У статті проаналізовано проблеми «голландської хвороби» на прикладі України. Встановлено, що протягом всього існування суспільства природні ресурси відігравали величезну роль у його житті. Ще з початку зародження економіки як науки, вчені різних економічних течій досліджували причини
багатства одних країн та відставання інших і постійного поглиблення дисбалансу між ними. Феномен «економічного дива» в деяких країнах тільки підтверджує закономірність такого дисбалансу та ще більше показує несправедливість у розподілі обмежених природних ресурсів. Під «голландською хворобою» слід розуміти залежність економіки та бюджету країни від експорту одного-двох різновидів ресурсу, який забезпечує основну частку доходів країни. Вона є негативним ефектом, який впливає на економічний розвиток країни внаслідок бума в будь-якому секторі економіки. Ця проблема пов'язана з виявленням родовища будь-яких корисних копалин чи зростанням цін на експорт видобувних галузей. Логіка теорії «голландської хвороби» полягає в тому, що в економіці з рівновагою повної зайнятості постійне зростання притоку зовнішніх коштів призводить до зміни відносних цін на користь неторгових товарів (послуги, будівництво) й товарів, які не пов'язані з газом чи нафтою (виробництво, сільське господарство), що спричиняє витіснення торгівельних товарів, не пов'язаних з природними ресурсами, неторгівельними товарами. Розглянуто проблеми «голландської хвороби» та методи захисту від неї. Проаналізовано прояви «голландської хвороби» в економіці України. Зокрема, її наслідками в Україні є: сировинна структура українського експорту; слабка демократія; неефективні державні інститути; низький рівень конкурентоспроможності інших секторів української економіки за рахунок обмеженості фінансування їх розвитку; нестабільність надходжень до бюджету від експорту сировини внаслідок коливання світових цін на сировину та зміну геополітичної ситуації; висока корумпованість. Запропоновано напрями подолання проявів «голландської хвороби» в економіці України.

The article analyses the problems of the "Dutch disease" on the example of Ukraine. It is established that throughout the entire existence of society, natural resources have played a huge role in its life. Since the beginning of the emergence of economics as a science, scholars of various economic schools have been investigating the reasons for the wealth of some countries and the lagging behind of others and the ever-increasing imbalance between them. The phenomenon of the "economic miracle" in some countries only confirms the regularity of this imbalance and further demonstrates the injustice in the distribution of limited natural resources. The "Dutch disease" should be understood as the dependence of
a country's economy and budget on the export of one or two types of resource that provides the bulk of the country's income. It is a negative effect that affects the country's economic development as a result of a boom in any sector of the economy. This problem is associated with the discovery of a deposit of any minerals or a rise in prices for extractive industry exports. The logic of the "Dutch disease" theory is that in an economy with full employment equilibrium, a constant increase in the inflow of external funds leads to a change in relative prices in favour of non-tradable goods (services, construction) and goods not related to gas or oil (manufacturing, agriculture), which causes the displacement of tradable goods not related to natural resources by non-tradable goods. The problems of the "Dutch disease" and methods of protection against it are considered. The manifestations of the Dutch disease in the Ukrainian economy are analysed. In particular, its consequences in Ukraine are: raw material structure of Ukrainian exports; weak democracy; ineffective state institutions; low competitiveness of other sectors of the Ukrainian economy due to limited funding for their development; instability of budget revenues from raw material exports due to fluctuations in world commodity prices and changes in the geopolitical situation; high corruption. The author suggests ways to overcome the manifestations of the "Dutch disease" in the Ukrainian economy.

Ключові слова: нафта, газ, природні ресурси, голландська хвороба, обмінний курс, експорт, мультиплікатор

Keywords: oil, gas, natural resources, Dutch disease, exchange rate, exports, multiplier

Target setting. The availability of natural resources determines the level of well-being and economic development of the country in the early stages of the development of economic relations. Today, the key criterion for the place of a certain country in the global economy is the development of the latest technologies and production technological processes, the state of infrastructure development, that is, the level of use of modern production technologies, while the availability of natural resources has taken a back seat. The reduction of the role of natural resource reserves is due to the globalization of the international economy and the
transformation of the international division of labor and has caused a phenomenon when one group of countries that have significant natural resources was able to use them for the development of their national economies, while countries from another group could not take advantage of this and turned into only on "raw materials" of high-tech foreign productions.

Classical economic theory considered providing the country with natural resources as one of the key factors of economic development. However, today the realities of the functioning of the modern world economy are far from these conditions, and even vice versa - the presence of significant natural resources in a country quite often becomes the cause of the resource curse or "Dutch disease", which are associated with the fact that some countries, possessing significant reserves natural resources, are less developed in terms of economic development than countries with small reserves of natural resources or those countries where they are absent at all. Such countries include Ukraine, whose exports are focused on raw materials and semi-finished products.

**Analysis of research and publications.** The works of both domestic and foreign scientists are devoted to the study of the relationship between the development of the country's economy and the effect of the "Dutch disease": G. Duginets, A. Gedikl, V. A. Golyan, S. Yu. Kolodiy, O. G. Mokriy, I. B. Nazarkevich, N. Fowler, T. Pettinger. Despite the presence of developments in this area, research into the problems of the presence of the "Dutch disease" effect in the domestic economy remains relevant.

**The purpose of the article** is to define the problem of "Dutch disease" as a manifestation of divergence in the development of the country's economy on the example of Ukraine.

The tasks of the research are: determine the essence of "Dutch disease"; consider the problems of "Dutch disease" and methods of protection against it; to investigate the manifestation of the "Dutch disease" in the economy of Ukraine; propose directions for overcoming the manifestations of the "Dutch disease" in the economy of Ukraine.
Hypothesis: the existence of "Dutch disease" in the economy of Ukraine negatively affects its economic development.

Research methods. During the writing of the article, the following methods were used: monographic method, generalization method, historical method - to determine the essence of the "Dutch disease"; systematic method, logical method - were used to determine the main factors of the occurrence and effects of the "Dutch disease"; statistical methods were used to analyze the peculiarities of the "Dutch disease" in Ukraine.

The information base of the research was the works of domestic and foreign scientists on the problems of the "Dutch disease", information and analytical bulletins, periodical articles, statistical data, and the Internet information base.

Presentation of the main research material. The article is divided into sections. The first chapter, consisting of two subsections, examines the essence of the "Dutch disease" and its model. In the next section, the problems of the "Dutch disease" and methods of protection against it are analyzed, then the consequences of the "Dutch disease" in the economy of Ukraine are analyzed and ways to overcome them are proposed.

1. Theoretical foundations of the concept of "Dutch disease"

In the Netherlands, in 1959, near the city of Groningen, geologists discovered 2.8 trillion cubic meters of natural gas - the largest gas field in Europe. Cheap gas was thought to be good news for the entire Dutch economy. But higher export prices for gas in the 1970s. increased the value of the guilder by 20%, which hit the competitiveness of Dutch production and services, as it caused a decrease in the competitiveness of other sectors of the country's economy on world markets. In 1977, The Economist magazine called this phenomenon the “Dutch disease” [8]. Other resource-rich countries have tried to avoid this trap. Some have established fixed exchange rates to prevent their currencies from appreciating. Others keep capital inflows in sovereign wealth funds to avoid distorting the national economy.
1.1. The essence of "Dutch disease"

"Dutch disease" is the acute dependence of the country's economy and budget on the export of one or two types of resource, which provides the main share of the country's income. It is a negative effect that affects the economic development of the country due to a boom in any sector of the economy. This problem is related to the discovery of a deposit of any minerals or the increase in export prices of extractive industries [2]. At the same time, the population's needs for goods and services are met mainly through imports, and national production is developing weakly. If a country happens to have significant amounts of oil, gas, or other natural resources, it will start exporting those goods, causing significant GDP growth that will improve tax revenues, the current account, and create employment opportunities. However, quite often countries that have found natural resources have received much less than expected due to inefficient state management and corruption.

1.2. The "Dutch disease" model

The economic concept of "Dutch disease" refers to the potential negative consequences of windfalls from natural resources and the accompanying increase in exchange rates for other parts of the economy. For example, one of the potential dangers of a natural resource boom is that exchange rate appreciation makes sectors that are not related to their extraction and sale, such as manufacturing, services, less competitive, which can lead to deindustrialization.

The logic of the "Dutch disease" theory is that in an economy with full employment equilibrium, a constant increase in the inflow of foreign funds leads to a change in relative prices in favor of non-tradable goods (services, construction) and goods that are not related to gas or oil (production, agriculture), which causes the displacement of tradable goods, not related to natural resources, by non-tradable goods. That is, an increase in the exchange rate leads to a decrease in the competitiveness of the country's economy, respectively, production and employment in the sector of trade goods.
The mechanism by which such a transformation occurs follows directly from the assumptions of the full employment equilibrium model. According to these assumptions, external funds (from the boom in natural resources) can be transferred to real domestic costs only if the flow of imports increases. However, because non-tradable goods are easily impossible to import (or only at an excessively high price), the relative decline of the tradable sector is inevitable, otherwise the resources needed to enhance the growth of the non-tradable sector would not be available. Thus, the "Dutch disease" model suggests that deindustrialization is an inevitable structural change that occurs as a result of natural resource booms.

Another mechanism by which manufacturing can become less competitive in the Dutch disease model is through increases in manufacturing wage rates that result from the increase in aggregate labor demand that natural resource booms can generate. In the short-run, when the level of productivity is fixed, unit labor costs in production increase, which can, in the absence of a compensation policy, lead to a loss of competitiveness of production.

In a simple Dutch disease model, it is assumed that additional foreign exchange does not matter much in terms of economic growth. However, when a developing country is facing a technology gap, additional export earnings, if channeled through appropriate industrial policies, can play an important role, as additional foreign exchange can accelerate the process of importing advanced technology and equipment. In addition, if the industrial strategy promotes innovation, additional revenues can theoretically accelerate the process of economic growth. For example, during an oil and gas boom, the government can support industry by channeling resources into the sector through subsidies, protection, financial incentives, and infrastructure investment. This can serve to modernize production capital, which in turn can increase productivity [3].

2. Problems of "Dutch disease" and methods of protection against it
Next, we will consider the potential problems of "Dutch disease".

Currency appreciation. Thanks to the discovery of natural resources and the
increase in their export, the exchange rate in the country is increasing. This is explained by the fact that greater demand for exports leads to an increase in demand for the national currency. For example, at the end of the 70s of the XX century, in Great Britain there was a sharp rise in the exchange rate of the pound sterling after the discovery of oil in the North Sea.

Decrease in competitiveness. The problem with such an exchange rate appreciation is that other tradable sectors of the economy become uncompetitive. In the manufacturing industry, there may be a significant drop in demand due to the higher exchange rate. Thus, the economy will shift from manufacturing to the primary sector.

Growth in imports of luxury goods. Greater extraction of natural resources will allow those who dispose of them to spend them on luxury items and luxury services. These luxury items are usually imported, which means that domestic businesses receive little benefit.

Growth in real wages. Due to the increase in welfare and the cost of services, the demand for the services of service workers (waiters, hairdressers, drivers, etc.) will increase. This would lead to an increase in real wages in the economy, which would cause another problem for manufacturing firms, as they would have to raise real wages to retain workers. This will further reduce the competitiveness of the export of industrial products [8].

Indirect deindustrialization. As production becomes increasingly uncompetitive due to a higher exchange rate and higher wages, it shrinks and investment declines, leading to lower growth. These industries will begin to fall behind other industries, which may be very difficult to catch up in the future.

Income inequality. Often, the discovery of raw resources such as oil and gas benefits a relatively small percentage of the population. Those who own oil and gas fields may have enormous wealth, but the benefits of oil and gas are often unevenly distributed in society. Workers may benefit from rising real wages in the service sector, but the discovery of natural resources often creates a few billionaires, so the increase in GDP is often concentrated in the hands of a small
number of people. In most developing countries, natural deposits are developed by foreign multinational companies, due to which part of the wealth is taken out of the country.

Tax revenues. High oil and gas production can generate significant tax revenue for the government, allowing it to run a budget surplus and spend more on public services such as infrastructure and education. But the government often cuts other taxes and relies on revenue from taxes on raw materials.

To prevent "Dutch disease", the following measures should be implemented:
- limit the appreciation of the real exchange rate, for example, China has limited its real exchange rate by buying US bonds in order to maintain a relatively lower value of the renminbi;
- reduce foreign capital flows. If a country moved from a budget deficit to a surplus, it would attract less foreign investment to purchase government bonds. Lower capital inflows will limit exchange rate growth;
- spend oil revenues on infrastructure and education. The government should allocate taxes from raw resources to improve the infrastructure of the economy - better public transport, better education, subsidies for investments in technologies with positive external effects. All of these can help increase the competitiveness of industrial export sectors and help them cope with higher wages and a higher exchange rate;
- immigration. Many resource-rich national economies encourage immigration to provide service-sector jobs, which dampens real wage growth. A classic example is the Persian Gulf countries;
- sovereign capital funds. A sovereign wealth fund is a government savings scheme in which revenue from natural resource revenues is not spent but saved for a future income stream, an example of which is the state pension fund in Norway;
- greater equality of distribution. The effect of "Dutch disease" is worse when wealth is concentrated in the hands of a few billionaires, as there is a marked increase in luxury goods and "luxury" services. Better income distribution enables a more diverse economy;
- a higher tax on luxury services and luxury imports to prevent the economy from becoming too skewed towards luxury services and luxury imports, which may be unsustainable in the long run [8].

By taking these measures, the country's government can avoid many problems caused by the "Dutch disease", but quite often these measures are neglected mainly due to the low level of public administration in countries that are experiencing a boom in natural resources (these are mainly third world countries).

3. Manifestation of the "Dutch disease" in the economy of Ukraine

Today, Ukraine is also characterized by the "Dutch disease", which explains the relationship between the overall economic development of the country and the export of its own raw materials. However, unlike countries where the resource curse arose due to the presence of oil and gas, in Ukraine such resources are agricultural and metallurgical products.

The predominance of export-oriented industries in the national economy (at first it was the products of the mining and metallurgical complex, and later of agriculture) allows us to talk about the emergence of the Ukrainian phenomenon of "Dutch disease", which, in the conditions of a global drop in prices for raw materials and products of their primary processing, programmed the stagnation of Ukrainian economy, which was reflected in galloping inflation, devaluation of the national monetary unit, the bankruptcy of a huge number of financial and credit institutions, a decrease in domestic demand for both consumer goods and investment goods.

Confirmation of the presence of the "Dutch disease" effect in the economy of Ukraine is the existence of a number of factors (Fig. 1).

Evidence of the insufficient use of Ukraine's existing export potential is the structure of domestic exports, where the main part is products with a low degree of processing, in particular ferrous metals and products from them (about 40% of exports), mineral products (about 10% of exports), and the share of products with a high degree of processing (engineering products, various equipment and facilities), rather insignificant. Whereas today, in the conditions of the transition of the
developed countries of the world to the fourth and even the fifth industrial revolution, it is necessary to develop the production of high-tech products (S. Yu. Kolodiy, 2015, p. 36). The main result of such a situation is the limited development potential of modern competitive production of export products with high added value.

**Pic. 1. Factors of the "Dutch disease" in the economy of Ukraine [3].**

The main consequences of the "Dutch disease" in the economy of Ukraine are (pic. 2).

- the presence of significant reserves of natural resources: a third of the world reserves of chernozems, iron ores are concentrated here
- low level of economic development - the basis of the economy is production, not services
- underdeveloped innovative investment production
- subsidized nature of the development of the agrarian and industrial complex

**Pic. 2. Consequences of the "Dutch disease" in the economy of Ukraine [3].**

- raw material structure of Ukrainian exports
- weak democracy
- ineffective state institutions
- low level of competitiveness of other sectors of the Ukrainian economy due to limited financing of their development
- instability of revenues to the budget from the export of raw materials due to fluctuations in world prices for raw materials and changes in the geopolitical situation
- high corruption
It can be stated that the economy of Ukraine during the entire period of independence, except for the period 2000-2008 (favorable international conditions on raw materials markets contributed to the growth of exports of mineral raw materials and products of their processing), is constantly in a permanent state of crisis. The main prerequisite for the formation of the raw material model of the Ukrainian economy, which has survived to this day, was the growth of exports of chemical industry enterprises and the mining and metallurgical complex at the end of the 90s of the 20th century, due to the high growth rates of the world economy, which at that time required large supplies of raw materials and semi-finished products.

The Ukrainian phenomenon of "Dutch disease" is accompanied by wasteful and exhausting use of nature and the lack of necessary financial opportunities in the country due to the redistribution of natural resource rent in favor of private structures. This is confirmed by negative precedents in the field of nature management, such as "amber" wars, significant losses of natural raw materials, especially in forestry, and the decline of the agricultural land reclamation infrastructure.

In the structure of the export of agricultural raw materials, the main part falls on the products of integrated business structures of the holding type, which are characterized by a high level of concentration of financial resources and a large bank of agricultural areas, which allows them to occupy a monopoly position in the market of agricultural products and in the land market. As a result, traditional forms of agrarian entrepreneurship are discriminated against, the development process of the farming institute, which is the main link of the middle class in the village, is inhibited [5].

The raw material orientation of the domestic economy deepens the dependence of the rates of socio-economic development on the world situation in the markets of mineral raw materials and products of their primary processing, agricultural products. A characteristic feature of this orientation is the opacity of relations in the field of natural resource extraction within the country, which
caused an inadequate redistribution of natural resource rent in all subsequent phases of their use (forestry, fuel and energy complex, mining and metallurgical complex, agro-industrial complex).

The increase in the volume of exports has a positive effect on the increase in aggregate demand, which is the reason for the reorientation of a certain part of aggregate expenditures on imports, that is, the increase in demand for imported products. Instead, imports affect the reduction of aggregate demand, since they are the cause of the leakage of a part of the country's national income. This interdependence is described by the concept of the foreign trade multiplier. To clearly track the degree of dependence of GDP growth and exports, we will calculate the foreign trade multiplier in 2015-2020 (Table 1).

\[ \text{Table 1. Calculation of the foreign trade multiplier of Ukraine in 2015–2020 pp.} \]

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<tbody>
<tr>
<td>MPS (marginal propensity to save)</td>
<td>0,38</td>
<td>0,31</td>
<td>0,15</td>
<td>-0,02</td>
<td>-2,04</td>
<td>-0,49</td>
</tr>
<tr>
<td>MRM (marginal propensity to import)</td>
<td>0,65</td>
<td>0,59</td>
<td>0,49</td>
<td>0,49</td>
<td>0,05</td>
<td>1,31</td>
</tr>
<tr>
<td>m (foreign trade multiplier)</td>
<td>1</td>
<td>1,12</td>
<td>1,56</td>
<td>2,12</td>
<td>-0,50</td>
<td>1,22</td>
</tr>
</tbody>
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Source: calculated by the author

So, in 2018, compared to 2017, the coefficient of the foreign trade multiplier increased by 35.9% and amounted to 1.56. In 2019, the multiplier coefficient had a negative value of 0.50, due to a decrease in the marginal propensity to save and the marginal propensity to import, and in 2020, the multiplier coefficient increased to 1.22.

4. Ways to overcome manifestations of the "Dutch disease" in the economy of Ukraine

Structural changes in the development of the economy of Ukraine should be carried out through the prism of changes in the vector of the state's economic policy, in particular, the transition to deeper specialization and cooperation in production, primarily in high-tech industries. The development of technological
processes and the specialization of production operations stimulates the creation of new types of equipment and equipment, which can become a key element of new branches of economic activity that are more economical, productive, universal, etc. The main direction in this matter should be the creation of powerful interdisciplinary scientific and technical complexes on the basis of leading research and design organizations and large industrial enterprises. Similar complexes can be created in the form of scientific and industrial associations that work on the basis of a single strategic development program. The first stage of the development of such complexes should be the creation of a fundamentally new mechanism of cooperation or cooperation, which would eliminate numerous bureaucratic obstacles and improve the efficiency of interdisciplinary scientific and technical complexes on the basis of such economic levers as material interest, self-financing, economic responsibility [6]. However, the effectiveness of the state structural policy depends not only on the determination of the correct vectors or mechanisms for regulating the transformational processes of the domestic economy, but also on an objective assessment of the existing state of the macro-environment, influencing factors and features of the dynamics of changes in the economic system of Ukraine.

Ukraine's economic development programs should be developed taking into account the potential of its regions. The main priority directions should be: digital technologies, electrical engineering and instrument building, alternative energy sources, creation of new materials, bio- and nanotechnology. In 2022, the economic problems of the domestic economy intensified due to the losses caused by the full-scale invasion of the Russian army. Thus, the conditions for effective structural reform of the economy of Ukraine with the aim of overcoming the "Dutch disease" and the post-war recovery of the country's economy should be (pic. 3).
The listed directions are directed not only to the formation of appropriate conditions for the implementation of qualitative structural transformations, but also to ensure their appropriate level of intensification in order to overcome the backwardness of the domestic economy in infrastructure, technological, socio-economic levels of development compared to the economies of developed countries of the world.

**Conclusion.** To summarize the above, it should be noted that "Dutch disease" refers to the problems associated with the rapid growth of the production of raw materials (for example, oil and gas), which causes a decline in other sectors of the economy. When raw materials run out, the economy may find itself in a worse position than before. The concept behind the effect of "Dutch disease" on the economy of a resource-boom country is that it experiences a steady increase in the inflow of external funds, which causes a change in relative prices in favor of non-tradable goods and goods that are not related to gas or oil. And as a result of this, trade goods, not related to natural resources, are displaced by non-trade goods.

To prevent "Dutch disease", the following measures should be implemented: limit the growth of the real exchange rate, reduce foreign capital flows, spend oil
revenues on infrastructure and education, immigration, sovereign wealth funds, greater equality of distribution, a higher tax on "luxury" services and import of luxury goods.

The predominance in the economy of Ukraine of export-oriented industries (production of the mining and metallurgical complex, agriculture) allows us to talk about the emergence of the Ukrainian phenomenon of "Dutch disease", which, in the conditions of a global drop in prices for raw materials and products of their primary processing, programmed the stagnation of the Ukrainian economy, which was reflected in galloping inflation, devaluation of the national monetary unit, the bankruptcy of a huge number of financial and credit institutions, a decrease in domestic demand for both consumer goods and investment goods.

In 2022, the economic problems of the domestic economy intensified due to the losses caused by the full-scale invasion of the rf. Therefore, the conditions for effective structural reform of the economy of Ukraine in order to overcome the "Dutch disease" and the post-war recovery of the country's economy are the development of the following sectors: digital technologies, electrical engineering and instrumentation, alternative energy sources, creation of new materials, bio- and nanotechnology.

The results of the research confirmed the hypothesis that the existence of the "Dutch disease" in the economy of Ukraine negatively affects its economic development. Taking into account the current economic state of Ukraine, further research is needed not only on the issue of overcoming the consequences of the "Dutch disease", but also on the perspective directions of Ukraine's post-war recovery.

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