

THE INFLUENCE OF THE CONCEPTION OF GREEN ECONOMY ON THE INNOVATIVE DEVELOPMENT OF EXPORT-IMPORT ACTIVITIES OF UKRAINE

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Malyarets L. M., Norik L. O., Skliar T. P., Molodetskyi H. H.

The Influence of the Conception of Green Economy on the Innovative Development of Export-Import Activities of Ukraine

The growing ecological challenges and the necessity for sustainable development require a reevaluation of approaches to organizing export-import activities and stimulating innovative processes in international trade. The conception of «green economy» is becoming an important factor in transforming the global economic system, defining new principles for conducting export-import activities and promoting the development of environmentally oriented innovations. The aim of this research is to analyze the impact of the green economy on the innovative development of export-import activities, to identify the main directions for the greening of export-import operations, as well as to compare the approaches of Ukraine and the EU to the introduction of ecological standards and regulation in this sphere. To achieve this aim, the authors have analyzed scientific approaches to the interpretation of the green economy and its role in the formation of global trade relations, the mechanisms of ecological regulation of international trade, the impact of ecological standards on the structure of exports and imports, as well as the opportunities for integrating innovative technologies to enhance the ecological efficiency of foreign economic activities. In the course of the study, the key principles of green economy affecting international trade have been identified, including sustainable development, resource efficiency, innovation, financial stimulation, and international harmonization of regulations. It is found that under the influence of these principles, the export-import activities are transformed through the introduction of technological, product, financial, process, and institutional innovations. The article also compares the environmental policies of Ukraine and the EU, which allows for the identification of the main differences and opportunities for adapting European experience to improve Ukraine's export-import activities. The result of the research is a generalized structure of the relationships between the green economy, innovations, and the outcomes of developing the export-import activities, which enables a comprehensive assessment of the role of environmental transformations in the foreign economic sphere. It is noted that environmental innovations not only contribute to reducing the negative impact on the environment but also open up new opportunities for increasing the competitiveness of the national economy, expanding sales markets, and attracting investments. Prospects for further research include the analysis of the efficiency of implementing environmental innovations in international trade, an assessment of the economic and social effects of greening the export-import activities, as well as the development of strategic recommendations for adapting Ukrainian trade policy to the requirements of sustainable development and European ecological standards.

Keywords: green economy, innovations, export-import activities, greening, sustainable development policy, Ukraine, EU.

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Malyarets Lyudmyla M. – Doctor of Sciences (Economics), Professor, Head of the Department of Economic and Mathematical Modeling, Simon Kuznets Kharkiv National University of Economics (9a Nauky Ave., Kharkiv, 61166, Ukraine)

E-mail: malyarets@ukr.net

ORCID: <https://orcid.org/0000-0002-1684-9805>

Researcher ID: <https://www.webofscience.com/wos/author/record/T-9858-2018>

Scopus Author ID: <https://www.scopus.com/authid/detail.uri?authorId=57189248374>

Norik Larisa O. – Candidate of Sciences (Economics), Associate Professor, Associate Professor of the Department of Economic and Mathematical Modeling, Simon Kuznets Kharkiv National University of Economics (9a Nauky Ave., Kharkiv, 61166, Ukraine)

E-mail: larisa.norik@gmail.com

ORCID: <https://orcid.org/0000-0002-7077-1260>

Skliar Tetiana P. – Postgraduate Student of the Department of Economic and Mathematical Modeling, Simon Kuznets Kharkiv National University of Economics (9a Nauky Ave., Kharkiv, 61166, Ukraine)

E-mail: skliar.tetiana@hneu.net

ORCID: <https://orcid.org/0009-0004-6109-1396>

Molodetskyi Hennadii H. – Junior Researcher, Simon Kuznets Kharkiv National University of Economics (9a Nauky Ave., Kharkiv, 61166, Ukraine)

E-mail: genamol02@gmail.com

ORCID: <https://orcid.org/0009-0000-4062-0587>

Малярець Л. М., Норік Л. О., Скляр Т. П., Молодецький Г. Г. Вплив концепції «зеленої» економіки на інноваційний розвиток експортно-імпоротної діяльності України

Зростаючі екологічні виклики та необхідність забезпечення сталого розвитку вимагають перегляду підходів до організації експортно-імпоротної діяльності та стимулювання інноваційних процесів у міжнародній торгівлі. Концепція «зеленої» економіки стає важливим фактором трансформації світової економічної системи, визначаючи нові принципи ведення експортно-імпоротної діяльності та сприяючи розвитку екологічно орієнтованих інновацій. Метою дослідження є аналіз впливу «зеленої» економіки на інноваційний розвиток експортно-імпоротної діяльності, визначення основних напрямів екологізації експортно-імпоротної діяльності, а також порівняння підходів України та ЄС до впровадження екологічних стандартів і регулювання в цій сфері. Для досягнення цієї мети здійснено аналіз наукових підходів до трактування «зеленої» економіки та її ролі у формуванні глобальних торговельних відносин, механізмів екологічного регулювання міжнародної торгівлі, впливу екологічних стандартів на структуру експорту та імпорту, а також можливостей інтеграції інноваційних технологій для підвищення екологічної ефективності зовнішньоекономічної діяльності. Під час дослідження визначено ключові принципи «зеленої» економіки, що впливають на міжнародну торгівлю, серед яких сталий розвиток, ресурсоефективність, інноваційність, фінансове стимулювання та міжнародна гармонізація регулювань. Встановлено, що під впливом цих принципів відбувається трансформація експортно-імпоротної діяльності через впровадження технологічних, продуктових, фінансових, процесних та інституційних інновацій. У роботі також проведено порівняння екологічних політик України та ЄС, що дозволило виявити основні розбіжності та можливості адаптації європейського досвіду для покращення експортно-імпоротної діяльності України. Результатом дослідження є узагальнена структура взаємозв'язку між «зеленою» економікою, інноваціями та результатами розвитку експортно-імпоротної діяльності, що дозволяє комплексно оцінити роль екологічних трансформацій у зовнішньоекономічній сфері. Зазначено, що екологічні інновації не лише сприяють зменшенню негативного впливу на довкілля, а й відкривають нові можливості для підвищення конкурентоспроможності національної економіки, розширення ринків збуту та залучення інвестицій. Перспективами подальших досліджень є аналіз ефективності впровадження екологічних інновацій у міжнародній торгівлі, оцінка економічних і соціальних ефектів від екологізації експортно-імпоротної діяльності, а також розробка стратегічних рекомендацій для адаптації української торговельної політики до вимог сталого розвитку та європейських екологічних стандартів.

Ключові слова: «зелена» економіка, інновації, експортно-імпортна діяльність, екологізація, політика сталого розвитку, Україна, ЄС.

Табл.: 3. **Бібл.:** 20.

Малярець Людмила Михайлівна – доктор економічних наук, професор, завідувач кафедри економіко-математичного моделювання, Харківський національний економічний університет імені Семена Кузнеця (просп. Науки, 9а, Харків, 61166, Україна)

E-mail: malyarets@ukr.net

ORCID: <https://orcid.org/0000-0002-1684-9805>

Researcher ID: <https://www.webofscience.com/wos/author/record/T-9858-2018>

Scopus Author ID: <https://www.scopus.com/authid/detail.uri?authorId=57189248374>

Норік Лариса Олексіївна – кандидат економічних наук, доцент, доцент кафедри економіко-математичного моделювання, Харківський національний економічний університет імені Семена Кузнеця (просп. Науки, 9а, Харків, 61166, Україна)

E-mail: larisa.norik@gmail.com

ORCID: <https://orcid.org/0000-0002-7077-1260>

Скляр Тетяна Петрівна – аспірант кафедри економіко-математичного моделювання, Харківський національний економічний університет імені Семена Кузнеця (просп. Науки, 9а, Харків, 61166, Україна)

E-mail: skliar.tetiana@hneu.net

ORCID: <https://orcid.org/0009-0004-6109-1396>

Молодецький Геннадій Геннадійович – молодший науковий співробітник, Харківський національний економічний університет імені Семена Кузнеця (просп. Науки, 9а, Харків, 61166, Україна)

E-mail: genamol02@gmail.com

ORCID: <https://orcid.org/0009-0000-4062-0587>

Introduction. The modern global economy is facing large-scale ecological challenges, among which are global warming, depletion of natural resources, and environmental pollution. The response to these threats is the introduction of the conception of «green economy», which entails combining economic growth with environmental preservation, efficient use of natural resources, and energy efficiency. The development of a green economy is impossible without the introduction of innovations that ensure the creation of environmentally friendly products, efficient resource use, and reduction of greenhouse gas emissions. One of the important indicators reflecting the

level of innovative development of a country is the Global Innovation Index (GII). In the 2024 ranking [1], Ukraine achieved a high 6th place. Ukraine belongs to the economies whose innovative development is advancing at a pace that outstrips economic growth, and this characteristic applies over an extended period – from 2014 to 2024. Ukraine has also managed to stabilize the negative situation concerning market complexity component (85th place compared to 104th in 2023). A similar trend is observed regarding the business complexity indicator (45th position, whereas in 2023 it was 48th). Improvements in market and business infrastructure contribute to the development

of the export potential of Ukrainian green technologies. This can positively affect the international trade in environmentally friendly goods and services. Ukraine demonstrates high performance in the field of innovative products relative to the level of investment, indicating significant potential for the development of green technologies. The high level of spending on software (4th place) will contribute to the digitalization of ecologically oriented international trade (e. g. in areas such as energy efficiency, renewable energy, smart grids). In 2024, Ukraine ranked 60th in the World Intellectual Property Organization (WIPO) ranking, having dropped five positions compared to the WIPO report for 2023. It is noteworthy that Ukraine produces more innovative products compared to the level of investment in innovation, in relation to its GDP, and thus traditionally demonstrates better positions in the ranking of innovative results than in the ranking of contributions to innovation.

The level of innovative development plays a key role in the country's ability to adapt to global changes and remain competitive in the international market. The orientation of global trade towards ecological standards creates new challenges and opportunities for Ukrainian exports. In this context, the green economy is becoming not just a trend but a necessity for the sustainable and innovative development of export-import activities. It contributes to the transition to environmentally friendly technologies, the creation of new markets for innovative products, and the enhancement of the country's investment attractiveness. Innovations in this area not only promote the creation of new export opportunities for any country but also help ensure more sustainable and effective functioning in global markets. Many countries and international organizations are introducing ecological standards, customs restrictions, and incentives for the development and support of environmentally safe goods and services. This transforms the structure of exports and imports, creating new opportunities for countries that are adopting green innovations.

The European Union (EU) is a leader in implementing the green economy. As part of the European Green Deal, it is planned to achieve climate neutrality by 2050, along with a reduction in greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels [2]. In 2024, the share of renewable energy in the total energy balance of the EU reached 46.9% [3], indicating active development of sustainable energy technologies. As of early 2022, the Ukrainian energy sector was one of the most powerful in Europe, if it had not been for the war against Ukraine that resulted, i. a. in significant losses in the energy sector. A substantial part of the installed renewable energy capacity is located in occupied territory, which may lead to a reduction of such post-war-time capacities by up to 60% [4]. Furthermore, since 2023, the EU has introduced the Carbon Border Adjustment Mechanism (CBAM), which poses additional challenges for Ukrainian exporters, especially in the metallurgy and agrarian sectors. On one hand, this creates risks for Ukrainian businesses, particularly due to the necessity of complying with stringent ecological requirements. On the other hand, opportunities arise for the development of innovative green technologies, attracting investments, and entering new markets. In light of these trends, the study of the impact of the green economy on the innovative development of export-import activities is extremely relevant for Ukraine, as it allows

for the identification of the prospects for domestic businesses to adapt to new conditions, as well as to assess the opportunities for the development of green innovative technologies and integration into the European market.

The aim of this article is to study the conception of green economy and its impact on the innovative development of export-import activities, also to compare the policies of Ukraine and the EU in this context. To achieve this aim, existing scientific approaches to assessing the impact of the green economy on the results of international trade have been analyzed, their systematization and generalization have been carried out. Taking into account the findings of contemporary research that elucidate the mechanisms of greening export-import activities, the main principles and directions of green economy on the innovative development of export-import activities have been defined.

Results. The green economy is a conception that ensures the integration of environmental aspects into economic innovative development for sustainable growth. It is based on the idea that innovative development must be balanced with environmental protection, reduction of greenhouse gas emissions, efficient resource use, and preservation of biodiversity. The development of this idea is presented in the monograph [5], surveying the conception of sustainable development, corporate social responsibility, and solutions to global ecological problems in the context of international economic relations. It is noted that the global conception of sustainable development entails management based on achieving a balance in the development of three main elements: economic growth, social integration, and environmental protection.

In the context of export-import activities, the interaction between the principles of green economy and international economic relations is crucial. Theoretical approaches, such as the Environmental Kuznets Curve [6] or the Porter Hypothesis [7], provide insights into how economic growth can be accompanied by higher ecological standards. These theories help to understand how environmental and economic processes can interact within international trade, thereby fostering sustainable development.

The subject of research for many contemporary scientists is the analysis of the conception of green economy, particularly its interaction with international trade through regulation, financial instruments, the transformation of global supply chains, and other key aspects.

The study [8] underscores that in the practical activities of the Member States of the European Community, a system of *environmental regulation instruments* operates for the implementation of an integrated strategy of ecological policy. This system includes ecological import duties, ecological taxes, a mechanism for trading pollution permits, guarantees of ecological loans, ecological certification and auditing, ecological subsidies, funds, insurance, tax incentives, as well as subsidies and ecological investments. In the context of a green economy, national governments and international organizations, including the World Trade Organization (WTO), are actively developing new rules and regulations related to ecological standards for goods and services. The article [9] defines the economic essence of the ecological taxation system established worldwide and highlights its tax base characteristics, and notifies that tax

benefits have a high economic effectiveness in the development of a global green ecosystem. Another study [10] examines the impact of command-and-control and market ecological standards on the quantity and quality of enterprises' green innovations. The empirical results of yet another research [11] demonstrate a U-shaped relationship between environmental regulations and the development of export trade. In particular, environmental regulation can increase the cost of export products and restrain the development of export trade in the short term. On the other hand, it encourages enterprises to implement technological innovations and improve efficiency and competitiveness, thereby contributing to the development of export trade in the long term.

Most scientists focus on researching the mechanism of CBAM, which is one of the tools to facilitate the reduction of CO₂ emissions through tariffs on products made with high emissions. Such initiatives not only have the potential to improve environmental outcomes but also strive to update the rules of international trade, where ecological barriers may become significant in relation to traditional tariffs. Thus, the study [12] established that the existence of an emissions trading system for CO₂ in the EU has a significant impact on the production costs of hydrogen. At the same time, the production of green hydrogen is economically justified, as energy costs derived from renewable sources will decrease. The authors specify that the implementation of this vision depends on the progress of scientific research and technical innovations that will lower the costs of hydrogen production, meaning that mechanisms for State support for the development of hydrogen infrastructure and technologies are also crucial.

The financing of the green economy through green commitments and other instruments of ecological investment is also gaining popularity in international trade. These financial mechanisms promote the development of sustainable production processes, which in turn stimulates the export of green technologies and services. Today, instruments such as green bonds, climate funds, and investments in clean technologies have a significant impact on international financial flows. Investing in environmentally friendly technologies and energy efficiency creates new opportunities for the development of green goods and services, which in turn contributes to the expansion of ecologically responsible international trade. The green financial system that supports this process is the basis for integrating ecological standards into global financial mechanisms. The research [13] indicated that green financing positively affects the imports of agricultural products and export trade in China, expanding the scale of agricultural imports and exports. Along with this, it has been identified that the positive impact of green financing on imports of agricultural products and export trade in China is heterogeneous across different regions, which necessitates the promotion of synergistic regional development through the introduction of differentiation of green financing.

An essential component of developing a green economy is the *transformation of global supply chains*. According to new trends, countries are becoming increasingly oriented towards sustainable development and reducing the environmental impact on their production processes. In the study [14], the mechanism of influence of the internal chain of environmental innovations is examined based on the study of the general

mechanism of green innovations, specifically clarifying the effect of transferring environmental research innovations to the application of environmental innovations and providing quantitative evidence of certain results of green innovations from theory to practice. According to another studies [15, 16], green initiatives are changing the supply structure of international chains. The adopted classification system and structure, designed to promote sustainable investments, the EU Taxonomy aims to provide clarity in defining which activities are considered environmentally sustainable and aids in financing the transition towards achieving environmental sustainability goals [16]. The EU's biotrade policy focuses on stimulating the circular economy, reducing greenhouse gas emissions, and implementing bioinnovations. Much attention is paid to the financing of research and development in biotechnology, which contributes to the growth of the share of bioproducts in domestic and international trade. According to the data of [17], the average share of bioproduct exports from the EU in total trade during the period of 2019–2023 was 23.22%, while the average share of bioproduct imports into the EU for the same period was 20.47%. For Ukraine, which has a rich natural resource potential and is an important player in the agricultural market, the green economy holds enormous potential. It can not only help improve the ecological situation in the country but also provide new opportunities for the development of export-import activities. Ukraine is an active supplier of bioproducts to the European market; however, Ukrainian bioeconomy is still in the development stage. The primary share of Ukraine's biotrade is focused on the exportation of organic raw materials such as grains, oils, and fruits, whereas the EU predominantly produces finished bioproducts with high added value. A regulatory harmonization with the EU is a key challenge for Ukraine, as compliance with European standards requires significant investments in the modernization of production processes and ecological control.

Green innovations contribute to achieving competitive advantages in international markets. Also, ecological criteria can become qualitative indicators of the profitability of cooperation on a global scale. The study [18] noted that green growth aims to promote economic development while ensuring ecological sustainability by optimizing resource use and reducing pollution. Based on the research on the impact of forest trade and bioenergy on green growth, it has been shown that forest trade and bioenergy contribute to green growth both in developed economies and in developing countries in the long term.

The green economy has different *impacts on countries with varying levels of economic development*. For developed economies, the introduction of sustainable green practices in international trade is a strategic step to maintain competitiveness and enhance investment attractiveness. In contrast, developing countries face challenges such as insufficient access to ecological technologies, financing, and the need to adapt their economies to the new demands of the international market. Still, they have significant opportunities to develop export potential through investment in green technologies, granting them competitive advantages in global markets. The empirical study [19] focused on South American countries suggests that economies should prioritize green opportunities in accordance with their existing capabilities while gradually expanding op-

tions with higher profitability. This research also provides individual portfolios for the diversification of ecological exports for each country, identifying key opportunities for renewable energy products for Argentina and Brazil, lithium resources for Chile, biofuels for Paraguay, and green hydrogen for Uruguay. In other words, for developing countries, the green economy can become an important tool for integration into global markets through technology transfer, the export of green goods, and the development of environmentally friendly sectors.

The prospects of the impact of the green economy on the innovative development of export-import activities can be manifested through the lens of several key trends. According to forecasts, international trade will become even more sustainability-oriented in the coming decades. In the meantime, the energy transition, trade, and environmental innovations are becoming driving forces for achieving environmental sustainability in the long term [20]. Therefore, the growing demand for environmentally friendly technologies, services, and products will define new trade trends, particularly in sectors such as energy, transport, agriculture, and construction. Various countries and companies must adapt their trade strategies to

these new conditions and pay more attention to ecological requirements, which are significant factors for competitiveness in global markets. A generalization of existing approaches to analyzing the impact of the green economy on international trade, presented in the aforementioned study [8], systematizes the main aspects of this impact, including commodity, structural, technological, institutional, and political dimensions. The authors of the study in discussion [8] have identified both positive and negative effects for each aspect, allowing for a deeper understanding of the complexities involved in integrating ecological principles into the international trading system. Along with this, the study [8] needs further enhancement in the perspective of emphasizing innovations that play a crucial role in transforming export-import activities.

An overview of scientific publications on the researched topic allows for the allocation of the main aspects of the impact of the green economy (environmental regulation, financing, changes in supply chains, economic level, innovations) and the determination of the key principles of green economy that form the basis for the transformation of export-import activities (Tab. 1).

Table 1

The principles of green economy in export-import activities

Principle	Characteristics
Sustainable development and ecological responsibility	<ul style="list-style-type: none"> ▪ Sustainable development and ecological responsibility. ▪ Orientation towards minimizing the negative impact of trade on the environment. ▪ Introduction of ecological standards and certification of goods and production processes. ▪ Control over greenhouse gas emissions and reduction of pollution levels through trade mechanisms
Innovation and technological modernization	<ul style="list-style-type: none"> ▪ Use of modern environmentally friendly technologies in production and logistics. ▪ Investment in research and development for the implementation of green innovations in international trade. ▪ Stimulating the transfer of ecologically safe technologies between countries
Resource efficiency and circular economy	<ul style="list-style-type: none"> ▪ Transition from a linear production model to a circular one (reducing waste, reusing materials). ▪ Optimization of the use of natural resources in production and logistics processes. ▪ Encouragement of the export-import operations with ecologically safe products
Economic motivation and financial incentives	<ul style="list-style-type: none"> ▪ Use of green tariffs, subsidies, and tax benefits for sustainable production. ▪ Implementation of mechanisms for financing environmental innovations through green bonds, investment funds, and loans. ▪ Regulation of customs policy in accordance with ecological standards
International cooperation and harmonization of regulatory norms	<ul style="list-style-type: none"> ▪ Development of global ecological trade agreements (for example, the WTO Environmental Goods Agreement (EGA)). ▪ Unification of ecological standards and certification to reduce barriers in international trade. ▪ Cooperation among countries on environmental regulation and exchange of best practices

Source: the authors' own generalizations

These principles reflect the general regularities of the greening of the global economy and are expected to serve as guidelines for developing national sustainable development strategies. The allocation of these principles allows for the systematization of approaches to analyzing the impact of the green economy on the innovative development of export-import activities, which facilitates the formation of new conceptions in the field of economic theory and sustainable development. It also enables the assessment of the level of ecological adaptation of countries and the identification of directions for further research in

the area of sustainable international cooperation. From a practical perspective, the allocation of these principles is of significant importance for: government policy, in terms of the development and improvement of the national ecological strategies in foreign trade; business, in terms of the orientation of enterprises towards ecological standards, which enhances their competitiveness in international markets; international organizations, in terms of the introduction of uniform rules for the regulation of environmental aspects in international trade to ensure a balance between economic development and environmental preservation.

Therefore, the identification and systematization of the principles of green economy in export-import activities not only contribute to the expansion of scientific knowledge, but also create a foundation for efficient ecological policy and innovative development of export-oriented economies. Still, the efficiency of implementing these principles largely depends on the specifics of national policies, the level of regulation, support mechanisms, and the degree of business adaptation to ecological requirements. The EU is a global leader in implementing the green economy by developing a systemic policy for the green-

ing of international trade, which includes stringent ecological standards, financial incentives, and regulatory mechanisms. Ukraine, as a country integrating into the European economic space, also implements ecological initiatives; yet again Ukraine faces certain challenges, including limited financial resources, insufficient harmonization of legislation, and difficulties in the implementation of ecological standards in the real business sector. In this regard, we see it's important to compare the green policies of the EU and Ukraine in the area of export-import activities (Tab. 2).

Table 2

A comparative analysis of the green policy of the EU and Ukraine in the area of export-import activities

Instruments of the green policy	EU	Ukraine
Regulatory mechanisms and ecological standards	A large-scale ecological policy has been implemented within the framework of the European Green Deal, which envisages a reduction in CO ₂ emissions, decarbonization of production and trade, as well as the application of the CBAM mechanism – the introduction of a carbon duty on the imports of goods with high levels of greenhouse gas emissions	The Association Agreement with the EU has been implemented, the National Economic Strategy until 2030 has been adopted, which includes aspects of the green economy, but so far there is no full integration with the European CBAM mechanisms
Financial support and investments in green exports	A green financing system is in operation, which includes grants, subsidies, and loans for enterprises transitioning to environmentally friendly technologies. The European Investment Bank and funds such as InvestEU actively finance environmentally safe production and technological innovations	There is no developed system of financial support for green exports and imports. Separate programs to support environmental startups have been introduced, but they are not widespread. Most businesses are forced to seek investments on their own or attract international loans
Introduction of ecological technologies in production and trade	High level of technological modernization in key industries with export-import orientation. A circular economy is being actively introduced, which provides for the minimization of waste and its reuse	There is a high dependence on energy-intensive and resource-intensive industries. The pace of modernization remains slow due to financial and organizational issues
Institutional support and international cooperation	A clearly defined ecological strategy is supported by institutions such as the European Commission, the European Environment Agency, and international ecological organizations	The process of creating efficient ecological institutions is still ongoing. Coordination between government bodies and businesses in the sphere of green trade needs improvement

Source: the authors' own generalizations

The comparison of the ecological policies of the EU and Ukraine in the sphere of export-import activities indicates a significant gap in the level of implementation of environmental standards. Ukraine is making gradual steps towards harmonizing its policy with that of Europe; however, key challenges remain: the necessity to expand financial mechanisms to support sustainable exports and imports; accelerating the modernization of production capacities and adaptation to CBAM requirements; creating an efficient institutional framework for the control and regulation of ecological aspects of international trade. In other words, the development of a green economy in Ukraine should be based on the integration of the best European practices, attracting international investments, and creating favorable conditions for the greening of business. This will contribute to the innovative development of export-import activities by stimulating the introduction of ecological technologies, expanding sales markets for environmentally friendly products, enhancing the competitiveness of Ukrainian goods on the international stage, as well as improving the regulatory framework in accordance with international ecological standards.

Thus, the green economy plays an *integrative role* as it encompasses all areas of innovative export and import development. On one hand, it requires changes – adaptation of production, transportation, and financial mechanisms. On the other hand, it creates new opportunities – allowing the exportation of green products, attracting ecological investments, and gaining competitive advantages.

The green economy is not merely a part of innovations but their driving force, as it shapes the direction in which export-import activities should evolve. This highlights the need to implement innovations that ensure the compliance of export-import operations with the current economic and regulatory conditions, specifically:

- global markets are gradually creating demand for environmentally safe products, which compels enterprises to adopt technological innovations, as production processes must adapt to the requirements of a low-carbon economy, which entails the application of energy-efficient technologies, circular production, and waste management systems;

- regulatory changes, in particular ecological standards and certification, modify product requirements, creating the necessity for *product innovations*, as export-oriented entities are compelled to adapt their products to international ecological standards, which promotes the development of environmentally certified products and the use of alternative, environmentally safe materials;
- logistics processes become an important element in the greening of international trade, which necessitates the implementation of *process innovations* that include the optimization of supply chains, reduction of emissions in the transport sector, the use of low-carbon transport, and the digitalization of transportation management;
- the green economy encourages the development of *financial innovations* that provide necessary mechanisms for financing ecological initiatives and export activities, meaning new financial instruments are emerging, such as green bonds, loans for enterprises investing in sustainable technologies, as well as insurance mechanisms for insuring export risks considering environmental criteria;
- government policy and international organizations stimulate *institutional innovations* that ensure the development of environmental regulation, implementation of international standards, and adaptation of legal norms to support export-import activities within the context of the green economy.

Thus, the impact of the green economy on the innovative development of export-import activities is multidimen-

sional and shapes new approaches to production, logistics, financing, and regulation, which enhances the competitiveness of countries in the global economic space. The identified types of innovations align with and complement the aforementioned study [8], which outlines the key aspects of the impact of the green economy on international trade, including commodity, structural, technological, institutional, and political influences.

The italicized types of innovations reflect the main directions of greening and modernization of export-import activities. This allows for a deeper understanding of the processes of integrating environmental innovations into export-import activities, as well as improving existing conceptions and models that describe the impact of the green economy on global economic processes. Also, highlighting these innovative mechanisms can serve as a foundation for further development of practical tools for optimizing ecological policy.

Considering the defined principles of green economy, the comparison of the instruments of the EU and Ukrainian green policies, as well as the specified types of innovation, we see it's important to systematize the relationship between these components in the context of their impact on the innovative development of export-import activities. The integration of the principles of green economy and its innovative mechanisms contributes to the ecological transformation of export-import activities, which, in turn, determines new approaches to foreign economic activity. The Tab. 3 provides a description of the interaction of the principles of green economy and its innovative mechanisms, which allows for a clearer understanding of the effectiveness of their impact on the development of export-import activities.

Table 3

The integration of the principles of green economy into export-import activities through innovations

Principles of green economy	Innovations in export-import activities under the influence of the green economy	Results of the interaction between the conception of green economy and the innovative development of export-import activities
Sustainable development and ecological responsibility	The introduction of ecological standards and certifications of exported and imported products to ensure sustainable development	The increased responsibility of countries in international trade, which includes requirements for environmental safety, to ensure sustainability and competitiveness in global markets
Innovativeness and technological modernization	The development of novel technologies to reduce carbon emissions and other harmful emissions in international trade. Introduction of green technologies and innovations in export-import activities	An increase in the export of environmentally friendly technologies, allowing countries to support global initiatives for sustainable development and ecologically modernized production
Resource efficiency and circular economy	The introduction of the circular economy in production and international trade through expanded processing and secondary use of resources	The expansion of global supply chains through efficient resource use and waste reduction, ensuring economic benefits and environmental sustainability in international trade
Economic motivation and financial incentives	The introduction of subsidies, incentives and other financial instruments to support green innovations in export-import activities	Attracting international investments in environmental projects and businesses, stimulating the use of environmentally safe and innovative products in international trade
International cooperation and harmonization of regulatory norms	Unification of ecological standards and regulations at the international level to ensure the efficiency of trade in environmentally friendly products	Increasing the level of cooperation among countries in the environmental sphere, integrating national policies into global regulations to harmonize ecological standards and to stimulate trade

Source: the authors' own generalizations

Understanding how the principles of green economy and innovation interact in the context of developing export-import activities allows countries, enterprises, and governments to plan foreign trade development strategies more efficiently, focusing on sustainable development and environmental efficiency. The incorporation of innovative solutions based on the green economy principles enables countries to formulate strategies for sustainable innovative development of export-import activities and enhance competitiveness in international markets by creating new environmentally friendly products and services that meet international standards. The allocation of the relationship contributes to the development of new approaches to the management of export-import activities that will take into account the elements of the green economy and innovative technologies. This is an important aspect for further scientific developments in the fields of economics and international trade.

Conclusions. As a result of the carried out research, it is found that the conception of green economy plays a key role in transforming export-import activities through the implementation of innovative mechanisms. The analysis of existing scientific approaches allowed for the identification of the main principles of green economy, which include sustainable development and environmental responsibility, innovation and technological modernization, resource efficiency and circular economy, economic motivation and financial incentives, as well as international cooperation and harmonization of regulatory standards. These principles define the vector of innovative development of export-import activities and create conditions for transitioning to more resilient and efficient models of economic growth.

Within the terms of the study, a comparison of the policies of the EU and Ukraine in the field of greening export-import activities is conducted. It is found that the EU has a comprehensive regulatory framework and financial instruments to support the green economy, while Ukraine is in the process of adapting its strategies to European standards. It has been revealed that for the effective implementation of the principles of green economy, Ukraine needs to intensify institutional reforms, expand financial mechanisms to support environmental initiatives, and strengthen international cooperation in the field of sustainable development.

The research has demonstrated that the influence of the green economy on export-import activities is realized through the development of innovations in areas such as technological, product, financial, process, and institutional innovations. It is determined that these innovative mechanisms directly contribute to increasing the competitiveness of export-oriented enterprises, reducing the negative environmental impact of international trade, and creating favorable conditions for attracting ecologically oriented investments.

Prospects for further research are the development of models for assessing the efficiency of environmental innovations in export-import activities, the analysis of the impact of regulatory mechanisms on the dynamics of green transformations in international trade, as well as examining new financial instruments to stimulate environmentally friendly production and exports.

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