Baltic Journal of Real Estate Economics and Construction Management
ISSN: 2255-9671 (online)
2023, *11*, 26–36
https://doi.org/10.2478/bjreecm-2023-0003
https://content.sciendo.com

STATISTICAL ANALYSIS OF INTERNATIONAL MERCHANDISE TRADE BETWEEN LATVIA AND UKRAINE USING INTERNATIONAL DATABASES

Georgii KOREPANOV*, Tatyana CHALA, Daryna CHERNENKO

V. N. Karazin Kharkiv National University, Kharkiv, Ukraine
**Corresponding author's e-mail: g.s.korepanov@karazin.ua*

Received date 30.12.2022; accepted date 05.01.2023

Abstract. The article considers the dynamics of international merchandise trade of Latvia and Ukraine (volumes of export and import of goods) in 2005–2020 with the use of UN Comtrade Database. The volumes of export and import of Latvia's main international trading partners are given, the shares of partner countries in trade flows in 2021 are calculated. It is determined that Lithuania occupies a leading position among Latvia's partner countries in export and import of goods. Data on international trade between Latvia and Ukraine, namely export and import of goods in 1994–2021, are presented. It is determined that international trade between Latvia and Ukraine has a steady development trend. The main goods exported from Latvia to Ukraine in 2021 are presented, their shares in the total volume of relevant international trade flows are calculated. The main goods imported to Latvia from Ukraine in 2021 are determined, their share in the total volume of import is calculated. Services are not included in any of the statistics presented here.

Keywords*: Database, export, import, international merchandise trade, Latvia, Ukraine, UN Comtrade Database.*

INTRODUCTION

The continued interest in international merchandise trade is due to its crucial role in economic development because such trade binds producers and consumers located in different countries into a global economic system. In this context, the availability of timely and high-quality trade statistics becomes a precondition for an in-depth analysis of production, consumption, employment, income and overall welfare at both the country and global levels.

Trade statistics are compiled to serve the needs of many users, including governments, the business community, compilers of other economic statistics, such as balance of payments and national accounts, various regional, supranational and international organizations, researchers and the public at large (International Merchandise Trade Statistics, 2013).

The Covid-19 pandemic has had a strong and lasting impact on the socio-economic situation on a global scale and also in Latvia.

Although, due to the pandemic, the situation is difficult, Latvia's economy has stabilized today. This has been achieved by the excellent performance of entrepreneurs in export (Ministry of Economics of Republic of Latvia, 2021).

©2023 Author(s). This is an open access article licensed under the Creative Commons Attribution License http://creativecommons.org/licenses/by/4.0.

Export of goods has an important role in mitigating the negative effects of the Covid-19 pandemic. In 2020, due to the Covid-19 restrictions in external markets export decreased by 2.2 % in general, while export increased by 6.4 % in the 3 quarters of 2021 year-on-year as the situation on external markets stabilised. Trends in export of goods and services vary greatly. Export of Latvian goods grew by 6.4 % in 2020 and by 7.7 % in the 3 quarters of 2021. The biggest contribution to the increase in export of goods was given by the increase in export of machinery and electrical equipment. A significant increase in export in 2020 was also observed in the food and agricultural product group, as well as in plastics and their products, and in the 3 quarters of 2021 – in export of wood and its products (Report on the Economic Development of Latvia 2021, 2021).

Domestic scientists such as Kachanovska M., Yakubovskiy S. (Kachanovska & Yakubovskiy, 2020), Pancenko E., Ivanova T. (Pancenko & Ivanova, 2018), Skribane I., Broyaka A. (Skribane & Broyaka, 2020) and others have devoted their work to the study of trends in world trade, peculiarities of formation and tools for regulating trade flows of goods and services in Ukraine.

Despite the large number of scientific papers on the analysis of international trade, there are a number of issues that remain a constant subject of discussion, including the problem of comparing data to form a reliable information base for research.

1. RESEARCH METHODOLOGY

The aim of the study is to analyse the international merchandise trade between Latvia and Ukraine using international databases, including the UN Comtrade Database.

Goods are defined as physical, produced objects for which a demand exists, over which ownership rights can be established and whose ownership can be transferred from one institutional unit to another by engaging in transactions on markets, plus certain types of so-called knowledge-capturing products stored on physical media that can cross borders physically (United Nations, 2011; United Nations, 2009).

For the purposes of the publication, the term “merchandise” has the same meaning as the terms “goods” and “commodities”.

The term “international merchandise trade statistics” refers to both foreign (or external) merchandise trade statistics as compiled by countries and international merchandise trade statistics as represented by the consolidated and standardized country data sets that are compiled and maintained by the international or regional agencies (United Nations, 2011).

The basis of methodological provisions on statistics of foreign trade in goods is:

- International Merchandise Trade Statistics: Concepts and Definitions 2010 (IMTS 2010);
- International Merchandise Trade Statistics: Compilers Manual, Revision 1 (IMTS 2010-CM);
- Compilers guide on European statistics on international trade in goods;
- Balance of payments and international investment position manual.

The recommendations provided in these documents help countries to gradually expand and structure their information using internationally harmonized methods. An internationally agreed framework for compiling and presenting statistics on international trade in goods and services provides the need for comparable, comprehensive, comprehensive statistics.

2. RESULT ANALYSIS AND DISCUSSION

The international statistical database UN Comtrade Database allows analysing in detail the foreign trade flows of any single country in detail, if necessary, for each group of goods (United Nations, 2022).

UN Comtrade Database, as one of the most complete and reliable sources of world trade statistics, contains annual data on the value and physical volume of export and import of about 200 countries and regions since 1962, as well as monthly statistics on international trade in goods and services since 2010 with a breakdown by partner country as well as by product type.

Figure 1 shows the volume of international merchandise trade of Ukraine and Latvia with the world in 2000–2021.

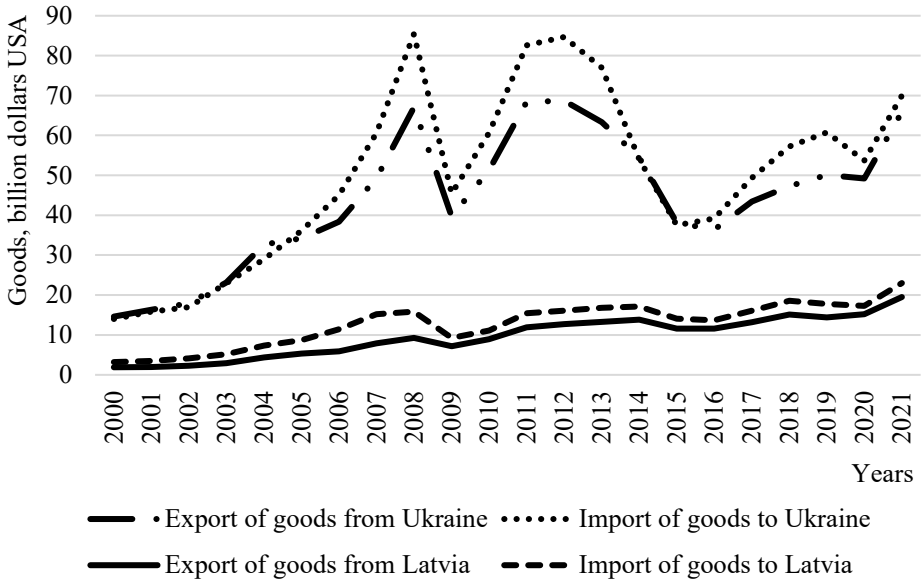


Fig. 1. International merchandise trade of Ukraine and Latvia with the countries of the world: export and import of goods in 2000–2021 (United Nations, 2022).

According to the UN Comtrade Database, in 2020 export of goods from Ukraine amounted to 65.9 billion dollars USA, import – 70.0 billion dollars USA. While export from Latvia amounted to 19.5 billion dollars USA, import – 23.0 billion dollars USA (United Nations, 2022).

The UN Comtrade Labs: BIS International Trade in Goods Visualization resource was used for visual analysis and comparison of the international trade activities of Latvia including Ukraine (Fig. 2).

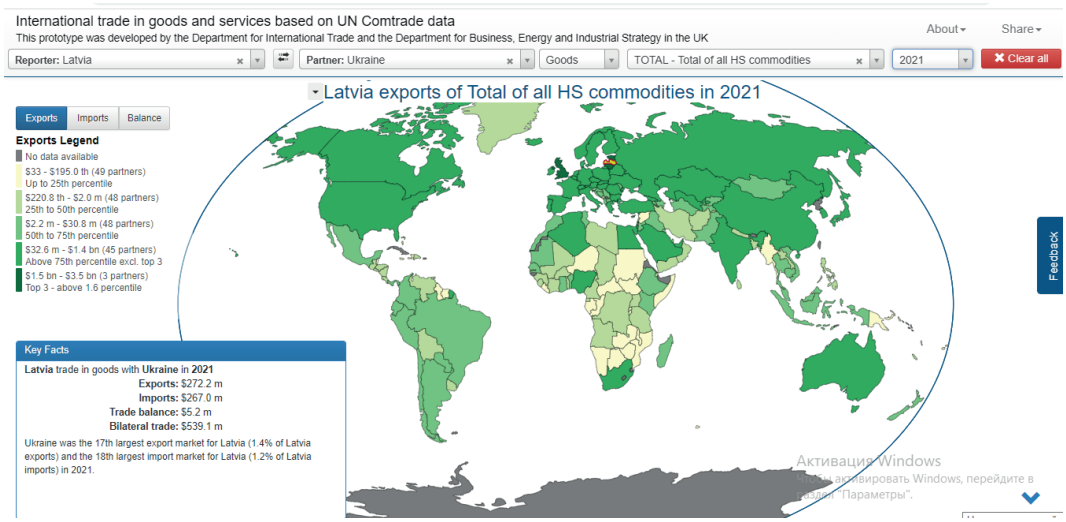


Fig. 2. Key facts about international trade in goods of Latvia and Ukraine in 2021 (United Nations, 2022).

The interactive map allows obtaining the key facts of international trade in goods of Latvia with any country in the world, including Ukraine.

Table 1 presents the top 20 countries-exporters of goods from Latvia in 2021.

Table 1. Top 20 Countries-Exporters of Goods from Latvia in 2021 (calculated and summarised by the authors according to the UN Comtrade Database)

No.	Country	Export of goods from Latvia in 2021		No.	Country	Export of goods from Latvia in 2021	
		million dollars USA	%			million dollars USA	%
	World	19504.9	**100.0**	**11**	France	457.2	2.3
1	Lithuania	3495.5	17.9	**12**	USA	445.6	2.3
2	Estonia	2094.6	10.7	**13**	Norway	381.3	2.0
3	United Kingdom	1480.6	7.6	**14**	Nigeria	298.9	1.5
4	Germany	1429.1	7.3	**15**	Italy	285.1	1.5
5	Russian Federation	1414.6	7.3	**16**	Turkey	282.0	1.4
6	Sweden	1076.5	5.5	**17**	Ukraine	272.2	1.4
7	Denmark	840.7	4.3	**18**	Belgium	267.5	1.4
8	Poland	809.7	4.2	**19**	Spain	232.2	1.2
9	Netherlands	641.3	3.3	**20**	Czech Republic	221.4	1.1
10	Finland	496.7	2.5		Others	2582.0	13.3

Export of goods from Latvia in 2021 was mainly carried out to Lithuania (17.9 %), Estonia (10.7 %), the United Kingdom (7.6 %), Germany (7.3 %) and the Russian Federation (7.3 %). The significant percentage of export to Lithuania and Estonia can be explained, first of all, by their close geographical position with Latvia. Export to Ukraine reached 1.4 % of total export from Latvia to the world, equal to 272.2 million dollars USA in 2021. Ukraine ranks 17th among countries in the world that export from Latvia.

Import of goods to Latvia by country in 2021 is presented in Table 2.

Import to Latvia was mainly made from Lithuania (17.2 %), Germany (10.5 %), Poland (9.6 %), the Russian Federation (9.1 %) and Estonia (8.8 %). Ukraine ranks 18th among countries in the world that import to Latvia. Import from Ukraine reached 1.2 % of total export from Latvia to the world, equal to 267.0 million dollars USA in 2021. Similar to export, a significant percentage of import of goods from Lithuania can also be explained primarily by its proximity to Latvia.

Table 2. Top 20 Countries-Importers of Goods to Latvia in 2021 (calculated and summarised by the authors according to the UN Comtrade Database)

No.	Country	Import of goods to Latvia in 2021		No.	Country	Import of goods to Latvia in 2021	
		million dollars USA	%			million dollars USA	%
	World	22979.0	**100.0**	**11**	Sweden	676.0	2.9
1	Lithuania	3952.1	17.2	**12**	Belarus	548.3	2.4
2	Germany	2410.9	10.5	**13**	Belgium	460.3	2.0
3	Poland	2204.8	9.6	**14**	Denmark	456.7	2.0
4	Russian Federation	2096.3	9.1	**15**	Czech Republic	375.0	1.6
5	Estonia	2031.0	8.8	**16**	France	368.2	1.6
6	China	1017.0	4.4	**17**	Spain	286.8	1.2
7	Netherlands	923.0	4.0	**18**	Ukraine	267.0	1.2
8	Finland	855.2	3.7	**19**	Hungary	234.2	1.0
9	Italy	712.9	3.1	**20**	USA	220.4	1.0
10	Canada	708.1	3.1		Others	2174.7	9.6

In the UN Comtrade Database, after selecting the Type of product: Goods or Services and the Frequency of the data: Annual or Monthly, you can work with the data through an interactive tool based on the following international classifications of goods and services (United Nations, 2022):

- Harmonized Commodity Description and Coding System, version: HS–1992, HS–1996, HS–2002, HS–2007, HS–2012, HS–2017, HS–2022 (Eurostat, 2017);
- Standard International Trade Classification, version: Rev.1, SITC–Rev.2, SITC–Rev.3, SITC–Rev.4;
- Broad Economic Categories, BEC;

– Extended Balance of Payments Services (Classification), EBOPS.

The main goods exported from Latvia to Ukraine in 2021 are presented in Table 3. Goods are ranked by the volume of export in 2021.

Table 3. The Main Goods Exported from Latvia to Ukraine in 2021 (calculated and summarised by the authors according to the UN Comtrade Database)

Code goods for HS – 17	Goods	Export of goods from Latvia in 2021	
		million dollars USA	%
	All goods	272.2	100.0
30	Pharmaceutical products	49.0	18.0
22	Beverages, spirits and vinegar	42.5	15.6
31	Fertilizers	18.2	6.7
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	15.9	5.8
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	14.9	5.5
16	Meat, fish or crustaceans, molluscs or other aquatic invertebrates; preparations thereof	11.5	4.2
74	Copper and articles thereof	9.9	3.6
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	9.8	3.6
44	Wood and articles of wood; wood charcoal	8.8	3.2
39	Plastics and articles thereof	7.8	2.9

The total export of all goods from Latvia to Ukraine in 2021 amounted to 272.2 million dollars USA. “Pharmaceutical products” had the largest share in export of goods from Latvia to Ukraine in 2021 (18.0 %). In the second place, there were “Beverages, spirits and vinegar” with a share of 15.6 %, followed by “Fertilizers” with a share of 6.7 %.

As for other goods, for example, the volume of exports of “Stone, plaster, cement, asbestos, mica or similar materials; articles therefore” (68 – code goods for HS – 17), amounted to 685 thousand dollars USA in 2021. In the total volume of exports of goods from Latvia to Ukraine in 2021, this position ranked 40th in trade value.

Figure 3 shows the top 10 products exported from Latvia to Ukraine in 2021.

Among the top 10 goods exported from Latvia to Ukraine until 2021, the leading position was occupied by “Pharmaceutical products” in the amount of 49.0 million dollars USA.

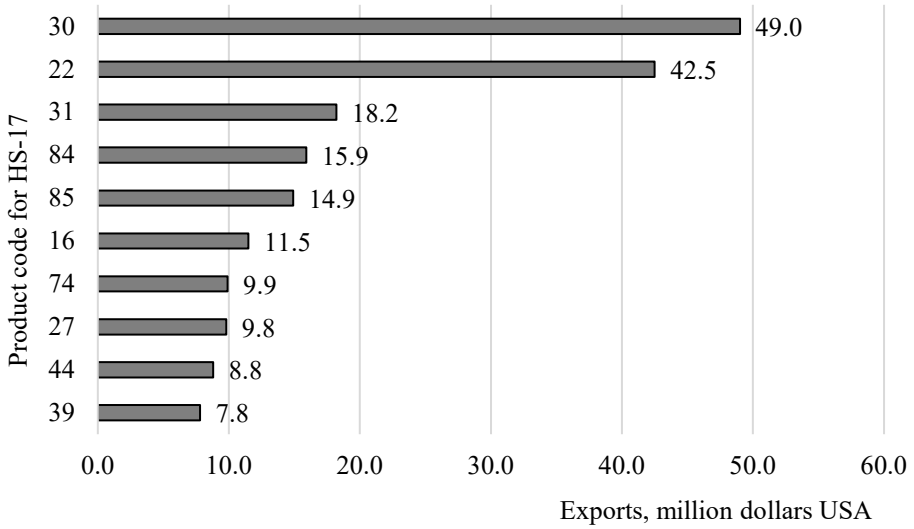


Fig. 3. Top 10 goods exported from Latvia to Ukraine in 2021 (United Nations, 2022).

The main goods imported to Latvia from Ukraine in 2021 are presented in Table 4. Goods are ranked by the volume of import in 2021.

Table 4. The Main Goods Imported to Latvia from Ukraine in 2021 (calculated and summarised by the authors according to the UN Comtrade Database)

Code goods for HS – 17	**Goods**	**Import of goods to Latvia from Ukraine in 2021**	
		million dollars USA	%
	All goods	267.0	100.0
72	Iron and steel	48.1	18.0
29	Organic chemicals	23.9	9.0
44	Wood and articles of wood; wood charcoal	22.5	8.4
48	Paper and paperboard; articles of paper pulp, paper or paperboard	20.2	7.6
38	Chemical products n.e.c.	19.8	7.4
62	Articles of apparel and clothing accessories, not knitted or crocheted	16.6	6.2
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	10.0	3.8
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, n.e.c.; illuminated signs, illuminated name-plates and the like; prefabricated buildings	9.5	3.6
73	Articles of iron or steel	7.9	3.0
21	Miscellaneous edible preparations	7.1	2.6

"Iron and steel" had the largest share in the import of goods to Latvia from Ukraine in 2021 (18.0 %). In the second place, there were "Organic chemicals" with a share of 9.0 %, followed by "Wood and articles of wood; wood charcoal" with a share of 8.4 %, respectively. The total import of all goods to Latvia from Ukraine in 2021 amounted to 267.0 million dollars USA.

As for other goods, for example, the volume of imports of "Stone, plaster, cement, asbestos, mica or similar materials; articles therefore" (68 – code goods for HS – 17), amounted to 1.6 million dollars USA in 2021. In the total volume of imports of goods to Latvia from Ukraine in 2021, this position ranked 27th in trade value.

Figure 4 shows the top 10 products imported from Latvia to Ukraine in 2021.

Among the top 10 goods imported to Latvia from Ukraine in 2021, the leading position was occupied by "Iron and steel" and "Organic chemicals" with a total of 72.0 million dollars USA.

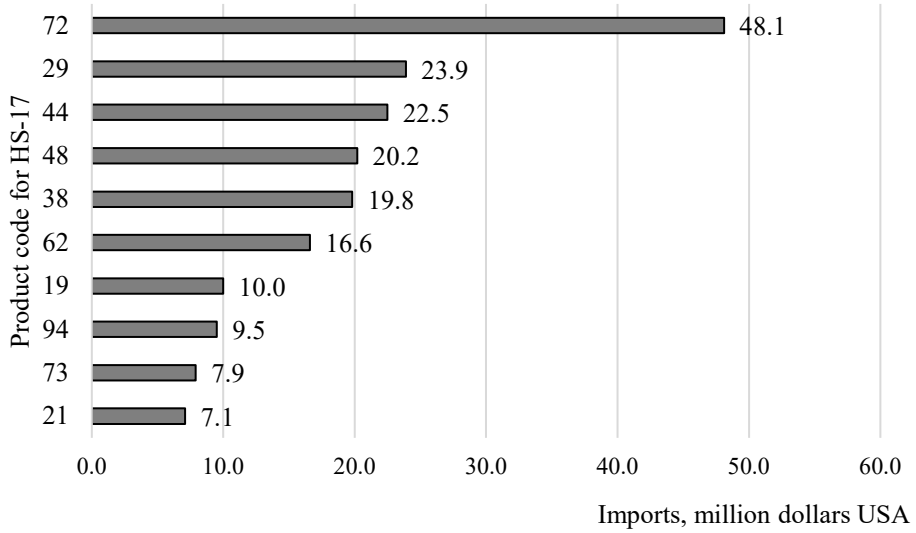


Fig. 4. Top 10 products imported to Latvia from Ukraine in 2021 (United Nations, 2022).

Figure 5 shows the data on international trade between Latvia and Ukraine, namely export and import of goods in 1994–2021.

The largest volume of export of goods from Latvia to Ukraine was in 2021 and it reached 272.2 million dollars USA, as well as in 2020 and 2019 it was in the amount of 250.3 million dollars USA and 171.4 million dollars USA, respectively.

The largest volume of import of goods to Latvia from Ukraine was in 2021 and it reached 267.0 million dollars USA and in 2012 it was in the amount of 224.3 million dollars USA.

Import of goods to Latvia from Ukraine exceeded export of goods from Latvia to Ukraine for almost the entire period from 1994 to 2021. In 2021, the volume of export and import almost equalled and reached 272.2 million dollars USA and 267.0 million USA, respectively.

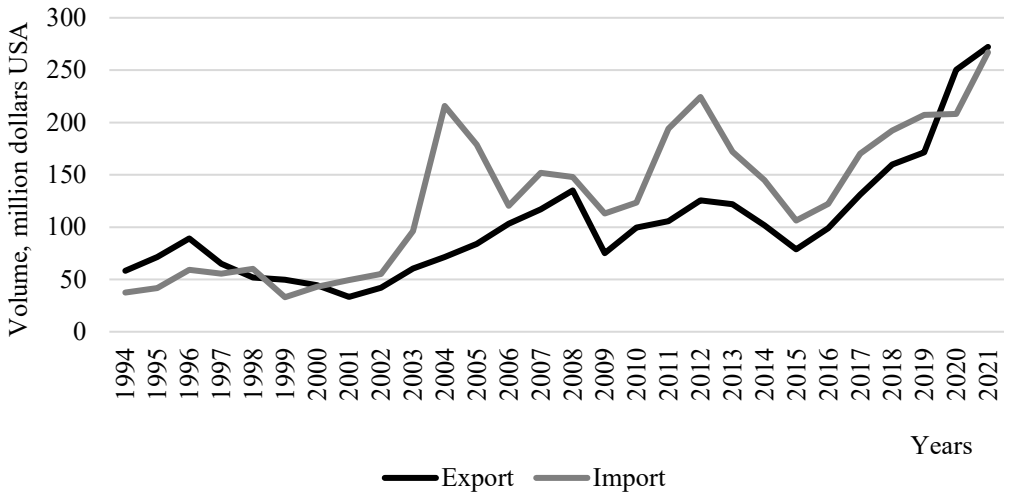


Fig. 5. International merchandise trade between Latvia and Ukraine: export and import of goods in 1994–2021 (United Nations, 2022).

Next, the coefficients of coverage of export from Latvia to Ukraine by import were calculated and a comparison was made between the intensity of the dynamics of two parallel series – a comparison of export and import of Latvia and Ukraine (Table 5). For this purpose, it was necessary to calculate the advance coefficients using (1).

$$C_{\text{adv}} = \frac{BGR_1}{BGR_2}, \tag{1}$$

where BGR_1 – base growth rates of import, and BGR_2 – base growth rates of export.

Table 5. Chain and Base Growth Rates of Import, Export from Latvia to Ukraine, Coefficients of Advance of Import and Export, Coefficients of Export Coverage by Import

Year	Chain growth rates of import, %	Base growth rates of import, %	Chain growth rates of export, %	Base rates of export growth, %	Advance coefficients of rates of change in import and export	Coverage ratio of export by import
1994	100.00	100.00	100.00	100.00	1.000	1.554
1995	111.23	111.23	122.57	122.57	0.907	1.713
1996	141.96	157.91	124.51	152.61	1.035	1.502
1997	93.69	147.95	73.01	111.41	1.328	1.170
1998	107.94	159.70	79.84	88.95	1.795	0.866
1999	55.10	88.00	95.73	85.15	1.033	1.504
2000	129.73	114.16	89.41	76.14	1.499	1.037
2001	115.56	131.93	75.06	57.15	2.309	0.673
2002	111.47	147.06	125.90	71.95	2.044	0.760
2003	174.20	256.19	143.62	103.33	2.479	0.627
2004	224.54	575.24	118.43	122.37	4.701	0.331

2005	82.77	476.14	117.52	143.81	3.311	0.469
2006	67.24	320.14	122.93	176.78	1.811	0.858
2007	126.36	404.54	113.33	200.34	2.019	0.770
2008	97.38	393.94	115.58	231.56	1.701	0.914
2009	76.50	301.37	55.54	128.60	2.343	0.663
2010	108.96	328.39	132.64	170.58	1.925	0.807
2011	157.45	517.04	106.24	181.22	2.853	0.545
2012	115.55	597.44	118.70	215.11	2.777	0.560
2013	76.67	458.08	97.18	209.05	2.191	0.709
2014	84.17	385.57	83.27	174.09	2.215	0.702
2015	73.54	283.54	77.38	134.72	2.105	0.738
2016	114.81	325.53	125.87	169.57	1.920	0.810
2017	139.25	453.31	132.53	224.73	2.017	0.771
2018	112.93	511.91	121.94	274.04	1.868	0.832
2019	107.76	551.64	107.16	293.68	1.878	0.827
2020	100.51	554.48	146.09	429.04	1.292	1.203
2021	128.26	711.18	108.72	466.45	1.525	1.019

Based on the results of calculations of chain and base growth rates, it can be concluded that there is a significant increase in foreign trade in goods of Latvia and Ukraine. It should also be noted that the growth rate of import of goods from Ukraine to Latvia in 1996–2021 is ahead of the corresponding growth rate of export.

CONCLUSION

The UN Comtrade Database is one of the most complete and reliable sources of world trade statistics. It allows studying in detail the foreign trade of any single country for each group of goods. Data collected by the United Nations Statistics Division cover more than 98 % of world trade.

The advantage of the UN Comtrade Database is the ability to access annual information, monthly information on trade flows (export, import) of any goods between any country in the world in monetary and physical units on a free basis.

The user-friendly interface of the UN Comtrade Database and the ability to visually analyse international trade in the figures and tables make it easy for the researcher to work with the data. In addition, using the data resource, there is no need to search for data separately for each country, contacting statistical services, such as the State Statistics Service of Ukraine or the Central Statistical Bureau (CSB), because the UN Comtrade Database contains reliable and comparable information on one site.

The comparative analysis of foreign trade flows of Latvia and Ukraine demonstrates the feasibility of using the UN Comtrade Database for the analysis of international trade.

REFERENCES

Eurostat. (2017). *Harmonized commodity description and coding system*. European Commission, Eurostat/RAMON. https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=HS_2017&StrLanguageCode=EN&IntPcKey=&StrLayoutCode=HIERARCHIC

International Merchandise Trade Statistics. (2013). *International merchandise trade statistics: Compilers manual, (IMTS 2010-CM).* United Nations Department of Economic and Social Affairs (DESA). United Nations. New York, 2013. https://unstats.un.org/unsd/trade/EG-IMTS/IMTS2010-CM%20-%20white%20cover%20version.pdf

International Monetary Fund. (2009). *Balance of payments and international investment position manual*, 6th ed. International Monetary Fund. https://www.imf.org/external/pubs/ft/bop/2007/pdf/bpm6.pdf

Kachanovska, M., & Yakubovskiy, S. (2020). Influence of the COVID-19 pandemic on the economic relation of Ukraine with Latvia, Lithuania and Estonia. *Proceedings of International scientific conference "Relevant trends of scientific research in the countries of Central and Eastern Europe*", Riga, Latvia, 90–93. https://doi.org/10.30525/978-9934-26-002-5-26

Ministry of Economics of Republic of Latvia. (2021). *Report on the economic development of Latvia 2021*. Ministry of Economics of Republic of Latvia. https://www.em.gov.lv/en/media/13388/download

Pancenko, E., & Ivanova, T. (2018). Evaluation of the export potential of Latvia with EU countries categorized by groups of goods. *Forum scientiae oeconomia: Economic growth, innovations and lobbying*, *6*(2), 37–55. http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight-a1a0904d-a367-4642-a489-766e83792a74

Skribane, I., & Broyaka, A. (2020). *Assessment of the economic development of Latvia and Ukraine. New challenges in economic and business development – 2020: Economic inequality and well-being*, University of Latvia, Riga, Latvia, 426–439. https://dspace.lu.lv/dspace/handle/7/54230

United Nations Conference on Trade and Development. (2021). *Training course on international merchandise trade statistics (IMTS)*. Train for trade program participants manual. Conceptual framework. UNCTAD. https://tft.unctad.org/

United Nations Department of Economic and Social Affairs (DESA). (2012). *Manual on statistics of international trade in services 2010*. United Nations. http://unstats.un.org/unsd/publication/Seriesm/seriesM_86Rev1e.pdf

United Nations. (2009). *System of national accounts, 2008 (2008 SNA)*. European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations and World Bank. http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf

United Nations. (2011). *International merchandise trade statistics: Concepts and definitions 2010*. United Nations Department of Economic and Social Affairs (DESA). http://unstats.un.org/unsd/trade/eg-imts/IMTS%202010%20(English).pdf

United Nations. (2017). *Compilers guide on European statistics on international trade in goods*. https://ec.europa.eu/eurostat/documents/3859598/8021340/KS-02-17-333-EN-N.pdf/c6e78259-cc92-4054-b785-cc7700ee6da9?t=1495027237000

United Nations. (2022). *UN Comtrade database*. United Nations. http://comtrade.un.org