ISSN 1509-4995
E-ISSN 2719-8049

Ukrainian Special Issue • 2024

Studia Regionalne i Lokalne

Scholar Wydawnictwo Naukowe
Regional Studies Association Sekcja Polska
EUROREG

Centrum Europejskich Studiów Regionalnych i Lokalnych (EUROREG)
Sekcja Polska Regional Studies Association

Studia Regionalne i Lokalne

2024

Ukrainian
Special Issue

Wydawnictwo Naukowe
SCHOLAR

ADRES REDAKCJI
Kwartalnik „Studia Regionalne i Lokalne”
Uniwersytet Warszawski, Centrum Europejskich Studiów Regionalnych i Lokalnych (EUROREG)
ul. Krakowskie Przedmieście 30, 00-927 Warszawa
e-mail: sril.euroreg@uw.edu.pl
www.studreg.uw.edu.pl

Wersją pierwotną czasopisma jest wydanie elektroniczne.
Zgodnie z wykazem czasopism opublikowanym w komunikacie Ministra Nauki i Edukacji z dnia 5 stycznia 2024 r. za publikację w kwartalniku „Studia Regionalne i Lokalne” w 2023 roku autor/ka uzyskuje 40 punktów.

Czasopismo uzyskuje wsparcie w ramach Programu Rozwój Czasopism (projekt finansowany ze środków Ministerstwa Edukacji i Nauki na podstawie umowy nr RCN/SP/0272/2021/1) oraz Inicjatywy Doskonałości – Uczelnia Badawcza: Działanie I.2.2. „Podniesienie wpływu regionalnego na naukę poprzez wysokiej jakości rozpowszechnianie wyników – czasopisma” i Działanie I.2.1. „Poprawa zdolności publikacyjnych – zwiększenie międzynarodowego zasięgu periodyków UW”.

e-ISSN 2719-8049
ISSN: 1509-4995

Bieżący numer kwartalnika, jak i numery archiwalne można pobrać bezpłatnie w wersji elektronicznej ze strony http://studreg.uw.edu.pl

Zamówienia na egzemplarze drukowane prosimy kierować na adres:
Wydawnictwo Naukowe Scholar Spółka z o.o.
ul. Obożna 1, 00-340 Warszawa
tel./faks 22 828 95 63, 22 692 41 18, 22 828 93 91
dział handlowy: jw. w. 108
e-mail: info@scholar.com.pl; www.scholar.com.pl

Redakcja językowa: *dr Marta Olasik*
Skład i łamanie: WN Scholar (*Anna Beczek*)

Contents

ARTICLES

Articles

The Risks and Opportunities of Forming a Specific Business Environment in Ukraine in the Conditions of War

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2401

Maryana Melnyk
State Institution “Institute of Regional Research named after M.I. Dolishniy of the NAS of Ukraine”, Department of Spatial Development, 4 Kozelnytska St., 79026 Lviv, Ukraine; e-mail: mar.melnyk@gmail.com; ORCID: 0000-0001-8869-8666

Iryna Leshchukh
State Institution “Institute of Regional Research named after M.I. Dolishniy of the NAS of Ukraine”, Department of Spatial Development, 4 Kozelnytska St., 79026 Lviv, Ukraine; e-mail: ira_leschukh@ukr.net; ORCID: 0000-0002-3860-0728

Uliana Ivaniuk
Lviv Polytechnic National University, Department of Management of Organizations, 12 S. Bandery St., 79000 Lviv, Ukraine; e-mail: ivaniuk.ulana@gmail.com; ORCID: 0000-0001-8845-9120

Abstract

The research analyses a range of analytical materials of Ukrainian and international experts in business, economy, finance, etc., and the data of sociological surveys of the representatives of Ukrainian businesses regarding the entrepreneurship development trends in Ukraine in conditions of martial law. The analysis of these resources has revealed a substantial negative impact of the war on the export of goods and services from Ukraine, the falling sales volumes, the reducing staff of enterprises, problems with labour remuneration, and the preservation of panic in the business environment. However, there is a substantial risk that the hostilities do not end in the short run. Therefore, the authors analyse the opportunities for the creation of a specific business environment in Ukraine under martial law with the view to develop a policy directed at securing economic resilience as well as the maintenance of the country’s economic capacity. The risks and threats of doing business in Ukraine in the context of adopted amendments to legislation in conditions of war are examined. The priority steps for the elimination of possible threats of falling business activity are outlined.

Keywords

war, martial law, business development, business conditions, war in Ukraine

Introduction

The Russian military aggression against Ukraine has significantly weakened the dynamics of the national economy. Ukraine ended 2022 with a 30% drop in real GDP. It is interesting that even during the Second World War, almost no such volume of GDP decline was recorded within one calendar year.

At the end of July 2023, the National Bank of Ukraine raised the forecast for Ukraine’s GDP growth in 2023 from 2% to 2.9%, but lowered it for 2024 from 4.3% to 3.5%.

The calculations of the National Bank show that Ukraine’s economy loses 50% of “unproduced” GDP in the war (i.e. each week costs the national economy over 50 billion UAH, even not taking into account the losses from destruction). Meanwhile, if the war continues for the next six months, 90% of Ukrainians (according to the UN) can face poverty and absolute economic vulnerability (only 2% of the Ukrainian population had been below the poverty line before the war) (Economic truth, 2022). These threatening predictions are preliminary and can be revised upward, since the duration and intensity of hostilities are currently not known for sure. Meanwhile, we share the position of numerous experts and analysts that the development of business is among the major “activators” of Ukrainian recovery.

The theoretical setting and literature review

A substantial share of studies on doing business in war in the global scientific literature addressed the conditions of the functioning of companies producing weapons and military supplies (Lakomaa, 2017). Yet, Ukrainian economic science lacks profound discussions and substantial economic-mathematical modelling of the war's impact on business development (in the first place, in the long run). It is mostly caused by difficult access (or absence, in some cases) to statistical data on main business activity parameters in conditions of war (including across Ukrainian regions). However, the analytical materials of Ukrainian and international experts in business, economy, finances, etc. – and the data of sociological surveys of the representatives of Ukrainian businesses regarding the entrepreneurship development trends in Ukraine in conditions of martial law – are available for analysis. According to experts from Gradus and KUS Business (Kyiv School of Economics, 2022, p. 4), in the first months of the war, 85% of businesses have transferred to the partial operation mode or terminated their activities, 1% of which have completely ceased operations and do not plan their recovery, and 35% have suspended their activities waiting for the end of the war (such businesses account for 27.7%, according to other estimates (Tarasovskyi, 2022)). Moreover, 86% of businesses operate with less workload than before the war, 33% of companies do not have an opportunity to pay salaries to employees (38%, according to other analysts, and 38% more employees are put on leave (Tarasovskyi, 2022)), and 29% cannot pay for the services of suppliers. The share of domestic companies' staff cut in the first month of war is 21% (Tarasovskyi, 2022).

The expectations of the domestic businesses regarding their activity in 2024 are disheartening. Uncertainty with the duration of hostilities, the risks of non-rhythmic receipts and insufficient volumes of international aid, the growth of logistics costs due to the blockade of the border, high fuel prices, the narrowing of investment demand, the lack of qualified personnel, and the weakening of demand all negatively affected the expectations of enterprises regarding their business activity in 2024.

The industries in the conditions of war where online work is impossible and business works directly with consumers were affected the most – air and sea transportation, postal and courier activities, and insurance. Agricultural enterprises are also in difficult conditions since their businesses are linked to a specific area, and field and farm work cannot be postponed indefinitely or delayed. Overall, the lack of orders, problems with logistics, and shortage of raw materials are the major problems faced by domestic businesses in current conditions (Kyiv School of Economics, 2022). Meanwhile, the problem also concerns the companies that operate relatively far from the areas of intense hostilities.

In general, the Ministry of Economy of Ukraine estimates the losses of domestic companies and organisations in the first month of the war at 80 billion USD (Svyrydenko, 2022). For instance, the analysts of the Advanter Group estimate the current direct losses of small and medium businesses in the first two weeks of war at 30–60 billion USD[1].

Research methodology

At the time of writing this article, the Russian Federation's war in Ukraine has been lasting for two months. The State Statistics Service suspended the public release of statistical information for the period of martial law or the state of war and for three months after it is terminated, including regarding the trends in entrepreneurial activity. It has made it difficult to carry out comprehensive economic-mathematical modelling of economic processes and has generated the need to search for alternative research methods.

The research can be conditionally divided into two parts: the first part describes the business environment in Ukraine in conditions of war unleashed by the Russian Federation. To prepare this part, the authors have used a range of analytical materials of Ukrainian and international experts in business, economy, finance, etc., and the data of sociological surveys of Ukrainian business representatives.

[1] Official website of Advanter Group consulting company: https://advanter.ua/

Taking into account the critical condition of Ukrainian business under martial law and the need for business to become the driver of economic recovery in Ukraine, the government has adopted a range of legislative initiatives that create a specific business environment in Ukraine under martial law. Therefore, the second part of the article addresses the critical analysis of this "specific environment". For that purpose, the methods of logical generalisation, systemic analysis, comparison, and synthesis were applied. To visualise the trends in companies' relocation from the areas of hostilities to safer regions of Ukraine, the graphic method was used. To substantiate the ways of eliminating the threats of falling business activity due to the creation of a specific business environment in Ukraine under martial law, the strategic analysis method was applied.

Findings and discussion

The termination or substantial scaling down in most economic activities, the destruction of production and infrastructural facilities, forced movement of Ukrainian citizens to safe areas with simultaneous unemployment growth in the country, and the threat of global food crisis in case of disrupted planning campaign have become the major challenges that require instant reaction and support from the Ukrainian state in conditions of the current military situation.

According to the Ministry of Economy, direct losses for Ukrainian infrastructure (excluding economic growth losses) account for at least 100 billion USD, or 3 trillion UAH. In addition to that, according to the National Bank of Ukraine (NBU), the Ukrainian economy loses over 1.7 billion USD, or 50 billion UAH, each week of hostilities.

The research of the Advanter Group consulting company shows that almost 86.5% of small and medium businesses are not functioning in Ukraine as of 13th March, 2022, 5.8% of companies are operating part-time, 5.85% of companies have reduced the amount of work, and the activities of only 1.9% of companies remain unchanged. The research of this company conducted in a month of hostilities indicates the intensification of the process of small and medium businesses' adaptation to the martial law conditions: the number of non-operating companies has reduced to about 56%; meanwhile, the number of companies that have resumed their activities part-time has increased over three times (to 19.1%), and some companies have even increased the volumes of their activities – 8.5% (3.8% of them for more than +40%) (Figure 1).

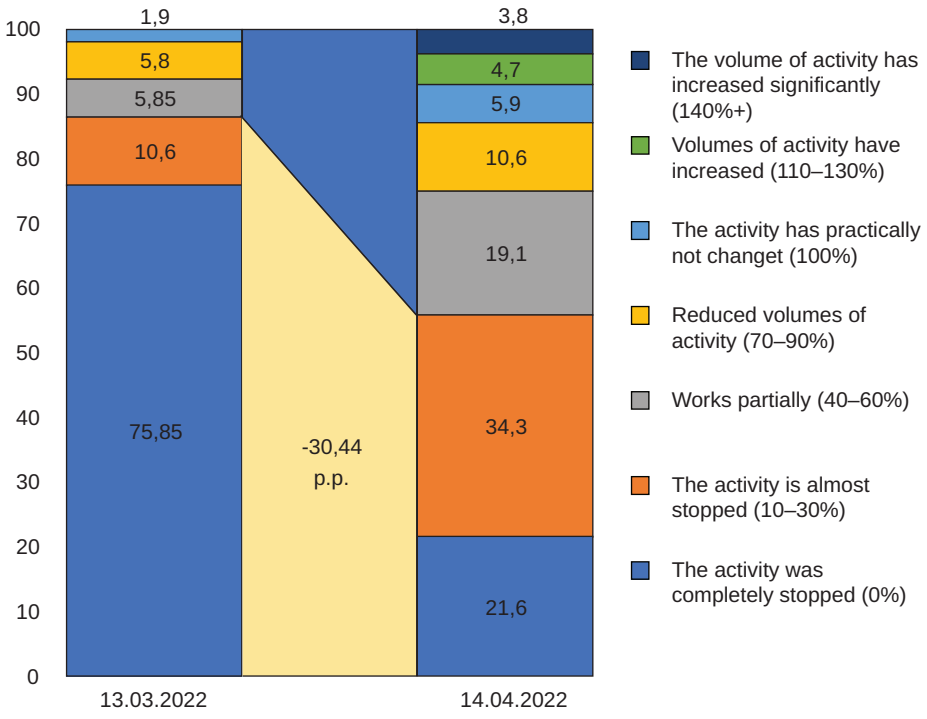


Figure 1. Business activity in Ukraine in the period of hostilities as of 13th March and 14th April 2022

Source: Compiled based on the data from: Advanter Group. Research. URL://https://advanter.ua/#cta

As of the beginning of 2023, 31.7% of enterprises have completely or almost completely stopped work (Innovation Development Centre, 2023).

The rescue of business capacity, especially the production capacity, is imperative not only for the support and after-war recovery of the Ukrainian economy, but also to secure employment and purchasing power of the country's population. The programme for the relocation (transfer) of companies from the areas of hostilities to safer, mostly western, regions of Ukraine – approved by the Order of the Ministry of Economy of Ukraine № 391-22 as of 7th March, 2022 – has become an essential governmental measure directed at assistance in the rescue of business capacity. The companies of any size located in the risk zone due to hostilities can move their assets free of charge and continue their functioning in any of nine oblasts – Vinnytska, Volynska, Zakarpatska, Ivano-Frankivska, Lvivska, Rivnenska, Ternopilska, Hmelnytska, and Chernivetska. Moreover, the Resolution of the Cabinet of Ministers of Ukraine №246-r as of 25th March, 2022, approves the Plan of urgent measures on the relocation, when needed, of the production capacities of economic entities from the areas of hostilities and/or with the threat of hostilities to safer areas.

As of 20th April, 2022, the Ministry of Economy of Ukraine has received 2,054 applications for relocation from the hostilities areas; 2,035 of them have been processed. 312 companies have completely finalised the relocation of production capacities from the areas of hostilities, 195 of them have resumed functioning in new sites, and equipped sites have been found for 532 companies as they have been handed over to the Ukrzaliznytsya (Ukrainian railways services) and Ukrposhta (Ukrainian postal services) services for transportation.

Table 1. The relocation of companies from the areas of hostilities to safer regions of Ukraine in 2022

The region (area) of relocation		The number of applications, units	Processed, units	Relocated businesses, units	Started work, units	Sphere of economic activity of enterprises	Region of location before relocation	Share of relocated enterprises in the total number of enterprises,%
1		2	3	4	5	6	7	8
1	Lviv	412	410	93	39	metalworking, mechanical engineering, light industry, medical and pharmaceutical companies, IT industry	Kharkiv, Zaporizhia, Sumy, Chernihiv, Kyiv, Donetsk	**0.4428**
2	Ivano-Frankivsk	98	95	28	23	light and furniture industry, IT services, metalworking	Kharkiv, Zaporizhia, Kyiv, Donetsk	**0.3435**
3	Volyn	12	8	7	5	light and food industry, IT industry	Kyiv, Kharkiv, Zhytomyr	**0.0991**
4	Rivne	589	578	21	16	light and food industries, trade, woodworking and furniture industries	Kyiv, Kharkiv, Donetsk, Chernihiv	**0.3476**
5	Ternopil	131	131	24	18	light, machine-building, metalworking and food industry, IT industry	Zaporizhia, Sumy, Chernihiv, Kyiv, Donetsk, Luhansk.	**0.4652**
6	Chernivtsi	45	44	23	16	IT industry, production of electric motors and high-voltage equipment, light, food and chemical industries	Zaporizhia, Kyiv, Dnipropetrovsk, Kharkiv	**0.544**

Table 1. – cont.

The region (area) of relocation		The number of applications, units	Processed, units	Relocated businesses, units	Started work, units	Sphere of economic activity of enterprises	Region of location before relocation	Share of relocated enterprises in the total number of enterprises,%
1		2	3	4	5	6	7	8
7	Khmelnytsky	170	170	19	15	mechanical engineering and metalworking, furniture, chemical, light and food industries	Zaporizhia, Kyiv, Donetsk, Kharkiv	**0.2476**
8	Zakarpattya	500	500	81	54	furniture, light and food industries, radio electronics and IT industry	Kharkiv, Zaporizhia, Sumy, Chernihiv, Kyiv, Donetsk	**1.2025**
9	Vinnytsia	97	91	16	9	food industry, production of refrigeration and ventilation equipment, metalworking and mechanical engineering, production of medical equipment	Kharkiv, Dnipropetrovsk, Donetsk, Kherson, Kyiv	**0.162**

Source: Compiled based on the reports of oblast military administrations (OMAs) of the defined 9 oblasts.

In particular, according to oblast military administrations (OMAs) of nine regions defined by the government for relocation, the Rivnenska and Zakarpatska OMAs have the largest number of applications – 589 and 500, respectively. Almost each of them has been processed, allowing the relocation of 21 and 81 companies, respectively, to the territories of these oblasts. The Lvivska oblast has processed 410 applications for relocation, and as of 20th April, 2022, it has managed to place the largest number of companies (91) out of nine regions defined by the government; 39 of them have already started functioning. Despite the less amount of received and processed applications for relocation (12 and 45, respectively), the Volynska and Chernivetska oblasts have demonstrated the highest implementation efficiency. 58% and 51%, respectively, of the processed applications have resulted in the successful movement of companies to the territories of these oblasts. Meanwhile, the Ivano-Frankivska and Hmelnytska oblasts have the highest density of relocated companies that have started functioning among other oblasts – 82% and 79%, respectively.

The companies from 6 different oblasts where the hostilities have been or are taking place have been relocated to the Lvivska, Zakarpatska, and Ternopilska oblasts, and from 5 oblasts to the Vinnytska oblast. IT services, food and light industry, mechanical engineering, metalworking, and the production of medical equipment are among the most common economic activity sectors of the companies relocated to safer oblasts.

The most significant share of relocated companies in the total number of registered companies in the analysed period was in the Zakarpatska oblast (+1.2%), which is related to the fact that the oblast has the largest number of companies (81) relocated to the territory of the oblast at a relatively low number of registered companies (6,655). Overall, it is worth acknowledging the trend towards the relocation of companies from the most economically-active regions where the hostilities have been or are taking place or those adjoining them to the regions with much lower economic activity levels (excluding the Lvivska oblast). It helps maintain the country's economic capacity in conditions of martial law and substantially revitalise economic activity in less developed regions (Figure 2).

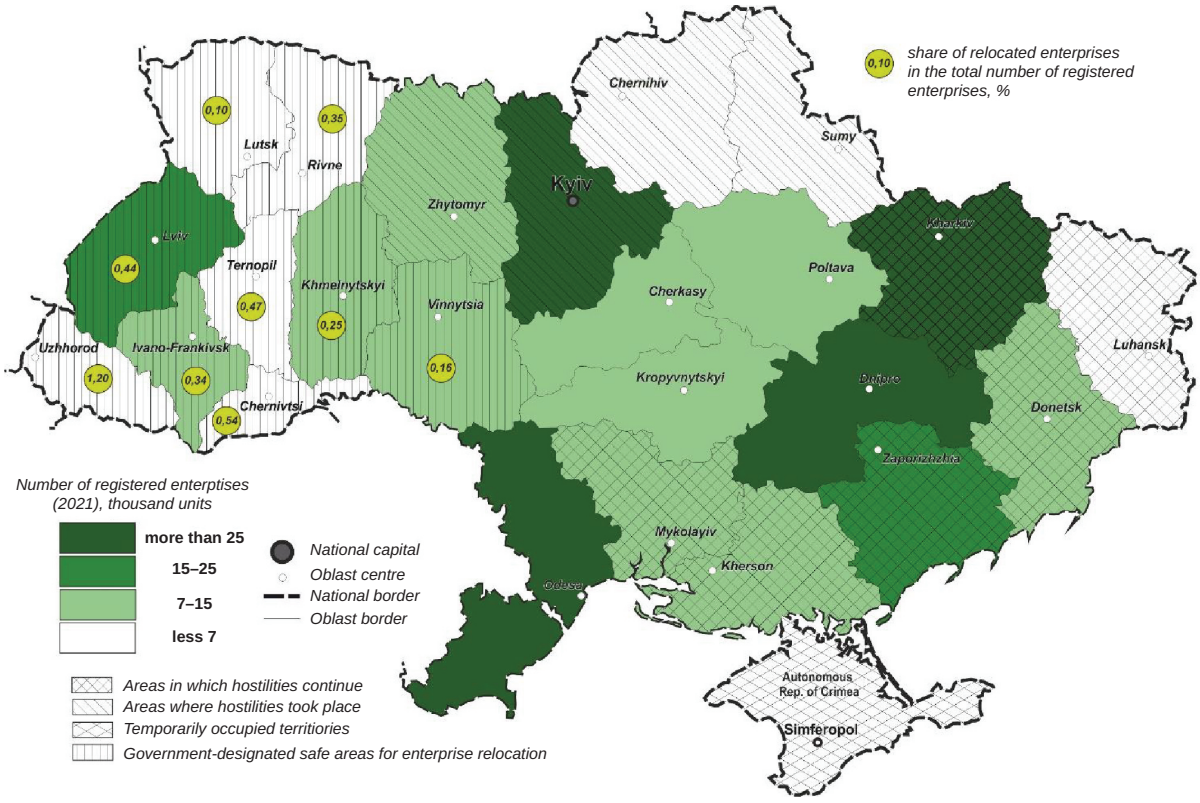


Figure 2. The relocation of companies from the areas of hostilities to safer regions of Ukraine in 2022

Source: Own elaboration.

The global challenge – a full-scale war unleashed by the Russian aggressor – led to a decrease in the potential of logistics enterprises of Ukraine, because:

1) during the war, the operation of a number of logistics routes and branches of the transport and logistics sphere was blocked. In particular, the threat of air attacks "grounded" all air transport in Ukraine. The occupation of part of the Khersonska and Zaporizhska oblasts, as well as the destruction of the Kakhovska HPP, stopped the movement of river transport along the Dnipro. Russian warships in the Black Sea are blocking Ukrainian seaports. In addition to the obvious loss of income, the blockade of Ukrainian ports led to the disruption of the usual logistics chains. For Ukrainian seaports, this caused the loss of some customers. Instead, companies that sold their products by sea were forced to look for new intermediaries and new sales markets (Melnyk & Leshchukh, 2023);
2) as a result of hostilities and rocket attacks, the destruction of transport infrastructure has occurred (and continues to occur);
3) military operations, blockade of seaports, damage to transport and logistics infrastructure, etc. caused – in addition to a decrease in the physical volume of cargo transportation – a change in its structure by types of goods.

Since there is a significant risk that hostilities do not end in the short run, it is essential to develop a policy directed at securing the economic resilience and maintaining the economic capacity of the country under martial law.

In our opinion, the following are the major threats that substantially complicate the processes of securing the economic resilience and maintaining the economic capacity of the country under the martial law:

– the violation of internal and international economic links;
– the blocking and violation of supply and/or sales logistics;
– the loss of labour capacity due to continuous human outflow;
– the lack of sufficient number of equipped sites to locate companies;

– difficulties in simultaneous relocation and accommodation of a substantial number of employees along with securing them the access to basic social services;
– the lack of, or problems with, connection to necessary engineering networks to secure the functioning of companies;
– difficult logistics and long-term transfer of industrial equipment to the relocation sites;
– the lack or shortage of qualified specialists to assemble/dismantle the complex industrial equipment (including the one produced abroad).

Therefore, the Parliament and Government of Ukraine introduced a range of initiatives in the first month of the war to support businesses in this particular period. Namely, they include the deregulation and simplification of requirements for doing business, concessional lending, the opportunity to relocate from the area of intense hostilities, etc., which will help businesses to continue operations (Table 2).

Table 2. The risks of creating specific business environment in Ukraine under military law

Specific conditions / opportunities for doing business	**The risks of creating specific business environment**
Business relocation	**Microlevel (business):** 1) high cost and legal and technical difficulties of the relocation procedure; 2) the loss of resources, goods, fixed assets; relocation cost; 3) limited mobility of some types of businesses, their territorial "linkage" (mostly, agribusiness, large production, and logistics companies); 4) challenges of the selection of sites to locate production; possible high production premises rent in a new location site; 5) challenges of the selection of qualified staff in the sites after relocation, especially for economic activity types where the employees must have specific skills and knowledge. Moreover, there is a threat of labour shortage, since, currently, a significant share of the population has left abroad, and hundreds of thousands of people have joined the Ukrainian Armed Forces as well as have become volunteers involved in the transportation of humanitarian aid and supplies to armed forces. They all have "left" the labour market; 6) challenges of the relocation and accommodation of staff in new sites; 7) the loss of partners, suppliers of raw materials, etc.; the need to search for new partners, suppliers, etc., which requires additional financial losses and some time, and, among other things, can constitute a threat of business downtime. **Meso and macrolevel (regions and state):** 1) the lack/difficulties in logistical capacities to relocate the business from the areas of intense hostilities; the threat to life and health of staff, drivers, and railway workers when they perform relocation procedures; 2) the loss of tax revenues to local budgets in the regions where the businesses are relocated from due to the reduction of tax base and accumulation of tax debt; 3) the growing share of companies that relocate abroad (according to Advanter analysts, as of 13th March, 2022, about 8% of companies have relocated abroad); hence the loss of their capacity for Ukraine; 4) the threat of budget imbalance in various regions of the country; 5) growing negative impact on sustainable development of the areas where the businesses relocate from, e.g. due to failure to conduct an inventory of pollutants emission by enterprises; growing environmental threats in the sites of the location of some types of businesses after relocation.
Deregulation, Reduced tax burden	**Microlevel (business):** Illegal appointment of unscheduled and actual inspections due to misuse of legislation on the restoration of inspections in certain areas in the case of threat to rights, legal interests, human life and health, environmental protection, and the maintenance of national security; incorrect definition of a list of controlled companies. **Meso and macrolevel (regions and state):** 1) a significant growth of budget deficit due to reduced tax base and the accumulation of tax debt since: – over a half of tax payments are in the risk zone due to hostilities and intense movement of the population (e.g. in 2021, small and medium businesses covered 54.2 % of tax payments. About 40% of the mentioned companies were located in the areas of hostilities); – according to Art. 69.1. of the Tax Code of Ukraine, operating companies have the right to tax and fee deferral if they do not have an opportunity to pay taxes in time; – the businesses' capacity to cover advance payments is exhausted. In the first place, it is about the payments of large taxpayers as their advance payments (in February) secured the growth of tax revenues in March this year compared to March 2021.

Table 2. – cont.

Specific conditions / opportunities for doing business	The risks of creating specific business environment
	Overall, in 2021, large taxpayers secured 45.8% of tax revenues to the state budget of Ukraine. However, nowadays, a significant share of this capacity is lost, since most companies are located in the areas of ongoing hostilities. Under these conditions, according to various analysts, the loss of single social contribution and personal income tax can reach 30–50% in March–April of 2022, and the volume of customs payments can account for only 15–20% of those planned before the war. 2) On the one hand, large-scale sequestration of the spending part of state and local budgets can mitigate the problem of the budget deficit, while on the other hand, it is dangerous as it deepens the economic recession. 3) There are growing volumes of counterfeit fuel and ethanol, and their illegal/uncontrolled transportation by vehicles due to the abuse of Article 69.4 of the Tax Code of Ukraine by unscrupulous individuals and legal entities. It is worth mentioning that tax authorities imposed financial sanctions in the amount of 278.1 million UAH in 2021 and 409.3 million UAH in 2020 for conducting unlicensed activities related to fuel circulation or activities violating the licensing terms. 4) Failure to display/incorrect display of sales operations by business entities for tax purposes due to abuse of Article 69.5 of the Tax Code of Ukraine by unscrupulous business entities. 5) Falling revenues from the licensing of activities related to the production and circulation of ethanol, alcohol, and tobacco; growing illegal/uncontrolled production (including poor quality products, falsification) and circulation of ethanol, alcohol, tobacco, and liquids used in electronic cigarettes due to abuse by unscrupulous economic entities of the provisions of the Tax Code of Ukraine related to the deferral of licensing these activities till the martial law is terminated or cancelled in Ukraine. It is worth mentioning that in the prewar 2021, the divisions of Service of Tax Control over the Excisable Goods Circulation imposed financial sanctions for the violation of legislation on the production and circulation of excisable goods and accrued excise tax in the amount of 1,613 million UAH, which is 997.7 million UAH more than in 2020. Meanwhile, under martial law, Article 69.10.1 of the Code allows the production and circulation of a range of excisable goods under old licenses. Moreover, the issue of the reasonability of mitigated requirements for licensing the activities related to the production/circulation of ethanol and alcohol during the war is quite debatable. On the one hand, businesses pay taxes and fees to the budget as they conduct their activities (although these payments will actually be paid after the martial law is cancelled, taking into account the current exemption from taxes and fees). On the other hand, the “anti-alcohol law” (Rohalska, 2022) was introduced in the first days of the war in 13 Ukrainian regions in correspondence with the Law of Ukraine “On Legal Regime of Martial Law” and the Public Health Centre of Ukraine recommended the population to refrain from alcohol consumption under martial law. 6) Falling revenues from the sales of excise stamps and growing import and sales of counterfeit tobacco products due to abuse by unscrupulous taxpayers of legal provisions related to an opportunity of import and sales of tobacco products violating the requirements to labelling following Ukrainian legislation if it is impossible to buy excise stamps. It is worth mentioning that financial sanctions in the amount of 88.6 million UAH were imposed in 2021 by tax authorities for the manufacture, storage, transportation, and sales of counterfeit alcohol and tobacco products or those without excise stamps or with forged brands of alcohol and tobacco products. 7) The shortage of single social contribution to the Pension Fund, including due to an opportunity under Ukrainian law to voluntarily pay this contribution for entrepreneurs belonging to the first and second categories. So in March 2022, the Pension Fund received 9% less single social contributions. The shortfall of this contribution in April will probably be even more significant. 8) Inability of tax and customs authorities to perform their functions in a large part of the country due to the risks and threats to the security of employees; inability to get workers to work; destroyed premises, computer hardware, databases, and/or working documents. 9) There is a risk of deteriorating interaction between tax and customs authorities with territorial divisions of treasury service and/or local financial authorities affecting the maintenance of budgetary process due to humanitarian problems.
Concessional lending	**Meso and macrolevel (regions and state):** 1) the unprofitability of the banking system caused by falling revenues from lending and other types of operational activity; 2) decreasing quality of loan portfolio due to deteriorating payment discipline of borrowers.
Labour relations liberalisation	**Microlevel (employees):** 1) The demoralisation of employees as a result of their: – transfer to another job not stipulated by the employment contract (this opportunity for the employer is laid down in Art. 3 of the Law of Ukraine “On the Organisation of Labour Relations under Martial Law”); – release during the period of temporary disability (being on sick leave) and leave (excluding maternity and childcare leave until the child is three years old; Art. 5.1 of the Law of Ukraine “On the Organisation of Labour Relations under Martial Law”).

Table 2. – cont.

Specific conditions / opportunities for doing business	The risks of creating specific business environment
Labour relations liberalisation	2) Temporary loss of solvency by employees due to the abuse by the employer of Article 10 of the Law of Ukraine "On the Organisation of Labour Relations under Martial Law" in the context of its possible violation of obligations regarding remuneration terms (without the imposition of penalties on the latter). 3) Failure of the aggressor state to compensate salaries and other payments accrued to employees in conditions of suspension of employment contracts. It is worth mentioning that according to Art. 13.3 of the Law of Ukraine "On the Organisation of Labour Relations under Martial Law", reimbursement of salaries, guarantee and compensation payments to employees during the period of employment contract suspension lay entirely with the state that carries out military aggression against Ukraine.
Sectoral transformation of business	**Microlevel (business):** 1) logistical problems, challenges of the selection of qualified staff and reliable suppliers to conduct a "new" activity type; the need to create a new customer base; 2) the loss of clients, partners, suppliers of raw materials, etc. present in the "previous" business; 3) financial losses caused by a wrong choice of "new" business and its poor resilience in the changing economic dynamics and demand on the market. **Meso and macrolevel (regions and state):** 1) a shortage of some goods and services due to business conversion and the creation of frenetic demand for these goods and services; 2) decreasing volumes of international reserves due to a significant decline in export of some goods and services of "transformed" companies. It will limit the inflow of foreign currency to the country.

Source: Own elaboration.

Recommendations

The risks and threats of doing business in Ukraine can be eliminated, in our opinion, due to the development and consistent implementation of specific public policy in all priority domains of social life that would contribute to launching the mechanisms of maintaining the economic capacity and the economic recovery of the country under martial law. The following should be the priority steps for the elimination of possible threats of falling business activity that has negative socioeconomic consequences:

- securing the further promotion of business relocation to the areas without intense hostilities (according to the Advanter Group, 48% of small and medium businesses cannot transfer their manufacturing to safe regions yet for various reasons). In addition to creating the tax base, the launching of new businesses in the areas without intense hostilities will allow the creation of new jobs and keep the population from leaving abroad since it will generate preconditions for their solvency;
- promoting domestic products on the market and searching for new export opportunities;
- intensifying the public-private partnership (hereinafter – PPP) in the context of creating the new and reconstructing the damaged infrastructure. The introduction of tax preferences can become the incentive for businesses to intensify investment within the PPP, in particular in the context of the revision of fixed assets depreciation standards, same as tax preferences for revenues directed at capital investment.
- operationally deregulating tax and customs domains and updating state policy in compliance with the martial law needs – maintaining the policy of reducing the administrative and tax burden on business with the elimination of possible abuse, including:
  - with the view to protect against the spread of excisable goods of poor quality (counterfeit), the amendments to Art. 69.1. of Chapter XX of the Tax Code of Ukraine should be introduced in terms of shortening the period of registration in the Unified Register of Excise Invoices, adjustment calculations, the submission of electronic documents with the data on actual fuel reserves and volumes of fuel or ethanol circulation from six to two months after martial law in Ukraine is terminated or cancelled;
  - in the support of an opportunity for a taxpayer to prolong the period of taxes and fees payment to six months after martial law in Ukraine is terminated or cancelled, which is laid down in Art. 69.1 of Chapter XX of the Tax Code of Ukraine, it is reasonable to shorten the period of reporting, registration in the respective registers of tax invoices, adjustment calculations, etc. from six to three months after martial law in Ukraine is terminated or cancelled;

  - the mechanism of monitoring the operations related to voluntary transfer or alienation of money, goods, including excise goods, and the provision of services for the Armed Forces of Ukraine and divisions of territorial defence, which without previous or subsequent reimbursement of their cost are not considered as sales operations for tax purposes (Art. 69.5 of Chapter XX of the Tax Code of Ukraine), should be developed. It will eliminate the possibility of not displaying/incorrect these operations by business entities.
- public and local financial assistance for Ukrainian national and local companies (with final beneficiary-owner in Ukraine) operating in the region, including due to the expansion of interest-free lending programmes for businesses under martial law;
  - liberalising labour relations under martial law (Verkhovna Rada of Ukraine, 2021), including due to approval of the official procedure of reserving the key employees of the companies from conscription to maintain the functioning of companies;
  - maintaining consistent and quick internal goods logistics, including due to the adjustment of freight transport inspections at checkpoints of territorial defence;
  - including industrial equipment and components necessary for manufacturing in the list of allowed critical import positions to restore and extend the functioning of industrial companies in Ukraine;
  - deregulating and accelerating the process of connection to engineering networks to secure the functioning of companies under martial law;
  - introducing the mechanism of integrating the relocated companies with the legal regime of the existing industrial parks located in the territory of defined safer regions.
- the flexibility of logistics potential (infrastructure); the transformation of the transport and logistics system, the priority directions of which in the conditions of war, first of all, are:
  - the restoration of the destroyed railway infrastructure should take into account possible changes in the location of large industrial enterprises and sources of cargo flows;
  - the restoration of the capacity and cargo capacity of sea ports (today their work is blocked) by attracting investments (for demining, dredging, clearing, repair, and modernising port infrastructure). They will not immediately be able to reach the pre-war volume of transshipment of goods; hence the importance of road and rail transport in the western direction;
  - the development of warehouse management.

Conclusion

Current realities generate a range of challenges and tasks for businesses and authorities. The functioning of companies in hostilities is the key issue. Businesses must resume operating. It is the foundation for revenues to the state budget, the maintenance of the solvency of the population (including due to jobs creation), and the strengthening of the country's economic resilience, and thus its ability to efficiently resist the aggressor.

Despite a range of risks for the country and its regions (in the first place those related to the shortage of taxes and fees), the creation of a specific business environment in Ukraine under martial law creates opportunities to boost production and entrepreneurial activity in less industrially developed western regions with the attraction of their labour capacity, in addition to the achievement of its major objective – maintaining the country's economic capacity in current difficult conditions. It is especially important in conditions of a significant growth of expenditures related to defence, the solution of social issues, and the accommodation of refugees in the background of a substantial decline in revenues to state and local budgets.

Reference List

Advanter Group. (2022). Doslidzhennya ukrayinskoho biznesu v umovakh viyny [The research of Ukrainian business in hostilities]. Advanter Group, League of Business Clubs of Ukraine. https://drive.google.com/file/d/1E8OhWZN7Mjv4Z4q7JWjAcnkzg5u8qgcY/view

Economic truth. (2022). V OON prohnozuyut zubozhinnya 90% naselennya Ukrayiny v razi zatyazhnoyi viyny [The UN predicts the impoverishment of 90% of the Ukrainian population in case of the protracted war]. https://www.epravda.com.ua/news/2022/03/16/684111/

Innovation Development Centre (2023). Stan, potreby ta perspektyvy biznesu v umovakh viyny, kviten 2023 rik [State, needs and prospects of business in the conditions of war] [Analytical review].https://cid.center/state-needs-and-prospects-of-business-in-the-conditions-of-war-april-2023/?fbclid=IwAR1IX-Vfbfmd4T4xVyZI-4V__w9imBxKifmFZJdJ_u7xAU9CvemBnoXKU9Q/

Lakomaa, E. (2017). The history of business and war: introduction. *Scandinavian Economic History Review*, *65*(3), 224–230. http://dx.doi.org/10.1080/03585522.2017.1397314

Kyiv School of Economics (2022). Diahnostyka stanu ukrayins'koho biznesu v umovakh masshtabnoho rosiys'koho vtorhnennya Ukrayiny [Diagnosing the Ukrainian business condition in the large-scale Russian war against Ukraine]. https://gradus.app/documents/188/BusinessInWar_Gradus_KSE_Report_30032022_ua.pdf?fbclid=IwAR3wgZweIFlJ3vRTrxg0oY2YqEgTLEHpf_2LkdKIgPL18ZBC_ROwX6sor8g

Landa, V., & Krasnikov, D. (2022). Bizhentsi, zruynovana infrastruktura, vtraty rosiyskoho VVP. Misyats viyny v tsyfrakh vid Forbes [Refugees, destroyed infrastructure, Russian GDP losses. A month of the war in figures from Forbes]. https://forbes.ua/inside/misyats-viyni-24032022-4975

Melnyk, M., & Leshchukh, I. (2023). *Rozvytok infrastruktury multymodalnykh perevezen v Ukrayini v konteksti zminy transportno-lohistychnykh shlyakhiv v umovakh viyny* [Development of the infrastructure of multimodal transportation in Ukraine in the context of changes in transport and logistics routes in the conditions of war]. State University “Institute of Regional research named after M. I. Dolishny National Academy of Sciences of Ukraine”. http://ird.gov.ua/irdp/p20230032a.pdf

Minfin (2022). Lyshe na 1% menshe yedynoho sotsialnoho vnesku v berezni 2022 roku otrymav Pensiynyy fond [The Pension Fund received only 9% less single social contributions in March 2022] [Analytical review]. https://minfin.com.ua/ua/2022/04/10/83531542/

Public Health Center (2022). Chomu pid chas viyny pohano vzhyvaty alkohol [Why it is a bad idea to drink alcohol during the war]. https://phc.org.ua/news/chomu-vzhivati-alkogol-pid-chas-viyni-pogana-ideya

Rohalska, N. (2022). Antyalkoholnyy zakon: u nyztsi oblastey Ukrayiny zaboronyly prodazh alkoholyu [Anti-alcohol law: a range of Ukrainian regions have banned the sale of alcohol]. https://www.stopcor.org/ukr/section-ekonomika/news-suhij-zakon-u-niztsi-regioniv-ukraini-vvedena-zaborona-na-prodazh-alkogolyu-27-02-2022.html

Ryhlitskyi, V. (2022). *Biznes v umovakh viyny: khto zaznav naybilshykh vtrat i yak vidnovlyuyutsya pidpryyemstva* [Business in conditions of war: who has suffered the heaviest losses and how the businesses are recovering]. https://www.epravda.com.ua/publications/2022/03/23/684549/

State Tax Service of Ukraine (2021). Perevirky vyrobnytstva, zberihannya ta torhivli alkoholnymy ta tyutyunovymy vyrobamy vyyavyly ponad 11,7 tys. porushen [Inspections of manufacture, storage, and trade in alcohol and tobacco reveal over 11,700 violations] [Analytical review]. Press Office of the State Tax Service of Ukraine. https://tax.gov.ua/media-tsentr/novini/520292.html

Svyrydenko. Y. (2022). Odnorazovi vtraty Ukrayiny vid viyny sklaly mayzhe 565 milyardiv dolariv [One-time losses of Ukraine from war amount to about $565 billion]. https://www.radiosvoboda.org/a/news-ekonomichni-vtraty-ukrainy-vd-viiny/31774336.html

Tarasovskyi, Y. (2022). Za misyats malyy i seredniy biznes vtratyv 80 milyardiv dolariv. Yak pidpryyemtsi pratsyuyut v chas viyny [Small and medium businesses lost $80 billion in a month. How entrepreneurs work in war] [Analytical review]. https://forbes.ua/news/maliy-ta-seredniy-biznes-za-misyats-vtrativ-cherez-viynu-80-mlrd-yaki-problemi-ta-ochikuvannya-pidpriemstv-25032022-5015

Verkhovna Rada of Ukraine (2015). Pro pravovyy rezhym voyennoho stanu [On Legal Regime of Martial Law] [Law of Ukraine]. https://zakon.rada.gov.ua/laws/show/389-19.

Verkhovna Rada of Ukraine (2021). Proekt zakonu pro vnesennya zmin do deyakykh normatyvno-pravovykh aktiv shchodo sproshchennya rehulyuvannya trudovykh vidnosyn u sferakh maloho ta seredn'oho pidpryyemnytstva ta zmenshennya administratyvnoho navantazhennya na pidpryyemnytsku diyalnist № 5371 vid 13.04.2021 [Draft Law on Amendments to Some Legal Documents on the Simplification of Labor Relations Regulations in Small and Medium Entrepreneurship Domains and Reduction of Administrative Burden on Business Activity № 5371 as of 13 April 2021]. http://w1.c1.rada.gov.ua/pls/zweb2/webproc34?id=&pf3511=71653&pf35401=545982

Verkhovna Rada of Ukraine (2022a). Pro orhanizatsiyu trudovykh vidnosyn v umovakh voyennoho stanu [On the Organization of Labor Relations under Martial Law] [Law of Ukraine] https://zakon.rada.gov.ua/laws/show/2136-20#Text.

Verkhovna Rada of Ukraine (2022b). Pro vnesennya zmin do Podatkovoho kodeksu Ukrayiny ta inshykh normatyvno-pravovykh aktiv Ukrayiny shchodo osoblyvostey opodatkuvannya ta zvitnosti v umovakh voyennoho stanu [On Amendments to the Tax Code of Ukraine and other legal Documents of Ukraine regarding the Peculiarities of Taxation and Reporting under Martial Law] [Law of Ukraine]. https://zakon.rada.gov.ua/laws/show/2118-20#n5

The Features of Regional Human Capital Development

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2402

Olena Stryzhak
Simon Kuznets Kharkiv National University of Economics, Department of Entrepreneurship, Trade and Tourism Business, 9a Nauka Av., 61166 Kharkiv, Ukraine; e-mail: sssselllennnn@gmail.com; ORCID: 0000-0002-9367-9061

Abstract

The article focuses on identifying the specifics of the relationship between human capital and the quality of economic development across regions and the world as a whole. The Human Capital Index (HCI) was used as an indicator of human capital development. GDP per capita as an objective indicator and the Happiness Rating as a subjective indicator were used to display the quality of economic development. The panel sample includes data for 140 countries for 2020. The study showed that there are significant regional differences both in the values of the analysed indicators and in their distribution among the groups. The research also revealed that the relationship between the indicators ranged from a strong positive in some cases to a negative or no correlation in others. It was concluded that there are inter-regional differences in human capital development.

Keywords

economic development; regional development; human capital; Human Capital Index; GDP per capita; Happiness Rating

Introduction

The primary objective of any state is to ensure sustainable economic development, often one associated with economic growth measured in GDP dynamics. However, although economic indicators are important, non-economic factors – social, cultural, technological, environmental – are also relevant to achieving development in a broader context. The availability of natural resources and transport routes, a convenient geographical location, and good climate were key factors for economic development in past centuries. However, alongside these, factors whose impact is relatively recent are also becoming important nowadays. These include the availability of modern communications, information resources, a high level of human capital, ease of doing business, optimum bureaucracy, etc. While geographical, climatic, and natural factors are virtually uninfluenced at the national level, information and communication as well as human resources are manageable at the state level.

Human capital is an important factor that contributes to economic growth and development. The formation of human capital entails certain costs for society as a whole, for individual companies, and for individuals themselves. Investments in human capital involve spending on medicine, education, research, culture, art, and other components. However, it is equally important to create an enabling environment for the realisation of human capabilities and knowledge, which significantly increases the return on investment in human capital. At the same time, a country can produce human capital itself through investment, but it can also attract human resources by creating favourable conditions for them.

Literature review

Human resources have a significant impact on economic development primarily because a highly skilled labour force is more in demand on the labour market and receives a higher rent on its human capital in the form of higher wage rates. A number of studies confirm this. Cuaresma et al. (2018) concluded by building an econometric model that human capital is a driver of income growth.

An important characteristic of human capital is its ability to generate GDP. Weckroth et al. (2015) studied the relationship between GDP and human and social capital components in European regions. The study showed that the social components have a positive link with regional GDP.

There are certain differences in the manifestation of the relationship between economic development and human capital across countries and regions. Weckroth and Kemppainen (2016) investigated the relationship between value-based human capital and economic development. The results showed the existence of inequality between Western and Eastern European regions in terms of cultural values. As it turns out, higher economic development is accompanied by wide-ranging cultural diversity.

It is important for any country that development takes place evenly in all regions, in which way it will be balanced. However, this is not always the case. Laskowska and Dańska-Borsiak (2016) determined that the amount of human capital in a region has a significant impact on the GDP per capita there. Researchers have found a relationship between the level of regional development, measured by GDP per capita, and the level of human capital in various EU regions. However, the analysis revealed inter-regional disparities in these variables.

Human capital also contributes to innovation and technological development by increasing the amount of innovation as the level of ability and knowledge grows. Diebolt and Hippe (2019) consider regional human capital as a factor of technological progress and economic development in the historical context. Using a range of data on literacy rates, the number of patents, etc. from 1850 to 1960, they identified human capital as an important determinant of economic and innovation differences between European regions. Cappelli et al. (2021) studied the impact of the crisis on unemployment since 1978 in 248 regions of the European Union. They investigated regional resilience from 2008 to 2016 to assess the impact of the 2008 crisis. As a result, it was determined that human capital is a factor in ensuring the region's technological progress in the post-crisis period. However, sustainability can be achieved through more than just human capital. Institutional variables also matter.

Human capital can increase labour productivity. This is because more skilled employees are better able to cope with complex production tasks and current problems. Carrion-i-Silvestre and Surdeanu (2016) determined that human capital, physical capital, as well as public capital influence labour productivity in Spain by estimating a panel data model of 17 Spanish regions over the period 1964–2011. Kijek and Kijek (2020) examined the impact of human capital and R&D on overall productivity in European regions from 2009 to 2014. The results show that investment in human capital increases returns to R&D and *vice versa*.

In addition, human capital helps to reduce inequalities in society. Suhendra et al. (2020) analysed the factors that influence inequality using data from 34 Indonesian provinces for 2013–2019. The results showed that human capital has a negative impact on income inequality. In contrast, inflation widens the income gap, thereby exacerbating inequalities in society.

Migration as a manifestation of the human factor also affects economic development. Migration can have both positive and negative impacts on regional development. With the outflow of human resources, migration is a significant problem. Human capital accumulated over many years by subsidising expenditure on education, health, etc. may be irretrievably lost in this case. In this aspect, migration affects the gap in wages, incomes, and living standards in a region. In turn, the influx of labour into a region contributes to a more efficient distribution of jobs, thereby creating competition in the labour market and stimulating aggregate demand in the region. It is, therefore, important to note that a state's ability to attract human capital will subsequently have a favourable impact on economic development. Better living and working conditions in a region attract more educated and skilled workers. Coniglio and Prota (2008) stress that the ability of a region to generate human capital is important. The high quality of life in the region is a factor that attracts skilled workforce.

Both economic well-being, measured in terms of per capita income, and subjective well-being – assessed in terms of life satisfaction and measured not only by economic indicators but also by cultural, environmental, and institutional ones – are important for the efficient allocation of human resources. Infrastructure, wages, the environment, climate, the availability of social and recreational facilities, and many other factors matter in the distribution of human resources across countries and regions. For example, the spread of digital technology improves the quality of life of people in the region. Therefore, scholars focus on the issues of spatial distribution of the labour force. For example, Koisova et al. carried out an assessment of the human resource potential of the V4 regions of the Czech Republic. The results show that the best conditions for realising the potential of human

resources are observed in megacities that attract a highly skilled workforce. However, it should be noted that there are also some disparities in the distribution of human resources within regional boundaries. Human capital is predominantly accumulated in cities. Sanromá and Ramos (2007) note that there is a positive relationship between human capital and productivity in Spanish regions. The externalities of human capital are more intense within cities. Rafaj (2020) points out that cities play an important role in regional economic development. In doing so, the analysis showed that human capital has the greatest impact on GDP in Slovak urban areas. Thus, there is a tendency for the accumulation of human capital in urban agglomerations.

A high level of human capital ultimately contributes to the region's competitiveness. Merło and Bogdański (2018), in analysing the competitiveness of European regions, determined that higher levels of human capital are usually accompanied by higher levels of competitiveness. The highest level of competitiveness is observed in regions with the highest quality of human capital and *vice versa*. Infrastructure is also important for ensuring the quality of human capital. Pavel and Jucu (2018) emphasise that human resources are an important element of regional development. Also, human resources can enhance the value of a country's national brand. A correlation was found between the Brand Strength Index and the Human Development Index (for the sample of the world as a whole), but the relationship is uneven and can range from negative to positive across country groups (Stryzhak et al., 2021).

Balanced economic development is an objective of public policy and implies ensuring security, prosperity, economic freedom, infrastructure, and a business-friendly environment in any country. The level of investment attractiveness also contributes to an effective distribution of jobs. The movement of labour between countries and regions is determined by both economic and non-economic factors. The labour market situation, and, in particular, the unemployment rate, affects the level of income and well-being of a country's citizens. In this context, the purpose of this article is to determine the features of the relationship between economic development, expressed by subjective and objective measures, and human capital by groups of countries regionally and globally.

The study uses methods of descriptive statistics, correlation analysis, cluster analysis, and the graphical method, applying the software package Statistica to achieve the goal.

Pearson correlation was used primarily for preliminary analysis, but also to graphically show the relationship between the analysed indicators and to determine the distribution of the indicators in space.

The Spearman and Kendall tau correlation coefficients were calculated for groups with a small number of analysed variables. In this case, the calculation of two coefficients was used to compare the results of the analysis.

Results

The article examines the features of the relationship between economic development and human capital across regions and the world as a whole. The Human Capital Index (HCI) is used to display the level of human capital in the paper.

The HCI quantifies the contribution of health and education to the productivity of the next generation of employees. The HCI combines indicators for aspects of human capital such as health and the quantity and quality of schooling. The HCI currently covers 98% of the world's population.

GDP per capita and the Happiness Rating (HR) were used as indicators of economic well-being. The World Happiness Ranking is based on data from the Gallup World Life Assessment Survey and has been published annually for the past 10 years in the World Happiness Report. The Happiness Rating is based on three measures of well-being: the quality of life assessment, positive emotions, and negative emotions.

The choice of these indicators is due to the fact that GDP per capita reflects the objective economic aspect of society development, while the Happiness Ranking reflects the subjective satisfaction of the country's residents with their lives. For example, Lepeley (2017) also notes the limitations of GDP as a universal measure of well-being, suggesting that it should be complemented by Gross National Happiness.

A feature of the approach implemented in the study is the use of such a subjective indicator of well-being as a happiness rating. Most previous research was based on the use of economic development indicators only.

However, the purely economic aspect of development, measured in per capita income indicators, does not reflect the real well-being of a country's citizens, as GDP can be allocated for different purposes, including militarisation. In the case of a highly militarised economy (such as in Russia at present), high GDP indicators do not guarantee an increase in the welfare of a country's citizens and cannot be an objective indicator of development.

The initial stage of the study is to analyse the dependence between variables by regions and the world. For the distribution of countries by regions, we used the World Bank's approach, according to which all countries of the world form seven geographical regions. The panel sample includes 140 countries for which comparable data is available for 2020 (i.e. all three analysed indicators are represented in the sample). Table 1 shows descriptive statistics by groups.

Table 1. Descriptive statistics

Variable	Mean	Standard Deviation	Min	Max
South Asia (6 cases)				
Afghanistan, Bangladesh, India, Nepal, Pakistan, Sri Lanka				
RH	4.27	1.08	2.40	5.38
HCI	0.48	0.07	0.40	0.60
GDP per capita (current US$)	1820.20	1103.67	516.75	3694.04
Europe & Central Asia (48 cases)				
Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Lithuania, Luxembourg, Moldova, Montenegro, the Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, the Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Ukraine, the United Kingdom, Uzbekistan				
RH	6.30	0.79	4.74	7.80
HCI	0.69	0.08	0.50	0.80
GDP per capita (current US$)	26475.57	26064.19	852.83	116356.20
Middle East & North Africa (16 cases)				
Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Malta, Morocco, Palestinian Territories, Saudi Arabia, Tunisia, the United Arab Emirates, Yemen				
RH	5.27	1.21	2.96	7.36
HCI	0.56	0.10	0.37	0.73
GDP per capita (current US$)	12978.30	14070.33	631.68	44177.57
East Asia & Pacific (16 cases)				
Australia, Cambodia, China, Hong Kong, Indonesia, Japan, South Korea, Lao PDR, Malaysia, Mongolia, Myanmar, New Zealand, Philippines, Singapore, Thailand, Vietnam				
RH	5.75	0.76	4.39	7.20
HCI	0.66	0.14	0.46	0.88
GDP per capita (current US$)	19998.05	21200.18	1450.66	60729.45
Sub-Saharan Africa (35 cases)				
Benin, Botswana, Burkina Faso, Cameroon, Chad, Comoros, Congo, Cote d'Ivoire, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Togo, Uganda, Zambia, Zimbabwe				
RH	4.48	0.67	3.00	6.07
HCI	0.40	0.06	0.30	0.62
GDP per capita (current US$)	1948.48	2004.14	448.84	8632.75

Table 1. – cont.

Variable	Mean	Standard Deviation	Min	Max
Latin America & Caribbean (17 cases)				
Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay				
RH	6.03	0.32	5.53	6.58
HCI	0.56	0.06	0.46	0.65
GDP per capita (current US$)	7285.24	3940.83	1900.04	15418.82
North America (2 cases)				
Canada, United States				
RH	7.00	0.03	6.98	7.03
HCI	0.75	0.07	0.70	0.80
GDP per capita (current US$)	53142.97	13979.09	43258.26	63027.68
Sample (140 cases)				
RH	5.55	1.11	2.40	7.80
HCI	0.58	0.14	0.30	0.90
GDP per capita (current US$)	15055.02	20765.64	448.84	116356.20

Source: Own elaboration.

An analysis of the data in the table shows that the GDP indicator in the Europe & Central Asia group has the greatest variation, which is due to the large size of this group of countries, as well as the significant uneven economic development of the countries in this group. At the same time, the gap between the other indicators is insignificant. The GDP gap is the smallest in Sub-Saharan Africa, but this group also has the lowest values for this indicator.

The HCI discrepancies are smallest in Sub-Saharan Africa and Latin America & Caribbean, but HCI values are also the lowest in these groups. At the same time, HCI discrepancies are the greatest in East Asia & Pacific, suggesting that human resource development in this geographic region of the world is uneven.

The Happiness Rating also varies by regions. The gap in the HR is the largest in Middle East & North Africa, which can be explained by significant differences in living standards and self-determination in this region. The gap in the HR is the smallest in North America, but this region is represented by only two countries that are close, both economically and socioculturally.

The next stage of the study focuses on a more detailed analysis of the relationships between the indicators by groups. Table 2 presents the results of the correlation analysis.

Table 2. The results of correlation analysis by the countries groups

Variable	HCI		
	Pearson Correlations	Spearman Rank Order Correlations	Kendall Tau Correlations
South Asia (6 cases)			
RH	-*	0.37	0.33
GDP per capita (current US$)	-*	0.60	0.47
Europe & Central Asia (48 cases)			
RH	0.73	0.73	0.54
GDP per capita (current US$)	0.65	0.85	0.65
Middle East & North Africa (16 cases)			
RH	-*	0.69	0.53
GDP per capita (current US$)	-*	0.62	0.47

Table 2. – cont.

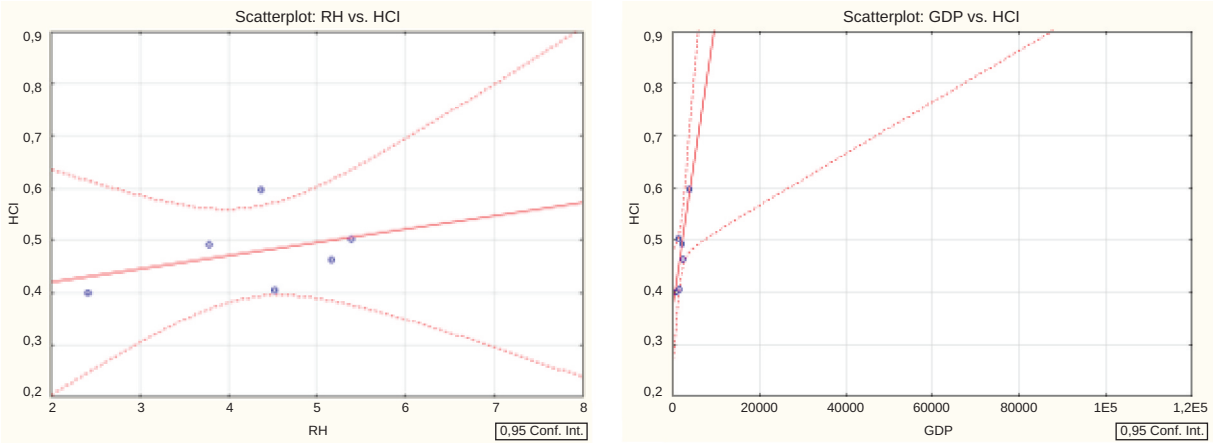
Variable	HCI		
	Pearson Correlations	Spearman Rank Order Correlations	Kendall Tau Correlations
East Asia & Pacific (16 cases)			
RH	-*	0.66	0.45
GDP per capita (current US$)	-*	0.89	0.73
Sub-Saharan Africa (35 cases)			
RH	0.20	0.07	0.04
GDP per capita (current US$)	0.61	0.54	0.38
Latin America & Caribbean (17 cases)			
RH	-*	0.04	0.03
GDP per capita (current US$)	-*	0.55	0.24
North America (2 cases)			
RH	-**	-**	-**
GDP per capita (current US$)	-**	-**	-**
Sample (140 cases)			
RH	0.78	0.80	0.59
GDP per capita(current US$)	0.72	0.89	0.71

Note: Significant correlations are highlighted in red. Marked correlations are significant at p < 0.05 (Casewise deletion of missing data)
* – this type of correlation is not used when the sample size is N<30
** – insufficient sample size for analysis
Source: Own elaboration.

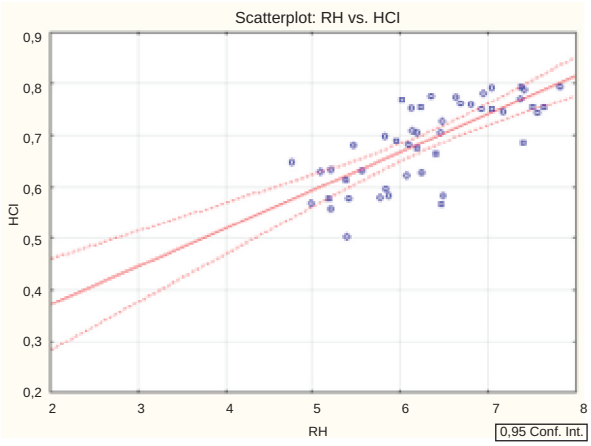
Table 2 shows that the relationship between the indicators is clear across the sample as a whole, but the link weakens across country groups. Based on this, it can be concluded that there are inter-regional differences in the analysed indicators. It should also be noted that there is no relationship between the level of human capital and happiness in South Asia, Sub-Saharan Africa, and Latin America & Caribbean (i.e. in regions represented by countries with a low level of all analysed indicators). This gives reason to conclude that people in countries, and therefore regions, with low level of economic development do not feel happy even when their level of knowledge and health status is improving. At the same time, in all regions, the relationship between the GDP and human capital development is stronger than the relationship between human capital development and happiness.

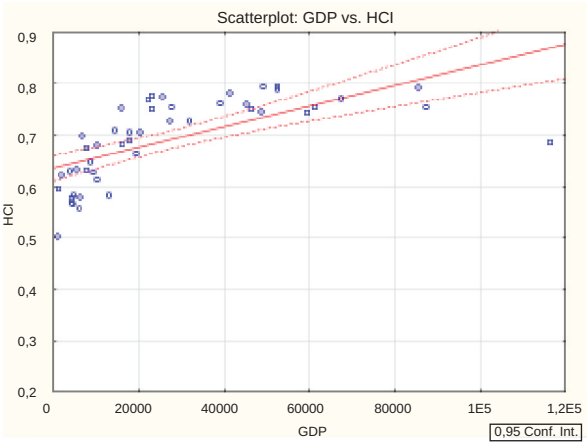
Figure 1 displays a visual representation of the distribution of the analysed indicators worldwide and by regions.

South Asia (6 cases)

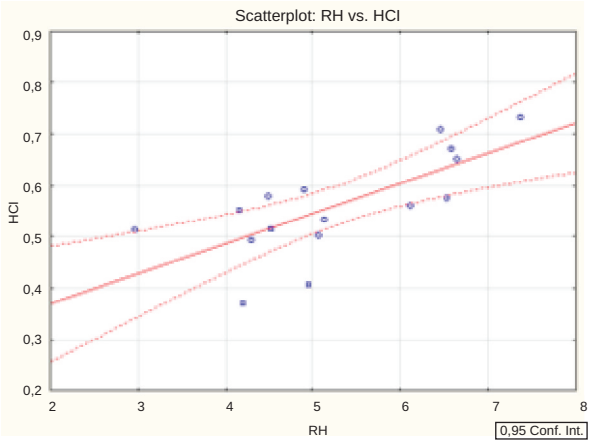


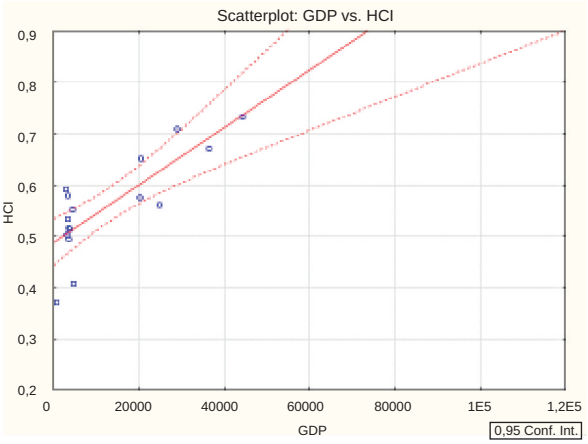
Europe & Central Asia (48 cases)



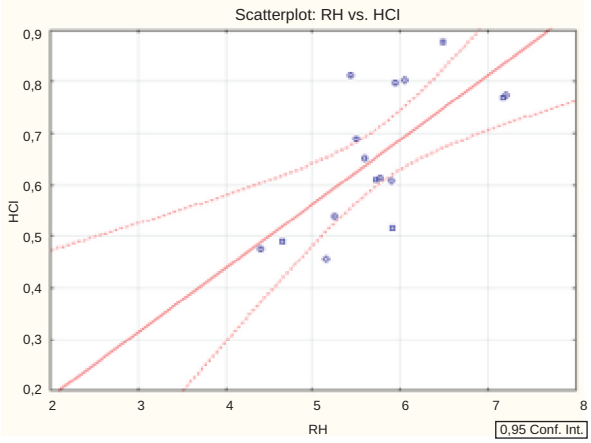


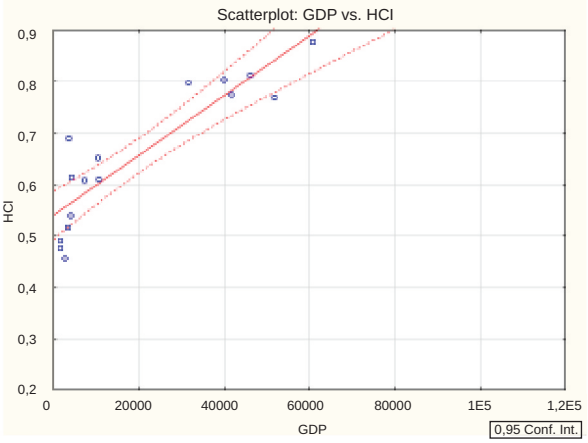
Middle East & North Africa (16 cases)



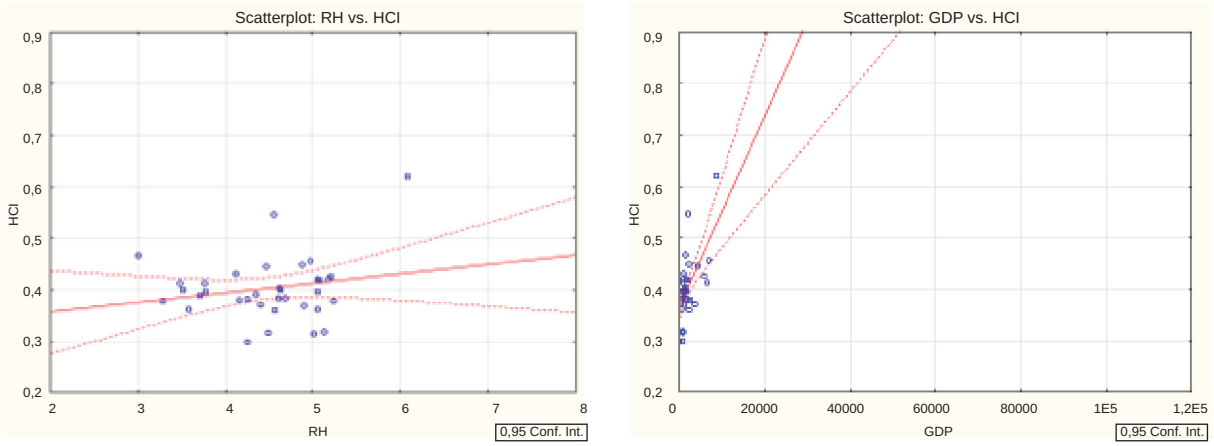


East Asia & Pacific (16 cases)

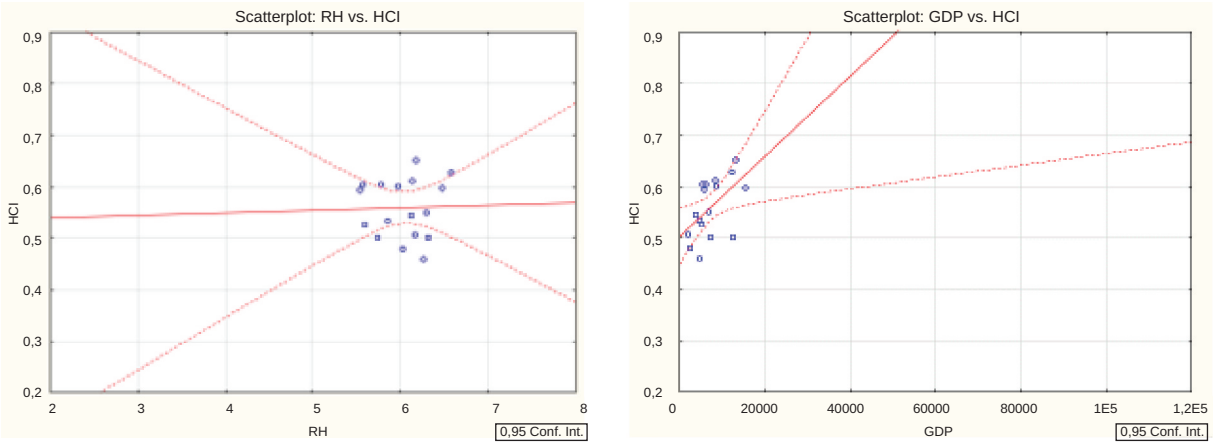




Sub-Saharan Africa (35 cases)



Latin America & Caribbean (17 cases)



North America (2 cases)

–

–

Sample (140 cases)

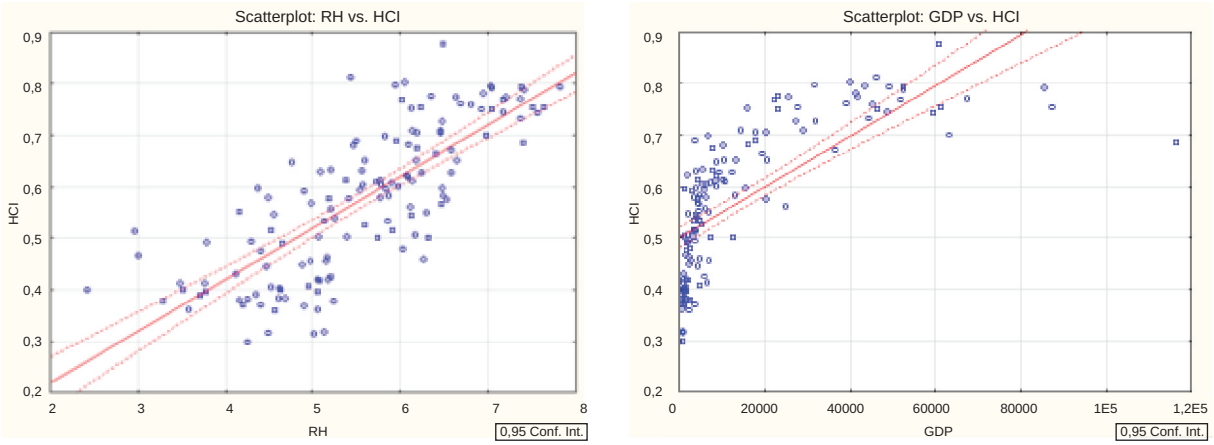


Figure 1. Spatial distribution diagrams of indicators by regions and the world as a whole

Note: GDP on the pics means GDP per capita (current US$)
Source: Own elaboration.

The visualisation of the relationship makes it possible to draw conclusions. A direct relationship between the HCI and the RH and an even distribution of these indicators in space is observed in the sample as a whole. Based on this fact, it can be concluded that investments in human capital,

which contribute to an increase in its level, ultimately lead to higher levels of happiness among a country's citizens. The graphs also point to uneven levels of human capital development and happiness across regions of the world.

The analysis of the distribution of GDP per capita and human capital development levels around the world as a whole shows that the level of the HCI, with almost the same level of GDP, is very different in many countries. That is, countries at the same income level invest differently in human resources. This gap is significant across countries and regions.

The next stage of the study consists of a more detailed analysis of the countries in the group with the highest values of the analysed indicators, in particular the countries of the European Union. The issue that needs to be addressed is whether the relationship between indicators is homogeneous or whether countries form separate groups. Cluster analysis was used to find a solution. The indicators had been standardised before the cluster analysis procedure.

Ward's method was used as a distribution method for the indicators, and Euclidean distance as a proximity measure. Figure 2 presents the results of the cluster analysis.

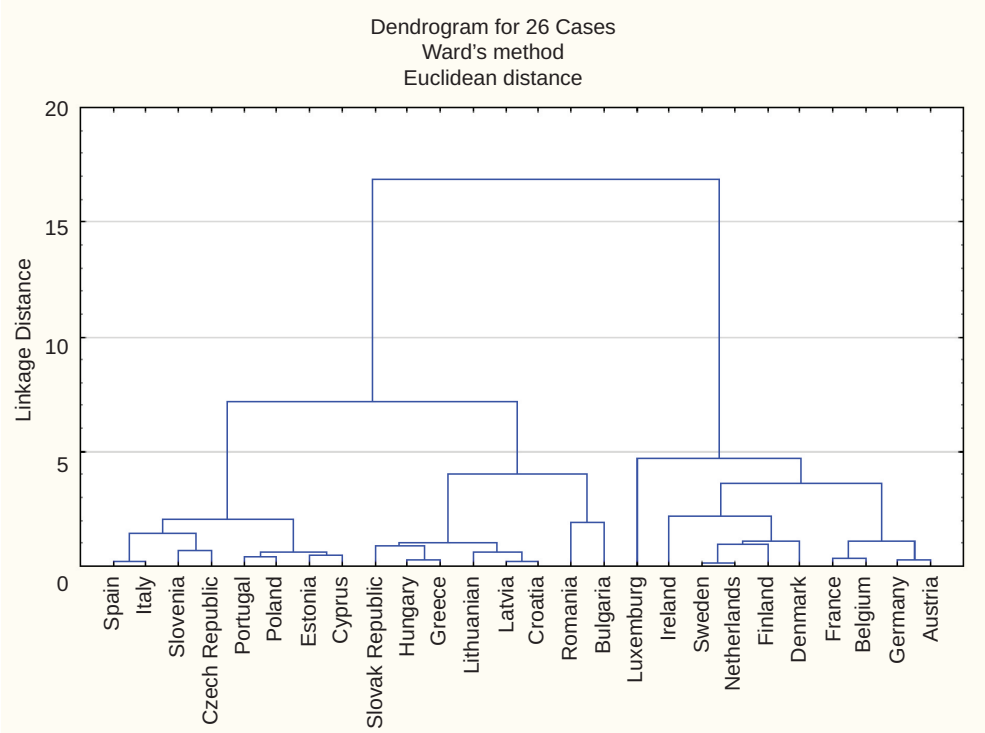


Figure 2. The distribution of countries by groups (standardised values)

Source: Own elaboration.

Figure 2 demonstrates that countries form three natural clusters. Table 3 displays descriptive statistics by clusters.

Table 3. Descriptive statistics

Variable	Mean	Standard Deviation	Min	Max
Cluster 1 (8 cases)				
Cyprus, the Czech Republic, Estonia, Italy, Poland, Portugal, Slovenia, Spain				
RH	6.40	0.29	6.02	6.92
HCI	0.75	0.02	0.73	0.78
GDP per capita (current US$)	24498.42	4750.82	15742.45	31834.97

Table 3. – cont.

Variable	Mean	Standard Deviation	Min	Max
Cluster 2 (8 cases)				
Bulgaria, Croatia, Greece, Hungary, Latvia, Lithuania, Romania, Slovakia				
RH	6.13	0.36	5.37	6.48
HCI	0.67	0.05	0.58	0.71
GDP per capita (current US$)	16011.78	3422.82	10079.20	20232.30
Cluster 3 (10 cases)				
Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Luxembourg, the Netherlands, Sweden				
RH	7.24	0.36	6.69	7.80
HCI	0.76	0.03	0.69	0.80
GDP per capita (current US$)	59576.70	23650.85	39037.12	116356.20
Sample (26 cases)				
RH	6.64	0.59	5.37	7.80
HCI	0.73	0.05	0.58	0.80
GDP per capita (current US$)	35378.79	24557.98	10079.20	116356.20

Source: Own elaboration.

The information in Table 3 shows that the countries with the lowest values for all indicators form the second cluster, while the third cluster includes the countries with the highest indicators. At the same time, there is a relationship between the analysed indicators for the whole group, but there is no significant correlation in each cluster separately (Table 4). The lack of correlation between the indicators in each group can be explained by the small number of variables in each cluster. Therefore, several methods of calculating correlation coefficients (Spearman and Kendall), which are usually used for small sample sizes, were applied to verify the calculation results.

Table 4. Correlations between the HCI and RH and GDP per capita

Variable	HCI	
	Spearman Rank Order Correlations	**Kendall Tau Correlations**
Cluster 1 (8 cases)		
RH	-0.26	-0.14
GDP per capita (current US$)	-0.36	-0.29
Cluster 2 (8 cases)		
RH	-0.07	-0.07
GDP per capita (current US$)	0.43	0.29
Cluster 3 (10 cases)		
RH	0.21	0.11
GDP per capita (current US$)	-0.03	-0.11
Sample (26 cases)		
RH	0.48	0.35
GDP per capita (current US$)	0.60	0.43

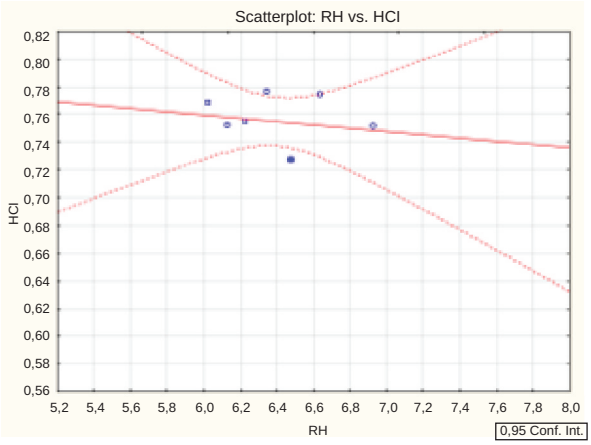
Note: Significant correlations are highlighted in red. Marked correlations are significant at $p < 0.05$ (Casewise deletion of missing data)
Source: Own elaboration.

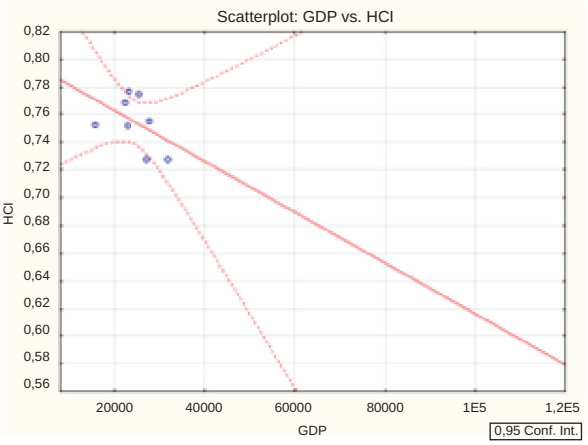
Figure 3 presents a graphical interpretation of the relationship between the analysed indicators.

The graphs in Figure 3 illustrate a large spread of values in space, indicating an uneven level of indicators across the European Union. However, it should be noted that with increasing GDP per capita, the level of human capital development grows only up to a certain point. The relationship

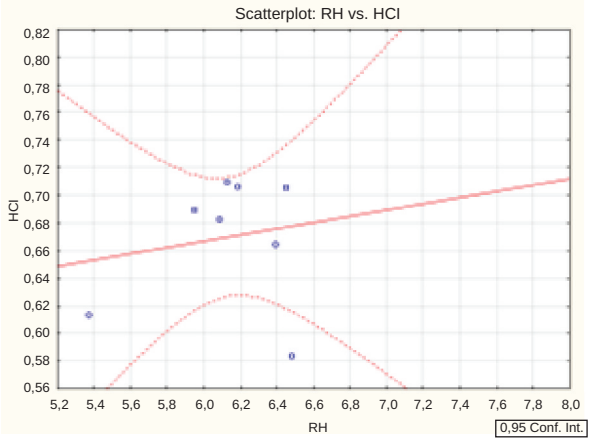
between GDP and human capital is negative in groups of countries with very high GDP per capita. Thus, GDP growth stimulates the development of human capital up to a certain level, while further growth in GDP is not accompanied by increase in human capital.

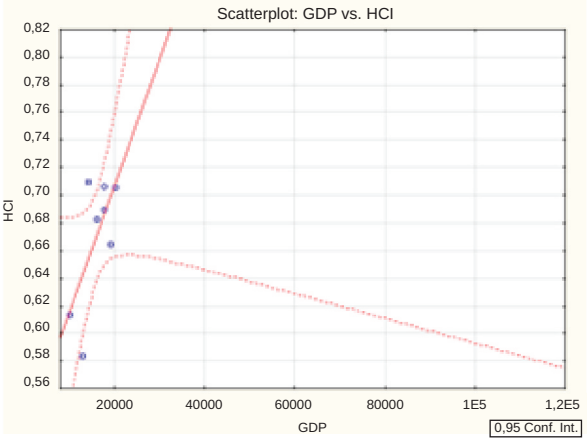
Cluster 1 (8 cases)



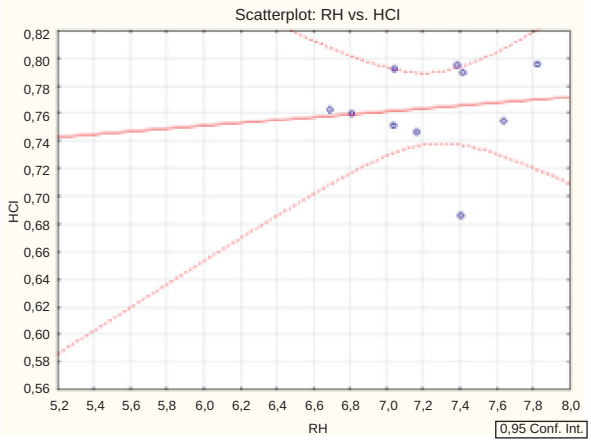


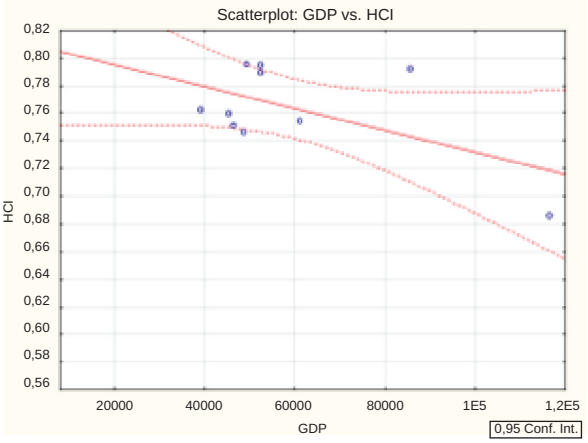
Cluster 2 (8 cases)





Cluster 3 (10 cases)





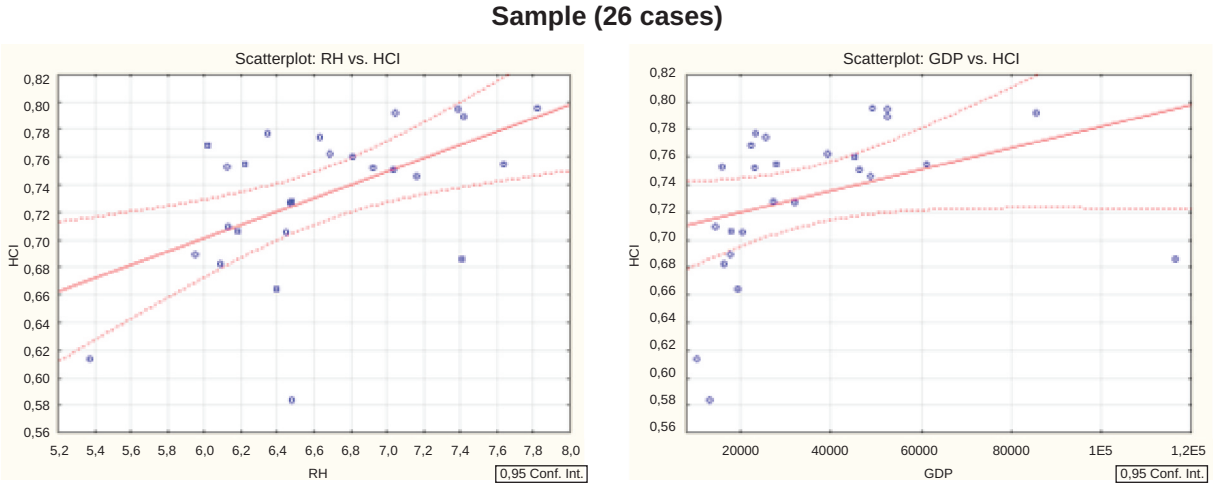


Figure 3. Spatial distribution diagrams of indicators for the European Union as a whole and the obtained clusters

Note: GDP on the pics means GDP per capita (current US$)
Source: Own elaboration.

Conclusions

Sustainable economic growth enables the country to invest in all areas. However, the directions of investment depend on government economic policy priorities. The volume and direction of such expenditures vary from country to country and from region to region. The analysis carried out in this paper showed that with the same level of income, the level of human capital development is different across countries and regions. Merło and Bogdański (2018) reached similar conclusions in their study. They found out that there are significant disparities in the spatial distribution of human capital in the regions of the European Union. Laskowska and Dańska-Borsiak (2016) determined that the amount of human capital has a positive impact on GDP per capita in the region. Moreover, this influence extends to neighbouring regions.

The results of our research also show that the level of human capital development is not always higher in countries with a higher level of GDP per capita. This means that investments in the human factor are determined not so much by income in the country as by the priorities of government economic policy. Consequently, a high level of human capital is achieved primarily by following a socially-oriented development vector. These findings are somewhat consistent with the conclusions of Diebolt and Hippe (2019), who accumulated that human capital is a factor explaining regional differences in economic development. Their research highlights the importance of human capital for economic development over the long term. A study in the historical context has shown that those regions that were better endowed with human capital in the past now have a higher level of GDP per capita. Positive externalities of human capital persist for a long time. Weckroth and Kemppainen (2016) also emphasise that value-based human capital has a positive and significant relationship with GDP in the region. Furthermore, social trust and subjective human capital positively and significantly correlate with regional GDP (Weckroth et al., 2015).

At the same time, the relationship between the HR and the HCI is directly positive, and this relationship is more even across regions. This suggests that a high level of human capital – represented by better education, health, and, correspondingly, higher standards of living – makes people happier.

The novelty of the study lies in the fact that it explores, by groups of countries in a geographical context, the relationship between the level of human capital development and the objective and subjective aspects of development, manifested respectively in GDP per capita and the happiness ranking.

Prospects for further research are to determine the direction of the causal relationship between human capital and GDP, which will enable the development of a theoretical basis for public economic policymaking. An important issue is to define which factors determine the spatial allocation

of human capital. It is also advisable to find out the prerequisites to the movement of skilled labour between countries and regions.

Reference List

Cappelli, R., Montobbio, F., & Morrison, A. (2021). Unemployment resistance across EU regions: The role of technological and human capital. *Journal of Evolutionary Economics*, *31*(1), 147–178. https://doi.org/10.1007/s00191-020-00693-5

Carrion-i-Silvestre, J. L., & Surdeanu, L. (2016). Productivity, infrastructure and human capital in the Spanish regions. *Spatial Economic Analysis*, *11*(4), 365–391. https://doi.org/10.1080/17421772.2016.1189089

Coniglio, N. D., & Prota, F. (2008). Human capital accumulation and migration in a peripheral EU region: The case of Basilicata. *Papers in Regional Science*, *87*(1), 77–95. https://doi.org/10.1111/j.1435-5957.2007.00149.x

Cuaresma, J. C., Doppelhofer, G., Huber, F., & Piribauer, P. (2018). Human capital accumulation and long-term income growth projections for European regions. *Journal of Regional Science*, *58*(1), 81–99. https://doi.org/10.1111/jors.12339

Diebolt, C., & Hippe, R. (2019). The long-run impact of human capital on innovation and economic development in the regions of Europe. *Applied Economics*, *51*(5), 542–563. https://doi.org/10.1080/00036846.2018.1495820

Human Capital Index (2020). https://www.worldbank.org/en/publication/human-capital#Index

Kijek, A., & Kijek, T. (2020). Nonlinear effects of human capital and R&D on TFP: Evidence from European regions. *Sustainability (Switzerland)*, *12*(5), 1–14. https://doi.org/10.3390/su12051808

Koišova, E., Masarova, J., & Ivanova, E. (2021). Socio-demographic potential of human resources in the Visegrad regions. *Journal of Business Economics and Management*, *22*(4), 1026–1046. https://doi.org/10.3846/jbem.2021.14541

Laskowska, I., & Dańska-Borsiak, B. (2016). The importance of human capital for the economic development of EU regions. *Comparative Economic Research*, *19*(5), 63–79. https://doi.org/10.1515/cer-2016-0038

Lepeley, M.-T. (2017). Bhutan's gross national happiness: An approach to human centred sustainable development. *South Asian Journal of Human Resources Management*, *4*(2), 174–184. https://doi.org/10.1177/2322093717731634

Merło, P., & Bogdański, M. (2018). Spatial disparities in the level of human capital in the European union in the context of regional competitiveness. *Studia Regionalne i Lokalne*, (3), 5–26. https://doi.org/10.7366/1509499537301

Pavel, S., & Jucu, S. (2018). An evaluation of the human resources potential of the western region (Romania). *Forum Geografic, 17*(1), 99–105. https://doi.org/10.5775/fg.2018.147.i

Rafaj, O. (2020). The effect of human capital on the output of Slovak urban regions. *Scientific Papers of the University of Pardubice, Series D: Faculty of Economics and Administration*, *28*(4). https://doi.org/10.46585/sp28041163

Sanromá, E., & Ramos, R. (2007). Local human capital and productivity: An analysis for the Spanish regions. *Regional Studies*, *41*(3), 349–359. https://doi.org/10.1080/00343400701281865

Stryzhak, O., Akhmedova, O., Postupna, O., Shchepanskiy, E., & Tiurina, D. (2021). National brand, tourism and human development: Analysis of the relationship and distribution. *Journal of Distribution Science*, *19*(12), 33–43. https://doi.org/10.15722/jds.19.12.202112.33

Suhendra, I., Istikomah, N., Ginanjar, R. A. F., & Anwar, C. J. (2020). Human capital, income inequality and economic variables: A panel data estimation from a region in Indonesia. *Journal of Asian Finance, Economics and Business, 7*(10), 571–579. https://doi.org/10.13106/jafeb.2020.vol7.no10.571

Weckroth, M., & Kemppainen, T. (2016). Human capital, cultural values and economic performance in European regions. *Regional Studies, Regional Science*, *3*(1), 239–257. https://doi.org/10.1080/21681376.2016.1177467

Weckroth, M., Kemppainen, T., & Sørensen, J. F. L., 2015, Predicting the gross domestic product (GDP) of 289 NUTS regions in Europe with subjective indicators for human and social capital, *Regional Studies, Regional Science*, *2*(1), 312–331. https://doi.org/10.1080/21681376.2016.1177467

World Development Indicators (2022). https://data.worldbank.org/indicator

The World Happiness Report (2022). https://worldhappiness.report/ed/2022/

Integrating the Ukrainian Garment Industry into Global Value Chains: National and Regional Dimensions

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2403

Khrystyna Prytula
State Institution "Institute of Regional Research named after M.I. Dolishniy of the NAS of Ukraine", Sector of Cross-Border Cooperation, 4 Kozelnytska St., 79026 Lviv, Ukraine; e-mail: khrystynka.prytula@gmail.com (corresponding author); ORCID: 0000-0003-3846-2393

Anna Maksymenko
State Institution "Institute of Regional Research named after M.I. Dolishniy of the NAS of Ukraine", Sector of Cross-Border Cooperation, 4 Kozelnytska St., 79026 Lviv, Ukraine; e-mail: annusja@gmail.com; ORCID: 0000-0002-4014-6501

Nataliia Popovych
Lviv University of Trade and Economics, Department of Commodity Science, Customs Affairs and Management Quality, 10 Tugan Baranovskogo St., 79005 Lviv, Ukraine; e-mail: popovych.n1988@gmail.com; ORCID: 0000-0002-4407-105X

Halyna Ivasyk
Lviv Polytechnic National University, Department of Higher Mathematics, 5 Metropolitan Andreya St., 79013 Lviv, Ukraine; e-mail: halyna.v.ivasyk@lpnu.ua; ORCID: 0000-0003-0587-0630

Abstract

The garment production in Ukraine is an export-oriented industry. European countries, with the share of 90%, are the major partners in readymade clothes export. Ukrainian regions with the highest export capacity are determined by calculating the location quotient and export orientation level. The competitive advantages of domestic companies are revealed based on the SWOT analysis. The features of the garment industry as a complex system are examined using the methods of cognitive analysis. The expert survey of the garment enterprises revealed opportunities to expand their share within and beyond domestic market as well as prospects for increasing added value in the total export volume.

Keywords

global value chains, garment industry, EU markets, Ukraine, regions

Introduction

The COVID-19 pandemic has caused a record economic decline in most countries in the world and affected to a certain extent all types of economic activity. According to the Macroeconomic and Monetary Review of the National Bank of Ukraine (2020), the decline in Ukrainian manufacturing in October 2020 was 5.0% compared to October 2019, at the background of weak investment demand and falling external demand for engineering and chemical products. The textile and garment industry was among those having demonstrated the biggest decline: in the first quarter, 6.6% of employed were on the unpaid leave (in manufacturing – 2.5%) and 3.6% had shorter workdays. Already in April 2020, the decline in the industry's production was almost 40%. The UKRLEGPROM (Ukrainian Association of enterprises of textile & leather industry) reported that in 2020, about 20,000 people lost their jobs. The pandemic has become a serious challenge for the further development of the textile and garment industry in Ukraine along with a range of equally impactful restricting factors of the domestic environment, such as prevailing share of imported goods, counterfeit and smuggled goods, second-hand goods, and low share of goods produced by Ukrainian companies, accounting for only 15–20%. In recent years, Ukraine has been in top-5 countries in the world by the volumes of imported second-hand goods.

The textile and garment industry is one of the important sectors of national economy, which in the pre-pandemic period provided about 5% of budget revenues and 2.6% of Ukrainian commodity exports. Therefore, it has significant potential for further development. The production of textile and garment industry accounted near 1.6% in the total processing output of Ukraine. The share of garment production in the total textile and garment industry output of Ukraine amounts to about 50%. Across regions, it varies within 37.8–63.1%.

Garment production is among the most export-oriented industries in Ukraine. The transformation of global value chains creates new challenges and opportunities for the development of the garment industry in Ukraine. Nowadays, the current trends, which are impacting the development of global value chains. include: the regionalisation of value chains; reducing the complex global value chains (the reduction of the dependence on goods made in China); increasing the number of production stage within one country (widespread the division of labour at the national level); digitisation; strengthening protectionist tendencies (reshoring); import substitution policy; and, recently, the Russian-Ukrainian war. The level of industry development determines the type of its participation in global value chains.

This paper aims to investigate the export capacity of the garment industry in Ukrainian regions and determine the factors affecting the Ukrainian industry development and growing integration into the global value chains on the stages of creating the higher value.

Literature review

There are different types of international economic networks: producer-driven and buyer-driven global commodity chains. Large sellers, marketers, and producers of brands play a crucial role in buyer-driven commodity chains and influence the setting up production cycles in a variety of countries, mostly in less developed ones. The buyer-driven commodity chains have become common in labour-intensive, consumer goods industries such as garments, footwear, toys, housewares, consumer electronics, etc. (Gereffi, 2001).

The international production networks make up chains with a number of steps. Each one creates a different value, requires different quantity and quality of labour and technologies, and can diverse geographically.

Global value chains literature emphasises (Moskowitz & Gebeke, 2007, Gereffi & Frederick, 2010, Frederick and Daly, 2019) several stages in garment and textile industries:

1) *"Cut and Make"* or "*Cut and Manufacture*" (CM) is the stage with the lowest value. The customer provides design specifications, supplies toll row materials, gives guidelines to pursue the standard, and distributes the finished goods to the final consumer.
2) *"Cut, Make and Trim"* (CMT) includes all activities from previous stage plus some responsibility in the purchase of material (zippers, buttons, etc). At this stage, a contracted company cuts the fabric, sews it together, and adds final trim.
3) *"Full Price, Full Package"* (FOB). The firm performs services from previous stages and also provides sourcing, logistics, and other services. This stage also can be called *Original Equipment Manufacturers* (OEMs), as the producer is responsible for all production activities.
4) "*Original Design Manufacturers"* (ODMs) or "*Private Label*". A producer designs collections for the customer. However, the producer is still subcontracted company that highly depends on the customer's decision and products are labelled under the customer's brand.
5) *"Original Brand Manufacturers"* (OBMs) or "*Own Label*" is the highest stage in value chain. The company produces products under own label, controls marketing, and sales activities.

Generally, there are four basic types for upward growth in global value chains: *process upgrading* is achieving more efficient production system or introducing superior technology; *product upgrading*, or moving into more sophisticated product lines; *functional upgrading* creates new functionality to increase the overall skill content of the activities; *chain or inter-sectoral upgrading* is when a company moves into new productive activities (Humphrey & Schmitz, 2002).

In garment value chains, *product upgrading* refers to the production of more complex products, such as higher value-added fashion goods. *Process upgrading* improves productivity through capital investments in machinery, reducing costs and increasing flexibility. *Functional upgrading*

is moving upwards to OBM stage, including sourcing, supply chain management, design, product development, marketing, and branding. *Inter-sectoral upgrading* means moving into another value chain. There are also such types as *supply chain upgrading* (increasing forward and backward integration in production stages) and *end market upgrading* (diversifying or expanding sales to a new geographic locations or buyers) (Frederick & Daly, 2019).

The "product upgrading" or "functional upgrading" reflects a country's progress in economic upgrading. *Economic upgrading* occurs when the following two necessary conditions are fulfilled: 1) an increase (or at least no decrease) in the world export market share; 2) an increase in the export unit value, implying the production of higher-value products. Meanwhile, s*ocial upgrading* is 1) an increase (or at least no decrease) in employment and 2) an increase in real wages (and/or an improvement of labour standards) (Bernhardt & Milberg, 2011).

According to Pickles's research (2013), economic upgrading can but does not automatically lead to social upgrading, and economic upgrading can lead to social downgrading, and vice versa. Generally, countries have benefited the most in terms of social or economic upgrading in the apparel industry when they have enacted proactive governance and regulation policies.

Nordas (2004) emphasises that the textile and clothing industry has high-value added segments where design, research, and development (R&D) are important competitive factors. They are labour-intensive and react quickly to trade liberalisation in searching low-cost labour, cheap materials, less time to production, and flexible suppliers.

At the beginning of the 1990s, countries in the Baltic region, as well as East European countries, had some comparative advantages for internationalising westward textile and clothing industry: proximity to the Europe, cheap and educated labour; strong historical tradition; and industry development. Nowadays, such advantages still exist in Ukraine's garment industry.

A large number of Lithuanian companies worked on a CM and CMT basis in the mid-1990s. For Lithuanian textile and apparel companies, the EU integration was crucial in moving up along the value chains. For instance, by 1998, before Lithuania becoming fully-fledged member in 2004, the EU liberalised its trade with this country, providing it with free access to the EU's preference system. Moreover, with the liberalisation of free trade came increased volumes of FDI from EU countries. As a result, the investments and subsidies helped modernise textile and apparel plants. Furthermore, knowledge has been transferred as a result of close collaboration with EU companies and organisations, thus allowing Lithuanian firms to expand their capabilities in production, marketing, and distribution. Consequently, Lithuanian companies in the textile and clothing industry achieved an equal (or close to equal) status with their EU partners and evolved along the industry's value chain (Moskowitz, 2006).

At the same time, any Free Trade Agreement does not always result in upgrading the garment value chains. One of such examples is Mexican model. The trade restriction began to remove with the passage of NAFTA in 1994; low labour cost made Mexico attractive to the United States' apparel manufacturers with subcontracting operations. However, Mexico has traditionally lacked the necessary infrastructure for a full-package production of garments (Gereffi & Memedovic, 2003).

Recent research has emphasised that Mexico is still characterised with higher backward participation in the textile and apparel GVC. However, China's textile and apparel industry introduces the full package strategy and attracts foreign investment in order to increase its value added. As a result, the share of China's trade in apparel and textile is growing and approaching 40% of global demand (Rodil-Marzábal et al., 2002).

Zhang et al. (2016) point out that rising wages in China have driven clothing companies to relocate their production line to the countries with cheap land and labour such as Vietnam, Indonesia, Bangladesh, Myanmar, etc.

The publication of the ASEAN-Japan Centre (2020) mentions that the lower-income countries of the Association of Southeast Asian Nations (ASEAN) tend to specialise in labour-intensive activities such as CMT. On the other hand, processes such as design and marketing are distributed in more advanced economies of the region.

Apparel manufacturing requires strong institutional support in order to develop in production cycle and achieve more value-added activities. Thus, the authors identify several forms of institutional support in China. The first one includes favourable tax reduction, export subsidy, and internal

property rights policies, which has been launched to develop the private sector. The second one is regulation of industrial upgrading standards and providing companies with a guideline to upgrade. The third form of institutional support referred to promotion cluster-based industrial policy (Zhang et al., 2016).

Moldavian textile and apparel industries also were not so successful as Lithuanian ones in moving up the value chains. There are some reasons for this. After 1989, Moldavian industries attempted to turn westward and European clothing firms turned to Moldova as a subcontractor. However, Moldova was a non-EU member and was not attractive western FDI. Secondly, it was difficult to attempt proper quality in accordance with EU standards. Thirdly, it was difficult for small enterprises to involve in global value chains. The last but not least, there were lots of internal obstacles, including weaknesses in transportation and logistics networks, customs and bureaucratic inefficiencies and costs, underdeveloped financial institutions, and destructive taxation policies. Moreover, equipment and machinery were old and in poor condition. Nonetheless, Sanford L. Moskowitz notes that "it is not clear that internal conditions are fundamental to the evolution of Lithuania's textile and apparel firms, so the assumption that Moldova's internal problems is the decisive factor in the observed stagnation of that country's clothing sector remains problematical" (Moskowitz, 2006).

Evgeniev and Gereffi (2008) found out that Turkey managed to move up from the primary commodities export role to the original equipment manufacturing role, while Bulgaria remained in an assembly export role (between 1991 and 2005). Firstly, an analysis revealed that Bulgarian companies indicated high dependency on the several most important buyers in contrast to Turkish companies diversifying their clients. Also, Bulgarian companies had comparatively higher dependency on supplies from abroad compared to Turkish ones. Moreover, a large percentage (66%) of the Bulgarian companies used agents to contact them with foreign buyers, while the same was true only for 30% of Turkish companies. In addition, Turkey developed as a full-package supplier and successful exporter due to the cooperation between state and business actors (e.g. the programme called "Turquality", initiatives that aimed at introducing additional non-tariff barriers, etc). Meanwhile, Bulgaria's state came too late in supporting the local textile and apparel industry by developing national strategies. Textile and apparel manufacturers were already facing more difficulties in coping with the international competitors as a consequence of the liberalisation of trade, especially after the membership of the country in the EU since 2007 that introduced intensified competition and application of EU regulations and standards that were difficult to meet.

Methodology

Data collection

Quantitative and qualitative data was used. This includes the statistics provided by the State Statistical Service of Ukraine in general and across its regions (about 25 indicators). In addition, an expert survey of garment enterprises in Ukraine was conducted.

The location quotient (LQ) and export orientation level of Ukrainian regions

The location quotient (LQ) is used to determine the concentration level of the garment industry within the regions compared to the country as a whole. LQ is defined as the ratio between the proportions of regional and national employment in the garment industry attributable to an industrial sector generally:

$$LQ = \frac{e_a/e_i}{E_a/E_i}$$

where e_a – the number of employees in the garment industry in the region, e_i – the total number of employees in all industries of the region; E_a – the number of employees in the garment industry nationally, and E_i – the total number of employees in all industries nationally.

The export orientation level is calculated as a ratio of the export of products to their output.

Based on the calculation of location quotient and the level of export orientation, Ukrainian regions with the highest export capacity of the garment industry have been identified.

A cognitive analysis

The cognitive analysis methods are used while researching the functioning features of the garment industry as a weakly structured system[1]. The analysis of the problem of increasing the readymade garment output and expanding the capacity of the domestic market are reduced to the research of a complex system consisting of many interrelated variables. The mathematical simulation requires the balance between the accuracy of the results and an opportunity to get detailed information necessary to develop the model (Roberts, 1976).

The use of the cognitive approach has contributed to representing in an explicit manner the multiple factors impacting the process of the readymade garment production in Ukraine. It is preceded by structuring the information in the following order:

1) researching an object and forming the base of factors impacting the development of the readymade garment industry in Ukraine;
2) constructing a cognitive map of the factors' impact in the form of oriented signed and weighted graphs;
3) researching the factors' impact on the process of readymade garment production;
4) analysing positive and negative feedback loops strengthening or countering the deviations;
5) determining the weight of factors' impact on the intensification of the readymade garment industry development;
6) determining the relationships and factors that hamper the development of the readymade garment industry.

An expert survey of Ukrainian garment enterprises

An expert survey of garment enterprises in Ukraine was conducted. 40 managers of garment companies from different regions of Ukraine were interviewed. The vast majority of the companies are small and medium enterprises (SMEs). Manufacturers' contacts were obtained through the UKRLEGPROM, the Western Ukrainian Fashion Industry Cluster, and at the exhibition Galychyna Fashion Expo (Lviv). The time frame of the survey was August to October 2020. The survey results have contributed to determining the main problems, revealing the opportunities of expanding the presence of domestic garment producers on the internal market, examining the economic expectations of the companies in the garment industry in conditions of COVID-19, and evaluating their perspectives to enter external markets.

A SWOT analysis of the garment industry in Ukraine

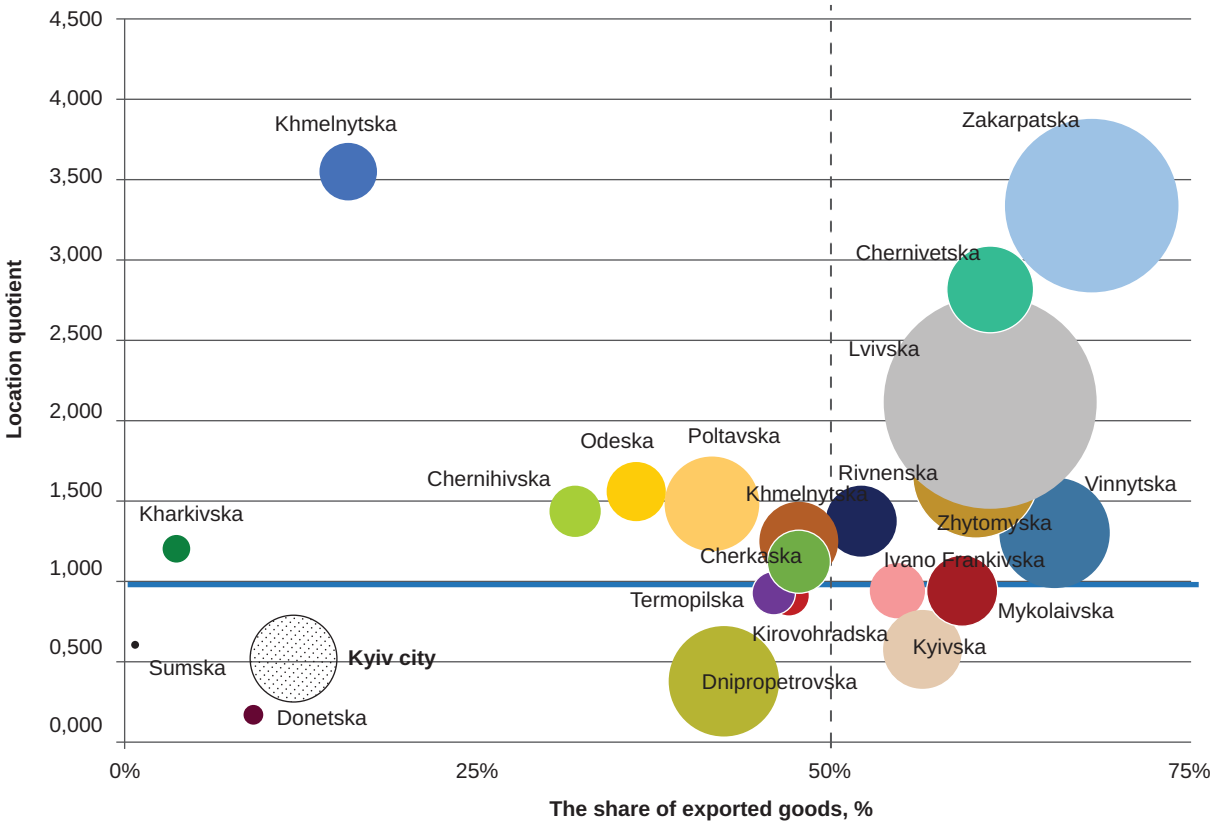
The analysis contributed to defining: the strengths of the garment industry in Ukraine, which currently determine the competitive advantages of the industry and should be efficiently used and developed; weaknesses, which should be addressed in making the strategic decisions; opportunities and threats, which have emerged in conditions of contemporary external challenges to the development and transformation of global value chains as well as the appearance of new global development concepts.

Results and discussion

In the pre-pandemic period, the garment industry in Ukraine was dynamically developing. It is highly export-oriented and, therefore, it is dependent on changes in world markets for goods and services. The industry growth largely depends on the number of employees and their qualification level. The location quotient revealed the regions with a high concentration of the garment industry.

[1] In the theory of complex systems, such terms as "semi structured", "weakly structured", and "ill-structured", which are close in meaning, are used in parallel. Socioeconomic systems by their nature (essence) are dynamic and weakly structured, as they function in conditions of uncertainty and their development is associated with constant adaptation to changing conditions, which may be accompanied by a change in the structure of the system and relationships between component systems. In addition, separate relationships between the components of the system cannot be formalised.

12 out of 25 regions of Ukraine had LQ greater than 1 in 2018. The LQ greater than 2 was estimated for four regions – Zakarpatska (3.332), Khmelnytska (3.551), Chernivetska (2.818), and Lvivska (2.117) (see Figure 1).



For Lukhanska, Khersonska, Zaporizska oblasts export data is unavailable.
LQ values were less than 0.5 in 2018 for all of them.

Figure 1. Location quotient, the share of exported goods in the total volume of goods produced in the garment industry of Ukraine's regions, and the share of the regions in the total export volume of readymade garments (bubble size), 2018

Source: Authors' elaboration based on data of the State Statistics Service of Ukraine.

Figure 1 shows that nine Ukrainian regions had the share of exported goods more than 50% in 2018. Regions in which location quotient values were more than 1 and the export orientation level more than 50% could be characterised with the greater export potential of the clothing industry.

6 out of 25 regions (the Lvivska, Zakarpatska, Vinnytska, Zhytomyrska, Chernivetska, and Rivnenska oblasts) have immense capacity for the export of clothing. These regions' exports accounted for 62% of the value of the total country's exports of clothing in 2018. Enterprises in border regions (the Lvivska, Zakarpatska, Volynska, and Chernivetska oblasts) accounted for almost half of the value of the total garment exports. It worth noting that the number of employees in the garment industry in the Volynska oblast has dramatically increased during 2016–2018, as well as its garment exports volume. However, the share of the export orientation of the Volynska oblast was 48% in 2018. Accordingly, the regions of Ukraine bordering Poland, Slovakia, Hungary, and Romania stand out among the other regions by volumes of garment production as well as the number of employees.

However, border regions of Ukraine have shown a decline in the share of garment exports of 61–62 product groups[2] in the total volume of region export during 2015–2019, with the exception

[2] According to the Ukrainian Classification of Goods for Foreign Economic Activity (UCGFEA), which is used by the customs authorities of Ukraine for the classification (coding) of goods in customs clearance. Product group 61 – Articles of apparel and clothing accessories, knitted or crocheted; product group 62 – Articles of apparel and clothing accessories, not knitted or crocheted.

of the Volynska oblast. At the same time, the absolute value (in thousand USD) of the garment export has increased. In particular, exported apparel of the Volynska oblast increased by 2.2 times, the Lvivska oblast – 1.3 times, the Ivano-Frankivska oblast – 1.2 times, the Chernivetska oblast – 1.1 times, while the Zakarpatska oblast remained unchanged. Moreover, readymade garments are in the top three of commodity exports of the Chernivetska, Zakarpatska, and Lvivska oblasts.

European countries are the main trade partners of Ukraine's exports of readymade clothing. In 2021, the top countries for export of clothing were Germany, Poland, Denmark, Romania, and France. Furthermore, Germany accounts for 30% of exports in the group 61 (articles of apparel and clothing accessories, knitted or crocheted) and the group 62 (articles of apparel and clothing accessories, not knitted or crocheted).

The geographical structure of import is more diverse, including EU Member States, Asian countries, and African countries. China as well as Turkey are the largest importers of product groups 61–62 to Ukraine. The share of imported readymade clothing was 49% for both of these countries in 2021. Besides, the share of Turkey in the import of readymade clothing and footwear had tripled in 2019 compared to 2016. Also, in 2021, the share of readymade clothing imports from Bangladesh totalled 9%, and Poland was the fourth (3% in total import of clothes to Ukraine).

One of the peculiarities of the development of manufacturing in the border regions of Ukraine is processing toll raw materials and subsequent export of finished products. In general, within the border regions of Ukraine, the exports of goods by the product groups – XI. Textile materials and products – XII. Footwear, headwear, and umbrellas – XVI. Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles are all characterised by the highest shares in exports of finished goods made from tolling raw materials. The share of such goods in the total exports can be up to 95–99%.

Generally, integration into value chain, particularly at some of its links, is a peculiar feature of garment industry development in Ukraine (see Figure 2).

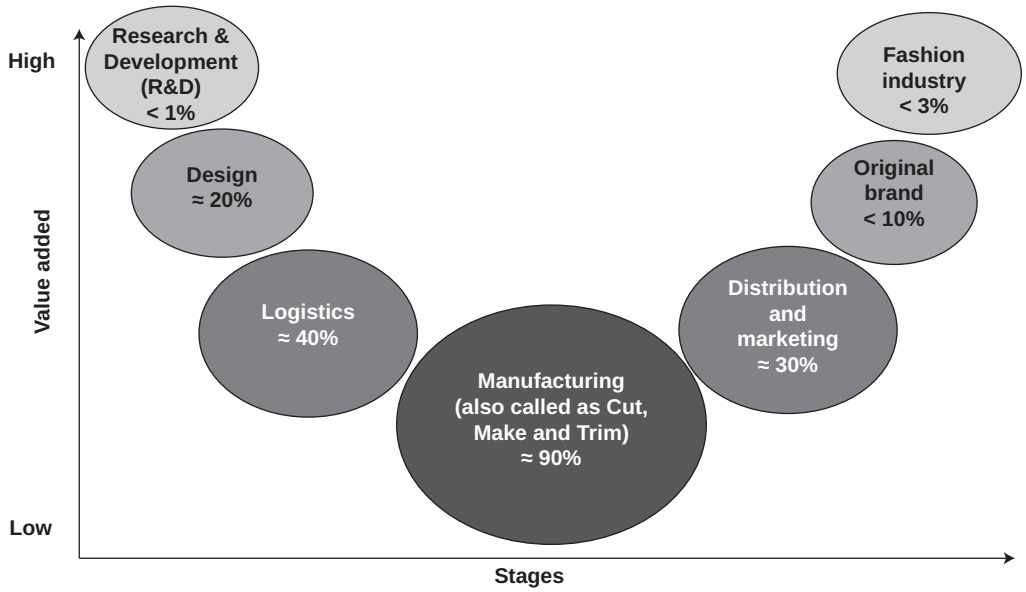


Figure 2. The participation of Ukrainian garment enterprises in global value chains, by stages

Source: Authors' elaboration based on data of the State Statistics Service of Ukraine and expert survey.

The "Smiling curve" has been used to analyse the participation of Ukrainian garment enterprises in global value chains (Shih, 1996). The vast majority of enterprises are integrated into value chains at the production stage. The share of enterprises that implement innovations is about 1–1,5%. Less than 10% of enterprises are integrated into value chains at the stages of the development of new technologies for production, fabrics, recycling, original brand creating, which are well-known at the national and world levels. Therefore, the share of value added created by Ukrainian companies in the global value chains is insignificant.

In 2020, the share of the imported garment accounted for two-thirds of the Ukrainian market. Garment exports (in relation to the domestic market capacity) slightly reduced during 2016–2020 (from 49.91% in 2016 to 32.64% in 2020). Meanwhile, during the pandemic, the ready-made clothing segment still dependent on import, in particular raw material, and the condition of the European garment market (see Figures 3–4).

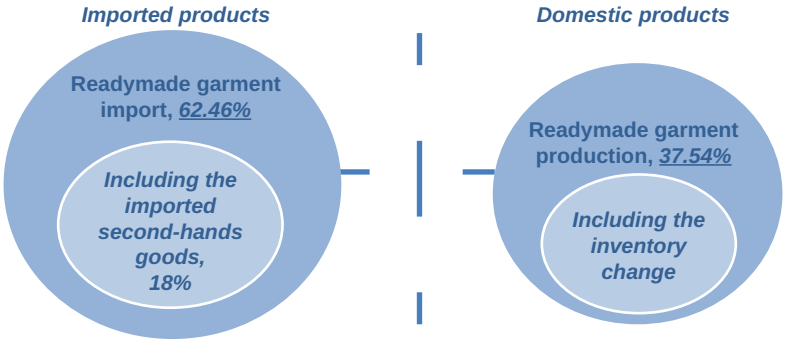


Figure 3. The structure of the readymade garment supply on the domestic market of Ukraine in 2020

Source: Authors' elaboration based on data of the State Statistics Service of Ukraine.

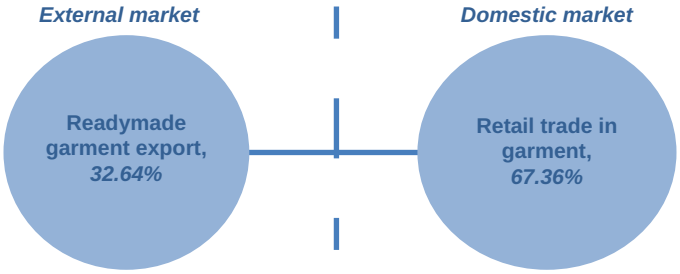


Figure 4. The structure of demand for the Ukrainian readymade garment in 2020

Source: Authors' elaboration based on data of the State Statistics Service of Ukraine.

An analysis of the change in main parameters of the readymade garment industry development in 2010–2019 (in the pre-pandemic period) in Ukraine and across regions has contributed to defining the main 16 factors impacting the readymade garment production development in Ukraine (Pr). They include the retail trade in the garment (Rt), the export of readymade garment (Ex), the import of readymade garment (Im), the import of used garment (second-hand) (ImSH), the import of raw materials for the readymade garment production (ImRM), the number of employees in the industry (Empl), the cost of fixed assets (FA), capital-labour ratio (CA), capital investment (CaInv), fixed assets depreciation (DepFA), labour productivity (LProd), households' expenditures on the garment (HExp), the income of the population (Inc), average salaries in the industry (AvS), the number of students by specialties "garment manufacture", "light industry technologies", "fashion design" (Stud), and distance to the state border (Br)[3].

The cognitive map of the functioning of the readymade garment industry is developed in the form of the oriented weighted graph , with the nodes representing the factors and arcs showing the casual relationships that demonstrate the impact of one conceptual variable on the other.

Figure 5 shows the cognitive map of the functioning of the readymade garment industry. The weights on the arcs are the coefficients of pair correlation between the parameters of respective nodes of the arc. The time lag was considered in the process of estimating the coefficients of correlation.

[3] Starting since 2015, the prevailing share of export has been oriented on the European market; therefore, the distance between the region and the closest checkpoint on the state border with EU Member States was taken into account.

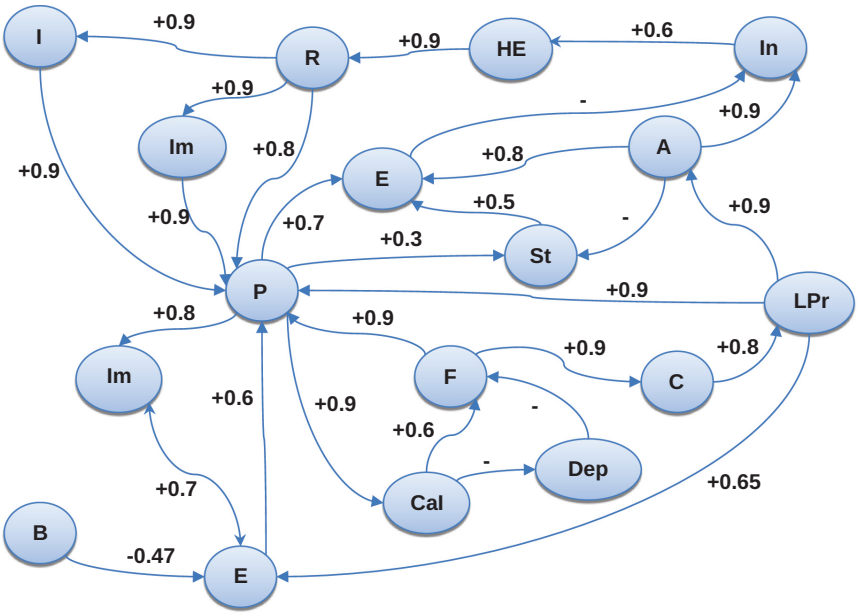


Figure 5. The cognitive map of functioning of the readymade garment industry in Ukraine

Source: Authors' elaboration.

The analysis of the cognitive map has contributed to revealing the incentives and disincentives for the readymade garment production and examining the resilience of some arcs in the graph. The results of the conducted research will be outlined below. The demand and supply factors impact the output in the first place is as follows:

$$\Pr \Rightarrow \begin{cases} Demand\_Factors\_(Rt, Ex) \\ Supply\_Factors\_(FA, Empl, ImRM) \end{cases}$$

The analysis of the cognitive map has contributed to revealing the positive and negative feedback loops as well as the level of certain factors' impact. Nowadays, less than half of output is sold on the domestic market. Meanwhile, the imported goods are more sensitive to the expansion of the domestic market capacity:

$$\text{The expansion of the domestic market capacity} \Rightarrow \begin{cases} \uparrow Rt \xrightarrow{+0.84} \uparrow Pr \\ \uparrow Rt \xrightarrow{+0.99} \uparrow ImG \\ \uparrow Rt \xrightarrow{+0.96} \uparrow ImSH \end{cases}$$

The income of the population is the major factor impacting the volumes of retail turnover: ↑ Inc ⟹ ↑ Hexp ⟹ ↑ Rt. Meanwhile, growing income is the key task and result of the efficiency of economic policy in the country, strengthened by the time factor of the implementation of necessary policy measures. Moreover, the garment represents the goods with low elasticity, which is confirmed by the correlation coefficient – $k(Inc, HExp) = 0.66$[4]. Therefore, the use of marketing instruments of impact on the domestic consumer behaviour that would help partially reorient the consumption from imported goods on the same goods by quality and price produced domestically is among the ways to develop domestic production. The growth in the income of the population will, in the first place, impact the reduction of the share of second-hand goods on the market of the country.

The garment industry – especially in regions bordering Poland, Slovakia, Hungary, and Romania – is strongly export-oriented. Therefore, its development is particularly sensitive to the condition of the external markets of the textile and garment goods. Export deliveries since the start of the COVID-19 pandemic have helped to soften the consequences of falling sales volumes on the domestic market. Meanwhile, the export of products is currently determined, in the first place, by the volume of demand for goods manufactured on toll and the distance to European markets, while to a lesser extent – by the level of technological and economic efficiency in the industry:

[4] $k(v_i, v_j)$ – arc weight $k(Inc,HExp) = 0.66$ – coefficient of pair correlation between the factors.

$$\begin{cases} \uparrow ImRM \xrightarrow{+0.78} \\ \downarrow Br \xrightarrow{-0.47} \\ \uparrow LProd \xrightarrow{+0.65} \end{cases} \Rightarrow \uparrow Ex$$

Domestically-produced goods are not competitive on the domestic market, in the first place due to high production cost determined by low efficiency. The efficiency level, in its turn, is determined by the capital-labour ratio. It is quite a challenge to increase capital investment in manufacturing in the nearest future due to prevailing micro and small companies in readymade garment production, low production efficiency, and high investment resources cost. Therefore, primary efforts should be directed at increasing the share of domestic producers on the Ukrainian market.

The industry's development is impossible without the available qualified staff on the labour market. Yet, the analysis of the cognitive map shows that nowadays the growing demand for the staff of respective qualification cannot be met to the fullest extent:

$$\uparrow Pr \Rightarrow \begin{cases} \xrightarrow{+0.75} \uparrow Empl \\ \xrightarrow{+0.3} \uparrow Stud \xrightarrow{+0.5} Empl \end{cases}$$

The existing system of staff preparation does not correspond to the market requirements and is late to react to the growing demand, in the first place for product engineers, technologists, and designers. The problem can be solved by increasing the public procurement of the staff training by respective qualifications. Ukrainian garment enterprises will not be able to increase their share in global value chains at stages with higher added value without attracting more qualified and educated personnel.

The mentioned problems of the readymade garment industry development are essential obstacles to increasing the output of competitive products both on domestic and external markets. It is important to take into account the current economic expectations of the representatives of the entrepreneurship environment when developing the system of primary measures to stimulate the industry development.

According to the respondents, strong dependence on imported raw materials is an essential factor that restricts industry development. Yet, 51% of companies use mostly imported raw materials in their activity, and 21% base their production solely on the imported raw materials. Nowadays, Ukraine does not have its developed raw material base: cotton and synthetic fibre production as main components in fabrics manufacturing.

Most of the surveyed producers are actively trying to diversify their activities and sell their products both on domestic and external markets. Meanwhile, the share of goods sold on the domestic market prevails. The companies oriented solely on the external market were much stronger affected by the crisis related to COVID-19, while some have ceased to operate (see Figure 6).

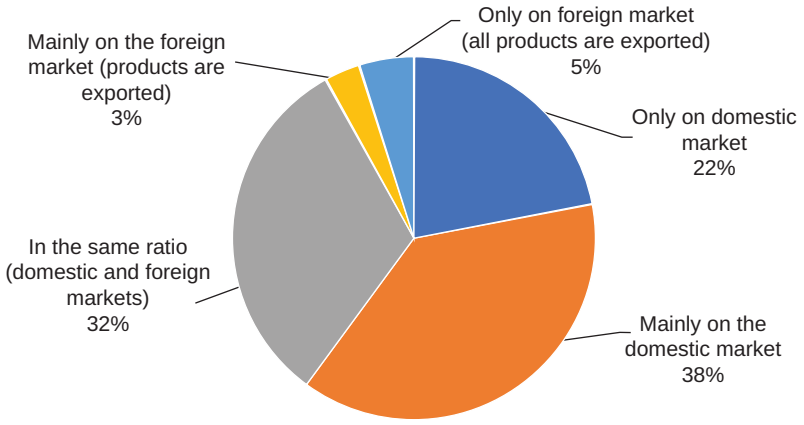


Figure 6. The distribution of answers to the question: "Please specify where your company sells produced products (export to other countries or sell on the domestic market)?"

Source: Based on the expert survey.

The survey contributed to evaluating the perspectives of entrepreneurship development in readymade garment domains. Answering the question “Are you planning to expand the activity in the nearest two-three years?”, one-third of the respondents mentioned that they had planned to expand their activity before the quarantine caused by COVID-19 threatened their plans (36%), while 10% did not plan to expand. It is worth emphasising that despite the instability and unpredictability of market development, 54% of the surveyed companies still tend to expand their activity in the nearest two-three years.

Companies that want to grow will do it by expanding the sales chains on the Ukrainian market (47%), increasing the output (34%) and diversifying the range of products (31%). Another one-third indicates the intention to start an export of their products (34%), and the quarter – to expand the geography of export countries (28%) (see Figure 7).

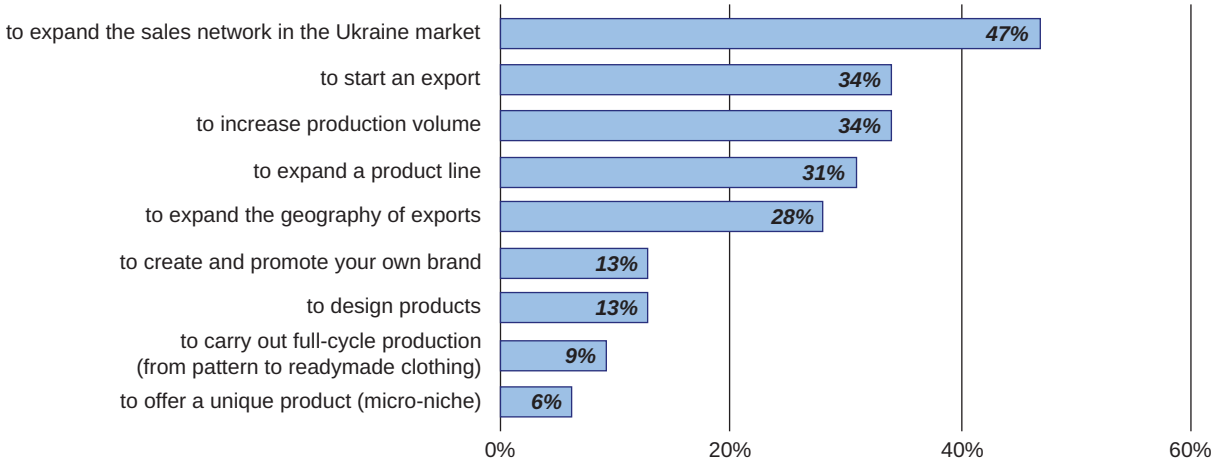


Figure 7. The distribution of answers to the question: “If you are planning to grow, please specify in which way?”

Note: The respondents were allowed to select more than one answer
Source: Based on the expert survey.

During quarantine, some producers have intensified the use of online channels for product sales. The survey shows that most of the respondents have actively used online tools and SMM marketing for a long time. Every fifth producer has launched either its website or page on Facebook or Instagram (see Figure 8).

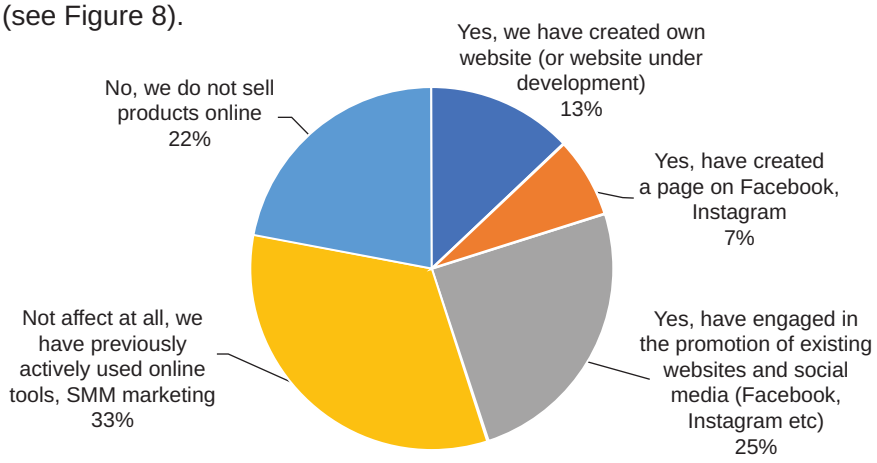


Figure 8. The distribution of answers to the question: “Did the quarantine due to COVID-19 encourage the use of online tools for selling products?”

Source: Based on expert survey.

The respondents’ view on the tools which local authorities have to establish in order to support entrepreneurship development is also important. About half of the respondents have mentioned that assisting in participation in exhibitions, festivals, and fairs in the neighbouring EU countries by

co-financing or partial reimbursement of the cost of participation as well as trade missions is essential support from local governments. The support is relevant for producers that are already exporting their products or intend to enter international markets. The issues of allocating trade areas and centres for domestic producers (40%) and their promotion in the region (38%) are more relevant to companies oriented towards the domestic market (see Figure 9).

Figure 9. The distribution of answers to the question: "What kind of support provided by the local government is necessary for fostering your enterprise?"

Note: The respondents were allowed to select more than one answer
Source: Based on expert survey.

The readymade clothing industry is mainly represented by small business entities, so the establishment of various forms of cooperation will help to increase the competitiveness of their products. First of all, it concerns clusters. Two-thirds of the managers in answering the question "Is your company involved in any forms of cooperation?" said that enterprise did not involve in any form of cooperation; 26% were the members of a cluster association, 21% – subcontractors, and 3% – members of a joint venture. In our survey, six companies were subcontractors as well as cluster members.

Typically, companies benefit from vertical and horizontal linkages in a cluster. The formation and development of clusters and cluster initiatives will contribute to the opening of new opportunities to enter international markets in order to find business partners and investors. Joining the efforts of cluster members within the framework of one value chain allows them to become more competitive, to increase the production capacity of the industry, and to expand the number of jobs. Nowadays, seven textile and apparel industry clusters are registered in Ukraine.

Based on the study of the garment industry development factors and the results of an expert survey, the SWOT analysis of the development of the garment industry in Ukraine is carried out. Its results are presented in Table 1.

Nowadays, key challenges in the textile and garment industry are mainly connected with war. As a result of the Russian invasion of Ukraine on 24th February, 2022, nearly 60% of textile and garment industry companies either have closed or operated intermittently.

In response to these challenges, the Ministry of Economy of Ukraine has launched an enterprise relocation programme. Currently, business entities can relocate to one of the nine regions (the Zakarpatska, Ivano-Frankivska, Lvivska, Ternopilska, Khmelnytska, Chernivtska, Vinnytska, Volynska, and Rivnenska oblasts). The relocation programme provides state assistance in searching for production facilities, staff relocation and resettlement, and searching for employees in the destination region. The Ministry of Economy received 1,424 applications from enterprises in April 2022, most of the companies being from the processing industry – food, textile and apparel, chemical, metalworking, woodworking, and the IT field.

Table 1. The SWOT analysis of the capacity development of the garment industry in Ukraine

STRENGTHS	WEEKNESSES
– strong historical traditions of garment production; – developed network of educational institutions (training system); – high share of employment relative to other regions (location quotient) (especially in border regions); – geographical location (proximity to the EU countries); – low wages; – tendencies to the formation of clusters and cluster initiatives; – the prevalence of small and micro enterprises, able to respond quickly to market needs; – developed network of highways; – quick adaptation for domestic demand (e.g. sewing the uniform, unloading vests and thermal underwear, etc.)	– the lack of own developed raw material base (high dependence on imported raw materials); – integration into value chains at the stage of production by processing toll raw materials; – the technological backwardness of most enterprises in the industry; – the lack of highly-qualified workers (technologists and designers); – the low competitiveness of products by price factor; – negative consumers' attitude towards domestic goods: "domestic – low quality"; – maintaining differences in technical standards, standardisation and certification systems, veterinary and environmental control with EU countries; – the outflow of personnel abroad (which was intensified by the war); – partly destroyed infrastructure (roads, railways, buildings, warehouses, etc.), damaged equipment; – decline in household income.
OPPORTUNITIES	**THREATS**
– prospects for expanding foreign goods markets ("made not in China"; supply flexibility); – the development of new sales tools (online); – expanding the presence in the domestic market (import substitution policy); – the development of brands by domestic enterprises; – companies' relocation to the western regions of Ukraine; – government and local authorities' support for companies' relocation to the western region of Ukraine.	– the intensification of competition from cheap clothes from China, second-hand, grey imports; – the reduction of global consumer demand for products (the concept of sustainable development); – the development of new technologies for the production of fabrics, clothing, waste management (the formation of a new model of economic development – circular economy); – the signing of the Agreement on the establishment of a Free Trade Zone with Turkey; – price increase in fabric imports due to Russia's blockade of Ukraine's ports and change in supply chains as well as transportation routes; – uncertain and unpredictable political and economic situation due to the war in Ukraine.

Among threats mentioned in Table 1, there is a Free Trade Agreement between Ukraine and Turkey. The Agreement was signed on 3rd February, 2022, and will enter into force after ratification by the parliaments of both countries. Domestic textile and clothing producers might face difficulties, because the Turkish textile and apparel sector is well-developed and export-oriented. However, according to the Agreement, transitional periods for most sensitive products are applied in on average five years. Thus, it is enough time to prepare and make strategic reorientation. Under these conditions, for instance, UKRLEGPROM is strengthening cooperation with EURATEX, which has launched EU–Ukraine Textile Initiative (EUTI) on 9th May, 2022. EUTI is designed to expand relationship between European and Ukrainian textile and garment companies and offers a single contact point for Ukrainian companies who seek support and cooperation with EU counterparts, and conversely.

Conclusions

The garment industry in Ukraine, particularly in its border regions, has a significant potential for growth. The prerequisites for its development are historically-formed – the traditions of garment production have been preserved in large cities (Kyiv, Lviv, Kharkiv, etc). Nowadays, the border regions of Ukraine (the Volynska, Lvivska, Zakarpatska, Ivano-Frankivska, and Chernivetska oblasts) account for about 22% of textile and garment industry goods production; about half of all exports of readymade clothing are provided by enterprises in regions bordering EU Member States. Among the other Ukrainian regions, the border regions differ both in terms of garment production volume as well as the number of employees. Today, location near the EU border is a significant competitive

advantage for entering foreign markets and keeping apparel enterprises afloat, saving the workplace and payment of taxes, which is vital for the country's economy, which is currently at war.

Manufacturing the export products on toll and strong dependence on the imported raw materials make the industry especially sensitive to the change of conditions, particularly on the European goods market. 51% of enterprises use raw materials mainly of foreign origin. The largest suppliers of raw materials are Turkey and China. One-third of enterprises use fabrics from Italy, less than a quarter – from Poland. It is urgent to develop a purposeful policy for the development of its own raw material base, primarily flax and wool. In addition, the existing training system needs radical changes in accordance with modern market requirements.

The EU–Ukraine Association Agreement has significantly reduced trade barriers. From the beginning of 2016–2017, regions of Ukraine are increasing the volume of exports. However, the low level of the competitiveness of Ukrainian goods does not allow taking full advantage of the Agreement, especially in the readymade clothing export. The vast majority of Ukrainian enterprises are still integrated into value chains at the production stage. Taking into account the experience of the development of the garment industry in the Baltic region, East European countries, East Asia countries, etc., Ukrainian companies should focus on full-package production, which includes not only the procurement of the raw materials and sewing, but also design activities. For this reason, it is necessary to invest in technology equipment, the implication of digital technologies, skilled labour, and local designers. Foreign direct investments as well as internal investments can be a driver for such processes. This will contribute to upward growth in global value chains by process, product, and functional upgrading. COVID-19 has ambiguous effect on the development of the garment industry:

– The textile and garment industry has shown the greatest decline: in the first quarter – 6.6% of employees were left without pay (in manufacturing – 2.5%), 3.6% – worked part-time. In April 2020, the decline in production volume was almost 40%.
– At the same time, the pandemic has provided the possibility for expanding the share of Ukrainian goods on the domestic market. Ukrainian companies have become more active in using new marketing tools, have opportunities to enter foreign markets by positioning products as "made not in China", and the proximity to European markets gives the ability to deliver in two-three days.

The national economy has been adapting to a new reality of COVID-19 pandemic during. Unfortunately, a new and more devastating challenge has risen, namely the Russian invasion of Ukraine on 24th February, 2022, which caused a significant decline in economic activity. McDougal (2010) pointed out that any decision of the production process depended on three primary factors: the proximity of the battlefront, the actions of the combating forces in relation to the company (e.g. when the rule of law was weak, the company could lose it property or capital because of the damage made by looters), and the market value of the produced good.

Thus, the garment industry of Ukraine is adjusting to the new realities of development in wartime conditions. These are: an increase in prices for raw materials on account of the disruption of the existing supply chains; changes in the transportation cost due to higher oil prices; the outflow of residents mostly – women with children – from the combat frontier (women are the main labour force in the textile and garment industry); inability to operate in areas where there are active hostilities, destruction of infrastructure, equipment, warehouses; the impoverishment of the domestic population. Moreover, import of readymade clothing has decreased by almost 60% during the war.

Nevertheless, the prospects for the development of garment enterprises are in the design, original brand, and marketing stages of the value chain due to higher added value in comparison to the cut, make, and trim stage. Before the war, the manufacturers of readymade clothing who took part in the survey were positively oriented. Half of the them intended to expand their activities in the following few years by expanding the sales network in the Ukrainian market. In their opinion, local authorities' assistance in the allocation of retail space or centres for national producers as well as promotion in the region plays a pivotal role in supporting domestic garment entrepreneurs. Meanwhile, the information and financial support is more important for the development of enterprises focused on foreign markets (e.g. partial coverage of costs for participation in exhibitions, festivals, and fairs abroad).

Reference List

ASEAN-Japan Centre (2020). *Global Value Chains in ASEAN. Textiles and clothing*. https://www.asean.or.jp/main-site/wp-content/uploads/2024/03/GVC_Textiles-and-clothing_Paper-14_full_web.pdf

Bernhardt, T., & Milberg, W. (2011). Economic and Social Upgrading in Global Value Chains: Analysis of Horticulture, Apparel, Tourism and Mobile Telephones. *Capturing the Gains Working Paper, 6*. http://dx.doi.org/10.2139/ssrn.1987688

Evgeniev, E., & Gereffi, G. (2008). Textile and Apparel Firms in Turkey and Bulgaria: Exports, Local Upgrading and Dependency. *Economic Studies*, *17*(3), 148–179. https://www.researchgate.net/publication/24109022_Textile_and_Apparel_Firms_in_Turkey_and_Bulgaria_Exports_Local_Upgrading_and_Dependency

Frederick, S., & Daly, J. (2019). Pakistan in the Apparel Global Value Chain. *The World Bank Report.* https://documents1.worldbank.org/curated/en/933691570165490189/pdf/Pakistan-in-the-Apparel-Global-Value-Chain.pdf

Gereffi, G. (2001). Shifting Governance Structures in Global Commodity Chains, With Special Reference to the Internet. *American Behavioral Scientist*, *44*(10), 1616–1637. https://www.researchgate.net/publication/247511196_Shifting_Governance_Structures_in_Global_Commodity_Chains_with_Special_Reference_to_the_Internet

Gereffi, G., & Frederick, S. (2010). The Global Apparel Value Chain, Trade and the Crisis: Challenges and Opportunities for Developing Countries. *Policy Research Working Paper, 5281*. https://openknowledge.worldbank.org/handle/10986/3769

Gereffi, G., & Memedovic, O. (2003). The Global Apparel Value Chain: What Prospects for Upgrading by Developing Countries? https://www.researchgate.net/publication/228150738_The_Global_Apparel_Value_Chain_What_Prospects_for_Upgrading_by_Developing_Countries/stats

Humphrey, J., & Schmitz, H. (2002). How does insertion in global value chains affect upgrading in industrial clusters? *Regional Studies, 36*(9), 1017–1027. https://doi.org/10.1080/0034340022000022198

McDougal, T. (2010). How Production Firms Adapt to War. *UNU-WIDER Working Paper*, *69*. United Nations University.

Moskowitz, S. L., & Gebeke, J. E. (2007). Outsourcing, Wealth Creation, and SMEs: the Internationalization of Services within the Global Textiles and Apparel Industry: Eastern Europe and South Africa – 1989–2004. *The 11th EBHA Conference in Geneva, Switzerland.* https://ebha.org/ebha2007/pdf/Gebeke.pdf

Moskowitz, S. L. (2006). Internationalization and Value Creation in the Global Textiles and Apparel Industry: A Comparative Analysis of Lithuania and Moldova. In J. J. Choi, R. W. Click (Eds.), *Value Creation in Multinational Enterprise* (pp. 535–564). Emerald.

National Bank of Ukraine (2020). Macroeconomic and monetary review. https://bank.gov.ua/ua/news/all/makroekonomichniy-ta-monetarniy-oglyad-listopad-2020-roku

Nordas, H. (2004). The global textile and clothing industry post the agreement on textiles and clothing. World Trade Organization, *Discussion Paper*, (5). https://www.researchgate.net/publication/255601778_The_Global_Textile_and_Clothing_Industry_post_the_Agreement_on_Textiles_and_Clothing

Pickles, J. (2013). Economic and Social Upgrading in Apparel Global Value Chains: Public Governance and Trade Policy. *SSRN Working Paper*, (13). http://dx.doi.org/10.2139/ssrn.2209720

Roberts, Fred S. (1976). *Discrete Mathematical Models with Application to Social, Biological, and Environmental Problems*. Rutgers University.

Rodil-Marzábal, Ó., Gómez Pérez, A., & Campos-Romero, H. (2022). The global textile and apparel value chain: From Mexico–US–China linkages to a global approach. *Economies*, *10*(10), 258. https://doi.org/10.3390/economies10100258

Shih, S. (1996). *Me-Too is Not My Style: Challenge Difficulties Break Through Bottlenecks*. The Acer Foundation. https://laofutze.files.wordpress.com/2010/07/me-too-is-not-my-style.pdf

Zhang, M., Kong, X., & Ramu, S. (2016). The transformation of the clothing industry in China. *Asia Pacific Business Review, 22* (1), 86–109. https://www.tandfonline.com/doi/abs/10.1080/13602381.2014.990204

The Regulatory Determinants of Economic Growth under Pandemic Challenges: Regional Cluster Issues and Patterns

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2404

Yurii Umantsiv (corresponding author)
State University of Trade and Economics, Department of Economics and Competition Policy, 19 Kyoto St., 02156 Kyiv, Ukraine; e-mail: y.umantsiv@knute.edu.ua; ORCID: 0000-0003-0788-7110

Pavlo Dziuba
Taras Shevchenko National University of Kyiv, Department of International Finance, Institute of International Relations, 36/1 Yuriy Illenko St., 04119 Kyiv, Ukraine; e-mail: pavlo.dziuba@gmail.com; ORCID: 0000-0003-2932-0908

Yuliya Yasko
State University of Trade and Economics, Department of Economics and Competition Policy, 19 Kyoto St., 02156 Kyiv, Ukraine; e-mail: y.yasko@knute.edu.ua; ORCID: 0000-0002-8756-4612

Maryna Shtan
National Academy of Management, Department of International Economic Relations, 15 Ushinskogo St., 03151 Kyiv, Ukraine; e-mail: mvsh2307@gmail.com; ORCID: 0000-0002-4938-555X

Halyna Umantsiv
State University of Trade and Economics, Department of Accounting and Taxation, 19 Kyoto St., 02156 Kyiv, Ukraine; e-mail: h.umantsiv@knute.edu.ua; ORCID: 0000-0002-5410-1363

Abstract

The main objective of this paper is to discover the impact of the COVID-19 pandemic and regulatory conditions of doing business on economic growth of different economies, particularly in terms of the combined co-effect of the two mentioned factors. An econometric cluster model using the k-means method is developed. 172 economies were distributed between clusters based on three parameters: 1) rates of GDP growth for individual economies in 2020, as provided by the World Bank; 2) the World Bank Doing Business rating for 2020; and 3) the COVID-19 pandemic factor that is represented by the total accumulated number of cases officially fixed per 100,000 of population, as provided by the World Health Organization. The study proves that the COVID-19 pandemic appeared to be a substantial factor of economic growth for the vast majority of economies, which is reflected by the drop in their GDP even despite favourable conditions of doing business in some countries. Substantial compensating reciprocal influences are observed between the set of doing business factors and the COVID-19 pandemic factor.

Keywords

regulatory environment, Doing Business rating, GDP, economic growth, COVID-19, k-means clustering

Introduction

Economic growth is not simple; it is a multifaceted macroeconomic phenomenon. It is difficult to fully explain which determinants influencing economic growth are the most important (Khan et al., 2022). As noted by OECD experts, the regulation of product market substantially matters for sound functioning of an economy and for economic growth. However, if untimely and ineffective, the regulation of product market may restrict or disrupt competitiveness among the existing firms (OECD, 2018). Possible response to European challenges may be the true common market, since it has the growth potential (Tusinska, 2014). Economic and financial crisis as well as growing pressure from competing countries with cheap labour are among factors that inspire the transition to the new stage of development. Under the latter, regional economies structure is relying on usage of such instruments as clusters, innovation centres, technological incubators, and their networks (Habanik et al., 2016).

Some time ago economic growth in many countries was considered to be promoted by exogenous factors mostly, while nowadays more and more studies develop endogenous models of economic growth (Romer, 1994; Acemoglu, 2009). One of the key goals of national economic policy is to find new sources of economic growth.

The core objective of this study is to discover the impact of the COVID-19 pandemic as well as regulatory conditions of doing business on economic growth of different economies particularly in terms of the combined co-effect of the two mentioned factors. The paper offers an analysis of dependencies between the set of regulatory environment factors (the World Bank Doing Business rating), individual economies GDP growth rates, and the degree of the COVID-19 pandemic spread. For these purposes, we develop an econometric cluster model using the k-means approach and actually clusterise 172 economies by three selected criteria as of 2020 and 2021, which makes it possible to identify three consistent patterns of dependencies between selected parameters. The model makes it possible to determine consistency between selected parameters in the framework of three identified patterns as well as for the global economy as a whole. The study proves significant influence of the COVID-19 pandemic factor on economic growth. The paper specifies that the building-up of a favourable business environment is necessary for long-term economic growth and discovers that the role of doing business environment in promoting economic development is especially important during crisis periods and phases of decline as much as the latter lead to fiscal restrictions and the worsening of market environment; thus, traditional macroeconomic tools will not be enough to hold up further development of an economy.

Supporting theory and background

Contemporary economic science does not offer single all-around approach to unambiguously decide on main factors and sources of economic growth. Different scholars study particular determinants that can become drivers of economic growth in one time or another. In particular, Solow (2016) refers to the main three factors of economic growth: the importance of natural resource inputs; the degree of substitutability between nonrenewable resources and other inputs in the production of final output; and the pace and bias of technological progress. Many authors (North, 1989; Rodrik, 2008; Acemoglu et al., 2009) believe that stagnant factors of socioeconomic development are predominantly associated with a deficit of institutional change. Therefore, for example, Grgurevic (2022) identified the main inhibiting factor of economic development in the countries of Southeast Europe as the lack of institutional changes with the parallel action of alternative institutions and quasi-monistic neoliberalism.

Until recently, the achievement of high quantitative economic indicators was considered a strategic goal of the state's economic policy. At the moment, this priority has lost its relevance. Today, one of the modern explanations for the differences between the level of economic development in different countries lies in the different level of the regulatory environment. At the time of dynamic changes in the conditions of the unfolding of the Fourth Industrial Revolution as well as global environmental problems and social tensions against the background of the global COMID-19 pandemic, there is a need for such a strategy of economic growth which would provide anticipatory development for the economy and equal opportunities for the growth of the well-being of every citizen. For most countries, the correct definition of the dominant development and its determinant will make it possible to effectively transform the national economy in the direction of new trends of the world economic system with further integration into their environment. The strategy on the way to achieving such goals should be focused on a significant change in the functions and role of the state in regulating economic processes. The basis is built on institutional components such as: effective competitive environment; innovative orientation of the economy; and the effectiveness of institutional structures.

Some studies justify that governments should create regulatory environment which will promote favourable market competition through the introduction of fair taxation systems in order to stabilise the economic situation in a country (Damayanti et al., 2021; Gokalp et al., 2017; Shin & Park, 2019). The impact of competition on shadow economy size is also explored (Karlinger, 2014) and the interrelation between corruption and market competition level in post-communist economies is

studied (Diaby & Sylwester, 2015). Positive influence of inward investments on economic growth renewal as well as on specific monetary indicators also appears to be unchallenged (Blikhar et al., 2021; Rogach & Dziuba, 2017).

The interrelation between innovations and market competition as well as their impact on economic growth has been intensively studied. Among those scholars undertaking the task, few (Heredia et al., 2017) explored the effect of informal competition on innovations efficiency using the case of the Pacific Alliance (McCann & Bahl, 2016) and examined the impact of competition with informal enterprises on new products development. The importance to consider the institutional determinants of innovative economic development in the 21st century is also emphasised (Lagutin & Yasko, 2020). Science-driven and knowledge-intensive innovative industries are perceived as the primary driving force of economic growth. On the other hand, developed and competitive economies can create welcoming environment for further introduction of newest technologies and become the storage of the most promising innovations (Braja & Gemzik-Salwach, 2020).

The role of competition in promoting economic growth is especially substantial during crisis and decline periods, when fiscal restrictions and worsening market conditions arise, and, thus, macroeconomic measures would not be enough to support further economic development. Marwa (2014) analysed the impact of competition on economic development and tested if this impact could be transformed in conformity with technological gap between an economy under question and technologically-leading economy. Such test of 115 countries of the Middle East and Africa testifies that intensive internal competition resulting from business freedom typically slows down the growth of an independent economy. Sustainable development of a national economy implies not only the achievement of maximum possible GDP growth rates, but also qualitative structural changes in an economy via support of sound competition between businesses (Pyroh, 2017).

Notwithstanding the existing differences as to the identification of optimal set of regulatory determinants, major representatives of contemporary economic schools agree on the dominant role of this type of national economic policy in achieving strategic development goals. The impact of the COVID-19 pandemic on various issues of regulatory environment, particularly in financial sector, is studied by Dziuba and colleagues (2021). Significant impact is mostly confirmed.

Notwithstanding the high level of available scientific research as to the matter of long-term economic growth, the issue of short-run post-crisis renewal driven by the development of country's efficient regulatory environment remains poorly studied. The latter, in turn, might become the key trigger to creating efficient business environment with highly effective offsetting effects of adverse drivers brought about by favourable factors.

Methodology and data

The hypothesis and clusterisation framework

For developing the cluster model, we use three parameters. The first one includes individual economies GDP growth rates (GDP parameter of the model). The data on this factor is derived from the World Bank database (World Bank, 2021-2). It represents the percentage rates of GDP growth as measured in USD in current prices for 2020. As a result of such clusterisation analysis, conclusions regarding the influence of one parameter on the others can be drawn foremost when the discovered statistical relation can be well confirmed by one or two descriptive criteria and the actual impact can be justified. This is the particular methodological approach we are going to use in our study. This factor stands as a (implied) dependent variable given the above-mentioned requirements are met.

The second clusterisation factor is the value of the rating of Doing Business (DB in terms of the model parameters). It should be mentioned that we shall use the value of this rating for individual economies as of 2020 rather than their actual rankings (World Bank, 2020). They fluctuate in the range between 0 and 100. As it was noted, this rating demonstrates the set of factors of doing business in a country.

The third clustering factor is associated with the COVID-19 pandemic factor. We are using the total cumulated quantity of official COVID-19 cases fixed per 100,000 of population provided by the

World Health Organization as of 13th October, 2021 (World Health Organization, 2021). It should be emphasised that we might note a slight temporal mismatching between clustering factors, particularly the pass ahead dynamics of the last parameter. However, considering the above-mentioned, this does not represent a problem for the model development, especially in our case, since the index used is cumulative and it had been generating not only in 2021, but also during 2020 and even 2019. Actually, the data used reflects not just the statical impact of the parameter given, but also the dynamics of this impact generating.

Finally, out selection covers 172 economies. During the generation of the selection, some countries were excluded mostly for two reasons. The first one was the absence of data for 2020. Typically, this reason deals with the GDP parameter where some economies were represented by 2019 data only. Second, for some countries, the GDP data provided by the World Bank was available, but it was not covered by Doing Business rating.

The major hypothesis we are going to justify or reject using the developed model is that there are consistent patterns of interrelation/dependence between GDP growth rates of individual economies, the set of their doing business factors defining regulatory environment, and the level of the COVID-19 pandemic spread for a given country that ground on quantitatively- and qualitatively-defined regularities in their co-dynamics. This, in turn, would open opportunities to analyse particular economies and use the discovered regularities to define common and distinctive features between them, uppermost in terms of how the two factor groups co-define economic growth. We expect that a positive effect of one factor might appear to be offset by a negative effect of another one.

Model specification and the identification of the number of clusters

For developing the model, we use the multi-criteria clusterisation using the k-means method. It implies minimisation of the total squared deviation of points coordinates from its centre. These coordinates are not set beforehand and are not constant. Rather, they are computed (and re-computed) as relative to other points and centre being found until the optimal relation between points' coordinates and the centre itself is found. At the same time, the quantity of clusters is set in advance. The mathematical basis for this method implies calculating Euclidean distances of clusters points from their centres and minimising these distances in multidimensional Euclidean space. The formula of Euclidean distance between two points is the following:

$$d(a,b) = \sqrt{(a_1 - b_1)^2 + (a_2 - b_2)^2 + \ldots (a_n - b_n)^2} = \sqrt{\sum_{n=1}^{k} (a_n - b_n)^2} \quad (1)$$

$d(a,b)$ – Euclidean distance between points *a* and *b* in multi dimensional space

a_n – value of point *x* on the *n-th* dimension

b_n – value of point *y* on the *n-th* dimension

To utilise the k-means method, we shall carry out the computation following the next procedure.

First, we have to define the quantity of clusters. It depends uppermost on the study goals and objectives as well as on the quantity of cases being clustered. All in all, the optimal quantity of clusters is often been set empirically via testing different possible quantities. In order to define this quantity in our study, we carried out a preliminary assessment for the case of three, four, five, six, seven, eight, and nine clusters. A larger or smaller cluster number is unreasonable in our opinion, since two clusters for 172 economies would hardly allow making relevant conclusions, while 10 or more would diffuse the regularities under question, as well as their common and distinctive features that permit to discover and analyse them. With regard to preliminary assessment, the following should be noted. For example, three and four clusters unite quite different economies, such as the USA, the UK, Belarus, Belgium, Kazakhstan, and others. Although such grouping is detected statistically, it is not univocal in terms of its descriptive identification. For a number of reasons, we are not satisfied by six, seven, and nine clusters as well. From the viewpoint of general logic and possible description opportunities, five and eight clusters appear to be attractive. It is difficult to select their specific definite number, since the general algorithm implies analysing another number of clusters in the case of unsatisfactory results for the first number of clusters. Thus, we are going

to take the five clusters number as the basic working version. Such quantity also implies intuitively understandable number of countries considering their general selection of 172. All computations are carried out in the Stat Soft Statistica 12 software environment.

The second step is to set Euclidian space parameters, which, in fact, has already been done. Clustering factors have been selected and justified.

The mechanics of generating clusters is as follows. Initially, centres of clusters are being set. They can be set randomly, although it is usually done on the basis of the maximisation of distance between them. The belonging of cases to a particular cluster is defined based upon the minimal Euclidean distance from the centre. Generating clusters is being performed on the basis of permanent recalculation of their centres coordinates while the coordinates of cases remain unchanged. This recalculation is being made until the clusters are generated and centres' coordinates do not change any more.

However, for running clusterisation, the available data set should be somewhat transformed. The matter is that the selected parameters have completely distinct measurement units that substantially differ in their absolute values. To solve this statistical and methodological problem, the data needs to be standardised – all values must be adjusted with respect to the meaning of an average and standard deviation. This can be done using the formula:

$$a_i = \frac{A_i - \overline{A_i}}{\sigma(A_i)} \tag{2}$$

a_i – standardised value of A_i

$\overline{A_i}$ – average value of A_i

$\sigma(A_i)$ – standard deviation of A_i

This exactly standardised data was used to apply the k-means method. Descriptive criteria to be used for the analytical screening of developed statistical clusters is the level of income per capita following the World Bank classification (World Bank, 2021-1). Following this criterion, all countries of the world are distributed between four groups: high-income economies (HI), upper-middle-income economies (UMI), lower-middle-income economies (LMI), and low-income economies (LI).

Considering the proposed hypothesis and model specification as well as following the scheduled track of the present study, we strongly anticipate that the hypothesis will be justified. If so, we shall manage to contribute to the existing literature in the field with particular empirical implications. The added value of the study grounds on the developed approach to identify consistent patterns of dependence between GDP growth rates, the set of doing business factors, and the COVID-19 pandemic factor. One of the most essential points of this approach is the identification of specific set-off effect between the set of doing business factors and the pandemic factor. This effect lies in the fact that even substantial absolute values of the pandemic parameter may not bring about considerable losses in economic growth rates because of the favourable doing business environment and *vice versa*. The empirical implications of the study and developed approach are implied to generate consistent patterns of the mentioned dependence and will be generated in the concluding part of the paper should the hypothesis be justified.

Results and discussion

The influence of competition and competitiveness on economic growth

One of significant reasons of why the studies of competition impact on economic growth rates are scarce is the complexity of this ratio assessment. Remarkable in these terms is the problem of the absence of necessary statistical data as well as the availability of non-quantitative competition that cannot be relevantly reflected by specific figures and indices. The estimates of the market concentration level are often substantially simplified. The above-mentioned shortcomings also bring about distorted results and, as a consequence, lead to wrong conclusions as to the level of competition in a specific industry.

Considering the imperfection of the statistical methods of the competition level estimation, some countries began to use the polling of business executives, which, along with quantitative data, made it possible to obtain more complete and comprehensive information. Notably, such polling has been carried out in several European countries since the 1990s on a regular basis.

Nowadays, the competitiveness of national economies is defined by a broad set of factors that together represent a complex hierarchic but structured system of impact that has direct as well as indirect implications. Such aggregate ratios (the World Economic Forum Global Competitiveness Index, the World Bank Doing Business ranking) as well as other similar indices (e.g. the World Competitiveness Ranking provided by IMD World Competitiveness Centre and others) consider major factors of macroeconomic competitiveness. However, the current stage of world economy development is substantially defined by the new factor, the impact of which was not observed before. We mean the COVID-19 pandemic. Although humanitarian in nominal terms, this factor is absolutely overwhelming from the viewpoint of its impact. Its impact has been lately felt by all countries of the world, all components of their economic systems, and all players of the global economy. That is why, in our opinion, currently, the pandemic factor must be considered along with other traditional factors of economic growth.

The impact of the COVID-19 Pandemic on economic growth and clustering results

It is worth considering clusters generated as a result of model development. The most numerous of them is the fourth model cluster comprising of 47 economies (Table 1).

Table 1. Clustering results – cluster 4 (destandardised data)

No.	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22192.85]
1	Argentina	UMI	-9.91	59	11,652.14
2	Armenia	UMI	-7.60	74.5	9,283
3	Austria	HI	-6.59	78.7	8,540.69
4	Bahrain	HI	-5.81	76	16,208.69
5	Belgium	HI	-6.28	75	11,013.31
6	Botswana	UMI	-7.89	66.2	7,707.47
7	Brazil	UMI	-4.06	59.1	10,153.74
8	Bulgaria	UMI	-4.15	72	7,592.65
9	Chile	HI	-5.77	72.6	8,704.62
10	Colombia	UMI	-6.85	70.1	9,774.06
11	Costa Rica	UMI	-4.54	69.2	10,729.92
12	Croatia	HI	-8.37	73.6	10,375.55
13	Cyprus	HI	-5.10	73.4	13,704.88
14	the Czech Republic	HI	-5.60	76.3	15,948.59
15	Estonia	HI	-2.93	80.6	12,628.37
16	France	HI	-8.11	76.8	10,523.91
17	Georgia	UMI	-6.16	83.7	16,173.64
18	Hungary	HI	-4.96	73.4	8,503.23
19	Ireland	HI	3.42	79.6	8,177.56
20	Israel	HI	-2.44	76.7	15,136.33
21	Italy	HI	-8.87	72.9	7,887.66
22	Jordan	UMI	-1.55	69	8,193.26
23	Kosovo	UMI	-6.89	73.2	8,931.06

Table 1. – cont.

No.	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22192.85]
24	Latvia	HI	-3.62	80.3	9,220.12
25	Lithuania	HI	-0.87	81.6	12,805.64
26	Luxembourg	HI	-1.31	69.6	12,665.55
27	Malaysia	UMI	-5.59	81.5	7,271.76
28	Moldova	UMI	-6.97	74.4	7,653.12
29	Mongolia	LMI	-5.34	67.8	9,883.84
30	Montenegro	UMI	-15.16	73.8	21,647.7
31	the Netherlands	HI	-3.74	76.1	11,657.5
32	North Macedonia	UMI	-4.53	80.7	9,366.13
33	Poland	HI	-2.70	76.4	7,713.93
34	Portugal	HI	-7.56	76.5	10,454.23
35	Qatar	HI	-3.67	68.7	8,246.26
36	Romania	UMI	-3.86	73.3	7,234.08
37	Serbia	UMI	-0.98	75.7	14,693.83
38	Seychelles	HI	-10.72	61.7	22,192.85
39	Slovakia	HI	-4.75	75.6	7,876.44
40	Slovenia	HI	-5.53	76.5	13,970.77
41	Spain	HI	-10.84	77.9	10,515.9
42	Sweden	HI	-2.82	82	11,227.79
43	Switzerland	HI	-2.87	76.6	9,798.63
44	Turkey	UMI	1.76	76.8	8,903.32
45	the United Kingdom	HI	-9.79	83.5	12,125.39
46	the United States	HI	-3.49	84	13,351.8
47	Uruguay	HI	-5.86	61.5	11,230.44
Average			-5.27	74.34	11,047.90
Cluster Range			[-15.16 – 3.42]	[59 – 84]	[7,234.08 – 22,192.85]

Notes:
1. The figures are calculated and the table is composed by the authors.
2. Computations are carried out in the framework of the StatSoft Statistica 12 software environment.
3. The countries are placed in alphabetic order.

From the descriptive criterion (income level) perspective, this cluster is homogeneous enough. It covers economies with high (12,696 USD or more) and upper-middle (4,096 to 12,695 USD) level of income except just one country – Mongolia – for which the income level is lower than the middle. This economy – considering the discovered statistical and analytical homogeneity – can be treated as statistical outlier. This cluster also distinctly differs from others according to the pandemic criterion – the average value equals to 11,047.90 infected people per 100,000 of population (Table 1 & Table 6). Apparently, this is the worst range according to the criterion under question. On the one hand, this can be explained by the fact that the current cluster includes mostly developed countries and, as a result, there is high level of development in the health care field and society in general. Consequently, the official quantity of cases is fixed much more often and the extent of the pandemic spread is substantial at the same time. On the other hand, it can be acknowledged than the impact of this factor on GDP growth is not substantial. The cluster is located approximately in the middle of the range, according to the first criterion, considering the mean value and the relative location of countries all over the range. As to the doing business parameter, this cluster is presented by economies having the best environments for doing business. By and large, we can summarise that

countries with relatively high level of income and very high level of regulatory environment are described by relative tolerance to the pandemic factor in terms of its impact on economic growth that can be substantially explained by favourable conditions for doing business. With regard to the large number of economies and the significant homogeneity of the cluster according to the descriptive criterion, it can be considered to be consistent and representative.

The second cluster includes 46 economies. They represent all four possible ranges of income level, with the majority representing the high-income, upper-middle-income, and lower-middle-income economies (Table 2). Only one country from this cluster (Rwanda) has low level of income. These countries have high level of doing business rating and moderate level of the pandemic spread. GDP growth rates for these economies are negative – the second worst value of the mean (Table 6).

Table 2. Clustering results – cluster 2 (destandardised data)

No.	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22192.85]
1	Albania	UMI	-3.31	67.7	6,104.11
2	Australia	HI	-0.28	81.2	515.22
3	Azerbaijan	UMI	-4.31	76.7	4,872.85
4	Belarus	UMI	-0.90	74.3	5,944.9
5	Bhutan	LMI	-6.77	66	338.64
6	Bosnia and Herzegovina	UMI	-4.33	65.4	7,374.57
7	Canada	HI	-5.40	79.6	4,386.02
8	China	UMI	2.30	77.9	8.5
9	Denmark	HI	-2.73	85.3	6,269.38
10	Dominican Republic	UMI	-6.72	60	3,380.48
11	Ecuador	UMI	-7.75	57.7	2,902.24
12	El Salvador	LMI	-7.94	65.3	1,659.89
13	Finland	HI	-2.77	80.2	2,690.75
14	Germany	HI	-4.90	79.7	5,206.72
15	Greece	HI	-8.25	68.4	6,366.47
16	Honduras	LMI	-8.96	56.3	3,738.28
17	Iceland	HI	-6.65	79	3,374.31
18	India	LMI	-7.96	71	2,463.89
19	Indonesia	LMI	-2.07	69.6	1,546.87
20	Jamaica	UMI	-10.20	69.7	2,919.66
21	Kazakhstan	UMI	-2.60	79.6	5,252.68
22	Kenya	LMI	-0.31	73.2	467.37
23	Korea, Rep.	HI	-0.96	84	654.86
24	Kyrgyz Republic	LMI	-8.62	67.8	2,751.18
25	Lesotho	LMI	-11.06	59.4	1,002.73
26	Malta	HI	-7.00	66.1	7,263.43
27	Mauritius	UMI	-14.87	81.5	1,295.2
28	Mexico	UMI	-8.24	72.4	2,889.29
29	Morocco	LMI	-7.12	73.4	2,546.49
30	Namibia	UMI	-7.98	61.4	5,040.33
31	New Zealand	HI	0.98	86.8	91.24
32	Norway	HI	-0.76	82.6	3,614.98
33	Peru	UMI	-11.15	68.7	6,625.88

Table 2. – cont.

No.	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22192.85]
34	Philippines	LMI	-9.57	62.8	2,448.75
35	the Russian Federation	UMI	-2.95	78.2	5,387.13
36	Rwanda	LI	-3.36	76.5	763.1
37	Saudi Arabia	HI	-4.11	71.6	1,573.23
38	Singapore	HI	-5.39	86.2	2,259.78
39	South Africa	UMI	-6.96	67	4,911.49
40	Sri Lanka	LMI	-3.57	61.8	2,464.53
41	Thailand	UMI	-6.09	80.1	2,493.45
42	Trinidad and Tobago	HI	-7.83	61.3	3,776.17
43	Tunisia	LMI	-8.60	68.7	6,008.28
44	Ukraine	LMI	-4.02	70.2	5,895.66
45	Vanuatu	LMI	-9.24	61.1	0.98
46	Zambia	LMI	-3.02	66.9	1,139.01
Average			-5.53	71.75	3,275.67
Cluster Range			[-14,87 – 2,30]	[56,3 – 86,8]	[0.98 – 7,374.57]

Notes: The figures are calculated and the table is composed by the authors.

In our opinion, this cluster is difficult to be considered as consistent or sustainable because of the high level of heterogeneity. It can be tracked even from the viewpoint of cluster structure assessment – it covers such highly developed economies as Germany, Denmark, Canada, as well as countries with relatively low level of development such as Zambia, Namibia, and Kenia. Hard intuition allows placing them in one row with relevant arguments. The fifth cluster comprises 32 economies (Table 3). Unlike the previous one, this cluster is much more homogeneous according to the descriptive criterion. Economies with low (1,045 USD or less) and lower-middle (1,045 to 4,095 USD) income levels mostly stand for this cluster. Only two countries (Equatorial Guinea and Gabon) have upper-middle income level. From the economic perspective, they can be considered as exceptions, while from the computation viewpoint, they can be regarded as statistical outliers.

Table 3. Clustering results – cluster 5 (destandardised data)

No.	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22,192.85]
1	Afghanistan	LI	-1.93	44.1	399.71
2	Algeria	LMI	-5.48	48.6	467.01
3	Angola	LMI	-4.04	41.3	188.02
4	Bangladesh	LMI	2.38	45	949.36
5	Bolivia	LMI	-7.82	51.7	4,318.68
6	Burundi	LI	0.30	46.8	163.5
7	Cambodia	LMI	-3.14	53.8	689.85
8	Cameroon	LMI	0.73	46.1	370.69
9	Central African Republic	LI	0.00	35.6	237.46
10	Chad	LI	-0.89	36.9	30.82
11	Congo. Dem. Rep.	LI	0.77	36.2	63.94
12	Congo. Rep.	LMI	-7.95	39.5	276.45
13	Equatorial Guinea	UMI	-4.89	41.1	911.34
14	Gabon	UMI	-1.32	45	1,463.61

Table 3. – cont.

No.	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22,192.85]
15	Gambia	LI	0.00	50.3	411.43
16	Guinea-Bissau	LI	-2.40	43.2	311.03
17	Haiti	LMI	-3.37	40.7	198.32
18	Kiribati	LMI	2.54	46.9	0
19	Lao PDR	LMI	0.44	50.8	404.07
20	Liberia	LI	-2.87	43.2	114.72
21	Madagascar	LI	-4.20	47.7	157.49
22	Mali	LI	-1.65	52.9	76.6
23	Mauritania	LMI	-1.49	51.1	784.25
24	Myanmar	LMI	-9.99	46.8	884.45
25	Nicaragua	LMI	-1.98	54.4	183.7
26	Sao Tome and Principe	LMI	3.09	45	1,660.44
27	Sierra Leone	LI	-2.16	47.5	80.18
28	Solomon Islands	LMI	-4.32	55.3	2.91
29	Somalia	LI	-1.50	20	133.82
30	Sudan	LI	-1.56	44.8	89.21
31	Timor-Leste	LMI	-8.70	39.4	1,493.43
32	Zimbabwe	LMI	-8.00	54.5	888.22
Average			-2.54	45.19	575.15
Cluster Range			[-9.99 – 3.09]	[20 – 55.3]	[0 – 4,318.68]

Notes: The figures are calculated and the table is composed by the authors.

The lowest possible level of the pandemic spread and the worst environment for doing business are peculiar for economies of this group. At the same time, the GDP growth rates for these countries are the second best among all clusters. Regarding the pandemic, such low extent of its spread can be explained by the fact that countries with low level of development also have low level of the health care field. The pandemic factor for this group of economies does not have substantial impact on GDP. The conditions of doing business and the general level of these economies competitiveness had already been low before the pandemic, resulting in low rates of economic growth. Consequently, the new negative impact factor (the COVID-19 pandemic) did not bring about such substantial negative effect as it did for countries with better launch conditions.

The third cluster consists of 31 economies. Like the previous one, it comprises mostly low-income and lower-middle-income economies, although the number of upper-middle-income economies is slightly higher, and one country (Brunei Darussalam) belongs to the high-income group (Table 4).

Table 4. Clustering results – cluster 3 (destandardised data)

No	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22,192.85]
1	Benin	LMI	3.85	52.4	202.59
2	Brunei Darussalam	HI	1.20	70.1	2,165.13
3	Burkina Faso	LI	2.02	51.4	69.59
4	Comoros	LMI	4.91	47.9	479.88
5	Cote d'Ivoire	LMI	1.82	60.7	230.79
6	Djibouti	LMI	0.50	60.5	1,348.18
7	Egypt	LMI	3.57	60.1	306.95

Table 4. – cont.

No	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22,192.85]
8	Eswatini	LMI	-1.64	59.5	3,991.94
9	Ethiopia	LI	6.06	48	309.53
10	Ghana	LMI	0.41	60	413.12
11	Guatemala	UMI	-1.52	62.6	3,245.77
12	Guinea	LI	6.99	49.4	232.44
13	Guyana	UMI	43.48	55.5	4,290.63
14	Iran	LMI	1.66	58.5	6,821.75
15	Malawi	LI	0.80	60.9	322.5
16	Mozambique	LI	-1.28	55	483.17
17	Nepal	LMI	-2.09	63.2	2,758.98
18	Niger	LI	1.50	56.8	25.29
19	Nigeria	LMI	-1.79	56.9	100.89
20	Pakistan	LMI	0.53	61	570.25
21	Papua New Guinea	LMI	-3.88	59.8	264.1
22	Paraguay	UMI	-1.00	59.1	6,452.37
23	Samoa	LMI	-2.74	62.1	0.5
24	Senegal	LMI	0.87	59.3	441.01
25	St. Vincent and the Grenadines	UMI	-2.73	57.1	5,023.86
26	Tajikistan	LMI	4.50	61.3	183.32
27	Tanzania	LMI	2.00	54.5	43.58
28	Togo	LI	1.75	62.3	311.73
29	Uganda	LI	2.86	60	272.98
30	Uzbekistan	LMI	1.65	69.9	535.93
31	Vietnam	LMI	2.91	69.8	869.37
Average			2.49	58.89	1,379.62
Cluster Range			[-3.88 – 43.48 (6.99)]	[47.9 – 70.1]	[0.5 – 6,821.75]

Notes: The figures are calculated and the table is composed by the authors.

For many economies from this cluster, we observe the GDP growth even despite the pandemic; the average cluster value by this parameter is 2.49. This is the only cluster for which the average GDP growth rate is positive. Among 31 economies of the cluster, positive GDP growth rates are observed for 22 individual countries. With respect to the pandemic parameter, this cluster is similar to the previous one – the extent of its spread is low (average cluster value is 1,379.62). However, it should be underlined that such low rates can be explained by low level of health care development in many countries; consequently, infection cases are not officially fixed. Nevertheless, the previous cluster conclusion regarding the unessential impact of the pandemic factor on economic growth is also confirmed statistically for this group of countries. It can be also agreed upon considering the mentioned analytics. As to the doing business factors parameter, this cluster has the moderate value, although among absolute DB values for individual economies its level 58.89 is much closer to the lower range. We argue that this cluster group of countries represents such a case when the pandemic factor produces lower impact on economic growth compared to other economies. The reason behind this is the following. The expected rates of GDP growth should have been negative just as for most countries of the world because of the pandemic. However, for this cluster, the low level of its spread brought about a positive effect and the GDP growth rate finally appeared to be positive.

The last cluster includes 16 countries (Table 5). They are mostly high-income and upper-middle-income economies, while the first subgroup includes primarily offshore domiciles as well as two countries with lower-middle-income level.

Table 5. Clustering results – cluster 1 (destandardised data)

No.	Country	Income Level	Model Parameters		
			GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22,192.85]
1	Antigua and Barbuda	HI	-15.97	60.3	3,851.77
2	Bahamas	HI	-16.28	59.9	5,487.69
3	Barbados	HI	-17.61	57.9	3,873.68
4	Belize	LMI	-14.04	55.5	5,770.97
5	Cabo Verde	LMI	-14.78	55	6,820.3
6	Dominica	UMI	-16.71	60.5	5,675.71
7	Fiji	UMI	-19.05	61.5	5,748.82
8	Grenada	UMI	-11.23	53.4	5,023.86
9	Iraq	UMI	-10.37	44.7	5,037.85
10	Lebanon	UMI	-20.30	54.3	9,244.09
11	Libya	UMI	-31.30	32.7	5,055.29
12	Maldives	UMI	-31.98	53.3	15,860.32
13	Panama	UMI	-17.95	66.6	10,874.05
14	St. Kitts and Nevis	HI	-10.74	54.6	4,577.76
15	St. Lucia	UMI	-20.21	63.7	6,544.24
16	Suriname	UMI	-14.50	47.5	7,649.26
Average			-17.69	55.09	6,693.48
Cluster Range			[-31.98 – -10.37]	[32.7 – 66.6]	[3,851.77 – 15,860.32]

Notes: The figures are calculated and the table is composed by the authors.

The country-by-country structure of this cluster can be considered rather homogeneous, considering the descriptive criterion. They have the lowest (negative) GDP growth rates (the mean is -17.69), the low quality of doing business environment, and the high level of the pandemic spread. The interrelation between model parameters within this cluster is quite reasonable. The lowest average GDP growth rate is determined by the low level of regulatory environment as well as by the high extent of pandemic spread. For this cluster, both parameters played out simultaneously and did not create mutual offset effect.

Table 6 presents aggregate statistical results of clusterisation. The overall assessment of these results makes it possible to conclude that all three parameters used are significant according to the *F*-criterion (respective values are approaching zero) and substantially influence the clusterisation results.

Table 6. The analytical identification of clusters statistics

Cluster	Income Level	Composition	GDP [-31.98 – 43.48 (6.99)]	DB [20 – 86.8]	COVID [0 – 22,192.85]
1	HI / UMI / LMI	16	-17.69 (↓↓)	55.09 (↓)	6,693.48 (↑)
2	HI / UMI / LMI / LI	46	-5.53 (↓)	71.75 (↑)	3,275.67 (↕)
3	HI / UMI / LMI / LI	31	2.49 (↑↑)	58.89 (↕)	1,379.62 (↓)
4	HI / UMI / LI	47	-5.27 (↕)	74.34 (↑↑)	11,047.90 (↑↑)
5	LI / LMI / UMI	32	-2.54 (↑)	45.19 (↓↓)	575.15 (↓↓)

Notes:
1. The figures are developed by the authors.
2. Cells represent averages for the group for respective parameters.
3. Arrows demonstrate the cluster location in the range of the parameter: "↑↑" – very high value, "↑" – high value, "↕" – intermediate value, "↓" – low value, "↓↓" – very low value. These notations are intuitive.
4. The columns reflect respective ranges for parameters.

An analytical assessment of developed cluster model results makes it possible to identify three consistent patterns of dependence between the set of regulatory factors including the most up-to-date pandemic spread index and rates of economic growth of different countries of the world. The first pattern covers 47 economies from the fourth cluster of the developed model. It implies very high values of DB and pandemic parameters, and moderate (negative) rates of GDP growth. While the cluster model is not a factor model, the statistical grouping of countries and clusters filtration using the significant descriptive criterion imply (at least do not exclude) the existence of impact of one factor (factors) of the model on the other (others). Our model includes the pandemic and the set of doing business factors as implied independent variables, while GDP growth rates is the implied dependent variable. For this pattern, the negative impact of the pandemic factor can be regarded as relatively insignificant, which results from substantial positive set-off effect of the DB factor. This pattern – the pattern of relatively high-income economies – is typical of countries with high and upper-middle level of income according to the World Bank classification.

The second pattern covers 63 economies and – considering the substantial proximity of statistics and descriptive features – encompasses the third and fifth clusters of the developed model. This is the pattern with low and very low extent of the pandemic spread and above average rates of GDP growth. The pandemic factor impact for this pattern can be considered to be insignificant because of the low absolute values of the respective parameter. At the same time, a specific set-off or compensatory effect can be outlined for this pattern – GDP growth rates are not so low as they might have been as a result of unfavourable conditions of doing business due to the weak influence of the pandemic factor. However, as to the GDP growth rates within this pattern, two subgroups can be identified. The first subgroup (the fifth cluster) covers economies with the lowest level of the pandemic spread and the worst environment for doing business. The second subgroup (the third cluster) implies slightly higher level of the pandemic spread, but better environment for doing business at the same time. This, in turn, brought about even positive rate of GDP growth being the only among model clusters. For this case, the set-off effect is relatively high. All in all, this pattern covers economies where low and lower-middle level of income absolutely dominate.

The third pattern encompasses 16 economies with mostly high and upper-middle level of income, while the majority of them represent offshore domiciles. The low level of doing business factors as well as the high extent of the pandemic spread are typical of this pattern. The set-off effect is not being observed for these economies, since both parameters resulted in extremely low negative rates of GDP growth.

Therefore, under crisis environment and during decrease in economic growth that challenge contemporary economies, it is important to find key factors promoting long-term development. In periods of economic instability, governments should adjust regulatory measures to minimise negative consequences of crisis.

Conclusions

The present study reveals a relationship and commonness between the set of regulatory factors that, in turn, facilitate a favourable competitive environment (Doing Business rating), the COVID-19 pandemic factor, and growth of GDP in individual economies. The findings were generated via developing the econometric cluster model using the *k*-means method that made it possible to band 172 economies into five statistically distinct clusters. An analytical assessment of these clusters as well as their identification from the descriptive criterion (the level of income per capita) perspective enabled the discovery of three consistent patterns of dependence between GDP growth rates, the set of doing business factors, and the COVID-19 pandemic factor.

High and upper-medium economies patterns imply very high values of DB and pandemic parameters, as well as intermediate (negative) rates of GDP growth. The negative impact of the pandemic factor in the framework of this pattern can be regarded as relatively insignificant as it results from positive set-off impact of DB. The pattern for economies with low and lower-middle income level covers countries with low and very low extent of the pandemic spread and high rates of GDP growth. The influence of the pandemic factor on this pattern can be regarded as insignificant because of its low absolute values. Thereby, a specific set-off effect can be discovered for this pattern:

GDP growth rates are not as low as they might have been because of unfavourable conditions of doing business, since the pandemic factor impact is not so strong. The third pattern consists of economies with mostly high and upper-middle income level, representing many offshore domiciles. They have a low level of doing business factor and a high extent of the pandemic spread. In the framework of this pattern, the set-off effect is not observed, since both parameters brought about a simultaneous impact resulting in extremely low negative rates of GDP growth.

The developed model also enables the discovery of some particular general regularities of dependence between economic growth rates, the set of doing business factors, and the pandemic factor. First, the COVID-19 pandemic appeared to be an essential factor of economic growth for most economies, which resulted in a decrease in their GDP even despite favourable conditions of doing business in some countries. Second, a specific set-off effect between the set of doing business factors and the pandemic factor is identified. This effect consists in the fact that even substantial absolute values of the pandemic parameter may not bring about considerable losses in economic growth rates because of the favourable doing business environment and *vice versa*. Third, for economies with relatively high level of income, the impact of both factors looks to be more significant compared to countries with relatively low level of income. This peculiarity, however, is the least consistent in terms of our study results and requires further testing and investigation.

Reference List

Acemoglu, D. (2009). *Introduction to Modern Economic Growth*. Princeton University Press.

Braja, M., & Gemzik-Salwach, A. (2020). Competitiveness of high-tech exports in the EU countries. *Journal of International Studies*, *13*(1), 359–372. doi:10.14254/2071-8330/2020/13-1/23

Blikhar, M., Golynska, M., Shandra, B., Matviienko, O., & Svyshcho, V. (2021). Rule of law as factor of investments in Ukraine. *International Journal of Economics and Business Administration*, *9*(1), 199–210.

Diaby, A., & Sylwester, K. (2015). Corruption and market competition: Evidence from post-communist countries. *World Development*, *66*(2), 487–499.

Damayanti, T. W., Matasik, A. L., & Supramono (2021). Market competition, fairness and tax compliance: The formal sector's perspective. *Journal of International Studies*, *14*(1), 24–40. doi:10.14254/2071-8330.2021/14-1/2

Doing Business (2020). https://www.doingbusiness.org/en/reports/global-reports/doing-business-2020

Gokalp, O., Lee, S., & Peng, M. (2017). Competition and corporate tax evasion: An institution-based view. *Journal of World Business*, *52*(2), 258–269. https://doi.org/10.1016/j.jwb.2016.12.006

Grgurevic, N. (2022). Braking factors influencing the long-term stagnation of development in the SEE countries. *Journal of International Studies*, *15*(1), 78–89. doi: 10.14254/2071-8330.2022/15-1/5

Habanik, J., Kordos, M., & Hostak, P. (2016). Competitiveness of Slovak economy and regional development policies. *Journal of International Studies*, *9*(1), 144–155. doi: 10.14254/2071-8330.2016/9-1/10

Heredia, J., Flores, A., Geldes, C., & Heredia, W. (2017). Effects of informal competition on innovation performance: The case of Pacific Alliance. *Journal of Technology Management & Innovation*, *12*(4), 22–28. https://doi.org/10.4067/S0718-27242017000400003

International Monetary Fund (2021). *World Economic Outlook*. https://www.imf.org/en/Publications/WEO/Issues/2021/03/23/world-economic-outlook-april-2021

Karlinger, L. (2014). The "dark side" of deregulation: How competition affects the size of the shadow economy. *Journal of Public Economic Theory*, *16*(2), 293–321. doi: 10.1111/jpet.12053

Khan, U., Khan, A., & Siddiqi, A. (2022). Economic growth and its relationship with the macroeconomic factors: An analysis of Oman. *Problems and Perspectives in Management*, *20*(4), 356–364. doi:10.21511/ppm.20(4).2022.27

Lagutin, V., & Yasko, Y. (2020). Institutional determinants of innovative development in the economy of the XXI century. *Baltic Journal of Economic Studies, 6*(1), 74–79. doi: 10.30525/2256-0742/2020-6-1-74-79

Marwa, M. (2014). Competition and economic growth: An empirical analysis with special reference to MENA countries. *Topics in Middle Eastern and North African Economies*, *16*, 192–213.

McCann, B. T., & Bahl, M. (2016). The influence of competition from informal firms on new product development. *Strategic Management Journal*, *38*(7), 1519–1535. https://doi.org/10.1002/smj.2585

North, D. C. (1989). Institutions and economic growth: An historical introduction. *World Development*, *17*(9), 1319–1332.

Product market regulations (2018). OECD PMR Indicators. https://www.oecd.org/economy/reform/indicators-of-product-market-regulation

Pyroh, O. (2017). Structural changes in the economic development of the national economy of Ukraine: Sectoral view. *Molodyi vchenyi*, *4*, 729–735.

Rodrik, D. (2008). Second-best institution. *American Economic Review*, *98*(2), 100–104.

Rogach, O., Dziuba, P. (2017). Exchange rate risks of international portfolio investments: Comparative analysis of Ukrainian and other frontier markets. *Journal of Transition Studies Review*, *24*(1), 31–45. https://doi.org/10.14665/1614-4007-24-1-003

Romer, P. (1994). The origins of endogenous growth. *The Journal of Economic Perspectives*, *8*(1), 3–22. doi:10.1257/jep.8.1.3

Shin, I., & Park, S. (2019). The relation between product market competition and corporate tax avoidance: Evidence from Korea. *Investment Management and Financial Innovations*, *16*(2), 313–325. http://dx.doi.org/10.21511/imfi.16(2).2019.26

Solow, R. (2016). Resources and economic growth*. The American Economist*, *61*(1), 52–60, doi: 10.1177/0569434515627092

Tusinska, M. (2014). The bumpy road to a competitive economy – economic governance in the European Union. *Journal of International Studies*, *7*(3), 32–43. doi: 10.14254/2071-8330.2014/7-3/3

Umantsiv, Iu., Sonko, Y., Yatsyshyna, K. (2019). Competition at product markets of various types of commodities. *Problems and Perspectives in Management*, *17*(2), 334–347. doi: 10.21511/ppm.17(2).2019.26

World Bank (2020). *Doing Business 2020. Comparing Business Regulation in 190 Economies*. International Bank for Reconstruction and Development. The World Bank. Retrieved from: https://openknowledge.worldbank.org/bitstream/handle/10986/32436/9781464814402.pdf

World Bank (2022). *World Development Indicators*. https://datatopics.worldbank.org/world-development-indicators

World Bank (2021). *World Bank Country and Lending Groups*. The World Bank. Retrieved from: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

World Bank (2021). *World Bank Open Data*. *GDP Growth (annual%)*. The World Bank. Retrieved from: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?view=chart

World Health Organization (2021). *WHO Coronavirus (COVID-19) Dashboard (Data Table). Situation by Region, Country, Territory & Area*. World Health Organization. Retrieved from: https://covid19.who.int/table.

A Conceptual Approach to the Development of the Cross-Border Model of Sustainable Development of Regions in Times of War

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2405

Lesya Korolchuk

Lutsk National Technical University, Department of International Economic Relations, 75 Lvivska St., 43018 Lutsk, Ukraine; e-mail: l.korolchuck@lutsk-ntu.com.ua; ORCID: 0000-0002-2821-476X

Abstract

In the context of the war in Ukraine, the author defines the cross-border model of sustainable development of regions as an effective one, which can be used to adopt the EU's progressive experience in achieving the Sustainable Development Goals, adapt it, and timely transfer it to the internal regions in the post-war recovery of our country. According to the conceptual approach, the ER-cross-border model of sustainable development of regions is developed based on the analysis of the subject area of sustainable regional development, cross-border cooperation of regions for sustainable development, and cross-border cooperation of regions for sustainable development in times of war.

Keywords

cross-border cooperation of regions, cross-border model of sustainable development of regions, ER-cross-border model

Introduction

Against the backdrop of current events – the escalation of the Russian-Ukrainian war – the issue of Ukraine's integration into the EU is becoming particularly relevant. It is important to use all opportunities to get closer to the civilised world, thus distancing ourselves from barbaric Russia. In this case, regional cooperation with European countries can also be useful. It is well-known that cross-border cooperation (CBC) of regions at its very origins, as a special form of international interregional cooperation, was considered as a testing ground for economic integration of countries, and, therefore, it is the cross-border regions that can be considered as pioneers in adopting progressive practices in various sectors of the economy and for sustainable development in particular.

The EU, as a leader in the global processes of greening the economy, is a valuable source of experience as well as financial, institutional, and moral support for Ukraine in implementing the concept of sustainable development as a global one, declared in the final document of the 70th session of the UN General Assembly in New York in 2015, *Transforming our World: The 2030 Agenda for Sustainable Development* (United Nations, 2015), the intention to implement which is also declared in Ukrainian general strategic documents at the national level. The search for new effective mechanisms, models, and means of intensifying the Ukrainian-European cross-border cooperation of regions in the field of sustainable development is of great scientific interest today for researchers who are trying to make their professional contribution to the development of Ukraine as an independent progressive state, to the approaching victory over the enemy and the prospects of joining the EU in the near future.

Focusing on cross-border models of sustainable development of regions is justified in terms of the level of probability of the effectiveness and speed of achieving the goal, since it is the western border regions of Ukraine, as participants in CBC, that are geographically closest to the EU and separated from the combat zone, which increases their chances – compared to other Ukrainian regions – to quickly and effectively gain the necessary experience of implementing the concept of sustainable development by European countries, adapt it, as well as implement and extend it to the most affected regions after the victory, which, in turn, will allow Ukraine to immediately start on the path of recovery and transformation into a powerful, legal, innovative, green state in the world.

The purpose of this study is to develop a cross-border model of the sustainable development of regions that would be justified by the current level of research on this issue and effective in the context of war.

Literature review and methodology

A number of Ukrainian and foreign scholars have studied models of sustainable regional development. Econometric models based on the interdependence between the volume of investments in the regional socioeconomic system and the level of population welfare are often found in the economic literature (Reutov, 2010; Shlafman & Umanets, 2015). However, the authors focused in this case only on two dimensions of sustainable development – namely economic and social – ignoring the environmental one, which contradicts the theoretical foundations of the concept of sustainable development according to the report of the World Commission on Environment and Development (Brundtland Commission) "Our Common Future" (1987), which can be considered as fundamental, where economic, social, and environmental dimensions are declared as equal and mutually irreplaceable foundations of sustainable development, achieved in a balanced and comprehensive manner. Thus, Soltysik (2010) also believes that the system of sustainable development models should be reflected in the form of a synthesis of models of socio-ecological and economic development of the region, economic growth of the region, integrated characteristics of production efficiency, based on the analysis of macroeconomic indicators in the regional aspect, such as gross added value in relation to such factors of production as labour and capital. The author emphasises the need for a balanced synthesis of all three subsystems – social, economic, and environmental – when developing a model of sustainable development of a region, since there are stable direct and reverse links between them and the dominance of one over the others reduces the chances of sustainability. It is proposed that a level specific to each of the subsystems is provided that is most important in terms of sustainable development.

Some scholars, depending on the specifics of the subject matter of the study, as well as a peculiar grouping of the 17 Sustainable Development Goals, take a somewhat broader approach to defining the range of indicators within the framework of modelling sustainable regional development, focusing – in addition to the classical dimensions of sustainable development – also on providing the region with effective public and corporate management and innovative resources, the achievement of which depends to a large extent on the level of scientific and technological progress and the advanced progressive outlook of the leadership of the state, region, and enterprise (Tomareva-Patlakhova, 2013). A similar originality can be traced in the works of Majumder and others (2023), who additionally propose to include the so-called human-physical sustainability in the construction of a model of sustainable regional development, which, according to the authors, is ensured by improving the quality of human resources through better education and training, adapting and familiarising the population with modern technologies, ensuring gender equality in each sector, and prioritising first aid and health care development. In the classical theory of sustainable development, the listed aspects of human-physical sustainability are included in the social dimension of sustainable development, but we believe that the researchers rightly identified this separately in the light of the specifics of the development of the regions of India that were the object of their study, given the relevance of the problem of socioeconomic contrasts in the country, as well as the impressive gap between India's powerful technology sector and the sometimes unsatisfactory living conditions of the population.

There are also approaches to modelling sustainable development of regions in which the environmental dimension, along with others, somewhat dominates, as the goal of sustainable development is interpreted by the authors mainly as an environmental one. For example, Cai and others (2022) based the modelling of sustainable regional development on a spatial correlation analysis of the effectiveness of green development of the regional economy, as well as the indicators of the level of economic development of the region, energy structure, industrial structure, the intensity of environmental management, digital economy, the degree of urbanisation, technological development, and economic openness. Researchers have shown a positive correlation between the effectiveness of green development in a region and such factors as a high level of economic development of the region, its industrial structure, a high share of alternative energy in the consumption

structure, the digitalisation of the economy, and the urbanisation of the region's territories. At the same time, the researchers agree with the opinion of Xia and others (2022) that green and sustainable development provides for the effective synergy of economic development with the ecological environment, although it is green development that is able to achieve ecological civilisation and is a precondition for economic and social development. We conclude that the social dimension of sustainable development in this case is rather placed in the background. A similar opinion is shared by Honcharenko (2014), who believes that natural capital is crucial and, accordingly, sustainable development cannot be ensured without the imposition of certain restrictions on activities related to the depletion of natural capital. At the same time, the author emphasises the direct proportional relationship between innovation potential and the sustainable development of the region, which depends on the set of conditions for the development of socioeconomic processes, the so-called organisational and economic factors, as well as institutional features (management culture at various levels).

Thus, given the wide variability of indicators within the framework of building models of sustainable development of regions, as well as the lack of information on the experience of developing cross-border models, we suggest that one should focus on the conceptual approach to modelling, since it is the conceptual model that is designed to provide an understanding of "how the real system works" (Brooks, 2007, p. 3), "to formalize current understanding of system processes and dynamics" (Gross, 2003, p. 2), thereby serving "as a tool for creative exploration, as a thinking aid to try out different directions and further ideation before choosing a definite path" (Guenther, 2013, p. 83), while mathematical models may be ineffective at the current level of study of this issue.

As a cross-border model of sustainable development of regions, we have chosen such a conceptual type of model as the ER-model, which is "a theoretical and conceptual way of showing data relationships in software development", using the concepts of "entity", "relationship", "attribute" (Entity-Relation, 2017), which made it possible to base the modelling both on the concept of sustainable development adapted to the regional level and on the theory of cross-border cooperation of regions, based on the very essence of the complex concept and its logical understanding. As a web-based database modelling tool, we used the ERDPlus web resource (ERDPlus Data) Such a model can serve as a basis for modelling sustainable development within cross-border regions in the future.

To achieve the stated research objective, in the course of building the ER-model, it is necessary to analyse the subject area of the sustainable development of the region on the basis of the conceptual foundations of sustainable development; the subject area of the region's CBC for sustainable development, based on the theoretical foundations of cross-border cooperation; of the subject area of regional CBC for sustainable development in wartime based on the identification of the impact of objective conditions in wartime on the constructive change of the established practice of implementing regional CBC to ensure the model's effectiveness in current circumstances.

To analyse the subject area, we used the following research methods: the deductive method to move from the general global Sustainable Development Goals to their specific manifestations at the regional level; an inclusive approach, providing for equal access of society to sustainable development processes within the framework of the cross-border model; the principle of subsidiarity, focusing on the EU regional policy, which provides for the management of society from the bottom up, based on efficiency issues; the method of analogies to adapt the goals of regional CBC at all levels of its implementation to the field of sustainable development; and the method of empirical observation to determine the specific motives for implementing CBC for sustainable development. Also, to define the dominant motive for the implementation of regional CBC for sustainable development in the relevant conditions, the hygienic-motivational theory of Frederick Herzberg was applied.

Research results

An analysis of the subject area of sustainable development of regions

According to the concept of sustainable development, the cross-border model of a region implies a stable interdependence between the economic, social, and environmental dimensions of sustainable development of the region. In this case, it is important to apply the provisions of the global

concept in the regional plane to ensure maximum efficiency and objectivity of the cross-border model at the regional level. The use of the deductive method, inclusive approach, subsidiarity principle, and empirical observation made it possible to translate the global Sustainable Development Goals in all three of its dimensions into the regional level and draw the following conclusions in the context of the current study:

– the goal of sustainable development in the regional plane remains unchanged: according to the definition of sustainable development given in the report of the World Commission on Environment and Development (1987), it is supposed to be "meeting the needs of the present without compromising the ability of future generations to meet their own needs". And although it may seem that in the case of a region it is about meeting the needs of the local population, it is important to note that a region is an integral territorial unit of the state that functions within the framework of the national socioeconomic strategy and is a link in a single national economic and legal mechanism for sustainable development, and, therefore, national interests will dominate over local ones, and the latter cannot contradict the general strategic goal.
– according to the inclusive approach based on the principle of subsidiarity, which provides for equal participation of the population in socioeconomic activities at all levels with the distribution of the share of participation of these levels depending on where these tasks will be performed most effectively, the economic dimension of sustainable development, implying economic growth in the context of resource constraints in the global dimension, at the regional level should pursue the solution of the following: the task of "responsible production" (Korolchuk, 2021, p. 3) from local businesses (the optimisation of production through the introduction of the latest technologies, the implementation of resource conservation and energy efficiency policies at enterprises, the introduction of eco-innovations, closing the production cycle, etc.), as well as the task of "responsible consumption" (Korolchuk, 2021, p. 3) from consumers (the formation of demand for environmental products, economical consumption of goods and energy at the household level, eco-responsible waste management, etc.)
– the deductive method and the use of inclusion in transferring the social dimension of sustainable development to the regional plane, along with maintaining the stability of social and cultural systems at the global level, allowed the local society to set the task of preserving its physical and mental health, thus cultivating a healthy lifestyle, respect for fundamental human rights and freedoms, law-abidingness, the development of empathy and care for the world around us, cultural education and participation in cultural activities, national self-determination, etc.
– the environmental dimension of sustainable development, which at the global level is aimed at preserving our planet for us and future generations of humanity, should, on the principle of subsidiarity at the regional level, provide for a micro-manifestation of this goal with the active involvement of local communities in the processes of preserving and restoring local ecosystems by cultivating an environmental culture, organising and popularising public work in the field of environmental protection, greening everyday life, etc.

Thus, the analysis of the subject area of sustainable development in the regional plane has shown that the main provisions of the concept of sustainable development for the region are the same as at the global level and, therefore, the goal and economic, social, and environmental dimensions of sustainable development will be included in the ER-cross-border model of sustainable development of regions in war as its key entities.

An analysis of the subject area of CBC of regions for sustainable development

To achieve the purpose of our study, in the course of analysing the subject area, it was also important to study the foundations of cross-border cooperation in order to identify the goals of cross-border cooperation at all levels of such implementation, to determine the priorities for all CBC participating border regions in interregional cooperation for sustainable development, paying special attention to key trends in global politics and economics, given the international nature of cross-border cooperation between border regions of neighbouring states.

It is known that CBC is implemented at the local, regional, national, and European levels. Our previous scientific research on regional CBC, based on the study of the nature of its institutional,

legal, and financial support, allowed us to identify the objectives of CBC at all levels (Herasymchuk & Korolchuk, 2009, p. 40), which we adapt to the field of sustainable development in the context of the current study using the method of analogies. On the basis of empirical observation of many years of experience in implementing the concept of sustainable development in the world, we will determine the specific motives for the implementation of the CBC for sustainable development, which stimulate such cooperation at each level of its implementation:

1. At the local level, the level of local initiatives, CBC for sustainable development is carried out with the aim of implementing cross-border sustainable development projects (economic, social, or environmental) in the border regions, the motive for which is the expectation of a visible short- and medium-term practical result that will bring concrete benefits to the community of the region.
2. At the regional level, where regional authorities acting within the framework of regional development strategies are involved in cross-border cooperation in order to improve the level of socioeconomic development of the region and ensure harmony between humans and nature, the main motive for CBC is to try to solve urgent common problems of adjacent border regions of neighbouring states through joint efforts. As a rule, such problems are primarily environmental ones that require the consolidation of efforts due to the adjacent nature of their localisation, as well as sociocultural to preserve the authenticity of the integrated culture of local communities and economic, the solution of which is in the common interest of all CBC member regions to improve the well-being of the population of remote regions.
3. At the state level, CBC for sustainable development is implemented within the framework of national strategies of the socioeconomic development of neighbouring states in order to achieve the Sustainable Development Goals and solve the problems of border regions that are of national importance while being motivated by issues of national security, the effectiveness of the implementation of the concept of sustainable development, foreign economic policy, and foreign policy course, overcoming the problem of the economic peripherality of regions remote from the centre in order to balance regional development.
4. At the Pan-European level, the CBC of regions for sustainable development is intended to promote integration processes in Europe, where sustainable development has long been the basis of national strategies and the EU as a whole. Cooperation with the border regions of the EU countries provides unlimited opportunities for adopting progressive experience in implementing the concept of sustainable development, participating in sustainable development programmes financed from EU funds, as well as implementing joint projects and adapting to the social, economic, and environmental standards of the Union. The main motive in this case is geopolitical, and given the latest trends in the political life of the international community, namely the full-scale war unleashed by Russia against Ukraine and the entire civilised world, it is clear that the mutual desire of the EU and Ukraine to formally join the democratic community by making it a full member of the EU and NATO stimulates the development of all forms of international cooperation in priority areas that would contribute to the maximum economic convergence of these countries.

Therefore, the analysis of the subject area of the region's CBC for sustainable development has shown that the ER-cross-border model of sustainable development of regions should include motives at all levels of implementation of such cooperation as key entities.

An analysis of the subject area of CBC of regions for sustainable development in times of war

At this stage of our research, it is important to take into account the fact that such identification of the motives for cross-border regional cooperation for sustainable development may be biased in the conditions in which the regions of Ukraine at war and the regions of the EU countries along its eastern border, which are also under tension due to their geographical proximity, and, in addition, have taken on the main burden of helping Ukrainian refugees. Under the force *majeure* conditions created by the Russian-Ukrainian war, when mortal danger looms and the issue of physical survival is becoming more urgent, when there is no certainty about the near future, the motivation of CBC participants at all levels can change unpredictably depending on the situation at the front and the political and economic consequences that follow. Since it is impossible to predict the duration of the

war and the exact course of events, it is necessary to adapt to the current conditions and identify the strongest motive dominant in the relevant conditions, which will not lose its relevance even after Ukraine's victory and is distinguished from others by its particular strength and stability, which will guarantee the effectiveness of the cross-border model of sustainable development of regions in the current environment.

To this purpose, we propose to turn to the theory of motivation. In our opinion, the motivational-hygienic theory of Frederick Herzberg (Kurt, 2022), which is based on the ranking of stimulating factors into two groups: hygienic, which do not motivate, but their failure to provide has a demotivating effect; motivational – dominant, which encourage intensification of activity. The application of this theory will allow us to identify the strongest motive that is stable in war conditions, which, when taken into account when building a cross-border model of the sustainable development of regions, will ensure its effectiveness in the current conditions. To do this, we will group the above motives for implementing CBC for sustainable development, similar to Herzberg's theory, into two groups of factors: hygienic – those that allow maintaining CBC for sustainable development at a viable level, do not intensify cooperation, do not encourage its growth, but their dissatisfaction will lead to disappointment and loss of interest; and motivational, which allow participants of CBC for sustainable development to be satisfied with the results and contribute to the intensification of cooperation, and motivate to new achievements.

Herzberg called hygienic factors external, which form the context of activity; based on the lexical meaning of the word "context" (Lisovyi & Encyc, 2014), in the framework of our study, these are the circumstances of the implementation of the CBC for sustainable development, on which the actual meaning of such cooperation depends. We will try to adapt the hygienic factors in the enterprise environment defined by the author of the theory to the field of CBC for sustainable development as fundamental circumstances for ensuring the effective functioning of such cooperation. The logic and procedure for adapting hygienic factors in the enterprise environment according to Herzberg's theory to the sphere of regions' CBC for sustainable development are illustrated in Table 1.

Table 1. Logical scheme of determining the hygienic factors of the implementation of the regions' CBC for sustainable development in war conditions based on the motivational-hygienic theory of F. Herzberg

Hygienic factors in the enterprise environment (according to F. Herzberg)	**Adapting hygiene factors to the field of CBC for sustainable development**	**Matching hygiene factors with the motives for implementing CBC for sustainable development**	**Relevant objective of CBC implementation for sustainable development**	**Appropriate level of objective realization**
Pay	Achievements of the CBC	Opportunity to obtain practical results from CBC for sustainable development	The implementation of cross-border projects on sustainable development	Local
Status	Improving the living standards of CBC participants			
Working conditions	Terms of CBC implementation	Opportunity to solve urgent common problems of the adjacent border regions of neighboring states by joint efforts	Improving the level of socioeconomic development of the region, ensuring harmony between humans and nature	Regional
Fringe benefits	Additional benefits of CBC			
Policies and admin practices	Opportunity to adopt the experience of progressive communities			
Interpersonal relationships	International good neighbourly relations			

Table 1. – cont.

Hygienic factors in the enterprise environment (according to F. Herzberg)	Adapting hygiene factors to the field of CBC for sustainable development	Matching hygiene factors with the motives for implementing CBC for sustainable development	Relevant objective of CBC implementation for sustainable development	Appropriate level of objective realization
Security	Ensuring national economic and environmental security of regions	The ability to resolve issues of national security, the effectiveness of the implementation of the concept of sustainable development, foreign economic policy and foreign policy course, overcoming the problem of economic peripherality of regions remote from the center to balance regional development in the country.	Achieving the Sustainable Development Goals and solving the problems of the border regions that are of national importance	National

Source: Own elaboration.

As can be seen from Table 1, the hygienic factors of implementing the regions' CBC for sustainable development correlate with the motives that ensure the achievement of the objectives of this type of international interregional cooperation at the local, regional, and national levels. Therefore, according to the theory, such motives cannot be decisive and serve as powerful catalysts for the activation of the regions' CBC for sustainable development, especially in force *majeure* conditions of war. None of them can withstand the impact of war. Thus, the benefits of CBC – the economic, social, or environmental effect of implementing cross-border projects, as well as the improvement of the living standards of its participants – ensure the achievement of the objective of the local level of CBC implementation, although the implementation of local cross-border sustainable development initiatives in the context of a full-scale war may be suspended at any time for objective reasons, such as the militarisation of all sectors of the economy and mobilisation in Ukraine, unpredictable events, the need for physical survival, etc.

For their part, the terms of CBC implementation – such as the possibility of financing sustainable development projects under EU programmes and funds, additional benefits, such as expanding employment opportunities and self-realisation of citizens on both sides of the border, the opportunity to adopt the experience of progressive communities in achieving the Sustainable Development Goals, as well as maintaining good neighbourly relations with communities in border regions of neighbouring countries through joint cultural events, educational environmental events to promote sustainable development, trainings on eco-business, green management, internships for teachers on greening education, etc. – contribute to improving living standards and sustainable development in the CBC member regions as part of regional strategies that may be suspended due to the war or postponed indefinitely.

In our opinion, the hygienic factors of the implementation of regions' CBC for sustainable development, which ensure the achievement of the objective of cross-border cooperation of regions at the national level, are also not characterised by sustainability in war. Thus, ensuring the national economic and environmental security of the regions by means of CBC – namely, the development of border infrastructure, the increase of border crossing points, joint exercises of border services, the installation of treatment facilities on water bodies shared by the bordering countries, the development of a joint strategy for the socioeconomic development of the cross-border region, etc. – may be suspended, modified, and transferred to the competence of the central authorities exclusively under the influence of war.

Thus, according to Herzberg's theory of motivation, the hygienic factors of implementing regions' CBC for sustainable development identified above do not motivate participants in cross-border cooperation of regions to intensify this process in the field of sustainable development, and, therefore, are not decisive and can be ignored in the process of developing an effective cross-border model of sustainable development of regions, but it should be taken into account that, on the other hand, their provision is crucial, otherwise the mechanism of demotivation and stopping

CBC will be launched. For example, the suspension of funding for local cross-border sustainable development initiatives under EU programmes and funds during the war is a reasonable decision in such circumstances, but it may cause the Ukrainian side to feel isolated, alone in its struggle, with the lack of support, uncertainty about the future, frustration, and a loss of interest in cooperation.

Table 2. Logical scheme of determining the motivational factors for the implementation of the regions' CBC for sustainable development in war conditions based on the motivational-hygienic theory of F. Herzberg

Motivational factors in the enterprise environment (according to F. Herzberg)	Adapting motivational factors to the field of CBC for sustainable development	Matching motivational factors with the motives for implementing CBC for sustainable development	Relevant objective of CBC implementation for sustainable development	Appropriate level of objective realization
Meaningful work	Cooperation for a high goal	Opportunity for Ukraine to join the democratic community by becoming a full member of the EU and NATO	Promoting integration processes in Europe	Pan-European level
Challenging work	Assigning particularly challenging tasks to border regions			
Recognition of accomplishments	Recognising the high significance of the results			
Feeling of achievements	Feeling of high significance of the results			
Increased responsibility	The delegation of a special mission to the border regions			
Opportunities for growth	The prospect of moving to a qualitatively new stage of cooperation			
The job itself	Voluntary active participation of all CBC participants for sustainable development			

Source: Own elaboration.

In turn, motivational factors are defined by Herzberg as internal factors that form the very content of the activity; according to the interpretation of the word "content" (Dictionary of the Ukr., 2018), in the plane of our study, it is the very essence of the regions' CBC for sustainable development, its internal feature, its main purpose. We will adapt the motivational factors in the conditions of an enterprise identified by the author of the theory to the sphere of the regions' CBC for sustainable development as its essential purpose, based on the fundamental nature of this process, which is to promote European integration by bringing together the economies of adjacent border regions of neighbouring countries, levelling the barrier function of the border between them. The logic and order of the adaptation of motivational factors in the conditions of an enterprise according to the theory of Herzberg to the sphere of the regions' CBC for sustainable development is illustrated in Table 2.

As can be seen from Table 2, the motivational factors for the implementation of CBC for sustainable development correlate with the motive to achieve the objective of this type of international interregional cooperation at the pan-European level. According to the theory, it is the possibility of Ukraine's joining the democratic community by becoming a full member of the EU and NATO that will serve as a powerful motive for intensifying CBC for sustainable development. Ukraine's integration into these alliances is a high goal that the Ukrainian border regions participating in the CBC are striving for as part of our country's Euro-Atlantic geopolitical policy and its struggle against its barbarian neighbour, as well as the border regions of neighbouring European countries that are our loyal allies, trying to help us in every way possible in our defence of European democratic values, whose governments have already openly stated their approval of Ukraine's initiative to access the EU.

There is no doubt that the spirit of resistance in the Ukrainian society, as well as the amount of assistance from the European side, is powerful without any exaggeration and will not fade away no matter how long the war lasts until the enemy is driven from Ukrainian lands, and since Ukraine's integration into the EU is also a kind of struggle that can separate the civilised and the savage world

forever, it can be argued that CBC of regions for sustainable development, which can contribute to this, will be relevant regardless of the development of events.

Thus, such a motivating factor for activating the regions' CBC for sustainable development as the possibility of Ukraine's joining the democratic community by making it a full member of the EU and NATO will not lose its stimulating effect and will be sustainable even in the face of war. Moreover, Ukrainian communities will be happy to engage in the processes of rapprochement with civilised Europe through joint actions to achieve the Sustainable Development Goals, as the only true way of life defined by the progressive world in the face of the depletion of our planet's resources, provided that an effective public awareness campaign is conducted. Therefore, it is this motivational factor that should be taken into account when developing an effective cross-border model of the sustainable development of regions. However, it should not be forgotten that, according to the motivational-hygienic theory, hygienic factors should also be ensured; the motivational factor alone does not reduce the level of dissatisfaction of CBC participants with inappropriate external circumstances.

The analysis of the subject area of the region's CBC for sustainable development in the context of war has revealed that among the stated motives in the ER-cross-border model of sustainable development of regions, only the motive of the Pan-European level is the strongest one and can be recognised by an attribute-identifier that will allow to distinguish this particular instance of the entity from all others.

The description of the ER-cross-border model of sustainable development of regions

The analysis of the subject area of the regions' CBC for sustainable development allowed us to develop an ER-cross-border model of sustainable development of regions, which is shown in Figure 1. Thus, the key entities of the model are sustainable development, its goal, dimensions, and motives for implementing CBC for sustainable development. According to the analysis in section 3.1, sustainable development has one main goal, inherent only to it; the connection is mandatory. Such a goal may also be driven by specific local interests, so the link between goal and sustainable development is not mandatory in this case, but unspecified. Sustainable development also has three dimensions; the connection is mandatory. These include the economic, social, and environmental dimensions, which are designated as weak entities that complement each other and cannot exist separately. These entities are characterised by such multi-valued attributes as an indicator, which, although describing each of them, form part of a single comprehensive integrated indicator of the level of sustainable development. In turn, the analysis in section 3.2 has shown that the entity "motive" for implementing CBC for sustainable development also has a mandatory connection with the entity "sustainable development". Each of the CBC levels is dominated by its own motive, but, as can be seen from Figure 1, these entities are independent, as they not only are related to the motives for implementing CBC for sustainable development, but also characterise cross-border cooperation of regions in all other possible areas. Following the analysis in paragraph 3.3, the model provides for the consideration of motives at all levels of CBC, and the connection is mandatory. The connection between the entities of the local, regional, and national levels of CBC and the motives is optional, since the implementation of CBC at these levels can be carried out not only for the sake of sustainable development. On the other hand, CBC at the European level is essential to ensure the sustainable development of the CBC participating regions, since the concept of sustainable development is a general one in the EU and permeates all sectors of the Union's economy. Integration processes in the cross-border regions on the border with the EU will definitely contribute to the achievement of the Sustainable Development Goals by the Ukrainian border regions, and, therefore, the link is mandatory. In addition, only the motive of the Pan-European level is described by an attribute-identifier, which, unlike the others, is a key unique characteristic that distinguishes the relevant entity from others. This means, as our study proves, that this motive stimulates the most and, therefore, should be taken into account when selecting the performance indicators of CBC for sustainable development, while the goals of other levels of CBC should be met by default.

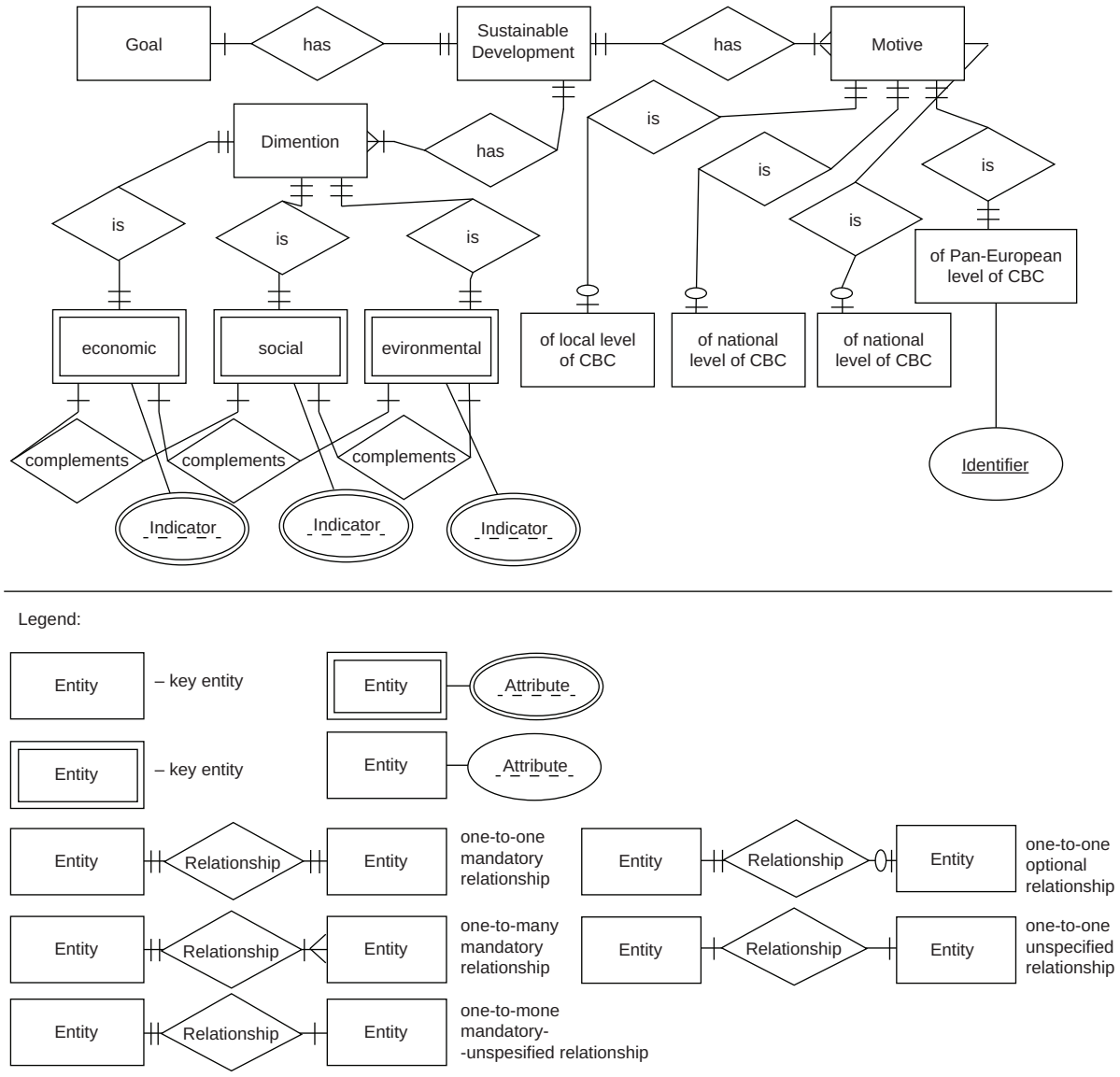


Figure 1. The ER-cross-border model of sustainable development of regions in times of war

Source: Own elaboration.

Discussion and conclusion

The development of the ER-cross-border model of sustainable development of regions made it possible to organise a large body of theoretical knowledge in the field of sustainable development, regional economy, and CBC in the light of current political events in the world, as well as to trace the interrelationships between the main concepts and place emphasis. The compact visual layout of the model at this stage of the study allows for an objective approach to the selection of indicators in the construction of econometric models of sustainable regional development in the future, as well as to the planning of cross-border regions involving the border regions of Ukraine in the context of war.

Thus, the conceptual approach to modelling has revealed that an effective cross-border model of sustainable development of regions in wartime should be characterised from two aspects: first, by the economic, social, and environmental dimensions of sustainable regional development; second, by the intensification of integration processes within the framework of the sustainable development of the cross-border region. It means that this model should reflect the interdependence between the complex integrated indicator of the sustainable development of the region and the indicator of convergence of economies of the CBC member regions in the field of sustainable development.

European experience shows that CBC has proven to be effective in promoting integration processes. The emergence of Euroregions involving the border regions of Western Europe in the late 1950s initiated the practice of interstate cooperation at the regional level to address common problems of these territories, as well as to increase the mobility of people, goods, and capital, and the prospects of the fifth EU enlargement have significantly revitalised the creation and operation of Euroregions in Central and Eastern Europe. A striking example in this case is Poland, where the flourishing of CBC dates back to the 1990s, when such Euroregions were created as: Euroregion "Pro Europe Viadrina" (Germany–Poland), Euroregion "Spree–Neisse–Bober" (Germany–Poland), Euroregion "Neisse–Nisa–Nysa" (Germany–Poland–Czech Republic), Euroregion "Pomerania" (Germany–Sweden–Poland), and Euroregion "Baltic" (Sweden–Poland–Russia–Lithuania–Latvia–Denmark). For comparison, there are only three active Euroregions on Ukraine's western border today: "Carpathian", "Lower Danube", "Upper Prut"; and one "Bug" – partially functioning. However, the model we have developed is supported by a survey of Ukrainians on the direct proportional relationship between the activities of Euroregions and Ukraine's accession to the EU, according to which the majority of respondents believe that the development of Euroregions contributes to our country's accession to the Union (Shcherba, 2008, p. 22).

In addition, our conclusions about the priority of the goal of accelerating EU accession through the intensification of CBC compared to others that encourage border regions to international cooperation correlate with the results of studies by such scholars as Sokyrska, Mikula, Abrudan, Puscas, and Codruta, who believe that regional CBC is the way to EU accession (Sokyrska, 2021), Euroregions are basic platforms in the processes of European integration (Mikula, 2004, p. 214). In particular, border regions contribute to the preparation for the accession of countries to the European Union (Abrudan et al., 2012, p. 85).

Nevertheless, the results of this study should be interpreted in the light of certain limitations. First, the lack of previous research studies on the topic has led us to develop an ideal model based on the fundamental concepts of the theory of sustainable development and CBC, which may somewhat restrict its practical value. At the same time, we believe that such a limitation opens wide opportunities for further research in this area. Thus, focusing on modelling, we did not pay attention to such key issues of CBC as diffusion, implementation, mobility, etc., the investigation of which in the future will significantly enrich the scientific results in the context, e.g. the study of the relationship between the cross-border mobility of people, which increased significantly during the war, and the diffusion of eco-innovations, which accompanies the process of greening the economy for sustainable development, as well as regarding the implementation of appropriate strategies and programmes to bring the cross-border labour market into compliance with new realities. Second, there is a methodological limitation in determining the specific motives for the implementation of CBC for sustainable development: it would be more reliable to confirm the empirical data with a relevant sociological survey, although such a method requires a lot of time due primarily to technical difficulties associated with the presence of a border between communities whose opinion is of scientific interest, which significantly complicates the process of sample formation and data collection during the survey. We assume that such an improvement of research methodology in the field of cross-border cooperation for sustainable development can be not only a perspective for further research, but also a subject for international cooperation of regions within the framework of cross-border projects.

Further practical implementation of the results of our research, in addition to motivated local cross-border initiatives, is ensured by the instruments of the European Neighbourhood Policy, namely the Instrument for Pre-Accession Assistance (IPA), which Ukraine can access as a candidate country for EU membership. IPA-III for 2021–2027 aims to support those reforms that contribute to sustainable socioeconomic development and bring the recipient country closer to EU values and standards. The five thematic areas of the programme include green transition and sustainable interconnections, as well as territorial and cross-border cooperation (Bohdan, 2022).

As can be seen from the above, the cross-border model of sustainable development of regions allows for planning the activities of existing cross-border regions on the western border of Ukraine: developing joint cross-border strategies, roadmaps, and programmes aimed at achieving the Sustainable Development Goals, based on EU standards. Effective in this case will be measures

to benchmark progressive practices of greening the economy; developing eco-innovations; franchising between eco-oriented enterprises and cultural, educational, and scientific events of direct interaction between local elites; the professional development of educators in the field of education for sustainable development; exchange of personnel; and the promotion of an eco-responsible and empathetic lifestyle, uniting local communities in the border regions around achieving the Sustainable Development Goals through joint efforts, as well as an informational campaign aimed at convincing them of the reasonableness of such actions in the light of the war, etc.

We believe that it is the cross-border model of sustainable development of regions that can be effective in the current circumstances, because in this case, the disorienting impact of the war is to some extent levelled, and instead it stimulates the struggle, one of the forms of which is the acceleration of integration processes with the EU and the sustainable development of Ukraine along with other civilised countries. The so-called "green Euroregions" along the eastern border of the Union will be able to serve as laboratories for sustainable development, the achievements of which will be actively disseminated to the whole of Ukraine for its rapid recovery and prosperity.

Reference List

Abrudan D., Puscas G., & Codruta D. (2012). Cross-borders cooperation inside the euroregions. Case of DKMT Romanian Euroregion. *Nierówności Społeczne a Wzrost Gospodarczy*, *27*, 80–87. Available at: https://repozytorium.ur.edu.pl/server/api/core/bitstreams/f5d41245-8ce7-4ec8-99cb-9d8355fda586/content.

Bohdan T. (2022). Status kandydata na vstup do YeS: ekonomichni ta finansovi perevahy. Yaki mozhlyvosti otrymannia finansovoi dopomohy dlia transformatsii suspilstva ta ekonomiky vidkryvaie dlia Ukrainy status kandydata? [EU Candidate Status: Economic and Financial Benefits. What opportunities for obtaining financial assistance for the transformation of society and economy does the candidate status open for Ukraine?]. European Pravda. June 28, 2022. Available at: https://www.epravda.com.ua/columns/2022/06/28/688638/

Brooks, R. J. (2007). *Conceptual modelling: Framework, principles, and future research* (The LUMS Working Papers No. 2007/011). Lancaster University Management School. Available at: https://eprints.lancs.ac.uk/id/eprint/48885/1/Document.pdf [accessed: 15.09.2023].

Cai X., Wang W., Rao A., Rahim S., & Zhao X. (2022). Regional sustainable development and spatial effects from the perspective of renewable energy. *Frontiers in Environmental Science*, *10*, 859523. doi: 10.3389/fenvs.2022.859523

Chubai, G. M. (2010). Evrorehiony [Euroregions]. In M. M. Varvartsev (Ed.), *Ukraina v mizhnarodnykh vidnosynakh. Entsyklopedychnyi slovnyk-dovidnyk* [Ukraine in International Relations. Encyclopedia Reference Book], Vol. 2 (pp. 124–129). NAS of Ukraine, Institute of History of Ukraine. Available at: http://resource.history.org.ua/cgi-bin/eiu/history.exe?&I21DBN=ELIB&P21DBN=ELIB&S21STN=1&S21REF=10&S21FMT=elib_all&C21COM=S&S21CNR=20&S21P01=0&S21P02=0&S21P03=ID=&S21COLORTERMS=0&S21STR=0004671

Entity-Relationship Model (ER Model). (2017). Techopedia. Dictionary. Software Development. April 24. Available at: https://www.techopedia.com/definition/7057/entity-relationship-model-er-model

ERDPlus. Database Modeling. Available at: https://erdplus.com/standalone.

Herasymchuk, Z. V., & Korolchuk, L. V. (2009). *Transkordonne spivrobitnytstvo rehioniv: metodyka otsinky ta shliakhy aktyvizatsii* [Cross-border cooperation of regions: assessment methodology and ways of activation]. Nastyr'ya.

Honcharenko, M. F. (2014). Analiz modelei staloho rozvytku rehionu [Analysis of models of sustainable development of the region]. *Problemy y perspektyvy razvytyya sotrudnychestva mezhdu stranamy Yuho-Vostochnoj Evropy v ramkax ChES y HUAM* [Problems and prospects for the development of cooperation between the countries of South-Eastern Europe within the framework of the Black Sea Economic Cooperation] (pp. 53–58). Available at: http://jbsec.donnu.edu.ua/article/view/1145

Gross, J. E. (2003). Developing Conceptual Models for Monitoring Programs. NPS Inventory and Monitoring Program. Available at: https://www.researchgate.net/publication/254513558_Developing_Conceptual_Models_for_Monitoring_Programs

Guenther, M. (2013). 3 – The Design-Minded Enterprise. *Intersection*, 62–85. Available at: https://www.sciencedirect.com/science/article/pii/B9780123884350500032

Korolchuk, L. (2021). Implementation of the concept of sustainable development based on subsidiarity in response to current global challenges. SHS Web of Conferences 126, 06004. SDPPP-2021.

Tallinn, Estonia. Available at: https://www.shs-conferences.org/articles/shsconf/abs/2021/37/shsconf_sdppp2021_06004/shsconf_sdppp2021_06004.html

Kurt, S. (2022). Herzberg's Motivation-Hygiene Theory: Two-Factor. Education Library. October 17. Available at: https://educationlibrary.org/herzbergs-motivation-hygiene-theory-two-factor/.

Lisovyi, V. S. (2014). Kontekst [Context]. In I. M. Dziuba et al. (Eds.), *Entsyklopediia Suchasnoi Ukrainy* [Encyclopedia of Modern Ukraine]. Institute of Encyclopedic Research of the National Academy of Sciences of Ukraine. Available at: https://esu.com.ua/article-5031

Majumder, S., Kayal, P., Chowdhury, I.R., & Das, S. (2023). Regional disparities and development in India: evidence from Wroclow Taxonomy and K-means clustering. *GeoJournal*, *88*, 3249–3282. https://doi.org/10.1007/s10708-022-10805-2

Our Common Future (1987). World Commission on Environment and Development. Oxford University Press. Available at: https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

Reutov, V. Ye. (2010). Rozrobka modeli staloho rozvytku rehioniv Ukrainy [Development of a model for sustainable development of Ukrainian regions]. *Zahalni pytannja ekonomiki*. (6), 33–38. Available at: http://www.investplan.com.ua/pdf/6_2010/10.pdf

Shcherba, G. I. (2008). Sotsiolohichnyi aspekt stratehii rozvytku yevrorehionalnoho spivrobitnytstva u sotsialnomu prostori Yevropy [Sociological Aspect of the Strategy for the Development of Euroregional Cooperation in the Social Space of Europe]. *Naukovi Zapysky*, *83*, 19–25. Available at: https://ekmair.ukma.edu.ua/server/api/core/bitstreams/b95f45bd-2a70-4b25-9e4a-b330a225c3c6/content

Shlafman, N. L., & Umanets, N. L. (2015). Modeliuvannia staloho rehionalnoho rozvytku v konteksti transformatsiinykh zrushen: metodolohichnyi aspekt [Modeling of Sustainable Regional Development in the Context of Transformational Changes: Methodological Aspect]. *Ekonomichnyi visnyk Donbasu*, 2(40), 52–66. Available at: http://www.evd-journal.org/download/2015/3(41)/pdf/7-Shlafman.pdf

Sokyrska, V. V. (2021). Shliakh Polshchi do YeS cherez transkordonne spivrobitnytstvo [Poland's way to the EU through cross-border cooperation]. Kyiv International University, March 16. Available at: https://kymu.edu.ua/news/2021/vidkryta-lektsiya-doktora-istorychnykh-nauk-sokyrskoyi-v-v-na-temu-shlyakh-polshchi-do-yes-cherez-tr/

Soltysik, O. O. (2010). Systemne modeliuvannia rehionalnoi ekonomiky z pozytsii staloho rozvytku [Systemic regulation of the regional economy from the standpoint of sustainable development]. *Naukovyi visnyk NLTU Ukrainy*, *20.10*, 42–247. Available at: https://cyberleninka.ru/article/n/sistemne-modelyuvannya-regionalnoyi-ekonomiki-z-pozitsiyi-stalogo-rozvitku/viewer

Tomareva-Patlakhova, V. V. (2013). Modeli rehionalnoho rozvytku v konteksti ekonomichnykh reform [Models of regional development in the context of economic reforms]. *Derzhava ta rehiony*, (1), 76–80. Available at: http://nbuv.gov.ua/UJRN/drep_2013_1_17

United Nations (2015). *Transforming our World: The 2030 Agenda for Sustainable Development*. A/RES/70/1. Available at: https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

Xia, W., Apergis, N., Bashir, M. F., Ghosh, S., Doğan, B., & Shahzad, U. (2022). Investigating the role of globalization, and energy consumption for environmental externalities: Empirical evidence from developed and developing economies. *Renewable Energy*, *183*, 219–228. https://doi.org/10.1016/j.renene.2021.10.084

Zmist [Content] (1972). In *Slovnyk ukrainskoi movy* [Dictionary of the Ukrainian language], vol. 3. Webmezha. Available at: http://sum.in.ua/s/zmist

Eco-Industrial Parks of the Lviv Region as a Factor of the Inclusive Development of the Western Region of Ukraine

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2406

Liubov G. Kvasnii (corresponding author)

Precarpathian Institute named of M. Hrushevsky of Interregional Academy of Personnel Management, 21 Ivasyuka St., 82200, Truskavets, Ukraine; Drohobych State Pedagogical University named after Ivan Franko, 24 Ivana Franka St. 82100, Drohobych, Ukraine; e-mail: lg_k@ukr.net; ORCID: 0000-0001-5248-544X (corresponding author)

Olena V. Moravska

Precarpathian Institute named of M. Hrushevsky of Interregional Academy of Personnel Management, 21 Ivasyuka St., 82200, Truskavets, Ukraine; e-mail: olena.v.moravska@gmail.com; ORCID: 0000-0002-0595-858X

Oksana Soltysik

Drohobych State Pedagogical University named after Ivan Franko, 24 Ivana Franka St. 82100, Drohobych, Ukraine; e-mail: soltysik73@gmail.com; ORCID: 0000-0003-3054-0158

Yurii O. Shulzhyk

Precarpathian Institute named of M. Hrushevsky of Interregional Academy of Personnel Management, 21 Ivasyuka St., 82200, Truskavets, Ukraine; e-mail: pimaup_doktorant@ukr.net; ORCID: 0000-0003-1699-054X

Oresta Ya. Shcherban

Lviv Polytechnic National University, 18 Gorbachevskii St., 79057, Lviv, Ukraine; e-mail: mppjavir@ukr.net; ORCID: 0000-0001-5422-4032

Stah O. Vovk

National Academy of Agrarian Sciences of Ukraine, Institute of Agriculture of Carpathian Region, 5 Mykhailo Hrushevskyi St., 81115, Obroshine, Ukraine: e-mail: vovkstah@gmail.com; ORCID: 0000-0002-1439-5483

Abstract

The article examines the key points of creating eco-industrial parks in the Lviv region and reforming existing industrial parks according to the principles of circular and green economy. The intensive increase in the number of industrial enterprises in the Lviv region is due to the active relocation of enterprises from the war zone of Ukraine. The purpose of the article is to justify the feasibility of creating eco-industrial parks in the Lviv region according to the principles of circular and green economy. The authors recommend the principles of selecting industrial enterprises in the territories of industrial parks, taking into account industrial symbiosis. As part of research cooperation, we conducted and researched the stages of the design, construction, and development of industrial parks in the Lviv region of Ukraine. Practical recommendations have been developed and proposed for the creation and implementation of the production of environmentally-friendly products with further processing and the secondary cycle of waste use in order to reduce the use of natural resources and environmental pollution, and increase the socioeconomic development of the western region of Ukraine.

Keywords

Lviv region, eco-industrial parks, environmental management, development, western region of Ukraine

Introduction

As a result of hostilities caused by the military aggression of the Russian Federation against Ukraine and full-scale war, in many areas, a number of production facilities were destroyed and the access of enterprises to resource and raw material and sales markets was complicated. Since the

beginning of the full-scale invasion, 225 enterprises have relocated to the Lviv region, out of which 164 are engaged in economic activity.

The Government of Ukraine approved the procedure for developing the State Strategy for Regional Development of Ukraine for 2021–2027 and the Action Plan for its implementation, which is especially important in the current conditions, when armed aggression and the temporary occupation of part of the territory has deepened the gap in the development of regions. There is ecocide, large-scale mining of territories, destroyed infrastructure, blocking of logistics routes, loss of human capital. This means that pre-war approaches to policies at the state and regional level are outdated. In such conditions, strategic planning using a territorially-oriented and security approach is key to the recovery and further development of Ukraine's regions and their territorial communities. The state regional development strategy covers 7 main areas: human capital, infrastructure, economy, institutions, environmental protection, security, and e-government.

The relevance of the topic regarding the creation and development of eco-industrial parks (EIPs) in the whole world lies in the need to find ways to solve environmental problems due to environmental pollution and excessive consumption of resources. An eco-industrial park is a more advanced version of an industrial park, which, in addition to economic benefits, improves environmental and social indicators, as well as contributes to the sustainable development of the region and territorial communities.

Eco-industrial parks are the result of growing awareness of environmental problems and the need for sustainable development. The general genesis of the creation of eco-industrial parks is due to the following reasons:

– the emergence of environmental problems;
– growing social and political awareness;
– search for innovative solutions.

The first eco-industrial parks appeared in the early 1990s and the most famous of them is the Calgary Eco-Industrial Park in Canada, founded in 1991. These parks allowed businesses to share resources and minimise waste and environmental impact.

The concept of eco-industrial parks began to gain popularity in other countries, such as Germany, Denmark, the USA, and others. This led to an increase in the number of EIPs and the expansion of their capabilities.

Nowadays, eco-industrial parks are becoming more and more popular and increasingly important in advancing the sustainability of industrial development as well as reducing its negative impact on the environment.

Therefore, the genesis of eco-industrial parks is the result of a combination of serious environmental problems, the search for innovative solutions, and an appropriate approach to sustainable development. These parks contribute to the reduction of waste, the use of secondary resources, and the reduction of pollution, which improves the quality of the environment and increases the sustainability of the industrial sector.

Taking into account the deterioration of the ecological situation in Ukraine and the whole world – within the framework of the state programme started in the pre-war period, and also destructive changes associated with the war – it is necessary to implement progressive rehabilitation mechanisms at the regional level. In particular, this involves stimulating the attraction of investments for reconstruction, the relocation of companies to the western regions, and the involvement of European companies in cooperation with the aim, after the end of the war, of the country's entry into the European Union as soon as possible. In this case, the construction and implementation of industrial parks in the western region, in particular in the Lviv region, is an important and correct decision.

Literature review

The issue of eco-industrial parks has been explored in the works of many Ukrainian and foreign scholars. Shvets, Rozdobudko, and Solomina (2013) note that a characteristic feature of the present is the low level of greening in the investment sphere in Ukraine and its regions. Galychyn and colleagues (2022) emphasise that the social and ecological consequences of urbanisation require comprehensive management of cities and their resource metabolism for long-term sustainability

and economic prosperity. Koval and co-authors (2021) underscore that the effectiveness of management depends on investments in the development of innovative and environmentally-friendly technologies. Latysheva and colleagues (2020) examine the position of enterprises in the competitive regional space in the context of sustainable development from the perspective of three dimensions of sustainability (social, economic, and environmental).

Gurochkina and Dukhno (2020), in their study on the transition process from a linear to a circular economy in Ukraine, note that circular economy is understood as a closed-loop system based on the recycling and utilisation of secondary raw materials. The key principles include minimising the consumption of primary raw materials, restoring resources, and preserving environmental cleanliness.

Chertow (2000), exploring the concept of industrial symbiosis (IS), closely linked to the concept of industrial ecology (IE), emphasises that the simplest IS model within the structure of IE involves the two-way integration of two enterprises: the waste from one enterprise becomes raw material for a neighbouring enterprise. Polovyan and Kazakova (2013) found out that depending on the symbiosis process, materials may require additional processing stages to be suitable for further use. However, in the best-case scenario, with optimal choices, waste can directly serve as raw material for another enterprise.

Researchers Shulzhik, Hrytsko, and Pekanets (2022) have demonstrated that in the conditions of modern digital transformation, changes are occurring not only in technologies, but also in the strategies of enterprises and organisations, reflecting a different way of thinking. Taking this into account, Maeen Md. Khairul and colleagues (2022) as well as Murillo Vetroni Barros and co-authors (2021) argue that the concept of circular economy in the IE model allows for not only environmental but also economic effects – forming new growth points and creating new jobs. In this context, Panchenko et al. (2013) investigated that the waste processing industry in the USA in 2010 provided 460,000 jobs with a total wage of 26 billion USD. The production and services of the industry exceeded 90 billion USD, comparable to the publishing business or coal mining. Specifically, in the USA, a 1% increase in the share of secondary waste use creates approximately 35,000 jobs, and in recent years, there has been an approximately 35% growth in this regard.

In their scientific research, Murillo Vetroni Barros et al. (2021) demonstrated that the principles of linear economy are based on the unlimited use of natural resources (production-waste), leading to both the depletion of natural resources and environmental pollution. The researchers substantiated the effectiveness of the existing eco-industrial parks worldwide, such as the Kalundborg Eco-Industrial Park (Denmark), the Marl Chemical Park (Germany), the Korea National Cleaner Production Centre (KNCPC), the Kawasaki Eco-Town (Japan), the Händelö Eco-Industrial Park, and others.

The Kalundborg Eco-Industrial Park (Denmark) is one of the first and main representatives of industrial symbiosis (Kalundborg symbiosis). The Marl Chemical Park (Germany) occupies an area of more than six square kilometres and provides about 10,000 jobs. The Korea National Centre for Clean Production (KNCPC) launched the National Eco-Industrial Park (EIP) in 2003 with the assistance of the Ministry of Trade, Industry and Economy (MOTIE). The result is the implementation of clean production and industry through industrial symbiosis. The Kawasaki Eco-Town (Japan) is located in the coastal zone and concentrates production and processing, metallurgical, chemical, petrochemical, cement, and other industries. An eco-city is a successful representative of the implementation of the system of industrial symbiosis, where industrial waste and by-products are used as raw materials. The Händelö Eco Industrial Park (located on a small island in eastern Sweden) is one of the best representatives of industrial symbiosis. In Norway, within the framework of the programme (the Norwegian Innovation Clusters programme), 38 clusters have been created that work according to the principle of the EIP. The main goal of the clusters is the development of the economy with the maximum saving of natural resources and the preservation of the environment.

Bakulina, Lehan, and Bakhov (2019) as well as Gurochkina and Dukhno (2018), taking into account the recommendations of the UNIDO and international experience in creating eco-industrial parks, note that the transition to a closed-loop economy based on the principles of “green economy” is an individual process for each country.

Gurochkina and Budzynska (2020) emphasise that moving away from the traditional “resource-consuming” development strategy requires a change in societal behaviour, the development of new

concepts of public governance, and entrepreneurial activities. Justifying this, Moravska, Levytskyy, and Schulzhyk (2020) consider that the implementation of industrial symbiosis in Ukraine is primarily associated with the realisation of the principles of circular and "green" economies. Circular economy can play a crucial role in sustainable business management (Murillo-Vélez et al., 2021). Boix et al. (2015) proposed optimisation works dedicated to the design of eco-industrial parks. Butturi and colleagues (2020) presented an optimisation methodology based on a multi-stakeholder perspective to evaluate energy symbiosis, including the integration of renewable energy sources within parks.

Based on the experience of developed Western countries (UNIDO), Gurochkina and Budzynska (2020) note that eco-industrial parks form the basis of circular economy, where waste from local enterprises is processed and recycled. In this connection, the issue of justifying the feasibility of creating eco-industrial parks in the Lviv region based on the implementation of the circular economy system and the principles of green policy as a factor in the inclusive development of the western region of Ukraine requires scientific research.

The aim of the study and research design

The article develops scientifically-grounded recommendations on the advisability of a gradual transition of the economy of the Lviv region to the circular economy model, taking into account the specific characteristics of this particular region in Ukraine. One of the goals of this article is to justify that the creation of eco-industrial parks in the Lviv region is a factor in the inclusive development of the western region of Ukraine.

The research methodology is based on the principles of integrity, logical consistency, completeness, and scientific pluralism.

The mixed-method approach was adopted for the study. An analysis of regulatory and legislative materials was carried out, including published domestic and foreign scientific and methodological developments, legislative projects, legal acts, as well as standards in the field of the creation and development of eco-industrial parks in Ukraine and abroad. In the process of analysing scientific sources on the subject under study, the experience of the transition to the circular economy model in economically-developed and developing countries was considered.

When conducting the research, the methods generally accepted in economic science were used: monographic; dialectical – in the process of conceptualising the implementation and development of EIPs in Ukraine after the end of military operations; analysis and synthesis; grouping – to determine the stages of EIP implementation in the Lviv region; generalisation and analysis; economic-statistical, abstract-logical, and systemic-structural – for the formation of the principles and methods of creating eco-industrial parks in the field of industrial activity, taking into account industrial symbiosis. The method of complex analysis was used to justify the possibility and expediency of creating eco-industrial parks in the Lviv region.

Results and discussion

The main points of the programme of the creation and implementation of EIP in the Lviv region

As of 1st January, 2023, there were 60 industrial parks in the Register of Industrial Parks of Ukraine. The necessary engineering and transport infrastructure has been created in only seven parks, while in most of them it is either absent or the improvement of the territory has just begun. However, the most telling fact is that by and large, only one enterprise in the refrigeration engineering cluster is active. Therefore, the global state of this industry can be studied only by describing the projects, and not by seeing them implemented in life.

In Ukraine, the current legislation on industrial parks provides extremely insignificant advantages to their participants, which are clearly insufficient for this mechanism to become a catalyst for economic development. Without an appropriate package of incentives, industrial parks in Ukraine will not be able to attract investments, including foreign ones. Even more so during the war, because international investors will necessarily need war risk insurance.

Considering the development of EIPs in the Lviv region, it is first of all worth focusing attention on the existing industrial parks. It should be noted that in 2019, the EIP implementation programme in Ukraine began.

As part of the Global Eco-Industrial Parks Programme (GEIPP), the existing industrial parks that showed the highest potential for transition into eco-industrial parks were selected. Parks were selected on the basis of economic, ecological, and social indicators of the participating enterprises. According to the results of the conformity assessment, three parks were chosen for cooperation: "Bilotserkiv Cargo Aviation Complex", or "BVAK" (Bila Tserkva) received the highest rating and showed the highest potential for transformation into an EIP. "Agromash" (Zaporizhia) and "Patriot" (Sumy) are small industrial parks that have been selected and will receive development assistance (GEIPP-Ukraine, 2024).

As a result of the recommended optimisation of production processes, a reduction in electricity consumption by 15%, natural gas – by 20%, solid fuel – by 17%, and water – by 12% is foreseen. The annual reduction of carbon dioxide associated with this innovative implementation of individual links of the production process amounts to 365.27 t CO^2 eq/year, and financial savings amount to 67,418 EUR/year (GEIPP-Ukraine, 2024).

The armed conflict, with the start of hostilities on 24th February, 2022, has led to a regressive economic state, with falling production and rising inflation. From April 2022, the Government of Ukraine created the National Council for the Recovery of Ukraine from the Consequences of the War and began planning for the post-conflict development of the country with a focus on economic reconstruction. In this context, the issue of the development and implementation of EIP remains a priority. Since April 2022, as part of the National Programme for Business Support and Development of EIP, the Ministry of Economy has promoted and aided the relocation of EIPs and individual enterprises from areas of intense hostilities to safer regions of western Ukraine. By the method of identification and mapping, with the development of an interactive map of the composition and specialisation of enterprises located in the respective territories, the gradual transfer of enterprises and EIPs is carried out. This technique makes it possible to maximally develop industrial symbiosis and implement the most convenient placement of transferred enterprises for the development of eco-industrial parks (Ministry of Economy of Ukraine).

Within the framework of this project, programmes of the creation and introduction of EIPs (Table 1) are inculcated and realised, and new instruments are controlled for a power effective and unpolluted production (Ministry of Environmental Protection and Natural Resources of Ukraine).

Table 1. Purpose, areas of activity, and performance indicators in the programme of the creation and implementation of EIPs in the Lviv region

Title	Content of the target indicators of the EIP implementation programme:
Purpose	– the creation of a production complex, which is united by interdependent energy and material flows, organisational-management, and financial-economic ties; a complex of movable and immovable property objects; – the complex should include: industrial-technological, transport, communal infrastructure used in the system of production, research, and educational activities to ensure the creation and market introduction of innovative safe technologies and industrial products.
Areas of activity	– the production of products according to innovative technologies; processing, recycling, and recycling of waste; – resource conservation, replacing the use of non-renewable natural resources in economic activity with secondary resources; – energy saving and energy efficiency; – monitoring, control, pollution reduction, and environmental protection; – the restoration of the components of the natural environment from human-made pollution.

Table 1. – cont.

Title	Content of the target indicators of the EIP implementation programme:
Indicators of the effectiveness of the EIP work	– economic effect (indicators of profit, profitability, payback periods, internal profitability, etc.); – ecological effect (reduction of ecological damage to the components of the natural environment, which is calculated, respectively, in money and in the quantitative indicators of pollution reduction: discharges, emissions, placed waste in tons); – resource-saving effect (reduction in the use of natural resources, energy, return to economic circulation of secondary resources); – socio-infrastructural (the development of industrial, scientific and technical, social infrastructure as well as the modernisation and technical rearmament of existing factories, the creation of new jobs, and the investment attractiveness of the region).

Source: Compiled by the authors based on Panchenko (2013).

The armed conflict, which began on 24th February, 2022, has resulted in a regressive economic state, characterised by declining production and rising inflation. Recognising the urgent need for recovery, the Government of Ukraine established the National Council for the Recovery of Ukraine from the Consequences of the War in April 2022. The primary focus of this council is to plan for the post-conflict development of the country, with a particular emphasis on economic reconstruction. In this challenging context, the development and implementation of Eco-Industrial Parks (EIPs) have emerged as a key priority.

Starting from April 2022, the Ministry of Economy has actively promoted and facilitated the relocation of EIPs and individual enterprises from areas of intense hostilities to safer regions in western Ukraine. As part of the broader National Programme for Business Support and Development of EIPs, a strategic approach is employed. The Ministry of Economy utilises identification and mapping methods, including the development of an interactive map detailing the composition and specialisation of enterprises in various territories. This approach enables the gradual transfer of enterprises and EIPs, fostering industrial symbiosis and facilitating the optimal placement of relocated enterprises for the development of eco-industrial parks (Ministry of Economy of Ukraine).

Within the framework of this project, the Ministry of Environmental Protection and Natural Resources of Ukraine is actively involved in implementing programmes for the creation and introduction of EIPs, as outlined in Table 1. The table specifies the purpose, areas of activity, and performance indicators associated with the programme of creating and implementing Eco-Industrial Parks in the Lviv region.

Table 2. Purpose, areas of activity, and performance indicators in the programme of the creation and implementation of EIP in the Lviv region

Purpose	Areas of Activity	Performance Indicators
Economic Reconstruction	relocation of EIP and individual enterprises	efficient transfer of enterprises from conflict zones
Power Effective Production	the identification and mapping of enterprises	the development of an interactive map
Unpolluted Production	strategic placement of relocated enterprises	the oromotion of industrial symbiosis and eco-industrial park growth

Source: Compiled by the authors.

This integrated approach aims to not only address the immediate challenges posed by the armed conflict, but also contribute to the long-term sustainable development of the Lviv region.

The stages of the implementation of the industrial parks of the Lviv region of Ukraine

Table 3. The stages of the implementation of the industrial parks of the Lviv region of Ukraine

Industrial Park Name	Inclusion Date	Managing Company	Ownership	Land Area (ha)	Location	Functional Purpose	Jobs Planned	Financing	Current Status
Lviv Industrial Park „Ryasne-2”	February 7, 2014	CityPark Lviv LLC (part of RYASNE-2 LLC, majority owned by Dragon Capital Investments Limited)	Private	23.9413	Microdistrict “Ryasne-2”, Lviv	V and IV hazard class enterprises	12,000	$100 million USD	Under Construction
Yavorivskyi Industrial Park	April 26, 2017	Not specified	Not specified	40	Yavoriv	Instrument building, mechanical engineering, metalworking, logistics, trade, and services	Not specified	State budget and investors	Preparatory Planning
Novorozdilsky Industrial Park	June 15, 2017	Not specified	Not specified	46.4	Former state mining and chemical enterprise territory	Environmentally-friendly products based on circular economy principles	1,150	State budget (for initial works), Investors needed	Under Construction
Sigma Park Yarychiv Industrial Park	September 4, 2017	Not specified	Not specified	15.7084	Stary Yarychiv, Lviv region	Environmentally-friendly products, industrial symbiosis	2,000-2,500	Seeking investors	Under Construction
Zahid Resurs Industrial Park	September 19, 2018	Not specified	Not specified	20.7662	Horodok, Lviv region	Food products, non-alcoholic beverages, textiles, wood processing, machinery, logistics	1,625	State budget, management company, investors	Design and Preparatory Work
Business Prime Industrial Park	August 19, 2019	Asset Management Company - Interest Group LLC	Not specified	17.5	Ternopillya, Lviv region	Food products, textiles, wood processing, machinery, logistics	1,750	Seeking investors	Design and Preparatory Work
Sparrow Park Lviv Industrial Park	May 14, 2021	Not specified	Not specified	18.8242	Signivka, Lviv	Mechanical engineering, logistics, light and food industry, processing industry	1,000	Company’s own funds and investors	Preparatory Work
Mostysky Dry Port Industrial Park	August 2, 2021	Not specified	Not specified	34.5116	Mostyskyi District, Lviv Region	Polymer building materials, furniture production, machinery, wood processing, logistics	1,150	State and local budget, non-state funds	Design and Preparatory Work
Eco-industrial park “InPark”	Not specified	Not specified	Not specified	20	Boryslav	Mixed industries	Not specified	Not specified	Planning Stage
Eco-smart industrial park “HALIT”	November 11, 2022	Not specified	Not specified	Not specified	Drohobych	Light industry, machine building, emphasis on green energy	Not specified	Not specified	Design and Preparatory Work

Source: Compiled by the authors.

The strategic development planning of the Lviv region for the period 2021–2027 provides for the development of industrial infrastructure, support for entrepreneurship, and the creation of clusters and industrial parks. Thus, there are ten industrial parks in the Lviv region (GEIPP-Ukraine, Achievement report), which are at the stage of design, planning, construction, and implementation (Table 3).

This is a good opportunity for business not only to transfer production from troubled regions, but also to have its representative offices in the western region.

Recommendations for the implementation of EIPs in accordance with environmental international standards

In accordance with the international requirements of "Environmental protection" related to the ISPR component (Inclusive and sustainable industrial development) proposed by UNIDO: International framework regulations on eco-industrial parks and International Guidelines for Industrial Parks (GEIPP-Ukraine, 2017), Strategies for the Development of Industrial Parks to In 2030, we have proposed recommendations regarding the need to comply with environmental measures during the construction, planning, and implementation of eco-industrial parks. These recommendations are not merely indicative but imperative for fostering a harmonious coexistence between industrial progress and environmental conservation. In the light of the specified international guidelines, our proposed measures emphasise the incorporation of ecologically-sound practices during the construction phase, ensuring that the parks' infrastructure is developed with minimal ecological impact. This entails the use of environmentally-friendly construction materials, energy-efficient technologies, and waste reduction strategies. Moreover, in the planning stage, we advocate for a comprehensive environmental impact assessment to identify potential ecological risks and devise proactive mitigation strategies. Our recommendations further stress the importance of integrating green spaces, biodiversity conservation, and sustainable water management practices into the parks' layout, contributing to the creation of a balanced and ecologically-resilient industrial ecosystem. During implementation, our guidelines call for the establishment of robust monitoring and enforcement mechanisms to guarantee ongoing compliance with environmental standards. This includes regular audits, performance assessments, and the implementation of corrective measures as needed. Additionally, fostering awareness and collaboration among stakeholders is highlighted as essential for promoting a culture of environmental responsibility within the eco-industrial park community.

Note (Fehrer & Wieland, 2020) that the model of the circular economy, which is the basis of the EIP, is based on the "principle of three Rs" – reduce, reuse, and recycle. This are the main principles that must be taken into account when planning and building an EIP. In addition, when planning and building an EIP, it is necessary to use business models, taking into account the possibility of implementation in this territory.

The processing and involvement of waste in the secondary cycle of production

Note that the storage of natural resources, waste processing, and their reuse is one of the important elements of the circular economy. The key to the realisation of the "principle of three Rs" is undoubtedly innovative technologies.

The model of the closed cycle economy in relation to waste processing is defined as follows: the use of waste for the production of goods (products); performance of works; the provision of services, including reuse of waste for its intended purpose (recycling); the return of waste to the production cycle after appropriate preparation (regeneration); the extraction of useful components from waste for its reuse (recovery).

Taking into account the deterioration of the ecological situation in Ukraine due to the accumulation of various types of waste as well as the impossibility – due to certain economic and financial reasons – to implement individual waste processing lines, we suggest using the services of specialised companies.

The implementation of green economy

Scientists emphasise that there is a slowdown in the implementation of rational nature management in Ukraine, creating additional risk factors for the populating and worsening the quality of life in conditions of low implementation of Greentech (Koval et al., 2021). Taking into account the environmental situation in the world in general, and specifically on the territory of Ukraine, within the framework of global and state policy in the field of environmental protection (Downey et al., 2021; Dankevych et al., 2021; Belmonte-Ureña et al., 2021), environmental safety as well as land protection and management, we have proposed practical recommendations for the implementation of the green economy:

1) Policy Frameworks:
   – developing and enforcing comprehensive environmental policies that promote sustainable practices;
   – establishing clear regulations and standards for industries to reduce pollution, waste, and resource consumption;
   – providing incentives for businesses to adopt environmentally-friendly practices.
2) Investment in Renewable Energy:
   – allocating funds for research and development of renewable energy sources;
   – offering financial incentives and subsidies to businesses and individuals investing in renewable energy projects;
   – encouraging the adoption of clean energy technologies in both public and private sectors.
3) Green Infrastructure:
   – investing in eco-friendly infrastructure projects such as public transportation, cycling lanes, and green buildings;
   – developing and maintaining green spaces to enhance biodiversity and provide recreational areas for communities;
   – implementing sustainable water management practices, including water recycling and rainwater harvesting.
4) Circular Economy Practices:
   – promoting a circular economy by encouraging recycling, reusing, and reducing waste;
   – implementing extended producer responsibility (EPR) programmes, making manufacturers responsible for the entire life cycle of their products;
   – encouraging the use of sustainable materials and design products for easy disassembly and recycling.
5) Education and Awareness:
   – implementing educational programmes to raise awareness about environmental issues and the benefits of a green economy;
   – promoting sustainable practices at schools, universities, and within communities;
   – fostering a culture of environmental responsibility and stewardship.
6) Green Jobs and Training:
   – investing in training programmes to develop skills for green jobs in renewable energy, energy efficiency, and environmental conservation;
   – providing incentives for businesses to create green jobs and transition existing jobs towards sustainability;
   – supporting workforce development initiatives focused on environmental sustainability.
7) Public-Private Partnerships:
   – encouraging collaboration between governments, businesses, and non-profit organisations to address environmental challenges;
   – facilitating partnerships that promote sustainable practices and innovations;
   – establishing platforms for sharing best practices and knowledge transfer.
8) Carbon Pricing and Incentives:
   – implementing carbon pricing mechanisms such as carbon taxes or cap-and-trade systems to internalise the environmental costs of carbon emissions;
   – providing financial incentives for businesses that reduce their carbon footprint and adopt sustainable practices.

9) Green Finance:
   – developing financial mechanisms and investment funds that prioritise environmentally-sustainable projects;
   – encouraging banks and financial institutions to integrate environmental criteria into their lending and investment decisions.

The implementation of green economy requires a holistic approach, involving multiple stakeholders and addressing social, economic, and environmental aspects. It is essential to balance economic development with environmental preservation to ensure long-term sustainability.

The main tools and strategies for the implementation of EIP in the Lviv region

A special feature of eco-industrial parks is resource-efficient and clean production, which combines comparative practices in the areas of clean production, environmental efficiency, waste management, and pollution prevention. By resource-efficient and clean production we mean an approach to the effective use of natural resources (materials, water, and energy) and the reduction of waste and emissions into the atmosphere (Kristensen & Mosgaard, 2020; Habib et al., 2021). The Eco-Industrial Parks Toolkit contains nine different tools (Table 5).

Table 4. Tools for creating eco-industrial parks in the Lviv region

EIP tool	Purpose of the tool:
Assessment Tool	is to assess an industrial park against the International Eco-Industrial Park Framework (UNIDO, World Bank and GIZ, 2017)
Capability Monitoring Tool	is to monitor and report on resource savings and impacts from EIP capabilities identified and implemented in industrial parks supported by (international) national development projects.
Capability Monitoring Tool	is to monitor and report on resource savings and impacts from EIP capabilities identified and implemented in industrial parks supported by (international) national development projects.
Policy Support Tool	is to assist international development agencies (eg UNIDO) and their national partners in providing technical support to policy makers in the planning and development of EIP policies.
Selection tool	is to support the selection of industrial parks with high potential for EIP development and the creation of successful, visible and replicable EIP projects.
Industrial symbiosis identification tool	is to support the identification of industrial symbiosis opportunities (exchange of by-products and waste) between companies. This tool can be used in existing industrial parks (brownfields) to provide stakeholders with information on symbiosis opportunities associated with companies operating in the park.

Source: GEIPP, 2017; GEIPP-Ukraine, 2018; Kristensen & Mosgaard, 2020; Habib et al., 2021.

Resource-efficient and clean production covers three main areas of sustainable development:
– production efficiency: the optimisation of the productive use of natural resources (materials, energy and water);
– environmental management: the minimisation of the impact on the environment and nature by reducing waste and emissions;
– human development: the minimisation of risks for people and communities; supporting their development.

Being a project at the intersection of infrastructure and real estate, which involves a significant amount of construction, the industrial park will inevitably face risks in the field of construction, with significant financial risks associated with fluctuations in the exchange rate and interest rates on loans taken to finance the project, the impact of crisis situations on capital markets on the ability to raise funds for the project through the sale of securities and other instruments, the possibility of cash gaps, etc. (Fainmesser & Galeotti, 2020; Bondarenko et al., 2021).

Creating eco-industrial parks in the Lviv region, as in any other region, requires careful planning and management to minimise negative environmental impacts and ensure sustainable development. Here are several measures that can help reduce risks when establishing eco-industrial parks:
– environmental assessment before commencing work;
– strategic planning;

– the utilisation of modern technologies;
– monitoring and control system;
– collaboration with local communities;
– economic sustainability;
– waste management planning;
– developing an effective waste management system and exploring options for recycling or reusing waste;
– education and public engagement.

Figure 1. presents the results of the evaluation of incentives for the development of EIPs in Ukraine.

	2020 done	The start of the GEIPP project in Ukraine Analysis of stakeholders in the field of EIP Analysis of gaps in EIP policy
	2021 done	EIPs are included in the Government's National Economic Strategy until 2023 1st and 2nd Seminars on EIP policy for decision-makers The official Interagency Working Group on EIP Policy is established EIP policy implementation road map 1st and 2nd meeting of the Interdepartmental Working Group on EIP Policy
	2022 done	Analysis of stakeholders in the field of EIP (updated) International proposals for the EIP policy vision and roadmap Report on EIP support mechanisms in Ukraine EIP is included in the project of the 2030 PE Strategy Strategic environmental assessment of the IP 2030 Strategy with an EIP perspective EIP policy development scenarios (Analysis of Regulatory Impact) The draft Law on EIP has been developed (amendments to the Law on IP and others) 3rd meeting of the Interdepartmental Working Group on EIP Policy
	2022 done	National sociological study of market readiness for EIPs Training course (online) for decision-makers and business in the field of EIP Report on supply chains in the field of EIPs in Ukraine
	2023 plan	The adoption of the EIP Law has been developed Adoption of EIP by-laws (criteria, verification, monitoring) Bringing national policies into line with the International EIP framework Development of an access to finance tool (Access to Finance tool) for EIPs in Ukraine

Figure 1. The results of the evaluation of the development of EIPs of Ukraine in 2020–2023

In Figure 2, proposals are presented for new incentives for the EIP, which include support for infrastructure development through the State Fund for Regional Development, partial compensation of the loan rate and non-refundable financing for the arrangement of the engineering, as well as transport infrastructure of the parks through the expenditure of state and regional funds, state subsidisation for construction, reconstruction, repair engineering, and transport infrastructure.

The Government has developed the Procedure for providing funds on a non-refundable basis for the arrangement of industrial parks and/or ensuring the construction of adjacent infrastructure facilities necessary for the creation and operation of industrial parks. Upon application to the Ministry of Economy, the applicant will be granted no more than 60 million UAH from the state or local budget, provided that it does not exceed 80% of the project cost.

Park management efficiency	• national framework conditions: EIP terminology and criteria; • financing infrastructure development of EIPs within the framework of the State Fund for Regional Development; • expanding national tools for arranging EIP infrastructure; • partial compensation of the loan rate; • irrevocable help; • budgetary support for infrastructure development.
Environmental indicators	• national framework conditions: the deregulation of relations for production, supplies (distribution), use of resources (raw materials, energy, water); • platforms for sharing resources, reuse of materials and waste; • state technological cooperation programme; • market instruments for projects in the EIP: specialised loans, loan guarantee fund; • green bonds for EIP projects (pilot issues/budget support).
Social indicators	• national framework conditions: a mandatory social component in the EIP Concept; • financing the creation of social infrastructure within the framework of the State Fund for Regional Development; • supporting the creation of social infrastructure of EIPs at the expense of local budgets.
Economic indicators	• the state programme to support the transformation of private enterprises to the level of EIPs; • exemption from payment of VAT when importing equipment; • exemption from payment of customs payments when importing equipment.

Figure 2. Proposals for new incentives for EIPs

Conclusions

As a result of hostilities caused by the military aggression of the Russian Federation against Ukraine and full-scale war, in many areas a number of production facilities were destroyed and the access of enterprises to resource and raw material and sales markets was complicated. Since the beginning of the full-scale invasion, 225 enterprises have relocated to the Lviv region, out of which 164 are engaged in economic activity. Most of the others have already returned to their previous places of work or have opened branches in the region. According to the analysis, the largest number of enterprises were relocated to the Lviv, Stryi, and Drohobytsky districts. The authors emphasised the fact that owing to the social component, eco-industrial parks would be able not only to help companies moving from the war zone to the Lviv region to resume their activities quickly and efficiently, but also to provide their employees and their families with high-quality social infrastructure in western regions of Ukraine.

Considering the deterioration of the ecological situation in Ukraine and worldwide, within the framework of the state programme initiated even before the pre-war period, as well as the destructive changes associated with the war, it is necessary to implement progressive rehabilitation mechanisms at the regional level. This includes stimulating investment attraction for reconstruction, relocating enterprises to western regions, and engaging European companies in cooperation with the aim of expediting the country's accession to the European Union after the war.

The article argues that the creation of eco-industrial parks in the Lviv region is the most optimal method for inclusive development of the western region of Ukraine, based on the principles of transitioning from linear economy to circular economy.

Scientifically-grounded recommendations for a gradual transition to the circular economy model (taking into account the specificity of the western region) are developed in the article. This transition aims to facilitate the realisation of a future where industrial progress harmoniously coexists with environmental management, fostering the creation of a sustainable and inclusive industrial landscape for future generations.

The implementation of the circular economy system in the Lviv region is expected to achieve the following results: optimise the activities of economic entities, find rational methods for resource utilisation, ensure a closed production cycle for efficient use of existing capacities, support economic growth rates, develop other economic sectors to replenish natural resources, increase GDP, and expand the labour market.

Therefore, within the framework of the UNIDO project, the article proposes specific methods and mechanisms, and provides concrete recommendations for the planning, construction, implementation, and realisation of industrial parks in the Lviv region based on the principles of circular economy.

The article examines the results of the work carried out in the direction of the introduction and development of industrial parks in the Lviv region. The methods and possibilities of the transition of already existing enterprises that work on the principles of linear economy to innovative production on the principles of circular economy are considered. Recommendations on the selection of enterprises based on the principles of industrial symbiosis are provided. Following these guidelines, we hope to contribute to the realisation of a future where industrial progress coexists harmoniously with environmental management, fostering the creation of a sustainable and inclusive industrial landscape for future generations.

In Ukraine, these issues are extremely important, because not only local communities of the Lviv region will be interested in employment, but also internally displaced people and those who will return from abroad after previous evacuation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

We express our gratitude to the staff of the International Academy of Personnel Management (Ukraine) for their assistance in scientific preparation and processing of materials and data.

In addition, we express our gratitude to the workers and employees of the industrial parks of the Lviv region of Ukraine for cooperation in scientific work.

Reference List

Agyapong, D., & Tweneboah, G. (2023). The antecedents of circular economy financing and investment supply: The role of financial environment. *Cleaner Environmental Systems*, *8*, 100103. https://doi.org/10.1016/j.cesys.2022.100103

Babchynska, O. I. (2020). Formuvannia mekhanizmu ekolohichnoho menedzhmentu v konteksti kontseptsii staloho rozvytku [Formation of the environmental management mechanism in the context of the sustainable development concept]. *Ekonomika ta derzhava – Economy and State*, *10*, 140–143. doi: 10.32702/23066806.2020.10.140

Bakulina, O., Lehan, I., & Bakhov, I. (2019). Cluster associations as a factor of innovative and integrative development of the economy. *International Journal of Innovative Technology and Exploring Engineering*, *8*(10), 2249–2255. doi: 10.35940/ijitee.J1122.0881019

Barros, M. V., Salvador, R., do Prado, G. F., de Francisco, A. C., & Piekarski, C. M. (2021). Circular economy as a driver to sustainable businesses. *Cleaner Environmental Systems*, 2, 100006. https://doi.org/10.1016/j.cesys.2020.100006

Belmonte-Ureña, L. J., Plaza-Úbeda, J. A., Vazquez-Brust, D., & Yakovleva, N. (2021). Circular economy, degrowth and green growth as pathways for research on sustainable development goals: a global analysis and future agenda. *Ecological Economics*, *185*, 107050. https://doi.org/10.1016/j.ecolecon.2021.107050

Boix, M. et al. (2015). Optimization methods applied to the design of eco-industrial parks: A literature review. *Journal of Cleaner Production*, *87*(1), 303–317. https://doi.org/10.1016/j.jclepro.2014.09.032

Bondarenko, S., Shlafman, N., Kuprina, N., Kalaman, O., Moravska, O., & Tsurkan N. (2021). Planning, accounting and control as risk management tools for small business investment projects. *Emerging Science Journal*, *5*(5), 650–665. doi: 10.28991/esj-2021-01302

Butturi, M. A. et al. (2019). Renewable energy in ecoindustrial parks and urban-industrial symbiosis: A literature review and a conceptual synthesis. *Applied Energy*, 255, 113825. https://doi.org/10.1016/j.apenergy.2019.113825

Butturi, M. A., Sellitto, M. A., Lolli, F., Balugani, E., Neri, A. (2020). A model for renewable energy symbiosis networks in eco-industrial parks. *IFAC-PapersOnLine*, *53*(2), 13137–13142. https://doi.org/10.1016/j.ifacol.2020.12.2504

Chertow, M. R. (2000). Industrial symbiosis: Literature and taxonomy. *Annual Review of Energy and Environment*, *25*(1), 313–337. https://doi.org/10.1146/annurev.energy.25.1.313

Dankevych, A., Sosnovska, O., Dobrianska, N., Nikolenko, L., Mazur, Yu., & Ingram, K. (2021). Ecological and economic management of innovation activity of enterprises. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*, 5, 118–124, DOI: 10.33271/nvngu/2021-5/118

Downey, H., Amano, T., Cadotte, M., & Cook, C. (2021). Training future generations to deliver evidence-based conservation and ecosystem management. *Ecological Solutions and Evidence*, *2*(1), e12032. https://doi.org/10.1002/2688-8319.12032

Fainmesser, I. P., & Galeotti, A. (2020). Pricing network effects: Competition. *American Economic Journal: Microeconomics*, *12*(3), 1–32. doi: 10.1257/mic.20170226

Fehrer, J.A., & Wieland, H. (2020). A systemic logic for circular business models. *Journal of Business Research*, *125*, 609–620. https://doi.org/10.1016/j.jbusres.2020.02.010

Galychyn, O., Fath, B. D., Shah, I. H., Buonocore, E., & Franzese, P. P. (2022). A multi-criteria framework for assessing urban socio-ecological systems: The emergy nexus of the urban economy and environment. *Cleaner Environmental Systems*, *5*, 100080. https://doi.org/10.1016/j.cesys.2022.100080

GEIPP (2017). Hlobalna prohrama eko-industrialnykh parkiv. Rozrobka systemy upravlinnia znanniamy. Kerivnytstvo z vykorystannia instrumentariiu UNIDO Eco-Industrial Parks Toolkit [Global Eco-Industrial Parks Program. Development of a Knowledge Management System Guide to Using the UNIDO Eco-Industrial Parks Toolkit]. http://repositsc.nuczu.edu.ua

GEIPP-Ukraine (2016). Ekoindustrialni parky: zabezpechennia spilnoho protsvitannia ta zakhyst navkolyshnoho seredovyshcha UNIDO [Eco-industrial parks: ensuring shared prosperity and environmental protection UNIDO]. https://www.undp.org/sites/g/files/zskgke326/files/migration/ua/UNDP_Manual_v05_.pdf

GEIPP-Ukraine (2017a). Mizhnarodni ramkovi polozhennia pro ekoindustrialni parky. YuNIDO, Hrupa Svitovoho banku, GIZ [International framework regulations on eco-industrial parks. UNIDO, World Bank Group, GIZ]. https://geipp-ukraine.org/wp-content/uploads/2021/12/Mizhnarodni-rekomendatsii-IP-2.pdf

GEIPP-Ukraine (2017b). Mizhnarodni rekomendatsii dlia industrialnykh parkiv. YuNIDO [International Guidelines for Industrial Parks. UNIDO]. https://geipp-ukraine.org/biblioteka/

GEIPP-Ukraine (2018). Posibnyk iz vprovadzhennia pryntsypiv stvorennia ekoindustrialnykh parkiv ta vykorystannia vidpovidnoho instrumentariiu UNIDO [Handbook on the implementation of the principles of eco-industrial parks and the use of the relevant UNIDO toolkit]. https://hub.unido.org/sites/default/files/publications/UNIDO%20EIP%20Toolbox%20Manual%20Ukrainian%20language.pdf

GEIPP-Ukraine. (2020). Hlobalna prohrama ekoindustrialnykh parkiv v Ukraini: vprovadzhennia na mistsevomu rivni [Global program of eco-industrial parks in Ukraine: implementation at the local level]. https://hub.unido.org/sites/default/files/publications/UNIDO%20EIP%20Toolbox%20Manual%20Ukrainian%20language.pdf

GEIPP-Ukraine (2024). The GEIPP Ukraine achievements. https://geipp-ukraine.org/en/the-geipp-ukraine-achievements/

Gibbs, D., Deutz, P., & Proctor, A. (2005). Industrial ecology and eco-industrial development: A potential paradigm for local and regional development? *Regional Studies*, *39*(2), 171–183.

Gurochkina, V. V., & Budzynska, M. S. (2020). Circular economy: Ukrainian realities and opportunities for industrial enterprises. Economic Herald. Series: Finance, accounting, taxation, *5*, 52–64. https://doi.org/10.32840/2522-4263/2020-5-32

Gurochkina, V. V., & Dukhno, O. O. (2018). Zamknutyj cykl vyrobnyctva: praktyka zastosuvannja v ukrajinsjkykh realijakh [Closed production cycle: Application practice in Ukrainian realities]. *Ekonomika pryrodokorystuvannja: stan, problemy, perspektyvy. UDFSU*, Irpinj, 44–49. http://ir.nusta.edu.ua/jspui/bitstream/doc/2769/1/3005_IR.pdf

Habib, M. A., Bao, Y., Nabi, N., Dulal, M., Asha, A. A., & Islam M. (2021). Impact of strategic orientations on the implementation of green supply chain management practices and sustainable firm performance. *Sustainability*, *13*(1), 340. https://doi.org/10.3390/su13010340

Händelö Eco-Industrial Park – Industrial symbiosis between industry and city. Available at: https://www.ecodesigncircle.eu/resources-for-you/93-haendeloe-eco-industrial-park

Heeres, R. R., Vermeulen, W. J. V., & de Walle, F. B. (2004). Eco-industrial park initiatives in the USA and the Netherlands: first lessons. *Journal of Cleaner Production*, *12*(8–10), 985–995. https://doi.org/10.1016/j.jclepro.2004.02.014

Illiashenko, S. M. (2010). *Marketynh. Menedzhment. Innovatsii: monohrafiia* [Marketing. Management. Innovations: monograph]. Papyrus Printing House.

Khairul Akter, M. M., Haq, U. N., Islam, M. M., & Uddin, M. A. (2022). Textile-apparel manufacturing and material waste management in the circular economy: A conceptual model to achieve sustainable development goal (SDG) 12 for Bangladesh. *Cleaner Environmental Systems*, *4*, 100070. https://doi.org/10.1016/j.cesys.2022.100070

Koval, V., Mikhno, I., Udovychenko, I., Gordiichuk, Y., & Kalina, I. (2021). Sustainable natural resource management to ensure strategic environmental development. *TEM Journal*, *10*(3), 1022–1030.

Kozhushko, L. F., & Skrypchuk, P. M. (2007). *Ekolohichnyj menedzhment* [Environmental management]. Kyiv: Akademiia.

Kristensen, H. S., & Mosgaard, M. A. (2020). A review of micro level indicators for a circular economy – moving away from the three dimensions of sustainability? *Journal of Cleaner Production*, *243*, 118531. https://doi.org/10.1016/j.jclepro.2019.118531

Kvasnii, L. H., Orlova, O. M., 2023. Environmental policy and improvement of the legal system of environmental management. All-ukrainian scientific and practical conference: Modern trends in the development of private legal relations in the conditions of European integration processes.

Lambert, A. J. D., & Boons, F. A. (2002). Eco-industrial parks: stimulating sustainable development. in mixed industrial parks. *Technovation*, *22*(8), 471–484. https://doi.org/10.1016/S0166-4972(01)00040-2

Latysheva, O., Rovenska, V., Smyrnova, I., Nitsenko, V., Balezentis, T., Streimikiene, D. (2020). Management of the sustainable development of machine-building enterprises: A sustainable development space approach. *Journal of Enterprise Information Management*, *34*(1), 328–342. https://doi.org/10.1108/JEIM-12-2019-0419

Laws Ukraine (2022). Pro vnesennia zmin do Podatkovoho kodeksu Ukrainy shchodo stvorennia spryiatlyvykh umov dlia diialnosti industrialnykh parkiv v Ukraini [Law on Amendments to the Tax Code of Ukraine on Creating Favorable Conditions for the Activity of Industrial Parks in Ukraine]. Verkhovna Rada of Ukraine. Available at: https://zakon.rada.gov.ua/laws/show/2330-20

Lowe, E. A. (1997). Creating by-product resource exchanges: strategies for eco-industrial parks. *Journal of Cleaner Production*, *5*(1–2), 57–65.

Ministry of Environmental Protection and Natural Resources of Ukraine. Strategies for the development of industrial parks until 2030. https://mepr.gov.ua/

Moravska, O. V, Levytskyy, T. R., & Schulzhyk, Y. O. (2020). Basis tools of ecologically oriented management. Science and Global Studies: Abstract of scientific papers of III International Scientific Conference. Prague, Czech Republic, October, Section management.

Moravska, O., Levytskyy, T. R., Velychko, V. O., Orlova, O. M., Shulzhyk, Y. A., & Senyshyn, S. (2022). Innovations – the Basis Tools of Development of Agricultural and Ecological Management. *Journal of Environmental Management and Tourism*, *13*(1), 19–28. doi: 10.14505/jemt.v13.1 (57).02

Panchenko, V. G., Chmyr, O. S., Gusev Yu. V., & Pyla, V. I. (2013). *Vitchyzniana praktyka ta svitovyi dosvid SEZ i TPR* [Domestic practice and world experience of FEZ and TPD]. Poster Print.

Polovyan, O. V., & Kazakova, M. G. (2013). Ekopromyslovi parky yak instrument systemy upravlinnia vidkhodamy [Eco-industrial parks as a tool of waste management system]. *Mechanism of Economic Regulation*, (3), 121–130.

Shulzhik, Yu. O., Hrytsko, R. Yu., & Pekanets, S. R. (2022). Upravlinnia zminamy v umovakh tsyfrovizatsii [Change management in digitalization conditions]. *Naukovi pratsi Mizhrehionalnoi Akademii upravlinnia personalom. Ekonomichni nauky* [Scientific works of the Interregional Academy of Personnel Management. Economic sciences], (3), 127–134.

Shvets, V. Y., Rozdobudko, E. V., & Solomina, G. V. (2013). Aggregated methodology of multicriterion economic and ecological examination of the ecologically oriented investment projects. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*, (3), 139–144.

Strategies for the Development of Industrial Parks to In 2030. https://koblivska-gromada.gov.ua/news/1679587635/

Yalçın, N. G., & Foxon, T. J. (2021). A systemic approach to transitions towards circular economy: The case of Brighton and Hove. *Cleaner Environmental Systems*, *3*, 100038. https://doi.org/10.1016/j.cesys.2021.100038

An Analysis of Tourists' Use and Assessment of Tourist Infrastructure in the Ivano-Frankivsk and Transcarpathian Regions of Ukraine

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2407

Olena Pobihun
Ivano-Frankivsk National Technical University of Oil and Gas, 15 Karpatska St., 76018, Ivano-Frankivsk, Ukraine; e-mail: alenapobigun@gmail.com; ORCID: 0000-0001-5387-1510

Liudmyla Arkhypova
Ivano-Frankivsk National Technical University of Oil and Gas, 15 Karpatska St., 76018, Ivano-Frankivsk, Ukraine; e-mail: konsevich@ukr.net; ORCID: 0000-0002-8725-6943

Yaroslava Korobeinykova
Ivano-Frankivsk National Technical University of Oil and Gas, 15 Karpatska St., 76018, Ivano-Frankivsk, Ukraine, e-mail: yaroslava.korob@gmail.com; ORCID: 0000-0002-4882-8611

Sofiia Kachala
Ivano-Frankivsk National Technical University of Oil and Gas, 15 Karpatska St., 76018, Ivano-Frankivsk, Ukraine, e-mail: pernerolik@gmail.com; ORCID: 0000-0003-1084-2968

Victoria Hryniuk
Ivano-Frankivsk National Technical University of Oil and Gas, 15 Karpatska St., 76018, Ivano-Frankivsk, Ukraine, e-mail: victoriagrynuk@gmail.com; ORCID: 0000-0003-4816-8614

Abstract

The main tasks of the study were to analyse and assess the state of infrastructure near tourist facilities based on the results of a survey, as well as identify problems and prospects of infrastructure development. Information was collected regarding the time spent in the settlements of the Ivano-Frankivsk and Transcarpathian regions when visiting tourist facilities, how to get there, which food and accommodation establishments to choose, how much one is willing to spend, additional services, leisure facilities, etc. Most of the tourists rated the recreational infrastructure as "excellent" and "good". The respondents expressed several wishes: the improvement of the infrastructure, the beautification of the territory, information support, increase in the number and quality of public restrooms, and the revitalisation of cultural and entertainment events.

Keywords

tourism, survey, consumers, evaluation, infrastructure objects

Introduction

The infrastructure of tourism ensures the activity and interaction of the subjects of the tourism sphere, regulating material, economic, and informational flows. Thus, the state of the infrastructure and its components determine the level of tourism development. Tourism infrastructure is designed to meet the needs of tourists and is one of the main factors in the rational use of tourism facilities (Mel'nychenko & Shvedun, 2017). In the Law of Ukraine "On Tourism, tourist infrastructure is defined as a set of certain subjects of tourist activity (hotels, tourist complexes, camping sites, motels, boarding houses, food, and transport enterprises, cultural and sports institutions, etc.), which provide reception, service, and transportation of tourists (Zakon Ukrayiny "Pro turyzm", 2015). Therefore, the main components of the tourist infrastructure include accommodation, food, transport, additional services, and communications, all of which participate in the provision of tourist services.

According to the rating of the World Tourism Organisation (Ofitsiynyy sayt Vsesvitn'oyi turysts'koyi orhanizatsiyi 2021), Ukraine ranked 8th in the world in terms of the number of tourist visits in 2008. More than 20 million tourists (25.4 million) visit the country every year. The armed annexation of Crimea in 2014 led to the loss of a third of Ukraine's natural and recreational resources, and thus a part of foreign tourists (Doan & Kiptenko, 2017; Ivanov et al., 2020; Lozynskyy & Kushniruk, 2020; Sass, 2020; Tomczewska-Popowycz & Quirini-Popławski, 2021; Quirini-Popławski et al., 2022). The decrease in the number of tourists (to 4 million) was influenced by COVID-19. In total, 4.2 million foreigners crossed the border in 2021 (Illiashenko et al., 2021; Rutynskyi & Kushniruk, 2020). The COVID-19 pandemic gave an impetus to the development of tourism in Ukraine and the modernisation of the existing tourist infrastructure within the framework of special state-targeted development programmes (Sherstiuk et al., 2021; Hamkalo & Quirini-Popławski, 2018; Hamkalo at al., 2017; Hamkalo, 2015; Kiptenko et al., 2017; Kudła & Quirini-Popławski, 2015; Kushniruk & Kosyk, 2017). In many scientific works, the principles of the formation and peculiarities of the development of tourist infrastructure are disclosed (Bets & Brunets, 2012; Boiko, 2016; Brunets, 2010; Kovtunyk, 2014; Kornev, 2011; Kosharnyi, 2016; Nykytiuk & Asiutina, 2014; Trehubov, 2013; Cooper et al., 2008). The significance of the influence of infrastructure on the development of tourism has been studied (Kutsenko & Reshetniak, 2011; Dapkus & Dapkute, 2015; Seetanah et al., 2011).

Because tourism is a complex field connected with many other industries, one can talk about the necessity of strategic management of the tourism infrastructure development. The majority of scientists substantiated the need to implement a tourism development strategy in Ukraine, taking into account regional aspects (Savitska & Savitska, 2013; Panasiuk, 2007; Butorina, 2016; Kuzyshyn, 2011; Petrova et al., 2018; Horina et al., 2019; Arkhypova et al., 2022; Druzhinina & Zalunina, 2015). Considering the competitiveness of the elements of the tourist infrastructure of Ukraine in comparison with individual EU countries, some papers indicate the obsolescence of certain types of infrastructure and the need for innovative implementations at service facilities (Lendiel, 2019; Koshova, 2021; Jovanović & Ilić, 2016).

Transportation is one of the elements that is considered the most important and necessary for the development of the tourist infrastructure of the state and is determined in the works by the number of highways, railways waterways, and airports (Savchenko, 2013). An extremely important indicator in rural areas is the presence of entrances with hard coverage to rural settlements (Kravchynskyi et al., 2021a; Kravchynskyi et al., 2021b). Only the Ivano-Frankivsk and Transcarpathian regions have 100% number of paved entrances to rural settlements (Derzhavna sluzhba avtomobil'nykh dorih Ukrayiny, 2013).

Tourist infrastructure includes accommodation establishments, hotels, motels, camping sites, boarding houses, etc., which are specially designed for the reception and accommodation of tourists, and provide different levels of service and infrastructural support according to different types of tourism. The activities of organisations that provide tourist accommodation services are inextricably related to public catering – canteens, restaurants of all kinds, cafes, bars, fast food restaurants, etc. The quality of service provided by employees is very important, and the need for certification to improve the level of infrastructure is also very important (Kis et al., 2020). Additional infrastructure includes entertainment facilities, trade and household services, tourist resources, medical care, telecommunications, utility systems, emergency medical care facilities, Internet access, etc. The level of technical equipment of these systems and their sufficiency depends on the uninterrupted operation of tourism industry enterprises (Orlova, 2014). The presence of tourist information centres also plays a big role (Muzychenko-Kozlovska, 2013). The task of the tourist infrastructure is to provide services to the local population and tourists. In this regard, its development contributes to the tourist development of the territory, improves the conditions and quality of life of the population, and increases the attractiveness of the territory for guests and tourists. There is a need to create new jobs for the local population living on its territory (Sokolova, 2010; Matiyiv et al., 2022; Klymchuk et al., 2022).

The development of tourism infrastructure in the tourist regions of Ukraine should become a source of the replenishment of state and local budgets, a means of publicly available full-fledged recreation and health improvement (Butorina, 2016; Orlova, 2014). An analysis of the modern theoretical and methodological justification of the management of the tourist infrastructure of the region and the problems of the development of the tourism infrastructure, including the assessment of the

ecological state, was carried out in many works (Melnychuk et al., 2022; Boshota & Papp, 2017, Kosharnyi, 2016, Pokolodna & Pysareva, 2019). The development of the tourism sphere has now become especially relevant under the conditions of the unfolding of a full-scale war in Ukraine and is being investigated in some scientific and practical works, in particular the analysis of the ecological and economic consequences of the war in Ukraine (Sak et al., 2022). After the end of the war, military-patriotic tourism can develop in Ukraine (Barvinok, 2022).

The analysis of tourism potential in scientific works is based on the calculation of statistical indicators, i.e. quantitative indicators are taken into account. However, the infrastructure of tourism as an element of the economy has a high level of wear and tear and may not meet the requirements of consumers of tourist services, so the opinion of tourists regarding the quality of services is important. It is also possible to highlight the need and importance of systematic studies of the development of tourist infrastructure, especially in the future after the end of the war.

As part of the project "Carpathian Cultural Route", which is implemented by the public organisation "Association of Economic Development of the Ivano-Frankivsk Region (AERIF)" in partnership with the Center for the Development of Small and Medium Businesses of the Maramures County (Romania) and the Ivano-Frankivsk National Technical University of Oil and Gas within the framework of Cross-border cooperation programs of the European Neighbourhood Instrument Hungary-Slovakia-Romania-Ukraine 2014–2020. Selected regions in the Ivano-Frankivsk and Transcarpathian regions, within which the Carpathian Cultural Route will be designed.

The purpose of the study is to analyse tourists' use and assessment of the state of the tourist infrastructure in the Ivano-Frankivsk and Transcarpathian regions.

The subject of the study involves the system of tourist services provided to tourists visiting tourist facilities in the Ivano-Frankivsk and Transcarpathian regions, and the state of use of the infrastructure of the researched region in tourism.

The object of the study involves the objects of the tourist infrastructure of the territories of the historical and cultural objects of the Ivano-Frankivsk and Transcarpathian regions of Ukraine.

The main tasks of the study involve:

– conducting a survey among tourists according to developed questionnaires;
– analysing the results of the survey and determining the level of their satisfaction with the tourist infrastructure based on their evaluation;
– determining the problems and prospects of the development of the studied territories in the context of the formation of the Carpathian cultural path.

The scientific novelty of the research lies in the fact that by analysing the results of sociological research with the help of a questionnaire, trends, problems, and prospects for the growth of tourist flows of historical and cultural heritage in the Ivano-Frankivsk and Zakarpattia regions were revealed for the first time.

Materials and methods

The methodology of studying cultural and historical objects is based on the method of obtaining information by interviewing tourists in the locations of historical and cultural objects (Wu et al., 2017; Yavorska et al., 2018). A questionnaire was used, which included questions of both closed and open type, with the possibility of obtaining wishes from the respondents. A sociological research questionnaire should exclude the subjective factor and the imposition of one's opinion on the respondent as much as possible. That is why an accumulated approach and the creation of a methodology was proposed, which consists of both numerical (statistical) indicators and the results of surveys of tourists' opinions as well as subjective evaluation characteristics. The questionnaires were pre-tested at a meeting of the project's expert group, at the tourism department of our university, which conducted the survey, and then used for interviews.

This approach made it possible to analyse the problem from the point of view of the consumer of tourist services within the cultural heritage places (Nesterchuk et al., 2021; Simkiv et al., 2021). The interpretation of the results of the questionnaire made it possible to select the most attractive tourist objects of the researched region to substantiate their inclusion in the tourist route "Carpathian Cultural Route". The research is the first step in the project implementation

methodology and its results will be used in the formation of new initiatives launched within the project, aimed at creating and promoting the “Carpathian Cultural Route” on the market of tourist services, as well as refining and further filling the “Carpathian Cultural Route” mobile application (https://qr.page/g/2W7zfpClbdU, for Android). The questionnaire is one of the most popular methods of quantitative sociological research (Ievdokymov et al., 2018; Prykhodko et al., 2023). As a result of the development of the digitalisation of society, online survey appeared (Krool et al., 2021).

This method is cheaper than a conventional survey, but the accuracy of the obtained data is lower due to the complexity of the representative sample (Sardak et al., 2020). The authors chose a face-to-face interview. The survey was conducted from October to December 2021. Restrictions imposed by the situation with the COVID-19 pandemic have created difficulties for everyone’s surveys (Zelinska et al., 2021). 2.5% of the population must be surveyed to receive objective information (Arkhypova et al., 2023). Surveys of tourists were conducted on the territory of historical and cultural objects. The total number of cultural and historical monuments from protection status, including local, does not exceed 500, taking into account the data provided by the Department of Culture of the Ivano-Frankivska and Zakarpattia regional state administration. A database was created of 140 objects that were the most visited and located along the transversal border highways Lviv-Rohatyn-Ivano-Frankivsk-Yaremche-Rakhiv-Solotvyno and Lviv-Halych-Ivano-Frankivsk-Kolomyia-Kosiv-Verkhovyna (supervisory management of historical and cultural heritage institutions of various protection statuses and significance in tourist activity). According to the recommendations of the Expert Council of the Carpathian Cultural Route project, a sufficient volume of questionnaires is 100 units. The survey was conducted in November–December 2021. 264 questionnaires were filled out in the Ivano-Frankivsk and Transcarpathian regions of Ukraine.

The distribution of the sample by regions of the survey in Ukraine took place by the number of objects of cultural and historical heritage, as well as the power of the general tourist flow (according to the results of the sociological survey of 2018). 314 people took part in the questionnaire survey. The sample on which the study was conducted included persons representing the adult population (over 18 years old) by gender, age, and education (Table 1).

Table 1. A random survey sample

Gender (%)	men	53.8
	women	46.2
Age (years)	18–29	22.7
	30–39	31.1
	40–49	24.6
	50–59	17
	60–69	1.9
	did not give an answer	2.7
Education (%)	higher	76.1
	secondary	18.2
	not indicated	5.7
Marital status (%)	married	61
	unmarried	28
	other	2.3
	not specified	8.7
Activity (%)	hired workers	37.9
	entrepreneurs	30.9
	housewife	8.6
	students	7.1
	temporarily not working	6.7
	pensioners	4.1
	other	4.8

Source: Research by the authors (Analytical report according to the results of the sociological survey of visitors of cultural and historical objects, 2021).

This number of respondents is 2.5% of the number of tourists (general population) served by travel agents and tour operators in the Ivano-Frankivsk region in 2020 (calculated for two months according to the data of the official statistics website (Holovne upravlinnya statystyky v Ivano-Frankivs'kiy oblasti, 2021). This means that, for the territory of Ivano-Frankivsk region, the sample is representative.

The respondents filled out the questionnaire immediately on the spot, which guaranteed their complete return, and, in addition, the researcher was able to control the process of filling out the questionnaires, helping the respondents by clarifying certain questions. The respondents also assessed the tourist infrastructure of the object's location. These are important characteristics of the object that allow us to assess the possibility of involving objects in tourist routes and the readiness of tourist destinations to accept new tourist groups. The respondents could rate the level of infrastructural provision in points from 1 – the lowest level to 10 – the highest level of infrastructure development.

Results and their analysis

In the process of organising tourist activity within tourist facilities, an important aspect is the possibility of forming a service complex, including accommodation, nutrition, services of entertainment and health establishments, etc. For this purpose, information on the availability and access of tourist services and other tourist entities was evaluated in the course of the study. During the survey, it was found out what services are provided within the tourist facility, and this information was compared with other answers of the respondents. The information will be useful for assessing the possibilities of increasing the monetisation of the objects and for developing recommendations for them to increase their attraction capacity. Mainly, tourists visiting famous cultural and historical sites stay in the settlements of the Ivano-Frankivsk and Transcarpathia regions for several hours, as was indicated by 25% of the respondents. 20.8% of the respondents go on vacation for 1 day, 17.4% – for 3 days, 16.7% – for 2 days, 9.5% – for 4–6 days, and 7.2% – for 7–10 days. Only a small part of the respondents (1.9%) stayed in the settlement for more than 10 days (Fig. 1).

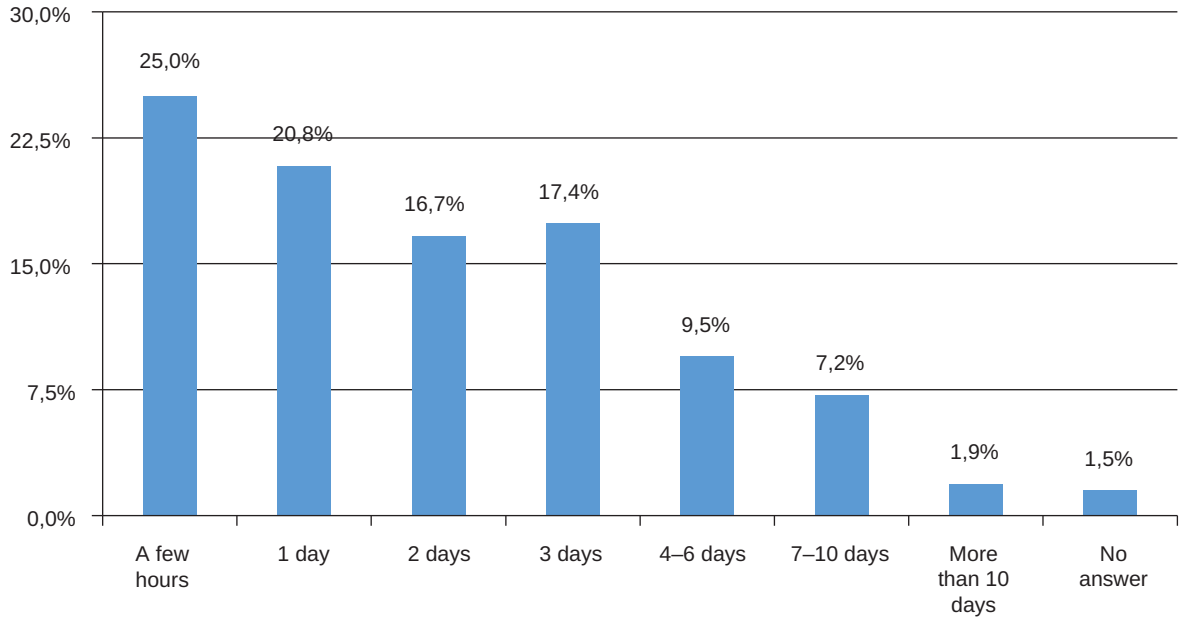


Figure 1. The number of days of stay in the settlement,%

According to the results of the research, 30% of the tourists stay in hotels during the trip, 23.9% – in private estates, 8.3% – with friends, 6.8% – with relatives, 7.2% – in hostels, 2.3% of the respondents stay in sanatoriums, and 1.9% – in pensions (Fig. 2). However, 12.5% of the surveyed tourists do not stay in accommodation facilities, because they visit cultural and historical objects passing through, as well as during one day.

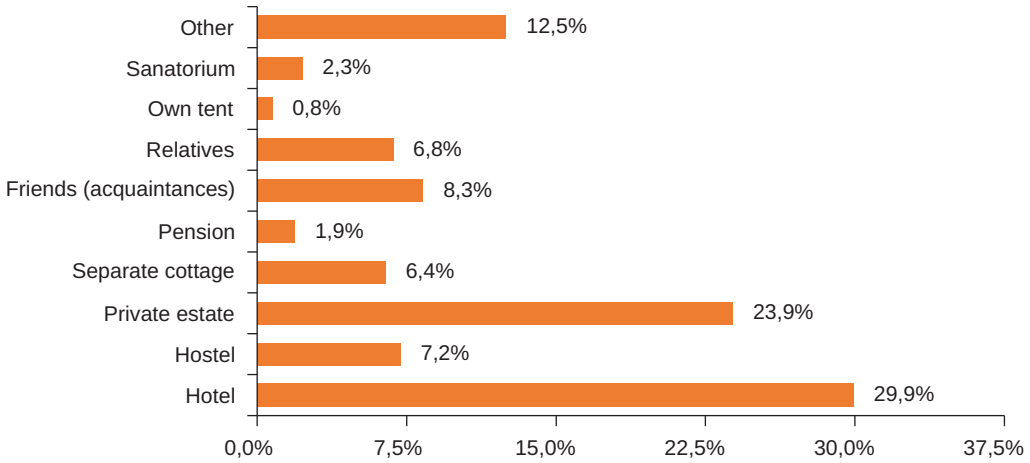


Figure 2. The distribution of the respondents' answers to the question "What type of institution did you stay in?"

Regarding food establishments, the majority of tourists (25.7%) chose a café, 22.2% – a restaurant, 18.6% – independently, 15.1% – preferred home cuisine, 12.9% of the respondents indicated that food is included in the price of accommodation and 5.5% of the interviewees eat in a dining room (Fig.3).

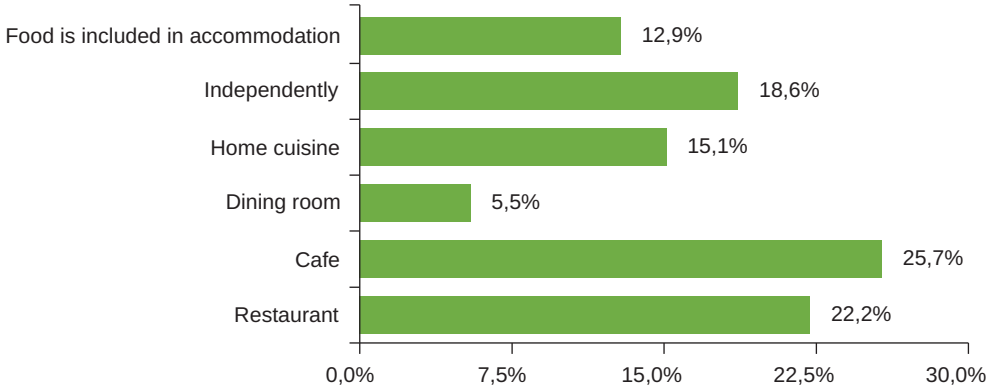


Figure 3. The distribution of the respondents' answers to the question "Where do you usually eat?"

In 2020, the number of restaurants and cafes in Ukraine decreased by almost 4,000 establishments. At the beginning of 2021, 14,700 restaurants, cafes, and bars were operating, compared to the beginning of 2020, when 18,600 establishments were operating in Ukraine. Accordingly, the volume of the restaurant market decreased by almost 30% in 2020. This is the result of several lockdowns, quarantine restrictions on the restaurant business, and the absence of foreign tourists (Zhurnal Forbs v Ukrayini, 2020; Derzhavna sluzhba statystyky v Ukrayini, 2020). Today, the war on the territory of Ukraine also imposes restrictions on the activity of food establishments, although there are no official statistics. However, in the western part of the territory of Ukraine, the tourist infrastructure was not as affected by the consequences of the war as in the southern and eastern parts.

In the course of the survey, the respondents were asked to assess the state of the infrastructure in terms of the availability of food trade establishments and food establishments in the region, where 1 meant that establishments are practically absent and 10 – that establishments are numerous, serving a sufficient number of different consumers and tourists. Five groups of the answers were ranked: the 1st group included objects with an assessment of 9 and 10 points, the 2nd group – those assessed for the presence of trade and food establishments at 8 and 7 points, the 3rd group – 6 and 5 points, the 4th group – 4 and 3 points, and the 5th group – 1 and 2 points.

The respondents gave the following answers, assessing the availability of food trade and food establishments near tourist facilities. More than half of the respondents (64.7%) believe that the territories where their facilities are located are very well and well provided with food trade establishments and food establishments (very well provided – 33.8%, well provided with these establishments

– 30.9%). These are the territories of cities and densely populated rural settlements. 8.1% of the respondents indicated the average level of the provision of food trade establishments and food establishments. 22.8% of the respondents estimate the level of the provision of food trade territories and food establishments as low (8.8%) and very low (14%). 4.4% of the respondents did not assess the level of the provision of the food trade territories and food establishments (Fig. 4).

To get to the location of the cultural and historical object, 41,9% of the respondents choose the following type of transport: their car (Table 12), 19.5% – a bus (flight), 14.4% – a bus (tourist), 13.9% – a train (Fig. 5). A small part of the respondents (3.4%) hitchhike and choose bla-bla-car. A car (rented, taxi) is not popular among the tourists, the share of which is 3%, and a plane – 2.2%. Less than 2% of the respondents use bicycle transport for travel.

The respondents were also asked to rate the location of the object, where 1 – location is outside tourist centres, far from transport highways, and 10 – location is within a large city or near major highways. We ranked the answers into 5 groups: very good location of objects – the 1st group (those objects that were assigned 9 and 10 points), the 2nd group – those that were evaluated in terms of the location at 8 and 7 points, the 3rd group – 6 and 5 points, the 4th group – 4 and 3 points, and the 5th group – 1 and 2 points. The location of the object was rated as very good by 69,1% of the respondents (the 1st group of objects), good location (the 2nd group of objects – 14% of the respondents), an average level of the location (the 3rd group of objects) of their tourist objects was estimated by 7.4% of the respondents. 3.7% of the respondents identified a low level of location of objects (the 4th group), and 5.9% – as very low (the 5th group), these are mainly remote tourist natural objects in the mountainous area (Fig. 6).

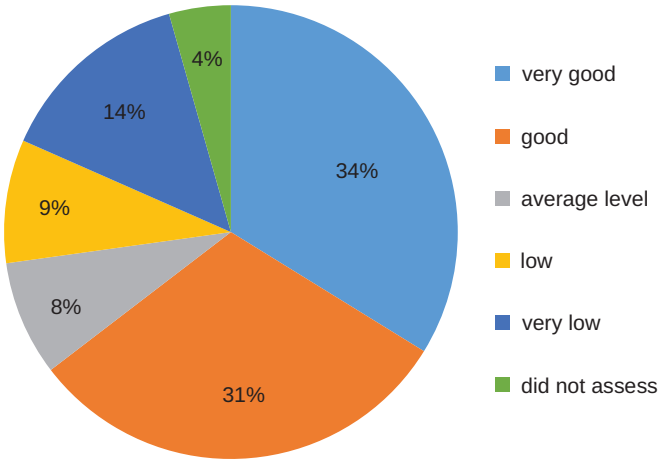


Figure 4. The respondents' assessment of the provision of food trade establishments and food establishments

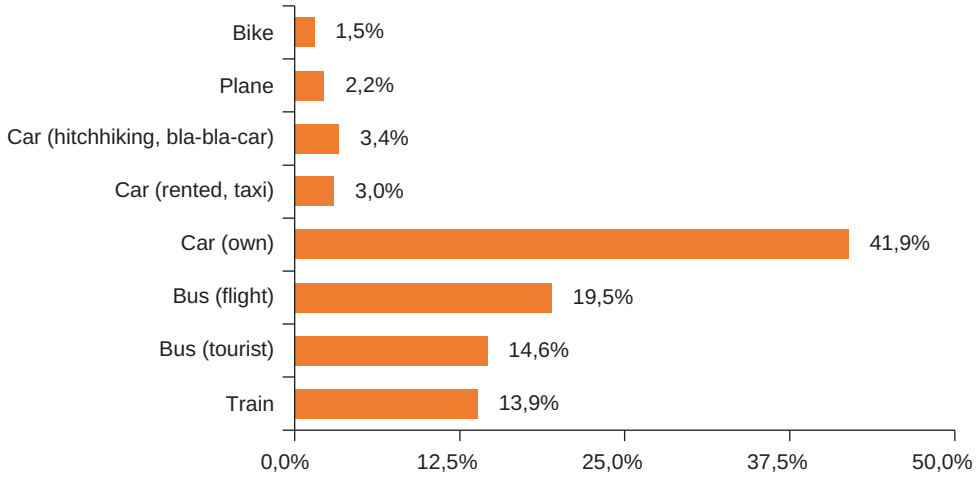


Figure 5. The distribution of the respondents' answers regarding the types of transport they use to get to cultural and historical objects

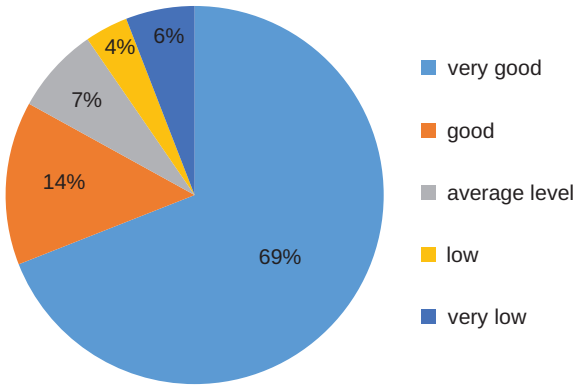


Figure 6. The assessment of the proximity of tourist facilities to tourist centres and transport highways

The evaluation of the transport accessibility of the tourist objects within the questionnaire was carried out on a rating scale from 1 – this is the location of the tourist object at a distance of more than 5km from paved roads and 15–20 km from highways and railways, to 10 – directly near a paved road, at a distance of up to 3km from the main highways and railway stations. We ranked the answers into 5 groups: very good transport accessibility (10 and 9 points), good transport accessibility (7 and 8 points), average level of transport accessibility (6 and 5 points), low level of transport accessibility – 4 and 3 points, and very low level of transport accessibility (with an assessment of 1 or 2 points). The analysed answers to the questions made it possible to state that, in general, the respondents rate the transport accessibility of the objects as very good (77.2%) and good (11.8%). An average level of transport accessibility was indicated by 2.2% of the respondents, low level – 4.4%. 3.7% of the respondents indicated a very low level of transport accessibility, these are remote natural objects in the mountains (e.g. Ternoshora) or historical and cultural objects in remote villages with poor roads (e.g. Ray Manor) (Fig. 7).

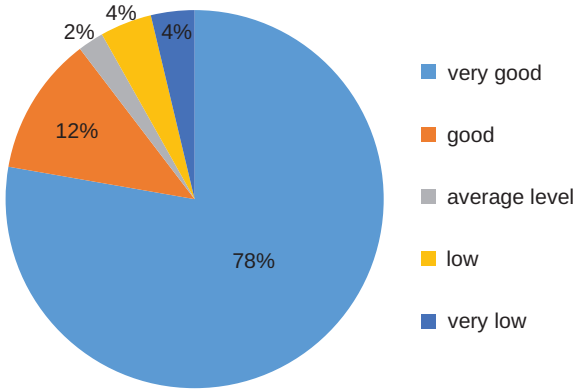


Figure 7. The assessment of the transport accessibility of the tourist object

The total range of expenses of the surveyed tourists – which includes payment for accommodation, food, and transport – is 200–40,000 UAH. 23.5% of the respondents answered that they are willing to spend only 200–1,200 UAH on travel, 15.1% – 1,400–2,400 UAH, 7.6% – 2,500–3,200 UAH, 13.2% – 4,000–8,000 UAH, 15.5% – 8,400–15,000 UAH, 5.7% – 20,000–40,000 UAH, and 19.3% – no answer. Less than 5% of the tourists are willing to spend 2,500–2,800 UAH and 12,000–15,000 UAH for accommodation, food, and transport (Fig. 8).

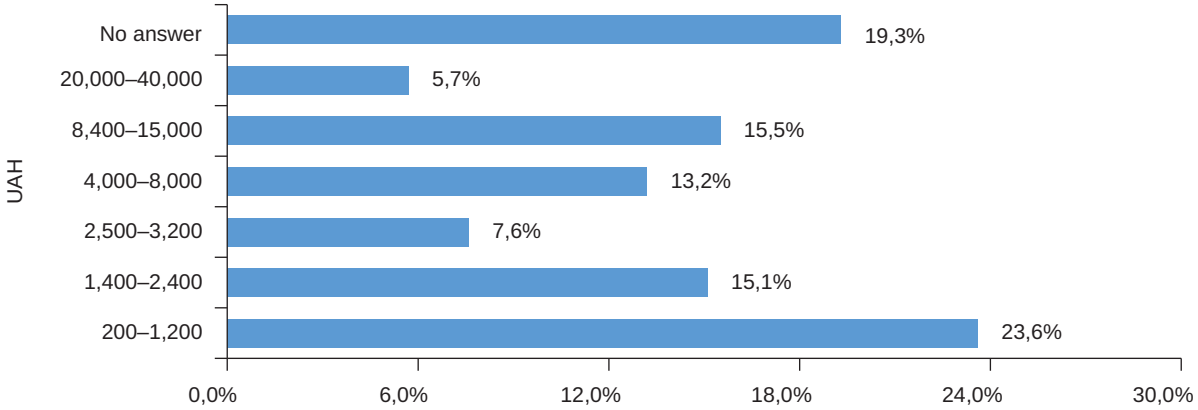


Figure 8. The distribution of the respondents' answers to the question "How much money are you willing to spend on accommodation, food, transport?"

In addition to funds for accommodation, food, and transport, 17.8% of the total number of the surveyed tourists are willing to spend an additional 840 to 1,000 UAH, 12.5% of the respondents – 500–800 UAH, 11% – 4,000–5,000 UAH, 7.2% – 8,400–14,000 UAH, 6.4% – up to 400 UAH, and 19.3% – no answer (Fig. 9). Only a small number of tourists – 0.8% – can afford to spend more than 28,000 UAH. Usually, these are foreigners, who are willing to pay a large sum of money for tourist services.

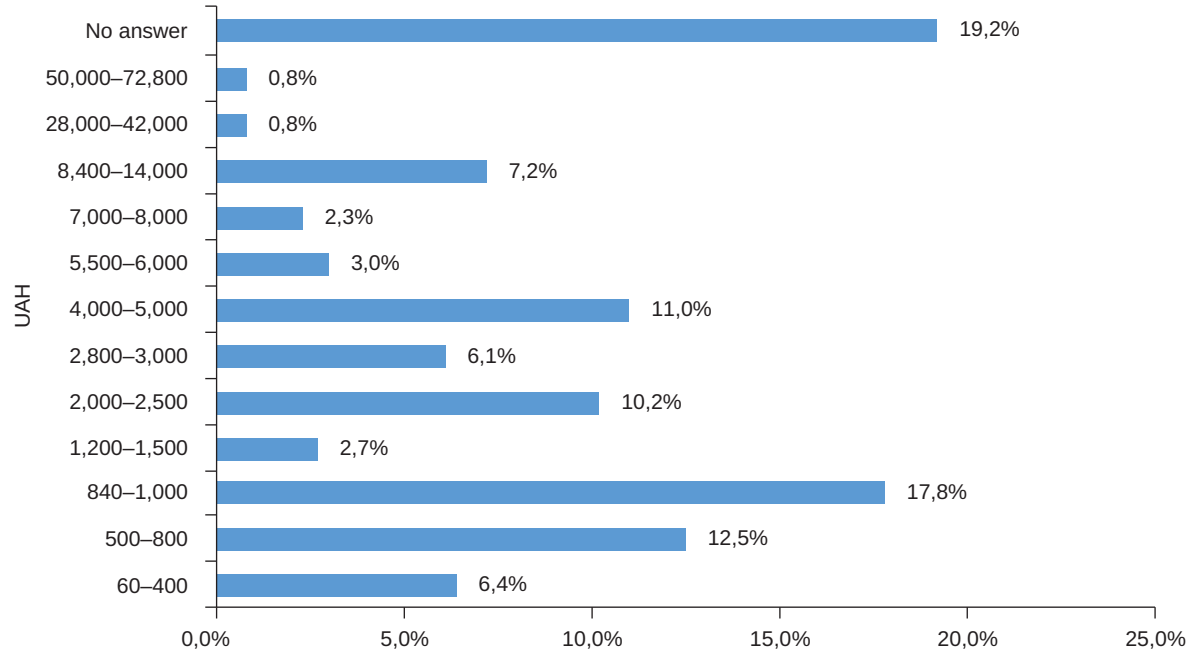


Figure 9. The distribution of the respondents' answers to the question "What amount of money are you willing to spend additionally on vacation in the Carpathian region, in addition to accommodation, food, and transport?"

The presence of trade establishments, including souvenir shops within the tourist destinations, is an integral part of the tourist infrastructure. Trade in souvenirs is a part of the income of enterprises in various tourist sectors. The assessment of trade infrastructure within the survey was carried out on a rating scale from 1 – practically absent to 10 – numerous and serves a sufficient number of different consumers and tourists. We ranked the answers into 5 groups: the 1st group included objects with an assessment of 9 and 10 points, the 2nd group – those evaluated for the presence of trade establishments at 8 and 7 points, the 3rd group – 6 and 5 points, the 4th group – 4 and 3 points, and the 5th group – 1 and 2 points. The respondents gave the following answers, evaluating the presence of trade establishments near tourist objects: 28.9% of the respondents indicated that there is a significant number of trade establishments near the objects, 16.1% of the respondents

believe that the area where their tourist objects are located has a sufficient number of trade establishments, 19.1% of the respondents indicated that the area where their tourist facilities are located is provided with trade establishments at an average level, 10.3% of the respondents believe that the territory does not have a sufficient number of trade establishments in industrial goods, including souvenirs, and 22.8% of the respondents indicated that the territory is extremely insufficiently provided with these facilities. 2.9% of the respondents did not answer the question (Fig. 10).

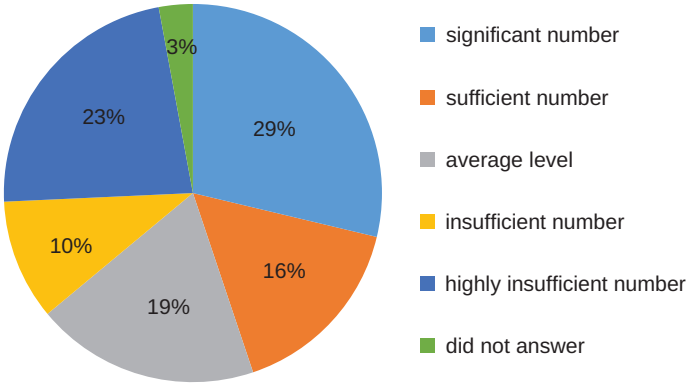


Figure 10. The respondents' assessment of the presence of establishments selling industrial goods, including souvenirs, near tourist facilities

In the course of the survey, the respondents were asked to assess the presence and proximity of health care facilities to tourist facilities, where 1 – is practically absent, 10 – are numerous and serve a sufficient number of different consumers and tourists. In general, 52.9% of the respondents believe that health care facilities are located very close and close enough to tourist attractions (31.6% very close and 21,3% close). 14% of the respondents indicate the average level of proximity of these institutions. The respondents also believe that 17% of establishments are located far from tourist attractions, and 14.7% believe that these establishments are located very far from tourist attractions. 2.1% of the respondents did not answer the question (Fig. 11).

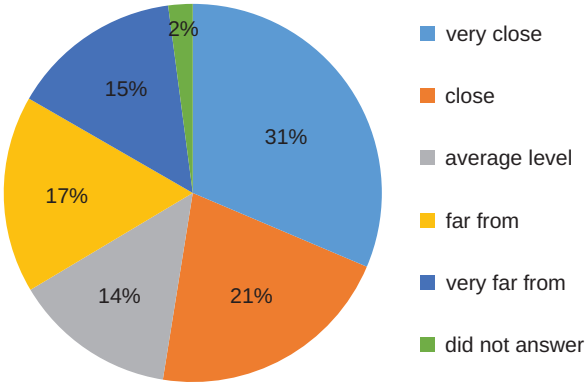


Figure 11. The respondents' assessment of the proximity of health care facilities

Analysing these results, it can be stated that the respondents may have their own negative experience of service in health care institutions. Since the sphere of health care in Ukraine is in a state of reformation, we can assume that this circumstance affects the assessment by the residents of Ukraine. The quality of communication is an important component of quality tourist infrastructure. During the survey, the respondents were offered to evaluate the quality of mobile communication; the survey was conducted on a rating scale from 1 to 10 points, where 1 – is no mobile communication, and 10 – mobile communication is of high quality. The majority of the respondents (82.3%) believe that the quality of mobile communication is very good (excellent), and 8.1% of the respondents believe that it is good. Less than 10% of the respondents believe that the quality of mobile communication is insufficient: average (2.2%), low (3.7%), and very low (0.8%). This assessment

of the quality of communication was given by those respondents whose facilities are located in remote mountainous areas. 2.9% of the respondents were undecided about the question (Fig. 12).

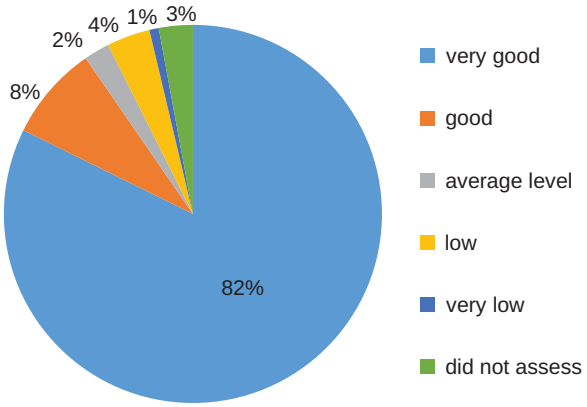


Figure 12. The respondents' assessment of the level of mobile communication

The ecological situation in the territories of tourist destinations is considered a resource component of the development of tourist activities. According to the UNWTO (Ofitsiynyy sayt Vsesvitn'oyi turysts'koyi orhanizatsiyi, 2021), more than 80% of tourists prefer to rest in ecologically-clean tourist destinations. Therefore, during the survey, the respondents were asked to assess the ecological situation in the territory of the location of tourist facilities. The ecological state of the territory was assessed on a point scale, where 1 – is a very poor ecological state, and 10 – is an excellent ecological state of the territory. In general, the respondents assessed the ecological state of the territory as very good and good (87.6%): 67% assessed the ecological condition as very good, 20.6% – as good. 5.9% of the respondents assessed the ecological condition of the territory at an average level, 3.7% as a poor state, and 0.8% as a very poor condition. 2% of the respondents were undecided about the question (Fig.13).

In the process of the research, some subjectivity and inconsistency of such assessment was revealed: the respondents from the Ivano-Frankivsk National Drama Theatre (named after Ivan Franko) rated the environmental state of the territory as 10 (excellent), while the respondents from "The Museum of Family Professions", located nearby (across the road), rated at 6 out of 10 (average level).

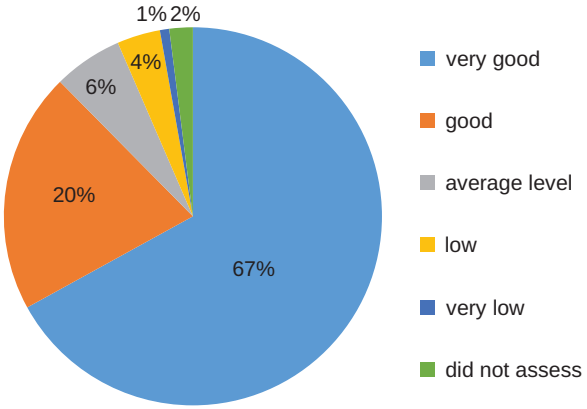


Figure 13. The respondents' assessment of the ecological state of the tourist destination

A poor and very poor environmental state of the territories was assessed by those respondents whose facilities are located near large industrial enterprises (Burshtynska TPP), the environmental problems of which are periodically reported in the press, i.e. it can be assumed that such an assessment by the respondents was made based on established public opinion about the problem as well as their knowledge from the media and other sources. The organisation of life support systems in tourist facilities affects the quality of service in them. Therefore, the respondents were offered to give an assessment of water supply and drainage systems in the area of the location of the tourist facility, as well as the waste management system. The survey was conducted on a rating

scale from 1 to 10 points, where 1 is a very bad state and 10 is and excellent state, where modern methods and approaches are used (separate waste sorting, central water supply and drainage, water saving means, etc.). 71.4% of the respondents rated the condition as very good and good (29,4% – excellent condition of water supply and drainage systems, waste management systems, 42% – good condition). 8.8% of the respondents assessed the state of the systems in the territory of tourist facilities as average, 8.8% – as poor, 8.8% – as very poor (Fig.14). The state of water supply and drainage systems as well as waste management systems were negatively assessed by those respondents whose objects are located very far away in the mountains (e.g. Ternoshora). They also assessed negatively objects whose arrangement has just started or is planned to be started in the future (e.g. the Pniv Castle, Ray Manor).

The tourists encountered several problems while visiting the cultural and historical sites of the Carpathian region. The majority of the respondents (15%) indicated that a significant disadvantage is the poor road conditions, which complicates the movement of vehicles. A significant part of the surveyed tourists (13.8%) indicated the limited range of services at the site, 11.7% – the absence of cultural and entertainment establishments. Among the services the lack of which causes the greatest discomfort, the surveyed tourists noted the following: limited access to the Internet (9.5%), the lack of food establishments (8.5%), insufficiently developed transport connections (10.9%), littered territory (6.3%), and unavailable mobile communication (5.1%). Regarding the improvement of recreation in the Ivano-Frankivsk and Zakarpattia regions, according to the tourists who answered the question, attention should be paid to: the improvement of infrastructure (22.2%), the improvement of the territory (18.5%), information provision (7.4%), public restrooms (3.7%), and cultural and entertainment events (3.7%).

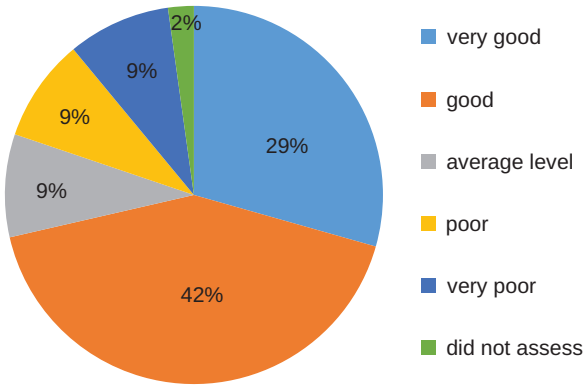


Figure 14. The assessment of the provision of the tourist destination with water supply, drainage, and waste management systems

Conclusions

A sociological survey within the framework of the “Carpathian Cultural Route” project was conducted to evaluate the cultural heritage sites of the Ukrainian Carpathian region from the point of view of attractiveness, popularity, etc. in order to attract them to the international tourist route. The assessment of the tourist infrastructure near the objects during the survey was carried out in order to plan the cross-border tourist product “Carpathian Cultural Route”.

An open survey was conducted to find out the problems and expectations of the respondents within the framework of the project and possible assistance in the implementation of their tourism activities. The interpretation of the results of the questionnaire will allow the selection of the most attractive tourist objects of the study region to substantiate their inclusion in the tourist route “Carpathian Cultural Route”.

As a result of the research, the following was found. Mainly, tourists visiting tourist places stay in the settlements of the Ivano-Frankivsk and Zakarpattia regions for several hours and go on vacation for one day. Most tourists stay in hotels and private estates during their travels. As for food establishments, most tourists choose cafes and restaurants, and eat on their own. Evaluating the

availability of food trade establishments and food establishments near the objects, more than half of the respondents believe that the area where their objects are located is very well and well supplied with food trade establishments and food establishments. To get to the location of the tourist object, the majority of the respondents choose their car and bus. A significant part of the respondents rated the proximity of the location of tourist facilities to tourist centres and transport highways as very good. The respondents rate the transport accessibility of tourist facilities as very good, too. The total range of expenses of the surveyed tourists – which includes payment for accommodation, food, and transport – is 200–40,000 UAH. Additionally, except for accommodation, food, and transport, the respondents are willing to spend from 840 to 1,000 UAH on vacation in the Carpathian region. Usually, foreigners are willing to pay a large sum of money for tourist services.

Evaluating the presence of trade establishments, the majority of the respondents indicated that there is a significant or sufficient number of trade establishments near the objects. Also, a large number of the respondents believe that health care facilities are located very close and close enough to tourist attractions. The quality of communication is an important component of quality tourist infrastructure. The overwhelming number of the respondents believe that the quality of mobile communication is very good (excellent). In general, the respondents assessed the ecological condition of the territory as very good and good (87.6%). Regarding the assessment of the provision of the tourist destination with water supply, drainage, and waste management systems, the majority of the respondents rated the condition as very good and good, too.

Consequently, after conducting the research, it can be concluded that within the limits of tourist destinations, there is a sufficient supply and quality of infrastructure to create a full-fledged tourist product. Several wishes were expressed by the respondents: the improvement of the infrastructure, the improvement of the territory, information provision, increasing the number and quality of public restrooms, and the revitalisation of cultural and entertainment events (Kachala et al., 2023).

The research is the first step of the project implementation methodology and its results will be used in the formation of new initiatives launched within the project, aimed at creating and promoting the “Carpathian Cultural Route” on the market of tourist services. The implementation of the project, in the framework of which a sociological survey was conducted, will give an impetus to the development of tourism in the studied region in the post-war period.

Reference List

Arkhypova, L., Vinnychenko, I., Kinash, I., Horoshkova, L., & Khlobystov, I. (2022). Theoretical substantiation of modeling of recreational systems. *Ecological Engineering & Environmental Technology*, *23*(5), 99–108. https://doi.org/10.12912/27197050/151758

Arkhypova L.M., Korobeinykova Y.S., Hryniuk V.I., Kachala S.V., & Pobigun O.V. (2023). Problems of the development of cultural tourism in the Carpathian region: The vision of consumers and service providers. *IOP Conference Series: Earth and Environmental Science*, 1254(1), art. no. 012080. doi: 10.1088/1755-1315/1254/1/012080

Barvinok, N. V. (2022). Perspektyvy rozvytku voyennoho turyzmu na terytoriyi Ukrayiny pislya zakinchennya rosiys’ko-ukrayins’koyi viyny [Prospects for the development of military tourism on the territory of ukraine after the end of the russian-ukrainian war]. *The Actual Problems of Regional Economy Development,* (2), 206–217. https://doi.org/10.15330/apred.2.18.206-217

Bets, M. T., & Brunets, B. R. (2012). Pryntsypy formuvannya turystychnoyi infrastruktury [Principles of formation of tourist infrastructure]. *Heohrafiya ta turyzm*, (21), 8–16.

Bil’o, I., & Tkachuk, Yu. (2022). Ekoloho-ekonomichni naslidky rosiys’ko-ukrayins’koyi viyny [Ecological and economic consequences of the russian-ukrainian war]. (2022). *Ekonomika ta suspil’stvo*, (38). https://doi.org/10.32782/2524-0072/2022-38-6

Boiko, O. V. (2016). Kompleksnyy zbalansovanyy rozvytok turysts’koyi infrastruktury [Complex balanced development of tourist infrastructure]. *Ekonomichnyy prostir*, (109), 72–84.

Boshota, N. V., & Papp, V. V. (2017). Turystychna infrastruktura ta yiyi rol’ u rozvytku turyzmu v rehioni [Tourist infrastructure and its role in the development of tourism in the region]. *Naukovyy Visnyk Uzhhorods’koho Universytetu. Seriya “Ekonomika”*, 2(50), 117–122. https://doi.org/10.24144/2409-6857.2017.2(50)

Brunets, B. R. (2010). Strukturna pobudova turystychnoyi infrastruktury [Structural construction of tourist infrastructure]. *Heohrafiya ta turyzm*, (9), 54-58.

Butorina, V. B. (2016). Vzayemovplyv pidpryyemstv turystychnoyi infrastruktury i natsional'noho turyzmu v Ukrayini [Mutual Influence of Enterprises of Tourist Infrastructure and National Tourism in Ukraine]. Hlobal'ni ta natsional'ni problemy ekonomiky, (12), 211-214.

Cooper, C. (2008). *Tourism: Principles and practice*. Pearson Eeducation.

Dapkus, R., & Dapkutė, K. (2015). Evaluation of the regional tourism attractiveness. *Ukravtodor*. http://www.ukravtodor.gov.ua

Derzhavna sluzhba statystyky v Ukrayini [State Service of Statistics in Ukraine]. https://www.ukrstat.gov.ua/

Doan, P., & Kiptenko, V. (2017). The geopolitical trial of tourism in modern Ukraine. In D. Hall (Ed.), *Tourism and Geopolitics: Issues and Concepts from Central and Eastern Europe* (pp. 71–86). CABI.

Druzhynina, V. V., & Zalunina, O. M. (2015). Otsinka stanu turystychnoyi infrastruktury z urakhuvannyam osoblyvostey rozvytku rehionu [Evaluation of tourism infrastructure taking into account features of regional development]. *Naukovyy visnyk Khersons'koho derzhavnoho universytetu. Ser.: Ekonomichni nauky*, 10(2), 37–41.

Hamkalo, M. (2015). Active tourism development in Western Ukraine. *Geografické informácie*, *19*(1), 31–39.

Hamkalo, M., Romaniv, P., & Rozhak, V. (2017). Active tourism development in the Carpathian region. *Archives of Tourism, Hospitality and Sport Science*, *1*, 41–54.

Hamkalo M. Z., Kiurini-Poplavski L. (2018). Rozvytok hirskolyzhnoho turyzmu v Lvivskii oblasti [Development of ski tourism in the Lviv region]. *Geography and Tourism*, *43*, 83–93.

Holovne upravlinnya statystyky v Ivano-Frankivs'kiy oblasti [Main Department of Statistics in Ivano-Frankivsk region]. https://ifstat.gov.ua/

Horina, H., Cherneha, O., & Bohatyr'ova, H. (2019). Infrastruktura rehional'nykh rynkiv turystychnykh posluh [Infrastructure of regional markets of tourist services].

Ievdokymov, V., Oliinyk, O., Ksendzuk, V., & Sergiienko, L. (2018). Circular economy as an alternative environment oriented economic concept for Ukraine. *Ekonomista*, (3), 347–362.

Illiashenko, S., Illiashenko, N., Shypulina, Y., Golysheva, I., Tomczewska-Popowycz, N., Rutkowska, M., & Klisinski, J. (2021). The impact of COVID-19 on the development of the segment of the international tourism market in Ukraine focused on Arab tourists. *SHS Web of Conferences*, *126*, 07001.

Ivanov, S., Gavrilina, M., Webster, C., & Ralko, V. (2020). Impacts of political instability on the tourism industry in Ukraine. In M. Santana-Gallego, S. Li (Eds.), *Instability and Tourism* (pp. 100–127). Routledge.

Jovanović, S., & Ilić, I. (2016). Infrastructure as important determinant of tourism development in the countries of Southeast Europe. *Ecoforum Journal*, *5*(1).

Kachala, S., Arkhypova, L., Hryniuk, V., Korobeynikova, Y., & Pobigun, O. (2023). Consultative and methodical support of recreational resource use in the Carpathian region. *17th International Conference Monitoring of Geological Processes and Ecological Condition of the Environment*. https://doi.org/10.3997/2214-4609.2023520116

Kiptenko, V., Lyubitseva, O., Malska, M., Rutynskiy, M., Zan'ko, Y., & Zinko, J. (2017). Geography of tourism of Ukraine. In K. Widawski, J. Wyrzykowski (Eds.), *The Geography of Tourism of Central and Eastern European Countries* (pp. 509–551). Springer. https://doi.org/10.1007/978-3-319-42205-3_13

Kis, S., Mosora, L., Mosora, Y., Yatsiuk, O., Malynovska, G., & Pobihun, S. (2020). Personnel certification as a necessary condition for enterprise' staff development. *Management Systems in Production Engineering*, *28*(2), 121–126. https://doi.org/10.2478/mspe-2020-0018

Klymchuk, I., Arkhypova, L., Korchemlyuk, M., & Matiyiv, K. (2022). Mountain tourist destination – the quality of groundwater sources. *Ecological Engineering & Environmental Technology*, *23*(3), 208–214. https://doi.org/10.12912/27197050/147764

Kornev, D. A. (2011). Osoblyvosti rozvytku turystychnoyi infrastruktury v Ukrayini [Features of tourism infrastructure development in Ukraine]. *Visnyk DITB*, (15), 174–180.

Kosharnyy, V. O. (2016). Zahal'na kharakterystyka ponyattya "turystychna infrastruktura [General description of the concept of "tourist infrastructure"]. *Molodyy vchenyy*, (4), 96–99.

Koshova, B. (2021). Assessment of elements of tourist infrastructure of Ukraine in comparison with some EU countries. *Herald of Khmelnytskyi National University*, *298*(5/1), 52–56. https://doi.org/10.31891/2307-5740-2021-298-5(1)-9

Kovtunyk, I. I. (2014). Turystychna infrastruktura ta yiyi skladovi elementy [Tourist infrastructure and its con- stituent elements]. *Visnyk Kam'yanets'-Podil's'koho natsional'noho universytetu imeni Ivana Ohiyenka. Ekonomichni nauky*, (9), 380–382.

Kravchynskyi, R. L., Khilchevskyi, V. K., Korchemluk, M. V., Arkhipova, L. M., & Plichko, L. V. (2021a). Criteria for identification of landslides in the Upper Prut River basin on satellite images. *Geoinformatics*. https://doi.org/10.3997/2214-4609.20215521003

Kravchynskyi, R. L., Korchemlyuk, M. V., Khilchevskyi, V. K., Arkhypova, L. M., Mykhailiuk, J. D., & Mykhailiuk, I. R. (2021b). Spatial-factorial analysis of background status of the Danube River basin state on the northeastern slops of the Ukrainian carpathians. *Journal of Physics: Conference Series*, *1781*(1), 012011. https://doi.org/10.1088/1742-6596/1781/1/012011

Krool, V. P., Vdovichen, A. A., Hyshchuk, R. M., & Dobynda, I. P. (2021). Sacral heritage of the Carpathian region and management of its resource component in tourism activity. *Journal of Geology, Geography and Geoecology*, *30*(1), 65–77. https://doi.org/10.15421/112107

Kudla, N., & Quirini-Popławski, Ł. Zrównoważony rozwój turystyki na obszarach chronionych Karpat Ukraińskich [Sustainable tourism development in protected areas of the Ukrainian Carpathians]. In K. Szpara, B. Zawilińska, A. Wilkońska (Eds.), *Lokalny potencjał a zrównoważony rozwój turystyki w Karpatach* (pp. 52–69). Centrum UNEP/GRID-Warszawa.

Kushniruk H., & Kosyk A., (2017). Trends in the formation of Ukraine's tourist flows in the international tourist market. *Bulletin of the Lviv Institute of Economics and Tourism*, (12), 62–67.

Kutsenko, V., & Reshetnyak, A. (2011). Pryrodno-infrastrukturnyy potentsial turystychnoho biznesu ta shlyakhy yoho efektyvnoho vykorystannya [Natural and infrastructural potential tourist business and measures for its effective use]. *Ekonomika pryrodokorystuvannya i okhorony dovkillya*, (2011), 55–61.

Kuzyshyn, A. V. (2011). Suchasnyy stan sformovanosti turystychnoyi infrastruktury v Zakhidnoukrayins'kykh oblastyakh [The current state of formation of tourist infrastructure in the Western regions]. *Naukovi zapysky Ternopil's'koho natsional'noho pedahohichnoho universytetu imeni Volodymyra Hnatyuka. Seriya: Heohrafiya*, (2), 122–128.

Lendiel, O. (2019). Rol' innovatsiynoyi infrastruktury u funktsionuvanni rynku turystychnykh posluh rehionu [The role of innovation infrastructure in the functioning of the market of tourist services in the region]. *Proceedings of the Problemy formuvannya ta rozvytku innovatsiynoyi infrastruktury* (pp. 140–141). Vydavnytstvo L'vivs'koyi politekhniky.

Lozynskyy, R. M., & Kushniruk, H. V. (2020). Dynamics and geographical structure of inbound tourism in political transit countries: Case of Ukraine. *Journal of Geology, Geography and Geoecology*, *29*(2), 335–350.

Matiyiv, K., Klymchuk, I., Arkhypova, L., & Korchemlyuk, M. (2022). Surface water quality of the prut river basin in a tourist destination. *Ecological Engineering & Environmental Technology*, *23*(4), 107–114.

Mel'nychenko, O. A., & Shvedun, V. O. (2017). *Osoblyvosti rozvytku industriyi turyzmu v Ukrayini* [The features of the tourism industry development in Ukraine]. Natsional'nyj universytet tsyvilnoho zakhystu Ukrayini.

Melnychuk, I. V., Bui, Y. V., Pobihun, S. A., Hobyr, I. B., & Savko, O. Ya. (2022). Improved CRA-method in phenomenological approach (on the example of innovative SME and GHG emissions). *Heliyon*, *8*(12). https://doi.org/10.1016/j.heliyon.2022.e12420

Muzychenko-Kozlovska, O. V. (2013). Turystychno-informatsiynyy tsentr yak element innovatsiynoyi infrastruktury turyzmu [Tourist information center as an element of innovative tourism infrastructure]. *Visnyk Natsional'noho universytetu L'vivs'ka politekhnika. Problemy ekonomiky ta upravlinnya*, (754), 47–52.

Nesterchuk, I., Osipchuk, A., Bondarenko, E., Trusij, O., Ivanenko, V., & Chyzhevska, L. (2021). Reloading of gastronomy tours in the conditions of using the right-bank polissia gastronomy potential. *GeoJournal of Tourism and Geosites*, *34*(1), 170–176. https://doi.org/10.30892/gtg.34122-633

Nykytyuk, T. L., & Asyutina, S. V. (2014). Infrastrukturne zabezpechennya turystychnoho rynku [Infrastructural provision of the tourist market]. *Ekonomichni nauky. Seriya: Ekonomichna teoriya ta ekonomichna istoriya*, (11), 113–122.

Orlova, M. L. (2014). Funktsional'ni skladovi infrastruktury turyzmu Ukrayiny [Functional components of the tourism infrastructure of Ukraine]. *Heopolytyka y ekoheodynamyka rehyonov*, 10(2), 685–692.

Panasiuk, A. (2007). Tourism infrastructure as a determinant of regional development. *Ekonomika ir vadyba: aktualijos ir perspektyvos*, *1*(8), 212–215.

Petrova, M., Dekhtyar, N., Klok, O., & Loseva, O. (2018). Regional tourism infrastructure development in the state strategies. *Problems and Perspectives in Management*, *16*(4), 259–274.

Pokolodna, M., & Pysareva, I., (2019). Rozvytok turysts'koyi infrastruktury: rehioahl'nyy aspekt [Development of tourist infrastructure: regional aspect]. *Market Infrastructure. Electronic Professional Scientific and Practical Journal*, *28*, 209–218.

Prykhodko, M., Arkhypova, L., Fomenko, N., Syrovets, S., Varianichko, V., & Osypov, D. (2023). Economic value of ecosystem services in the landscapes of Ukraine. *17th International Conference Monitoring of Geological Processes and Ecological Condition of the Environment*. https://doi.org/10.3997/2214-4609.2023520221

Quirini-Popławski, Ł., Tomczewska-Popowycz, N., Dorocki, S., Kushniruk, H., & Rutynskyi, M. (2022). Three Decades of Tourism Development in Independent Ukraine: From the Collapse of the USSR to the Conflict in the Donbas. In H. Janta, K. Andriotis, D. Stylidis (Eds.), *Tourism Planning and Development in Eastern Europe* (pp. 117–132). CABI.

Restorannyy rynok skorotyvsya na 6 mlrd hrn u 2020 rotsi. Zakrylysya mayzhe 4000 zakladiv [The restaurant market shrank by UAH 6 billion in 2020. Almost 4,000 establishments were closed]. *Forbes.ua*. https://forbes.ua/news/karantinniy-rik-dlya-ukrainskikh-restoraniv-ta-kafe-v-2020-mu-ikh-kilkist-zmenshilas-mayzhe-na-4-000-zakladiv-30032021-1255

Rutynskyi, M., & Kushniruk, H. (2020). The impact of quarantine due to COVID-19 pandemic on the tourism industry in Lviv (Ukraine). *Problems and Perspectives in Management*, *18*(2), 194–205.

Sardak, S. E., Krupskyi, O. P., Dzhyndzhoian, V., Sardak, M., & Naboka, Y. (2020). Development of historical and cultural tourist destinations. *Journal of Geology, Geography and Geoecology*, *29*(2), 406–414. https://doi.org/10.15421/112036

Sass, E. (2020). The impact of eastern Ukrainian armed conflict on tourism in Ukraine. *GeoJournal of Tourism and Geosites*, *30*(2, suppl.), 880–888.

Savchenko, V. F., & Stoyka, S. O. (2013). Rol' derzhavy u rozvytku turystychnoyi industriyi Ukrayiny [The role of the state in the development of the tourist industry of Ukraine]. *Naukovyy visnyk Chernihivs'koho derzhavnoho instytutu ekonomiky i upravlinnya. Seriya 1: Ekonomika*, (1), 9–15.

Savitska, O. P., & Savitska, N. V. (2013). Stratehiya rozvytku turystychnoyi industriyi v Ukrayini: rehional'ni aspekty [Strategy for the development of the tourism industry in Ukraine: regional aspects]. *Visnyk Natsional'noho universytetu L'vivs'ka politekhnika. Problemy ekonomiky ta upravlinnya*, (754), 68–74.

Seetanah, B., Juwaheer, T., Lamport, M., Rojid, S., Sannassee, R., & Subadar, A. (2011). Does infrastructure matter in tourism development? *University of Mauritius Research Journal*, *17*(1), 89–108. https://doi.org/10.4314/umrj.v17i1.70731

Sherstyuk, R., Vladymyr, O., Dudkin, P., & Dudkina, O. (2021). Vplyv pandemiyi COVID-19 na rozvytok turyzmu v Ukrayini: problemy ta shlyakhy yikh vyrishennya [Influence of COVID-19 pandemic on tourism in Ukraine: problems and solutions]. *Elektronne naukove fakhove vydannya. Sotsial'no-ekonomichni problemy i derzhava*, (2/25), 641–652.

Simkiv, L., Shults, S., Lutskiv, O., & Andrusiv, U. (2021). Analysis of the dynamics of structural processes in the context of ensuring sustainable development. *European Journal of Sustainable Development*, *10*(1), 153. https://doi.org/10.14207/ejsd.2021.v10n1p153

Sokolova, K. O. (2010). Upravlinnya turystychnym potentsialom pidpryyemstv [Management of the tourist potential of enterprises]. *Visnyk Khmel'nyts'koho natsional'noho universytetu*, (3), 208–210.

Tomczewska-Popowycz, N., & Quirini-Popławski, Ł. (2021). Political instability equals the collapse of tourism in Ukraine? *Sustainability*, *13*(8), 4126. https://doi.org/10.3390/su13084126

Trehubov, O. S. (2013). Formuvannya infrastruktury turyzmu yak umova vdoskonalennya diyal'nosti pidpryyemstv turystychnoyi sfery [The formation of tourism infrastructure as a condition for improving the activities of enterprises in the tourism sector]. *Suchasni problemy ekonomiky i pidpryyemnytstvo*, (11), 194–199.

Wu, D. C., Song, H., & Shen, S. (2017). New developments in tourism and hotel demand modeling and forecasting. *International Journal of Contemporary Hospitality Management*, *29*(1), 507–529. https://doi.org/10.1108/ijchm-05-2015-0249

Yavorska, V., Hevko, I., Sych, V., & Kolomiyets, K. (2018). Organization of tourist and recreational activity within the objects of the Natural Protected Fund in the Odessa Region. *Journal of Geology, Geography and Geoecology*, *27*(2), 377–385. https://doi.org/10.15421/111862

Zakon Ukrayiny "Proturyzm" [Law of Ukraine "On Tourism"]. http://parusconsultant.com/?doc=09FXQ248A2

Zelinska, H., Andrusiv, U., Daliak, N., Dovgal, O., & Lagodiienko, V. (2021). Sustainable development: Trends in Ukraine and the world. *Journal of Environmental Management and Tourism*, *12*(5), 1179–1187. https://doi.org/10.14505//jemt.v12.5(53).03

Museums and Open-Air Museums in the Implementation of Cultural and Ethnic Tourism in Ukraine

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2408

Inna Mylko
Lesya Ukrainka Volyn National University, Department of Management and Administration, Vynnychenko 28 St., 43025, Lutsk, Ukraine; e-mail: mylko.inna@vnu.edu.ua; ORCID: 0000-0002-5962-0082

Olena Nahornova
Kozteks Ltd, 25 Cathedral St., 43000, Lutsk, Ukraine; e-mail: lennok@ ukr.net; ORCID: 0000-0003-3930-6587

Serhii Ozhema
Open International University of Human Development "Ukraine", Lutsk Institute of Human Development, Department of Information Activity and Tourism, 5 Georgiya Gongadze St., 43000, Lutsk, Ukraine; e-mail: ozhema@ukr.net; ORCID: 0000-0001-7304-378X

Abstract

The article will consider various approaches to defining the essence of cultural and ethnic tourism, and analyse the important aspects of the proposed approaches. The importance of preserving cultural heritage at the level of international organisations is emphasised. The policy of the European Union regarding cultural and ethnic tourism is characterised. The distribution of museums by profile and regions in Ukraine in 2021 is presented. The losses suffered by museums during the military invasion of Russia into Ukraine were assessed. The SWOT analysis was performed to determine the directions of the development of cultural and ethnic tourism of Ukraine in the post-war period. Strategic directions for the development of cultural and ethnic tourism in Ukraine are proposed. Models of state regulation of the sphere of cultural and ethnic tourism are analysed. A set of tools is proposed that will ensure the effectiveness of the functioning of cultural and ethnic tourism. Open-air museums are characterised as a way of preserving tangible and intangible heritage. The distribution of open-air museums by regions of Ukraine has been made. It is proposed that tasks be solved for the full use of open-air museums in the field of cultural and ethnic tourism in Ukraine, taking into account the task of protecting cultural heritage objects from destruction during martial law.

Keywords

cultural tourism, ethnic tourism, ethno-cultural tourism, open-air museum, strategic directions

Introduction and literature review

It can be argued that cultural tourism is a combination and establishment of friendly relations between countries – the establishment of open relations with the external environment, combined with the achievement of important social goals (creating jobs, reducing poverty, strengthening international and cultural ties and educational activities, as well as establishing and restoring national identity). Cultural tourism is implemented through the organisation of trips aimed at visiting historical and architectural monuments, monuments of culture or geography, familiarising tourists with the natural landscape, cultural and historical heritage and modern life of a particular country (Kochetkova, 2016).

Cultural tourism is part of the broad social phenomenon of tourism. Initially, this concept was narrow and was associated with trips to centres of great artistic and historical value, visits to museums, galleries, theatres and architectural works, as well as participation in cultural programmes. In the second half of the 20th century, this term became widespread; in the literature on this subject, cultural tourism is defined as all types of travel, the reason for which is the desire to contact culture in its multifaceted meaning (Gaweł, 2011, p. 68).

Many researchers see a close relationship between tourism and culture; both concepts are intertwined and complement each other. Tourism popularises and promotes cultural assets, and culture encourages tourism. Cultural tourism can be called any individual or group tourist trip, the

main motive of which is contact with cultural goods, which leads to a deepening of knowledge about them and the entire cultural heritage of humanity (Mikos von Rohrscheidt, 2010, p. 15).

Cultural tourism is often equated with ethnic tourism, which can be considered in several directions:

1) familiarisation with a certain ethnic group, which differs from the culture of the country from which the tourist arrived;
2) travelling to an ethnic group where the population with common cultural values lives.

Gaworecki (1997) notes that ethno-tourism is related to the place of origin, birth, and residence in the past of tourists and their ancestors. Kyfyak (2003) considers ethno-tourism as a trip to meet relatives and friends, which is associated with visiting and travelling to remote regions of the country or other states.

Rohrscheidt (2008) emphasises that "ethnotourism is a tourist trip, the participants of which live in another country, go to their place of origin or the place of origin of close relatives, or to places that are culturally and historically connected with each other, with their own ethnic group or a group of their loved ones".

Siwiński and Tauber (2008) note that "ethnotourism is formed due to the active interest of social groups that are abroad due to changing borders or emigration". Such groups seek contact with the country of their origin, the country of birth of their ancestors. The author believes that such a tourist direction helps to preserve national consciousness and establish contacts with cultural, social, professional, or religious organisations.

Volkov (2009) draws attention to the fact that ethno-tourism includes trips to regions inhabited by small nationalities that do not have their own statehood or national-administrative autonomy within other states. Havryliuk (2013) also considers ethno-tourism as a specialised tourist destination that helps satisfy the spiritual, psychological, physiological, and social needs of tourists as well as creates conditions for getting to know the historical, cultural, ethnographic, and spiritual heritage of a certain ethnic group. In our opinion, this interpretation somewhat limits the concept of ethno-tourism.

Ustymenko (2009) and Orlova (2009) consider ethnic tourism as educational, the main purpose of which is to visit ethnographic objects – the historical heritage of the people who had lived in this territory – to get acquainted with the material and spiritual culture preserved in the authentic environment. A similar interpretation is offered by Cherchyk and Kolenda (2008), who note that "ethnotourism involves getting to know the history and peculiarities of the culture, lifestyle and life of a certain people" (Cherchyk & Kolenda, 2008). Klyap and Sandor (2011) single out precisely the nostalgic aspect of ethno-tourism.

Ethnic tourism can be both external and internal. Domestic ethno-tourism is associated with visits to remote places by city residents to learn about the language dialect, folklore, lifestyle, and culture. External ethno-tourism is connected with the historical motherland or the place of birth of relatives (Klyap, 2011).

Ethnic tourism can be considered as one of the varieties of cultural tourism, which is related to getting to know the traditional cultural and everyday features of the life of the population of separately selected destinations. In this meaning, the components of ethnic tourism can be ethnographic, religious, nostalgic, agrotourism, etc. (Khudoba, 2020).

Ethnocultural tourism is an integrated specialised type of tourism, which was formed as a combination of its subspecies – such as tourismology, cultural studies, ethnography, tourism local history, and recreationology – through an interdisciplinary synthesis of their theoretical, methodological, and applied developments (according to Petranivskii).

The definition of "ethnocultural tourism" is more comprehensive in terms of content and outlook than ethnographic tourism, as it reflects the motivational and cognitive interest of tourists in the spiritual and material elements of the culture of a specific people (*ethnos*). So, in the scientific literature, several concepts close in meaning really have the right to exist: "ethnographic tourism", "ethnocultural tourism", "ethnic tourism". One of the effective forms of direct attraction of foreign tourists to the country or domestic tourists to the regions is the organisation of festival movements and folklore events. Festival tourism, as part of the event, is quite effective in stimulating the growth of demand for cultural and educational tours, which are organised for visits to national and international fairs and exhibitions, and sports competitions, among which the world Olympics occupy a special place (Stetsko, 2016).

Therefore, taking into account the opinion of various scientific approaches, it is possible to propose such an interpretation of cultural-ethnic tourism, according to which it is an activity aimed at organising trips with the aim of satisfying cognitive interest in the spiritual and material elements of the culture of a particular ethnic group.

Data and method

The purpose of this research is to determine the place of open-air museums as one of the strategic directions of the development of cultural and ethnic tourism in Ukraine.

The research applied a number of general scientific and special research methods, which are interconnected. The method of logical generalisation is used to determine the essence of cultural and ethnic tourism, while analysis and synthesis – to reveal the peculiarities of cultural and ethnic tourism in Ukraine.

The article uses statistical data posted on the official websites of the World Tourism Organisation and the European Travel Commission in order to determine the importance of preserving and popularising cultural heritage in the world at the level of international organisations.

The analytical part of the article is based on the analysis of statistical data of the State Statistics Service of Ukraine for the distribution of museums by profile and regions in 2021.

The SWOT analysis of cultural and ethnic tourism in Ukraine was conducted. The study also used the method of strategic planning to develop strategic directions for the development of cultural and ethnic tourism in Ukraine, to select tools that will ensure the effectiveness of the functioning of cultural and ethnic tourism in our country.

Research results

According to the estimates of the World Tourism Organisation, in 2020, the volume of foreign tourist visits (inbound tourism, at least 1 night in accommodation facilities) decreased by 74% (-925 million) compared to last year. In terms of value, export losses are estimated at 1,3 trillion USD, which is 11 times more than during the global economic crisis of 2009. The main reason is, of course, the threat of the spread of the COVID-19 pandemic, official travel restrictions at the state level, and voluntary self-isolation due to uncertainty about the effectiveness of treatment and a lack of reliable information (the latter was typical of the winter-spring period of 2020; today the main restraining factor is formal reservations). The countries of the Asia-Pacific macro-region suffered the most (a drop in the number of foreign visits by 84% compared to last year); in the Middle East and Africa, the negative growth rate was close to the world average (-75%); and the countries of America and Europe suffered the least (70%) (Dekhtyar, 2021).

In 2021, the number of international tourists decreased by 1 billion, which translates into the loss of 1.0 trillion USD in total international tourism export earnings. International tourist arrivals increased 172% in January–July 2022 compared to 2021, but remained 43% below 2019.

Cultural tourism is a type of tourism associated with visiting cultural attractions, historical sites, museums, theatres, concert halls, etc. It is of great importance for the development of the cultural industry and the economy as a whole.

Cultural tourism statistics depend on many factors, such as the country or region, the number and quality of attractions, the level of economic development, etc. Below are some global cultural tourism statistics.

In 2019, cultural tourism accounted for about 40% of the total tourism in the world. In 2019, cultural attractions were the main motive for travel for 49% of all tourists. According to the World Tourism Organisation, Europe was the most popular region for cultural tourism in 2019, attracting over 50% of all international travel. In 2019, China, India, and Italy were the most popular countries for cultural tourism.

Cultural tourism has a significant impact on the economy. According to a study by the European Travel Commission, every international tourist visiting Europe for cultural purposes spends an average of 1,094 EUR per trip.

Despite the fact that COVID-19 has seriously affected tourism in general, including cultural tourism, it is expected that in the future it will continue to grow, as people will always be interested in history, culture, and art.

In the world, great attention is paid to the preservation of cultural heritage and the organisation of cultural tourism. The International Council on Monuments and Landmarks and the Pan-European Federation of Cultural Heritage (Europa Nostra) coordinate the efforts of countries regarding the issue of the use of historical and cultural monuments in tourism in EU countries and the world as a whole, which contributes to the social, cultural, and economic development of countries and regions, as well as develops intercultural dialogue.

The demand for cultural tourism among the residents of the EU and the American continent is gradually increasing, which includes getting to know the cultural and historical heritage of different countries. In this perspective, cultural tourism can be considered as a type of developing leisure and equated to visiting museums, libraries, and local cultural monuments. For example, more than half of tourists visiting Italy are interested in the country's cultural heritage. In connection with the growing level of education of tourists and the increase in the number of older tourists, countries with traditionally developed beach tourism are actively looking for additional attractions (Kuzmuk, 2007).

The policy of the European Union regarding cultural and ethnic tourism is recognised by:

– tourism as a factor in the renewal of cultural and architectural heritage and a source of financial income for conservation and restoration;
– tourism as a factor of international tolerance, a way of learning about another culture.

In European countries, crisis regions consider cultural heritage as well as cultural and ethnic tourism as a source of development. The inclusion of some cultural heritage sites in the tourism system encourages the approval of certain renewal programmes; the creation of new museums, open-air ethnic museums, traditional restaurants; and the arrangement of guest rooms by residents for tourists.

European countries are characterised by advertising their cultural heritage on television and radio, which arouses interest; there is marketing research of various target groups (youth, pensioners, children, young couples, families); social networks use the latest media.

The principles of modern tourism policy in European countries include decentralisation, the delegation of powers to local self-government bodies, support of local initiatives, the development of all forms of tourism, and comprehensive cooperation between the public and private and commercial sectors (Kuzmuk, 2007).

Cultural and ethnic tourism occupies a significant place among the tourist activities of most countries. This type of tourism can be active even in the off-season of tourist flows. In recent years, more and more tourists have chosen (or combined) this type of tourism; e.g. European countries support it in every possible way at the state level.

The distribution of museums by profile and regions in Ukraine for the year 2021 is presented in Table 1. The largest number of museums regionally is located in the city of Kyiv – 40 units, in the Poltava region – 37 units, in the Chernihiv region – 35 units; the least – in the Kherson (9 units), Chernivtsi (10 units), Mykolaiv (12 units), and Luhansk regions. However, today, the situation has changed due to the destruction of museums and theft of museum valuables in the temporarily occupied territories.

Military actions, unfortunately, changed this structure. There is no accurate data today, but we know what fierce battles are taking place in the Luhansk region; the bombing of the Donetsk, Luhansk, Mykolaiv, Sumy, Kharkiv, and Kherson regions continues; part of the Donetsk, Zaporizhzhia, Luhansk, and Kherson regions are occupied. All this led to the physical destruction of museums and the export of valuable exhibits to Russia.

Table 1. The distribution of museums in Ukraine by profile and regions in 2021

	The number of museums	Of the total number of museums								
		natural	historical	literary	artistic	artistical	scientific and technical	complex	sectorial	others
Cherkassy	29	-	12	2	1	-	-	13	-	1
Chernihivska	35	-	19	2	1	2	-	6	-	5
Chernivtsi	10	-	6	-	1	1	-	2	-	-
Dnipropetrovsk	26	-	6	-	2	-	-	17	1	-
Donetsk	15	-	4	-	2	1	-	8	-	-
Ivano-Frankivsk	26	-	11	2	2	4	-	6	1	-
Kharkiv	33	-	5	2	2	2	-	22	-	-
Khersonsk	9	-	2	-	1	-	-	6	-	-
Khmelnytska	28	-	19	2	1	-	-	4	-	2
Kirovohradsk	29	-	13	2	1	2	-	11	-	-
Kyivska	24	-	7	-	1	1	-	15	-	-
Luhansk	13	-	1	-	-	-	-	11	-	1
Lviv	27	1	10	3	1	2	-	4	1	5
Mykolayivska	12	-	5	-	2	-	-	5	-	-
Odesa	14	-	2	1	1	4	-	5	1	-
Poltava	37	-	7	11	4	-	-	15	-	-
Rivne	14	-	6	-	-	-	-	5	-	3
Sumy	17	-	-	1	2	-	-	11	-	3
Ternopilsk	30	-	2	5	2	3	-	15	-	3
Vinnytsia	30	-	7	4	3	1	-	14	-	1
Volynsk	16	-	9	-	-	-	-	6	-	1
Zakarpattia	14	-	7	-	1	-	-	6	-	-
Zaporizhzhia	23	-	3	-	3	-	-	16	-	1
Zhytomyr	23	1	8	2	1	1	-	9	1	-
the city of Kyiv	40	1	17	6	2	5	-	3	3	3
Ukraine	574	3	188	45	37	29	-	235	8	29

Source: Developed on the basis of the materials of the State Statistics Service of Ukraine (2021).

According to the report of Semeryn (2022), from 24th February to the end of August 2022, 361 objects of art and cultural institutions, as well as 142 objects of cultural heritage, were destroyed in Ukraine. Among the damaged are 23 monuments of national and 112 of local significance. In particular, the invaders completely destroyed the building of the drama theatre in Mariupol, the cinema in Lysychansk, the Hryhori Skovoroda museum in the Kharkiv region, the Shevchenko monument in Borodyanka, the Sviatohirsk Lavra in the Donetsk region, and many other memorial buildings.

Russia committed the largest number of crimes against cultural heritage in the Donetsk (130 episodes, most in Mariupol), Kharkiv (most in Kharkiv and its surroundings), Kyiv (most in the Buchansky district), Luhansk, Chernihiv (most in Chernihiv and its surroundings), and Sumy (the Okhtyr district) oblasts – in total, 15 out of 24 oblasts of Ukraine.

During the six months of the war, 36 museums and nature reserves were damaged or destroyed: the Ivankiv Museum of Local Lore, which housed 25 paintings by the famous artist Maria Pryimachenko, was completely destroyed; the National Museum of Grigory Skovoroda in the village of Skovorodinivka in the Kharkiv region; the Art Museum named after Arkhip Kuindzhi; the City Museum of Local Lore in Sumy; the Museum of History and Archaeology.

In order to determine the directions of the development of cultural and ethnic tourism in Ukraine in the post-war period, we suggest using a tool of strategic analysis – a SWOT analysis as a method of expert assessment.

As a result of the assessment of the SWOT analysis and the relationship between the strengths and opportunities, the greatest support through the realisation of favourable opportunities is the individual parties (Table 2).

Table 2. The SWOT analysis of cultural and ethnic tourism in Ukraine

Strengths	Weaknesses
1) various cultural-historical and architectural heritage in the regions of the country	1) unsatisfactory condition of certain objects of cultural and ethnic heritage
2) significant transit potential (international checkpoints, transport corridors, and European highways)	2) low population density, territorial remoteness of certain districts from the central infrastructure
3) various ethnic centres in the regions of the country	3) technical wear and tear of facilities as well as destruction due to military actions on road infrastructure
4) the presence of an extensive museum network with a large number of exhibits	4) insufficiently active promotion of cultural and ethnic objects both in Ukraine and abroad
5) relatively favourable ecological situation; a significant number of nature reserves; rich flora and fauna	5) low investment attractiveness of the tourism sector in the country
6) competitive prices for accommodation facilities	6) low level of wages in the tourism sector
7) high social activity, volunteer movement, and patriotism of residents	7) underdeveloped tourist infrastructure (main and auxiliary)
8) high level of specialised education	8) non-compliance of part of accommodation facilities with international standards
9) tolerance of the population	9) unformed positive image of cultural and ethnic objects in Ukraine and abroad
Opportunities	**Threats**
1) decentralisation, which will contribute to the growth of the capabilities of local authorities regarding the arrangement of objects of cultural and ethnic heritage	1) the destruction of monuments of cultural and ethnic heritage during Russia's military aggression
2) the growth of external and internal interest in objects of cultural and ethnic heritage in Ukraine	2) the theft of museum exhibits in the occupied territories
3) the de-occupation of captured territories and end of hostilities in Ukraine	3) decreasing the level of accessibility of objects of cultural and ethnic heritage
4) the dissemination of information about the possibilities of tourist accommodation facilities on international Internet platforms	4) active military actions on the territory of the country, the presence of temporarily occupied territories
5) legislative changes regarding the simplification of business and investment activities	5) an increase in the cost of providing tourist services
6) increasing the potential of tourist accommodation facilities	6) the presence of a shadow sector in the tourism business
7) harmonization of the legislation of Ukraine with the legislation of the EU regarding the regulation of the tourism sphere	7) instability, changes in the legislative and regulatory framework of business conduct
8) improvement of the tax and budget system	8) financial and price instability, inflationary processes
9) restoration of investment inflows in Ukraine in the post-war period	9) damage to energy infrastructure
	10) negative dynamics of population growth
	11) international and internal population migration
	12) decrease in the purchasing power of the population

Source: Own elaboration.

In particular, there is a growth of interest in Ukraine among foreign tourists, which will increase the popularity of objects of cultural and ethnic heritage, unique monuments of architecture and history of our country. Ukraine's transit potential (international checkpoints, transport corridors and European highways) ensure the accessibility of tourist facilities. Relatively low accommodation prices can contribute to the development of inbound tourism. Legislative changes regarding the

simplification of business, investment activities, and the improvement of the investment climate in Ukraine in the post-war period will help to activate the activities of business entities in the field of tourism.

However, today, the threats to the development of cultural and ethnic tourism in Ukraine significantly exceed the opportunities. Therefore, it is worth focusing on the maximum preservation of objects of cultural and ethnic tourism, historical monuments, and museum exhibits, since military operations are ongoing and the probability of shelling peaceful cities of Ukraine is very high. This leads to uncontrolled destruction.

We believe that it is worth paying attention to the following strategic directions for the development of cultural and ethnic tourism in Ukraine:

1) preserving objects of the cultural and ethnic heritage of Ukraine from destruction and theft by the occupiers: preparing endangered exhibits for evacuation to safe territory as well as maximum possible protection of historical buildings and structures;
2) using opportunities for financing the cultural and ethnic heritage of Ukraine through participation in international grant programmes, since there is currently no funding for state programmes in such areas;
3) strengthening control over the implementation of the current legislation and legal acts by the monuments protection authorities in order to make it impossible to violate the provisions on the protection and use of the historical and cultural heritage;
4) activating the formation of cultural heritage registers of Ukraine in the form of scientific accounting documentation in accordance with ratified conventions and recommendations of UNESCO and the Council of Europe.
5) creating digital catalogues of objects of cultural and ethnic heritage of Ukraine as well as creating virtual tourist products;
6) popularising and preserving intangible cultural and ethnic heritage: reviving of traditional folk creativity, arts and crafts, and cultural traditions of national minorities (Rybchinsky, 2016; Mylko, 2022).

The strategic goal of cultural and ethnic tourism in Ukraine is to create a competitive tourist product. The relevance of this issue is explained by the fact that tourism is an integral part of the national and world market, although today there is no external tourism in Ukraine, except for foreign volunteers, and internal tourism is special – local visitors and internally displaced persons.

In the future, cultural and ethnic tourism in Ukraine should become one of the factors of economic growth, a source of the replenishment of state and local budgets, a means of publicly accessible and full-fledged recreation and health, the familiarisation with the historical and cultural heritage, and the confirmation of Ukrainian identity.

To realise the set goal, it is necessary to follow the following main directions:

– implement effective mechanisms of financial and economic regulation of the development of cultural and ethnic tourism;
– determine the ways, forms, and methods of stimulating the development of entrepreneurship in the field of cultural and ethnic tourism;
– provide for measures to protect tangible and intangible objects of cultural heritage in Ukraine;
– create an effective model of investment policy in the field of cultural and ethnic tourism, taking into account the socioeconomic interests of the state;
– improve the organisational structure of management in the field of cultural and ethnic tourism;
– ensure the rational use and restoration of the cultural and ethnic environment (Kharicheva, 2013).

The state plays an important role in the development of cultural and ethnic tourism. State regulation can be presented in the form of three models.

The first model assumes the absence of a central state body regulating tourism; all issues are resolved locally according to the principles of market self-regulation. Such a model is possible in countries where tourism does not play an important role in the national economy or where tourism does not require government intervention.

The second model provides for the presence of a central regulatory body in the field of tourism and also requires significant financial investments in the development of tourist infrastructure and

the promotion of the domestic tourist product. Such a model is used by countries for which tourism is an important area that takes a significant share in the structure of the gross national product.

The third model requires the existence of a specialised tourism regulatory body within the ministry. This model is used by most European countries.

The organisational and management mechanism in the field of tourism is formed by state and non-state organisational structures created at different levels. Their decisions are implemented through the following levers: regulatory and legal regulation, tax policy, budgetary and financial policy, and information and marketing support. These levers are effective and contribute to the achievement of the main goal of the organisational and management mechanism, if powers are clearly distributed at different levels of management and if there is a clear control of the compliance with legal norms and defined strategic goals (Barna, 2016).

General strategies and specific tools will ensure the effectiveness of cultural and ethnic tourism. These tools can be as follows:

1) raising awareness of the importance of tangible and intangible cultural heritage and cultural institutions; the Ministry of Culture can take a leading role in this activity, encouraging transparency, dialogue, and accountability;
2) establishing the interaction of cultural policy and strategy for the development of cultural and ethnic tourism with policies in other areas. For this, it is necessary to develop joint programmes of cooperation in order to strengthen coordination between various state and non-state institutions;
3) developing the potential of cultural and ethnic tourism by sharing experience and knowledge at the national and international levels, as well as organising and distributing training courses for employees of state and non-state institutions dealing with issues of cultural heritage and museums;
4) developing a policy for the promotion and protection of cultural and ethnic heritage through the creation of models for monitoring the museum sector, implementing and evaluating management standards, and improving annual reporting and planning rules in state and non-state institutions of various levels;
5) forming a strategy for the development of museums of Ukraine by increasing their potential and improving the management of these institutions.

We believe that in the context of the formation of a strategy for the development of Ukrainian museums as a component of cultural and ethnic tourism, special attention should be paid to open-air museums as one of the directions of cultural and ethnic tourism. Today, the preservation of the Ukrainian identity is a task at the level of national security of the state. Therefore, the preservation and reproduction of authentic Ukrainian forms of economy in the form of the exhibition of open-air museums is a necessary task.

Open-air museums (*skansen*) are specific museum institutions that display objects representing the traditions and types of nature use that have developed in certain regions of the Ukrainian ethnic group over the centuries. Such museums present traditions, features, and elements of folk life of different regions of Ukraine.

Skansen are unique sociocultural complexes aimed at realising the recreational, developmental, and aesthetic potential of leisure time as well as at forming a spiritual personality and strengthening family values and traditions. The main mission of open-air museums is to convey to future generations the uniqueness of architecture, lifestyle, and traditions of nature use of our ancestors in conditions as close as possible to authentic (Afanasiev, 2011).

Open-air museums, which exhibit materials in original monuments, help visitors to understand the importance of natural and cultural heritage. They also contribute to the complex perception of information (Danyliuk, 1984).

At the end of the 19th century, the first open-air museum – “Skansen” (1891) – was opened in Stockholm (Sweden). This name was popularised and gave its name to a major direction in science and museum practice – “scansenology”.

In countries where the trend of creating open-air museums has not yet developed, there is a related type of museum – eco-museums, which are intensively developing, e.g. in France (Jong, 2001).

Open-air museums provide a combination of tangible and intangible ethnocultural heritage; they are unique architectural and ethnographic centres in open space with small museums in separate rooms. They carry out a complex reconstruction of the past, the historical constructions of which form an interconnected system. Thus, tourists and guests get the opportunity to visit a reconstructed settlement of the past to have a general idea of the history of a certain country or territory.

Especially interesting are open-air museums with an animation programme that reproduces the historical environment. In such museums, tourists can see how professional animators with their actions reproduce the way of life, behaviour, traditional crafts, and types of activities characteristic of a certain territory and time, e.g. the work of a miller, weaver, blacksmith, potter, carpenter, distiller, beekeeper, and many others. Sometimes visitors to the open-air museum are offered to take part in such activities. Everyone can feel themselves in the role of a blacksmith or a potter.

The specificity of open-air museums is the possibility of direct informal communication during the organisation of contests, holidays, performances, fairs, and performances of traditional folklore groups. In some museums, in addition to architecture, transport of past years is also reconstructed. Such transport in open-air museums can perform not only the function of an active exhibit, but also the function of direct transportation, since the area of such museums can be large. Traditional cuisine is an integral part of open-air museums (Voloshin, 2017).

Open-air museums are created according to two concepts. In “park-type” museums, buildings are placed without interconnection. Each building is presented separately. In this way, different types of buildings are exhibited in the Stockholm museum. In “collection type” museums, buildings are concentrated in the rural or urban ensembles to which they belong. This concept is based on the principles of the creation and operation of most museums in the world.

The architecture of museum exhibits is connected with various samples of material and spiritual culture, with the natural environment. Each object in the museum interacts with other surrounding objects; therefore, the methods of combining and interpreting museum exhibits, which allow them to reflect a certain idea, play an important role in the realisation of the museum’s concept. This approach dares to present the real life of Ukrainians. Such a museum is a means of active promotion of centuries-old Ukrainian folk culture as well as the confirmation of the Ukrainian national identity and originality.

In addition to their main task – i.e. the protection of entire complexes, settlements, and groups of settlements at the places of their occurrence in the natural environment – museums must solve the issue of using monuments to organise expositions of folk art.

According to the method of formation, museums are divided into:

1) relocated museums, which consist of architectural exhibits transported in a disassembled form to a certain territory;
2) stationary museums, which are organised on the basis of monuments existing on a separate territory: estates, streets, an entire village or city;
3) museums of mixed type, which include local and transported attractions.

We can single out the basic rules for creating open-air museums:

1) such museums are created on the basis of the restoration of a full-fledged complex or monument of an authentic historical environment;
2) such museums preserve and restore the original nature conservation plan;
3) such museums will create a new environment of monuments brought from other regions, around a historical monument, or in an already built complex.

Discussion

The goal of all cultural and educational events in Ukrainian open-air museums is to reproduce the traditional forms of Ukrainian folk life in its various spheres. A scientific and systematic approach to the functioning of open-air museums will allow active popularisation of the Ukrainian culture.

Before the war, there had been 15 large and famous open-air museums in Ukraine, which gathered thousands of visitors every year. Figure 1 presents the distribution of open-air museums by regions of the country. The largest number of such complexes are located in the western, northern, and central regions, less – in the south and east of the country.

A successful example of an open-air museum is the museum in the village of Rokiny in Volyn. This is the only "living" open-air museum in Ukraine. Unlike similar Ukrainian open-air museums, there are permanent workers who spend the night in houses, heat the stove, bake bread, tend livestock, cultivate crops, mow hay, treat guests to Ukrainian cuisine (red borscht with donuts, *derun*, *uzvar*, dumplings and Cossack Kulish). Every willing visitor of the museum can work with agricultural implements. Many different activities are held here for different categories of the population. Various celebrations can be celebrated here. This museum is practically a self-supporting economy with a closed economic cycle. Various holidays, fairs, and conferences are held in the museum. The Youth Organisation "Cossack Hart School" operates here (Kadnichanskyi, 2012).

The Museum of the History of Agriculture in Volyn (the village of Rokiny near Lutsk, the Volyn Region) was founded in 1980. The project manager managed to disassemble, load, transport, and install about 20 ancient architectural structures: a windmill, many huts, a village manor, an outbuilding – a mill, a forge.

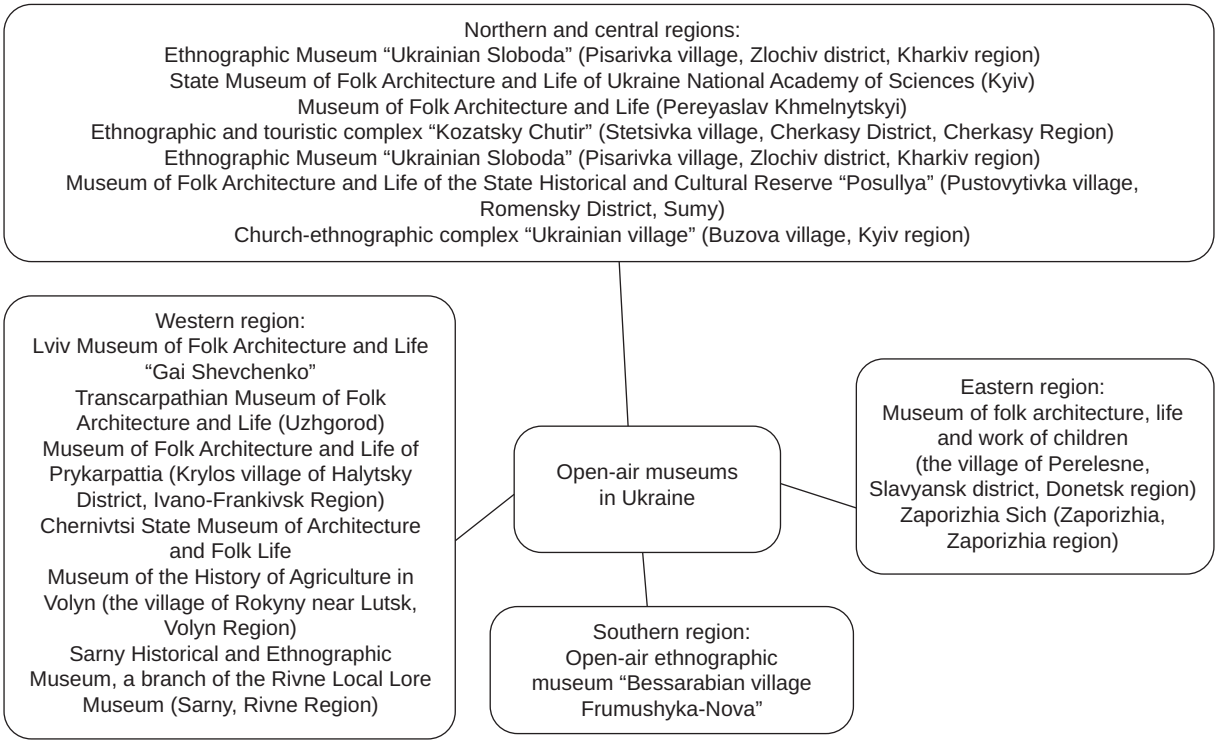


Figure 1. The distribution of open-air museums by region in Ukraine

Source: Own elaboration.

Today, the museum looks like a street in a small Volyn village. Typical Volyn huts were built here, surrounded by peasant yards with barns, barns, wells, and mud pits. A wooden church was even built on the territory of the museum. The temple is consecrated in honour of the Ascension of the Lord. The open-air museum has a long house, a covered courtyard, a steam room, a tavern, and a pottery workshop.

Conclusions

The experience of creating and operating open-air museums shows their significant role in the preservation and popularisation of historical and cultural heritage, as well as in the development of cultural and ethnic tourism. The main tasks of open-air museums include the preservation of architectural monuments, household items, and examples of folk art, as well as being a place of recreation for the local population and domestic and foreign tourists. Open-air museums are a base for holding various folk holidays, festivals, exhibitions, and competitions, which strengthens the preservation of folk traditions as well as the knowledge of the citizens of our country about the

historical and cultural heritage of Ukrainians. Therefore, the popularisation of open-air museums and their inclusion in the network of tourist services is extremely important.

For the full use of open-air museums in the field of tourism, it is necessary to make sure that the following tasks are solved:

– contributing to the increase of the number of open-air museums in Ukraine, since the existing open-air museums do not represent buildings of all regions and types. Many unique examples of folk architecture are under the threat of destruction and need immediate transfer to museums. Each region should have its own open-air museum;
– increasing state funding of open-air museums, since the maintenance of museum buildings requires significant funds;
– ensuring the development of infrastructure in museums – food establishments, places of temporary living, trade in souvenir products. This will help increase tourist flows;
– supplementing museums with live animals and animal caretakers who will reproduce the daily life as well as the material and spiritual culture of a certain era;
– actively popularising open-air museums in tourist publications at tourist exhibitions of national and international importance, and on the Internet. This requires the creation of promotional videos in Ukrainian and English, the production of printed printed products, and the development of presentation pages on the Internet. It is also about promoting the creation of own sites for each existing open-air museum as well as receiving foreign guests and preparing all information in English to convey the full flavour and explain the importance of such visits.

The proposed measures will ensure the effective functioning of open-air museums in Ukraine, the preservation of many unique buildings, the promotion of cultural and ethnic heritage, and the development of cultural and ethnic tourism in our country.

Reference List

Mikos von Rohrscheidt, A. (2020). *Zarządzanie w turystyce kulturowej* (Vols. I–II). Bogucki Wydawnictwo Naukowe.

Afanasiev, O. (2011). Skanseny Ukrainy yak reprezentanty rehionalnykh typiv pryrodokorystuvannia [Open-air museums of Ukraine as representatives of regional types of nature use]. *Heohrafiia ta turizm* [Geography and Tourism], (15), 111–120.

Barna, M., & Tuchkovska, I. (2016). Osnovni tendentsii upravlinnia turystychnoiu diialnistiu v Ukraini [Main trends of tourism management in Ukraine]. *Pidpryiemnytstvo i torhivlia* [Entrepreneurship and trade], *20*, 5–8.

Cherchyk, L., & Kolenda, N. (2008). *Stratehichnyi potensial rekreatsiinoi systemy rehionu: teoriia, metodolohiia, otsinka: monohrafiia* [Strategic potential of the recreation system of the region: theory, methodology, assessment: monograph]. LNTU.

Chukhrai, L. (2013). Skansen: suchasnist ta perspektyvy rozvytku [Skansen: modernity and development prospects]. *Kulturolohiia* [Kulturologiya], (4), 72–76.

Danylyuk, A. (1984). Z istorii muzeiv prosto neba [From the history of open-air museums]. *Pamiatnyky Ukrainy* [Monuments of Ukraine], (3).

Dekhtyar, N. (2021). *Svitovyi rynok turystychnykh posluh ta priorytety rozvytku turyzmu v Ukraini: monohrafiia* [World market of tourist services and priorities of tourism development in Ukraine: monograph]. FOP Liburkina L.M.

Derzhavna sluzhba statystyky Ukrainy [State Statistics Service of Ukraine]. https://www.ukrstat.gov.ua/

European Travel Commission. https://etc-corporate.org/.

Gaweł, Ł. (2011). *Szlaki dziedzictwa kulturowego. Teoria i praktyka zrządzania*. Wydawnictwo Uniwersytetu Jagiellońskiego.

Gaworecki, W. (1997). *Turystyka*. Polskie Wydawnictwo Ekonomiczne.

Havryliuk, A. (2013). Suchasnyi rozvytok ukrainskoho etnoturyzmu: zmina paradyhmy. [Modern development of Ukrainian ethnotourism: a paradigm shift]. *Naukovyi visnyk Chernivetskoho universytetu. Filosofiia* [Scientific Bulletin of Chernivtsi University. Philosophy], (665–666), 56–61. Available at: http://nbuv.gov.ua/UJRN/Nvchu_fil_2013_665-666_12

Jong, A. (2001, August 20). Hazelius revisited? Survival of a 19th century idea in the 21th century, [Conference] 20th Conference of the Association of European Open Air Museums. Hungary, Szententendre.

Kadnichanskyi, D. (2012). Vykorystannia istoryko-kulturnoi spadshchyny Ukrainy u turyzmi na prykladi skanseniv [Using the historical and cultural heritage of Ukraine in tourism on the example of open-air museums]. *Kraieznavstvo* [Local History], (1), 128–137.

Kharicheva, M. (2013, November 30). Napryamy rozvytku turyzmu v Ukraini [Directions of tourism development in Ukraine]. [Conference], *Suchasna ekonomichna nauka: novi hipotezy, tendentsii ta perspektyvy rozvytku* [Modern Economic Science: New Hypotheses, Trends and Prospects of Development]. Luhansk. http://tourlib.net/statti_ukr/haricheva.htm

Khudoba, V., & Chetyrbuk, O. (2020). Perspektyvy rozvytku ekolohichnoho turyzmu v mezhakh transkordonnykh pryrodookhoronnykh terytorii Ukrainy ta Polshchi [Prospects for the development of ecological tourism within the boundaries of cross-border nature conservation areas of Ukraine and Poland]. *Naukovi zapisky TNPU im. V. Hnatiuka, Seriya: Heohrafiia* [Scientific notes of the TNPU named after V. Hnatyuka, Series: Geography], (1/48), 99–106.

Klyap, M., & Sandor, F. (2013). *Suchasni riznovydy turyzmu* [Modern varieties of tourism]. Znannia.

Kochetkova, A. (2016). Kulturnyi turyzm v Ukraini: vyznachennia, osoblyvosti, problemy ta perspektyvy [Cultural tourism in Ukraine: definition, features, problems and prospects]. [Conference], *Stalyi rozvytok Ukrainy: problemy i perspektyvy* [Sustainable development of Ukraine: problems and prospects] (pp. 30–133). Kamianets-Podilskyi.

Kuzmuk, O. (2007). Kulturnyi turyzm yak instrument formuvannia natsionalnoi identychnosti [Cultural tourism as a tool for the formation of national identity]. https://tourlib.net/statti_ukr/kuzmuk.htm

Kyfyak,V., (2003). *Orhanizatsiia turystychnoi diialnosti v Ukraini* [Organization of tourist activity in Ukraine]. Knyhy-XXI.

Mylko, I., Nahornova, O., & Ozhema, S. (2022). Strategy for the development of the tourism sector of the country and its regions in a crisis. *National Interest Academic Journal*, *2*(6), 58–70.

Multimediina platforma inomovlennia Ukrainy “Ukrinform” [Multimedia platform of foreign broadcasting of Ukraine “Ukrainform”]. https://www.ukrinform.ua/www.ukrinform.ua/rubric-tourism/2294509-nazvano-najdesevse-misto-evropi-dla-kulturnogo-turizmu.html

Rybchinskyi, O. (n.d.). Analiz program zberezhennia kulturnoi spadshchyny Ukrainy [Analysis of cultural heritage preservation programs of Ukraine]. http://www.kultura.org.ua/wp-content/uploads/Heritage.pdf

Semeryn, H. (2022). Zhyttia myttsiv, spaleni muzei ta vkradene skifske zoloto: vtraty ukrainskoi kultury cherez viinu [Lives of artists, burned museums and stolen Scythian gold: losses of Ukrainian culture due to the war]. *Fond «Demokratychni initsiatyvy» imeni Ilka Kucheriva* [Ilko Kucheriv Democratic Initiatives Foundation]. Available at: https://dif.org.ua/

Siwiński, W., & Tauber, R. (2008). *Leksykon turystyki i rekreacji*. Szkoła Hotelarstwa i Gastronomii.

Stetsko, N. (2016) Kontseptualni zasady rozvytku etnofestyvalnoho turyzmu v Ukraini [Conceptual principles of the development of ethno-festival tourism in Ukraine]. *Naukovi zapisky* [Scientific notes], (2), 138–146.

Ustymenko, L. (2009). *Osnovy turyzmoznavstva* [Fundamentals of tourism studies]. Alterpres.

Volkov, I. (2009). Etnokulturnyi turyzm v Krymu: sutnist ta faktory rozvytku [Ethno-cultural tourism in Crimea: essence and factors of development]. *Vcheni zapysky Tavriiskoho natsionalnoho universytetu im. V.I. Vernadskoho*. [Scientific Notes of the Vernadsky Tauride National University], (22), 111–120.

Voloshyn, I. (2017). *Perspektyvy rozvytku turyzmu v Ukraini ta sviti: upravlinnia, tekhnolohii, modeli: kolektyvna monohrafiia* [Prospects for the development of tourism in Ukraine and the world: management, technologies, models: a collective monograph]. Lutsk National Technical University.

World Tourism Organization. https://www.unwto.org/who-we-are

Zaklady kultury, fizychnoi kultury i sportu Ukrainy u 2020 rotsi: statystychnyi zbirnyk [Institutions of culture, physical culture and sports of Ukraine in 2020: statistical collection]. (2021). Derzhavna sluzhba statystyky [State Statistics Service]. https://ukrstat.gov.ua/

An Analysis of the Features of the Organisation of Tourist Activities in the Conditions of the War in Ukraine

Studia Regionalne i Lokalne
Special Issue

ISSN 1509-4995
E-ISSN 2719-8049
doi: 10.7366/15094995S2409

Halyna Zavarika
Volodymyr Dahl East Ukrainian National University, Faculty of Economics and Management, 17 Ioanna Pavla II Street, Kyiv, Ukraine; e-mail: dgalina_10@ukr.net; ORCID: 0000-0001-5601-9331

Olena Zelenko
Volodymyr Dahl East Ukrainian National University, Faculty of Economics and Management, 17 Ioanna Pavla II Street, Kyiv, Ukraine; e-mail: zelenko.olena@gmail.com; ORCID: 0000-0003-4880-246X

Abstract

The article reveals topical issues regarding the consequences, possibilities of operation, and the restoration of tourism in the post-war territories of Ukraine in the conditions of military aggression of the Russian Federation. The purpose of the study was to analyse the organisation of tourist activities under the conditions of martial law in Ukraine. The article highlights preliminary data on the losses of the tourism industry in Ukraine as well as analyses and systematises specific examples of damaged natural and cultural-historical heritage on the territory of Ukraine. The peculiarities of the functioning of the subjects of the tourism industry in the conditions of the war in Ukraine are evaluated and the essence of the post-war territories is indicated. Directions for saving tourist activity in the post-war territories of Ukraine as a result of the military actions of the aggressor country are proposed. The proposals indicated in this work will be useful to all Ukrainian communities whose tourism industry has suffered great losses as a result of the military aggression. It will also be useful for representatives of the tourism industry of other countries who want to prevent, if possible, the destructive effects of war.

Keywords

tourist activity, post-war territories, natural and historical-cultural heritage, security

Introduction

Tourism can be called one of the peaceful branches of the economy, which not only brings profit to countries, but also performs a peace-making function, because the practice of human existence has proven that it is important for people to travel to maintain peace. Only through dialogue and communication between representatives of different countries, cultures, and peoples is it possible to establish friendly relations and build a stable system of trust between people. Tourism, as one of the powerful branches of the economy, can potentially give an impetus to the rapid recovery of post-war territories, as it does not require large capital investments in its development in comparison with heavy industry. This study is about the extent of the decline of the tourism industry of Ukraine, which is still reeling from the hostile onslaught of the aggressor country, and the search for effective ways to quickly restore the industry. As a result of the military aggression of the Russian Federation, the tourism sector of Ukraine faced serious challenges. Negative feedback about the situation in the country caused a decline in the tourist flow and the general cessation of the existence of the industry in certain regions. We will be able to assess the degree of damage and the destruction of natural and historical and cultural resources only after the end of the war. However, monitoring and analysis are already taking place in the liberated territories of the country, and possible options for the restoration of tourism activities are being developed.

The relevance of the study is due to the need to restore the tourism industry of the post-war territories of Ukraine, which suffered as a result of the military actions of the aggressor country. Post-war territories of Ukraine are parts of Ukrainian regions controlled by Ukraine, the population of which suffered material and moral losses as a result of military operations (in the Luhansk

and Donetsk regions since 2014), where the consequences of this aggression are recorded in the form of destroyed settlements, communications, infrastructure, destroyed or damaged natural and cultural-historical monuments, the presence of displaced persons from temporarily occupied territories, and a special management regime for these territories.

The theoretical-methodological and practical orientation of the work is determined by the need to restore tourism in the post-war territories of the country as one of the possibilities for these regions to get out of the depressed state. The problems of restoring tourism in post-war territories are not considered enough in domestic science, which necessitates further in-depth research. Taking into account the lack of thorough studies of domestic science to date regarding the implementation of ideas for the post-war restoration of tourist activity in the affected territories, there is an objective need to investigate this process and prompt the search for innovative directions for its post-war restoration.

The purpose of the study is to analyse the organisation of tourist activities in the conditions of martial law in Ukraine. To achieve the goal, the following tasks were defined:

– the state of losses of the tourism industry in Ukraine is analysed;
– the essence of the restoration process of post-war territories from the regional tourism activation point of view in the conditions of damage or destruction of recreational potential is substantiated;
– the main methodological provisions of the study for the tourist activity organisation in the conditions of martial law in Ukraine are disclosed;
– specific examples of damaged natural and cultural-historical heritage on the territory of Ukraine are analysed and systematised;
– the peculiarities of the functioning of the subjects of the tourism industry in the conditions of the war in Ukraine are evaluated;
– the dominant elements of the recovery of tourism in the post-war territories of Ukraine are defined and substantiated.

An analysis of previous publications and methodological basis of research

The problem of researching the vitality of the tourism industry during and after military conflicts is not new in the scientific space. These questions had been investigated by foreign practical scientists and domestic scientists. The authors of this study themselves touched on this topic in 2022 (Zavarika, 2019; Zavarika & Zelenko, 2022). In particular, Zavarika studied the issue of the socio-geographical dimension of post-conflict tourism development using the example of the eastern territories of Ukraine (Zavarika, 2019) and proved that conflict-related problems are interdisciplinary in nature and cover a wide range of theoretical and applied issues, the research of which is based on such fundamental scientific categories as post-conflict environment, post-conflict recovery, post-conflict development, and post-conflict territory, which are considered from the standpoint of theoretical concepts and practical activities for the stabilisation and consolidation of peace.

The author formulated the essence of the scientific categories “post-conflict territory” – this is a part of the territory of the state that is recovering from the consequences of the conflict in economic, social-humanitarian, political, and ecological aspects, and is at the stage of post-conflict development, and “post-conflict development of tourism”, which is interpreted as a system of organisational and management measures of the state and local communities, introduced in the post-conflict territory, which are aimed at restoring and creating a new tourist infrastructure, a tourist brand, promoting travel safety, training personnel for the industry, as well as protecting, preserving, and nurturing a respectful attitude to tourist resources, popularising domestic tourism, etc.

The author’s vision of the essence of the scientific category “post-conflict development” is also proposed – it is a concept that highlights measures of a political, legal, economic, and socio-humanitarian nature, which are used in the region of the conflict after the end of the active phase and are aimed at the reproduction of destroyed former (or the formation of new) forms of political and economic management, peacetime civilian authorities, and which develop a methodology for socio-geographical research on the development of tourism in conflict conditions, which includes six interrelated stages, in each of which relevant principles, approaches and methods are proposed and strategic guidelines are indicated.

The proposed ideas for the reconstruction of tourism based on the example of the eastern territories are today, unfortunately, relevant in many regions of Ukraine.

A more actively researched question in Ukraine began to be developed after a full-scale invasion in 2022. Therefore, some individual problems of the tourist industry functioning during a full-scale invasion were considered by Barviniuk (2022), Bordun (2022), Bragilevich and Malska (2022), Vlasenko (2022), Dvorska (2022), Zarubina (2022), Korchevska (2022), Magdyk (2022), Prysedska (2022), Honchar (2022), etc. Foreign experts were not left out either (How the war…, 2022).

The "red line" of all the main conclusions based on the research results is that the losses incurred by the Ukrainian tourism industry are inestimable and most of the lost objects of cultural and historical heritage will be restored with the help of modern virtual modelling tools, but for the full restoration of natural and recreational resources, more than one year will have to pass, because demining the territories will become the main problem of the de-occupied territories of Ukraine. Foreign experts were not left out in this regard either (Prysedska, 2022).

What follows from the results of the analysis of the literature on post-war topics, the theoretical foundation of these studies were the works of such well-known specialists as:

– Oxford University professor Collier (Collier, 1998; Collier & Hoeffler, 2005.), whose scientific and practical interests are related to the study of the causes and consequences of civil wars, the development of democracy, and international support for countries affected by the conflict;
– Professor Brinkerhoff, who studied political changes in post-conflict regions, paying special attention to the analysis of the process of decentralisation and democratic transformations, which was reflected in the works "Rebuilding governance in failed states and post-conflict societies: core concepts and crosscutting themes" and *Governance in Post-Conflict Societies: Rebuilding Fragile States* (Brinkerhoff, 2005);
– UN representative T. Addison, whose ideas are presented in particular in such publications as *From Conflict to Reconstruction: Reviving the Social Contract* (Addison et al., 2001) and "Lessons for Japanese foreign aid from research on aid's impact" (Addison & Tarp, 2016);
– research on conflicts in Azerbaijan (Muzaffarli & Ismailov, 2009) and Georgia (Lukhutashvili & Valishvili, 2013).

Taking into account that the biggest part of the conducted research has a fragmentary nature, it makes sense to accumulate and systematise the available information regarding the current state of the tourism industry in Ukraine. Statistical information and references from theState Agency for Tourism Development of Ukraine (The State Agency…, 2022), as well as analytical materials of the World Tourism Organization (World Tourism Organization, 2023) became the auxiliary base for the analytical work.

The philosophical basis of the study is dialectics, which considers phenomena in the process of development and interrelationship. The theoretical and methodological basis of the research is the fundamental provisions of the theory of social geography, tourism, economics.

General scientific and special methods of scientific abstraction, induction and deduction, historical analysis, statistical analysis, analogy, and quantitative and qualitative comparison were the main tools of the presented research; graphic and visual analysis tools also came in handy.

The research used methods of observation and analysis of available information. It should be noted that, in general, the information base for such a study is insufficient, since the hostilities continue and there is no quality monitoring of the number of losses of tourist resources in the country and their current state. One of the important problems of static analysis was the unification of statistical accounting of indicators of the tourism industry between different state bodies or public organisations and the absence of static data. With the help of static methods, a set of geographical objects were subjected to grouping, typology, and classification. A visual representation of the values of statistical indicators is presented in the form of tables, texts, graphs, and diagrams.

The application of the historical research method made it possible to compare current events with past events that have taken place in Ukraine since 2014, and to determine opportunities for the development of the tourism sector based on the example of the reconstruction of the tourism sector in the eastern regions.

The comparative method is a supplement and correction of the structural-functional methodology and is based on the premises that have certain general patterns of behaviour, since there is

much in common in the social life, culture, and social system of different peoples. Therefore, the study of the experience of other countries on this issue is also very important and necessary.

The forecasting method was used to find opportunities for the revival of tourism in the affected areas. It performs the prognostic function of science: it is not enough to understand the essence of the phenomenon – it is necessary to predict its development, namely to give a forecast of how tourism will develop in the post-war period, what should be done, and how to change the situation.

The application of the specified methods contributed to obtaining more reliable scientific research results and the search for new theoretical ways and practical opportunities for the development of the tourism industry in the post-war period.

An analysis of tourism losses in Ukraine

War in our country creates new challenges for the global economic environment and risks hindering the restoration of adequate confidence in the safety of travel. Despite the fact that Ukraine accounted for less than 1% of international tourism spending in 2020, the corresponding airspace closure as well as the ban on Russian carriers significantly affects intra-European tourism as a whole. This also leads to deviations on long-haul flights between East Asia and Europe, which increases costs.

The global tourism industry is capable of losing at least 14 billion USD in revenue if this armed conflict drags on (The State Agency…, 2022).

The United Nations initiated a meeting of the UN Security Council under the Arria formula entitled: “Destruction of cultural heritage as a result of Russian aggression against Ukraine.” This meeting was attended by representatives of the countries that are permanent members of the UN as well as representatives of the International Council of Monuments and Landmarks (ICOMOS) and UNESCO, who recently visited Ukraine (United Nation…, 2023).

Since the beginning of the war, the Russians have committed 423 crimes against Ukrainian cultural heritage and this number is not final, as hostilities continue. Every day, both natural and historical heritage are destroyed in the state. According to preliminary data, the damaged objects include:

1. 128 objects of immovable cultural heritage that have the status of monuments at the official level;
2. 147 cult buildings (50 of them are directly registered as monuments of architecture, history, and urban planning, or historically valuable buildings);
3. 136 belong to Christian communities (10 – Protestant, 125 – Orthodox, 2 – Catholic), 6 – Jewish, 4 – Islamic; 46 memorial monuments in honour of historical figures and events of the 19th till early 21st centuries; 33 nature reserves and museums;
4. 59 cinemas and theatres, cultural centres; 40 libraries (Bordun, 2022).

Destruction and damage to immovable cultural heritage sites as a result of bombings, rocket attacks, and artillery fire have now been recorded in 15 regions of the country. Geographically, it covers almost the entire territory of the country from the Donetsk and Luhansk regions in the east of the country to the Lviv region near the border with Poland in the west.

Tourist natural locations in the territories that are temporarily occupied are considered lost include: Askania-Nova, Oleshkivskiy sands, Kinborska spit, Dzharylgach, and the coast of the Sea of Azov (Pink Salt Lakes and Henichesk, Skadovsk, Kyrylivka, Berdyansk, partially Scythian Mound, Ochakiv). The border regions of Ukraine with the Republic of Belarus are also temporarily mined, which makes it impossible to have a proper rest on the Volyn lakes and rafting on the rivers of the Pripyat-Stokhid National Park.

The army of the terrorist state does not pay attention to religious buildings on the territory of the state, which clearly shows the complete oblivion of moral qualities and the rejection of universal human values. Since the beginning of the full-scale invasion, the Russian invaders have destroyed at least 183 religious buildings in the state, according to the press service of the Ministry of Information Policy and Culture. 5 out of 183 structures damaged as a result of the Russian attack are Muslim, 5 are Jewish, and the other 173 are Christian. The largest number of destroyed religious buildings is located in the Luhansk (40) and Donetsk (45) regions, followed by the Kyiv (34) and Kharkiv (25) regions (The State Agency…, 2023).

The most famous objects of sacred tourism that were damaged in the course of military operations are: the cathedrals of the Chernihiv Region and the Sviatohirsk Lavra, including the Saviour and Transfiguration Cathedral of the 11th century, the Chernihiv Ditynets and historical ramparts, the Catherine's Church of the 18th century, the Yeletsky Dormition Monastery of the 11th century, the Borysoglib Cathedral of the 12th century, and many others. The Chernobyl zone, which attracted a significant number of domestic and foreign tourists interested in dark tourism, also became inaccessible (Vlasenko, 2022).

The infrastructure of hotels in the cities of Odessa and Chernihiv is quite badly damaged, and almost everything in Bakhmut has been completely destroyed. However, the worst situation in our time is with the transport infrastructure, which is part of the tourist industry complex, and without its proper functioning, it is simply impossible to organise any tourist activity, except for walking. The transport infrastructure facilities of Kyiv, Chernihiv, Zhytomyr, Kharkiv, Sumy, and many other regions are damaged and unable to provide the appropriate level of service to tourists (Zarubina, 2022). The largest share of damaged monuments is located in the Kharkiv region, and destroyed and obliterated – in Donetsk region (Fig. 1).

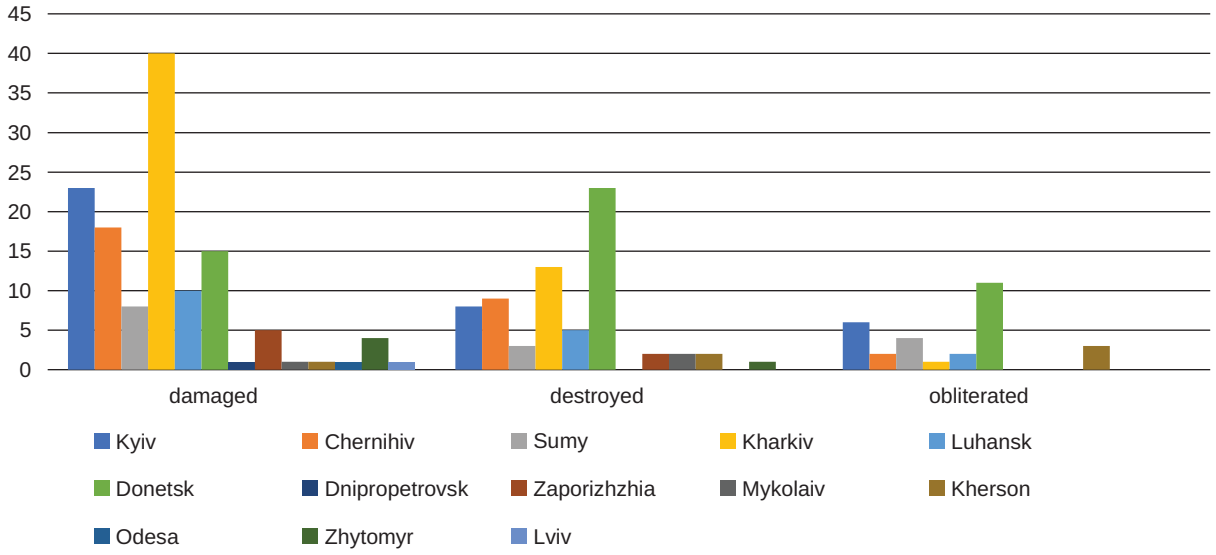


Figure 1. The number and geography of affected cultural monuments

Source: Map of cultural losses…, 2022.

In general, the objects of cultural heritage suffered the most destruction in the following regions: Donetsk, Kharkiv, Kyiv. Bombing and shelling by the Russian military damaged or completely destroyed a significant number of churches, museums, libraries, theatres, and other institutions. Among the objects are priceless sights, such as ancient sculptures, rare books, and world-class paintings. Objects of cultural value that could not be destroyed by bombing are looted on a mass basis and taken to the territory of Russia.

According to the KSE assessment data with the support of the Office of the President of Ukraine, the Ministry of Reintegration of Temporarily Occupied Territories, the Ministry of Economy, the Ministry of Development of Communities and Territories, and the Ministry of Infrastructure, infrastructure damage is: 23.8 thousand km of roads, for the repair of which it is necessary to spend 29, 8 million USD; 41 railway bridges and 6.6 thousand km of railway tracks (3.6 million USD); 11 airports (6.8 million USD); and 295 road bridges and intersections (1.6 million USD) (Requirement of time…, 2022). Other transport infrastructure, such as water, for example, have not yet been assessed. This is especially true of the water ports of Odesa and the occupied territories, which are damaged, which has a rather negative effect on export international flows, because they were mainly served by sea transport (The State Agency…, 2023).

The destruction of infrastructural and cultural property during hostilities has a rather negative effect on the work of the entire tourist industry of Ukraine and affects its economic efficiency.

One of the most important economic indicators of the tourism industry is the tourist tax paid by tourists in hotels and other accommodation facilities, so its volume depends directly on the total number of tourists in the region.

The corresponding amount of revenue from the payment of the state tourist tax decreased during the 2019–2020 coronavirus pandemic. However, already in 2021, a certain process of some revival of the tourism industry began and positive trends of increasing profits in tourism enterprises just began to emerge, as was stopped on 24th February, 2022, any tourist activity, except for the resettlement of internally displaced citizens.

In 2022, the amount of the tourist tax amounted to 178 million 948 thousand UAH, which is 24% less compared to 2021 – then the total amount of the tourist tax was 235 million 461 thousand UAH (Korchevska, 2022).

Such a drop was recorded in 14 regions of the country (Fig. 1). Basically, these are precisely those areas that were or are in the war zone and are temporarily occupied. Thus, in the Kherson region, the amount of the tourist tax decreased by 95%, in the Mykolaiv region – by 90%, in the Luhansk region – by 80%, and in the Donetsk region – by 83% (Bordun, 2022).

A significant decline was also recorded in the Zaporizhia (78%), Odesa (80%), Sumy (58%), Kharkiv (61%), Kyiv (54%), Kyiv (43%), Chernihiv (53%), and Zhytomyr (24%) regions. A 15% decline was recorded in the Rivne and Dnipropetrovsk regions. Graphically, the dynamics of the decrease in the amount of the tourist tax by region for 2022 is shown in Figure 2.

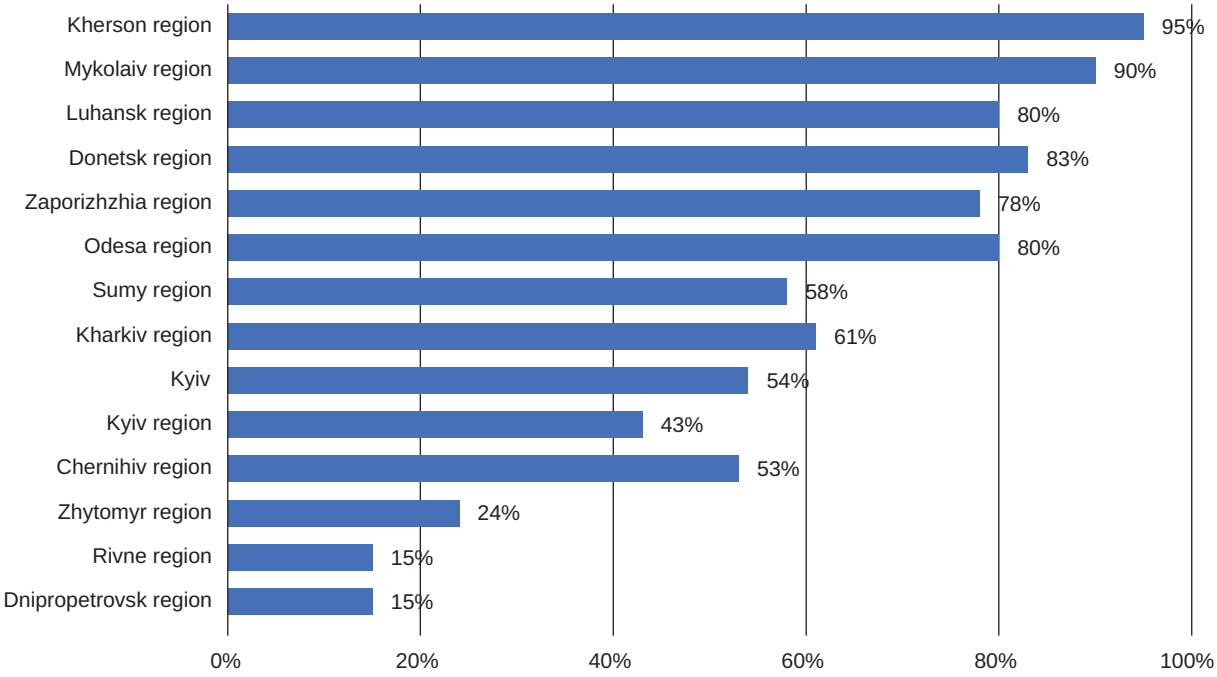


Figure 2. The dynamics of the decrease in the amount of the tourist tax by region for 2022

Source: Bordun, 2022.

Due to the internal migration of Ukrainians from the frontline and occupied territories to safer regions, an increase in the tourist tax has been recorded. Thus, the leader in terms of the amount of tourist tax in 2022 was the Lviv region – 41 million 430 thousand UAH, demonstrating an increase of 79% compared to 2021. The capital replenished its own budget by 31 million 474 thousand UAH. However, in comparison with 2021, this amount is less than two times. Also among the leaders in paying the tourist tax: Transcarpathia – 19 million 471 thousand UAH, the Ivano-Frankivsk region – 17 million 956 thousand UAH, and the Cherkasy region – 12 million 555 thousand UAH. The State Tourism Development Agency has calculated how much the state budget of the state has underreceived in taxes from the tourism industry due to military actions. Thus, for the past year 2022, representatives of the state's tourism industry paid 1 billion 551 million 182 thousand UAH in taxes, which is 31% less than in 2021, when 2 billion 231 million 860 thousand UAH was allocated to the budget (Korchevska, 2022).

Also, it should be noted that the total number of taxpayers engaged in tourist activities decreased by 17% in 2022. However, it was recorded that the total number of legal entities decreased by 14%, and the number of individuals decreased by 18% (State Tourism Development…, 2023). The largest share of revenues to the state budget for 2022 was paid by hotels – UAH 898 million. However, this amount is still 30% less than in 2021, when 1 billion 288 million UAH was allocated to the budget. A 46% increase in the tax paid from the activity of hostels and boarding houses, which are used as temporary shelter for people who were forced to leave their homes due to military operations, was recorded. However, the share of tax paid from the activities of campsites, camping sites, and children's recreation camps decreased by 57% – 141 million UAH of tax was paid, as opposed to 328 million UAH in 2021 (State Tourism Development…, 2023). Tax revenues from the activities of tourist operators, which paid 167 million 858 thousand UAH to the state budget in 2022, decreased by 35%, while in 2021 this figure was 259 million 5 thousand UAH (The State Agency…, 2023). There was also a 27% decline in the activities of travel agencies that paid 204 million 795 thousand UAH in taxes to the state budget in 2022, while in 2021 they received 279 million 265 thousand UAH. An increase in the total amount of tax paid in 2022 was shown by the Lviv region (273 million UAH against 215 million UAH in 2021), the Kyiv region (164 million UAH against 125 million UAH), and the Ivano-Frankivsk region (159 million UAH against against 131 million UAH) (The State Agency…, 2023). A significant decline in tax revenues was also recorded in the Odesa region and in Kyiv. In Odesa – by 58%, and in the city of Kyiv – by 46%.

The peculiarities of the functioning of the subjects of the tourism industry in the conditions of war

Tourism is a rather highly profitable sphere of economic activity. The total contribution of the tourism industry to world GDP in 2020 was 4.7 trillion USD. In many countries and regions of the world, it acts as a certain catalyst of socioeconomic development by stimulating the development of other sectors of the economy: public catering, transportation, etc.

In 2019–2020, the tourism industry around the world faced a rather serious challenge in its own development – a severe crisis that was associated with the rather rapid spread of COVID-19 (Zarubina, 2022).

The borders of a significant number of states were closed, rail and air traffic stopped, and a general self-isolation regime was introduced in a significant number of cities. Experts almost unanimously note that there has not been such a crisis in tourism since the Second World War. According to research by the World Travel and Tourism Council (WTTC) conducted in the spring of 2020, the pandemic has started to reduce up to a million jobs in international tourism every day. However, at the end of 2021 and at the beginning of 2022, a certain tendency towards the recovery of this industry emerged. Already in January 2022, a fairly rapid increase in the flow of tourists compared to 2021 was established (Fig. 3).

In Europe, according to Figure 2.3, the tourism sector increased by almost 200%, in South and North America – by 97%, and in the Middle East – by 89%, in the Asia-Pacific region – by 44%, in Africa – by 51%. Domestic tourism also began to recover itself (Zarubina, 2022).

However, in February 2022, the tourism industry faced a new challenge – the Russian-Ukrainian war, which, despite its own limited geography, directly had a significant impact on the state of tourism on a global scale.

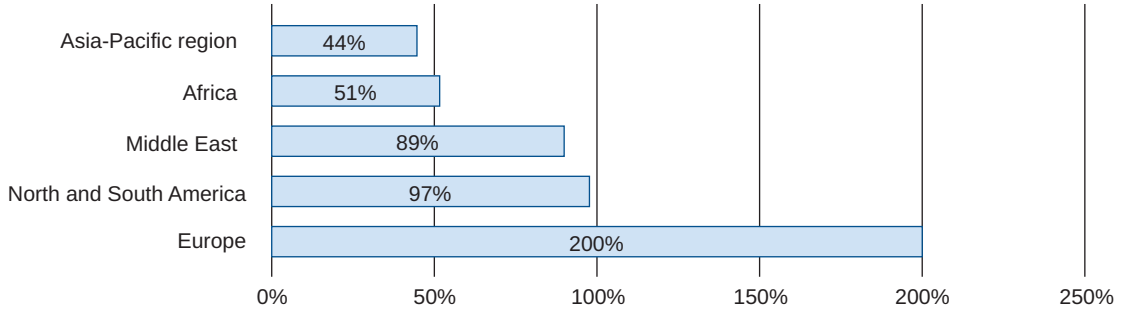


Figure 3. The growth of tourist flow in January 2022

Source: Dvorka, 2022.

European countries were the most affected. The main problems they have faced so far are the following: the loss of Ukrainian and Russian tourists; restrictions on airlines and use of airspace; significantly higher fuel and food costs; decrease in the income of tourist companies.

The war in our country has weakened the hopes of European states for the appropriate recovery of the tourism industry after COVID-19 in Europe in the summer of 2022 due to the virtually complete loss of the flow of Russian tourists due to the restrictions of European states in relation to Russia and its citizens. Actually, before the pandemic interrupted global tourist flows, Russia had been the 11th largest source of tourist arrivals in the world, and our state was 13th. Based on the data received from the World Tourism Organisation, these two countries accounted for about 75 million tourists, or 5% of the total number of tourists worldwide. With regard to tourism expenditures, the respective contributions of Ukrainians and Russians were even more important, totalling to more than 50 billion USD (approximately 8% of the world total) (Globtrender Intelligence…, 2022).

Therefore, it is necessary to note the importance of both tourism markets for neighbouring European states. Today, Russian tourists are unwanted in many areas of tourism; it is also difficult for them to get there, given the ban on Russian airlines and the existing restrictions on the use of airspace. At the same time, millions of Ukrainians were forced to flee the war abroad due to the Russian invasion. For the tourism industry, this situation does not allow for development, because refugees do not bring income to the tourism industry, unlike tourists, but, on the contrary, burden them with certain additional costs (Zarubina, 2022).

Of course, the tourism industry, not only in Europe, but also in Ukraine, was significantly affected. Because of the war, foreign and Ukrainian tourists are not able to access sea resorts. A significant number of them are under occupation or in direct proximity to the war zone. In this case, we are talking about the Kherson, Zaporizhzhya, and Mykolaiv regions. The resort season cannot be held in the Odesa region either because of mined coasts and drifting mines in the sea.

Despite the fact that western Ukraine is relatively safe for tourist flows, today there are very few of them in this area. A significant influx of tourists is not observed at any of the well-known popular resorts – Truskavets, Bukovel, Skhidnytsia, or Shatsky lakes. Promising medical tourism – namely reproductive medicine, health, and dentistry – was also affected by the war. Foreign tourists are simply afraid to go to our country, and Ukrainians themselves do not have the money to do so. The vast majority of sanatoriums were repurposed into rehabilitation centres that receive victims of military operations (Magdyk, 2022).

The full-scale invasion of the Russian Federation into our country had a significant impact on the further organisation of tourism in Ukraine.

As a result of the criminal actions of the Russian Federation, there was a big slowdown in the economic and touristic development of the state, because, according to the results of 2021, our state was among the top tourist countries in Europe and took one of the first places in the rating of tourist and transport international accessibility.

The military aggression of the Russian Federation had a negative impact on the tourism capacity of the EU Member States, among which the following should be highlighted:

– the cancellation of flights from or to Ukraine (the loss of relevant opportunities for “direct travel” for well-off Ukrainian citizens and, accordingly, opportunities for more comfortable rest for EU citizens in Ukraine in recreational areas and premium hotels);

– changes in the negative direction in airline pricing (due to relevant sanctions against the Russian Federation, there was an increase in the cost of aviation fuel by 20–30%, which, according to the IATA (International Air Transport Association), was the main reason for the increase in ticket prices to 80%);
– the loss of Ukrainian travellers to tourist destinations in Europe (the reason is the state of war in the country and the decline of outbound tourism due to the still unfavourable socioeconomic situation) (Vechersky, 2022).

It should also be noted that the functioning of the tourism sector of our country in the conditions of martial law takes place only at the domestic level with the appropriate involvement of relatively safe tourist areas with the help of organising the work of specialised tourist destinations, in particular in the Lviv region, Transcarpathia, the Ivano-Frankivsk region, etc.

In 2022, the organisation of international tourism in our country mostly did not exist due to the closed air space, and the planning of trips to our country for international tourists, although not prohibited, remains solely at the discretion of the travellers themselves (Brygilevich & Malska, 2022).

A large part of the population moved from their places of permanent residence, which are located in dangerous zones to safer zones, and to ensure the location of internally displaced persons, various types of hotels, tourist complexes, hostels, etc. were used, and for food – catering establishments that directly related to tourism business.

Under modern conditions, domestic tourism still functions, because in relatively safe regions of the state, one can visit tourist facilities, recreation facilities, museums, etc. At the same time, in these regions, the infrastructure is developed at a fairly high level, and logistics has undergone much smaller deviations from usual activities (Honchar, 2022).

In relatively safe areas of the country, sightseeing tours are organised, which are free for those people who left their homes due to military operations. In the west of our country, the excursion includes a historical component in order to better explain to people exactly those periods that Ukraine once experienced, e.g. tour guides talk about the same criminal atrocities in 1939–1941, which can now be seen in Irpen, Bucha, Kharkiv, Mariupol, and other villages and cities of Ukraine.

In these conditions, domestic tourism has features related to the restrictions and permits operating during the war in relatively safe central and western regions of the country. They should be taken into account not only by tourists, but also by travel companies when planning a tour. Routes should be formed taking into account the placement of bomb shelters. Tour guides and tour operators who make up excursion routes should take into account that in case of air danger, appropriate bomb shelters should be available to all tourists.

It is also important when organising tours to plan tourist trips in accordance with the curfew. In order to maintain law and order under martial law, a curfew has been established in all regions of Ukraine. As a rule, it works starting from 23.00 to 05.00 or 00.00 to 5.00. This is precisely why planning vacations or visits to one or other locations should be carried out with appropriate consideration of this requirement (Prysedska, 2022).

It is important to observe the prohibitions, which include excursions and walks near military or critical infrastructure facilities, holding mass events, visiting reservoirs, forests, and mountain routes in various tourist destinations of Ukraine, resting in front-line zones, and travelling in territories that are or were in occupation.

It should be noted that each region has its own peculiarities of organising tourist activities and recreation on its own territory. Mostly, they are related to some restrictions that apply in certain regions (Table 1.).

Table 1. The features of the recreation and operation of tourist facilities in different regions of Ukraine

Region	Features
1	**2**
Lviv region	You can visit the forests, but it is forbidden to drive through them. Exceptions are cases when a transit route runs through the forest or a person travels on a bicycle. You can relax near water bodies, the corresponding list of which is determined by the military administration.

Table 1. – cont.

Region	Features
1	2
Kyiv; Kyiv, Poltava, Volyn, Cherkasy regions	It is forbidden to visit forests and green areas located outside the boundaries of residential areas, it is allowed to rest near water bodies, the list of which is established by the military administration.
Ivano-Frankivsk region	You can visit the mountains and forests, but it is forbidden to move on them on quad bikes, jeeps, motorcycles and buggies. This ban also applies to the Bukovel resort.
Ternopil region	It is allowed to visit the forests, but it is forbidden to build fires. All tourism facilities are operating as usual.
Zakarpatskyy region	It is allowed to go to the forests, except for the Uzhan National Park and part of the Carpathian Biosphere Reserve, single-engine airplane flights are prohibited.
Rivne region	It is allowed to visit forests, collect berries and mushrooms, except for the territories located in the northern part of the region.
Vinnytsia region	Activities in the field of tourism near water bodies are allowed, except for those places that are not far from infrastructure facilities. It is forbidden to visit the forests.
Zhytomyr region	It is allowed to visit forests, collect berries and mushrooms, except for territories located 20 km from the border with Belarus. Only those cultural institutions equipped with shelters are allowed to work
Chernivtsi region	Visiting forests is allowed. Tourist facilities are operating as usual.
Khmelnytskyi region	It is allowed to visit forests with some restrictions. All tourist facilities are open as usual
Mykolaiv region	It is allowed to visit the forest tracts established by the military administration with certain restrictions

Source: Magduk, 2022.

In order to find out what changes have taken place with the entities of the tourism industry, it is advisable to analyse the dynamics of the total number of registered entities engaged in tourism activities in our country in the conditions of war (Bragilevich & Malska, 2022). Thus, as of 1st October, 2022, compared to 1st April, 2022, there was a decrease in the total number of registered natural persons engaged in business activities – travel agencies by 269 units, while the number of entities providing other tourist services increased slightly from reservations and related related activities (Table 2).

Table 2. The number of registered natural persons-entrepreneurs and legal entities by types of tourist activity

Subject of the tourist industry	01.10.2022		01.07.2022		01.04.2022	
	P	E	P	E	P	E
Travel agencies	5768	4567	5847	4575	6037	4574
Tourist operators	103	2109	104	2112	106	2108
Entities providing other reservation services and related activities	737	639	704	637	714	637

Note: P – persons-entrepreneurs, E – enterprises.
Source: Zarubina, 2022.

In turn, the total number of registered legal entities – travel agencies – decreased by 7 units, and the total number of legal entities – travel operators and entities providing second booking services and related activities – increased by 1 and 2 units, respectively (The State Agency…, 2023).

It should be noted that the war was actually devastating for domestic tourism. Closed airspace, significant difficulties with payment and a rather unreliable security situation nullified all the conditions necessary for the “survival” of tourism.

However, despite the complexity of the situation, tourism in our country continues to function. This industry adapts to modern realities, finds certain solutions, lays the foundation for further development, and works towards one main common goal.

A rather unstable environment has created new risks and threats to the effective operation of the relevant entities of the tourism industry and has put forward stricter requirements for the

organisation of tourist health and safety management. At the same time, managing the impact of these threats goes beyond the tourism market. The security and further development of the domestic tourism sector is largely dependent on the coordinated efforts of the public, government bodies, and the business community. Overcoming existing negative trends will require certain development of systemic and complex measures as well as action algorithms for their implementation with the use of financial, legal, and innovative methods of influence on the relevant sphere of tourism (Vechersky, 2022).

The activities of tourism industry entities largely support the state budget, as this function is quite important during military operations. Even after the establishment of peace in the domestic market, new trends in the development of tourism will be observed. The need for rest and recovery will increase (rest in the mountains, at the sea, in the forest). All types of relaxation tourism, which contribute to the restoration of physical and mental strength, will be actively developed. Excursions to local and familiar places will be organised, and interest in traditions and history will increase. The tourist image of the state should not lose its own complexity.

The directions for saving tourism activity in Ukraine

On the basis of the analysis of losses of the state's tourism business from the war, it is possible to propose a set of measures for the gradual restoration of tourism activities. The proposed complex can be divided into 5 parts that are interconnected and complement each other's effectiveness:

1) financing;
2) territorial improvement of tourist flows (transport logistics);
3) sectoral optimisation (combination of relevant enterprises into cluster formations);
4) the improvement of marketing through the creation of a national tourism marketing organisation and its respective subsidiary branches;
5) sectoral (species) improvement of state tourism (Bordun, 2020).

In practice, these theoretical parts quite often penetrate each other and are quite difficult to separate, but the analysis of each of them will give us the opportunity to use interdisciplinary research and impose a synergistic effect on each of them in particular.

The first main role should be given to financial support, since during the two years of the existence of tourism enterprises during the period of COVID-19, they exhausted their own savings and many of them already existed on credit loans.

The fiscal capacity of the country and the ability of the population to pay the corresponding user fees in the future will simply be limited. This will be a rather serious deterrent to any options for private or public financing, and it means that international aid must be focused on grants, which can be obtained from various sources:

1) "Mechanism for the recovery of Ukraine" of the EU, within the framework of which loans and grants are provided for reconstruction. It is funded by the EU and the respective Member States;
2) "Account for Ukraine" of the IMF, which is a channel of grants or loans from IMF members, their official institutions, as well as intergovernmental organisations and institutions to provide assistance to the state in meeting its respective balance of payments and budgetary needs;
3) The EBRD's 2 billion EUR Resilience and Livelihoods Framework, which in particular focuses on certain payment deferrals, debt restructuring, and arrears, as well as emergency liquidity financing for our country;
4) A multi-donor mechanism under the management of the World Bank to cover the main public expenditures, such as the public wage fund, which has already received a mixed loan on commercial and concessional terms in the amount of 1.5 billion USD (Bordun & Shevchuk, 2020).

Ukraine could also use the experience of other developed countries that suffered from national disasters and update its own emergency action plans for the future. Thus, the earthquake in New Zealand in 2010/11 is one such example, while other examples include Italy, Japan, Mexico, USA, etc.

Transport logistics in the near future will depend on the reconstruction of airports, transport routes, and bridges, and will also directly depend on the environmental situation. As a result of the massive shelling, the soil and water in many parts of Ukraine are contaminated with toxic

substances, which poses a serious threat to the health of the entire population. Many of these problems can be considered cross-border, because their impact is felt not only within the state, but also beyond its borders. The costs incurred by the economy due to the inoperability of the infrastructure are also reflected in the work of the entire tourism sector, so it is necessary to launch a infrastructure reconstruction programme as soon as possible. According to the proposal of the Centre for Political and Economic Research (CEPR) (The War…, 2022), the European Commission (EC) proposed to create a joint new institution – the Platform for the Reconstruction of Ukraine – which will be jointly managed by the EC and the Ukrainian authorities. However, this platform may not be the only one given the different interests of the existing investors. It is planned that the State Reconstruction Platform will coordinate the Strategic Reconstruction Plan "Rebuild Ukraine", taking into account financial assistance from abroad. The recently created National Council of Reforms in Ukraine should become the owner and developer of the plan. It is assumed that the EU and all other partners will provide assistance, which will increase the effectiveness of the plan. This platform plans to promote partnership between some locations of the European Union and regions or cities of the country with the aim of accelerating reconstruction (Bordun & Shevchuk, 2020).

Regarding emergency measures, the first steps in response to the disaster are already underway. As hostilities continue, there will be a need to maintain or establish key services, as well as to identify key priorities and recovery activities. In order to create the basic conditions for the reconstruction, it will be necessary to restore the main transport, electricity, and water connections. Our state could use infrastructure reconstruction to modernise its own communication network (e.g. laying optical fibre under reconstructed roads). As roads are rebuilt in the state, it is also necessary to consider the possibility of laying fibre optic cables and connecting a significantly larger number of people, even if the operators themselves will not be able to provide services for several years, especially in rural areas. The optimisation of tourism activity had already been working before the war and should continue (Bordun & Shevchuk, 2020).

It is also important to facilitate the development of business clusters using knowledge infrastructure and an effective network. A fairly well-thought-out cluster development policy is able to encourage enterprises to some joint cooperation for the development of complex projects, promote connections between science and industry, and strengthen inter-industry interaction. Before the war, Ukrainian tourist clusters had showed the advantages of this association in Lviv and other cities. When foreign direct investors are located in these clusters, they are likely to be more willing to cooperate with other local organisations and companies.

It is important to improve marketing through the creation of a national tourism marketing organisation and its affiliates. In order to restore the activity of the tourism industry, it is necessary to approach tourism as a complex product and develop an appropriate system of marketing means to stimulate sales. These measures can be provided only by a tourism marketing agency, the so-called destination marketing organisation (DMO) (Gaponenko et al. 2021).

Even before the start of the war, SATD had begun the process of the formation of the Commission on preparation for the creation of the National Tourism Organisation (NTO), which should develop regulations on the organisational and legal form of the NTO and OMD, as well as improve the regulatory and legislative framework of tourism in the state (The State Agency…, 2023).

Preparatory work on the election of representatives to the Commission from 9 oblasts has already been carried out, the remaining delegates from other oblasts are in the process of being elected. Only one representative may be elected to the Commission from one region. Within the limits of his/her own duties, he/she will communicate with the bodies of business representatives and state authorities of his/her own region.

The most influential international organisation engaged in tourism marketing is the European Tourist Commission (ETC), which invited the State Agency for Tourism Development of Ukraine to join this organisation with a three-year free membership; thus, the organisation expressed its solidarity with our country. This decision was agreed upon during the 103rd general meeting held on 18th–20th May, 2022, in Ljubljana, organised by the Slovenian Tourism Board. This meeting brought together heads of National Tourism Organisations (NTOs) from all over Europe and members of associated ETCs from the private sector (The State Agency…, 2023).

The main founding principle of the ETC is to promote travel as a certain catalyst of peace, respect, and understanding, which is why supporting tourism in Ukraine is consistent with the current mission of the ETC to promote and strengthen Europe as a destination for international tourists through cooperation.

The sectoral (species) improvement of tourism in Ukraine will directly depend on the previous stages of reconstruction of tourism activities, but, in general, it will be a continuation of already existing trends towards the humanisation and greening of tourism. The main directions of ecological tourism are river rafting, health hikes in the mountains, visiting caves, and rock climbing. The humanisation of tourist activities involves the development of recreational tourism types that improve the cultural level and general state of health.

Health tourism is a priority in our country, since humanity at this stage gives priority to the prevention of diseases (Demkiv & Stukach, 2020)). In the state, this type of tourism is provided with natural resources, especially in Transcarpathia, but the infrastructure is outdated and does not meet international standards. If, owing to international grants, the sanatorium-resort complex passes the stage of reconstruction, it will be able to serve tourists at the highest level. Nowadays, the first consumers should be the participants in hostilities and victims of the war in Ukraine, and in the future, with the establishment of all the second stages of the revival of tourism, tourist flows from abroad will also resume, as in 2021 from large Arab countries (Saudi Arabia and UAE) (Bordun, 2022).

Also, the development of such an innovative type of tourism as dark tourism, and especially such subspecies as tourism for the purpose of worshiping fallen heroes and tourism to the places of combat and necropolis, is quite promising. All these types of tourism will be strengthened by gastronomic tourism, since each of the regions of the country has its own recipes for the same dish and the products of each region differ in their own taste properties. Tourism activity in its own revival should be based on the existing significant resource potential of the territories, whose national marketing agencies will provide powerful promotion from among countries abroad (Barvinok, 2022).

Almost 800 million users in Latin America and Spain have already seen the Meet Ukraine promotional campaign. This became possible owing to the signed Memorandum on long-term partnership between the Spanish Analytical Centre for Tourism and Society (TSTT) and the Agency for Tourism Development of Ukraine (The State Agency…, 2023).

The main direction of the joint work of the TSTT and the DART is the launch of the international campaign Meet Ukraine. The main goal is to tell the international community about the damage suffered by the tourism industry of Ukraine as a result of the aggression of the Russian Federation in order to attract appropriate investments that will be directed specifically to the reconstruction of damaged or destroyed objects.

An important direction of saving tourism activity in Ukraine is also the reconstruction of destroyed or damaged cultural monuments, which will be carried out by several such tools: using domestic resources, with the support of other states, with money from special funds. Currently, such a general scheme is at the stage of its own creation. Nowadays, Ukraine makes significant efforts to preserve as many monuments as possible. The Ministry of Culture and Information Policy of the country actively conducts consultations with UNESCO regarding the methods of storing cultural objects during military operations (State Tourism Development…, 2023).

The most valuable monuments of cultural heritage are marked with a special international sign “Blue Shield”, which directly indicates a rather strengthened protective status. Damage or destruction of objects with this marking is a direct war crime against cultural heritage. Artefacts of churches, museums, and cultural values from archives are placed in plywood boxes, sculptures are packed directly with a special film and placed in bags filled with sand, and stained glass windows of temples and facades with ancient carvings are sheathed with sheet metal for preservation. In this way, valuables are protected from damage that can be caused by fire, blast wave, or debris. Public organisations as much as possible involve patrons in the appropriate provision of all necessary materials for the protection of monuments, as well as volunteers who provide assistance on their own (Monuments under the fire…, 2022). The Ministry of Culture of Ukraine is also negotiating with foreign partners and ambassadors regarding advisory and financial support in the restoration of cultural monuments.

Thus, it is necessary to adopt the experience of other countries in the protection and preservation of monuments in order to minimise the loss of cultural heritage. Already now it is necessary to start work on monitoring the lost cultural resources and attempts to return or restore the looted. The memorialisation of cultural heritage will undoubtedly contribute to the process of its fairly quick restoration, if possible.

Conclusions

It has been identified that since the beginning of the war, the Russians have committed 423 crimes against Ukrainian cultural heritage, and this number is not final, as hostilities continue. Tourist natural locations in the territories that are temporarily occupied and are considered lost include: Askania-Nova, Oleshkivskiy sands, Kinborska spit, Dzharylgach, and the coast of the Sea of Azov (Pink Salt Lakes and Henichesk, Skadovsk, Kyrylivka, Berdyansk, partially Scythian Mound, Ochakiv). The border regions of Ukraine with the Republic of Belarus are also temporarily mined, which makes it impossible to have a proper rest on the Volyn lakes and rafting on the rivers of the Pripyat-Stokhid National Park. In general, the objects of cultural heritage in the Kharkiv, Donetsk, and Kyiv regions suffered the most destruction. Shelling and bombing by the Russian military completely destroyed or damaged many museums, churches, theatres, libraries, and other institutions. The objects include priceless exhibits such as ancient monuments, sculptures, world-class paintings, and rare books. Objects of cultural value which could not be destroyed by bombing are massively looted and taken to the territory of Russia; some of the stolen art objects have not yet been found.

The conducted analysis proved that in 2022, the organisation of international tourism in our country mostly did not exist due to the closed air space, and the planning of trips to our country for international tourists, although not prohibited, remains solely at the discretion of the travellers themselves. In relatively safe areas of the country, sightseeing tours are organised, which are free for those people who left their homes due to military operations.

A set of measures was proposed to gradually restore the activity of the tourism sector, namely: financial support; territorial improvement of tourist flows (transport logistics); sectoral optimisation (the combination of relevant enterprises into cluster formations); improving marketing through the establishment of a tourism national marketing organisation and its respective affiliates; sectoral (species) improvement of state tourism.

Reference List

Addison, T., & Mansoob Murshed, S. (2001). From conflict to reconstruction: Reviving the social contract. UN University. WIDER. *Discussion Paper* (2001/48). https://www.researchgate.net/publication/23984856_From_Conflict_to_Reconstruction_Reviving_the_Social_Contract

Addison, T., Tarp, F. (2016). *Lessons for Japanese foreign aid from research on aid's impact*. In H. Kato, J. Page & Y. Shimomura (Eds.), *Japan's Development Assistance* (pp. 295–309). Palgrave Macmillan. https://link.springer.com/chapter/10.1057/9781137505385_18

Barvinok, N. (2022). Vplyv hlobalnykh bezpekovykh faktoriv na rozvytok mizhnarodnoho turyzmu v Ukraini [Impact of global security factors on the development of international tourism in Ukraine]. *Věda a perspektivy* [Science and perspective], 4(11), 139–151.

Bigus, M., Halkiv, L., & Dobushovskyi, P. (2020). Turystychnyi biznes pid vplyvom suchasnykh zmin, zumovlenykh svitovymy vyklykamy [Tourist business under the influence of modern changes caused by global challenges]. *Naukovyi pohliad: ekonomika ta upravlinnia* [Scientific view: economics and management], (3), 7–12.

Bordun, O. (2022). Vtraty ta napriamky poriatunku turystychnoho biznesu Ukrainy v umovakh viiny [Losses and ways of saving the tourism business of Ukraine in the conditions of war]. *Visnyk Lvivskoho universytetu. Seriia ekonomichna* [Bulletin of Lviv University. The Economics Series], 62, 178–196.

Bordun, O., & Shevchuk, V. (2020). Osoblyvosti otsiniuvannia pokaznykiv staloho (zbalansovanoho) rozvytku hotelnoi industrii Ukrainy u chas pandemii koronavirusu [Peculiarities of evaluating indicators of sustainable (balanced) development of the hotel industry of Ukraine during the coronavirus pan-

demic]. *Visnyk Lvivskoho universytetu. Seriia ekonomichna* [Bulletin of Lviv University. The Economic Series], 58, 274–285.

Brinkerhoff, D. (2005). Rebuilding governance in failed states and post-conflict societies: Core concepts and crosscutting themes. *Public Administration and Development, 25*(1), 3–14. https://www.researchgate.net/publication/261797193_Rebuilding_Governance_in_Failed_States_and_Post-Conflict_Societies_Core_Concepts_and_Cross-Cutting_Themes

Brygilevich, G., & Malska, M. (2022). Vplyv mizhnarodnoho turyzmu na sotsialno-ekonomichnyi rozvytok Ukrainy v umovakh viiny [The influence of international tourism on the socio-economic development of Ukraine in the conditions of war]. *Věda a perspektivy* [Science and perspective], (9), 50–59.

Collier, P. (1998). On economic causes of civil war. *Oxford Economic Papers, 50*, 563–573.

Collier, P., & Hoeffler, A. (2005). Resource rents, governance, and conflict. *Journal of Conflict Resolution, 49*(4), 625–633. https://journals.sagepub.com/doi/10.1177/0022002705277551

Demkiv, Y., & Stukach, T. (2020). Ukrainska turystychna haluz u svitovomu seredovyshchi: adaptatsiia za umov vplyvu hlobalnoi mizhnarodnoi kryzy COVID-19 [Ukrainian tourism industry in the eglobal environment: adaptation under the influence of the global international crisis of COVID-19]. *Biznesnavihator* [Business navigator], (4), 18–27.

Dvorska, I. (2022). Turystychna haluz pislia viiny: chy mozhlyva reanimatsiia ta antykryzove upravlinnia? [The tourism industry after the war: is resuscitation and anti-crisis management possible?] *Liga.net*, May 16. https://blog.liga.net/user/idvorskaya/article/44952

Gaponenko, H., Yevtushenko, O., & Shamara, I. (2021). Priorytetni napriamy zabezpechennia staloho rozvytku turyzmu Ukrainy v umovakh pandemii [Priority directions for ensuring the sustainable development of tourism in Ukraine in the conditions of the pandemic]. *Biznes Inform*, (5), 227–235.

Honchar, L. (2022). Application of compliance management in the functionality of the controlling system of enterprises of the hospitality industry. *The X International Science Conference «Modern Science: Innovations and Prospects»*, June 25–27, 2022. Stockholm, Sweden. https://sci-conf.com.ua/viii-mezhdunarodnaya-nauchno-prakticheskaya-konferentsiya-modern-science-innovations-and-prospects-1-3-maya-2022-goda-stokgolm-shvetsiya-arhiv.

How the war in Ukraine will affect European tourism (April 28). https://globetrender.com/2022/04/28/how-the-war-in-ukraine-will-affect-european-tourism/

Korchevska, L. (2022). Stan, osoblyvosti ta perspektyvy turyzmu u voiennyi ta postvoiennyi periody [State, characteristics and prospects of tourism in the war and post-war periods]. *Materialy Mizhnarodnoi naukovo-praktychnoi konferentsii "Upravlinnia rozvytkom sfery hostynnosti: rehionalnyi aspekt" (m. Chernivtsi, 5 travnia 2022 r.)* [Materials of the International Scientific and Practical Conference "Managing the Development of Hospitality: Regional Aspect", Chernivtsi, May 5)] (pp. 337–341) Tekhnodruk.

Lukhutashvili, N., & Valishvili, T. (2013). Fundamentals of religious tourism development in Georgia. *Bulletin of DITB*, (17), 124–128.

Magdyk, N. (2022). Turyzm pid chas viiny: yak vidpochyvaty v Ukraini tsoho lita [Tourism during the war: how to rest in Ukraine this summer]. Segodnya.ua. https://ukraine.segodnya.ua/ua/ukraine/turizm-vo-vremya-voyny-kak-otdyhat-v-ukraine-etim-letom-1629651.html

Mapa kulturnykh vtrat [Map of cultural losses]. (2022). Ukrainskyi kulturnyi fond [Ukrainian Cultural Fund]. https://uaculture.org/culture-loss/

Muzaffarli, N., Ismailov, E. (2009). K voprosu o vosstanovlenyy postkonflyktnыkh terrytoryi [To the question of the restoration of post-conflict territories]. *Kavkaz y Hlobalyzatsyia* [Caucasus and Globalization], (3), 37−28.

Pamiatky pid obstrilamy: yak zakhystyty kulturu vid viiny? [Monuments under the fire: how to protect culture from war?] (2022). *20 khvylyn* [20 minutes], May 9. https://zt.20minut.ua/kul-tura/pamyatki-pid-obstrilami-yak-zahistiti-kulturu-vid-viyni-11603231.html

Pislia viiny vnutrishnii turyzm v Ukraini ekonomichno sylno "prosiade", a zghodom deshcho zminytsia – holova Derzhturyzmu [After the war, domestic tourism in Ukraine will "sag" economically, and later it will change somewhat – the head of State Tourism] (2022). *Interfax-Ukraine*, April 24. https://ua.interfax.com.ua/news/general/826786.html

Prysedska, V. (2022). Yak perezhyvaie viinu turystychna haluz [How the tourist industry survives the war]. bbc.com. https://www.bbc.com/ukrainian/features-62004034

Requirement of time. Bomb shelters will appear at tourist sites and routes in Ukraine (2022). *Business*, April 25. https://biz.nv.ua/ukr/markets/turizm-pid-chasviyni-populyarni-ob-yekti-ta-marshruti-ukrajini-obladnayutbomboshovishchami-50236642.html

The State Agency for Tourism Development of Ukraine. https://tourism.gov.ua

United Nations World Tourism Organization (UNWTO). Official site: https://www.unwto.org/
Vechersky, V. (2022). Kulturna spadshchyna Ukrainy [Cultural heritage of Ukraine]. https://vue.gov.ua/
Vlasenko, N. (2022). Yak zhyve turystychna haluz Ukrainy v period viiny [How the tourism industry of Ukraine lives during the war]. May 22. https://www.dw.com/uk/yak-zhyve-turystychna-haluz-ukrainy-v-period-viiny/a-61838301
The war in Ukraine may hinder the restoration of tourism (2022). UN. March 28. https://news.un.org/ru/story/2022/03/1420802
Zarubina, A. (2022). Osoblyvosti turyzmu v umovakh voiennoho stanu [Peculiarities of tourism under martial law]. *Ekonomika ta suspilstvo* [Economy and society], (41), 145–152.
Zavarika, H. (2019). *Suspilno-heohrafichnyi vymir postkonfliktnoho rozvytku turyzmu na prykladi skhidnykh terytorii Ukrainy* [Socio-geographical dimension of post-conflict tourism development on the example of the eastern territories of Ukraine]. Vyd-vo SNU im. Dalia.
Zavarika, H., Zelenko, O. (2022). Stalyi turyzm yak instrument zberezhennia kulturnoi spadshchyny ta vidnovlennia postrazhdalykh terytorii [Sustainable tourism as a tool for preserving cultural heritage and restoration of damaged territories]. *Ekonomika ta suspilstvo* [Economy and society], (39). https://doi.org/10.32782/2524-0072/2022-39-78

Informacje dla Autorek i Autorów

Prosimy o nadsyłanie artykułów na adres:
sril.euroreg@uw.edu.pl

„Studia Regionalne i Lokalne" wydawane są w formule pełnego otwartego dostępu na licencji CC BY-NC-ND 4.0, bez jakichkolwiek opłat publikacyjnych. W kwartalniku publikujemy artykuły w języku polskim i angielskim.

Artykuły powinny spełniać następujące wymogi formalne:

Abstrakt. Tekst artykułu powinien być poprzedzony nie dłuższym niż 100 słów streszczeniem, zawierającym informacje o tematyce i głównych tezach artykułu. Abstrakt pozwoli czytelnikowi szybko zorientować się, do jakich pojęć autor się odnosi. Należy podać również nie więcej niż sześć słów kluczowych. Niezależnie od języka artykułu (polski lub angielski) abstrakt, tytuł i słowa kluczowe powinny być podane zarówno w języku polskim, jak i angielskim.

Tekst. Objętość artykułu nie powinna przekraczać jednego arkusza wydawniczego (ok. 22 stron znormalizowanych, 40 tys. znaków typograficznych ze spacjami). Tekst musi zawierać wszystkie tabele, mapy, rysunki i inne elementy graficzne w formie gotowej do druku – w zapisie wektorowym. Cytowanie i powołania na innych autorów powinny być oznaczone w tekście przez podanie nazwiska autora i roku wydania publikacji (np. Nowak 1976a; Kowalski 1998). Pełną bibliografię należy dołączyć na osobnej stronie na końcu artykułu.

Autorka/Autor jest zobowiązana/-y podać swoją afiliację, numer ORCID oraz adres poczty elektronicznej, jak również adres pocztowy instytucji wymienionej w afiliacji. Informacje te zostaną umieszczone w notce na początku artykułu.

Prosimy o nadsyłanie tekstów oryginalnych, nieopublikowanych nigdzie wcześniej ani nieoddanych do publikacji w żadnym innym czasopiśmie.

O przyjęciu bądź nieprzyjęciu artykułu do druku decyduje opinia anonimowych recenzentów i recenzentek.

Szczegółowe informacje dla Autorek i Autorów dostępne są na stronie:
www.studreg.uw.edu.pl

Pełny adres redakcji:
Kwartalnik *Studia Regionalne i Lokalne*
Uniwersytet Warszawski
Centrum Europejskich Studiów Regionalnych i Lokalnych
ul. Krakowskie Przedmieście 30, 00-927 Warszawa
e-mail: sril.euroreg@uw.edu.pl
www.studreg.uw.edu.pl

Information for Authors

Please send the articles to the following address: sril.euroreg@uw.edu.pl

“Studia Regionalne i Lokalne” is an open-access journal published under the CC BY-NC-ND 4.0 license, without any publication fees. In the Quarterly, papers in Polish and English are published.

Articles should meet the following formal requirements:

Abstract. The article should be preceded by a summary of no more than 100 words containing information about the subject and the main theses of the article. No more than six key words should also be provided.

Manuscript. The length of the article should not exceed one publishing sheet (approx. 22 pages standardized, 40 thousand typographic characters with spaces). The text must contain all tables, maps, drawings, and other graphic elements in a ready-to-print form, in vector format. Quotes and references to other authors should be marked in the text with the name of the author and the year of publication (e.g., Nowak 1976a; Kowalski 1998). A complete bibliography should be attached on a separate page at the end of the article.

The authors are obliged to provide their affiliation, ORCID number and e-mail address, as well as the postal address of the institution mentioned in the affiliation. This information will be included in the note at the beginning of the article.

Please send original texts, not published anywhere before or not submitted for publication in any other journal. Articles are accepted or rejected based on two double-blind reviewers.

Detailed information for the authors is available at: www.studreg.uw.edu.pl/en

Editorial office address:
Regional and Local Studies
University of Warsaw, Center for European Regional and Local Studies
ul. Krakowskie Przedmieście 30,
00-927 Warsaw
e-mail: sril.euroreg@uw.edu.pl
www.studreg.uw.edu.pl/en