KSE | Institute

Ministry for Development of Communities and Territories of Ukraine

# REPORT ON LOSSES AS A RESULT OF RUSSIA'S MILITARY AGGRESSION AGAINST UKRAINE THROUGH END-2026


**Authors:**

Dmytro Andrienko, Dmytro Goriunov, Taras Marshalok, Roman Neyter, Igor Piddubnyi, Inna Studennikova, Dmytro Topolskov


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# PREFACE

**Losses are changes in economic flows as a result of Russia's full-scale invasion of Ukraine.** They include loss of income in various sectors of the economy and additional costs associated with the war (for example, dismantling of destroyed objects and waste removal, demining, additional social benefits, etc.).

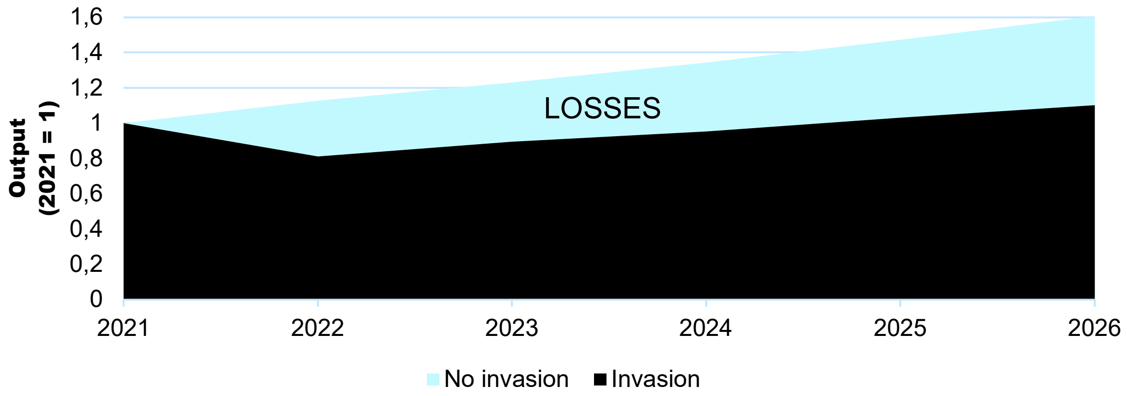
**The report covers the period from February 2022 to December 2025 (actual losses) and the period up to and including the end of 2026.** The division into actual and projected losses is artificial, since the latest data on the financial performance of companies is available only for 2024.

**The assessment of losses was carried out by the analytical team of the Kyiv School of Economics (KSE)** together with the Ministry for Development of Communities and Territories of Ukraine and in cooperation with other relevant ministries and the National Bank of Ukraine (NBU). The overall damage assessment was carried out in accordance with the World Bank (WB) methodology.

**The evaluation methodology has changed compared to the previous release.**

1) We removed sector/region aggregation. Now losses of every company are calculated independently, and negative losses (i.e. gains) were converted to zero during further aggregation. This increases losses significantly, because some large companies demonstrated strong performance, despite the invasion.
2) Financial reports for 2024 were added.
3) Missed values for companies were imputed.
4) We used updated statistics to convert revenues to value added.

**Graph 1.** Loss calculation model.




***Source:*** *IMF, Ukrstat, KSE calculations.*

# KEY RESULTS

**Since the beginning of the full-scale invasion, the total amount of losses that have been and will be inflicted on Ukraine is estimated at $1.7 trillion (revenue) or $0.6 trillion (value added).** Significant increase compared to the previous report is due to mentioned change in methodology and the increase in the assessment period (from 46 to 58 months). Value added are more than trice Ukraine's GDP in 2021.

**In terms of revenue, the largest amounts of losses are in productive sectors.** These are commerce ($696 billion), industry along with construction and services ($646 billion), and agriculture ($82 billion). The main infrastructure sectors — energy and transport — also suffered heavy losses ($75 billion and $60 billion, respectively).

**In terms of additional costs, the largest groups are the housing sector and demining ($27 billion and $25 billion, respectively).** In the housing, it is mainly additional expenses of citizens for renting, which we consider losses, although technically this means a redistribution of income among Ukrainian citizens. In addition, state spending on social benefits has increased and will increase significantly (by $7.5 billion). In all sectors combined, the dismantling of destroyed facilities and waste disposal accounts for $13 billion.

**Table 1.** Estimation of losses by sector.

| Sector | Loss estimation, $ billion, by method | |
|---|---|---|
| | Revenue | Value added ↓ |
| Industry, construction, and services | 645.6 | 249.0 |
| Commerce | 696.3 | 161.8 |
| Agriculture | 81.9 | 33.5 |
| Transport | 60.2 | 32.4 |
| Housing | 26.8 | 26.8 |
| Demining | 24.6 | 24.6 |
| Energy | 75.3 | 15.1 |
| Digital | 23.7 | 13.2 |
| Healthcare | 15.5 | 11.2 |
| Education | 17.7 | 10.6 |
| Social protection | 7.5 | 7.5 |
| Utilities | 10.5 | 5.4 |
| Culture | 10.2 | 4.0 |
| Finance | 3.3 | 3.3 |
| **TOTAL** | **1 699.3** | **598.7** |

***Source:*** *Kyiv School of Economics.*

# 01

# SOCIAL SECTOR

# Housing

**Active shelling of cities with missiles and artillery is part of Russia's combat tactics.** This leads to significant destruction of the housing stock in cities and towns, especially those located near the front line. As a result of the hostilities of the Russian Federation, more than 50% of the housing stock in a significant number of cities and towns was damaged or destroyed.

**The housing stock of such cities as Mariupol, Kharkiv, Chernihiv, Severodonetsk, Rubizhne, Bakhmut, Maryinka, Lysychansk, Popasna, Izyum and Volnovakha suffered the greatest destruction.** For example, according to preliminary estimates, 90% of the housing stock in Sievierodonetsk has been damaged, cities such as Bakhmut and Maryinka have almost no intact buildings. At the same time, the number of damaged residential buildings (both multi-story and individual buildings) is increasing due to the continuation of active hostilities in the territories of Kharkiv, Luhansk, Donetsk, Zaporizhzhia, Kherson regions and the temporary occupation of part of the territory of Ukraine, as well as throughout the rest of the country due to regular attacks by missiles and drones.

**As a result, losses in housing amount to $26.8 billion.** This amount includes an increase in expenditures to support the industry, additional costs of citizens for renting housing, as well as the cost of dismantling and removal of construction waste.

**Table 2.** Housing losses estimation.

| Types of losses | Estimated losses, $ billion |
|---|---|
| Additional rental costs | 19.448 |
| Costs for dismantling and removal of construction waste | 6.074 |
| Growth in public expenditures to support the industry | 1.252 |
| **Total sector losses** | **26.774** |

***Source:*** *Data from regional military administrations, calculations by the Ministry of Restoration and Kyiv School of Economics.*

# Healthcare

**Losses to the healthcare sector amount to $15.5 billion.** This amount consists mainly of the lost income of medical institutions, taking into account the suspension of activities due to security risks and the departure of some recipients of medical services outside Ukraine. Income means both budget expenditures on health care and revenue (both state/municipal and private institutions).

**19 regions of Ukraine suffered damages to health care facilities,** the largest were in Donetsk, Kharkiv, Mykolaiv, Luhansk and Zaporizhzhia regions. The main losses relate to institutions such as hospitals and clinics.

**Table 3.** Healthcare losses estimation.

| Types of losses | Estimated losses, $ billion |
|---|---|
| Decrease in sector income (revenues) | 15.127 |
| Costs of dismantling and removal of construction waste | 0.351 |
| **Total sector losses** | **15.478** |

***Source:*** *Kyiv School of Economics.*

## Education and science

**The education sector is one of the most affected sectors because of the war in terms of the number of destroyed, damaged and lost infrastructure.** In total, 3.8 thousand educational institutions were destroyed and damaged as a result of hostilities. The main losses relate to secondary, preschool and vocational education institutions due to their prevalence and attractiveness for use in hostilities by the aggressor's manpower. Even though active hostilities were carried out in 11 regions, educational institutions were damaged in 21 regions of Ukraine. The greatest losses from the destruction and damage to educational institutions are in Donetsk, Kharkiv, Kherson, Mykolaiv and Luhansk regions.

**As a result of the destruction, as well as due to the security situation, in many regions the educational process was stopped,** either altogether, or for a long time, or with long breaks. This forced the state to reduce spending on education from the state and local budgets. The demand for private educational services has also decreased.

**The estimated losses of the education sector are $17.7 billion.** This amount consists of the lost income of private educational institutions, considering the suspension of activities due to security risks and the departure of some recipients of educational services outside Ukraine; as well as reducing budget expenditures on education and science.

**Table 4.** Education and science loss assessment.

| Types of losses | Estimated losses, $ billion |
|---|---|
| Reduction of planned budget expenditures | 15.951 |
| Decrease in private sector income (revenues) | 1.086 |
| Costs of dismantling and removal of construction waste | 0.704 |
| **Total sector losses** | **17.741** |

***Source:*** *Kyiv School of Economics.*

## Social protection

**Indirect losses that have already been caused and will be caused to the social sector amount to $7.5 billion.** They include Ukraine's additional expenditures on social assistance payments to the population and financing of additional social services aimed at overcoming the consequences of Russia's military aggression.

**Table 5.** Social protection losses assessment.

| Types of losses | Estimated losses, $ billion |
|---|---|
| Payments of social assistance for the accommodation of IDPs | 7.038 |
| Rental subsidy and compensation for IDPs | 0.540 |
| Rehabilitation of persons and children with disabilities, prosthetics and compensation of costs for rehabilitation aids | 0.420 |
| Payment of assistance to injured critical infrastructure workers due to Russian aggression | 0.050 |
| Social services for the military and their families, IDPs of the elderly and persons with disabilities | 0.050 |
| Other payment categories | 0.060 |
| Costs of dismantling and removal of construction waste | 0.021 |
| **Total sector losses** | **7.530** |

***Source:*** *Ministry of Social Policy of Ukraine.*

## Culture, sport, and tourism

**Since the beginning of the large-scale invasion, the cultural sector has suffered the greatest damages in the history of independent Ukraine.** For every country, culture is the basis of self-determination of every citizen, the destruction of cultural objects, such as museums, historical buildings, monuments and works of art of prominent people, is a very painful blow for Ukrainians, because with the destruction of each cultural object, a part of the history of Ukraine and the Ukrainian people is lost.

**Due to the high intensity of hostilities in the east and south of Ukraine, as well as regular rocket attacks throughout its territory, most cultural and sports institutions have stopped working or significantly reduced its activities.** As a result, 12.5 million residents of at least 6 regions of the country (Donetsk, Zaporizhzhia, Luhansk, Mykolaiv, Kharkiv, Kherson regions) lost access to services, another 13 million people from 7 regions are limited in receiving them.

**According to the registers of national cultural heritage, there are about 15.5 thousand objects of cultural heritage in Ukraine,** of which about 1.2 thousand are objects of national importance and 14.3 thousand are of local importance. These objects are sorted into eight types: historical, architectural, archaeological monuments, landscape, objects of monumental art, objects of urban planning/urban planning, objects of landscape art and objects of science and technology.

**The total losses in culture, tourism and sports are almost $10.2 billion (lost revenue) or $4 billion (lost added value).**

**Culture and tourism are dependent on each other.** The accumulation of cultural heritage sites and cultural institutions that combine cognitive/educational and entertainment functions in their activities creates tourist attraction for such places, which is why cultural and tourist zones are formed. Such zones suffer the greatest losses, since the destruction and damage to cultural objects leads to large losses not only in the cultural sphere itself, but also in the losses of the tourism sector. It also works the other way around. Accordingly, this affects indirect economic losses due to the destruction of the most attractive cultural and tourist sites, the migration of the cultural union and the lack of domestic and foreign tourists.

**The loss of cultural and tourist sites leads to partial losses of cultural and tourist value of certain regions, due to which they may lose economic and financial support in the future.** The migration of representatives of professional communities is also a very important factor in indirect losses, since culture is formed thanks to the people who are engaged in it. The migration of a large number of troupes, choirs and ensembles, even within Ukraine, can contribute to the imbalance of the financial situation within the country towards more "safe" regions.

**Tourism in Ukraine is currently losing a very significant amount of money.** First of all, this is due to a decrease in the total number of tourists. Ukraine is currently left almost without foreign tourists, who numbered about 4 million people in 2020. The situation with domestic tourism is somewhat better, since due to the ban on traveling abroad for men of military age, the demand for recreation is satisfied within the country. In any case, due to active hostilities, threats of missile strikes and mined tourist areas, 13 out of 24 regions were left without tourism completely (100% of tourism enterprises stopped their work) or partially (50% of tourism enterprises stopped their work).

**Table 6.** Assessment of losses in culture, sports and tourism.

| Types of losses | Estimated losses, $ billion, by method | |
|---|---|---|
| | **Revenue** | **Value added** |
| Decrease in income (restaurant) | 2.672 | 0.997 |
| Decrease in income (hotels) | 1.926 | 0.719 |
| Decrease in income (film production and screening) | 1.795 | 0.670 |
| Decrease in income (publishing) | 1.468 | 0.548 |
| Decrease in income (culture) | 0.687 | 0.256 |
| Decrease in income (tourism) | 0.631 | 0.235 |
| Decrease in income (sports) | 0.481 | 0.179 |
| Decrease in income (entertainment) | 0.194 | 0.072 |
| Costs of dismantling and removal of construction waste | 0.339 | 0.339 |
| **Total sector losses** | **10.193** | **4.015** |

***Source:*** *Kyiv School of Economics.*

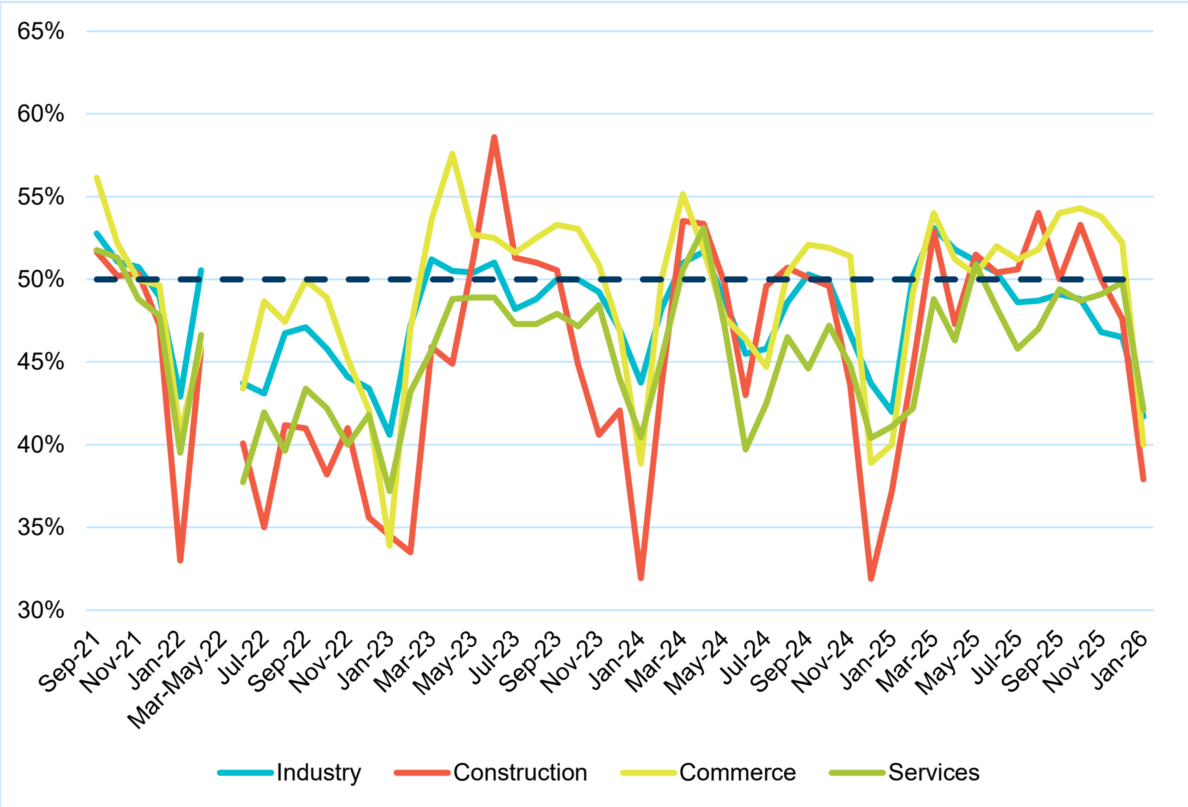
# 02

# PRODUCTIVE SECTOR

## Industry, construction, and services

**Ukrainian industry, as well as the construction sector and services, have been hit hard by the full-scale invasion.** Many assets were destroyed or partially damaged due to missile or drone strikes. Export-oriented industries have not always been able to supply their products abroad due to logistical problems. Local demand declined due to emigration, falling incomes, and consumer sentiment. Due to emigration and mobilization, the number of employees has decreased. Over time, interruptions in the supply of electricity were added to this. For a long time, there were almost no orders for construction due to a significant reduction in investment demand.

**Graph 2.** Business Activity Expectations Index.




**Source:** *National Bank of Ukraine.*

**The total losses of enterprises are estimated at almost $645.6 billion (revenue) or $249.1 billion (value added).** This is the largest losses among all sectors (in terms of value added) and the second largest (in terms of revenue). Losses include the loss of income of enterprises, both destroyed or damaged, and all others, whose revenues have decreased due to problems with logistics, reduced demand, outflow of employees, etc. On the contrary, the incomes of some industries and enterprises (primarily suppliers of the Armed Forces of Ukraine — manufacturers of weapons, ammunition and uniforms, food suppliers) increased; Without this effect, the casualty estimate would be even higher.

**Table 7.** Assessment of losses of industry, construction and services.

| Types of losses | Estimated losses, $ billion, by method | |
|---|---|---|
| | Revenue | Value added |
| Decrease in income (industry) | 473.280 | 192.302 |
| Decrease in income (services) | 84.205 | 27.544 |
| Decrease in income (construction) | 86.685 | 27.802 |
| Costs of dismantling and removal of construction waste | 1.423 | 1.423 |
| **Total sector losses** | **645.593** | **249.071** |

***Source:*** *Ukrstat, Kyiv School of Economics.*

## Commerce

**Losses of wholesale and retail trade reached $450.2 billion (revenue) or $74.1 billion (value added).** This puts commerce in first or second place in terms of indirect losses, depending on the indicator. Since the beginning of the full-scale invasion, Ukraine's trade sector has undergone significant changes that have a long-term impact on the market structure, consumer behavior and retail chains.

For the first year of the full-scale war, retailers were counting damages. This is due to the shock at the beginning of hostilities, for which business was mostly unprepared, with the rapid change of the front line, with active hostilities and the looting of warehouses and retail outlets. Many real estate assets, including commerce related, remained in the occupied territories. Later, trade had not suffered such damages as at the beginning of the war.

The commerce is now showing signs of recovery. After a drop in retail turnover in 2022, it further resumed growth: in 2023 – 132.9% to last year's volume, in 2024 – 117.1% and for 9 months of 2025 – 120.9% to the volume of the first 9 months of last year (this is more than inflation).

**The number of outlets is growing.** According to the Ukrainian Association of Retailers, in 2024, the number of outlets for its member companies increased by 10.7%, and in the first 9 months of 2025 — by another 4.9%. There is a significant increase in fashion chains of Ukrainian brands, which became a trend during the war. The same trend is observed in the market of shopping centers. In 2025, nine facilities with an area of more than 150 thousand square meters were opened, which increased the retail area of the shopping center by 3%. In 2026, it is planned to open another 21 facilities, the leased area of which reaches 431 thousand square meters. sq. m. m.

**Operating indicators of the market are gradually stabilizing and growing.** Attendance at retail establishments, their occupancy rate and rental rates for vacant lots increase. The Retail Well-Being Index, calculated by the Ukrainian Council of Shopping Centers based on these indicators, in the second half of 2024 showed the highest value since the beginning of the full-scale war, in 2025 the index decreased slightly.

**Nevertheless, the industry is suffering losses.** Significant external migration causes an outflow of customers. Now many Ukrainians increase the trade turnover of the host countries, and not Ukrainian retail chains.

**The destroyed retail facilities are also unable to conduct operational activities.** Where there was such an opportunity, business restored them. But in some territories the security situation does not allow this. The largest shopping centers that can be attributed to this category are Fabrika (Kherson) and Caravan (Kharkiv), the retail area of which together exceeds 125 thousand square meters.

**Some undestroyed retail facilities decided not to resume trade until the security situation improved.** As an example, Kharkiv shopping centers Ave Plaza and TSUM. This also applies to such retail chains as H&M and Inditex stores (Zara, Pull&Bear, Massimo Dutti, Bershka, Stradivarius, Oysho) in Kharkiv. The delay is associated with migration, danger, difficulties with lending due to a decrease in the capitalization of retail chains, requirements for shelter for visitors (which significantly increases the cost of construction), etc.

**There is a shortage of labor.** First, this applies to frontline areas and professions where male sellers of military age work (sale of household appliances, DIY goods, etc.). Delays in construction in the western regions are caused by this factor, too.

**Frequent air raids interfere with the normal operation of retail outlets.** According to the Ukrainian Council of Shopping Centers, in 2025, each shopping center was idle due to air raids for 32 working days, a total of 128 working days since the beginning of the full-scale invasion. However, not all stores stop working. Some shopping centers centrally close their doors and force tenants to do so. But even when stores are open, the alarm factor negatively affects the purchasing behavior of visitors.

**Table 8.** Commerce losses assessment.

| **Types of losses** | **Estimated losses, $ billion, by method** | |
|---|---|---|
| | **Revenue** | **Value added** |
| Decrease in income (wholesale trade) | 545,275 | 128,367 |
| Decrease in income (retail trade) | 150,765 | 33,086 |
| Costs of dismantling and removal of construction waste | 0,308 | 0,308 |
| **Total sector losses** | **696,348** | **161,761** |

***Source:*** *Ukrstat, Kyiv School of Economics.*

## Agriculture

**Losses of agriculture are estimated at $81.9 billion (revenues) and $33.5 billion (value added).** This includes losses of crop production, animal husbandry, losses of producers due to export disruptions, as well as losses due to rising production costs and losses due to the need for reclamation. These losses are estimated by indirect methods by combining state, regional statistics, as well as data from a survey of agricultural producers conducted in 2022.

**Compared to previous estimates, revenue loss decreased by $1 billion**, despite longer assessment period and additional costs for companies.

**The main reason is a change in assumptions about the assessment of losses in crop and livestock production.** In the previous version of the estimate, we attributed 70% of yield losses to the consequences of the war — due to the limited availability of factors of production and the increase in their cost. In 2024, the situation with access to production factors improved, and the main factor in the decline in yields, compared to the pre-war level, was weather conditions, rather than factors caused by the war. Therefore, only 30% of the decline in yields in calendar years 2024 and 2025 was attributed to losses, which led to a decrease in estimated losses for these years.

**The second reason for the decrease in estimated losses was the adjustment of the assumption for a decrease in productivity in animal husbandry.** This assumption was based on the results of a survey of agricultural producers but was not confirmed by the actual indicators of livestock production published by the State Statistics Service of Ukraine. Therefore, in this version of the estimates, losses associated with reduced productivity in livestock production were removed from the analysis.

**The largest share of losses was caused by a decrease in crop production.** The total indirect losses due to the reduction in crop production amount to $46.5 billion and correspond to a decrease in production during four cycles of annual crops (in 2022-2026 calendar years). Crop production decreased both due to a decrease in sown areas and due to a change in production technology, which leads to a drop in the yield of major crops.

**The second largest category is losses due to export disruption.** Losses due to export disruptions are estimated at $24.8 billion. The naval blockade imposed by the Russian Federation at the beginning of the invasion, and subsequently the limited functioning of the so-called grain corridor, led to an increase in logistics costs, which led to a decrease in domestic prices for the main export-oriented products of the agricultural sector. Despite the resumption of sea transportation with the opening of a full-fledged Ukrainian sea corridor, the freight price in such transportation significantly exceeds the prices before the full-scale invasion, which is all a factor of pressure on the price of basic agricultural products. Given the improvement in the situation observed in 2024-2025, we assume that the reduced prices for basic agricultural products had an impact on the harvests of the 2022-2023 calendar years, on the carry-over balances of 2022, but will not have an impact on the harvest of the 2024 and next calendar years.

**Table 9.** Agriculture losses assessment.

| Types of losses | Estimated losses, $ billion, by method | |
|---|---|---|
| | **Revenue** | **Value added** |
| Decrease in income due to reduced production (crop production) | 47.180 | 19.170 |
| Decrease in income due to reduced production (livestock, beekeeping, fisheries and aquaculture) | 4.611 | 1.874 |
| Decrease in income due to disruption of logistics and lower domestic prices for major export crops | 24.783 | 10.070 |
| Decrease in producers' profits due to rising prices for basic factors of production | 4.533 | 1.842 |
| Additional costs due to the need for reclamation | 0.533 | 0.217 |
| Costs of dismantling and removal of construction waste | 0.289 | 0.289 |
| **Total sector losses** | **81.929** | **33.461** |

***Source:*** *Ukrstat, Kyiv School of Economics.*

## Finance

**The full-scale war has had a very strong impact on the financial sector, primarily on its main component, banks.** They have been impacted both directly and through problems with their clients' (especially borrowers') businesses.

**Banks' losses are estimated at $3.3 billion.** First, we mean credit risks. According to NBU estimates, as of December 2025[1], losses of the loan portfolio due to collateral damage and deterioration of borrowers' financial condition may amount to up to 15% of the net loan portfolio as of February 2022, or $2.9 billion (the previous estimate made in June 2023 was more pessimistic — 30%, later it was revised to 20%). Operational risk (expenses and lost revenues) is estimated at UAH 16.4 billion ($448 million). Its growth has slowed down; in 2024, these losses were UAH 1.4 billion, while in 2022 they amounted to UAH 6 billion.

**Table 10.** Banks' losses assessment.

| Types of losses | Estimated losses, $ billion |
|---|---|
| Losses from the realization of credit risks | 2.896 |
| Losses from the realization of operational risks | 0.448 |
| **Total sector losses** | **3.344** |

***Source:*** *National Bank of Ukraine.*

[1] Financial Stability Report, December 2025 https://bank.gov.ua/admin_uploads/article/FSR_2025-H2.pdf?v=16

# 03

# INFRASTRUCTURE

## Transport infrastructure

**Infrastructure facilities have become one of the key areas that have suffered the greatest attacks from the aggressor.** In particular, in the first weeks of the war, Russian troops carried out massive shelling of aviation infrastructure, primarily airfields not only for military, but also for civilian and military-civilian (dual) purposes. Subsequently, the targets of active attacks were railway infrastructure facilities.

**The total amount of losses in the transport sector is estimated at $60.2 billion (revenue) or $30.4 billion (added value).** This amount includes shortfalls in revenues by enterprises in the sector, costs of dismantling destroyed facilities, economic costs, reduction of road construction costs, economic costs associated with the implementation of civilian and military tasks, etc.

**Since the beginning of the war, Ukrainian railway has demonstrated its role as a critical infrastructure facility,** taking the brunt of the free evacuation of millions of Ukrainian citizens (as well as a lot of businesses) who found themselves in the war zone, as well as the delivery of critical materials and equipment to these regions. In response, Ukrainian railway became an active target for Russian shelling and attacks. As a result, the railway infrastructure suffered considerable losses, mainly consisting of the lost income of Ukrzaliznytsia.

**The aviation sector began to suffer losses from military aggression even before it actually began.** After all, on February 12, 2022, global insurance companies notified Ukrainian carriers about the termination of aircraft insurance due to the high threat of invasion from Russia. This led to the risk of cancellation of flights of international air carriers to Ukraine, as a result of which the state expressed its readiness to support air carriers by providing additional financial guarantees to support the aviation market.

**With the outbreak of hostilities, the airspace over Ukraine was instantly closed, and air traffic was suspended.** At the same time, Russian troops began active missile attacks on all key airfields in Ukraine, trying to deprive it of the ability to provide air defense. As a result, 19 out of 35 airfields were damaged, including 12 civilian and 7 dual-use airfields (excluding military airfields). Some airfields were subjected to several repeated shellings.

**After Russia's full-scale invasion of the Ukraine, all of Ukraine's maritime trade routes became inaccessible for export and import.** This has led to significant losses for Ukraine's economy. In March 2022 alone, Ukraine's exports decreased by 50%[2]. But already in August, as a result of the agreement reached between Ukraine, Turkey, the UN and Russia, it was possible to unblock the work of three Ukrainian ports for the export of domestic agricultural products — Odesa, Pivdennyi and Chornomorsk, which in 2021 provided 70% of Ukraine's trade turnover[3].

[2] https://www.epravda.com.ua/columns/2022/10/24/692959/
[3] https://www.epravda.com.ua/publications/2022/07/22/689519/

**As a result of the work of the so-called "Grain Initiative", it was possible to export 19 million tons of agricultural products** through seaports (August 2022 - June 2023)[4]. Even with the work of such an initiative, the ability to trade by sea remains limited. Subsequently, the Russian Federation began to sabotage even the limited mode of operation that was guaranteed by the agreement and then refused to sign another extension. However, thanks to the work of the military on the Russian Navy, Ukraine managed to partially restore maritime traffic unilaterally, without the participation of Russia.

**In the territories and cities where the fiercest fighting took place, the municipal transport infrastructure was destroyed, and people were left without private vehicles,** which were damaged or destroyed as a result of rocket and artillery shelling. The greatest damage to municipal property, which includes municipal (public) transport, was caused in Luhansk and Donetsk regions, as well as in the city of Kharkiv. This is because the enemy, mercilessly using heavy weapons, struck civilian infrastructure. This led to the loss, according to estimates, of about 60% of public transport in the Donetsk region and more than 70% in the Luhansk region. In these two regions, the industry for the provision of passenger transportation services by urban and suburban transport has actually been completely destroyed. Most private cars were also lost by citizens in these two eastern regions of Ukraine.

**Table 11.** Transport losses assessment.

| Types of losses | Estimated losses, $ billion, by method | |
|---|---|---|
| | Revenue | Value added |
| Decrease in income (road transport) | 10.520 | 5.433 |
| Decrease in income (air transport) | 8.485 | 4.382 |
| Decrease in income (rail transport) | 8.354 | 4.314 |
| Decrease in income (pipe transport) | 7.383 | 3.813 |
| Decrease in income (warehousing) | 5.792 | 2.991 |
| Decrease in income (water transport) | 4.355 | 2.249 |
| Decrease in income (mail and courier services) | 1.853 | 0.957 |
| Decrease in income (urban transport) | 1.368 | 0.706 |
| Decrease in income (other) | 9.575 | 4.945 |
| Costs of dismantling and removal of construction waste | 2.560 | 2.560 |
| **Total sector losses** | **60.246** | **32.350** |

***Source:*** *Ukrstat, Kyiv School of Economics.*

[4] https://www.ukrinform.ua/rubric-economy/3662574-ukraina-eksportuvala-19-miljoniv-tonn-agroprodukcii-u-mezah-zernovoi-iniciativi.html

## Energy

**The total amount of losses of Ukraine's energy sector due to the full-scale invasion of the Russian Federation is $75.3 billion (revenues) or $15.1 billion (value added).** The assessment of losses is carried out based on publicly available data, estimates of direct losses, as well as using expert assumptions.

**The electricity generation and transmission sector suffer the most from Russian aggression.** The Russian Federation continues to carry out targeted and large-scale attacks on facilities that provide production, transmission and distribution of electricity. A significant amount of indirect financial losses falls on large power generation facilities. As a result of a series of massive attacks, a significant part of the capacities of coal and hydroelectric power plants was damaged or destroyed.

**At the beginning of June 2023, the Kakhovka Hydroelectric Power Plant was blown up and destroyed by the Russians.** Annual economic losses caused to the state-owned company Ukrhydroenergo amount to more than $100 million. The need for the construction of a new hydroelectric power plant of similar capacity will amount to about $1 billion.

**In addition, the largest nuclear power plant in Europe, Zaporizhzhia, remains occupied** (the capacity of the ZNPP was more than 10% of the total capacity of the Ukrainian energy system before the Russian full-scale invasion). The occupied nuclear power plant does not supply electricity and meets its internal needs from the Ukrainian energy system, as well as from diesel generators in case of emergency. The IAEA and the Ministry of Energy call the nuclear safety situation threatening. Also, the Vuhlehirska, Zaporizhzhya, Luhansk and Kurakhove TPPs are in the territories occupied after February 24, 2022.

**RES also suffers significant losses.** The occupied facilities have not been producing electricity for more than a year, generating no revenue. According to the Energy Charter Secretariat, 13% of solar generation capacity is in the occupied territories, and 8% has been damaged or destroyed; about 80% of wind generation is occupied and some is damaged due to shelling; 2% of bioenergy capacities are under occupation, and at least 4 biogas plants are known to have been destroyed. Such losses are multiplied by the impossibility of commissioning new unfinished facilities in which resources, including credit, were invested. According to the estimates of specialized associations, by the end of 2022, only wind farms with a total installed capacity of about 800 MW should have been completed and put into operation.

**Also, due to the mass migration of the population, the reduction of business activity because of the full-scale invasion, the demand for energy has fallen significantly.** According to the statements of the management of NPC Ukrenergo and the available data on the hourly balance of capacities of the IPS of Ukraine, since the beginning of the invasion, electricity consumption and production have fallen by more than 30%, with low chances of recovery until the end of hostilities. In addition, the destruction of the electricity infrastructure has led to the impossibility of supplying and transporting significant amounts of electricity.

**The drop in demand for energy due to the full-scale war also applies to the natural gas sector.** At the end of 2022, despite the drop in natural gas production by almost 7%, domestic consumption decreased by 24% (~7 billion m3), and energy exports were banned in June 2022 to guarantee the preservation of a sufficient amount of resource for the heating season. As a result, due to the saturation of the domestic commercial market and the impossibility of exports, the gap between the market price of natural gas within the country and quotations on the largest European exchanges, from where Ukraine also imports the resource, has increased. Thus, in March-December 2022, the average price of natural gas on the Ukrainian Energy Exchange was about $900 per thousand cubic meters, and on the Dutch TTF hub — $1400 per thousand cubic meters. As a result, there is a drop in income for mining companies. The decrease in consumption has a negative impact on the revenues of companies that transport and distribute gas.

**Massive attacks on gas infrastructure facilities, which began in early 2025, have had a significant impact on domestic natural gas production.** Thus, according to public statements, the attacks led to a temporary reduction in production by 40%. Because of this, Ukraine had to resort to additional imports, which, according to estimates, require €2 billion.

**With the destruction of all operating oil refineries, the oil refining market in Ukraine has practically disappeared.** Before the start of the full-scale invasion, Ukraine processed about 3.6 million tons of oil per year, satisfying a third of domestic demand. With the destruction of the active Kremenchuk refinery and Shebelynka gas processing plant, as well as the inactive Lysychansk and Odesa refineries, Ukraine now must almost completely cover domestic consumption of petroleum products through imports. In addition, due to the destruction of oil depots and the reorientation of import routes, importers had to incur additional capital and logistics costs.

**The destruction of heat supply facilities and a decrease in demand for thermal energy led to losses in the district heating sector**. District heating companies, most of which are public utilities, are in a difficult financial situation. The attraction of financing for the reconstruction of damaged facilities and the necessary modernization of infrastructure is extremely limited due to a drop in demand among non-domestic consumers and a moratorium on raising heat supply tariffs for household consumers introduced in August 2022. At the end of 2025, Russian strikes on the largest cogeneration capacities in large cities, including Kyiv and Kharkiv, were intensified.

**Due to the reduction in coal production at state-owned mines and the occupation of coal enterprises, the coal industry suffered losses.** Coal production at state-owned mines, which provided about a quarter of total production, reportedly halved during the full-scale invasion. At the same time, the DTEK group of companies, which owns most of the private coal mines, managed to maintain production at the level of 2021 in 2022. However, the overall decline in the ability of national producers to supply thermal coal due to the war leads to losses for them and increases Ukraine's dependence on imports of this resource. The destruction of thermal power plants will lead to a drop in demand for thermal coal in the country and therefore increase the losses in the coal sector.

**Table 12.** Energy losses assessment.

| Types of losses | Estimated losses, $ billion, by method | |
|---|---|---|
| | Revenue | Value added |
| Decrease in income (oil production and refining) | 16.740 | 3.316 |
| Decrease in income (power generation) | 16.699 | 3.308 |
| Decrease in income (gas production) | 17.186 | 3.404 |
| Decrease in income (electricity distribution) | 5.717 | 1.132 |
| Decrease in income (heat supply) | 5.279 | 1.046 |
| Decrease in income (electricity transmission) | 4.460 | 0.883 |
| Decrease in Revenue (gas distribution) | 7.673 | 1.520 |
| Decrease in income (coal industry) | 1.291 | 0.256 |
| Costs of dismantling and removal of construction waste | 0.220 | 0.220 |
| **Total sector losses** | **75.265** | **15.085** |

***Source:*** *Ukrstat, Kyiv School of Economics.*

## Utilities

**The infrastructure of utilities, which is an important part of the life support systems of settlements, has become one of the targets of missile and artillery strikes by the Russian Federation.** Constant shelling and hostilities made it impossible or significantly complicated the repair work, which led to a long-term shutdown of heat and water supply systems. In some cities, residents do not receive housing and communal services and still do not have adequate access to drinking water.

**For example, due to damage to the water supply, most districts of Mykolaiv were left without centralized water supply for a long time.** The water supply system was restored only after the liberation of Kherson in November 2022, and until that moment only technical water was available in the city, and drinking water was delivered from other cities as bottled through the retail network. In addition, the housing and communal services of cities under heavy artillery fire suffered a significant level of destruction.

**The water supply sector experienced constant interruptions in cities due to forced power outages** and a drop in voltage on equipment, which led to the need to install generators and accelerated the wear and tear of assets.

**Losses of utilities are estimated at about $10.5 billion (revenue) or $5.4 billion (value added).** The amount includes the dismantling of destroyed facilities and the removal of demolition waste, the Government's expenditures for the reconstruction and maintenance of utility companies, as well as a decrease in the industry's income.

**Table 13.** Utilities losses assessment.

| Types of losses | Estimated losses, $ billion, by method | |
|---|---|---|
| | Revenue | Value added |
| Decrease in income | 9.331 | 4.222 |
| Costs of dismantling and removal of construction waste | 0.639 | 0.639 |
| Additional expenditures of the Government for the reconstruction and maintenance of facilities | 0.509 | 0.509 |
| **Total sector losses** | **10.479** | **5.371** |

***Source:*** *Ukrstat, The Ministry of Development of Communities and Territories of Ukraine, Kyiv School of Economics.*

## Digital infrastructure and IT

**Indirect financial losses of digital infrastructure and the IT sector are estimated at $23.7 billion (revenue) or $13.2 billion (value added).** It consists of a decrease in the income of fixed and mobile operators, IT companies, as well as additional costs for digital communications operators, primarily related to the need to ensure energy independence.

**Digital infrastructure and the IT sector form the basis for the functioning of the modern economy of Ukraine**, providing electronic communications, digital services and the export of information technologies. By 2022, the industry was characterized by steady growth, high levels of competition and a gradual increase in network capacity. There were hundreds of operators and service providers, cell network penetration exceeded 100%, data transmission grew by two-digit rates. The IT sector was one of the key exporters of services and sources of foreign exchange earnings.

**Since 2022, the war has led to a significant deterioration in the financial performance of the industry.** The key consequence was not so much the physical loss of assets as the decrease in income and the growth of costs, which determines the scale of losses. The shortfall in the industry's revenues is primarily due to a decrease in the customer base due to the occupation of part of the territory and significant migration of the population outside the country.

**For the IT sector, indirect losses are mainly in the nature of lost value added.** The industry maintained its operational capacity, but revenue growth slowed down significantly. This is due to a reduction in the volume of new export contracts, a decrease in the average check for projects, and an increase in unproductive costs. An additional factor in losses was the postponement or cancellation of part of investment decisions in product development and business scaling.

**A separate factor of indirect losses for digital infrastructure and the IT sector was a significant increase in costs** related to ensuring cybersecurity and resilience of digital services. The increase in cyber threats during the war period necessitated additional investments in the protection of networks, data and critical information systems, as well as in infrastructure redundancy and monitoring. These costs were not accompanied by a proportional increase in revenues and, accordingly, increased the total volume of losses of the industry.

**At the same time, the IT sector suffered a lesser loss of human capital compared to other segments of the industry.** A significant part of the specialists continued to work remotely, including while outside Ukraine.

**In the mobile segment, the structural decline in operators' revenues** is associated not only with a reduction in the number of active subscribers, but also with a decrease in the consumption of additional and paid services and a change in consumer behavior in favor of basic tariff plans with lower margins. Losses in the segment of fixed communications and broadband access are of a pronounced territorial nature. In addition to the loss of subscribers among households and small businesses, there is also a reduction in new connections and network expansions.

**For the broadcasting and television market, the key factor in indirect losses was a sharp reduction in commercial revenues**, primarily due to the fall in the advertising market. The general reduction in advertising budgets of businesses significantly limited the possibilities of content monetization.

**The recovery of the industry is uneven** between sectors and regions and is accompanied by increased costs to maintain the stable operation of networks and digital services. However, focusing on the indicators of IT exports, it can be argued that the industry has not reached the pre-war level.

**Table 14.** Assessment of losses of digital infrastructure and IT.

| Types of losses | Estimated losses, $ billion, by method | |
|---|---|---|
| | **Revenue** | **Value added** |
| Decrease in income (IT) | 14.427 | 8.044 |
| Decrease in income (mobile) | 4.558 | 2.542 |
| Decrease in income (broadcasting and television) | 2.261 | 1.261 |
| Decrease in income (fixed connection) | 2.153 | 1.201 |
| Decrease in income (other) | 0.243 | 0.136 |
| Costs of dismantling and removal of construction waste | 0.058 | 0.058 |
| **Total sector losses** | **23.701** | **13.240** |

***Source:*** *Ukrstat, Kyiv School of Economics.*

# 04
# DEMINING

**As a result of Russia's full-scale invasion, Ukraine has become the most mined country in the world.** More than 20% of Ukraine's territory is potentially dangerous, which exceeds the area of European countries such as Greece, Bulgaria or Austria. According to international estimates, mined lands cost the Ukrainian economy $11.2 billion annually as lost GDP, which is equivalent to 5.6% of the country's pre-war GDP.

**According to official sources, the area of potentially mined land in Ukraine has decreased by more than 20% compared to the end of 2022** and, according to various estimates, it constitutes 137-139 thousand km². In the structure of potentially mined areas, 14 thousand km² belong to water areas. But due to hostilities, humanitarian demining measures can currently be carried out only on 31 thousand km². Most potentially mined land is agricultural.

**The pace of work has increased significantly.** According to the Ministry of Defense, in the first half of 2025, the pace of humanitarian demining increased by almost 50% compared to 2024. However, the demining process is constrained by the following factors:

- Scale of the problem
- Limited funding
- Technical capabilities
- Human resources
- Safety conditions
- Insufficient non-technical inspection
- Coordination
- Bureaucratic obstacles

**There are more operators than before.** Demining operations are carried out by the State Emergency Service, the National Police, the Ministry of Defense and non-governmental mine action operators. There are 112 certified mine action operators in Ukraine (8 of them are foreign). More than 9 thousand specialists, 278 units of mechanized equipment and more than 13 thousand metal detectors are involved in the process of humanitarian demining.

**Increased competition has led to a significant decrease in the cost of services.** However, information on the cost of demining agricultural land varies greatly. Thus, according to various sources, the cost of demining 1 hectare of agricultural land in 2025 ranges from 31 to 62 thousand UAH.

**In 2024, the government approved the National Mine Action Strategy until 2033 and the Trilateral Operational Plan for 2024-2026.** According to the document, the government aims to clear at least 70% of contaminated areas by 2033. The Ukraine Demining Cluster has also been created, which includes more than 60 international and domestic companies, the program of which provides for the return to use of contaminated lands by 2040.

**There are several sources of funding for demining.** The State Budget of Ukraine for 2026, as well as last year, provides for compensation for the costs of humanitarian demining of agricultural land of UAH 2 billion. In addition, in 2025, an international Mine Action

Coalition was formed from more than 50 countries, which attracted $1.2 billion in assistance for demining. The international community helps with funds, technologies, equipment, specialists and training.

**Technologies are also developing.** The cost of Ukrainian demining vehicles is at least five times cheaper than foreign counterparts. Among the key innovations in demining are the introduction of drones, IT analysis and artificial intelligence. A system of mapping pollution using drones, thermal imagers and automated image processing has been introduced. It allows for density mapping and determining prioritize zones.

**Thus, mine action in Ukraine is a complex task** that requires significant resources and coordinated efforts. The adoption of the National Strategy, the build-up of technical capacities, the intensification of the compensation program and the support of international partners indicate a systematic approach to solving the problem of mine pollution. These steps are crucial for the resumption of economic activity, ensuring food security and, most importantly, for preserving life and health of citizens.

**Up to $24.6 billion will be needed to demine the entire presumably mined territory of Ukraine** (excluding demining of reservoirs, since we do not yet have data on the cost of this process).

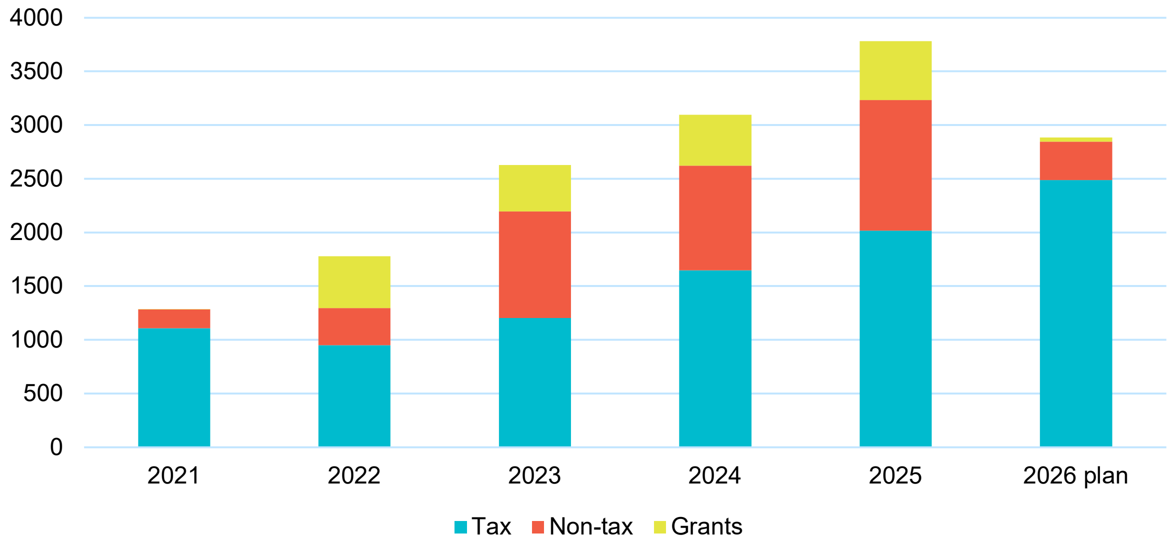
# 05

# FISCAL SECTOR

# Budget revenues

**In 2021-2025, there was a sharp increase in state budget revenues.** In 2021, revenues amounted to UAH 1.3 trillion, and in 2025, such revenues increased to UAH 3.8 trillion. This growth was mainly due to an increase in the share of non-tax and other revenues, in particular grants. In 2025, grants amounted to UAH 548 billion, and non-tax revenues to UAH 1.2 trillion, while in 2021 such revenues amounted to UAH 1.3 billion and UAH 175 billion, respectively. The main reasons for the growth of revenues in 2022-2025 compared to 2021 are adopted changes to tax legislation, inflation significant amounts of grant assistance received, military-technical assistance. During 2022-2025, there is a gradual recovery of the Ukrainian economy after a 29% decline in 2022.

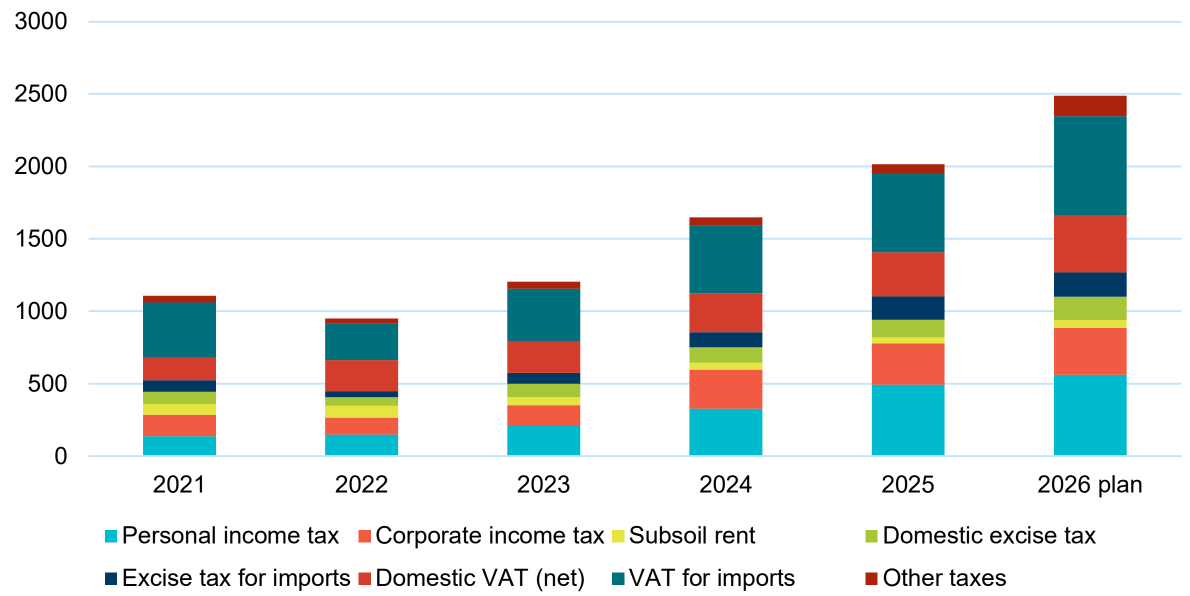
**Graph 3.** Structure of state budget revenues, UAH billion




***Source:*** *Ministry of Finance of Ukraine*

**The structure of tax revenues has also undergone changes** (see Graph 5). First, there was an increase in the share of personal income tax in tax revenues — from 12% in 2021 to 24% in 2025. The reason for this growth is a sharp increase in the payment of tax by the military, and due to the increase in the military tax rate for the period of war from 1.5% to 5%, as well as the extension of its effect to small and micro businesses. Secondly, the share of rent for the use of subsoil has significantly decreased, which decreased from 6.8% in tax revenues of the state budget in 2021 to 2.2% in 2025. The reason is the suspension of the activities of enterprises in the extractive sector of the economy caused by hostilities and, often, the occupation of the territory where mining took place. Thirdly, VAT remains the main tax during the entire analyzed period, which provided the lion's share tax revenues, with an average of almost 46% of all tax revenues accumulated due to this payment during the entire analyzed period.

**Graph 4.** Structure of state budget tax revenues, UAH billion




***Source:*** *Ministry of Finance of Ukraine*

## Budget expenditures

**Since the beginning of the large-scale invasion, the dynamics and overall level of financing of public expenditures have changed significantly.** Thus, until 2022, the leaders in the field of expenditures were national functions, economic activity and social protection, which accounted for about 60% of all expenditures. This approach is typical for countries that are not at war and focus on economic development and support for the population.

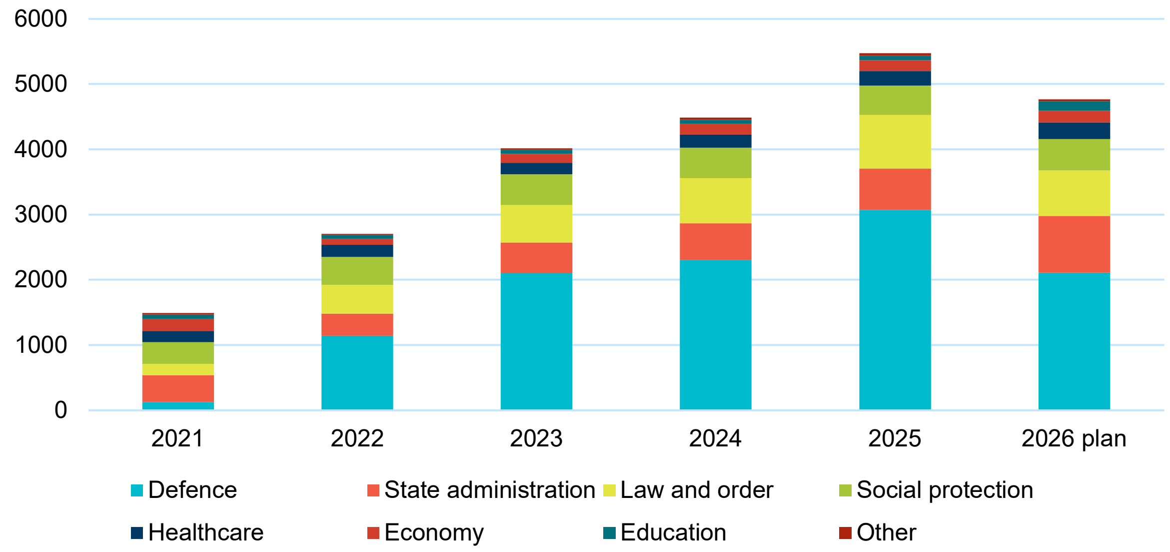
**Defense and security have become key spending priorities.** In 2022, defense financing increased almost tenfold — from UAH 128 billion in 2021 to UAH 1.1 trillion, while security expenditures increased by 1.5 times — to UAH 443 billion. The growth continued: in 2023, defense spending increased by another 84% (to UAH 2.1 trillion), and security spending — by 30% (to UAH 574 billion).

In 2024-2025, the planned indicators were systematically underestimated due to prolonged active hostilities. In 2024, actual expenditures on defense and security amounted to UAH 2.3 trillion and UAH 693 billion, respectively, and in 2025 — UAH 3.1 trillion and UAH 819 billion, which significantly exceeded the initial plans.

For 2026, UAH 2.8 trillion is provided for defense and security (UAH 2.1 trillion — defense, UAH 697 billion — security). At the same time, these indicators do not take into account material and technical assistance; according to KSE estimates, the actual financing of the defense and security sectors may reach UAH 4,5 trillion.

**General government spending also rose sharply.** In 2021, they amounted to UAH 1,5 trillion, in 2022 they increased by 81.5% to UAH 2.7 trillion, in 2023 — to UAH 4 trillion (+48.4%), in 2024 — to UAH 4.5 trillion (+11.8%), and in 2025 — to UAH 5.5 trillion. The plan for 2026 is UAH 4,8 trillion, however, considering military needs and external support, total expenditures may increase to UAH 6.2 trillion.

**Graph 5.** Structure of state budget expenditures, UAH billion




***Source:*** *Ministry of Finance of Ukraine*

## Financing dynamics of other key sectors

**Social protection.** In the first years of the full-scale war, expenditures increased significantly, from UAH 331 billion in 2021 to UAH 426 billion in 2022 and UAH 469 billion in 2023. In 2025, funding decreased slightly, to UAH 453 billion, and in 2026, it is planned to increase to UAH 483 billion, due to the expansion of certain social programs.

**National functions.** In 2022, expenditures decreased from UAH 410 billion to UAH 339 billion, but in 2023 there was a recovery to UAH 474 billion. For 2026, funding is expected to increase to UAH 868 billion, which will make this sector the second largest expenditure after defense.

**Economic activity.** Financing has undergone one of the deepest cuts — from UAH 188 billion in 2021 to UAH 95 billion in 2022. Partial recovery took place in 2023 (UAH 134 billion), and in 2026 it is planned to increase expenditures to UAH 178 billion.