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INTERNATIONAL COMPETITIVENESS OF EASTERN EUROPEAN COUNTRIES: IMPORTANCE OF TRADE ORIENTATION AND EUROINTEGRATION

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The paper analyses international competitiveness of foreign trade of three Eastern European countries: Belarus, Slovakia and Ukraine. For Eastern Europe trade direction moved steadily during the transition period from the CIS countries to EU. In order to compare the development of trade integration is important to examine the intra-industry trade (IIT). The paper provides the comparison of Grubel–Lloyd indices for Ukraine, Slovakia and Belarus with EU and CIS countries during the period from 1995 to 2015. To consider the technological readiness of these countries we analyze in detail the group 7: Machinery and transport equipment. We find that a rise in intra-industry trade is driven by the introduction of a new variety of exports. The results suggest that EU integration have tended to demonstrate IIT grow while increasing specialization in exporting high-technology as opposed to traditional or low technology goods.

Keywords: *competitiveness, Eastern Europe, intra-industry trade, eurointegration, technological readiness.*

Introduction. During the transformation period Eastern European countries have witnessed tremendous economic changes by moving to open markets. International trade is a very important part of this process and reflects integration into the common market of EU (European Union). In order to compare the development of trade integration is important to examine the intra-industry trade (IIT) of Eastern European countries within comparison of EU and CIS (Commonwealth of Independent states) trade directions. In our study we will analyse three Eastern European countries with quite different development trajectories:

Belarus, Slovakia and Ukraine. Slovakia represents the EU country which demonstrates progress in economic development. Belarus remains politically dependent on Russia and the structure of its foreign trade is traditionally oriented to CIS countries. Ukraine is located in between these two countries. Obviously the advantages and pitfalls of different orientations should be carefully analysed before considering the political decisions, which have to be well substantiated. In particular, we investigate whether Ukrainian specialization and foreign trade are closer to Belarus or Slovakia: does country with specialization in low-tech goods demonstrate the positive dynamics in structural shifts towards more recently developed and high-tech products?

This study contributes to the existing empirical investigation of intra-industry trade for East European countries. We compare the Grubel–Lloyd indices for Ukraine, Slovakia and Belarus with EU and CIS countries during the period from 1995 to 2015 using panel data. We calculate intra-industry trade values for 791 trade groups within SITC classification.

Analysis of recent researches and publications. Trade direction of Eastern European countries (i.e. two-way trade within a sector or a product) moved steadily during the transition period from former USSR countries to European Union [18]. The existing literature on external competitiveness of foreign trade focuses on the following implications: an economic and political relations [8, 12], awareness of investment possibilities in the region [5, 7], stimulation of technological manufactures in export sector [2] and so-called gravitation effect of neighboring country [9]. As for Ukraine geographical directions of foreign trade could be the consequence of soviet time specialization [3] and the dominance of Russia and other former soviet republics with the adjustment by the activation of the trade with industrial and developing countries [14] which naturally occurred after independence due to the transformation process and dramatic increase of openness [4]. In more wide sense east-west intra-industry trade is an important factor of structural transformation and can reflect the increase of efficiency of national economy and industrial sector in particular [1].

Previously unsettled problem constituent. Intra-industry trade has become a widespread first of all between developed industrial countries [11]. Many papers have attempted to address the fundamental questions of factors determining international competitiveness [10, 13]. However, they leave much unanswered issues in terms of East European countries and analysis of intra-industry trade directions.

Main purpose of the article is the evaluation of trade competitiveness of Eastern European countries using the measure of intra-industry trade for Ukraine, Slovakia and Belarus among two groups of trade partners – 27 countries of EU and 12 of CIS.

Results and discussions. Among many politicians the high openness of the international trade of Ukraine had been a reason for concern. The ratio of exports and imports to GDP in Belarus and Slovakia demonstrate comparatively higher level of international trade openness (fig 1).

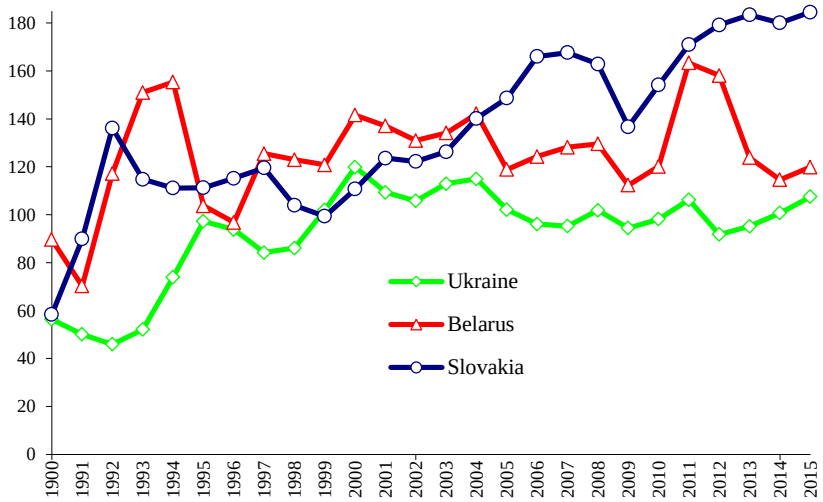


Fig. 1. **Trade openness (ratio of total exports and imports to GDP)**
Source: World Development Indicators

The share of export of technology-intensive manufactures in Slovakia increases as a share of total exports, despite the stable position at exports of manufactured goods (fig 2). Belarusian manufactured exports declines, while the share of high-skill exports shows a growing tendency. The share of high-skill and technology-intensive manufactures in total exports for Ukraine is declining recently.

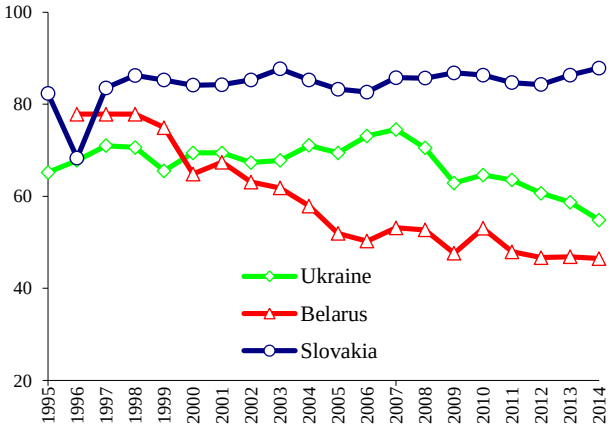


Fig. 2a. **Export of manufactured goods (% of total exports)**

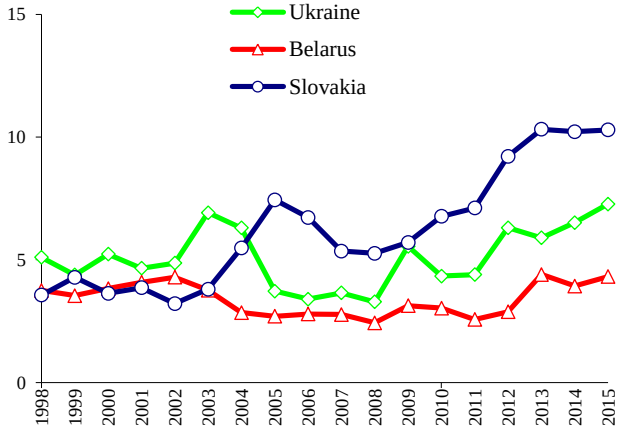


Fig. 2b. **High-technology exports (% of manufactured exports)**

Source: World Development Indicators

The measure of the level of intra-industry trade is that established by Grubel and Lloyd [6]:

$$IIT_{ijkt} = \frac{(X_{ijkt} + X_{jikt}) - \left| X_{ijkt} - X_{jikt} \right|}{X_{ijkt} + X_{jikt}}, \quad (1)$$

where X_{ijkt} is defined as the exports from country *i* to country *j* in commodity sector *k* in time *t*.

Our data pertain to 255 sectors of the SITC classification (tree-digit) for the years 1995-2015 and for trade inside the two directions: the 28 countries of EU and countries of CIS. We calculate IIT index for all sectors and after take average value of total sample.

We shall limit the description of our results to eight product groups according to Standard International Trade Classification (SITC) Revision 3. Table 1 presents summary statistics of sample for Ukraine. The trade with CIS records the highest IIT in groups 1, and 5-8, while with EU the mean for all groups are below 0,4. These obtained values confirm that manufactured goods are required to increase its competitiveness.

Table 1. **Descriptive statistics of the Intra-Industry Trade index (Ukraine), 1995-2015**

Sector	EU-28					CIS				
	Varia-ble	Mean	Std. Dev.	Min	Max	Varia-ble	Mean	Std. Dev.	Min	Max
Food and live animals	***EU0***	0,35	0,05	0,27	0,44	***CIS0***	0,34	0,09	0,13	0,44
Beverages and tobacco	***EU1***	0,28	0,10	0,12	0,53	***CIS1***	0,52	0,20	0,08	0,76
Crude materials, inedible, except fuels	***EU2***	0,28	0,05	0,21	0,38	***CIS2***	0,30	0,06	0,21	0,36
Mineral fuels, lubricants and related materials	***EU3***	0,38	0,11	0,24	0,60	***CIS3***	0,31	0,08	0,17	0,48
Animal and vegetable oils, fats and waxes	***EU4***	0,22	0,15	0,03	0,47	***CIS4***	0,22	0,13	0,08	0,47
Chemicals and related products	***EU5***	0,35	0,03	0,29	0,40	***CIS5***	0,54	0,03	0,50	0,60
Manufactured goods	***EU6***	0,26	0,03	0,21	0,34	***CIS6***	0,55	0,04	0,49	0,62
Machinery and transport equipment	***EU7***	0,33	0,05	0,26	0,43	***CIS7***	0,51	0,05	0,40	0,57
Miscellaneous manufactured articles	***EU8***	0,37	0,03	0,31	0,42	***CIS8***	0,52	0,06	0,42	0,65

Source: authors own calculations based on UN Commodity Trade Statistics Database

The descriptive statistics of IIT index for Slovakia is shown in the table 2. Mean results for EU direction are generally higher than for Ukraine. The mean of IIT for CIS direction are below 0,35.

Table 2. **Descriptive statistics of the Intra-Industry Trade index (Slovakia),1995-2015**

Sector	EU-28					CIS				
	Variable	Mean	Std. Dev.	Min	Max	Variable	Mean	Std. Dev.	Min	Max
Food and live animals	***EU0***	0,57	0,05	0,51	0,65	***CIS0***	0,22	0,09	0,07	0,35
Beverages and tobacco	***EU1***	0,54	0,14	0,30	0,82	***CIS1***	0,33	0,18	0,06	0,75
Crude materials, inedible, except fuels	***EU2***	0,46	0,03	0,42	0,55	***CIS2***	0,27	0,07	0,17	0,43
Mineral fuels, lubricants and related materials	***EU3***	0,78	0,17	0,32	0,99	***CIS3***	0,17	0,15	0,02	0,33
Animal and vegetable oils, fats and waxes	***EU4***	0,69	0,11	0,36	0,83	***CIS4***	0,19	0,24	0,01	0,93
Chemicals and related products	***EU5***	0,49	0,05	0,41	0,57	***CIS5***	0,21	0,06	0,14	0,40
Manufactured goods	***EU6***	0,62	0,04	0,56	0,71	***CIS6***	0,31	0,03	0,24	0,38
Machinery and transport equipment	***EU7***	0,61	0,06	0,45	0,69	***CIS7***	0,25	0,07	0,16	0,42
Miscellaneous manufactured articles	***EU8***	0,56	0,04	0,49	0,63	***CIS8***	0,29	0,09	0,14	0,45

Source: authors own calculations based on UN Commodity Trade Statistics Database

Table 3 presents descriptive statistics of IIT index for Belarus. For each commodity group the results are higher for the CIS trade direction that for the EU-28, that could be explained by trade specialization and tight international economic relations with Russia.

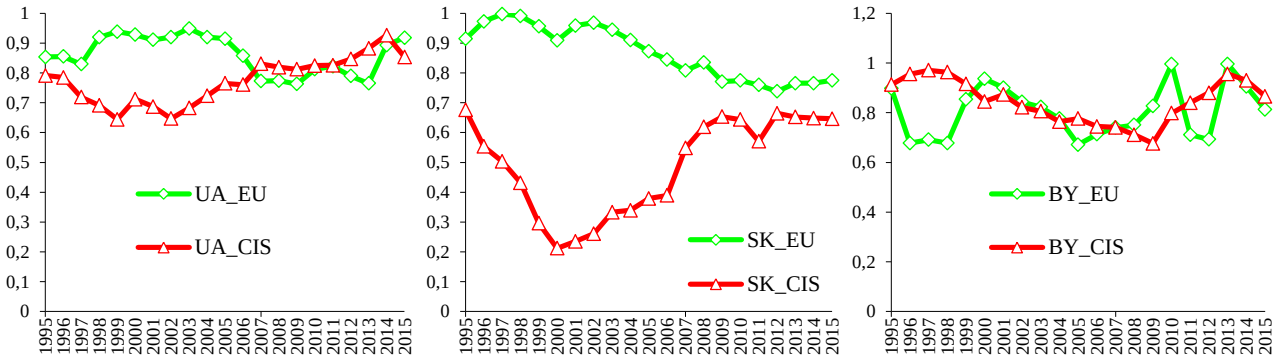
Table 3. **Descriptive statistics of the Intra-Industry Trade index (Belarus), 1995-2015**

Sector	EU-28					CIS				
	Variable	Mean	Std. Dev.	Min	Max	Variable	Mean	Std. Dev.	Min	Max
Food and live animals	***EU0***	0,22	0,03	0,15	0,27	***CIS0***	0,33	0,06	0,24	0,41
Beverages and tobacco	***EU1***	0,38	0,20	0,04	0,75	***CIS1***	0,31	0,21	0,05	0,83
Crude materials, inedible, except fuels	***EU2***	0,23	0,05	0,14	0,32	***CIS2***	0,29	0,05	0,21	0,37
Mineral fuels, lubricants and related materials	***EU3***	0,03	0,06	0,00	0,21	***CIS3***	0,30	0,28	0,01	0,96
Animal and vegetable oils, fats and waxes	***EU4***	0,18	0,20	0,00	0,67	***CIS4***	0,28	0,13	0,04	0,61
Chemicals and related products	***EU5***	0,18	0,03	0,13	0,27	***CIS5***	0,48	0,05	0,39	0,55
Manufactured goods	***EU6***	0,34	0,03	0,31	0,42	***CIS6***	0,53	0,02	0,50	0,58
Machinery and transport equipment	***EU7***	0,20	0,06	0,08	0,31	***CIS7***	0,52	0,04	0,45	0,61
Miscellaneous manufactured articles	***EU8***	0,40	0,07	0,25	0,50	***CIS8***	0,49	0,10	0,36	0,65

Source: authors own calculations based on UN Commodity Trade Statistics Database

The average IIT indices for Ukraine, Slovakia and Belarus for 1995 and 2015 years are presented on Fig 1. Results for Belarus show close to stable dynamics in intra-industry trade over this period towards both directions. Slovakia has the largest value of IIT with EU

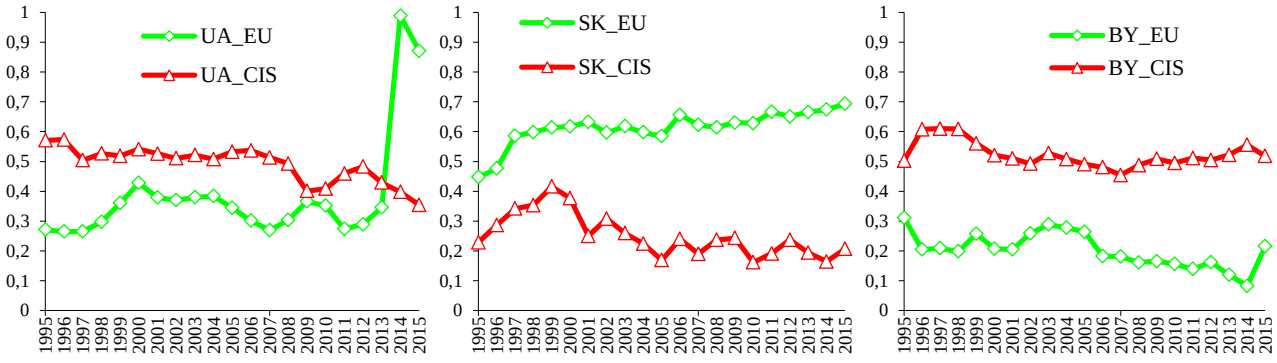
during all the period. At the same time, we an increase of IIT with CIS countries for Slovakia since 2000. The values for Ukraine indicate a slight decrease in IIT with CIS in 2005. Concerning the IIT with EU direction since 2013 we observe a movement of trade towards Euro-integration.



Ukraine Slovakia Belarus

Fig.1. **IIT, all groups, total, 1995-2015**
Source: authors own calculations based on UN Commodity Trade Statistics Database

To analyse the technological readiness of these countries we want to show the change in the East-West IIT for group 7: Machinery and transport equipment. For Slovakia IIT with EU was improving with the opposite trend to CIS direction. For Ukraine we observe the increasing of IIT with EU for 1995-2000, after it decreased till 2007 and showed fluctuations till 2013. In 2014-2015 there was an extreme increase of IIT in group 7 due conflict with Russia that led to trade wars. Interesting that in 2009-2015 we explore the opposite dynamics for IIT with CIS and EU. For Belarus we observe a slight decreasing of IIT in both directions and only in 2015 index increases for EU direction.



Ukraine Slovakia Belarus

Fig. 2. **IIT of Machinery and transport equipment (SITC 7), 1995-2015**
Source: authors own calculations based on UN Commodity Trade Statistics Database

Results for Belarus show relatively stable dynamics of intra-industry trade over this period towards both directions. Slovakia had the higher values of IIT with EU than with CIS. At the same time, we observe decrease in IIT with CIS countries for Slovakia. The values for Ukraine are the closest to diagonal line, which indicates equal indices for the pair

of years. This result is interesting as we expected some movements of trade towards Euro integration [15].

Conclusions and further researches directions. We find that a rise in intra-industry trade is driven by the introduction of a new variety of exports. The results based on a sample of three Eastern European countries since 1995 suggest that EU integration have tended to demonstrate IIT grow while increasing specialization in exporting high-technology as opposed to traditional or low technology goods. To summarize, we can state that for Slovakia the structure of IIT reflects the integration into EU. Belarus showed a small increase in IIT that remained with CIS direction. For Ukraine we observe strong move of the index towards EU-28 in 2014-2015 because of complete restructuring of trade structure and reconsideration of trade partners. However the increase of IIT reflects different tracery of integration and process of industry structural changes. In the further research we plan to investigate the determinants of IIT for those three countries and all commodity groups.

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МІЖНАРОДНА КОНКУРЕНТОСПРОМОЖНІСТЬ КРАЇН СХІДНОЇ ЄВРОПИ: ЗНАЧЕННЯ ОРІЄНТАЦІЇ ТОРГІВЛІ ТА ЄВРОІНТЕГРАЦІЇ

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У статті проводиться аналіз міжнародної конкурентоспроможності зовнішньої торгівлі східноєвропейських країн: Білорусі, Словаччини та України. Для країн Східної Європи вектор зовнішньої торгівлі рухався поступово від країн колишнього Радянського Союзу до ЄС. Для того, щоб порівняти розвиток торговельної інтеграції важливим є дослідження внутрішньогалузевої торгівлі (ВГТ). У статті проведено порівняння індексу Грубеля-Ллойда для України, Словаччини та Білорусі з країнами ЄС та СНД. Для того, щоб оцінити рівень технологічної готовності детальніше проаналізовано групу 7 (Машини і транспортне обладнання). Було встановлено, що чинником зростання внутрішньогалузевої торгівлі є диверсифікація експорту. Отримані результати вказують на те, що інтеграція в ЄС забезпечує тенденцію до зростання внутрішньогалузевої торгівлі, оскільки підвищується спеціалізація в експорті високотехнологічних товарів на відміну від традиційних низькотехнологічних.

***Ключові слова**: конкурентоздатність, Східна Європа, внутрішньогалузева торгівля, євроінтеграція, технологічна готовність.*

МЕЖДУНАРОДНАЯ КОНКУРЕНТОСПОСОБНОСТЬ СТРАН ВОСТОЧНОЙ ЕВРОПЫ: ЗНАЧЕНИЕ ОРИЕНТАЦИИ ТОРГОВЛИ И ЕВРОИНТЕГРАЦИИ

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В работе проведен анализ международной конкурентоспособности внешней торговли восточноевропейских стран: Белоруссии, Словакии и Украины. Для стран Восточной Европы вектор торговли двигался постепенно от стран бывшего Советского Союза к ЕС. Для того, что бы сравнить развитие торговой интеграции важно исследовать внутриотраслевую торговлю. В статье проведено сравнение индекса Грубеля-Ллойда для Украины, Словакии и Белоруссии со странами ЕС и СНГ. Для того, чтобы оценить технологическую готовность мы сосредоточили внимание на группе 7 (Машины и транспортное оборудование). В работе показано, что фактором роста внутриотраслевой торговли является диверсификация экспорта. Полученные результаты указывают на то, что интеграция с ЕС обеспечивает тенденцию к наращиванию внутриотраслевой торговли, поскольку повышается специализация в экспорте высокотехнологических товаров в отличие от низкотехнологических.

***Ключевые слова**: конкурентоспособность, Восточная Европа, внутриотраслевая торговля, евроинтеграция, технологическая готовность.*