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INNOVATION AND INFRASTRUCTURE: DRIVING FORCES FOR ENTREPRENEURSHIP DEVELOPMENT AND ECONOMIC OPPORTUNITIES

Purpose. To determine the relationship between innovation and infrastructure to support entrepreneurship as factors of growth of economic opportunities, based on the results of empirical research.

Methodology. The case method and modern tools of econometric research were used to create an economic-mathematical model that assesses the relationship between economic opportunities and indicators of economic innovation. The research is based on the results of the Gallup 75 Years Anniversary Survey on current and future economic opportunities, as well as Global Innovation Index (GII) indicators.

Findings. Creating favorable conditions for doing business and developing entrepreneurship is critically important for the economic recovery of Ukraine. The high level of entrepreneurial activity among Ukrainians emphasizes the importance of the development of innovative infrastructure and business support. The developed models can be used to forecast the economic capabilities of the population, which will contribute to the return of citizens and the development of the national economy. Thus, innovations and an effective infrastructure to support entrepreneurship play a key role in ensuring sustainable economic growth and social well-being in Ukraine. The results of the study can become the basis for developing strategies for economic development and solving migration problems in the post-war period. Determinants of the growth of economic opportunities of the population (human capital) are determined. The suggested GII parameters most correlate to positive feedback on economic opportunities and growth over the next 25 years.

Originality. For the first time, the relationship between economic opportunities, the development of innovations and the development of infrastructure at the enterprise has been empirically proven. Statistically significant predictors of current and future economic opportunities of the population are substantiated and relevant economic and mathematical models for their evaluation and forecasting are developed.

Practical value. The results of the study are particularly relevant in the context of solving the migration crisis caused by Russia's military aggression against Ukraine. The return of citizens who have left the country depends on the creation of favorable conditions for business and the development of entrepreneurship. The developed models can be used to forecast the economic opportunities of the population in different countries, which will allow effective management of migration processes and promote the development of national economies. This will ensure the creation of a favorable business environment, which is critical for sustainable economic growth and social well-being.

Keywords: *innovative development, infrastructure, human capital, globalization, business model, economic opportunities*

Introduction. In the conditions of modern globalization transformations and rapid technological development, innovations and infrastructure play a key role in the development of enterprises and economic opportunities. Innovative processes and an effective infrastructure to support the development of entrepreneurship are becoming driving forces that allow countries to adapt to new economic challenges, increase competitiveness and stimulate economic opportunities. The research shows that countries that actively implement innovations and support entrepreneurial initiatives achieve significant success in economic development and social well-being, which emphasizes the relevance of this research. Innovation is not limited to the introduction of new technologies, but also includes changes in organizational structures, business models and management approaches. The infrastructure for supporting the development of enterprises includes not only financial support, but also the provision of information, consulting, educational and other services that contribute to the development of entrepreneurial potential. This is especially important in the conditions of modern economic uncertainties and global challenges.

Supporting entrepreneurship through innovation contributes to the development of human capital, creates new jobs and raises the standard of living of the population. For example, the study found that increasing the level of innovativeness of the economy (the country's assessment within the framework of the GII Global Innovation Index) has a positive effect on the population's sense of economic opportunities and the expectation of their growth in the next 25 years. The research is especially relevant in the context of solving migration crises caused by military conflicts. The return of citizens to the country after the end of the conflict depends on the creation of favorable conditions for conducting business and developing entrepreneurship, which is important for economic recovery and stability.

Therefore, innovation and developed infrastructure are critical to support entrepreneurship, which in turn contributes to the growth of economic opportunities and social well-being. This emphasizes the importance of conducting empirical research for the development of effective economic development strategies in the conditions of modern globalization changes, where the following directions are gaining relevance:

- digitization of business processes, where the introduction of digital technologies allows enterprises to quickly adapt to changing market conditions, increasing their flexibility and efficiency;

- green economy, where modern trends attach great importance to environmental sustainability, and innovations in this area can become a new driver of economic growth;

- social innovations, which are focused on solving social problems, such as education and health care, contribute to the general improvement of the quality of life;

- the development of start-up ecosystems, in the context of support for start-ups through accelerators, incubators and venture funding, stimulates innovative activity and promotes the emergence of new business models;

- global networks, through integration into global supply chains and sales markets, expand opportunities for enterprises, allowing them to compete at the international level.

Thus, innovation and developed infrastructure are critical to sustaining entrepreneurship, which in turn contributes to increased economic opportunity and social well-being. This emphasizes the importance of conducting empirical research for the development of effective economic development strategies in the conditions of modern globalization changes.

Literary review. In the SCOPUS scientometric database, the search query "economic opportunities" revealed 5,984 (Fig. 1) documents in the title or keywords of which this word combination occurs. For a more relevant search, the fields of knowledge were limited to Social Sciences, Economics, Econometrics and Finance, as well as Business, Management and Accounting, which made it possible to narrow the list of publications to 3,631. In the next step for in-depth analysis, 127 publications containing the phrase "economic opportunity" as a keyword were selected (Fig. 1).

Figs. 1 and 2 show the dynamics of the number of such publications and their citations. A clear upward trend confirms the thesis about the relevance of the study of this issue and the growing interest of the scientific community in this field of research.

Familiarization with the titles and abstracts of the selected publications allows us to assert that the term "economic opportunities" has a multifaceted use, as it can characterize quite different phenomena and processes. This term has different content (contexts) when it is used, which led to its use in scientific publications of various issues.

In the course of our research, it was established that the term "economic opportunity" is used for:

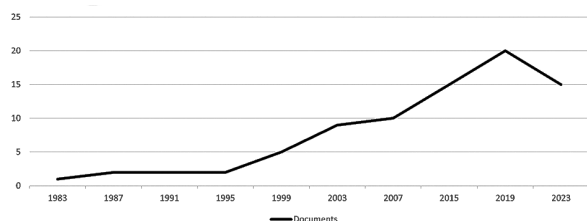- characteristics of development prospects (market volumes, growth rates) of a certain type of economy. For exam-

ple, the closed-loop economy in the construction and demolition waste disposal sector [1];
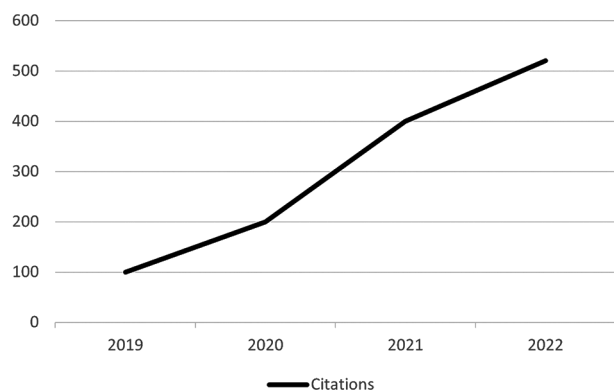
- identification of new opportunities that open up as a result of the development of certain types of economies (industries). For example, transforming the place's identity and harnessing new economic opportunities by promoting Sanur's creative economy through public participation [2];

- assessment of prospects for the introduction of new technology. For example, the future infrastructure of processing lithium-ion batteries [3];

- assessment of the consequences of the development of distributed small renewable energy in Finland [4];

- carrying out a comparative analysis of several alternatives related to the technology or method of production. For example, injecting landfill gas into biomethane into the gas distribution network through a pipeline [5];

- identification of future opportunities in a certain area. For example, the determination of promising sectors of the economy for small and medium-sized enterprises with export potential of Kazakhstan to ensure the post-crisis recovery of the national economy and its growth [6];

- for organizational and economic justification of the implementation of a certain project, description of its prerequisites and results. For example, the evaluation of the economic possibilities of product processing according to the principle of Sherwood and machine learning [7];

- assessment of the consequences of the use of individual stocks and waste. For example, a description of the economic effects of the introduction of ecological processes of recycling used printed circuit boards [8];

- determining the consequences of the development of public transport and the impact of smart mobility on living conditions in rural and urban areas [9].

It has been established that the widespread context of using the term "economic opportunities" is an integral characteristic of the economic conditions of life of the population or a certain category of citizens in a certain area, region, country, which serves as an economic motivator of migration processes. It was in this context that the term "economic opportunities" was introduced into scientific circulation [10]. The study is devoted to a critical analysis of existing mobility policies that hinder the movement of poor and disadvantaged people from troubled communities to countries with stronger economies, as well as the development of proposals for its improvement. The study proves that there are significant differences in economic opportunities between communities [11]. These opportunities are the success of federal work-study programs. The migration of minorities and people with low levels of education to urban communities with stronger economies leads to significant economic gains for those who migrate.

The term "economic opportunities" is used as a generalizing characteristic of 3 predictors that determine migration processes or interest in living in a certain community, territory, country: assessment of the probability of employment; estimated annual income; estimated probability of poverty. In a similar context, the term 'economic opportunities" is used in the study "Economic Opportunities and Internal Migration: The Case of Guangdong Province, China" [12, 13].

Economic opportunities are recognized by the authors as the main factor in human migration. The thematic analysis of Guangdong province researchers found that its attractiveness for migrants from other provinces is determined by the level of GDP per capita and the amount of foreign investment. A conclusion was made about the "new era of migration in China", where the volumes and directions of population movement are determined by the existing and expected economic opportunities of the displaced population to find work with a decent wage [14, 15].

Concepts are mostly actualized in scientific works, namely:

1. The concept of human capabilities was proposed as a component of welfare economics; the concept emphasizes the

Fig. 1. Dynamics of submitted articles with the keywords "economic opportunities"

Fig. 2. Dynamics of citations of articles with the keywords "economic opportunities"

relevance of human freedom of choice, factors affecting people's happiness, and the distribution of economic opportunities in society.

2. The concept of social capabilities, which emphasizes the importance of the ability to absorb new technologies, attract capital and participate in global markets in the catch-up process. The concept of social capabilities goes beyond human capital to include dimensions related to economic opportunities among the determinants of catch-up, which is particularly important for developing countries.

3. Economic opportunities are not limited to the ability to find a job. Since simply increasing human capital is not enough to ensure the growth of nations, it is necessary to increase its productivity. That is why the possibility of creating a new business is an important element in the formation of economic opportunities.

In the process of reviewing the literature with the keyword "economic opportunities" it was found to be used together with the keywords "entrepreneurship" and "innovation", which indirectly proves the causal influence of these processes. Global Competition 2021: Key Opportunities for New Opportunities shows how the world's leading companies create innovative opportunities to meet the challenges of new opportunities in the next decade (2011−2021). Based on the analysis of the forces that determine the growth of the most successful companies in the world, 3 key opportunities are identified and approaches to their use at any enterprise are proposed.

Today confirms the foresight of the forecast that was made back in 2011 − companies that will succeed (make the most of all new opportunities) really focus their attention on operational excellence, actively use IT for innovative customer relationships and "challenge the boundaries of innovation", demonstrate socially responsible behavior.

In the Philippines [16, 17], there is a significant gap between urban and rural resources, and gender discrimination results in aid shortages in the agricultural and business sectors. Various institutions and organizations are working to identify economically disadvantaged women and engage them in careers that simultaneously contribute to the growth of natural resources for health and economic stability. Specifically, a group of researchers from Lehigh University created the Zero Hunger College (a boarding school) in the Philippines to address malnutrition and community underreach. This initiative allows middle-aged women to travel to Metro Manila and work alongside fellow students and experienced professionals to combine local agricultural knowledge with modern agricultural technology.

After participating in this 14-month program, women return to their communities with the ability to lift their members out of poverty and provide better food security and address health problems caused by malnutrition [18]. Thanks to such an innovative project, the economic opportunities of the women who have completed the training are growing rapidly, because they have mastered the skills of modern agricultural technology, can open their own agribusiness or receive higher wages, working as a manager-organizer of rural industry. The economic opportunities of the community are also increasing, because thanks to modern agricultural technology, the productivity of agriculture will increase, the level of food security will increase, and the probability of famine will decrease [19].

In addition, adaptation plans, adaptation actions, types of incentives and incentivized stakeholders, polychoric factor analysis, and logistic regression analysis [20, 21] were used to examine the effects of climate change risks. The study found that a city's climate change adaptation plan and GDP have a significant positive relationship with the economic opportunities available in cities; climate change risks have a positive relationship with economic opportunities [22].

There is a relationship between the sense of economic opportunities (answers to the Gallup survey) and certain parameters of the development of an innovative economy. An in-

crease in the level of innovativeness of the economy (an increase in the country's assessment within the GII Global Innovation Index) has a positive effect on the population's sense of economic opportunities (human capital) and the expectation of their growth in the next 25 years. So, economic opportunities are an interesting multifaceted object of scientific research. which is constantly in the field of view of scientists of different countries in order to find answers to the problems that are relevant for them and as a basis for proposing appropriate measures and state policies.

Thus, economic opportunities are an interesting multifaceted object of scientific research which is constantly in the field of view of scientists of different countries in search of answers to the problems that are relevant for them and as a basis for proposing appropriate measures and state policies.

Based on the aggravation of the problem of migration, in particular due to the Russian-Ukrainian war in 2022, we consider the evaluation of the relationship between individual assessments of the existing and future economic opportunities of a certain country (as a predictor of the decision to "live in this country or emigrate to another") and creation of state prerequisites for the growth of economic opportunities of citizens - creation of an environment for the development of innovation and entrepreneurship.

The working hypothesis of the study is that such a relationship exists. Accordingly, in order to stop migration processes and return forced emigrants (forced displaced persons-IDPs) back to the resident country (the case of Ukraine), the priorities of state policy should be the support of innovative development and entrepreneurship. This will ensure the competitiveness of national manufacturers, high demand for their products, as a result − stable employment of the population, high (decent by world standards) wages, development of highly efficient and competitive private businesses, implementation of entrepreneurial ideas and projects.

The empirical research revealed a correlation between the connection of economic opportunities (answers to the Gallup questionnaire) and certain parameters of building an innovative economy. In particular, an increase in the level of innovativeness of the economy (an increase in the country's score within the framework of the Global Innovation Index (GII)) has a positive effect on the perception of the economic capabilities of the population (human capital) and the expectation of their growth in the next 25 years.

The purpose of the article. The purpose and objectives of the research are to identify the determinants of the growth of economic opportunities of the population (human capital). It is proposed to consider GII parameters that are most correlated with positive reactions to economic opportunities and their growth in the next 25 years.

Methods. To conduct empirical research, the article uses the case method and modern tools of econometric research to build an economic-mathematical model for assessing the relationship between economic opportunities and indicators of economic innovativeness.

Results. Given the aggravation of the migration problem, in particular due to the Russian-Ukrainian war in 2022, we consider it an urgent research task to assess the relationship between individual assessments of the current and future economic opportunities of an individual country (as a predictor of the decision to live in this country or emigrate to another) [23].

The research database consists of 2 datasets for 50 countries (selected based on availability in both datasets):

1. Responses of respondents to the survey dedicated to the 75th anniversary of Gallup to questions related to the perception of current and future economic opportunities: What about the economic opportunities in your country today? Would you say they are enough or not enough? On the basis of these answers, the following variables were formed: "Part of respondents who consider the economic opportunities in their countries to be sufficient" − PEM. "Share of respondents who be-

lieve that economic opportunities will increase over the next 25 years" – MEM.

2. Indicators of the Global Innovation Index 2022 [23], which are grouped into INPUTS and OUTPUTS of innovation and cover various prerequisites and aspects of their creation, Table 1.

Obtained results. Identification of determinants of current economic opportunities (PEM). 2 regression linear models of PEM were built. The simulation results are presented in Tables 2, 3. Both models have a significance of less than 0.001, meaning that the probability that the obtained result is random is less than 0.001 (0.1 %).

Model 1.2 is recognized as the best one

$$\text{PEM} = -0.042 + 0.005 \, @1.3 + 0.004 \times \text{OUTPUT}, \quad (1)$$

where @1.3. is Business environment; OUTPUT – Results of innovative activity.

The coefficient of multiple regression of this model is $R = 0.740$, that is, according to the Chaddock scale, the strength of the relationship can be assessed as high. The coefficient of determination R-squared = 0.548, i.e. 54.8 % of the dependent variable PEM is determined by the change in independent variables (predictors) included in the model, Table 4.

Identification of the determinants of the growth of economic opportunities in the next 25 years (hereinafter – future economic opportunities – MEM). 3 MEM models were built, which included the most significant variables. Other proposed variables are rejected. The simulation results are presented in Tables 5–7.

Model 2.3 is recognized as the best

$$\text{MEM} = 0.942 - \text{INNOV} \cdot 0.011 + @1\_3 \cdot 0.003 - @5\_3\_4 \cdot 0.003, \quad (2)$$

where INNOV is the index of innovativeness of the economy; @1.3. – Business Environment; @5.3.4. – net inflow of FDI, % of GDP.

Indicators of the Global Innovation Index 2022 (Global Innovation Index 2022 (GII, 2022), which were used during the study

Conditional marking	The name of the indicator
INPUT	**Innovative potential**
@1.3.	Business environment
@1.3.1.	Business policy
@1.3.2.	Politics and culture of entrepreneurship
@2.	Human capital and research
@5.	Business sophistication
@5.1.	Knowledge workers
@5.2.	Innovative connections
@5.3.2.	High-tech imports, % of the total volume of trade
@5.3.3.	Import of ICT services, % of total trade
@5.3.4.	Net inflow of foreign direct investment, % of GDP
OUTPUT	**Innovative results**
@6.	Results of knowledge and technologies
@6.1.	Creating knowledge
@6.2.	The influence of knowledge
@6.3.	Spreading knowledge
@6.3.3.	High-tech exports, % of total turnover
@6.3.4.	Export of ICT services, % of total trade

Description of built PEM models

PEM models	Predictors	R	R-square	Adjusted R-squared	Standardized error
1	@1_3	0.684	0.467	0.455	0.11763
2	@1_3, OUTPUT	0.740	0.548	0.526	0.10964

ANOVA of PEM models

PEM models		Sum of squares	Degrees of freedom	Middle square	F
1.1	Regression	0.522	1	0.522	37.732	0.00
	Remainder	0.595	43	0.014	–	–
	In total	1.117	44	–	–	–
1.2	Regression	0.612	2	0.306	25.457	0.00
	Remainder	0.505	42	0.012	–	–
	In total	1.117	44	–	–	–

Coefficients of PEM models

PEM models		Beta		t	Significance
1	Constant	0.016	0.051	–	0.321	0.750
	@1_3	0.006	0.001	0.684	6.143	0.000
2	Constant	−0.042	0.052	–	−0.813	0.421
	@1_3	0.005	0.001	0.554	4.851	0.000
	Entrance	0.004	0.001	0.312	2.737	0.009

Description of built MEM models

MEM models	Predictors: (constant)	R	R-square	Adjusted R-squared	Standardized error
1	INPUT	0.646	0.417	0.403	0.13144
2	INPUT, @1_3	0.730	0.533	0.511	0.11900
3	INPUT, @1_3, @5_3_4	0.771	0.595	0.565	0.11221

The coefficient of multiple regression model 2.3. is $R = 0.771$, that is, the strength of the relationship can be assessed as high according to the Chaddock scale. The coefficient of determination R-square = 0.595, that is, 59.5 % of the dependent variable MEM is determined by the change of independent variables (predictors) included in the model.

The minus sign before the predictors INNOV – "Innovative prerequisites" and @5.3.4. – "Net increase in foreign direct investment" can be explained as follows: the more important these indicators are at the moment, the lower the expectations for their future growth.

Ukrainian context (consequences for Ukraine). The developed models make it possible to forecast expectations regarding the level of economic opportunities of the population of countries that did not participate in the study, in particular Ukraine, based on data on variable models, Table 8.

Table 6

ANOVA of MEM models

MEM models		Sum of squares	Degrees of freedom	Middle square	F	Significance
1	Regression	0.531	1	0.531	30.746	0.000
	Remainder	0.743	43	0.017	–	–
	In total	1.274	44	–	–	–
2	Regression	0.679	2	0.340	23.982	0.000
	Remainder	0.595	42	0.014	–	–
	In total	1.274	44	–	–	–
3	Regression	0.758	3	0.253	20.061	0.000
	Remainder	0.516	41	0.013	–	–
	In total	1.274	44	–	–	–

Table 7

Coefficients of MEM models

MEM models			Beta	t	Significance
1	Constant	0.822	0.065	–	12.583	0.000
	INPUT	-0.009	0.002	-0.646	-5.545	0.000
2	Constant	0.735	0.065	–	11.332	0.000
	INPUT	-0.011	0.002	-0.804	-6.917	0.000
	1_3	0.003	0.001	0.376	3.234	0.002
3	Constant	0.942	0.103	–	9.145	0.000
	INPUT	-0.011	0.001	-0.796	-7.259	0.000
	1_3	0.003	0.001	0.312	2.774	0.008
	5_3_4	-0.003	0.001	-0.256	-2.498	0.017

Table 8

Information base of model calculations for Ukraine

Conventional designation	Variable model name	Value for of Ukraine
@1.3	Business environment	34.09536
@5.3.4	Net inflow of foreign direct investment, % of GDP	50.07068
INPUT	Innovative potential	31
OUTPUT	Innovative results	26.35331

The model value for Ukraine predicted by the constructed economic and mathematical models is:

1. PEM Ukraine = 0.23389, that is, only 23 % of the population consider the current economic opportunities to be sufficient! This is below the world average, which provokes emigration, especially in times of war.

2. MEM of Ukraine = 0.553074, i. e. 55 % expect EM to grow over the next 25 years.

The results of content analysis and empirical evaluations confirm the authors' hypothesis regarding the existence of a dependence between individual assessments of the population regarding economic opportunities and the level of development of innovations and the business environment. In the framework of the GII Indicator @1.3. "Business environment" directly characterizes the entrepreneurial aspects of the development of the business environment (ease of starting and running a business, solving insolvency problems, ease of paying taxes).

And the OUTPUT indicator "Innovative results" is effective from the point of view of characterizing the knowledge, technological and creative aspects of the development of the country's economy. In fact, this is evidence that the personal judgments of the population regarding their economic opportunities are directly related to the qualitative characteristics of the environment in which the processes of human life and development take place.

One of the main consequences of the Russian-Ukrainian war and the challenges of post-war Ukraine is the return of citizens who left the country for various reasons. In addition to issues of safety and provision of basic living conditions, primarily housing, the issues of favorable conditions for conducting business and developing entrepreneurship are particularly important and sensitive for Ukrainian migrants, as a feature of Ukrainians is a relatively high level of entrepreneurial activity. This can be confirmed by the following facts. By 2022, the number of new business registrations by Ukrainians in Poland was up to 200 per month, after the start of the war in Ukraine, this figure reached about 1,700. In 2023, every tenth FOP in Poland was opened by a Ukrainian citizen, and the number of new businesses created by Ukrainians during 2022–2023 years, reached 48,464.

The results of the survey of Ukrainians who went abroad after February 24, 2022 show that one of the key incentives for returning to Ukraine is a well-paid job (28.3 % and 3rd place in the rating) and a higher standard of living in the country (20.7 %, 4th place in the rating). It is possible to ensure such conditions only by developing a favorable environment for conducting business, which is both a source of jobs and, accordingly, income of the population, and a space for the implementation of creative ideas and entrepreneurial initiatives, which directly determine the quality and competitiveness of manufactured products and services.

In such a meaningful context, the efforts of all branches of the Ukrainian government should be focused on the creation of a "Road Map", which will ensure the implementation of an ecosystem approach to the development of the business environment in Ukraine. The peculiarity of this approach is that the integral infrastructure of innovative production and promotion of products/services is created on the basis of ensuring timely and effective interaction of investment, legal, informational, material and technical, financial, educational and research, cultural, creative, and social sectors of entrepreneurial activity.

The implementation of this approach ensures the involvement of a wide range of stakeholders in the form of state institutions, scientific and educational institutions, venture funds, startups, companies, non-governmental institutions, public organizations, social networks, etc., which initiates various types of connections and creates a demand for the activation of actions of all sub entities of the entrepreneurial process and promotes the strengthening of business, social, innovative activity in the country.

Conclusions. The results of the research confirm the hypothesis of a significant relationship between the level of innovativeness of the economy and the population's perception of economic opportunities. Empirical evidence suggests that an increase in innovation activity, reflected by the Global Innovation Index, contributes to the improvement of citizens' assessment of economic prospects, and also raises expectations about the future growth of opportunities for the country.

In the conditions of global transformations and rapid technological progress, investments in innovative processes and the creation of an effective infrastructure to support entrepreneurship are becoming critically important for ensuring sustainable economic growth and social well-being. Innovations, which include not only technological, but also organizational changes, as well as comprehensive support of entrepreneurial initiatives, including financial, informational, consulting and educational components, play a key role in creating favorable

conditions for business development and strengthening the economic capabilities of the population.

The study shows that countries that actively innovate and support entrepreneurship experience significant gains in economic development and social well-being. The obtained results are particularly important in the context of solving migration crises, such as the crisis caused by Russia's military aggression against Ukraine. One of the main challenges of post-war Ukraine is the return of citizens who left the country for various reasons. In addition to ensuring security and creating conditions for life, special attention should be paid to creating favorable conditions for conducting business and developing entrepreneurship, which is confirmed by the high level of entrepreneurial activity among Ukrainians.

The models developed during the research can be used by state bodies and local authorities to forecast and manage the economic opportunities of the population. This will allow identifying the key determinants that contribute to the growth of economic opportunities and increase in life satisfaction, which, in turn, will contribute to the reduction of emigration sentiments and the return of human capital to the country.

Thus, the results of this study are an important contribution to the development of strategies for sustainable economic development and improving the welfare of society, especially in the context of the recovery and development of the post-war economy of Ukraine.

References.
1. Ali, M., Egbetokun, A., & Memon, M. H. (2018). Human capital, social capabilities and economic growth. *Economies, 6*(1). https://doi.org/10.3390/economies6010002.
2. Riepina, I., Tepliuk, M., & Yamnenko, H. (2023). The mainstream transformation of ideas into breakthrough innovations. *In Recent Trends in Business and Entrepreneurial Ventures*, (pp. 213-236). https://doi.org/10.52305/KZZV1105.
3. Coulibaly, S. K., Erbao, C., & Metuge Mekongcho, T. (2018). Economic globalization, entrepreneurship, and development. *Technological Forecasting and Social Change, 127*, 271-280. https://doi.org/10.1016/j.techfore.2017.09.028.
4. D'Adamo, I., Ferella, F., Gastaldi, M., Maggiore, F., Rosa, P., & Terzi, S. (2019). Towards sustainable recycling processes: Wasted printed circuit boards as a source of economic opportunities. *Resources, Conservation and Recycling, 149*, 455-467. https://doi.org/10.1016/j.resconrec.2019.06.012.
5. Deng, S., Zhou, X., Huang, A., Yih, Y., & Sutherland, J. W. (2021). Evaluating economic opportunities for product recycling via the Sherwood principle and machine learning. *Resources, Conservation and Recycling, 167*, 105232. https://doi.org/10.1016/j.resconrec.2020.105232.
6. Tepliuk, M., Fomenko, B., Sahaidak, M., Petrishyna, T., Fokina-Mezentseva, K., & Vasyliev, I. (2023). Managing of responsible consumption and sustainable production enterprises in the glocalization conditions. *Acta Innovations*, *48*, 75-91. https://doi.org/10.32933/ActaInnovations.48.
7. Huang-Lachmann, J., Hannemann, M., & Guenther, E. (2018). Identifying links between economic opportunities and climate change adaptation: Empirical evidence of 63 cities. *Ecological Economics, 145*, 231-243. https://doi.org/10.1016/j.ecolecon.2017.09.001.
8. Yankovoi, R., Stadniichuk, R., Zhosan, H., Shaulska, L., Garafonova, O., Garafonova, O., & Biriukov, I. (2024) Innovative transformation of a financial institution in the context of digitalisation and its impact on social conflict management. *Financial and credit Activity: Problems of Theory and Practice*, *2*(55), 75-88. https://doi.org/10.55643/fcaptp.2.55.2024.4386.
9. López Ruiz, L. A., Roca Ramón, X., & Gassó Domingo, S. (2019). The circular economy in the construction and demolition waste sector — A review and an integrative model approach. *Journal of Cleaner Production*, 119238. https://doi.org/10.1016/j.jclepro.2019.119238.
10. Madiyarova, D. M., & Argyngazinov, A. A. (2022). Export Potential of Small and Medium Enterprises of Kazakhstan: Analysis of Regional Opportunities. Popkova, E. G., & Andronova, I. V. (Eds.). *Current Problems of the World Economy and International Trade (Research in Economic Anthropology, Vol. 42,* (pp. 207-217). Leeds: Emerald Publishing Limited. https://doi.org/10.1108/S0190-128120220000042020.
11. Neumann, M., Varano, E., Chawla, S., Gomanie, N. N., & Mehta, K. (2022). Empowering middle-aged women to bolster food security in their communities. *Paper presented at the 2022 IEEE Global Humanitarian Technology Conference,* GHTC 2022, 361-368. https://doi.org/10.1109/GHTC55712.2022.9911023.
12. Ovanessoff, A., & Purdy, M. (2011). Global competition 2021: Key capabilities for emerging opportunities. *Strategy and Leadership, 39*(5), 46-55. https://doi.org/10.1108/10878571111161525.
13. Porru, S., Misso, F. E., Pani, F. E., & Repetto, C. (2020). Smart mobility and public transport: Opportunities and challenges in rural and urban areas. *Journal of Traffic and Transportation Engineering (English Edition), 7*(1), 88-97. https://doi.org/10.1016/j.jtte.2019.10.002.
14. Putra, I. N. G. M., & Putra, I. B. G. P. (2019). Reinventing place-identity and embracing new economic opportunities: Promoting creative economy of Sanur through public participation. *Journal of ASEAN Studies, 7*(2), 150-160. https://doi.org/10.21512/jas.v7i2.5751.
15. Bazaluk, O., Kader, S. A., Zayed, N. M., Chowdhury, R., Islam, Md. Z., Nitsenko, V. S., & Bratus, H. (2024). Determinant on Economic Growth in Developing Country: A Special Case Regarding Turkey and Bangladesh. *Journal of the Knowledge Economy.* https://doi.org/10.1007/s13132-024-01989-8.
16. Garafonova, O., Gruzina, I., Kozyrieva, O., Marhasova, V., Pishchenko, O., & Tarasiuk, H. (2023). Strategic perspectives of functioning of Ukrainian organizations in the conditions of eurointegration and globalization of the digital economy. *Financial and Credit Activity Problems of Theory and Practice*, *1*(48), 298-311. https://doi.org/10.55643/fcaptp.1.48.2023.3957.
17. Varho, V., Rikkonen, P., & Rasi, S. (2016). Futures of distributed small-scale renewable energy in Finland — A Delphi study of the opportunities and obstacles up to 2025. *Technological Forecasting and Social Change, 104*, 30-37. https://doi.org/10.1016/j.techfore.2015.12.001.
18. Wang, X., Gaustad, G., Babbitt, C. W., & Richa, K. (2014). Economies of scale for future lithium-ion battery recycling infrastructure. *Resources, Conservation and Recycling, 83*, 53-62. https://doi.org/10.1016/j.resconrec.2013.11.009.
19. Gallup International Association (2022). *A new GIA's anniversary book: 75th anniversary*. Retrieved from https://gallup-international.com/survey-results-and-news/survey-result/a-new-gias-anniversary-book.
20. Gallup International Association (2023). *Survey results and news: A new GIA's anniversary book*.
21. Zayed, N. M., Edeh, F. O., Islam, K. M. A., Nitsenko, V., Polova, O., & Khaietska, O. (2022). Utilization of Knowledge Management as Business Resilience Strategy for Microentrepreneurs in Post-COVID-19 Economy. *Sustainability*, *14*, 15789. https://doi.org/10.3390/su142315789.
22. Sahaidak, M., Tepliuk, M., Zhurylo, V., Rudenko, N., & Samko, O. (2021). Integrative Viewpoint for Implementing Sustainable Management Agricultural Business Excellence. *TEM Journal, 10*(1), 303-309. https://doi.org/10.18421/TEM101-38.
23. Global Innovation Index 2022 (2023). Retrieved from https://www.wipo.int/publications/ru/details.jsp?id=4622.

Інновації та інфраструктура: рушійні сили розвитку підприємства та економічних можливостей

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Мета. Визначити взаємозв'язок між розвитком інновацій та інфраструктури для підтримки підприємництва як факторів зростання економічних можливостей, спираючись на результати емпіричного дослідження.

Методика. Використані кейс-метод і сучасні інструменти економетричних досліджень для створення економіко-математичної моделі, що оцінює взаємозв'язок між економічними можливостями та індикаторами інновацій. В основу дослідження покладено результати Всесвітнього опитування, присвяченого 75-річчю Геллапа, щодо поточних і майбутніх економічних можливостей, а також

індикатори Глобального інноваційного індексу (Global Innovation Index (GII)).

Результати. Створення сприятливих умов для ведення бізнесу й розвитку підприємництва є критично важливим для економічного відновлення України. Високий рівень підприємницької активності серед українців підкреслює важливість розвитку інноваційної інфраструктури та підтримки бізнесу. Розроблені моделі можуть бути використані для прогнозування економічних можливостей населення, що сприятиме поверненню громадян і розвитку національної економіки. Таким чином, інновації та ефективна інфраструктура підтримки підприємництва відіграють ключову роль у забезпеченні сталого економічного зростання та соціального благополуччя в Україні. Результати дослідження можуть стати основою для розробки стратегій економічного розвитку й вирішення міграційних проблем у повоєнний період. Визначені детермінанти зростання економічних можливостей населення (людського капіталу). Виявлені параметри GII, які найбільше корелюють із позитивними відгуками щодо економічних можливостей і їх зростання в наступні 25 років.

Наукова новизна. Уперше емпірично доведений взаємозв'язок між економічними можливостями, розвитком інновацій і розбудовою інфраструктури у підприємництва. Обґрунтовані статистично значущі предиктори поточних і майбутніх економічних можливостей населення та побудовані релевантні економіко-математичні моделі для їх оцінювання та прогнозування.

Практична значимість. Результати дослідження мають особливу актуальність у контексті вирішення міграційної кризи, спричиненої військовою агресією Росії проти України. Повернення громадян, які покинули країну, залежить від створення сприятливих умов для бізнесу й розвитку підприємництва. Розроблені моделі можуть бути використані для прогнозування економічних можливостей населення в різних країнах, що дозволить ефективно управляти міграційними процесами та сприяти розвитку національних економік. Це забезпечить створення сприятливого бізнес-середовища, що є критично важливим для сталого економічного зростання та соціального благополуччя.

Ключові слова: *інноваційний розвиток, інфраструктура, людський капітал, глобалізація, бізнес-модель, економічні можливості*

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