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THE COMPETITIVENESS OF UKRAINIAN SERVICE EXPORTS IN THE CONTEXT OF UKRAINE'S INTEGRATION WITH THE EUROPEAN UNION AND THE WAR IN UKRAINE

ABSTRACT

The purpose of the paper is to examine the involvement of Ukrainian services companies in global value chains (GVCs) and assess the competitiveness and specialization of Ukrainian services exports. It is necessary to examine this issue after the entry into force of the DCFTA as part of the EU–Ukraine Association Agreement. Additionally, on the eve of the commencement of accession negotiations between Ukraine and the EU and in light of the impact of the war on Ukraine's economy, it is imperative to investigate this issue. The following indicators are used: the ratio of exports to output and the ratio of imported intermediate inputs to output (participation in GVCs), the normalised revealed comparative advantage index, and the trade balance index (export competitiveness). A special matrix (Widodo, 2009) is developed to identify the four scenarios for Ukraine, indicating different degrees of competitiveness of its exports and the leading exported services. The study is based on data from the WTO and the State Statistics Service of Ukraine, and it covers 2005–2022. The empirical results demonstrate that services have not increased their shares in Ukraine's exports, and the DCFTA had no impact on Ukrainian services companies' participation in GVCs or their export competitiveness. Computer services are outliers. The paper also demonstrates that Ukraine has a very strong position in the exports of computer services compared to both EU and non-EU countries. The study contributes to the literature by indicating the leading exported services (mainly computer) as well as services with the potential to gain comparative

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advantages in Ukrainian exports (other business) based on the product mapping method. The paper also identifies factors that positively determine Ukraine's competitiveness in this field (i.e., external demand, openness, government policy, the UAH exchange rate, employment, and earnings) and those that should be improved (i.e., human capital, in particular, a knowledge of English, and communication infrastructure). Finally, the study discusses the reasons why the services sector will likely play a key role in Ukraine's post-war reconstruction.

Keywords: comparative advantage, competitiveness, services, global value chains, Ukraine, European Union

JEL Classification: F10, F14, F15

1. INTRODUCTION

Services are the fastest-growing sector of the global economy. It now generates 61.7% of economic output and provides on average 50% of jobs globally in 2022 (World Bank, 2024a; 2024b). Between 2005 and 2022, the trade in commercial services also expanded faster than the trade in merchandise (on average 6% and 5.2% per year, respectively). However, commercial services account for only around one-fifth of global trade (20% in 2005 and 22% in 2022, WTO, 2023a).

Structural transformation has been observed in most countries, and the services sector is now the greatest source of economic growth and new jobs in many developing countries (Chaitoo, 2020). The rising role of services in production and employment has also been visible in Ukraine. The share of the country's services sector in value added increased from 30% in 1987 to 60.8% in 2022. Its share in employment grew from 46% in 1991 to 61% in 2021 (World Bank, 2024a; 2024b). However, a similar trend has not been observed in Ukraine's services exports, as it grew by only 2.7% per year between 2005 and 2022 (this growth rate was less than half that of the world services exports and less than one-third that of Poland).

Ukrainian services trade, unlike its merchandise trade, recorded a positive trade balance through the whole analysed period (except for 2022). This shows that the services trade plays an important role in the Ukrainian economy, but the development of a competitive service sector is still of huge importance. Therefore, this paper aims to assess the competitiveness and specialisation of Ukrainian services exports in light of these changes. This is particularly important during Ukraine's association with the European Union (EU) and its preparation for full integration with the European Internal Market. The study also examines the impact of the Russian invasion in this area.

The study is organised as follows. Section 2 reviews the related literature. Section 3 describes the methodology and data, while Section 4 presents and discusses empirical results. Section 5 identifies and discusses the determinants of Ukraine's competitiveness in the exports of computer services, while Section 6 concludes and discusses the perspective for Ukraine's competitiveness in this field in the coming years.

2. LITERATURE REVIEW

2.1. GLOBAL VALUE CHAINS, SERVICES TRADE AND DEVELOPING COUNTRIES

The development of international production within GVCs has created significant opportunities for developing countries to expand their exports. This also refers to services trade, as GVCs also cover service activities. Seeking cost efficiency, companies outsource various intermediate services to specialised third-party service providers, or they offshore their labour-intensive operations to developing countries with lower labour costs (UNCTAD, 2014). Computer and information, financial and insurance, transportation and storage, and business and professional services have been increasingly subject to the same unbundling as trade in goods. As a result, they have become the key components of GVCs and the fastest-growing components of international trade (Nano & Stolzenburg, 2021). The share of intermediates in total exports is now higher for services than for manufacturing sectors. In 2022, intermediate services made up 76% of total services extra-EU exports and 84% of total services extra-EU imports, while intermediate goods made up 52% of total goods extra-EU exports and 61% of total goods extra-EU imports (Eurostat, 2023). Services not only contribute to manufacturing and agricultural value chains but, increasingly, they also form their own value chains (Sharpe, 2009). Thanks to the growing involvement of services in GVCs, developing countries can specialise in specific service activities in accordance with their comparative advantages (Heuser & Mattoo, 2017). It is anticipated that future benefits of international trade for developing economies will likely derive from services trade – in particular, intermediate services – rather than goods trade (Baldwin, 2023).

Two examples of this strategy are India for software services and the Philippines for business process outsourcing (BPO). Becoming part of GVCs has led to sustained economic benefits for these countries in income, employment, and social inclusion. However, their participation in GVCs involves largely routine and low value-added services, which is usually the case for other developing countries, and it is in sharp contrast to major software-exporting countries, such as Ireland and Israel. A country's ability to rebuild its competitiveness based on high value-added services is now among the key determinants of its productivity and export performance (Nano & Stolzenburg, 2021).

Venger et al. (2022) investigated Ukraine's participation in GVCs. They demonstrated that the Ukrainian export of goods is characterised by a low share of highly processed industrial products and a high share of low value-added products, in particular, basic metals and agriculture and food industry products. To ensure accelerated GDP growth, Ukraine must increase the exports of goods and services that provide higher value-added growth. However, they found that computer programming, consulting and information services are among the industries with the highest ratio of exports and output.

Petkova et al. (2021) examined the competitiveness of Ukrainian goods and services exports between 2013 and 2019 and reached similar conclusions. The main branches of goods exports reflect the presence of structural and technological lags in the Ukrainian economy, which requires economic policy measures aimed at long-term action. In contrast, the Ukrainian economy demonstrates positive dynamics in the export of services, reflecting the progressive trends of technological development, especially in the export of IT services.

2.2. THE EUROPEAN UNION–UKRAINE REGULATIONS ON TRADE IN SERVICES

The Association Agreement (AA, 2014) between the European Union and Ukraine entered into force on 1 September 2017. The part of this agreement that opens markets for goods and services on both sides is called the Deep and Comprehensive Free Trade Area (DCFTA), and it provisionally entered into force on 1 January 2016. The DCFTA entails a comprehensive liberalisation of trade in services, encompassing the cross-border supply of services (services delivered through GATS Modes 1 and 2, excluding audiovisual services, national maritime cabotage, and domestic and international air transport services), establishment (GATS Mode 3), and the temporary presence of natural persons for business purposes (GATS mode 4). However, it is subject to reservations. The liberalisation is carried out in line with the national treatment clause and the GATS-specific commitments.

In the service sectors listed in Annex XVI-B (EU members) and XVI-E (Ukraine), the parties make market access and national treatment commitments. However, the liberalisation is asymmetrical. While Ukraine only has a limited number of reservations or unbound service sectors in its list (27 on GATS Mode 1 and 1 on GATS Mode 2), the EU has numerous reservations (190 and 72, respectively). This asymmetry is mainly due to Ukraine's liberal approach to the GATS. The EU introduced the most reservations regarding business services (79 – Mode 1, 23 – Mode 2), financial services (33 – Mode 1, 13 – Mode 2) and transport services (25 – Mode 1, 11 – Mode 2) (Emerson & Movchan, 2021).

The AA allows both sides to establish their business through self-employment, branches, or representative offices and to establish or acquire undertakings that are within the other party's control in either country. The reservations to establishment are listed in Annex XVI-A (EU members) and XV-D (Ukraine). Again, Ukraine has fewer reservations than the EU (21 and 105, respectively) (Emerson & Movchan, 2021). The services that participate in international trade through this mode are not the subject of this present study.

Finally, under the AA, EU citizens are allowed to temporarily move to Ukraine and vice versa to work as a graduate trainee (up to 1 year, if not an intra-corporate transferee, and up to three years for an intra-corporate transferee), a business seller (up to 90 days in any 12-month period), or as one of the key personnel of a company in that country (up to three years). The AA also gives contractual service providers in specific sectors opportunities to supply the relevant service in either country on a temporary basis as an employee of an entity that has secured a service contract that does not exceed one year. The reservations on contractual services suppliers and independent professionals are listed in Annex XVI-C (EU members) and XVI-F (Ukraine), and again, the EU has more reservations than Ukraine (Emerson & Movchan, 2021).

The DCFTA chapters on services and establishment include review clauses that allow the parties to "update" these annexes in line with changes in EU legislation or broaden the scope and depth of liberalisation (Van der Loo & Akhvlediani, 2020). The EU and Ukraine have also signed several sectoral agreements that partially integrate Ukraine into specific sections of the EU Internal Market (i.e. the EU–Ukraine Common Aviation Area Agreement, signed in 2021). Ukraine's approximation to the EU's acquis has progressed well, although implementation and enforcement challenges remain in several areas. Moreover, the war causes such huge and unpredictable consequences that it may threaten Ukraine's compliance with EU requirements, and its reform agenda in general (European Commission, 2023).

3. METHODOLOGY AND DATA

One of the most commonly used indicators of competitiveness in the exports of a given product is the Balassa index of revealed comparative advantage (RCA). While commonly viewed as measuring comparative advantage, this index, in fact, reflects success in a country's exports relative to a worldwide norm. Such success can result from subsidies or other price distortions instead of high productivity. For this reason, Siggel (2006) states that the RCA index measures competitiveness rather than comparative advantage.

The original Balassa index has been applied in numerous studies. Its properties have been examined in detail, as a result of which, shortcomings have been identified. The first is its asymmetry: the interval of comparative disadvantages [0,1] has an upper bound that does not exist in the case of comparative advantages [1,+∞]. Thus, comparative advantages and disadvantages are measured differently, and there is the inherent risk of lack of normality in their distribution (Yu et al., 2009; Laursen, 2015). Another problem is that it gives more weight to values greater than 1 compared to observations less than 1, since changes in the RCA greater than 1 are numerically larger than the values less than 1 (Laursen, 2015; Ceglowski, 2017). The third weakness is the index's lack of additivity, i.e., the possibility of adding two or more RCA indices from different countries or for different products in a given country to ascertain the RCA index for a country or product grouping.

Several modified RCA indices have emerged in response to criticism of the original Balassa index, seeking to overcome its various weaknesses. Nonetheless, it is impossible to give a definitive answer as to which RCA index is theoretically most appropriate, and there is no *a priori* reason why the same RCA index should provide the best empirical measures for different configurations of countries, products or periods (Stellian & Danna-Buitrago, 2022).

In the present study, a normalised RCA index (denoted here as NRCA) is used, as it avoids the weaknesses mentioned above (Yu et al., 2009; Ceglowski, 2017; Stellian & Danna-Buitrago, 2022). Moreover, the sum and mean values of the NRCA scores for a given product or country are both stable and equal to zero, a property that allows comparisons across sectors, countries, and time (Yu et al., 2009). As the scores for a given industry or country sum to zero, it means that if a country's NRCA index for one product rises over time, it must be the case that it falls for another product over the same period. A rise in a country's NRCA index must also indicate a fall in the NRCA of the same product for another country. The NRCA index of country *i*'s exports of product *j* is calculated as:

$$NRCA_{ij} = \frac{X_{ij}}{X_w} - \frac{X_{wj}X_i}{X_w X_w}. \quad (1)$$

The index measures deviations in a country's exports of *j* (X_{ij}) from their comparative-advantage-neutral point. This neutral point is defined by what they would be were the country's share in world exports of *j* equal to its share in total world exports ($X_{wj}X_i/X_w$). The deviations are then normalised by total world exports (X_w). A positive value for the NRCA index is obtained when actual exports exceed their comparative-advantage-neutral point and is indicative of an RCA; a negative value indicates a comparative disadvantage. Because the NRCA formula yields very small numbers that range from –1/4 to +1/4, all calculated values have been multiplied by 10,000 for reporting purposes (Yu et al., 2009).

However, this index suffers from not considering imports. If *i* has the capacity to produce *j* with higher productivity than other countries, it will be able to sell it at a lower price, which will have a positive impact on its exports. However, this does not mean that country *i* does not import *j* at all, as the other countries could offer differentiated versions of *j* that *i* might demand, even at a higher price. A country with a comparative advantage in the export of *j* may even appear to be a net importer of *j*. Thus, considering exports and imports simultaneously allows for a more complete interpretation of comparative advantages (Vollrath, 1991). This study uses a measure of comparative advantage that is related to a country's net contribution to global trade, defined as the ratio between the sectoral trade balance and total sectoral trade, i.e. the trade balance index (TBI) (Lafay, 1992):

$$TBI_{ij} = \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}}. \quad (2)$$

where *i* denotes the country, *j* is the service product, *X* is exports and *M* is imports. The TBI index takes values between 1 and -1. If country *i* records a positive trade balance in its trade in *j,* it is assumed to have comparative advantages, represented by the index $TBI_{ij} > 0$. Conversely, country *i* will have comparative disadvantages if it registers a trade deficit in *j*, i.e. $TBI_{ij} < 0$. Zero is assigned as the value of TBI_{ij} if $X_{ij} + M_{ij} = 0$.

When using the $NRCA_{ij}$ and TBI_{ij} indexes simultaneously, a special matrix can be developed that makes it possible to identify four scenarios for a given country, indicating different degrees of competitiveness of its exports. The matrix can also be used to indicate "leading exported products," which is particularly important for developing or catching-up countries like Ukraine (Widodo, 2009).

The meaning of "leading exported products" can be seen from two different points of view, i.e. domestic interest and international competition. From a domestic point of view, leading exported products are understood as exported products that can generate a substantial amount of foreign exchange for the domestic economy, thereby contributing to output growth. In this context, the higher the share of a specific product in the total domestic exports, the more significant its contribution to the domestic economy becomes. Such products can be considered foreign exchange creators for the domestic economy. From an international competition point of view, leading exported products are products that have a high comparative advantage in the international market. A specific exported product becomes a leading export if its share in the total world export is dominant (Widodo, 2009; Cieślik, 2017).

The NRCA and TBI values are calculated based on the balance of payments statistics from the WTO database. The choice of database was determined by the availability of data on Ukraine's commercial services exports and world commercial service exports (total and by service category). The index values are calculated for the period 2005–2022 because data on service trade for Ukraine has been available only since 2005.

4. EMPIRICAL RESULTS

The empirical part of the study begins with a presentation of the values of two indexes that show the involvement of Ukraine's service industries in GVCs: (1) the ratio of exports to output that is used to measure forward GVC participation, and (2) the ratio of imported in-

termediate inputs to gross output that is used to measure backward GVC participation (Table 1).[1] The values of both indexes are calculated based on the Ukrainian input-output tables that are available for the period 2015–2021. Higher values are observed for the first index, indicating a stronger involvement of Ukrainian service companies in GVCs through forward linkages.

The entry into force of the DCFTA had no impact on the values of either indicator, except for postal and courier services, where the ratio increased on the export side. The values of both indicators were much lower for the service sector than for the manufacturing sector, and in both cases, they showed a downward trend. The highest values of the first index, which were higher than for the manufacturing sector, were observed in computer services. However, the ratio of imported input to output in computer services was much lower than the ratio of exports to output, which was also the case for other industries with the highest proportion of exported output. This allows us to conclude that the success of Ukrainian services exports is mainly due to the activities of Ukrainian services companies, not transnational companies. Transnational companies simultaneously generate intensive services exports and imports flows (as is the case in Ireland, for example).

A relatively high part of output is also exported in transport services (in particular, postal and courier services – H53) as well as professional, scientific, and technical services (in particular, scientific research and development services – M72). The most crucial role of imported services intermediate inputs is evident in publishing, motion picture, video and television programme production, sound recording and music publishing, programming and broadcasting activities (J58–60), as well as arts, entertainment, and recreation and transport.

Table 2 presents the average annual growth rates of commercial services exports (total and for each services trade category) compared to merchandise exports between 2005 and 2022. It also shows the shares of each service trade category in commercial services exports. All indexes are calculated for Ukraine in comparison with the EU average and the world average. The share of services in Ukrainian total exports first increased, reaching its highest value (26.6%) in 2009. It then fluctuated before decreasing to 21% in 2021. This ratio increased again in 2022 by five percentage points, when Ukrainian merchandise exports decreased sharply by 35%, while services exports decreased by only 13.5%.

In 2005, the structure of Ukrainian services exports was strongly dominated by transport (45.6%, mainly other modes of transport), travel (31%) and goods-related services (13.1%). Other business services accounted for only 10% of commercial services exports in 2005, although they experienced rapid growth in the analysed period. In 2022, they accounted for 66.4% of commercial services exports. Computer services mainly contributed to this tremendous growth as they increased their share in commercial services exports from 0.4% to 47% in the examined period.

It is difficult to assess the DCFTA's impact on EU–Ukrainian services trade as data on bilateral services trade is available only for 2021 (State Statistics Service of Ukraine, 2023b). However, the trade relationship remains very asymmetrical. The EU is Ukraine's largest trading partner, accounting for 34% of its services exports and 42% of its services imports. By contrast, Ukraine accounts for only 0.13% of the EU's services exports and 0.2% of its

[1] These indexes do not match exactly forward and backward GVC participation indexes (WTO, 2023b), but only these two ratios can be calculated based on available data for Ukraine.

Table 1

The ratio of exports and imported intermediate inputs to gross output (in %)

Index	The ratio of exports to output							The ratio of imported intermediate inputs to output						
Category[a]	2015	2016	2017	2018	2019	2020	2021	2015	2016	2017	2018	2019	2020	2021
TOT	24.7	23.2	22.8	21.4	19.5	18.7	19.3	16.8	16.4	15.9	15.2	12.9	11.2	11.9
MFG	45.1	41.5	41.2	40.6	36.1	36.8	38.2	35.0	38.5	35.5	36.5	34.0	32.4	33.3
SER	12.9	13.1	12.5	11.6	10.4	9.3	9.5	5.7	5.5	4.8	4.2	3.9	3.5	3.9
G	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.4	0.5	0.4	0.4	0.4	0.2	0.2
H	47.6	50.3	47.8	41.8	36.0	29.8	28.8	12.1	12.5	11.2	8.6	8.7	9.5	12.9
H53	38.7	33.5	47.1	54.6	40.3	47.6	34.2	2.0	2.4	3.2	4.4	2.9	3.4	6.8
I	15.4	14.6	14.9	13.0	9.7	3.5	4.9	18.3	14.0	11.6	4.5	5.7	2.9	3.4
J58_60	4.3	3.4	2.9	3.6	3.1	3.6	3.7	19.2	15.2	14.0	14.3	11.3	9.9	12.0
J61	20.8	17.0	14.1	12.3	6.7	4.5	5.3	13.4	8.5	9.3	7.7	5.9	3.5	4.1
J62_63	59.3	53.7	53.5	51.8	44.8	50.6	55.9	15.1	12.3	10.7	11.0	8.7	7.4	7.7
K	4.4	2.8	3.8	3.3	2.8	2.0	1.5	18.9	15.7	15.2	11.0	9.4	9.3	8.8
L	0.4	0.6	0.6	0.6	0.5	0.1	0.3	0.8	2.3	1.5	1.4	1.6	1.0	1.2
M69_71	20.3	16.1	13.9	16.2	11.6	14.4	16.8	13.5	11.6	9.2	9.7	5.7	7.9	8.8
M72	36.0	31.8	30.6	20.2	22.8	21.3	16.1	2.5	5.4	5.6	5.4	4.2	2.8	2.4
M73_75	11.0	10.3	11.8	9.6	10.0	9.7	9.0	11.7	11.9	12.5	10.6	9.9	7.6	7.6

Table 1 (continued)

Index	The ratio of exports to output							The ratio of imported intermediate inputs to output						
Category[a]	2015	2016	2017	2018	2019	2020	2021	2015	2016	2017	2018	2019	2020	2021
N	12.8	10.8	11.2	10.0	8.4	7.4	8.6	9.8	10.0	9.9	10.0	8.3	5.5	5.3
O	0.6	0.5	0.5	0.2	0.2	0.2	0.2	–	–	–	–	–	–	–
P	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0
Q	0.4	0.5	0.4	0.4	0.4	0.1	0.2	0.3	0.7	0.7	0.5	0.5	0.1	0.1
R	9.0	9.3	11.1	8.7	7.7	3.7	4.8	17.0	19.1	18.3	18.4	16.2	12.6	11.6
S	16.5	14.9	12.2	14.1	12.9	10.0	17.0	3.1	5.3	5.1	3.8	3.4	3.1	2.7

[a] Categories in national accounts: TOT – Total economy; MFG – Manufacturing; SER – Services; G – Wholesale and retail trade; repair of motor vehicles and motorcycles; H – Transportation and storage; I – Accommodation and food service activities; J – Information and communication; K – Financial and insurance activities; L – Real estate activities; M – Professional, scientific and technical activities; N – Administrative and support service activities; O–Q – Public administration, defence, education, human health and social work activities; R – Arts, entertainment and recreation; S – Other service activities.

Source: State Statistics Service of Ukraine (2023a). *Input-Output table for 2015–2021 (at basic prices)*. http://www.ukrstat.gov.ua

Table 2

Commercial services exports, 2005–2022, Ukraine in comparison with the world and the EU

Index	Annual growth rates of exports (in %)			Shares in commercial services exports (SOX)					
				2022, in %			Changes in 2005–2022, in pp		
Category[a]	World	EU	Ukraine	World	EU	Ukraine	World	EU	Ukraine
SOX	6.0	3.8	2.7	100	100	100	–	–	–
SA	5.6	4.5	-0.2	2.1	3.1	6.0	-0.1	0.4	-3.7
SB	6.9	7.4	-5.3	1.4	1.6	0.9	0.2	0.6	-2.5
SC1	5.8	3.9	-4.3	9.0	8.8	2.3	-0.3	-0.9	-5.5
SC2	3.5	-1.5	-1.7	5.1	3.0	2.7	-2.6	-3.0	-2.9
SC3	7.3	6.2	-1.2	4.5	7.7	16.4	0.9	1.0	-14.9
SC4	9.4	9.6	-2.4	0.7	0.6	0.4	0.3	0.2	-0.5
SD	2.8	0.0	-7.9	15.8	9.6	5.0	-10.8	-14.6	-26.3
SE	4.8	-0.6	-8.2	1.4	1.1	0.2	-0.3	-0.8	-1.0
SF	6.3	3.1	-1.3	2.6	2.5	0.1	0.1	0.0	-0.1
SG	5.9	3.2	9.6	8.8	8.9	1.1	0.0	0.7	0.7
SH	5.7	5.5	5.1	6.3	7.1	0.3	-0.2	2.4	0.1
SI1	3.8	-1.6	0.9	1.4	1.4	0.8	-0.6	-1.4	-0.3
SI2	12.2	10.9	35.5	11.6	16.3	47.0	7.2	7.5	46.6
SI3	9.4	17.1	19.3	0.8	1.0	0.3	0.3	0.7	0.2
SJ1	7.7	6.5	0.6	3.4	3.7	1.4	0.8	0.8	-0.6
SJ2	9.7	7.2	14.1	11.1	9.3	5.7	5.0	2.3	4.8
SJ3	5.4	5.2	8.9	10.2	12.1	9.1	-1.0	0.8	5.7
SK	6.7	7.5	7.1	1.6	1.5	0.3	0.2	0.6	0.2
MFG	5.2	4.3	2.5	–	–	–	–	–	–

[a] Categories in the balance of payments (BOB6): Commercial services (SOX); Manufacturing services on physical inputs owned by others (SA); Maintenance and repair services n.i.e. (SB); Sea transport (SC1); Air transport (SC2); Other modes of transport (SC3); Postal and courier services (SC4); Travel (SD); Construction (SE); Insurance and pension services (SF); Financial services (SG); Charges for the use of intellectual property n.i.e. (SH); Telecommunications services (SI1); Computer services (SI2); Information services (SI3); Research and development services (SJ1); Professional and management consulting services (SJ2); Technical, trade-related, and other business services (SJ3); Personal, cultural, and recreational services (SK), Manufacturing (MFG).

Source: own calculations based on data derived from the World Trade Organisation (2023a). *Commercial services exports by sector and Merchandise exports by product group*. WTO STATS. http://www.wto.org

services imports. Since the DCFTA entered into force, there have been usually no changes in the values of the NRCA and TBI indexes. Thus, it can be said that this impact was neutral. Computer services are an exception, as the value of the NRCA index became positive in 2015. Since then, it has shown an upward trend, reaching its highest values in 2021 and 2022 among service activities with comparative advantages.

Table 3
The values of the normalised RCA (NRCA) index, services exports, Ukraine, 2005–2022

Category[a]	2005	2010	2015	2016	2017	2018	2019	2020	2021	2022
SA	**2.85**	**2.45**	**1.73**	**1.78**	**2.10**	**2.29**	**2.10**	**1.98**	**1.86**	**0.86**
SB	**0.83**	**0.65**	**0.02**	**0.07**	**0.03**	-0.05	-0.07	-0.05	**0.06**	-0.12
SC1	-0.71	-1.32	-0.42	-0.26	-0.54	-0.79	-0.77	-1.10	-1.79	-1.49
SC2	-0.94	-0.10	**0.15**	**0.36**	**0.51**	**0.50**	**0.71**	**0.47**	**0.44**	-0.54
SC3	**10.43**	**11.89**	**6.47**	**6.58**	**6.63**	**5.83**	**5.65**	**5.60**	**3.49**	**2.65**
SC4	**0.19**	**0.44**	**0.09**	**0.07**	**0.08**	**0.13**	**0.10**	**0.16**	**0.13**	-0.07
SD	**1.77**	-1.49	-3.84	-3.80	-3.90	-3.75	-3.96	-2.55	-1.52	-2.42
SE	-0.22	-0.39	0.10	-0.06	-0.32	-0.25	-0.30	-0.35	-0.40	-0.28
SF	-0.85	-1.05	-0.58	-0.61	-0.65	-0.62	-0.62	-0.85	-0.83	-0.55
SG	-3.24	-3.06	-1.91	-2.04	-2.03	-2.02	-2.11	-3.02	-2.92	-1.72
SH	-2.40	-2.52	-1.49	-1.55	-1.65	-1.63	-1.82	-2.12	-2.09	-1.34
SI1	-0.33	-0.24	**0.33**	**0.16**	**0.03**	**0.00**	-0.20	-0.31	-0.26	-0.12
SI2	-1.49	-1.46	**1.57**	**2.16**	**2.63**	**3.18**	**4.20**	**6.11**	**7.63**	**7.87**
SI3	-0.17	-0.14	-0.05	-0.08	-0.12	-0.14	-0.14	-0.16	-0.16	-0.12
SJ1	-0.18	0.07	-0.06	-0.29	-0.36	-0.49	-0.45	-0.72	-0.70	-0.44
SJ2	-2.05	-2.05	-1.01	-1.10	-1.17	-0.94	-1.06	-1.54	-1.46	-1.19
SJ3	-3.00	-1.24	-0.76	-0.88	-0.65	-0.64	-0.65	-0.80	-0.70	-0.24
SK1[a]	-0.28	-0.28	-0.17	-0.17	-0.20	-0.17	-0.19	-0.20	-0.18	-0.16
SK2[a]	-0.17	-0.04	–	-0.11	-0.12	-0.11	-0.12	-0.18	-0.17	-0.12

[a] Categories as in Table 2, data on SK1 (Audiovisual and related services) and SK2 (other personal, cultural, and recreational services) instead of SK.

Source: own calculations based on data derived from the World Trade Organisation (2023a). *Commercial services exports by sector*. WTO STATS. http://www.wto.org

Table 4
The values of TBI index in services trade, Ukraine, 2005–2022

Category[a]	2005	2010	2015	2016	2017	2018	2019	2020	2021	2022
SA	**0.99**	**0.99**	**0.89**	**0.99**	**1**	**1**	**1**	**1**	**0.99**	**0.99**
SB	**0.87**	**0.82**	**0.38**	**0.43**	**0.55**	**0.49**	**0.52**	**0.59**	**0.59**	**0.41**
SC1	**0.45**	**0.12**	**0.29**	**0.23**	**0.16**	-0.05	-0.16	-0.16	-0.38	-0.54
SC2	**0.23**	**0.11**	**0.16**	**0.15**	**0.19**	**0.22**	**0.25**	**0.36**	**0.24**	**0.21**
SC3	**0.38**	**0.42**	**0.6**	**0.63**	**0.64**	**0.65**	**0.67**	**0.68**	**0.58**	**0.49**
SC4	**0.94**	**0.97**	**0.87**	**0.83**	**0.8**	**0.76**	**0.73**	**0.68**	**0.5**	**0.35**
SD	**0.05**	**0.01**	-0.65	-0.69	-0.7	-0.69	-0.68	-0.86	-0.74	-0.92
SE	**-0.04**	**0.23**	**0.89**	**0.61**	**0.24**	**0.48**	**0.21**	**0.23**	**0.04**	**0.29**
SF	-0.65	-0.46	-0.65	-0.6	-0.73	-0.56	-0.65	-0.63	-0.61	0.03
SG	-0.75	-0.39	-0.64	-0.74	-0.6	-0.56	-0.56	-0.66	-0.75	-0.52
SH	-0.9	-0.7	-0.62	-0.66	-0.71	-0.73	-0.76	-0.74	-0.83	-0.67
SI1	**0.12**	**0.41**	**0.18**	**0.35**	**0.31**	**0.38**	**0.13**	**0.13**	**0.04**	**0.05**
SI2	**-0.44**	**0.32**	**0.67**	**0.72**	**0.75**	**0.74**	**0.76**	**0.77**	**0.79**	**0.86**
SI3	-0.82	-0.19	**0.26**	**0.06**	0	-0.08	**0.14**	**0.33**	**0.2**	**0.51**
SJ1	**0.46**	**0.49**	**0.83**	**0.64**	**0.58**	**0.51**	**0.67**	**0.72**	**0.71**	**0.87**
SJ2	-0.45	-0.08	**0.15**	**0.11**	**0.15**	**0.22**	**0.32**	**0.23**	**0.26**	**0.5**
SJ3	-0.23	**0.24**	**0.13**	**0.05**	**0.15**	**0.09**	**0.11**	**0.36**	**0.32**	**0.69**
SK1	-0.54	-0.65	-0.66	-0.59	-0.57	-0.3	-0.2	0	-0.05	0.42
SK2	-0.97	0.08	-0.17	-0.25	-0.39	-0.38	-0.4	-0.43	-0.18	0.35

[a] Categories as in Tables 2 and 3.

Source: own calculations based on data derived from the World Trade Organisation (2023a). *Commercial services exports and imports by sector*. WTO STATS. http://www.wto.org

Based on the values of the NRCA and TBI indexes presented in Tables 3 and 4, we can indicate four groups in Ukrainian services exports: A, B, C and D (Graph 1). Group A includes service industries with both a comparative advantage and export-specialisation; Group B comprises service industries with a comparative advantage but no export-specialisation; Group C consists of service industries with export-specialisation but no comparative advantage; and Group D comprises service industries that have neither a comparative advantage nor export-specialisation. Product mapping was carried out based on the dominant trend in comparative advantage and export specialisation in each service sector, in particular, in recent years.

When considering the contributions of services industries from group A to Ukrainian services exports (Table 2), we can identify the "leading exported services." Among Ukrainian services exports, one category stands out: computer services. They dominated the country's services exports, accounting for 47% of services exports in 2022, compared with 0.4% in 2005. Thus, they can be said to be Ukraine's product in terms of its comparative advantage and trade balance.

Graph 1

Product mapping of services trade categories based on comparative advantage and export specialisation, Ukraine, 2005–2022

Group B Comparative advantage and net importer	Group A Comparative advantage and net exporter SA, SB, SC2, SC3, SC4, SI2
Group D Comparative disadvantage and net importer SC1, SD, SF, SG, SH, SK1, SK2	Group C Comparative disadvantage and net exporter SE, SI1, SI3, SJ1-SJ3

Source: own calculations based on the model proposed by Widodo (2009) and the values of the NRCA and TBI indexes presented in Tables 3 and 4.

Other services from Group A account for the following shares in Ukrainian services exports: other modes of transport (16.4% in 2022, -14.9 pp in 2005–2022), manufacturing services on physical inputs owned by others (6% and -3.7 pp, respectively), air transport (2.7% and -2.9 pp, respectively), maintenance and repair services (0.9% and -2.5 pp, respectively), and postal and courier (0.4% and -0.5 pp, respectively). Manufacturing services on physical inputs and other transport services remained in Group A for the whole examined period.

In contrast, Group D encompasses services such as sea transport, travel, construction, insurance and pension, financial, charges for the use of intellectual property, and personal, cultural, and recreational services. They account for 9% of Ukrainian services exports.

Generally, the higher the comparative advantage of a specific product, the greater the possibility of a country becoming a net exporter (Widodo, 2009). This is demonstrated by the the dominance of Group A (57% of services exports), in particular, computer services. However, the fact that Group C, not D, has the second-highest share in services exports (17.5%) is not in line with this statement.

Group C deserves attention as it includes other business services, an important group of tradable services. Ukraine is a net exporter of these services, which may be the starting point for building comparative advantages in this area. In Ukraine, this group has a lower share in services exports than the EU and world average. However, technical, trade-related, and other business services, as well as professional and management consulting services, are an important part of Ukrainian services exports (9.1% and 5.7%, respectively). A similar situation is observed for telecommunication and information services, although these categories have significantly lower shares in Ukrainian services exports (0.8 and 0.3, respectively). There are no services in Group B, which should not be surprising. If a country has a comparative advantage in the exports of a specific product, it should be a net exporter rather than a net importer.

Table 5
The values of the NRCA and TBI indexes in Ukraine compared to the other largest exporters of computer services with comparative advantages (EU and extra EU) – ranking by the values of the NRCA index, 2022

Country (EU)	NRCA	TBI	Country (extra EU)	NRCA	TBI
Ireland	231.32	0.9	India	84.96	0.73
Finland	11.68	0.41	China[b]	48.41	0.37
Sweden	9.25	0.25	Israel[c]	23.93	0.83
Ukraine	**7.87**	**0.86**	**Ukraine**	**7.87**	**0.86**
Cyprus	4.64	0.19	Belarus[a]	2.85	0.80
Romania	4.05	0.46	Philippines	2.17	0.74
Czech Rep.	2	0.37	Pakistan	2.02	0.7
Poland	1.67	0.25	Serbia	1.83	0.62
Bulgaria	1.04	0.7	Argentina	1.37	0.17
Estonia	0.95	0.32	Sri Lanka	1.01	0.78
Latvia	0.02	0.49	Costa Rica	0.53	0.81

[a] Data from 2021. [b] Data on Telecommunications, computer, and information services. [c] Data from 2020. [d] TBI index calculated based on data from 2021.

Source: own calculations based on data derived from the World Trade Organisation (2023a). *Commercial services exports and imports by sector*. WTO STATS. http://www.wto.org

The product mapping demonstrated that computer services are the leading exported service product for Ukraine. Thus, the country's position in this trade is compared with the positions of EU countries and extra-EU major exporters of computer services with comparative advantages in this field (Table 5). In 2022, Ukraine was ranked fourth for the NRCA, both among EU and extra-EU countries. Ukraine's TBI value was ranked second among EU countries and first among extra-EU countries. Thus, Ukraine has a strong comparative advantage and an even stronger export specialisation in computer services in both the EU and world markets. Finally, it should be noted that the EU is not the main partner for Ukraine in the computer services trade. In 2021, 19.6% of its computer services exports went to the USA, 17.7% to the EU, 7% to Great Britain and 3.3% to Israel. As far as imports are concerned, the EU is Ukraine's main partner, as 40% of its computer services imports come from the EU, 7.6% from Great Britain, 5.5% from Switzerland, 5.4% from the USA and 4.9% from China.

5. DETERMINANTS OF COMPETITIVENESS IN THE EXPORT OF COMPUTER SERVICES

Malik and Velan (2020) found that external demand had the most significant impact on IT software and services exports in India (which is the world's largest IT sector) between 1980 and 2017, followed by the exchange rate, human capital and the openness index. To achieve sustainable IT export growth, government policies should be directed at enhancing the performance of IT exports, considering the long-run behaviour of these determinants.

Research by the World Bank (Goswami et al., 2012) in several developing countries that are successful exporters of services led to the conclusion that service performance critically depends on low-paid workforces that have the relevant skills (human capital), the quality of telecom networks, and institutions for cross-border services. The skills needed in software and BPO services are, first and foremost, proficiency in English, high literacy, and sufficient training in the use of digital technologies. What may advance the comparative advantage for these services is government interventions (e.g. policies to liberalise services trade), public and private support for physical, technology, and education infrastructure, as well as fiscal incentives for services investment.

Among these determinants, external demand (examined in Section 4), openness, institutions, government policy and the exchange rate positively affect Ukraine's competitiveness in the exports of computer services. The country adopted a very liberal approach to trade in services under WTO regulations, and the DCFTA's entry into force further increased this openness in trade with EU countries. The DCFTA also contributes to the improvement of institutions, as does the development of the Diia (Дія, an acronym for Держава і Я, "The State and Me") online platform, which enables online administrative services, among others, thus reducing corruption and the tax gap.

Government policy contributes to the ICT sector's development, mainly through supporting digitisation and digital skills development, as well as through tax exemptions for the IT sector. Progress in digitalisation is mainly achieved thanks to the development of Diia, which consists of different components (Diia for Administrative Services, Diia City, Diia Business, and Diia Education). Thus, Diia can be said to be Ukrainian know-how (Hatanpää, 2023). Digitalisation in Ukraine is supported by the EU resources available within the project EU4DigitalUA (20.5 million euros between 2020 and 2024) (https://eu4digitalua.eu/en/about-2/). The development of digital skills is carried out through the European Digital Competence Framework for Citizens in Ukraine, Diia Digital Education, and the Digital Skills Hubs.

In 2012, a ten-year VAT exemption for IT production was introduced as a tax relief, which helped in the development of Ukrainian start-ups (e.g. Grammarly and GlobalLogic). It also helped attract foreign investors and contractors and allowed companies to expand beyond the domestic market. As a result, the largest Ukrainian companies (i.e. Eram, SoftServe, and GlobalLogic) have established a presence in Western Europe, Asia and South America, each employing several thousand people (Kirilenko & Tyshchuk, 2018).

In 2022, the tax relief for IT production expired, and it was replaced by the Diia City Project. Diia City is a unique legal framework for the IT industry that aims to create the most powerful IT hub in Central and Eastern Europe. It offers Ukrainian and foreign companies equal access to favourable tax conditions, combined with more flexible employment

regulations and better IP rights protection. Diia City is complemented by Diia Business, which aims to increase national exports, support enterprises entering new markets, and help foreign companies import goods and services from Ukraine and build partnerships (https://city.diia.gov.ua/; ITU, 2021; Hatanpää, 2023). They are currently seen as an opportunity to attract international IT companies such as Google, Amazon and Apple to Ukraine and prevent brain drain by creating favourable conditions for the employment of IT specialists (ITU, 2021). The examples of other leading exporters of computer services (e.g. Ireland) also show that tax reliefs positively affect export competitiveness and attract foreign investors in this area (Wyszkowska-Kuna, 2023).

Finally, the depreciation of the Ukrainian currency also positively contributed to Ukraine's export competitiveness. The UAH was stable at the beginning of the 21st century (1 USD = 5 UAH); however, between 2009 and 2013, it lost its value (1 USD = 8 UAH). After Russia's invasion in 2014, the exchange rate collapsed, peaking at 1 USD against 27 UAH. Recent years have seen fluctuations between 24 and 28 UAH, but Russia's second invasion saw a new low (1 USD = 30 UAH in June 2022). It has remained at about 40 UAH recently. Similar trends can be observed in the exchange rate against the EUR (https://pl.investing.com/currencies).

Other positive determinants of Ukraine's competitiveness in the exports of computer services include the following: (1) Flexibility in employment: The self-employed account for about 88% of Ukraine's IT staff (Bartman, 2023); (2) Demographics: Ukraine has a young workforce and a large proportion of women among ICT specialists (Hatanpää, 2023); (3) Earnings: In December 2023, monthly gross salaries in Ukraine's IT sector ranged from 232 to 1269 EUR, compared to 191–626 EUR in the Ukrainian economy (https://www.paylab; Hatanpää, 2023); (4) Cost advantage: Salaries in Ukraine's IT sector are 4–9 times lower than in Poland and 5–13 times lower than in Ireland (https://www.pensjometr.pl, https://www.paylab.com); (5) Exemption from mobilisation: Since February 2023, IT sector companies and their employees have been exempt from mobilisation to the armed forces of Ukraine because of the sector's role in the Ukrainian economy (however, this only applies to full-time employees, not to the self-employed) (Bartman, 2023); (6) Time zone advantage: A small time difference gives Ukrainian services companies an advantage over their Asian counterparts, but only when cooperating with European partners.

However, there are several factors that should be improved, including human capital, which includes knowledge of English and communication infrastructure. In 2020, the human capital index for Ukraine reached 0.63 (scale 0–1), compared to 0.75 in Poland and 0.79 in Ireland (World Bank, 2023). In 2023, based on the EF English Proficiency Index (Education First, 2023), Ukraine is ranked 45th of 113 countries (by comparison, Poland is ranked 13th). Additionally, in 2021, the number of broadband fixed subscriptions per 100 people in Ukraine was less than half the EU average (18.3 and 39, respectively). In 2020, the number of secure internet servers per 1 million people in Ukraine was 5.6 times lower than the EU average (8,952.5 and 50,265.6, respectively) (World Bank, 2023).

The war in Ukraine caused the migration of IT employees, mainly women. Additionally, the majority of IT companies have relocated, mainly to European countries, including Poland. The war has also raised concerns about investing in Ukraine. Meanwhile, infrastructure has been destroyed, and there is a lack of funds for investment.

Important information on the determinants of Ukraine's IT competitiveness can be found in the Network Readiness Index (NRI). Based on NRI 2023, Ukraine is ranked 43rd out of 134 countries, which is an outstanding result for a lower middle-income economy (the highest in this group). However, the data might be lagging for this particular case (Dutta & Lanvin, 2023, p. 54). Poland is ranked 34th, and four EU countries were ranked lower than Ukraine: Greece (49th), Croatia (50th), Romania (52nd), and Bulgaria (53rd). India, which is also a lower-income country and the leader in computer services exports, ranked 60th.

Ukraine reached the highest rank in the People category (25th) by excelling in the adoption of digital technologies by individuals (2nd), high rates of adult literacy (1st), the integration of ICT skills into the education system (16th), and strong tertiary education enrolment (21st). Ukraine also leads in areas such as Internet access in schools (1st), low income inequality (3rd), and substantial computer software spending (4th). Moreover, Ukraine achieves high performance in other relevant areas, including ICT services exports (6th), fiber-to-the-home/building Internet subscriptions (11th), and mobile app development (14th). However, there is potential for improvement in the dimensions related to Governance (58th) and the Impact of digital technologies (54th) (Dutta & Lanvin, 2023).

6. CONCLUSIONS AND THE PROSPECTS FOR UKRAINE'S COMPETITIVENESS IN SERVICES TRADE

Thanks to the development of GVCs, more developing countries have been able to expand their services exports. However, neither the share of services in Ukraine's exports nor the involvement of Ukrainian service companies in GVCs increased between 2005 and 2022. By contrast, the structure of Ukrainian services exports changed significantly in this period. In 2005, it was strongly dominated by transport and travel (46% and 31% of services exports, respectively), whereas in 2022, it was dominated by computer services, which had increased their share in services exports from 0.4% to 47%.

The fact that services have not increased their shares in Ukraine's exports may come as a surprise, especially since the DCFTA entered into force. The DCFTA aims at comprehensive and detailed liberalisation of EU–Ukraine service trade across all service delivery modes under the national treatment clause. However, this agreement is overshadowed by its asymmetrical liberalisation. Ukraine only has a limited number of reservations or unbound service sectors in its list thanks to its liberal approach to the GATS agreement. By contrast, the EU has numerous reservations, particularly in business services. EU–Ukraine services trade relationships are also asymmetrical. While the EU is Ukraine's largest trading partner, Ukraine is a marginal trading partner for the EU.

The entry into force of the DCFTA has had a positive influence on Ukraine's export competitiveness only in the case of computer services. Ukraine has had a comparative advantage in their exports since 2015, with a strong upward trend; it has achieved its highest values of the NRCA index since 2021. The EU's very limited reservations (only two) with regard to communication services have certainly helped Ukraine build its comparative advantage in this area, although the EU is the second largest importer of computer services from Ukraine (after the US).

Product mapping revealed that computer services are the leading exported services, demonstrating the best comparative advantage, trade balance and a substantial share in services exports. The sevenfold higher ratio of exports to output compared to the ratio of imported inputs to output in this sector underscores that this export success is driven by Ukrainian computer companies, not international companies that entered Ukraine. Comparisons with the export performance of other major exporters of computer services indicate that Ukraine has a very strong position. Manufacturing services on physical inputs owned by others and other modes of transport are also leading exported services, enjoying comparative advantages and trade surplus for the whole examined period, although their shares in services exports were significantly lower (6% and 16%, respectively). Technical, trade-related, and other business services, as well as Professional and management consulting services, have the potential to gain a competitive advantage, as Ukraine is their net exporter, and they account for 9.1% and 5.7% of Ukraine's services exports, respectively. Reducing the number of EU reservations (currently 79) in this area would certainly help Ukraine in this process.

Several factors positively determine Ukraine's competitiveness in the exports of computer services. They include the following: external demand; openness; institutions; government digitalisation policy (i.e. the Diia online platform), digital skills development and tax incentives for the IT sector; the UAH exchange rate; flexible employment, a young workforce and a relatively high proportion of women among IT specialists; and relatively high earnings compared to other sectors of the Ukrainian economy, but significantly lower compared to the EU. Factors that should be improved include human capital, in particular, knowledge of English and communication infrastructure.

Finally, the prospects for Ukraine's competitiveness in services trade should be discussed. Ukraine has problems transporting goods, whereas most intermediate services can be delivered remotely. Of course, to provide services, the country also needs communication infrastructure. It was not highly developed before the outbreak of the war, and now the situation has worsened because part of the infrastructure has been destroyed in the war. However, it requires less time and financial resources to rebuild communication infrastructure than destroyed industrial plants or transport infrastructure. Moreover, alternative communication systems can be used (e.g. Starlink).

The services sector will likely play a key role in Ukraine's post-war reconstruction for other reasons as well. First, most service activities are characterised by relatively low market entry and exit costs compared to industrial activities. This characteristic makes them conducive to hosting large numbers of micro, small and medium-sized enterprises (MSMEs), and they usually need finance less than manufacturing activities (Borchert & Mattoo, 2010); thus, it will be easier to restore them after the war.

Second, the services sector employs more women than other sectors. In 2021, on average, 59% of women globally were employed in the service sector, whereas Ukraine's service sector boasted an employment rate of 74% for women and 48.8% for men (World Bank, 2024b). The war means that the country's labour force consists of a larger proportion of women, who can find employment in services more easily. By its very nature, the services trade can be instrumental in efforts to provide increased opportunities to women and MSMEs.

Third, the war also drives technological progress, especially in the IT sector, which may strengthen Ukraine's advantage in this area. Ukrainian IT companies, which generally specialise skills in cloud computing, artificial intelligence and big data (Hatanpää, 2023),

are positioned to strengthen their comparative advantage in these fields. Additionally, the technological progress stimulated by the war may also strengthen the country's comparative advantage in this area and create opportunities to obtain a comparative advantage in new areas of value added services. For example, during the war, it is crucial to maintain communication, which may have a positive impact on technological progress in the development of alternative sources of communication. Ukraine's IT sector has introduced innovative measures to support its military forces, (e.g. the JeWoroh chatbot, which is part of Diia, enabling citizens to provide intelligence information to Ukraine's military forces (Wittenberg, 2023)). Ukrainian IT specialists are operating in a crisis; they must respond to the constantly changing situation, and they participate in online warfare (e.g. IT Army of Ukraine, https://itarmy.com.ua/). Another example is the BRAVE1 initiative, a tech cluster whose main goal is to create a fast track for innovation in the defence and security sectors (Fedorov, 2023). These factors stimulate technological progress in this area, and a large demand for their experience and knowledge is expected. Thus, Ukraine has the potential to emerge as the most modern and advanced country in digital transformation and services.

On the other hand, services trade in Ukraine, including computer services, also face problems such as the outflow of employees, higher costs of maintaining current employees and hiring new ones, investment risk and expensive loans. There are also potential technical problems, such as interruptions in access to the IT network and electricity caused by the Russian attacks. Ukraine's IT sector will also be influenced by global trends, such as the falling demand for communication technologies after the end of the COVID-19 pandemic and the development of artificial intelligence. If there is a ceasefire instead of lasting peace, we should not expect a massive inflow of foreign investments, especially to areas located close to the Russian border or the front line (which is, in fact, almost half of the country).

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