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THE INNOVATIVE VECTOR OF DEVELOPMENT OF THE FOREIGN TRADE OF UKRAINE

Abstract. *The article highlights the role of foreign trade in the innovative development of the national economy. The issues with respect to exports of innovative products outside Ukraine and their imports to implement innovations are analyzed. The structure and dynamics of the volume of Ukraine's foreign trade in high-tech products are studied.*

Keywords: *foreign trade; innovative vector of development; innovative products; export of technologies; import of technologies; high-tech products.*

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ІННОВАЦІЙНИЙ ВЕКТОР РОЗВИТКУ ЗОВНІШНЬОЇ ТОРГІВЛІ УКРАЇНИ

Анотація. *У статті висвітлено роль зовнішньої торгівлі в інноваційному розвитку національної економіки. Проаналізовано ситуацію щодо реалізації інноваційної продукції за межі України, а також її імпорту з метою здійснення нововведень. Досліджено структуру і динаміку обсягу зовнішньої торгівлі України високотехнологічною продукцією.*

Ключові слова: *зовнішня торгівля; інноваційний вектор розвитку; інноваційна продукція; експорт технологій; імпорт технологій; високотехнологічна продукція.*

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ИННОВАЦИОННЫЙ ВЕКТОР РАЗВИТИЯ ВНЕШНЕЙ ТОРГОВЛИ УКРАИНЫ

Аннотация. *В статье освещена роль внешней торговли в инновационном развитии национальной экономики. Проанализирована ситуация по реализации инновационной продукции за пределы Украины, а также ее импорта с целью осуществления нововведений. Исследовано структуру и динамику объема внешней торговли Украины високотехнологичной продукцией.*

Ключевые слова: *внешняя торговля; инновационный вектор развития; инновационная продукция; экспорт технологий; импорт технологий; високотехнологичная продукция.*

Urgency of the research. Today the basis for economic development of any country is the innovative activity that ensures the competitiveness level of the national economy. However, the competitiveness of the country is largely determined by its ability not only to design but also to purchase abroad and effectively use innovative products. Therefore, an important factor for innovative development of the national economy is the foreign trade which can either accelerate or prevent it. On the one hand, participation in global trade allows to expand the capacity of the domestic market by export, to ensure domestic production by import of the necessary raw materials and equipment, to increase the level of employment in the country, to generate foreign currency earnings etc. On the other hand, foreign trade activity may have a negative impact on the economic development, strengthening raw materials dependence, increasing environmental pressure.

Target setting. The structure of foreign trade, for instance, the relative share of innovative products, is an important indicator of the level of technological development of the country and its position in the global economy and the level of national innovation achievements is a necessary condition for full participation of the country in the international division of labor.

Unfortunately, today the innovative development has not become the basis for the growth of the national economy of Ukraine [1] and the low-tech production determines its raw materials specializa-

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tion in the international exchange, indicating the irrational foreign trade structure. Thus, focusing the foreign trade on the innovative vector of development is extremely important.

Actual scientific researches and issues analysis. In recent years a number of publications on the problems of the foreign trade in high-tech products have appeared in the economic literature. In particular, O. B. Salihova analyzes the significant determinants of the high-tech products import in Ukraine [2]. I. Y. Matyushenko and D. M. Kostenko study trends and prospects of development of the high-tech products trade [3]. T. V. Melnyk and O.V. Zubko have evaluated levels of technological capacity of the foreign trade of Ukraine and focus the attention on the innovation regression in its structure [4; 5].

Uninvestigated parts of general matters defining. However, taking into account the importance and scale of this problem, the issue of the innovative vector of development of the foreign trade requires further extensive study.

The research objective. The purpose of this article is to study the innovative aspects of the structure and dynamics of the foreign trade of Ukraine.

The statement of basic materials. According to the classical theory, foreign trade is a form of international economic relations, the complex of export of goods and services, in creation of which a country has certain advantages, and import of goods and services, in creation of which a country has no comparative advantage.

Foreign trade plays a dual role in the innovative development: on one hand, sale of the national innovation developments on the foreign market takes place; on the other hand, there is an attraction of foreign innovations, implemented in the innovative products, technologies and services.

Foreign trade stimulates the innovative development by increasing the competitive level of the product market (by purchasing imported high quality goods, consumers «make pressure» on domestic producers, requiring the same quality from them), spreads the knowledge and created innovative products between countries.

Foreign trade in the form of exchange in high-tech achievements became one of the most important drivers of innovative development today. Import of machinery, equipment, modern materials and technologies in most foreign countries showed its high correlation with economic growth. At the same time, development of export production allows many national companies to reach the world market requirements.

The current level of the innovative development of the economy of Ukraine is very low, the scope of cooperation in the sphere of science and technology doesn't comply with the potential of our state. Thus, the knowledge intensity of GDP in Ukraine (the cost of conducting scientific research as a share of GDP) is only 0.77%. The share of high-tech products in GDP is 6%. The number of graduates of STEM (science, technology, engineering and mathematics) amounts to 100 thousand people [6].

In 2015 the share of the innovative products was only 1.4% of the total sales volume of the industrial products (in 2014 – 2.5%). Furthermore, 47% of the total sales of the innovative products were made outside Ukraine (for the amount of UAH 10.8 billion), that exceeds the respective figures in 2014 (29.2% and UAH 7.5 billion, respectively). At the same time the number of enterprises that enter the foreign markets with the innovative products have been decreasing. In 2011 the number of such companies was 378 (36.2% of the companies that sold innovative products), but in 2014 the number decreased to 295 (32.6%) and in 2015 the number further decreased to 213 (37.4%) [7].

The largest number of companies that sold innovative products outside Ukraine in 2015 were located in Kharkiv region (28), city of Kyiv (22), Zaporizhia region (19), Lviv region (17), Dnipropetrovsk region (15), Poltava region (12), Sumy region (11). Due to objective reasons the number of companies that sold innovative products outside Ukraine has decreased in Donetsk region (from 24 in 2013 to 7 in 2014 and 5 in 2015), and only one such company is left in Luhansk region (with 7 in 2013) [7].

As a result of innovative activity industrial enterprises in 2015 transferred 20 new technologies (technical achievements) outside Ukraine. Among them there are 2 units as the results of research and development, and 18 units as the agreements on transfer of technology and know-how (in 2014 the number was 8, of which 6 units as the results of research and development and 2 units of equipment) [7].

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The analysis of today's Ukrainian import shows that the opportunities on restructuring of the national economy with the imported equipment and technology are not fully used. In 2015 the companies purchased only 66 units of new technology for the purpose of the implementation of innovations outside Ukraine, including contracts for the purchase of rights on patents, licenses to use inventions, industrial designs, utility models in the number of 8 units, as a result of research and development in the number of 12 units, agreements on the purchase of technology and know-how in the number of 3 units, purchase of equipment in the number of 43 units, that is almost twice less than the similar figures in the previous year (117 units, of which 20 units, 10 units, 1 unit, 85 units, respectively) [7].

According to this data, the main part of technology Ukraine imports in the form of machinery and equipment. However, international experience shows that the import of technology in the form of patents, licenses and know-how has a number of advantages compared with the import of "materialized" technology. In particular, license agreements, in addition to saving foreign currency funds, allow to receive from the seller valuable know-how and promotion in improving the licensed products, and sometimes its sales in the foreign markets and can be the starting point for new domestic developments. It is due to licenses and know-how that the Republic of Korea, Singapore and other countries of Southeast Asia overcome technical and economic gap with the developed countries.

One of the reasons of not active use of the imported technology in Ukraine is the lack of experience and relevant structures, involved not only in R&D but also in studying the leading samples of imported equipment and technology. In connection with this, the important task should be to improve the national innovative system. It is necessary to revive the activities of design bureaus and research enterprises affected during the market transition.

Volume of foreign trade with high technology products is considered an important indicator of innovativeness of the country, which is compared in the global terms [4]. Universally accepted interpretation of the term «high technology products» has not been formed yet. According to I. Yu. Matyushenko and D. M. Kostenko, high technology products include products that are produced using modern knowledge-intensive technology and production of which requires large volumes of R&D. Belonging to specific technological structures can be considered as another determining factor of the high technology products [3]. In accordance with the classification of the UN and the OECD, high technology products are considered products containing spending on research and development more than 5% [8].

Export of high technology products is an indicator of evaluating the effectiveness of innovation and implementation of innovative strategy of the country. The share of export of high technology products from Ukraine in the global high technology export is insignificant and amounted to 0.11% in 2013 (0.52% in 2006, 0.98% in 2011, 0.132% in 2012) [9]. A small representation in the global market of high technology products is primarily due to the fact that production of the 3rd and 4th technological structures (heavy engineering, manufacturing and rolling steel, shipbuilding, nonferrous metallurgy, organic and inorganic chemistry) dominate in the industrial complex of Ukraine, with relative share of 94% [3].

To examine the structure and dynamics of Ukraine's foreign trade with high technology products, let us use the classification of the technological level of industries suggested by the OECD experts. In accordance with this classification, high technology industries include: information technology (manufacture of computers, office equipment and software development), aerospace industry, pharmaceutical industry, manufacture of electronic and telecommunications equipment, manufacture of medical, precise and optical equipment. However, belonging of products to these industries does not mean their automatic inclusion into the group of high technology products.

Taking into account classification of the OECD, as well as works of national scientists, let us analyze export and import of high technology industries based on customs statistics of the State Fiscal Service of Ukraine (Table 1).

Over the past five years, among the high technology products the largest share in the export was held by «turbojet engines, turboprop and other gas turbines» which refers to the product group «aerospace equipment». Although the value of its export in the 2014-2015 significantly decreased compared to 2013, the share of these products in total export increased from 1.15% in 2011 to 1.76% in 2015.

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Table 1

Foreign trade of Ukraine with high-tech products by product groups (thousand USD)

Product name	Year	Export		Import		Balance
		Value	Share	Value	Share	
1	2	3	4	5	6	7
Pharmaceutical products						
Antibiotics	2011	5311	0,01%	30522	0,04%	-25211
	2012	13854	0,02%	30256	0,04%	-16402
	2013	17087	0,03%	31635	0,04%	-14548
	2014	10031	0,02%	29664	0,06%	-19633
	2015	6379	0,02%	35087	0,10%	-28708
The blood of people and animals; serums, vaccines, toxins	2011	7113	0,01%	320953	0,40%	-313840
	2012	8569	0,01%	327866	0,39%	-319297
	2013	8654	0,01%	406380	0,53%	-397726
	2014	9949	0,02%	297608	0,57%	-287659
	2015	7492	0,02%	219562	0,60%	-212070
Drugs dosed or packaged for retail sale	2011	178497	0,26%	2464000	3,04%	-2285503
	2012	225232	0,33%	2881202	3,46%	-2655970
	2013	234468	0,37%	2597850	3,38%	-2363382
	2014	234692	0,43%	2094852	3,99%	-1860160
	2015	139795	0,37%	1094472	3,00%	-954677
Aerospace equipment						
Turbojet engines, turboprop and other gas turbines	2011	784161	1,15%	61946	0,08%	722215
	2012	941931	1,37%	75160	0,09%	866771
	2013	1058621	1,67%	66985	0,09%	991636
	2014	911874	1,69%	64211	0,12%	847663
	2015	672964	1,76%	34903	0,10%	638061
Other aircrafts; spacecrafts and suborbital and space launch vehicles	2011	221079	0,32%	39983	0,05%	181096
	2012	850299	1,24%	74554	0,09%	775745
	2013	205963	0,33%	33816	0,04%	172147
	2014	184423	0,34%	26772	0,05%	157651
	2015	137706	0,36%	28738	0,08%	108968
Computer and office equipment						
Automatic data processing machines and their units; magnetic and optical readers	2011	13818	0,02%	246042	0,30%	-232224
	2012	21362	0,03%	294601	0,35%	-273239
	2013	18261	0,03%	311104	0,40%	-292843
	2014	13634	0,03%	364166	0,69%	-350532
	2015	13439	0,04%	305567	0,84%	-292128
Parts and devices designed for machines for sale	2011	21569	0,03%	35861	0,04%	-14292
	2012	20559	0,03%	31411	0,04%	-10852
	2013	12231	0,02%	37777	0,05%	-25546
	2014	9823	0,02%	38925	0,07%	-29102
	2015	8069	0,02%	47968	0,13%	-39899
Electronic and telecommunication products						
Electrical, telephone or telegraph apparatus; video-phones	2011	30215	0,04%	789813	0,97%	-759598
	2012	34282	0,05%	740037	0,89%	-705755
	2013	56659	0,09%	810715	1,05%	-754056
	2014	78237	0,14%	655536	1,25%	-577299
	2015	115736	0,30%	635355	1,74%	-519619
Radar, radio navigation devices, radio remote control	2011	48911	0,07%	34443	0,04%	14468
	2012	98492	0,14%	44321	0,05%	54171
	2013	102658	0,16%	23709	0,03%	78949
	2014	51866	0,10%	14240	0,03%	37626
	2015	35865	0,09%	32948	0,09%	2917

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Continuation of Table 1

Boards, panels, consoles, desks, switchboards to control or distribute electric current	2011	98075	0,14%	206392	0,25%	-108317
	2012	100033	0,15%	190630	0,23%	-90597
	2013	85706	0,14%	216996	0,28%	-131290
	2014	62698	0,12%	116233	0,22%	-53535
	2015	41153	0,11%	50980	0,14%	-9827
Scientific instruments						
Devices for measuring, checking variables of liquids or gases: flow, level, pressure	2011	14745	0,02%	44922	0,06%	-30177
	2012	15187	0,02%	46208	0,06%	-31021
	2013	13894	0,02%	41507	0,05%	-27613
	2014	7457	0,01%	33764	0,06%	-26307
	2015	6064	0,02%	26549	0,07%	-20485
Devices for measuring electrical quantities, detection and measurement of ionizing radiation	2011	28016	0,04%	22816	0,03%	5200
	2012	26211	0,04%	33946	0,04%	-7735
	2013	24598	0,04%	25013	0,03%	-415
	2014	19085	0,04%	24539	0,05%	-5454
	2015	15451	0,04%	14346	0,04%	1105
Devices for automatic regulating or controlling	2011	89966	0,13%	151720	0,19%	-61754
	2012	76509	0,11%	125409	0,15%	-48900
	2013	89673	0,14%	91998	0,12%	-2325
	2014	77137	0,14%	83008	0,16%	-5871
	2015	20742	0,05%	35637	0,10%	-14895

Source: compiled according to the data [10]

The share of aerospace equipment in general in the total Ukrainian export amounted to 2.12% last year. At the same time, the share of other product groups does not reach even 1%: the share of export of pharmaceutical products amounts to 0.4%, computer and office equipment – 0.06%, electronic and telecommunication products – 0.5%, and scientific instruments – 0.11% [10].

The largest share in the Ukrainian import of high technology products is held by «Drugs dosed or packaged for retail sale» amounted to 3% in 2015. The second place is held by «electrical, telephone or telegraph apparatus; videophones» amounted to 1.74%. Overall, the share of import of pharmaceutical products was 3.7%, electronic and telecommunication products – 1.97%, computer and office equipment – 0.97%, scientific instruments – 0.21%, aerospace equipment – 0.18%.

The only product group among the analyzed ones, which has a trade surplus, is aerospace equipment. The volume of its export in 2015 amounted to USD 810.7 million, decreasing by 36.1% compared to 2014. In the product group «Electronics and telecommunication products» there is also a heading the trade surplus, namely «Radar, radio navigation devices, radio remote control», but overall the balance is negative for the group.

Statistical data on the dynamics of export and import of high technology products of Ukraine for 2011-2015 show that foreign trade turnover of our country on these products in 2015 amounted to USD 3782.97 million. The export of these products amounted to USD 1220.86 million, and the import amounted to USD 2562.11 million. Import exceeds export by 2.1 times, the foreign trade balance is negative respectively, amounting to USD 1341.25 million. According to our estimates, the share of high technology products in total export of goods from Ukraine in 2015 was 3.2%, while the share of import was 7%.

Turnover high technology products for the period 2011-2012 grew by 22.3%, and in 2015 decreased by 48.4% compared to 2012, largely due to the difficult economic and political situation in Ukraine. In particular, import of high technology products in 2012 increased by 10% compared to 2011 (by USD 446.2 million), and in 2015 decreased by 47.7% compared to 2012 (by USD 2333.5 million). Changes in export over the period under review are as follows: export grew by 57.8% (USD 891 million) and fell by 49.8% (USD 1211.7 million).

Ukrainian export of high technology products indicates low innovativeness of the country, and import of technology has not become an effective instrument of innovative development of its economy yet.

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Today in Ukraine, there is a steady trend to greater disparities in trading with high technology products, mainly due to a significant excess of import over export in trade relations. In 2000 the ratio of high technology products export to its import was 0.53, in 2011 it was 0.35; in 2013 – 0.41, and in 2015 – 0.49 [10].

The main importers of Ukrainian pharmaceutical products are Germany, the Netherlands, Belarus, Kazakhstan, Azerbaijan and Uzbekistan. Ukraine imports such products mainly from China, Spain, Korea, Austria, USA, Germany, India and France. Aerospace equipment is exported mainly to the Russian Federation, China, India, Cuba and imported from the Russian Federation, Latvia and Belarus.

Computer and office equipment is exported mainly to the Russian Federation, Austria, the Netherlands and imported from China, Vietnam, Taiwan. Among the importers of electronic and telecommunication products from Ukraine the largest share is held by Hungary, the Russian Federation, Ethiopia, India, Germany and Ukraine imports such products from China, Vietnam, USA, the Russian Federation, Germany. Scientific instruments from Ukraine are the most popular in Poland, the Russian Federation, Slovakia and Azerbaijan. The products of this group are imported by Ukraine from the Russian Federation, USA, Germany, Czech Republic and China [10].

Conclusions. Therefore, it should be noted that in the global market of innovative products Ukraine is represented by not significant groups of them. Revenues from the export of high technology are insignificant and thus intangible for economic development.

Achievement of success is possible by transforming the traditional raw material based economy into innovative one based on knowledge and intellectual labor. It is therefore advisable to focus on increasing the intellectualization of our key sectors by means of intensive implementation of innovations and information and communication technologies.

To speed up the transition of the national economy to a new technological base it is necessary to activate attracting of foreign technology. All methods of its import, starting from direct purchasing of investment equipment, concluding licensing agreements and ending with more complex forms of cooperation, including turnkey plant construction should be encouraged, and in some cases be subject to the state support.

References

1. Polkovnychenko, S. O., Levkivskiy, O. V., Levkivskiy, V. V. (2012). Otsinka innovatsijnogo rozvytku ekonomiky Ukrainy [The assessment of innovative development of economy in Ukraine]. Naukovyj visnyk ChDIEU. – Scientific bulletin of ChSUEM, 2, 78-87 [in Ukrainian].
2. Salikhova, O. B. (2012). Import vysokotekhnolohichnykh tovariv v Ukrainu ta joho vyznachal'ni determinanty [Import of high-tech products to Ukraine and its crucial determinants]. Nauka ta naukoznavstvo. – Science and science of science. 4, 40-55 [in Ukrainian].
3. Matiushenko, I. Yu., Kostenko, D. M. (2012). Perspektyvy rozvytku torhivli vysokotekhnolohichnyimi tovarami u sviti ta Ukraini [Prospects for trade in high-tech goods in the world and Ukraine]. Biznes Inform. – Business Inform, 8, 103-114 [in Ukrainian].
4. Mel'nyk, T. M., Zubko, O. V. (2011). Innovatsijnij rehres u tovarnij strukturi zovnishn'oi torhivli Ukrainy [Innovation setback in the commodity structure of Ukraine's foreign trade]. Marketynh i menedzhment innovatsij. – Marketing and management of innovations, 4, 192-199 [in Ukrainian].
5. Mel'nyk, T. M., Zubko, O. V. (2011). Otsinka rivniv tekhnolohichnoi mistkosti zovnishn'oi torhivli Ukrainy [Assessment of levels of technological capacity of Ukraine's foreign trade]. Formuvannia rynkovykh vidnosyn v Ukraini. – Formation of market relations in Ukraine, 4, 133-139 [in Ukrainian].
6. Stratehiia rozvytku vysokotekhnolohichnykh haluzej do 2025 roku. Proekt [Strategy for the development of high-tech industries until 2025. Draft]. Retrieved from : <http://www.itukraine.org.ua/news/minekonomrozvytku-iniciyuye-obgovorennya-strategiyi-ro> [in Ukrainian].
7. Naukova ta innovatsijna diial'nist' v Ukraini u 2015 rotsi. Statystychnyj zbirnyk. [Scientific and innovative activity in Ukraine in 2015. Statistical publication] (2016). A.A.Karmazina. – Kyiv: Derzhavna sluzhba statystyky Ukrainy [in Ukrainian].
8. Science & Technology. World Bank. Retrieved from : <http://data.worldbank.org/topic/science-and-technology> [in English].
9. High-technology exports. Retrieved from: <http://data.worldbank.org/indicator/TX.VAL.TECH.CD> [in English].
10. Mytna statystyka [Customs statistics] (n.d.). [www. sta-sumy.gov.ua](http://sta-sumy.gov.ua) Retrieved from : <http://sta-sumy.gov.ua/ms/f2> [in Ukrainian].

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Література

1. Полковниченко, С. О. Оцінка інноваційного розвитку економіки України / С. О. Полковниченко, О. В. Левківський, В. В. Левківський // Науковий вісник Чернігівського державного інституту економіки і управління. Серія 1 : Економіка. - 2012. – № 2. – С. 78-87.
2. Саліхова, О. Б. Імпорт високотехнологічних товарів в Україну та його визначальні детермінанти / О. Б. Саліхова // Наука та наукознавство. – 2012. – № 4. – С. 40-55.
3. Матюшенко, І. Ю. Перспективи розвитку торгівлі високотехнологічними товарами у світі та Україні / І. Ю. Матюшенко, Д. М. Костенко // Бізнес Інформ. – 2012. – № 8. – С. 103-114.
4. Мельник, Т. М. Інноваційний регрес у товарній структурі зовнішньої торгівлі України / Т. М. Мельник, О. В. Зубко // Маркетинг і менеджмент інновацій. – 2011. – № 4. – Т. II. – С. 192-199.
5. Мельник, Т. М. Оцінка рівнів технологічної місткості зовнішньої торгівлі України / Т. М. Мельник, О. В. Зубко // Формування ринкових відносин в Україні. – 2011. – № 4. – С. 133-139.
6. Стратегія розвитку високотехнологічних галузей до 2025 року. Проект [Електронний ресурс]. – Режим доступу : <http://www.itukraine.org.ua/news/minekonomrozvytku-iniciyuye-obgovorennya-strategiyi-ro>
7. Наукова та інноваційна діяльність в Україні у 2015 році. Статистичний збірник. – К. : Державна служба статистики, 2016. – 257 с.
8. Science & Technology. World Bank [Electronic resource]. – Retrieved from : <http://data.worldbank.org/topic/science-and-technology> [in English].
9. High-technology exports [Electronic resource]. – Retrieved from : <http://data.worldbank.org/indicator/TX.VAL.TECH.CD>.
10. Митна статистика [Електронний ресурс]. – Режим доступу : <http://sta-sumy.gov.ua/ms/f2>.

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