

UDC 330.322:355

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FOREIGN INVESTMENTS IN THE ECONOMY OF THE BLACK SEA SUBREGION OF UKRAINE AS A FACTOR IN ITS POST-WAR RECOVERY

Ukhanova, I. (2024). Foreign investments in the economy of the Black Sea subregion of Ukraine as a factor in its post-war recovery [Inozemni investytsii v ekonomiku Prychornomorskoho subrehionu Ukrainy yak chynnyk yii povoiennoho vidnovlennia], *Socio-economic research bulletin, Visnik social'no-ekonomichnih doslidzen* (ISSN 2313-4569), Odesa National Economic University, Odesa, No. 3-4 (90-91), pp. 205–218.

Abstract. *The article investigates the international investment activity of the Black Sea subregion of Ukraine. The purpose of the article is to study the peculiarities of international investment cooperation of the Black Sea subregion of Ukraine as a factor of economic recovery in the post-war period. The main methods used in the research are analysis and synthesis, generalization, which made it possible to conduct a study of the scientific and theoretical foundations of international investment cooperation; graphic-analytical method, statistical toolkit - for analyzing the state and dynamics of foreign direct investment attraction in the economy of the Black Sea Subregion and the regions included in it; correlation-regression analysis - to analyze the influence of foreign investments on the macroeconomic development of the Black Sea subregion and determine the reserves of such development in the post-war period. The paper analyzed the macroeconomic indicators of the subregion, determined the state and dynamics of foreign direct investment, investigated the geographic and sectoral structure of direct foreign investment in the Black Sea subregion, conducted a correlation-regression analysis to determine the impact of direct foreign investment on the economic development of the subregion. The analysis of international investment cooperation in the Black Sea subregion of Ukraine allowed us to conclude that Odessa region dominates international investment cooperation in the Black Sea subregion. It was determined that in the sectoral structure of foreign investments, approximately half is accounted for by port logistics, the active attraction of foreign capital in the pre-war period was observed in the energy sector and the processing industry (mainly related to the agro-industrial complex). It was noted that the connection between international investment cooperation and the economic development of the Black Sea subregion is not significant, but there is a noticeable connection between FDI and the average wage in the subregion and their impact on the growth of the gross regional product. Proposals regarding directions of post-war development of international investment cooperation of the Black Sea subregion have been formulated, taking into account key reserves for recovery and the need to reform the domestic investment climate.*

Keywords: *foreign direct investment; gross regional product; economic recovery; economic growth; impact of FDI.*

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ІНОЗЕМНІ ІНВЕСТИЦІЇ В ЕКОНОМІКУ ПРИЧОРНОМОРСЬКОГО СУБРЕГІОНУ УКРАЇНИ ЯК ЧИННИК ЇЇ ПОВОЄННОГО ВІДНОВЛЕННЯ

Уханова, І. О. Іноземні інвестиції в економіку Причорноморського субрегіону України як чинник її повоєнного відновлення. *Вісник соціально-економічних досліджень*. Одеса : Одеський національний економічний університет. 2024. № 3-4 (90-91). С. 205–218.

Анотація. У статті досліджено міжнародну інвестиційну діяльність Причорноморського субрегіону України. Метою статті є дослідження особливостей міжнародного інвестиційного співробітництва Причорноморського субрегіону України як чинника економічного відновлення в повоєнний період. Основними методами, застосованими у дослідженні є аналіз і синтез, узагальнення, що дозволило провести дослідження науково-теоретичних засад міжнародного інвестиційного співробітництва; графічно-аналітичний метод, статистичний інструментарій – для аналізу стану та динаміки залучення прямих іноземних інвестицій в економіку Причорноморського субрегіону та областей, що входять до нього; кореляційно-регресійний аналіз – для аналізу впливу іноземних інвестицій на макроекономічний розвиток Причорноморського субрегіону та визначення резервів такого розвитку у поствоєнний період. В роботі проаналізовано макроекономічні показники субрегіону, визначено стан та динаміку прямих іноземних інвестицій, досліджено географічну та галузеву структуру прямих іноземних інвестицій в Причорноморський субрегіон, проведено кореляційно-регресійний аналіз для визначення впливу прямих іноземних інвестицій на економічний розвиток субрегіону. Проведений аналіз міжнародного інвестиційного співробітництва Причорноморського субрегіону України дозволив дійти висновку про домінування Одеської області у міжнародному інвестиційному співробітництві в Причорноморському субрегіоні. Визначено, що у галузевій структурі іноземних інвестицій приблизно половина припадає на портову логістику, активне залучення іноземного капіталу у довоєнний час спостерігалось у енергетичному секторі і переробній промисловості (переважно, пов'язаної із АПК). Відзначено, що зв'язок між міжнародним інвестиційним співробітництвом та економічним розвитком Причорноморського субрегіону не є суттєвим, однак спостерігається помітний зв'язок між ПІІ та середньою заробітною платою в субрегіоні та їх вплив на приріст валового регіонального продукту. Сформульовано пропозиції щодо напрямків повоєнного розвитку міжнародного інвестиційного співробітництва Причорноморського субрегіону з урахуванням ключових резервів для відновлення та необхідності реформування внутрішнього інвестиційного клімату.

Ключові слова: прямі іноземні інвестиції; валовий регіональний продукт; відновлення економіки; економічне зростання; вплив ПІІ.

JEL classification: R110; R190; G200

DOI: [https://doi.org/10.33987/vsed.3-4\(90-91\).2024.205-218](https://doi.org/10.33987/vsed.3-4(90-91).2024.205-218)

1. Introduction

International investment cooperation plays a fundamental role in ensuring the goal of sustainable territorial development. Attracting foreign direct investment is accompanied by the creation of new jobs, has a positive effect on the general standard of living of the population of a certain territory, and promotes the activation of technical, technological and innovative development. Maritime territories are traditionally attractive for international investment cooperation. They have natural resource advantages, first of all,

geographical location, which generate significant economic potential, the main obstacle to the realization of which is usually internal problems associated with a lack of financing for industrial, infrastructural, and social development. An effective tool for overcoming such limitations is international investment cooperation, capable of supplementing the natural resource prerequisites for powerful regional development with the necessary financial support. As a factor of economic recovery, this phenomenon is key both for the industrial and infrastructural and for the recreational cluster of the Black Sea subregion of Ukraine.

A full-scale war, under which the economy and society of Ukraine function, has a colossal impact on the usual economic mechanisms and economic relations every day. Estimated data on the direct losses suffered by the Black Sea subregion indicate that in just one year from the start of hostilities, Odesa, Mykolaiv and Kherson regions accounted for every tenth dollar of material losses. This is explained by active military clashes in the left-bank part of the Kherson region, the blowing up of the Kakhovskaya hydroelectric power station, regular bombing of the port infrastructure, etc. Restoration of material resources and economic indicators of development will depend on activity in attracting foreign investments. Therefore, the scientific and practical significance of the analysis of the current state of international investment cooperation and the determination of the well-founded foundations of the future directions of its implementation is undoubted.

2. Aim and methodology of research

The purpose of the article is to study the peculiarities of international investment cooperation of the Black Sea subregion of Ukraine as a factor of economic recovery in the post-war period. The main tasks are the study of the macroeconomic conditions of international investment in the Black Sea subregion, the analysis of the state and dynamics of foreign investment, the determination of the structure of direct foreign investment in the economy of the subregion; assessment of the contribution of foreign direct investment to the economic growth of the subregion; determination of strategic priorities of international investment cooperation for the post-war recovery of the economy of the Black Sea subregion of Ukraine. The study used methods of analysis and synthesis to generalize the theoretical foundations of the impact of foreign direct investment on economic growth and post-war economic development; applied a graphical and analytical method, statistical tools to analyze indicators of the dynamics and structure of GRP, the structure of production, dynamics and industry structure of foreign direct investment in the Black Sea subregion of Ukraine; conducted a correlation and regression analysis to determine the impact of foreign direct investment on the economic development of the subregion.

3. Literature review, shortcomings and problem statement

International investment activities, the influence of foreign investments on economic development, methods of organizing cooperation and instruments for attracting international investments are popular subjects of research by Ukrainian and foreign scientists. This is explained by the significant role played by international investment cooperation in the economic life of developing countries. Thus, S. Tkalenko examines the theoretical foundations of international investment cooperation and, as actual trends for Ukraine, defines the principles of attracting foreign direct investment from the countries

of the European Union [1]. K. Flissak, continuing regional practice, examines international investment cooperation on the example of the Visegrad Four countries and summarizes their investment support practice with an emphasis on the possibility of its adaptation to Ukrainian practice [2]. K. Ravinthirakumaran and N. Ravinthirakumaran investigate the influence of the inflow of foreign direct investment on macroeconomic indicators and income inequality on the example of the economies of the Asia-Pacific Economic Cooperation [3]. A. Cieřlik and Ł. Goczek in the study of the relationship between the growth rate of real GDP per capita and the increase in the investment ratio prove the importance of the absence of corruption [4]. F. Z. Aguayo examines the influence of international organizations, which they exert on the institutional development of international investment activities, primarily – flows of direct foreign investment [5]. Y.Z. Haftel, S.Y. Kim, L. Bassan-Nygate investigate the international investment agreement regime and the dispute settlement system that may arise between the foreign investor and the state [6]. V. Puzikova insists that the Ukrainian economy cannot provide economic reconstruction after the war, therefore foreign direct investment is an important tool that will provide the capital necessary to increase the profitability of economic sectors, start economic growth and improve macroeconomic indicators [7].

Unfortunately, today the problem of the post-war recovery of Ukraine's economy is only gaining further relevance, and research on the role of foreign direct investment for certain subregions of Ukraine is fragmentary in scientific works. In conditions where it is already necessary to determine the directions and plan the possibilities of using international investment cooperation as a factor of post-war economic recovery, the study of foreign investments in the economy of the Black Sea subregion of Ukraine is becoming increasingly relevant.

4. The main material research

The role of foreign direct investment (FDI) for the national economy is considered, first of all, from the point of view of improving the main macroeconomic indicators and an effective tool that allows avoiding the discrepancy between planned budget revenues and expenditures, their benefit is emphasized by the importance of promoting the transfer of managerial and entrepreneurial experience and new technologies between national economies. It should be noted that among researchers of the impact of FDI on national economies there is no unambiguous opinion on the direction of their influence. On the one hand, it is demonstrated that FDI has a positive impact on economic growth, as it helps to expand production, expands access to more advanced technologies and capital, stimulates the volume and improves the structure of exports, increases the efficiency of capital use [8]. On the other hand, it is emphasized that there is a negative relationship between FDI and economic growth, which can be explained by the shortage of domestic investment capital and difficulties in using it due to the increase in FDI projects, and the threat of trade imbalances due to the excess of import volumes over export volumes is also noted [9].

The need to analyze the relationship between foreign direct investment and economic growth is emphasized, which is proposed to be carried out through the analysis of macroeconomic indicators, such as the rates and dynamics of growth and movement of foreign investment. It is also important to monitor changes in indicators of the national (regional) economy, which can confirm the positive effects of international investment activity. It should be borne in mind that an increase in the positive impact of FDI activates

positive structural changes, in particular, in aspects of quantitative growth, which can be measured by the balance of FDI and their total inflow, gross domestic product. It should be noted that in the context of post-war development, a wide range of indicators can be used to determine the impact of FDI on the economic growth of the host country, demonstrating the effects of attracting FDI depending on the specifics of the national economy, industry or sector of the economy. In general, it is proposed to consider these effects from the point of view of activating domestic factors of production, creating conditions for increasing employment, transferring new technologies, developing the local economy, and entering the world market of national companies. The impact of FDI on the economic development of the host country also depends on the strategy it implements, which may be a strategy aimed at import substitution or export stimulation [10].

5. Research results

The Black Sea subregion of Ukraine, which includes Odesa, Mykolaiv, Kherson regions and, partially, the temporarily occupied Autonomous Republic of Crimea, has significant economic and investment potential. The competitive advantages of this subregion are formed, first of all, due to its unique geographical location, established trade relations, developed agricultural complex, maritime and logistics complex, and tourism sector. On the aggregate scale, the regions that together form the Black Sea Subregion account for about a quarter of the area and population of Ukraine. Meanwhile, it should be noted that the calculation of the total contribution of the coastal regions to the GDP of Ukraine shows that out of 100 dollars of the absolute size of the economy, the analyzed regions account for slightly more than 18 dollars, which is difficult to consider a satisfactory indicator, and the regional product per capita in 2021 was at lower than the national average – about 800 dollars. US and 1.2 thousand dollars. USA, respectively [11].

Based on the purpose of this study, it is advisable to pay attention to the macroeconomic indicators of the Black Sea subregion of Ukraine, including Odesa, Mykolaiv, and Kherson regions. The dynamics and structure of the gross regional product of the regions of the Black Sea region is given in Fig. 1.

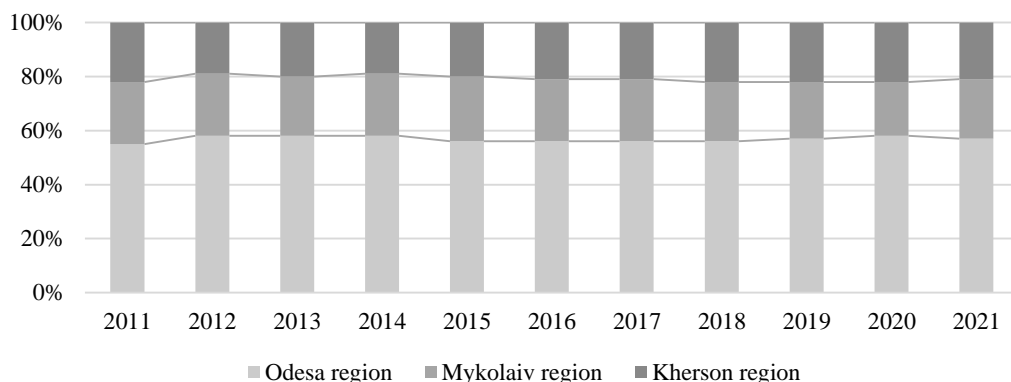


Fig. 1. Dynamics and structure of GRP of the Black Sea subregion of Ukraine by region in 2011-2021, %

Source: based on [11]

The presented shares of regions allow us to conclude that there are stages of economic development during the analyzed period: 2011–2013 and 2014–2021. Economic and

political upheavals – the global financial crisis in 2008, the annexation of Crimea and the beginning of aggression against Ukraine in 2014 – became the natural boundaries of these periods.

Understanding the macroeconomic conditions of international investment cooperation is impossible without establishing the sectoral specialization of the respective territories. To this end, it is expedient to analyze the structure of regional economic complexes on the eve of a full-scale invasion (Table 1).

Table 1

The structure of output in basic prices by types of economic activity of the Black Sea regions of Ukraine in 2017–2021, %

Types of economic activity:	The Black Sea subregion as a whole						Ukraine
	2017	2018	2019	2020	2021	Annual averages	Annual averages
manufacturing	23,2	21,8	21,2	19,5	17,1	20,1	25,9
agriculture, forestry and fisheries	17,3	16,7	14,1	12,1	18,2	15,7	11,3
transport and logistics	13,4	12,7	13,2	12,4	9,2	11,9	6,6
domestic trade	10,8	10,5	10,7	11,4	11,5	11,1	13,1
construction	7,1	7,8	8,4	11,2	12,8	9,9	6,6
other industries	28,2	30,5	32,5	33,4	31,2	31,3	36,5

Source: based on [11]

The shares of industries in the total output of the Black Sea Subregion and Ukraine as a whole, given in Table 1, are calculated on the basis of data on the absolute volume and structure of production in actual prices. Therefore, the leading type of economic activity, which generates a fifth of the entire economy of the subregion, is the processing industry. It should be noted that in recent years, the specific weight of this industry has steadily decreased, which may indicate a certain industrial decline.

Agriculture is the second most contributing type of activity, it showed unstable dynamics. Taking into account the specifics of this industry, this can be explained by the seasonality and cyclicity of productivity. One can also see the sectoral specificity of the Black Sea subregion: due to its location, transport and logistics are able to generate a much larger contribution to regional output than trade. At the same time, it is worth noting that the dynamics of the indicators indicate a gradual reduction in logistics activity and relative stability of trade, which can be explained, on the one hand, by the consequences of the interruption of usual supply chains due to the pandemic, and on the other hand, by the fundamental place of domestic trade in supporting the overall economic dynamics.

If we talk about the economic situation of recent years, then the full-scale war, in which the economy and society of Ukraine have been living since February 24, 2022, has a daily colossal impact on the transformation of the usual economic mechanisms and economic relations, including on the attraction of direct foreign investments [9]. Estimated data on direct damage suffered by the Black Sea subregion, unfortunately, do not have a systematic periodicity of observations. Nevertheless, if in the year since the beginning of hostilities Odesk, Mykolaiv and Kherson regions accounted for every tenth dollar of material losses, then already in June 2023 the specific weight of the losses of the named regions exceeded 12%, and the increase in the share occurred simultaneously in all

territorial formations This is explained by the active military clashes in the left-bank part of the Kherson region, the blowing up of the Kakhovskaya hydroelectric power station, and the regular bombing of the port infrastructure.

In the future, it is expedient to analyze the dynamics of direct foreign investment in the Black Sea subregion and determine the contribution of each of the regions to the total balance of relevant resources (Fig. 2).

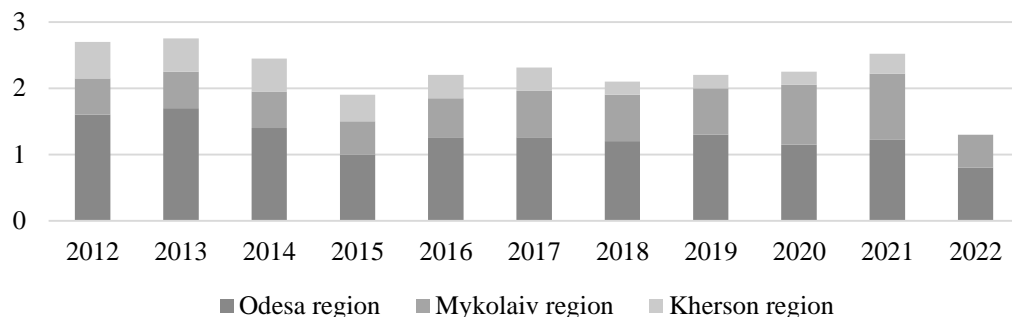


Fig. 2. Dynamics of foreign direct investments in the Black Sea subregion of Ukraine in 2012–2022

Source: calculated based on [11; 13]

Figure 2 allows you to get an idea of the total volume of foreign investments received by the Black Sea subregion and their interregional distribution. Aggregate balances of foreign investment varied: reduction in 2014–2015, stabilization in 2016–2020 with a noticeable post-pandemic acceleration around 2021, sharp reduction during martial law almost halving in 2022.

The largest share of balances by instruments of participation in the capital falls on the Odesa region: every year the corresponding figure was at least 1 billion dollars. USA (with the exception of 2022). Mykolaiv oblast accounted for an average of 300 million dollars, but in 2018–2021, this amount grew steadily, and on the eve of the full-scale invasion, it amounted to almost 600 million dollars USA. Inward foreign investments in the Kherson region fluctuated around 200 million dollars without a clear trend, and the results of 2022 were not made public due to the temporary occupation of the left-bank regions.

It is worth analyzing the change in the rating of the largest donor countries in the Black Sea subregion of Ukraine (Table 2).

Table 2

The largest donor countries of investments in the Black Sea regions of Ukraine in 2015–2022, billion US dollars

FDI as of the end of the year							
2015		2018		2021		2022	
Country	FDI	Country	FDI	Country	FDI	Country	FDI
Cyprus	0,5	Cyprus	0,5	Cyprus	0,7	Cyprus	0,3
Netherlands	0,2	Singapore	0,3	Netherlands	0,4	Netherlands	0,2
United Kingdom	0,2	Netherlands	0,2	Singapore	0,2	Singapore	0,1

Continuation of Table 2

Germany	0,1	United Kingdom	0,1	United Kingdom	0,1	Luxembourg	0,1
Monaco	0,1	Luxembourg	0,1	Luxembourg	0,1	United Kingdom	0,05
Others	0,4	Others	0,4	Others	0,6	Others	0,3
Together	1,5	Together	1,6	Together	2,0	Together	1,1

Source: based on [13]

In recent years, the top five countries of origin of the largest direct investments in the Black Sea subregion of Ukraine have practically not changed. Cyprus traditionally took first place every year: investments from this state averaged 500 million dollars, i.e. 25–30% of the total volume. In second place, excluding 2018, was the Netherlands, from which 200 to 400 million dollars came. USA. In terms of volumes, Singapore competed with them, which appeared in the ranking in 2018 immediately on the second step, but later firmly established itself in third place. The geographical structure cannot be called satisfactory due to the fact that the gross volume of investments enters the economy of the subregion from offshore territories.

It is appropriate to consider the sectoral diversification of direct foreign investment in the Black Sea subregion of Ukraine (Fig. 3).

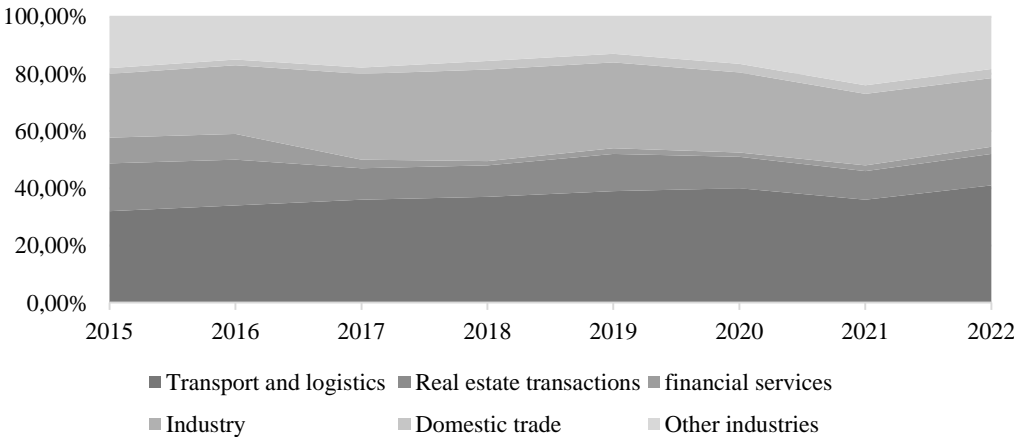


Fig. 3. Industry structure of foreign direct investments in the Black Sea subregion of Ukraine in 2015–2022, %

Source: based on [13]

It can be concluded that the two leading sectors for attracting foreign direct investment are transport and logistics activities and industry – each year they accounted for 60% or more of the total volume of investments. At the same time, transport and logistics steadily increased the balance of funds raised: if in 2015 their share was almost 32%, then in 2022 almost half of FDI fell to this sector. At the same time, industry mainly maintained its investment attractiveness, and its specific weight in the balance of attracted investments fluctuated around 33%, i.e., of every dollar of foreign income, a third went to processing and energy production in the seaside regions. An important place in the structure of foreign investments is occupied by transactions with real estate, domestic trade and financial services were characterized by approximately the same specific weight and importance.

The industry that received insufficient attention from foreign investors can be called construction. Strengthening the international investment attractiveness of this area is critically important not only from the point of view of the high urgency of modernizing the region's infrastructure, but also considering the large-scale losses and damage to various real estate objects. The Black Sea subregion accounts for almost every tenth dwelling that was damaged or destroyed as a result of missile attacks or direct military clashes. Every fifth kilometer of damaged roads, every third bridge or overpass, and every eighth railway infrastructure facility (as of 2023) are also located in the Ukrainian Black Sea region.

The role of international investment cooperation in ensuring the sustainable development of the Black Sea subregion of Ukraine has a number of characteristic manifestations. Foreign investments contribute to the creation of new jobs, which not only significantly improves the situation on the labor market in this subregion, but also positively affects the general standard of living through increased incomes, easier access to education, medical care and other social services. A significant advantage of international investments is the promotion of technological and innovative development, which in turn has a positive impact on environmental aspects. The latter is an important factor not only for industrial and infrastructural development, but also for the recreational potential of these regions.

However, a full-fledged analysis of the contribution of international investment cooperation to the economic growth of the Black Sea subregion is impossible without an empirical assessment of the statistical relationships between the indicators of such a contribution. Taking into account the purpose of the research, it is optimal to use correlation-regression analysis, which is quite simple to implement, but a sufficiently informative method of applied research of relationships between socio-economic factors. Given the objective limitations of the data available for this study, 2010–2021 was chosen as the time period for the correlation-regression analysis.

Correlation-regression analysis of the contribution of foreign investments to the economic growth of the Black Sea subregion of Ukraine is expedient to begin with the definition and interpretation of pairwise correlation coefficients between cause variables and consequence variables, that is, indicators that explain certain trends, and indicators whose change needs to be explained. Taking into account the results of the analysis of the peculiarities of the sectoral structure of the Black Sea subregion of Ukraine, to determine the closeness of the relationship between the output of key industries and the gross regional product, correlation coefficients were calculated based on the results of the functioning of five spheres of the economy (Table 3).

Table 3

Correlation coefficients between gross regional product and production of selected sectors of the economy of the Black Sea subregion of Ukraine in 2010–2021

Release at basic prices:	Gross regional product			
	Odesa region	Mykolaiv region	Kherson region	Black Sea subregion
agriculture	0.748	0.848	0.907	0.827
manufacturing	0.737	0.798	0.848	0.792
construction	0.739	0.701	0.648	0.811
domestic trade	0.969	0.978	0.968	0.989
transport and logistics	0.898	0.856	0.467	0.858

Source: based on [13]

From the data in the table, it follows that all the calculated correlation coefficients are positive – therefore, the linear relationship between the gross regional product and output by key industries is direct, which is consistent with the logic of the statistical relationship of these indicators. The closest connection with the general result of the functioning of the economy is noted in internal trade (both at the regional and national levels), which is explained by the commercialization of the output of any industry. In the Black Sea subregion, transport and logistics is the second most important sphere in general – this is confirmed by the quantitative analysis carried out earlier. However, the inter-regional proportion shows weak results for the Kherson region, which may be related to the low concentration of sea ports and their low cargo turnover. Agriculture and processing industry show an equally noticeable connection in the oblast and regional dimensions, and construction creates a significantly smaller contribution to the gross regional product in Mykolaiv oblast and Kherson oblast, although at the regional level this industry has the fourth most significant result. Therefore, the correlation analysis of the gross regional product and output of key areas of the economy generally confirms the conclusions made earlier about the specifics of the industry structure.

The next step is to determine the presence, direction and strength of connections between the specified industries and foreign investments involved in the Black Sea Subregion. Given the limited access to statistical information, the balance of foreign direct investments by equity instruments was chosen as a key indicator of international investment cooperation (the only available indicator with a regional breakdown and the necessary time depth). The results of the calculation of correlation coefficients are presented in Table 4.

Table 4

Correlation coefficients between FDI and production of the main sectors of the economy of the regions of the Black Sea Subregion of Ukraine in 2010–2021

Release at basic prices:	FDI			
	Odesa region	Mykolaiv region	Kherson region	Black Sea subregion
agriculture	0.698	0.876	0.785	0.835
manufacturing	0.413	0.158	0.686	0.487
construction	0.432	0.187	0.403	0.589
domestic trade	0.812	0.558	0.812	0.862
transport and logistics	0.635	0.293	0.447	0.623

Source: calculated based on [11; 13]

The coefficients presented in the table prove contradictory trends regarding the mutual influence of foreign investments and the results of the functioning of the main branches of the economy of the studied regions. The least amount of disagreement is noted regarding agriculture – its connection with international investment is characterized by high strength at all levels. A certain contradiction arises regarding domestic trade, which is strongly related to foreign investment in the Black Sea subregion, Odesa and Kherson regions, but shows a moderate connection with respect to the Mykolaiv region. This can be explained by the unsatisfactory volume of foreign investment directed to this industry. For the same reason, but already on a regional scale, a moderate, weak and ultra-weak (for the same Mykolaiv oblast) connection is noted between FDI and construction and the transport and logistics industry. The identified trend indicates the presence of reserves for

strengthening international investment cooperation in the specified areas. The least favorable is the situation in the processing industry, which in absolute terms makes a fundamental contribution to the economic growth of the Black Sea subregion, but foreign economic support for this industry is unsatisfactory.

In order to proceed to the regression analysis of the contribution of international investment to the economic growth of the Black Sea subregion of Ukraine, it is advisable to select key indicators of the socio-economic status of the studied territories and check the presence of a connection between them and the explanatory variable (Table 5).

The results of the calculations indicate the absence of a particularly high connection between international investment cooperation and the economic development of the Black Sea subregion, however, in general, the mutual influence is significant, which indicates the important role of foreign investment in changing the socio-economic situation of the studied regions.

Table 5

Correlation coefficients between FDI and selected indicators of the socio-economic status of the regions of the Black Sea Subregion of Ukraine in 2010–2021

Indicators	FDI			
	Odesa region	Mykolaiv region	Kherson region	Black Sea subregion
Gross regional product	0.768	0.675	0.838	0.832
Turnover of international trade in goods	0.619	0.846	0.789	0.799
Export of goods	0.666	0.903	0.813	0.902
Import of goods	0.539	0.657	0.569	0.618
Average monthly salary	0.786	0.804	0.775	0.836

Source: calculated based on [11; 13]

The most noticeable is the connection of FDI with the average salary, which indicates the fundamental dependence of the development of the labor market and the improvement of the standard of living of the population on the placement of international capital in the economic complex. The influence of foreign investments on the growth of gross regional product is also quite significant. Regarding the connection between the turnover of international trade and the export and import of goods separately, it is worth noting that the total regional trend deviates significantly for the Odesa region, which indicates insufficient investment support for this industry. At the same time, the import of goods is associated with foreign investments much less than exports – this indicates the export orientation of cross-border entrepreneurship in the Black Sea regions, and may also be a sign of the mainly financial form of the involved investments.

A regression analysis of the impact of international investment cooperation on the economic development of the Black Sea subregion should be carried out by constructing single regression equations of the dependence of selected indicators of the socio-economic status of the regions (with the substitution of import of goods for agricultural output as more statistically significant) by the method of least squares, the key parameters of the estimated models are systematized in Table 6.

Table 6

Parameters of regression modeling of the influence of FDI on selected indicators of economic development of the Black Sea regions of Ukraine in 2010–2021

Changeable	r	Regression parameters:		R ²
		coefficient	constant	
Gross regional product	83.192	6.336	1 785.000	69.196
Production of agricultural products	84.228	2.145	94.000	70.938
International trade turnover	81.158	3.557	1 454.000	65.856
Export of goods	89.716	1.869	740.665	80.501
Average monthly salary	84.428	0.168	-6.687	71.301

Source: calculated based on [11; 13]

It can be concluded that the models describing the impact of foreign investment on agricultural output, average monthly wages and export of goods have a satisfactory level of reliability (relative to the critical values of the coefficient of determination). It follows from this that the contribution of international investment cooperation to the general economic results of the functioning of the region (VRP) and to the turnover of international trade, although it is characterized by a high density of correlation, is nevertheless indirect and poorly described by a linear equation. Instead, the contribution of FDI to the export component of international trade in goods in the Black Sea subregion is undeniably significant: in more than 80% of cases, each dollar of additional foreign investment brought almost twice as much export revenue.

The obtained models of the influence of international investment on the average level of wages and output of agricultural products are characterized by similar, albeit somewhat lower, reliability. The analysis of the parameter of the constant of the indicated equations allows to determine the level of the relevant indicators in the absence of international investment cooperation. Under the same conditions, the average monthly wage in the Black Sea regions would be negative.

Balancing the sectoral structure of the regional economic complex should be the focus of attention of seaside agglomerations during the preparation of post-war investment strategies. Although the specificity of such communities is specialization, mainly in logistics (maritime) services, tourism and hotel and restaurant activities, which really creates a large-scale fiscal effect (including at the expense of customs payments), these same features generate negative sectoral distortions, relegating primary industries (industry, agriculture) to the periphery. The war also showed the inefficiency of the usual chain of value generation in the coastal regions of Ukraine: “raw materials – logistics – export”. In the conditions of significant limitation of foreign trade transport possibilities, the “narrowness” of the marginal price corridor for agricultural or metallurgical raw products became obvious, which is increasingly insufficient to cover the logistics costs of all participants in the export process. The logical way out of this situation is to encourage the implementation of investment projects to create near-port processing enterprises. The added value of pre-export processing of raw materials created by them would make it possible to compensate for the increased level of sales costs in the conditions of the continuation of the sea blockade.

The prioritization of international investment cooperation of the maritime territories of Ukraine should be based on the experience gained during the war of the strategic importance of the leading industries and a pragmatic attitude to the post-war conditions of

the functioning of the domestic economy. One can agree with foreign experts who claim that the post-war recovery cannot rely only on the current (during the war) sectors of the economy, but also attract financing in promising directions: digital technologies (e-commerce, digital transport corridors), renewable energy sources and mechanical engineering (power equipment, military equipment, vehicles, etc.) [11, p. 26]. Taking into account the retrospective industry direction and promising points of investment of capital will allow to form an effective and pragmatic strategy for the investment recovery of the Black Sea subregion of Ukraine.

6. Conclusions

Therefore, the analysis of international investment cooperation of the Black Sea subregion of Ukraine made it possible to determine the general and specific features of the participation of its regions in the attraction and placement of foreign capital flows, which is an important prerequisite for the development of directions for the activation of such cooperation. In particular, a review of the macroeconomic conditions of international investment in the Ukrainian Black Sea region confirms the presence of unchanged interregional proportions in regional production. The structure of foreign investments allows us to come to a conclusion about the dominance of the Odesa region in relation to international investment cooperation in the Ukrainian Black Sea subregion. The portfolio of international investments is mainly represented by port logistics, which accounts for almost half of all involved investments. Such interest in the port industry is explained by the scale of business in this sector. Almost every fourth dollar of corporate foreign investment went to the energy sector and the manufacturing industry. International investments in processing industry enterprises relate mainly to the processing of agricultural products and the production of food products, which is explained by access to cheap and high-quality agricultural products.

The key conclusion of the implemented correlation-regression analysis is the empirical determination of key reserves for the post-war recovery of the Black Sea subregion of Ukraine. The results of the calculations show that there is no particularly high connection between international investment cooperation and economic development, but the mutual influence is significant, which substantiates the importance of the role of foreign investment in changing the socio-economic situation of certain areas. The most noticeable is the connection with the average salary, which indicates the fundamental dependence of the development of the labor market and the improvement of the standard of living of the population on the placement of international capital in the economic complex. The influence of foreign investments on the growth of gross regional product is also quite significant. Models describing the impact of foreign investment on agricultural output, average monthly wages and export of goods have a satisfactory level of reliability.

Realization of the investment potential of the Black Sea subregion should be a priority economic task not only for local state authorities, but also for local self-government. International investment cooperation of the maritime territories should be based on the experience gained during the war of the strategic importance of leading industries and a pragmatic attitude to the post-war conditions of the functioning of the domestic economy. In parallel with this, efforts in the direction of attracting financial, material and intellectual investments should be combined with purposeful reforming of the internal innovation-investment and social space in the Black Sea subregion.

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