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GLOBALIZATION IMPACT ON PROBLEMS OF INNOVATION AND ECONOMIC SECURITY OF UKRAINE

Abstract. This article examines the impact of globalization on the economy of Ukraine and the level of readiness of innovation area to react on external challenges. The authors examine trends in the structure of Ukraine's economy and its export and import operations. Based on statistical analysis of scientific and technological development, external trade statistics and dynamics of industrial development the authors define the threats to stable growth and competitiveness of Ukraine. The authors conclude that without the transition to innovative development the excessive openness of the domestic market would lead to atrophy of processing industries and would transform Ukraine into a supplier of cheap raw materials and a consumer of finished goods from developed countries.

Keywords: globalization, state economic security, innovative development, threats to economic security.

Introduction. The modern feature of the world economic development is strengthening of globalization processes. Globalization means not only new opportunities for development and prosperity of different countries, but also new, unseen before challenges and threats. Globalization synchronized economic cycles in all countries without exception and extremely strengthened countries' dependence on world markets. Integration of economies brings to the fore the issue of every country's place in the added value creation chain and requires increase of national economies' competitiveness on the basis of innovation. The crisis of 2008-2009 proved that innovative economies are more productive, stable and flexible under economic crisis.¹

Statement of the main research material.

Ensuring the stability of national economies against external influences (external threats) is an essential component of economic security. Heavy and lengthy economic recovery of Ukraine after the crisis of 2008-2009 demonstrated the scale of economic and social losses, which can be caused by poor stability of the Ukrainian economy to external shocks. Lack of integrated theoretical approaches to optimum combination of tasks of accelerating economic growth and ensuring the sustainability of the national economy, which on practice leads to internal and external imbalances that appear and spread rapidly under the influence of external factors [124, p. 54].²

During the second half of the 2000s the gap between Ukraine and EU countries, which created an "innovative enclave", has increased (Table 1). According to the data in table 1 the value of Ukraine's GDP is only 1/5 of the same indicator in industrialized countries.

A new wave of technological change, which strengthens the role of innovation in social and economic development and devalues traditional factors, dramatically increases the uncertainty of Ukrainian development, which specializes on export of raw materials to international markets. Reduction of material and metal content in products, appearance of synthetic materials could cause reduction of demand for key Ukrainian export commodities, reduction of financial resources inflow that are necessary for modernization of national economy's production potential.

The financial and economic crisis of 2008-2009 reinforced the importance of this finding for Ukraine. Investments in technological development became an important anti-crisis measure in the leading countries

¹ *OECD Innovation Strategy 2015* OECD-Innovation-Strategy-2015-CMIN2015-7.pdf. <<http://www.oecd.org/innovation>> (2015, November, 29).

² Тимошук, Т.А. (2013). Пріоритети забезпечення зовнішньої стійкості економіки України. *Стратегічні пріоритети*, № 1 (26), 54

Table 1

Evaluation of the gross national income per capita at purchasing power parity, 2007–2014

GDP per capita at purchasing power parity	2007	2008	2009	2010	2011	2012	2013	2014
Ukraine, USD	7 910	8 340	7 110	7 570	8 090	8 330	8 380	8 560
in % to the weighted average per capita, calculated on Germany, Denmark, Sweden and Finland	20,3	20,4	18,149	18,4	18,73	19,05	18,98	19,18

Compiled according to [Electronic source]. – Retrieved from: <http://data.worldbank.org/indicator/>

(including the US, EU, China, Japan, Brazil et al.). They sent dozens of billions of dollars of additional investments on resource conservation, on development of high tech, on production of alternative and renewable energy as part of national programs.

Currently, developed countries are shifting towards formation of a new technological base of the national economy, which is built with the use of the latest accomplishments in electronics, biotechnology, informatics and nanotechnology in production as well as in health care and other areas of human potential development.

Innovative development is the foundation of national economic competitiveness in the global market. The study «On Export Composition and Growth», which is based on the analysis of international data, shows that the effect from the growth of high-tech products export in the long run exceeds double the effect from growth of non-industrial sector export. At the same time export of raw and semi-finished products usually has a negative impact on the economy, preserving its technological level.³

The lag in the development of the latest generation technologies dramatically reduces the global competitiveness of the Ukrainian economy. The number of advanced technologies in Ukraine has reduced. Thus, in 2012 there were 516 advanced technologies created, in 2013 the number reduced to 486, and in 2014 it amounted to a total of 309. Among them, in 2014 only 30 of them were fundamentally new, which is 9.7% of total. There are virtually no fundamentally new technologies in the production of chemicals and chemical products, metal production and production of vehicles.

The share of costs pursuant to R&D in Ukraine in 2014 amounted to 0.66% of GDP and tends to decrease. At the same the average indicators of innovation process financing in EU countries keeps increasing. (Table2)

Table 2

Gross Domestic Expenditure on R&D as a percentage of GDP

	2007	2008	2009	2010	2011	2012	2013	2014
EU 28	1,78	1,85	1,94	1,93	1,97	2,01	2,01	...
Bulgaria	0,44	0,46	0,51	0,59	0,55	0,62	0,65	...
Estonia	1,07	1,26	1,4	1,58	2,34	2,16	1,74	...
Spain	1,23	1,32	1,35	1,35	1,32	1,27	1,24	...
Latvia	0,56	0,58	0,45	0,6	0,7	0,66	0,6	...
Lithuania	0,8	0,79	0,83	0,78	0,9	0,9	0,95	...
Germany	2,45	2,6	2,73	2,72	2,8	2,88	2,85	...
Poland	0,56	0,6	0,67	0,72	0,75	0,89	0,87	...
Romania	0,52	0,57	0,46	0,45	0,49	0,48	0,39	...
Slovakia	0,45	0,46	0,47	0,62	0,67	0,81	0,83	...
Hungary	0,97	0,99	1,14	1,15	1,2	1,27	1,41	...
Czech Republic	1,31	1,24	1,3	1,34	1,56	1,79	1,91	...
Ukraine	0,85	0,85	0,86	0,83	0,74	0,75	0,70	0,66

Source: Science and Innovation in Ukraine. (2015). Kyiv. State Statistics Committee of Ukraine.

³ Crespo-Cuaresma, J., Worz, J. (2005). On Export Composition and Growth. *Review of World Economics (Weltwirtschaftliches Archiv)*, Vol. 141, 33–49.

The share of innovative products in total industrial output sold in Ukraine decreased from 3,3% in 2013 to 2.5% in 2014.

“The absence of an effective development strategy in Ukraine, – as stated by V. Geyets et al., – had significant negative consequences in terms of formation of such economic model in Ukraine, which in fact didn't have any long-term prospects – the model of import-oriented, debt-accumulating and non-productive consumption.”⁴

Restoring of economic growth is not that dynamic, and it mainly happens through improving conditions in the traditional export markets of Ukraine. Economic growth in 2011 was primarily based on industrial sectors of the economy, while in 2012 the situation changed and GDP growth was mainly generated by transport and trade industries. The negative contribution was made by agriculture, manufacturing, construction and financial activities. There was an intensification of the crisis in 2013 in most sectors of Ukrainian economy, particularly in industry.

The fall in GDP in 2014, compared with the previous year in constant prices of 2010, excluding the occupied areas of Crimea and militant-occupied areas in the East of the country, was 6.8% in terms of the largest fall in the industrial production.

The direction and dynamics of transformation of industrial structure indicate Ukrainian progressive technological backlog in comparison to developed countries. The share of mechanical engineering is steadily declining despite the fact that the share of raw materials and low-tech products with low added value accounts for over 70%. The structural changes in Ukraine's economy of recent years can be characterized by rapid loss of positions by branches that determine scientific and technical progress. The production of railway locomotives declined by 34.5% in 2013, electrical equipment – by 8.9%, manufacture of computers, electronic and optical products – by 13.6%. The rapid decline in production of knowledge-intensive, high-tech industries is a threat to national economic development.

According to experts estimates approximately 26.5% of processing industry sales were produced with low level technologies, 45.6% – with medium-low technology level, 21.3% – with medium-high technology level and only 6.6% – with a high level of technology.⁵

Raw materials and semi-finished production orientation causes high energy intensity of the national product, according to Vladimir Gordienko.⁶ Besides, the raw materials trend in industry with a low added value reduces the efficiency of use of national resource potential, does not create the basis for a substantial increase in productivity, and therefore for a proper dynamics of income levels growth.⁷

The strengthening of structural imbalances is related to the current conflict in the east, as a result of which Ukrainian machine-building sector is losing foreign market in the amount of 52% of exports (as of 2013), and in the fields of energy and transport engineering – 75% and 60% respectively. In January-March 2015 the index of industrial production decreased by 21.4% compared with the corresponding period last year.

Reasonable openness of the economy contributes to its effectiveness, competitiveness, mobility of financial capital.⁸

At the same time, the authors believe that excessive openness of Ukrainian economy (based on 2014 foreign trade turnover of goods and services amounted to 102.4% of GDP, including export – 49.2%, imports – 53.2%) under conditions of its low level of competitiveness presents a threat to economic security. Ukraine's accession to the World Trade Organization (2008) and the signing and implementation of the Association Agreement and Deep and Comprehensive Free Trade Area between Ukraine and the EU (2014) impose obligations on Ukraine to increase the openness of its national economy. Thus, Ukraine has the lowest tariff barriers compared to neighboring countries-members of WTO. Since the beginning of FTA with the EU the average rate of import duty in Ukraine ought to be reduced from 4.95% to 2.42%. However, implementation of these commitments should be based on the compliance of reasonable priorities of economic development.

The analysis of the balance of payments for 2009-2014 indicates the strengthening of current accounts imbalances. The main channel of foreign currency was the financial account of balance of payments, which

⁴ *Новий курс: реформи в Україні. 2010–2015.* (2010). Національна доповідь / за заг. ред. В.М. Гейця. К.: НБЦ НБУВ, 70.

⁵ Ромусік, Я.В. (2011). Технологічна структура промисловості України в контексті збалансованості структурних пропорцій економіки. <http://archive.nbuv.gov.ua/portal/Soc_Gum%20/eprom/2011_56/st_56_11.pdf>

⁶ Гордієнко, В.О. (2012). *Проблеми структурної перебудови економіки України.* Дніпропетровськ: Дніпропетр. фін. акад., 58.

⁷ Жаліло, Я.А. (2009). *Теорія та практика формування ефективної економічної стратегії держави.* К.: НІСД, 148.

⁸ Мярковський, А.І. (2014). Перспективи вдосконалення фінансового регулювання в Україні: глобальні виклики. *Фінанси України*, № 5, 17.

in 2013 turned out positive at USD 17.1 billion against USD 1.7 billion in the same period in 2010. The surplus occurred primarily due to attraction of medium- and long-term loans in the real economy and banking sectors.

One of the most significant risks of destabilization of national economy is a negative balance of foreign trade, the maximum value of which amounted USD 13.3 billion in 2008⁹.

We believe that the main reason for this situation in foreign trade the inability to offset the deficit in goods trade by a surplus in services. The negative balance of foreign trade amounted to USD 13.7 billion in 2013. (in 2008 – USD 18.6 billion in 2012 – USD 15.8 billion). At the same time, the import has rapidly increased due to an increase in domestic demand influenced by economic growth, and reduction of import restrictions. The volume of import exceeded USD 84 billion in 2013. That poses a threat to the economic security of the country. The import ratio (the ratio of import to GDP) in Ukraine ranged from 50 to 60% in 2008-2012, and in 2013 it reduced to 59.1%.

Table 3

The evolution of the external sector in Ukraine 2009–2014 (USD millions)

Indicators	2008	2009	2010	2011	2012	2013	2014
Current account	-12763	-1732	-3018	-10245	-14315	-16355	-5273
Capital account and financial account	12232	1389	1664	9259	12940	17135	-8034
Export	78708,6	49294,0	63164,6	82186,4	82429,5	76450,2	68485
In % to previous year	134,9	62,6	128,1	130,1	100,3	92,7	89,6
Import	92003,3	50606,6	66189,9	88843,4	91453,7	84584,7	73768
In % to previous year	140,3	55,0	130,8	134,2	102,9	92,5	87,2
Balance	-13294,7	-1312,6	-3025,3	-6657,0	-9024,2	-8134,5	-5283
Exports of goods	66967,3	39695,7	51405,2	68394,2	68830,4	63320,7	55259
Imports of goods	85535,3	45433,1	60742,2	82608,2	84717,6	76986,8	61324
Balance of trade	-18568,0	-5737,4	-9337,0	-14214,0	-15887,2	-13666,1	-6065
Volume of import leading good (group of goods)	9571,5	3947,8	4563,8	7112,3	7226,9	6909,6	
Volume of export leading goods (group of goods)	22954,6	10252,5	14626,6	18478,2	15340,4	14319,3	
Average prices index, %:							
Export	123,0	73,2	126,0	125,6	98,1	101,0	94,8
import	122,8	99,2	118,1	120,6	110,2	101,3	98,3

Compiled and calculated with regard to: Ukraine's foreign trade in goods and services in 2013: Statistical Yearbook 2014. State Statistics Committee of Ukraine, 12-13. Balance of payments and external debt of Ukraine for 2013: Statistical Yearbook. (2014), p. 10-12.

Analysis of Ukraine's foreign trade statistics revealed a serious threat of domestic exports "innovation" reduction and a threat of a growing country's import-dependency from high-tech and knowledge-intensive goods. Thus, the share of commodities and primary products in total exports accounts to over 70%. Traditionally, the largest shares in exports of goods are taken by metallurgy (22.6%) and products of plant origin – 14.0%.

⁹ Тенденції формування зовнішніх платіжних дисбалансів: глобальні чинники та ризики для України (2013). Національний інститут стратегічних досліджень. <<http://www.niss.gov.ua>>.

The economic consequences of the military conflict in the east became apparent in 2014. The trade war with Russia has led to a drop of 31.3% in Ukrainian exports to CIS countries and 33.7% to Russia itself. Changes in the geopolitical situation, namely the restrictions of trade with the CIS led to the acceleration of the trend towards decrease of high-tech products. Compared to 2013, the manufacturing of engineering products decreased by 20.6% in 2014 and the production of chemicals and chemical products decreased by 14.2% in 2014 compared to 2013.

However, Ukrainian producers were able to export to the EU without paying customs duties after the autonomous preferences to the EU came into force on April, 23rd. Overall, Ukrainian exports to the EU increased in 2014, but the increase proved minimal – only 2.6%. The challenge for most sectors of Ukrainian economy is the incompliance of Ukrainian products to the technical specifications of EU. An estimated cost for merely changes to technical regulations is Euro 40 billion.¹⁰

The increase in domestic export of high-tech products, which has a competitive advantage in the global market (turbines, aircrafts), is prevented by protectionist measures of developed countries and political pressure aimed at preventing the release of these products to the markets of developing countries. As a result, it should be emphasized that Ukrainian economy's dependency on world commodity market has increased. At the same time the foreign trade of high technology and high-tech goods is the most important trade area for the developed countries.

The fact that domestic producers are shifted out not only from the foreign market, but also from the internal market is another alarming trend. There has been a steady increase in the scale of foreign companies expansion in the Ukrainian market for a long time (Table 4).

Table 4

The share of foreign producers in the domestic market of Ukraine 2005–2014 p., %

Product groups	2005	2010	2011	2012	2013	2014
All Products	29,5	35,7	38,1	41,1	42,8	51,5
Groceries	9,1	11,8	12,8	13,7	14,5	14,4
milk and milk products	5,5	5,5	5,8	7,4	9,8	6,4
vegetables	9,5	9,4	13,4	22,3	17,0	15,5
fruits, berries, grapes, nuts, melons	33,4	39,2	42,5	51,2	47,5	52,9
Non-food products	42,4	50,0	52,8	58,1	61,0	60,5
textile goods and haberdashery	54,9	58,9	57,3	65,8	73,3	70,0
clothing and linen fabrics	76,5	89,3	89,2	92,3	93,2	94,1
footwear	90,7	95,8	96,4	97,2	97,7	97
Computers and other computing	77,5	93,9	97,0	98,8	99,1	99,4
auto and cars	76,9	81,4	85,4	87,4	89,3	89,5
pharmaceutical products	43,5	47,9	49,2	49,2	49,2	49,1

Source: *The share of sales of consumer goods produced in Ukraine through a sales network of enterprises / The State Statistics Committee of Ukraine. Retrieved from: <http://www.ukrstat.gov.ua>.*

Ukrainian domestic market is largely formed by imports. Particularly harmful could be the reduction of the share of high-tech consumer goods. In 2005 23.1% of cars and automotive products that were sold in Ukraine were also produced domestically, while in 2014 this share dropped to 10.5%. At the end of 2014 the share of foreign footwear manufacturers was 97.0%, the share of foreign computers and computer engineering products was 99.4%. These data indicates a significant deterioration in competitiveness capacity of national producers on the domestic market, which carries potential risks of destabilization of the economy.

¹⁰ Щодо економічних ринків, пов'язаних з існуванням неторгових бар'єрів у відносинах між Україною та Європейським Союзом". Аналітична записка. (2015) Національний інститут стратегічних досліджень. <<http://www.niss.gov.ua/articles/1733>> (2015, November, 29).

Given the increasing danger for economic growth it becomes urgent to develop and implement preventive measures aimed at protecting the domestic market and structural modernization of Ukrainian economy.

Conclusions. The analysis of trends in endogenous and exogenous environment of Ukraine's economic development allowed us to determine the main threats for the country's stable growth and competitiveness in the context of globalization:

- an increasing lag between Ukraine and leading countries, which unite into an “innovative enclave”;
- exhaustion of extensive growth factors, also due to the new wave of technological change, which strengthens the innovation's role in social and economic development and devalues traditional growth factors;

- negative structural changes that occurred in Ukrainian economy in recent years, could be characterized by ceasing of branches that determine scientific and technical progress;

- crowding out of domestic producers from both foreign and internal markets.

To conclude, the insufficient development of innovation and technology fields leads to a rapid decrease in Ukraine's competitiveness on global market. The resource oriented export and excessive presence of consumer goods from developed countries on domestic market worsen the structure and efficiency of commodity exchange, lead to atrophy of processing industries and transform Ukraine into a supplier of cheap raw materials and consumer goods from developed countries.

Under such circumstances an activation of the state innovation policy is required, and it should be aimed at modernization of economy and domestic market protection.

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