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THE UKRAINE'S FOREIGN TRADE POTENTIAL IN THE SPHERE OF HIGH-TECHNOLOGICAL PRODUCTS

The theoretical foundations of the concept of "foreign trade's potential in the sphere of high-technological products", the commodity and geographical structure of Ukraine's foreign trade in the sphere of high-technological products and issues related to the formation of the external trade priorities in the country were researched. A share of foreign trade of high-technological products in total volume of trade of Ukraine and a specific weight of Ukraine in world's trade in high-technological products was determined. The directions of state foreign policy, taking into account international experience, were designated as a component of the country's further development.

Keywords: *foreign trade's potential, Ukraine's foreign trade in the sphere of high-technological goods, commodity trade structure, geographical trade structure, the strategy of development of high-technological industries.*

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ЗОВНІШНЬОТОРГОВЕЛЬНИЙ ПОТЕНЦІАЛ УКРАЇНИ У СФЕРІ ВИСОКОТЕХНОЛОГІЧНОЇ ПРОДУКЦІЇ

Досліджено теоретичні основи поняття «зовнішньоторговельний потенціал у сфері високотехнологічної продукції», товарна й географічна структури зовнішньої торгівлі України високотехнологічними товарами та питання, пов'язані із формуванням зовнішньоторговельних пріоритетів у державі. Виокремлено частку зовнішньої торгівлі високотехнологічною продукцією у загальному обсязі торгівлі України та питому вагу України у світовій торгівлі високотехнологічною продукцією. Окреслені напрями реалізації державної зовнішньоторговельної політики з урахуванням світового досвіду як складової подальшого розвитку країни.

Ключові слова: зовнішньоторговельний потенціал, зовнішня торгівля України високотехнологічними товарами, товарна структура торгівлі, географічна структура торгівлі, стратегія розвитку високотехнологічних галузей.

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ВНЕШНЕТОРГОВЫЙ ПОТЕНЦИАЛ УКРАИНЫ В СФЕРЕ ВЫСОКОТЕХНОЛОГИЧНОЙ ПРОДУКЦИИ

Исследованы теоретические основы понятия «внешнеторговый потенциал в сфере высокотехнологичной продукции», товарная и географическая структуры внешней торговли Украины высокотехнологичными товарами и вопросы, связанные с формированием внешнеторговых приоритетов в государстве. Выделено долю внешней торговли высокотехнологичной продукцией в общем объёме торговли Украины и удельный вес Украины в мировой торговле высокотехнологичной продукцией. Обозначены направления реализации государственной внешнеторговой политики с учетом мирового опыта как составляющей дальнейшего развития страны.

Ключевые слова: внешнеторговый потенциал, внешняя торговля Украины высокотехнологичными товарами, товарная структура торговли, географическая структура торговли, стратегия развития высокотехнологичных отраслей.

Statement of the problem. In today's globalized world every country, to develop steadily, has lead the innovations and has entered the market with competitive products. A necessary condition for this release is production and selling of high-technological products. The importance of trade of high-technological products is increasing for the highly developed and developing countries, including Ukraine. Thus, today the determining of potential of Ukraine in the field of high-technological exports and directions for its implementation is actual.

Still opened are issues, related to increasing the scope and improving the structure of Ukraine's foreign trade in the sphere of high-technological products that require further research in the context of the realization of the Ukraine's foreign trade potential. The depth analysis of the features of Ukraine's foreign trade in the sphere of high-technological goods and state foreign trade policy remains relevant.

Analysis of recent research and publications. The study of high-technology development in Ukraine in the context of foreign trade in the sphere of high-technological goods realized such Ukrainian scientists, as: M. Bondarenko, I. Hrinko, I. Dmytriv, K. Zhylenkova, O. Zubko, V. Matvyeyeva, T. Melnik, I. Sydorhuk, T. Sheremet, N. Yaremchuk etc. Every year this issue is more actualized through the active spreading of high technology in the world.

The purpose of the article. The purpose of the article is the research and analysis of scope of Ukraine's foreign trade in the sphere of high-technological products in the context of globalization and its role in increasing the competitiveness of the national economy in the world by focusing on innovative priorities of economic development.

Main part. For the determination of the concept "foreign trade potential in the sphere of high-technological products" there should be distinguished the definitions of its components. Thus, the foreign trade potential is a reflection of the ability of the national economy to realization of foreign trade activity, it serves the material basis for its effectuation, reflects the effectiveness of using available resources and other components of aggregate economic potential of the national economy in the process of realization these activities and the results of foreign trade development as a structural element of the national economy and an important aspect of international competitiveness of the country [1, p. 55]. And according to the Law of Ukraine "About the State complex program of development of high technologies", high-technological products are the products manufactured by domestic enterprises, using high technologies, which are competitive with the best samples of the similar products of foreign production [2]. Therefore, the term "foreign trade potential in the sphere of high-technological products" should be interpreted as the ability of the

national economy to the effectuation of foreign trade activity that is based on production and realization of products by using high technologies, and that is a component of the of the national economy in the world.

The institutional prerequisites of development of Ukraine's foreign trade in the sphere of high-technological innovative products are created by the subjects of innovation activity, the fundamental basis of which is constituted by the technoparks, the venture funds, the high-technological innovative enterprises, the centers of commercialization of intellectual property, the innovation centers, the business-incubators, the project construction organizations, the scientific implementation companies etc. [3, p. 182] and opportunistic factors. The latter include those factors that create conditions for strengthening the business activity of Ukrainian producers on the international market. They are divided into three groups:

- qualitative (the stable political environment; developed technological infrastructure, the availability of demand for the results of scientific research);
- innovative (the research potential of a country, the innovation activity of enterprises, the educational level of the population);
- macroeconomic (the exchange rate, the inflation rate etc.) [4].

The Organization for Economic Cooperation and Development developed the classifier, according to which high-technological goods are divided into: aerospace products, computer and office equipment, electronics and telecommunications, pharmaceuticals, scientific instruments, electrical machinery and equipment, chemical products, non-electrical machinery and equipment [5].

In Ukraine high-technological products (further – HTP) are classified as: the products of inorganic chemicals; the organic chemicals; nuclear reactors and boilers; electric cars; optical, photographic apparatus and instruments; aircrafts; non-electrical machinery and equipment.

In 2015 the Ukraine's foreign trade balance in the sphere of HTP amounted 16.40 million USD, that equaled 21.68% of the Ukraine's foreign trade balance in

goods (in 2015 was 75.64 million USD³).

The dynamics of the Ukraine's foreign trade in the sphere of HTP is shown in figure 1[6].

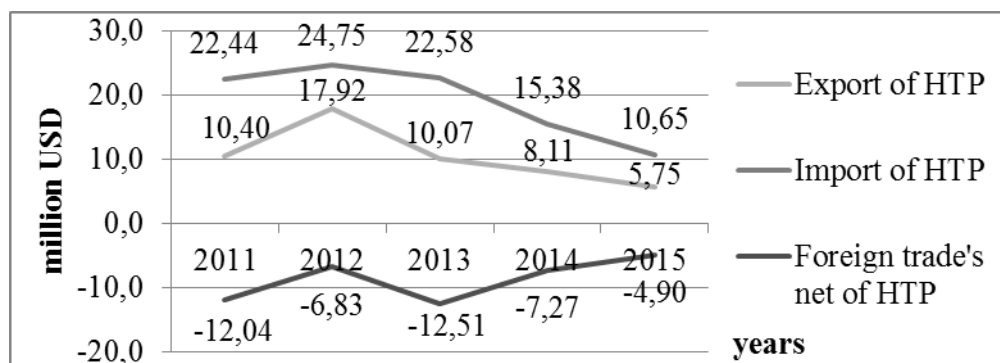


Fig. 1. The dynamics of the Ukraine's foreign trade in the sphere of HTP for 2011-2015, million USD⁴ [6]

According to Fig. 1, for a certain period there is a negative tendency in Ukraine's foreign trade development of HTP, but the foreign trade net, although is negative, has positive dynamics (growth by 7.1% compared to 2011). It should also be noted that for 2011-2015 import of HTP was 2 times higher than its exports [6].

The share of export and import of HTP in total Ukraine's export and import of goods is reflected in Fig. 2 [6].

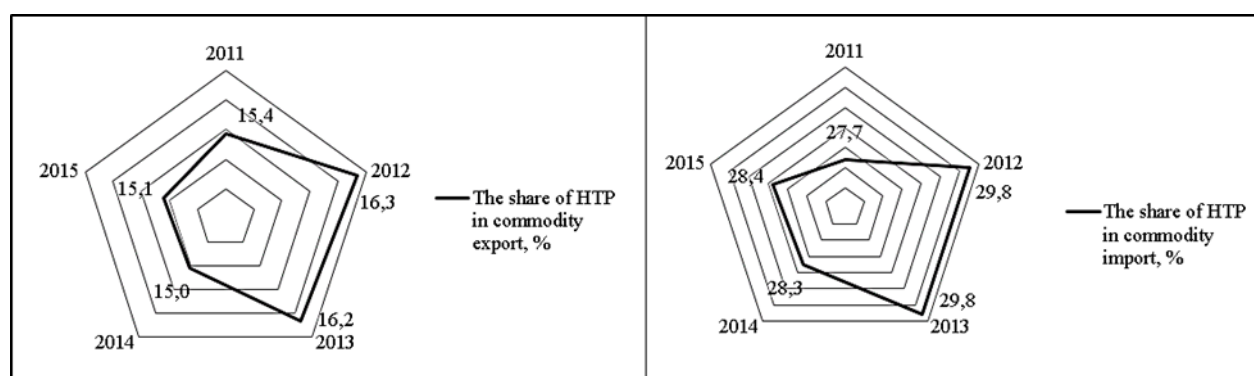


Fig. 2. The share of export and import of HTP in total Ukraine's export and import of goods, %¹ [6]

According to Fig. 2, the share of HTP in total trade also decreased over the last 2 years and in 2015 accounted for 15.1% of exports and 28.4% of imports.

³ Excluding the temporarily occupied territory of Crimea, Sevastopol and the zone of ATO

⁴ Excluding the temporarily occupied territory of Crimea, Sevastopol and the zone of ATO

The volume of export, import and trade balance of Ukraine in the sphere of HTP is demonstrated in Table 1.

Table 1

The dynamics of changes of foreign trade balance of HTP in the groups for the period 2011-2015, million USD⁵ [6]

Group of HTP	EXPORT OF HTP					IMPORT OF HTP					NET OF HTP				
	YEAR	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014
inorganic chemicals	1,68	1,59	1,64	1,18	0,97	0,29	0,27	0,32	0,31	0,28	1,39	1,32	1,32	0,87	0,69
organic chemicals	0,65	0,40	0,23	0,15	0,07	0,94	0,92	0,76	0,71	0,57	-0,29	-0,52	-0,53	-0,56	-0,50
pharmaceuticals	0,19	0,24	0,25	0,26	0,16	2,87	3,30	3,09	2,47	1,37	-2,68	-3,06	-2,84	-2,21	-1,21
nuclear reactors and boilers	3,49	3,70	3,73	2,98	1,96	6,95	7,15	6,81	4,91	3,58	-3,46	-3,45	-3,08	-1,93	-1,62
electric cars	3,14	3,17	3,09	2,68	1,98	4,84	5,78	5,04	3,81	2,70	-1,70	-2,61	-1,95	-1,13	-0,72
optical, photographic apparatus and instruments	0,28	0,29	0,29	0,23	0,16	1,00	1,17	1,04	0,65	0,45	-0,72	-0,88	-0,75	-0,42	-0,29
aircrafts	0,32	0,92	0,31	0,25	0,19	0,07	0,09	0,05	0,05	0,05	0,25	0,83	0,26	0,20	0,14
non-electrical machinery and equipment	0,68	0,76	0,51	0,39	0,28	5,47	6,08	5,46	2,48	1,65	-4,79	-5,32	-4,95	-2,09	-1,37
TOTAL	10,43	11,07	10,05	8,12	5,77	22,43	24,76	22,57	15,39	10,65	-12,00	-13,69	-12,52	-7,27	-4,88

According to the table, during the period of 2011-2015 Ukraine was exporting a large number of nuclear reactors, boilers and electrical machinery, which decreased from 2011 almost in 1.5 times. The largest share of import was made by nuclear reactors and boilers (3,58 million USD), electrical machinery (2,7 million USD) and non-electrical equipment, import of which reduced from 2011 in 5 times.

In 2015 there was a positive net of foreign trade in the sphere of HTP in the group of inorganic chemistry (+ 0.69 million USD) and aircrafts (+ 0.14 million USD). The most negative net was for nuclear reactors and boilers.

In Ukraine industry has a large share of the structure of gross domestic product and the structure of foreign trade, so it is necessary to determine the share of export of HTP of Ukraine's total industrial export for the period 2010-2014 (Fig. 3) [7].

In accordance with these data, there is a visible dynamics of growth of export's share of HTP from Ukraine's total industrial exports more than 1.5 times (from 4.37% in 2010 to 6.51% in 2014). This is explained by the modernization of the industry and the focusing on global innovative trends.

⁵ Excluding the temporarily occupied territory of Crimea, Sevastopol and the zone of ATO

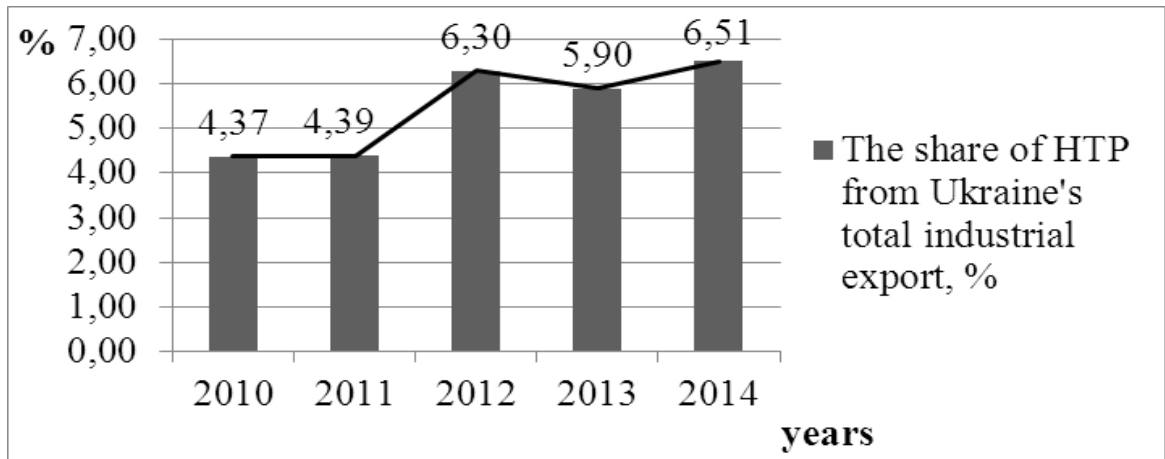


Fig. 3. The share of HTP from Ukraine's total industrial export, % [7]

The share of Ukraine's export of HTP in the industrial export of country in the world in 2015 is shown in Fig. 4 [7].

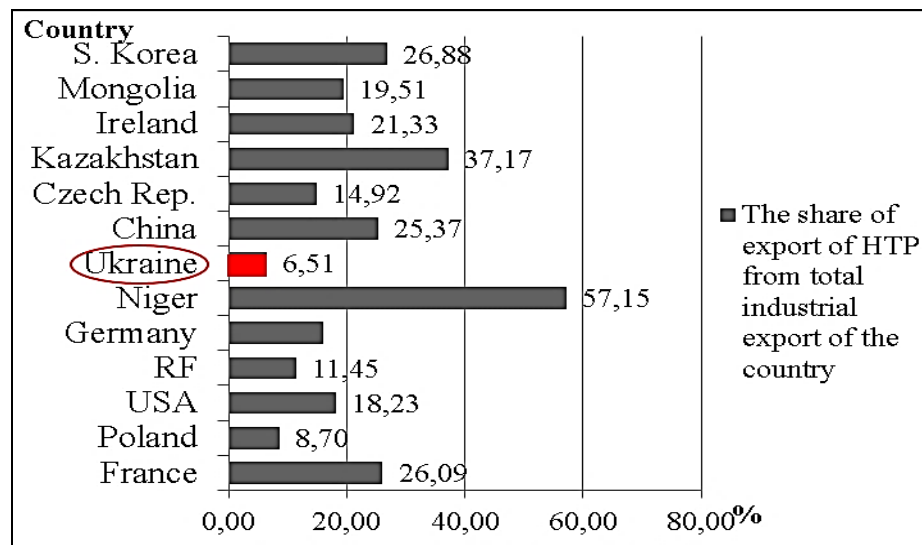


Fig. 4. The share of export of HTP from total industrial export of the country in 2015, % [7]

The share of Ukraine's export of HTP from the total industrial export of the country in 2015 was 6,51%. Due to the presence of high innovation potential in Ukraine, it can have very high share in the total world exports of HTP and in the future become a strong competitor.

The share of some countries in total world exports of HTP is demonstrated in Table 2 [7].

Table 2

The share of some countries in the world exports of HTP for the period 2010-2014, % [7]

Country \ Year	China	USA	Germany	Japan	Singapore	Ukraine
2010	22,85	8,20	8,91	6,86	7,13	0,08
2011	23,56	7,51	9,45	6,52	6,52	0,10
2012	25,29	7,42	9,36	6,17	6,42	0,13
2013	26,54	7,04	9,18	4,98	6,43	0,10
2014	25,98	7,72	9,29	4,70	6,39	0,09

In keeping with the data in table, the leading position is taken by China with a share of almost 26% in 2014, then go Germany – 9.29% and the USA – 7.72%. The share of Ukraine in the world exports of HTP in return is almost 1%.

There are many factors which in general affect the development of high technologies in Ukraine and foreign trade of high-technological goods, especially, the creation and using of new technologies, the conducting Research & Development.

Positive and negative factors are distinguished in Table 3 [8, p. 36].

Table 3

The factors of development of HTP and high technologies in Ukraine⁶ [8, p. 36]

Positive factors of influence	Negative factors of influence
1) The highly qualified staff	1) The "Brain drain"
2) The high quality of education and the high quantity of innovation	2) The unstable political and economic situation in Ukraine
3) The realization of innovative and investment projects with state participation, public-private cooperation	3) Imperfect legislation as to the protection of intellectual property, taxation of investors and entrepreneurs who engaged in innovation activity

⁶ It was compiled on the basis Source: Бондаренко М.І. Фактори впливу на інноваційний розвиток промислових підприємств / М.І. Бондаренко, І.П. Сидорчук // Вісник ХНУ №3, Том 1, 2014 (212). – с. 35-37 [Електронний ресурс]. – Режим доступу: <http://elar.khnu.km.ua/jspui/bitstream/123456789/3291/1/БОНДАРЕНКО.pdf>

4) Using the system of crediting and compensation of expenses of enterprises that use the innovation	4) Ineffective industrial structure of production and imperfect development of innovation infrastructure
5) The implementation of strategy of country's innovative development	5) Reducing R&D expenditure, the limitations of public funding
6) A high innovation potential	6) Inflationary pressure
7) The attraction of foreign investment and the experience of other countries	7) The lack of social guarantees for researchers and innovative enterprises

important role in the development of high-technological products in Ukraine plays the taking into account the experience of other countries, namely: the cooperation between the scientific sector and the business sector for implementation the technological solutions (Poland); the supporting of development of venture projects by stimulating the creation of venture firms and research centers, the special laboratories of large industrial corporations and the free preferential subsidization these subjects of innovation activity, that allows to develop venture business (the USA); providing the targeted free grants to enterprises, that master the new technology; granting the concessional loans to firms (annual sales of which do not exceed 300 million euros) that invest money in the modernization of enterprises, in the development of new products and, also, in the measures of rational using of energy, dotations in high technology enterprises (Germany) [9]; providing, premium inventors and concessional loans to enterprises that conduct innovative activity (Japan); providing the subsidies to firms, that use R&D (France); the interest-free loans for implementation of innovation by companies (Sweden) [10] and so on.

In order to increase the effectiveness of innovation, the government developed a strategy of high-technological industries' development by 2025, which identifies the key high-technological directions for Ukraine, namely the development of information and communication technologies (further – ICT); use of ICT in agriculture, energy, transport and in different branches of industries; the high-technological engineering; creating new materials; the development of

pharmaceutical and bioengineering industry. In accordance with the strategy, at the national level it is necessary to develop a system of tax breaks from investments in research and development; to promote technological innovation through increasing economic openness; to promote the development of venture capital funds; to improve the system of state orders etc. [10].

Another important event was that the economic part of the Association Agreement between Ukraine and the European Union took effect, in which it provides full support of innovative enterprises through compliance with European standards. This will allow the high-technological production to become one of the priorities in the development of new technologies in Ukraine [11].

Conclusions. To sum up, Ukraine's foreign trade in the sphere of high-technological products is, on the one hand, very promising and profitable and, on the other hand is financially weak. The branches of heavy industry and precision engineering, such as: the production of nuclear reactors and boilers, electrical machinery and optical devices need the greatest state support. Therefore, to encourage its development and the development of innovation activity in the country it is also needed to follow the state innovation development strategy in terms of providing support and preferences and privileges for creation and implementation of new technologies; to implement programs of scientific and technical activities; to attract foreign investment; to improve the regulatory framework; to form the mechanism of coordination of scientific and technological activities etc.

With the help of right public policy, Ukraine will be able to expand foreign trade in the sphere of high-technological goods considering the priorities of development for outlined competitive sectors of economic activity and eliminate the negative deterrent factors of development, that will cause increasing the scale of trade and growing the export potential of the country.

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