content/uploads/2022/10/BEL_3_2022_10.pdf

Hyneman K. F., Knight F. (1972). Economist, Dies. *The New York Times.* 1 April. https://www.nytimes.com/1972/04/21/archives/dr-frankknighti-egonosqlst-dies-widely-credited-as-the-main.html

Ilnytsky, D. (2014). Universities in the global knowledge economy: intellectual capital. *Global and national problems of the economy*, 2, 87–94. http://iepjournal.com/journals_eng/22/2015_6_Ilnitskii.pdf

Ilychok, B., Karkovska, V., Dziurakh, Y., & Marмulyak, A. (2023). Changing trends in Ukraine's demographic security as A key indicator of socioeconomic stability. *Financial and Credit Activity: Problems of Theory and Practice*, 2(49), 350–360. https://doi.org/10.55643/fcaptp.2.49.2023.4020

Jia, N. (2024). How Does Organisational Politics Impact Innovative Work Behaviour? The Mediating Role of Knowledge Sharing. *Journal of Organizations, Technology and Entrepreneurship*, 2(1), 52-64. https://doi.org/10.56578/jote020105

Kleiner, G. (2004). *Nanoeconomic*. Munich Personal RePEc Archive. https://mpra.ub.uni-muenchen.de/36590/1/MPRA_paper_36590.pdf

Koval, M., Chornyi, K., & Pavlov, K. (2022). *Regulation of the socio-economic activity of employment processes in Ukraine*. 40–45. https://doi.org/10.31891/mdes/2022-3-5

Kurnaz A. (2022). The big five personality traits as antecedents of panic buying. *Marketing and Management of Innovations*, 3, 21–33. https://doi.org/10.21272/mmi.2022.3-02

Kuzmak, O., & Kuzmak, O. (2023). Social Responsibility of Business Towards Sustainable Development: Case of Ukraine. *Collection of Papers New Economy,* 1(1), 126-148. https://doi.org/10.61432/CPNE0101126k

Masyk, M., Buryk, Z., Radchenko, O., Saienko, V., & Dziurakh, Y. (2023). Criteria for governance' institutional effectiveness and quality in the context of sustainable development tasks. *International Journal for Quality Research*, 17(2), 501–514. https://doi.org/10.24874/IJQR17.02-13

Nwafor, B. & Eguruze, E.(2022).Entrepreneurial Intention Without a Supportive and Enabling Leadership Environment Exacerbates Global Poverty: A Perspective from Young People and Community Organisations. *Business Ethics and Leadership*, 6(3), 92-104. https://www.researchgate.net/publication/364465026_Entrepreneurial_Intention_Without_a_Supportive_and_Enabling_Leadership_Environment_Exacerbates_Global_Poverty_A_Perspective_from_Young_People_and_Community_Organisations

Nwaibe, C.I., Ogbuefi, J.U., & Egbenta, I.R. (2022). Organizational Learning and Risk Management Maturity: Systematic and Meta-Analyses Approach. *Business Ethics and Leadership*, 6(3), 68-76. http://doi.org/10.21272/bel.6(3).68-76.2022

Osayomi, T. (2013). Regional determinants of road traffic accidents in Nigeria: Identifying risk areas in need of intervention. *African Geographical Review*. https://doi.org/10.1080/19376812.2012.750224

Osintsev, N. & Khalilian, B. (2023). Does Organizational Performance Increase with Innovation and Strategic Planning? *Journal of Operational and Strategic Analytics*, 1(1), 25-33. https://doi.org/10.56578/josa010104

Ostapenko, T. (2017). Important Impact of the Evolution of the Global Markets of High and NanoTachnologies on the National Economic System of Ukraine and its Nano-Level. *Ukraine's development strategy: economics, sociology, law*, 2, 75–83. http://fmv.nau.edu.ua/wp-content/uploads/2019/07/2_2017.pdf#page=75

Ostapenko, T. (2018). Structure of nano-economy as a composition of the system of international economic relations. *Journal Association 1901 SEPIKE*, 20. https://journals.indexcopernicus.com/api/file/viewByFileId/288380.pdf

Pavlov, K., Pavlova, O. et al. (2021) Economic Diagnostics and Management of Eco-Innovations: Conceptual Model of Taxonomic Analysis. In: Russo D., Ahram T., Karwowski W., Di Bucchianico G., Taiar R. (eds) *Intelligent Human Systems Integration 2021. IHSI 2021. Advances in Intelligent Systems and Computing*, 1322. Springer, Cham. https://doi.org/10.1007/978-3-030-68017-6_84

Pavlov, K., Pavlova, O., Kryzhanivsky, S. & Savchuk, A. (2022) Financial security of Ukrainian enterprises: current status, main problems and ways to solve them. *Socio-Economic Problems and the State (electronic journal)*, 26(1), 3-11. http://sepd.tntu.edu.ua/images/stories/pdf/2022/22pkvtst.pdf

Pavlov, K., Pavlova, O., Ilyin, L., Novosad, O., & Bortnik, S. (2023). Assessment of Innovation and Investment Attractiveness of the Western Ukrainian Regional Market of Tourist Services. *ECONOMICS - Innovative and Economics Research Journal*, 11(1), 45-68. https://doi.org/10.2478/eoik-2023-0005

Pavlova, O., Pavlov, K., Bortnik, S., Fedashko, T., & Kramar, O. (2023). Synergy of methodological approaches to the analysis of socio-economic systems. *Ukrainian Journal of Applied Economics and Technology*, 8(2), 187–132. https://doi.org/10.36887/2415-8453-2023-2-18

Puška, A., Kozarević, S., & Okičić, J. (2020). Investigating and analyzing the supply chain practices and performance in agro-food industry. *International Journal of Management Science and Engineering Management*, 15(1), 9-16. https://doi.org/10.1080/17509653.2019.1582367

Pryshchepaa Oksana, Kardasha Oksana, Yakymchuka Alina. and al. (2020). Optimization of multi-channel queuing systems with a single retail attempt: Economic approach. *Decision Science Letters. Decision Science Letter,* 9. https://www.growingscience.com/dsl/Vol9/dsl_2020_22.pdf

QS Top Universities. (2020, May 28). *QS World University Rankings 2021*. Top Universities. https://www.topuniversities.com/university-rankings/world-university-rankings/2021

Radukić, S., Mastilo, Z., & Kostić, Z. (2019). Effects of digital transformation and network externalities in the telecommunication markets. *ECONOMICS - Innovative and Economics Research Journal*, 7(2), 31-42. https://doi.org/10.2478/eoik-2019-0019

Ray, A. (2022). The Impact of Non-Citizen Population in Regional Differences in Non-Voting in the USA. *Business Ethics and Leadership*, 6(3), 113-119. https://doi.org/10.21272/bel.63.113-119.2022

Saqlain, M. (2023). Sustainable Hydrogen Production: A Decision-Making Approach Using VIKOR and Intuitionistic Hypersoft Sets. *Journal of Intelligent Management Decision*, 2(3), 130-138. https://doi.org/10.56578/jimd020303

State Statistics Service of Ukraine. (n.d.). Www.ukrstat.gov.ua. https://www.ukrstat.gov.ua/

Strishenets, M., Pavlova, O., & Pavlov, K. (2023). Diagnostics of socio-economic processes in Ukraine in the views of M.P. Drahomanov. *Agrosvit*, 7-8, 62–69. https://doi.org/10.32702/2306-6792.2023.7-8.62

Strisheniets, M., Pavlova, O., & Pavlov, K. (2023). Crafts of the Volyn Voivodeship (second half of the XVI century - middle of the XVII century). Individual entrepreneur Majula Y. M. https://evnuir.vnu.edu.ua/handle/123456789/21737

Stryshenets, M., Pavlova, O., & Pavlov, K. (2019). Simple commodity production and the emergence of manufactories in Ukraine. Teren Publishing House. https://evnuir.vnu.edu.ua/handle/123456789/15853

Swiatkiewicz, O. (2022). Subsidiarity in Management & Business Activity: The Two Sides of the Phenomenon. *Business Ethics and Leadership*, 6(3), 77-91. https://doi.org/10.21272/bel.63.77-91.2022

Yakymchuk Alina, Valyukh Andriy, Irtyshcheva Inna, et al. (2021) Strategic Priorities for Socio-economic Development of Ukraine in Comparison with the Republic of Poland. In: Karwowski W., Ahram T., Etinger D., Tanković N., Taiar R. (eds) *Human Systems Engineering and Design III. IHSED 2020. Advances in Intelligent Systems and Computing*, 1269. Springer, Cham. https://doi.org/10.1007/978-3-030-58282-1_49

Yakymchuk, A. et al. (2020). Public Administration and Economic Aspects of Ukraine's Nature Conservation in Comparison with Poland. In: Kantola, J., Nazir, S., Salminen, V. (eds) *Advances in Human Factors, Business Management and Leadership. AHFE 2020. Advances in Intelligent Systems and Computing*, 1209. Springer, Cham. https://doi.org/10.1007/978-3-030-50791-6_33

Zhadan, O. (2011). The phenomenon of globalization as a socio-economic problem. *State building*, 1. http://irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?C21COM=2&I21DBN=UJRN&P21DBN=UJRN&IMAGE_FILE_DOWNLOAD=1&Image_file_name=PDF/DeBu_2012_1_30.pdf