

Vadym Yemets, Roman Kushnir, Volodymyr Vlasiuk, Serhii Povazhniuk  
June 2026

# WORKFORCE DEMAND IN UKRAINE THROUGH 2035



INSTITUTE FOR DEVELOPMENT  
OF NATIONAL ECONOMY

Friedrich  
Ebert   
Stiftung

## Contacts

Representative Office of the Friedrich-Ebert-Stiftung in Ukraine  
Borysohlibska 15a, Kyiv, 04070, Ukraine

### Responsible

Felix Hett | Director of FES-Ukraine

### Contact

Tel.: +38-044-234-00-38  
ukraine@fes.de

The report uses an illustration from  
<https://depositphotos.com/ua>

The views expressed in this publication are not necessarily those of the Friedrich-Ebert-Stiftung (FES). Commercial use of media published by the FES is not permitted without the written consent of the FES.

June 2026

© Representative Office of the Friedrich-Ebert-Stiftung in Ukraine

All texts are available at:  
➤ <https://ukraine.fes.de>

**Vadym Yemets, Roman Kushnir, Volodymyr Vlasiuk, Serhii Povazhniuk**  
June 2026

# **Workforce Demand in Ukraine Through 2035**

# Contents

Introduction .....	3
Executive Summary .....	3
1. Assessment of Ukraine’s Human Potential as of January 1, 2026 .....	5
2. Employment of the Population in Ukraine’s Economy in 2021–2025 .....	10
3. Economic Priorities for the Recovery Period, Including Structural Changes in Ukraine’s Economy .....	14
4. Human-Capital Needs for Structural Change and Sustainable Growth in Ukraine’s Economy Through 2035 .....	16
5. Policy Directions for Ensuring Sufficient Human Capital for Ukraine’s Economic Development .....	22
Conclusions .....	26
Appendices .....	28

# Introduction

Against the backdrop of full-scale war, large-scale migration, population losses, and the need for deep structural change in the economy, Ukraine's workforce capacity has become a strategic issue. Human capital is not only a key driver of economic growth; it is also the foundation for national recovery, defense capability, critical infrastructure, and a competitive development model. For this reason, assessing Ukraine's workforce demand through 2035 is highly relevant from both analytical and practical perspectives.

This issue is especially important because, in 2022-2025, Ukraine experienced a substantial population decline, lower employment, deeper labor-market imbalances, and shifts in the sectoral structure of the economy. At the same time, post-war recovery will require large numbers of workers with diverse qualifications, particularly in manufacturing, construction, energy, transport, education, healthcare, and sectors linked to technological modernization. Under these conditions, it is important not only to assess the current state of Ukraine's human capital but also to estimate future workforce demand in light of expected structural changes.

This study assesses Ukraine's available human capital, examines changes in employment, and estimates workforce needs through 2035 in the context of economic recovery and structural transformation. To this end, it: (1) assesses the population actually present in Ukraine; (2) analyzes employment dynamics by type of economic activity in 2021-2025; (3) identifies key economic priorities for the recovery period; (4) develops approaches to forecasting human-capital needs through 2035; and (5) outlines the main policy directions for addressing labor shortages and improving the quality of human capital.

A distinctive feature of the study is that it combines demographic and macroeconomic approaches. It takes into account natural population decline, external migration, war-related losses, changes in the age structure, and the sectoral transformation of employment in view of changes in the economic structure and labor productivity. This approach makes it possible not only to quantify current losses in human capital, but also to identify future priorities for state policy in employment, education, vocational training, population return, and the stimulation of economic activity.

The study's practical value lies in its potential use for shaping labor-market policy, planning workforce needs, modernizing education and vocational training, and developing measures to support Ukraine's long-term economic growth. Estimating future workforce demand is a necessary prerequisite for making national recovery plans realistic: recovery will depend not only on financial investment, but also on sufficient human capital.

## Executive Summary

The study assesses Ukraine's available human capital, changes in employment in 2021-2025, and the economy's projected workforce needs through 2035 in the context of post-war recovery and structural transformation. The methodology combines demographic and macroeconomic approaches: the population estimate starts from the latest available official data as of January 1, 2022, and adjusts for natural decline, war-related losses, temporary occupation, external migration, and changes in the age structure. Employment and human-capital needs are assessed using gross value added, labor productivity, and scenarios for structural change in the economy. This makes it possible to estimate not only the scale of human-capital losses, but also the workforce parameters needed to support economic growth through 2035.

The calculations show that Ukraine's total population decreased by 1.48 million people, or 3.6%, during 2022-2025. As of January 1, 2026, it is estimated at about 39.5 million people. At the same time, war, occupation, and large-scale emigration have radically changed the spatial distribution of the population: about 29.5 million people live in the government-controlled territory, about 3.0 million in the temporarily occupied territories, and about 7.0 million Ukrainians are abroad.

The most critical issue is the decline in the working-age population in the government-controlled territory during 2022-2025: it fell by 20%, from 23.5 million to 18.9 million people. Around 7.4 million working-age Ukrainians are in the temporarily occupied territories or abroad, making their return and economic reintegration a strategic priority for state policy.

The population estimates produced in this study are broadly consistent with the data of the Ptukha Institute for Demography and Social Studies: the difference in total population is only about 0.1 million people.

The war caused a substantial reduction in employment in Ukraine's economy during 2021-2025. The total number of employed people decreased by 21.9%, or by 3.43 million, and stood at 12.2 million in 2025. The sharpest decline occurred in 2022, when the full-scale invasion reduced employment by 4.4 million people. In 2023-2025, employment partially recovered, but it did not return to the pre-war level. Employment increased only in public administration (+1.6 million people), driven by mobilization needs, and in the energy sector (+116 thousand people), due to the expansion of repair crews.

The largest workforce losses occurred in agriculture (-1.4 million people), trade (-1.0 million), manufacturing (-550 thousand), education (-451 thousand), and transport (-365 thousand). As a result, the war not only reduced the overall number of workers in the economy, but also distorted the employment structure by pulling labor away from the sectors of the real economy toward sectors shaped by martial-law needs.

The key economic priority for the recovery period is the structural transformation of Ukraine's economy: a shift from exporting raw materials and semi-finished goods toward a model in which most value added is created domestically through the development of manufacturing, construction, IT, and related sectors. The study emphasizes that manufacturing currently has an abnormally low share in Ukraine's economy – 8.3%, compared with 16.1% in Poland. Conversely, Ukraine has a much higher share of raw-material sectors and a significantly lower share of construction.

Poland, which is comparable to Ukraine in population and territory, is used as a reference point for the target structure of the economy. Ukraine's GDP-per-capita gap with Poland is multiple, and it can be narrowed only through a systematic increase in labor productivity in higher-value-added sectors and through new industrialization.

To assess future workforce needs, the study develops a scenario model through 2035. The target structural-transformation scenario assumes average annual GDP growth of 4.5% in 2026-2035. Under this scenario, real GDP at 2025 prices rises from UAH 8.94 trillion to UAH 13.9 trillion per year, or from USD 212 billion to USD 332 billion. The share of manufacturing in GDP increases from 8.3% to 13.5%, construction from 1.6% to 3.3%, and IT from 4.3% to 6.9%, while the share of public administration declines from 21.5% to 9.7% after the end of the war.

The study considers two scenarios for labor-productivity growth. The inertial scenario assumes limited growth of 1-2% per year and the effective preservation of a labor-intensive development model. The investment scenario assumes large-scale investment in production, transport, and energy infrastructure, technological renewal, and labor-productivity growth of 4-5% per year.

Labor-productivity dynamics determine the scale of the future staffing gap. Under the inertial scenario, total workforce demand in 2035 is projected at 16.9 million people, implying an additional need for 4.7 million workers compared with the 2025 employment level. Under the investment scenario, total workforce demand is projected at 13.4 million people, with additional demand of 1.2 million – almost four times lower. Even in this scenario, however, the greatest additional demand remains in manufacturing (+833.3 thousand workers), construction (+417.3 thousand), and agriculture (+216.6 thousand). Employment policy should therefore be sectorally targeted and focused on the activities that will form the basis of the new economic structure.

The study identifies three main sources for covering the additional need for workers under the investment scenario: activating internal labor reserves, including internally displaced persons, with potential of up to 2.1 million people; encouraging the return of forced migrants and refugees from abroad, with potential of up to 2.4 million people; and sectoral redistribution combined with stronger labor mobility, with potential of up to 1.1 million people.

At the same time, this potential will not materialize automatically. It requires several common foundations: competitive wages, which are possible only if labor productivity rises; the formula «work – housing – social infrastructure,» which links job creation with housing, transport, schools, kindergartens, and medical services; and a modern training system, including dual education and short-term retraining programs for occupations in demand in manufacturing and construction. The study also emphasizes the need for strategic planning of productive-force placement and for taking regional smart specialization into account.

The overall conclusion is that, by 2035, the availability of sufficient human capital will be one of the main constraints on Ukraine's economic growth. The inertial scenario would preserve low labor productivity, create a staffing gap of 4.7 million workers, and fail to provide competitive wages. Under these conditions, Ukraine would risk not only failing to bring back its citizens, but also facing a new wave of labor emigration. By contrast, the investment scenario – based on new industrialization, technological renewal, and higher labor productivity – reduces the staffing gap to a manageable level, creates the conditions for competitive wages, and becomes a key prerequisite for bringing Ukrainians back, retaining workers in the country, and ensuring sustainable long-term growth.

# 1. Assessment of Ukraine's Human Potential as of January 1, 2026

## 1.1. Methodology for Estimating Ukraine's Population as of January 1, 2026

This subsection presents the methodology for estimating Ukraine's population as of January 1, 2026, by place of residence: (a) the government-controlled territory of Ukraine; (b) the temporarily occupied territories of Ukraine; and (c) abroad.

The calculations are based on the latest available official population figure as of January 1, 2022, adjusted for the main demographic and migration factors observed in 2022-2025: natural decline, war-related losses, temporary occupation, external migration, and changes in the age structure.

Important: the report does not cover the population of the Autonomous Republic of Crimea or the city of Sevastopol, which have been de facto occupied since 2014.

The formula for estimating the population of Ukraine in the government-controlled territory as of January 1, 2026, is as follows:

$$N_{01.01.2026} = N_{01.01.2022} - D^{\text{nat}}_{2022-2025} - D^{\text{war}}_{2022-2025} - N^{\text{occ}}_{01.01.2026} - R^{\text{abroad}}_{2022-2025} - M_{<22}_{08.2025} -/+ D^{\text{struc}}_{2022-2025}$$

where:

$N_{01.01.2026}$  – the population of Ukraine in the government-controlled territory, as of 01.01.2026;

$N_{01.01.2022}$  – the population of Ukraine as of 01.01.2022;

$D^{\text{nat}}_{2022-2025}$  – the natural decrease of the population of Ukraine during 2022–2025;

$D^{\text{war}}_{2022-2025}$  – population losses of Ukraine due to hostilities during 2022–2025;

$N^{\text{occ}}_{01.01.2026}$  – the population in the temporarily occupied territories of Ukraine as of 01.01.2026;

$R^{\text{abroad}}_{2022-2025}$  – Ukrainian refugees abroad, including those during 2022–2025;

$M_{<22}_{08.2025}$  – men under 22 years of age who left Ukraine starting from August 2025;;

$D^{\text{struc}}_{2022-2025}$  – changes in the age structure of the population of Ukraine during 2022–2025.

The total population of Ukraine is defined as the sum of the population in the government-controlled territory, the population in the temporarily occupied territories, and Ukrainian citizens abroad.

### 1. Population of Ukraine as of 01.01.2022 ( $N_{01.01.2022}$ )

The latest available official data from the State Statistics Service of Ukraine (SSSU) on Ukraine's population as of January 1, 2022, were used. This figure covers the entire territory of Ukraine, including the parts of Donetsk and Luhansk regions that were temporarily occupied at that time, but excluding the Autonomous Republic of Crimea and the city of Sevastopol. It also includes Ukrainian citizens who were working abroad at that time as labor migrants<sup>1</sup>.

<sup>1</sup> Source data: [https://ukrstat.gov.ua/operativ/operativ2022/ds/nas\\_rik/nas\\_90-2021.xlsx](https://ukrstat.gov.ua/operativ/operativ2022/ds/nas_rik/nas_90-2021.xlsx)

## 2. Natural decline in the population of Ukraine in 2022–2025 ( $D^{nat}_{2022-2025}$ )

The natural decline in Ukraine's population during 2022–2025 was calculated using data from the Ministry of Justice of Ukraine as the difference between registered births and registered deaths in each calendar year<sup>2</sup>.

## 3. Losses of Ukraine's population due to hostilities in 2022–2025 ( $D^{war}_{2022-2025}$ )

Official information on the number of military personnel and civilians killed in the war in Ukraine in 2022–2025 is unavailable.

Military-loss indicators are therefore based on data from the UA Losses portal, which aggregates confirmed open reports and verified cases of military deaths, including those missing in action<sup>3</sup>.

Civilian-loss estimates are based on official assessments by the UN Human Rights Monitoring Mission in Ukraine (HRMMU), which regularly records confirmed cases of civilian deaths and injuries. Given limited access to certain territories and the difficulty of verification during hostilities, the indicators presented in the study should be treated as minimum confirmed estimates that may be refined later<sup>4</sup>.

## 4. Population in the Temporarily Occupied Territories of Ukraine as of January 1, 2026 ( $N^{occ}_{01.01.2026}$ )

This category refers to the population living in the temporarily occupied territories of Donetsk, Luhansk, Zaporizhzhia, and Kherson regions. The population of the Autonomous Republic of Crimea and the city of Sevastopol is not included.

For the occupied parts of Donetsk and Luhansk regions, the published data of the Main Intelligence Directorate of Ukraine on the population size in these territories as of the end of 2025 were used<sup>5</sup>. The population of the temporarily occupied territories of Zaporizhzhia and Kherson regions was estimated as follows.

First, the natural population decline for 2022–2025, estimated at the average level for Ukraine during this period (-3.1%), was subtracted from the official SSSU data on the population of these regions as of January 1, 2022.

The population of the regional centers – Zaporizhzhia and Kherson, which are in government-controlled territory – was then subtracted from the resulting figure, and the results were adjusted by the share of each region's territory that is under occupation<sup>6</sup>.

Additionally, the calculations include the assumption that about 30% of the population of the temporarily occupied territories left for Russia or for the government-controlled territory of Ukraine.

## 5. Refugees and labor migrants from Ukraine who are abroad ( $R^{abroad}_{2022-2025}$ )

This group includes:

- labor migrants who worked outside Ukraine before 2022.  
Determined on the basis of data from the Ptukha Institute for Demography and Social Studies on the number of labor migrants at the end of 2021<sup>7</sup>.
- persons who left the government-controlled territory of Ukraine after the start of the full-scale invasion in 2022.  
Determined on the basis of data from the State Border Guard Service of Ukraine as the balance of crossing the state border in 2022–2025 (the difference between the number of persons who left Ukraine and the number of those who returned during the specified period)<sup>8</sup>.

2 Source data: [https://minjust.gov.ua/actual-info/stat\\_info](https://minjust.gov.ua/actual-info/stat_info)

3 Data source for the calculation: <https://ualosses.org/en/soldiers/>

4 Data source for the calculation: [https://ukraine.ohchr.org/en/Ukraine-s-Civilians-Face-Daily-Death-and-Injury-Amid-Intense-Attacks-UN-Human-Rights-Monitors-Say?utm\\_source](https://ukraine.ohchr.org/en/Ukraine-s-Civilians-Face-Daily-Death-and-Injury-Amid-Intense-Attacks-UN-Human-Rights-Monitors-Say?utm_source)

5 Data source for the calculation: <https://zn.ua/ukr/war/ponivecheni-dushi-shcho-prinis-russkij-mir-na-donbas-kartina-v-tsifrah-ta-istorij>

6 Data source for the calculation: [https://stat.gov.ua/uk/publications/chyselnist-nayavnoho-naselennya-ukrayiny-na-1-sichnya-2022?utm\\_source](https://stat.gov.ua/uk/publications/chyselnist-nayavnoho-naselennya-ukrayiny-na-1-sichnya-2022?utm_source)

7 Data source for the calculation: <https://www.slovovidlo.ua/2021/03/18/infografika/suspilstvo/trudova-mihracziya-skilky-ukrayincziv-pracyuvaly-kordonom-2019-2021-rokax>

8 Data source for the calculation: <https://opendatabot.ua/analytics/ukrainians-emigration-trend-2025-12>

→ persons who left for the territory of Russia in 2022–2025.

Determined on the basis of data from The UN Refugee Agency. First of all, this concerns the population of the temporarily occupied territories of Ukraine<sup>9</sup>.

#### 6. Young men under 22 years of age who left Ukraine from August 2025 ( $M < 22_{08.2025}$ ).

Data on the number of young men under 22 years of age who left Ukraine starting from August 2025 were not published in official Ukrainian statistics. Therefore, available data from the Polish side were used to estimate this indicator. Although Poland is the main country of departure, these data do not cover the departure of men to other EU countries. Therefore, this figure is minimal and may be refined<sup>10</sup>.

#### 7. Change in the age structure of the population in 2022–2025 ( $D^{struc}_{2022-2025}$ ).

The indicator reflects the long-term process of declining birth rates and aging of the population in Ukraine. For the calculations, the dynamics of such changes during previous years were used<sup>11</sup>.

## 1.2. Results of Ukraine's Population Estimates as of January 1, 2026

The calculations show that Ukraine's total population decreased by 1.48 million people (-3.6%) during 2022-2025 and stood at approximately 39.5 million people as of January 1, 2026 (Table 1.1).

The working-age population aged 16-64 declined by 0.96 million people, and the number of children under 15 declined by 0.75 million. At the same time, the number of people aged 65 and older increased by 0.22 million.

At the same time, due to the full-scale war, which caused large-scale emigration, the deaths of military personnel and civilians, the occupation of part of the territory of Ukraine, and the forced displacement of Ukrainians to Russia, the population in the government-controlled territory, in the temporarily occupied territories, and abroad changed (Fig. 1.1).

The population in the government-controlled territory of Ukraine declined by 18.5%, from 36.2 million to 29.5 million people. The working-age population is approximately 18.9 million people, which is 20% (or 4.63 million people) lower than at the beginning of 2022 (23.5 million people).

Approximately 3 million people live in the temporarily occupied territories, one and a half times more than at the beginning of the full-scale war (around 2 million). Of these, around 2 million are of working age.

Approximately 7.0 million Ukrainians are abroad (including around 1.2 million in Russia), which is 2.5 times more than before the start of the war (around 2.8 million). The number of working-age Ukrainians abroad has almost doubled since 2022, reaching approximately 5.0 million. Around 1.4 million Ukrainian children who were forced to leave because of the war are also abroad.

Encouraging the return of Ukrainians who were forced to leave should be an important policy priority for the Ukrainian authorities.

9 Data source for the calculation: <https://data.unhcr.org/en/situations/ukraine>

10 Data source for the calculation: [https://zaxid.net/prikordonniki\\_polshhi\\_zafiksuvali\\_suttyeve\\_zrostannya\\_peretinu\\_kordonu\\_ukrayintsyami\\_18\\_22\\_rokiv\\_n1620424](https://zaxid.net/prikordonniki_polshhi_zafiksuvali_suttyeve_zrostannya_peretinu_kordonu_ukrayintsyami_18_22_rokiv_n1620424)

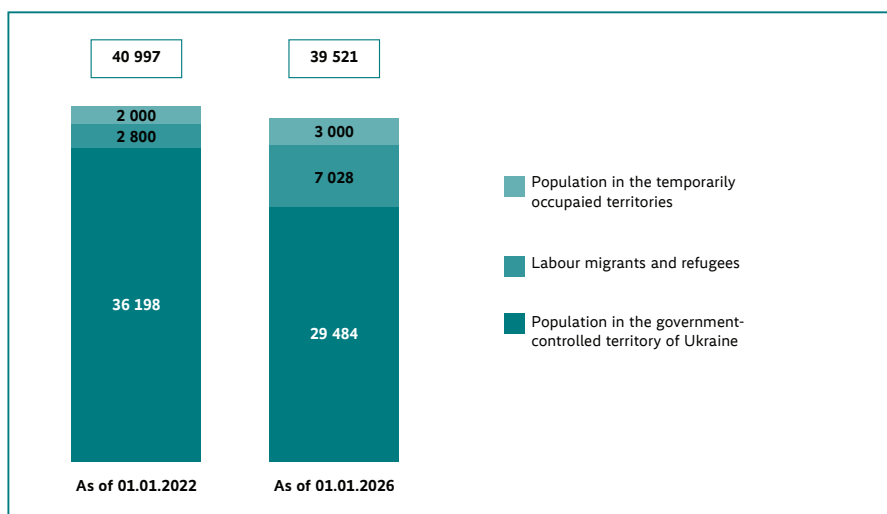
11 Source data: [https://ukrstat.gov.ua/operativ/operativ2022/ds/nas\\_rik/nas\\_90-2021.xlsx](https://ukrstat.gov.ua/operativ/operativ2022/ds/nas_rik/nas_90-2021.xlsx)

**Table 1.1**

Population size and sex-and-age structure of the population of Ukraine as of January 1, 2026, thousand people

Indicator	Total	Total		0-15 years		16-64 years		65 and older	
		M	F	M	F	M	F	M	F
<b>1. POPULATION OF UKRAINE as of January 1, 2022</b>	<b>40997</b>	<b>18990</b>	<b>22007</b>	<b>3390</b>	<b>3207</b>	<b>13200</b>	<b>14000</b>	<b>2400</b>	<b>4800</b>
2. Natural decline of Ukraine's population in 2022–2025	-1285	-578	-707	-1	-1	-173	-212	-404	-494
3. Losses of Ukraine's population due to the war, including:	-191	-167	-25	-2	-2	-162	-20	-2	-2
- military personnel	-177	-159	-18			-159	-18		
- civilians	-14	-7	-7	-2	-2	-2	-2	-2	-2
4. Population in the temporarily occupied territories of Ukraine as of January 1, 2026	3009	1372	1637	165	154	956	1008	252	475
5. Citizens of Ukraine who are outside the country (labor migrants and those displaced by the war), including:	7028	2858	4170	691	658	2082	3343	85	169
labor migrants from Ukraine before the full-scale invasion in 2022	2800	1148	1652	0	0	1148	1652	0	0
balance of crossing the border of Ukraine in 2022–2025	3000	1210	1790	490	470	660	1200	60	120
displaced to Russia from the temporarily occupied territories in 2022–2025	1228	500	728	201	188	274	491	25	49
6. Men under 22 years of age who left from August 2025	98	98	0			98			
7. Change in the age structure of the population in 2022–2025	0	0	0	-354	-386	-172	-216	526	602
<b>POPULATION OF UKRAINE as of January 1, 2026, including:</b>	<b>39521</b>	<b>18246</b>	<b>21275</b>	<b>3033</b>	<b>2818</b>	<b>12693</b>	<b>13552</b>	<b>2520</b>	<b>4905</b>
population in the government-controlled territory of Ukraine as of January 1, 2026	29484	14016	15468	2177	2006	9656	9201	2183	4262
population in the temporarily occupied territories as of January 1, 2026	3009	1372	1637	165	154	956	1008	252	475
population staying abroad as of January 1, 2026	7028	2858	4170	691	658	2082	3343	85	169
<b>Change in the population of Ukraine as of January 1, 2026</b>	<b>-1476</b>	<b>-744</b>	<b>-732</b>	<b>-357</b>	<b>-389</b>	<b>-507</b>	<b>-448</b>	<b>120</b>	<b>105</b>
Change in the population of Ukraine as of January 1, 2026, %	-3,6%	-3,9%	-3,3%	-10,5%	-12,1%	-3,8%	-3,2%	5,0%	2,2%

Source: authors' calculations according to the methodology provided in subsection 1.1.



Thus, the total population of Ukraine during 2022–2025 decreased by 3.6% (or by 1.48 million people), and as of January 1, 2026, is estimated at approximately 39.5 million people. Due to the full-scale war, which led to the occupation of part of the territory and the mass emigration of Ukrainians, the population in the government-controlled territory of Ukraine during this period decreased by 18.5%, to 29.5 million people. Of these, 18.9 million people are of working age, which is 20% (or -4.63 million people) less than at the beginning of 2022 (23.5 million people). In the temporarily occupied territories and abroad there are 10 million Ukrainians, including 7.4 million working-age people.

### 1.3. Comparison of the Population Estimates with Data from the Ptukha Institute for Demography and Social Studies

To verify the estimates, they were compared with data from the Ptukha Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine (hereinafter, the Institute of Demography).

According to this study’s calculations, as of January 1, 2026, Ukraine’s population (excluding the Autonomous Republic of Crimea and Sevastopol) is 39.5 million people, including 29.5 million in the government-controlled territory, 3.0 million in the temporarily occupied territories, and 7.0 million abroad (Table 1.2).

According to the Institute of Demography, Ukraine’s population is 39.4 million people, of whom 33.3 million live in Ukraine (in the government-controlled and temporarily occupied territories combined), while 6.1 million are abroad.

Thus, the difference in the total population estimate is insignificant, at 0.1 million people. At the same time, we assume that the difference in the distribution by place of residence is due to the fact that the Institute of Demography’s estimate of Ukrainians abroad does not include those in Russia. In the Institute’s data, they are included in the population of the temporarily occupied territories.

12 Source: calculated by the authors according to the data provided in the section describing the calculation methodology.

**Table 1.2**

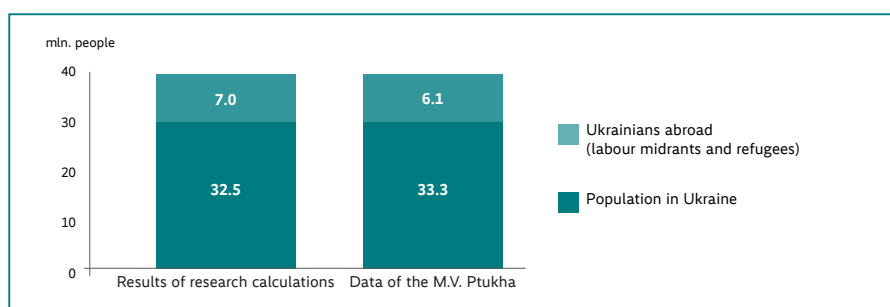
Comparison of data on the population of Ukraine as of January 1, 2026, million people

Indicator	Study calculation results	Data of the Institute of Demography	Difference
Population of Ukraine in the government-controlled territory	29,5	33,3	-0,8
Population of Ukraine in the temporarily occupied territories	3,0		
Population of Ukraine abroad	7,0	6,1	0,9
<b>TOTAL</b>	<b>39,5</b>	<b>39,4</b>	<b>0,1</b>

Source: calculation results, Ptukha Institute for Demography and Social Studies ([https://www.demography.org.ua/wp-content/uploads/2025/07/PopProj\\_2024\\_06.xlsx](https://www.demography.org.ua/wp-content/uploads/2025/07/PopProj_2024_06.xlsx))

## Comparison of data on the population of Ukraine

Figure 1.2



Thus, the estimates of Ukraine's total population show a high degree of consistency with the data of the Ptukha Institute for Demography and Social Studies, with a deviation of 0.1 million people.

## 2. Employment of the Population in Ukraine's Economy in 2021–2025

### 2.1. Methodology for Calculating Employment in the Economy as of January 1, 2026

At the time of this study, the latest available statistics on employment in Ukraine's economy were available for 2021, that is, as of January 1, 2022.

This made it necessary to calculate the number of persons employed in Ukraine's economy as of January 1, 2026. These calculations were carried out using data on produced gross value added (GVA) by types of economic activity and indicators of labor productivity in these sectors.

It was assumed that labor productivity remained unchanged during 2021–2025, and therefore was adjusted annually only by the deflator indicator.

The logic of the calculations is that the number of employed people in each sector of the economy is determined through the ratio between the volume of gross value added created in this sector and the average volume of GVA per employed person in the sector (labor productivity).

## 1. Source data for calculations

Since the latest available official data on the number of employed people by type of economic activity end with 2021, the assessment of employment in 2022–2025 was carried out not by a direct statistical method, but through the calculation relationship:

*Gross value added – Gross value added per employed person – Number of employed people.*

For the calculations, official statistics of the State Statistics Service of Ukraine were used, in particular:

→ Data on gross value added by type of economic activity for 2021–2025 (see Appendix 1).

→ Data on employment in Ukraine's economy by type of economic activity for 2021.

The list of sectors (classification of activities) was also harmonized between the GVA and employment tables so that each sector corresponded to two values: GVA and number of employed people.

## 2. Calculation of employment in industry by subsectors in 2021

Statistics on employment in industry are presented as one aggregated line. For the purposes of the study, a breakdown into extractive industry, manufacturing, electricity, gas and water supply, and waste is required.

To make such a breakdown, State Statistics Service data on the number of employees in industry by subsectors were used (see Appendix 2).

On the basis of these data, the structure of employees by subsectors was calculated, which was applied to total employment in industry in 2021.

This produced the number of employed people by industrial subsector as of January 1, 2022.

## 3. Calculation of baseline labor productivity by sectors of the economy in 2021–2025

The calculation of baseline labor productivity by sectors of the economy in 2021 was carried out using the formula:

*Productivity in the sector (2021) = GVA\_sector(2021) / Employed\_sector(2021).*

This produced the indicator of GVA per employed person for each sector in 2021 (labor productivity in the sector), which became the basis for calculating the employed population by sectors of the economy in 2022–2025.

Subsequently, to account for the inflation factor, the productivity indicator (GVA per 1 employed person) was indexed using the GDP deflator for each year (2022–2025).

The results of calculations of labor productivity (GVA per employee) by sector for 2021–2025 are given in Appendix 3.

## 4. Calculation of employment by sectors of the economy as of January 1, 2026

The calculation of annual employment by sectors of the economy in 2022–2025 was carried out using the formula:

*Employment\_sector = GVA\_sector / Labor\_productivity\_sector*

The results for 2025 are interpreted as the estimate of employment as of January 1, 2026.

## 2.2. Results of calculations of the number of employed people of Ukraine by sectors of the economy in 2021–2025

The total number of employed people in Ukraine's economy declined by 21.9% (or 3.4 million people) during 2021-2025 and stood at 12.2 million in 2025 (Table 2.1).

In 2022, as a result of the full-scale war, employment in the economy fell by 4.4 million people (-28%). Over the following three years (2023-2025), employment increased annually by 71-594 thousand people and rose by 1 million in total.

The number of employed people decreased in almost all sectors of the economy except public administration (+1.6 million people) and the energy sector (+116 thousand people). In public administration, the number of workers increased due to the increase in the Armed Forces of Ukraine, and in the energy sector – due to the increase in the number of repair crews.

The number of workers decreased the most in agriculture (-1.4 million people), trade (-1.0 million), manufacturing (-550 thousand), education (-451 thousand), and transport (-365 thousand). The decline reflected both lower output in these sectors and mobilization measures, the latter affecting agriculture and manufacturing in particular.

**Table 2.1**

Number of employed population in Ukraine's economy by sector in 2021–2025, thousand people

Sector	2021	2022	2023	2024	2025	Change 2021/2025	
						thousand people	%
<b>Agriculture, forestry and fisheries</b>	<b>2 693</b>	<b>1 518</b>	<b>1 427</b>	<b>1 383</b>	<b>1 325</b>	<b>-1 368</b>	<b>-50,8%</b>
Extractive industry and quarrying	248	121	126	122	98	-150	-60,5%
<b>Manufacturing</b>	<b>1 567</b>	<b>829</b>	<b>968</b>	<b>1 008</b>	<b>1 017</b>	<b>-550</b>	<b>-35,1%</b>
Electricity, gas, steam and air conditioning supply	348	329	373	385	464	116	33,3%
Water supply; sewerage, waste management	150	95	88	82	79	-71	-47,3%
Construction	691	237	300	330	316	-375	-54,3%
<b>Wholesale and retail trade; repair of motor vehicles and motorcycles</b>	<b>3 605</b>	<b>2 334</b>	<b>2 642</b>	<b>2 459</b>	<b>2 608</b>	<b>-997</b>	<b>-27,7%</b>
<b>Transport, warehousing, postal and courier activities</b>	<b>961</b>	<b>549</b>	<b>591</b>	<b>643</b>	<b>596</b>	<b>-365</b>	<b>-38,0%</b>
Accommodation and food service activities	285	130	155	167	188	-97	-34,0%
Information and telecommunications	289	174	188	196	216	-73	-25,3%
Financial and insurance activities	211	151	136	169	132	-79	-37,4%
Real estate activities	248	139	158	178	186	-62	-25,0%
Professional, scientific and technical activities	422	198	227	233	251	-171	-40,5%
Administrative and support service activities	318	188	186	192	200	-118	-37,1%
Public administration; compulsory social insurance	874	2 199	2 318	2 274	2 459	1 585	181,4%

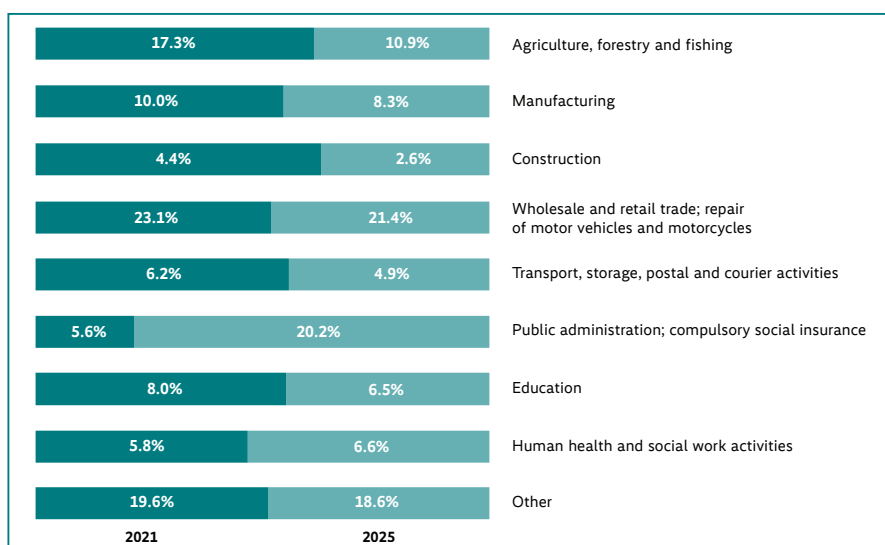
Sector	2021	2022	2023	2024	2025	Change 2021/2025	
						thousand people	%
<b>Education</b>	<b>1 244</b>	<b>878</b>	<b>724</b>	<b>813</b>	<b>793</b>	<b>-451</b>	<b>-36,3%</b>
Human health and social work activities	913	759	771	777	799	-114	-12,5%
Arts, sports, entertainment and recreation	179	109	139	161	160	-19	-10,6%
Provision of other services	365	248	262	278	298	-67	-18,4%
<b>TOTAL</b>	<b>15 611</b>	<b>11 185</b>	<b>11 779</b>	<b>11 850</b>	<b>12 186</b>	<b>-3 426</b>	<b>-21,9%</b>
Change from previous year	-	-4 426	594	71	335	-	-

Source: authors' calculations based on data of the State Statistics Service of Ukraine

The sectoral structure of employment in Ukraine changed significantly during 2021–2025 (Fig. 2.1). Thus, due to mobilization into the Armed Forces, the share of the public administration sector increased (from 5.6% to 20.2%), while the shares of other sectors decreased. The shares of agriculture (from 17.3% to 10.9%), trade (from 23.1% to 21.4%), and manufacturing (from 10% to 8.3%) decreased the most.

*Structure of the employed population in Ukraine's economy by sector in 2021 and 2025, %*

Figure 2.1



Thus, due to the war, the total number of employed people in Ukraine's economy declined by 21.9% during 2021-2025 and stood at 12.2 million in 2025. Employment decreased in almost all sectors except public administration (+1.6 million people) and energy (+116 thousand). The largest declines occurred in agriculture (-1.4 million), trade (-1.0 million), manufacturing (-550 thousand), education (-451 thousand), and transport (-365 thousand).

# 3. Economic Priorities for the Recovery Period, Including Structural Changes in Ukraine's Economy

The full-scale war exposed the vulnerability of the Ukrainian economy and its limited capacity to finance defense needs and maintain minimum social standards. As a result, the country is critically dependent on external assistance, which currently covers nearly half of state budget expenditures.

For Ukraine, the recovery period is therefore not only about rebuilding destroyed housing, infrastructure, and production facilities. It is also about creating a new economic model that can finance national defense and social needs, compete in the European market, and reduce dependence on external financing.

This requires targeted structural transformation: shifting from the export of raw materials and semi-finished goods toward domestic processing; developing technological production and expanding domestic value-added creation; increasing energy efficiency; integrating climate policy; and implementing innovative and green solutions.

The main structural change should be the development of a modern, technologically advanced manufacturing sector, whose current share in the economy is abnormally low at about 8%.

This sector is particularly important for:

1. sustainable economic growth,
2. high standards of security and citizens' quality of life,
3. Ukraine's need for means of military deterrence,
4. convergence with EU countries in terms of labor productivity and population incomes,
5. international economic competitiveness and beneficial integration into global and pan-European value chains,
6. rational use and deep processing of available raw materials,
7. achieving reasonable production autonomy and integration with European industry within the framework of the green and digital transitions,
8. high adaptability to technological changes and capacity for independent technology development.

The structure of Poland's economy may be considered the target benchmark of the structural transformation of Ukraine's economy.

Poland was chosen as the reference country because it is a neighboring European state with several characteristics comparable to Ukraine: similar starting conditions after the collapse of the socialist system, comparable territory and population, an important role for manufacturing in the economy, and positive experience with deep economic transformation.

Poland's nominal GDP in 2025 was USD 1.04 trillion, five times larger than Ukraine's economy (USD 213 billion). The comparison with Poland therefore makes it possible not only to assess the scale of Ukraine's lag, but also to define a realistic benchmark for increasing labor efficiency in Ukraine.

Figure 3.1 shows the GDP structure of Ukraine and Poland. The larger share of public administration in Ukraine's economy (21.5% versus 5.4% in Poland) is due to the war.

At the same time, the largest structural differences between the Ukrainian and Polish economies are related to the sectors of the so-called “real economy” — agriculture, extractive and manufacturing industries, and construction.

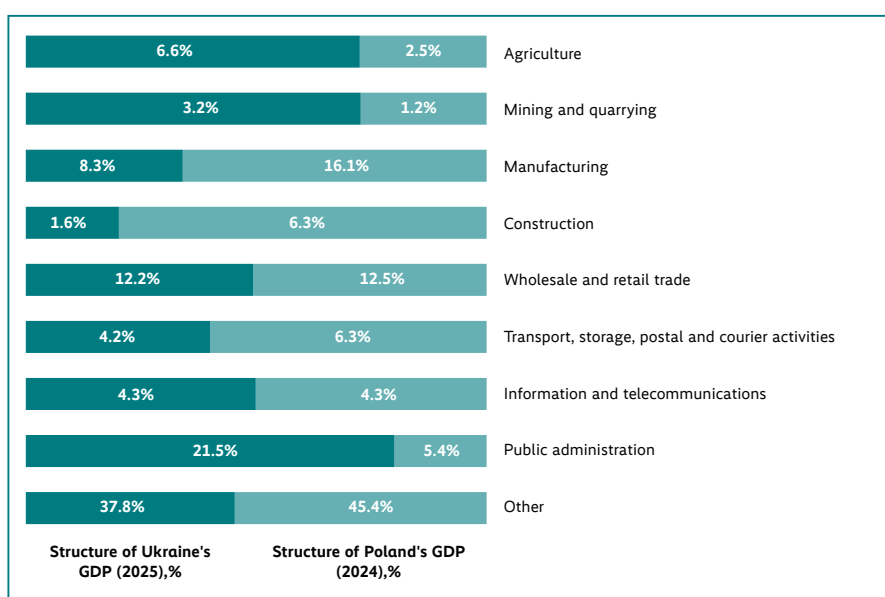
Thus, in Ukraine the share of raw-material sectors in the economy (agriculture and extractive industry) is 9.8%, compared with 3.7% in Poland. At the same time, the share of manufacturing in the Ukrainian economy (8.3%) is almost twice lower than in Poland (16.1%).

These differences are caused by the fact that Ukraine produces and exports significant volumes of raw materials (grain, ores, clays), unlike Poland, which practically does not export raw materials. Thus, during 2022–2024 the share of raw materials in Ukrainian merchandise exports stood at 38–39%, while in Poland this indicator does not exceed 2% (mainly grain).

Also in Ukraine the share of construction is substantially smaller — 1.6%, compared with 6.3% in Poland. The main reason is the weak investment process in Ukraine.

### GDP Structure of Ukraine (2025) and Poland (2024)

Figure 3.1



A consequence of the imperfect raw-material-oriented structure of the national economy is the substantial lag in GDP per capita: in 2024 this indicator in Ukraine stood at USD 5.4 thousand, whereas in Poland — USD 25.1 thousand.

Such a scale of the gap means that the development of raw-material processing and the production of goods with higher value added are capable of ensuring GDP growth by 2–3 times in the medium term, through a systematic increase in the efficiency of labor and capital in manufacturing segments and related services.

This defines Ukraine’s economic priority for the recovery period: moving from the role of a raw-material supplier to global markets toward an economic model in which most value added is created through domestic processing of available raw materials and, as a result, higher overall labor productivity. This requires accelerated development of manufacturing sectors such as the food industry, woodworking, building-materials and structural-materials production, metallurgy and metalworking, machine-building, including the defense-industrial complex, and the production of equipment for the green transition.

Such structural changes will directly contribute to the reduction of Ukraine’s dependence on external macro-financial support through accelerated economic growth and expansion of the budget base. The growth of the share of processing and high-value-added production will increase labor productivity, raise export revenues and business profitability, create “white” employment and longer supply chains within the country. As a result, this will broaden the tax base (personal

13 Source: prepared by the authors based on data of the State Statistics Service of Ukraine and OECD

income tax, unified social contribution, corporate income tax, VAT) and increase budget revenues, which will contribute to restoring the state's ability to finance key expenditures — defense, reconstruction, and social functions.

The return of Ukrainian citizens from abroad and the retention of workers depend directly on the availability of safe, highly productive, and well-paid jobs inside the country.

## 4. Human-Capital Needs for Structural Change and Sustainable Growth in Ukraine's Economy Through 2035

### 4.1. Methodology for Estimating Human-Capital Needs for Structural Change and Sustainable Growth Through 2035

The calculation of human-capital needs for structural change in Ukraine's economy through 2035 was carried out using the following methodology:

- 1) Selection of a model of structural changes in the national economy;
- 2) Determination of projected growth rates by sectors of Ukraine's economy through 2035;
- 3) Calculation of projected volumes of gross value added (GVA) production in Ukraine by sector in 2035;
- 4) Determination of projected labor productivity by sector through 2035;
- 5) Calculation of the workforce needs (human capital) through 2035.

#### 1. Selection of a model of structural changes in the economy

The principal structural change is an increase in the role of manufacturing. Its share of GDP should rise from the current 8% to more than 15%. Achieving this level will require a long time horizon and consistent economic policy. Within the 2026-2035 timeframe considered in this study, reaching such a share is unlikely, but policy trajectories must be set now to support this change over a period of up to 15 years.

#### 2. Determination of projected growth rates by sectors of Ukraine's economy through 2035

The structural-transformation scenario adopted in the study assumes significant investment that would support leading average annual growth rates for manufacturing (9.8%). High growth is also assumed for construction (12.5%), because it is directly linked to new industrial development and the reconstruction of what has been destroyed by the war. IT also grows rapidly (9.5%), reflecting recent trends and strong demand for the sector's products. In other sectors, growth rates are somewhat lower, at 3-7% per year.

The projected average annual growth rates by sectors of the economy through 2035 adopted for calculations within the study are given in Appendix 4.

It is important to note that the projected rates of economic growth are based on the analysis of the successful experience of Eastern European countries, in particular Poland and Slovakia, which went through stages of large-scale economic transformation, the basis of which was the development of manufacturing branches of the economy.

### 3. Calculation of projected volumes of GVA production in Ukraine by sector in 2035

To calculate the projected volumes of gross value added by sector in 2035, scenario-based average annual growth rates for the relevant sectors (Appendix 4) were applied to the actual value-added indicator for 2025. The results are given at 2025 prices.

### 4. Determination of labor productivity by sectors of the economy through 2035

Labor productivity is a key variable in estimating workforce needs through 2035. The scale of these needs will depend largely on the model of post-war recovery: whether recovery is driven by large-scale investment in economic efficiency, production and infrastructure modernization, or mainly by the reconstruction of war-damaged facilities without significant technological renewal. Accordingly, labor-productivity dynamics will determine the economy's future workforce demand.

The study considers two scenarios of labor productivity growth in Ukraine's economy.

The first scenario — inertial — is based on the assumption that GDP growth will be ensured without significant capital investment in the development of industry, agriculture, infrastructure, human capital, etc. There will be no substantial increase in labor productivity in the country, and the increase in labor efficiency is projected to amount to only about 10% by 2035.

The second scenario — investment — assumes significant investment, in particular in the development of production and transport infrastructure, reconstruction of the energy sector, real estate, and other key sectors of the economy. Under these conditions, labor productivity growth by sectors of the economy may amount to 20–60% by 2035.

To assess the potential growth of labor productivity under the investment scenario, reference data of Poland for the period 2000–2024 were used.

### 5. Calculation of the workforce needs (human capital) through 2035

Workforce demand in 2035 is calculated using the following formula:

$$\text{Workforce demand (2035)} = \text{sector GVA in 2035} / \text{sector GVA per worker in 2035 (labor productivity)}$$

That is, dividing projected sectoral GVA by sectoral labor productivity gives the required number of workers in each sector in 2035.

## 4.2. Calculation of Ukraine's need for human capital through 2035

### 1. Calculation of the volumes and structure of Ukraine's gross value added through 2035

The results of gross value added calculations by sector in Ukraine through 2035 are presented in Table 4.1.

Ukraine's average annual GDP growth rate in 2026-2035 is projected at 4.5%, comparable with the average annual growth rates of European countries during periods of economic transformation, including Poland (CAGR of 4.4% in 1996-2010), Turkey (CAGR of 4.3% in 1986-2000), and Slovakia (CAGR of 4.4% in 1996-2010).

During this period, Ukraine's real GDP will grow by 56%; at 2025 prices, it will increase from UAH 8.94 trillion to UAH 13.9 trillion per year, or from USD 212 billion to USD 332 billion per year.

Due to the different dynamics of sectoral development, the GDP structure will change. In particular, the shares of manufacturing (from 8.3% in 2025 to 13.5% in 2035), construction (from 1.6% to 3.3%), and the IT sector (from 4.3% to 6.9%) will increase significantly.

The share of public administration will decline after the end of the war (from 21.5% to 9.7%), but will remain higher than before the war (6.2%) because of the need to maintain the country's defense capability.

The shares of other sectors of the economy will change insignificantly.

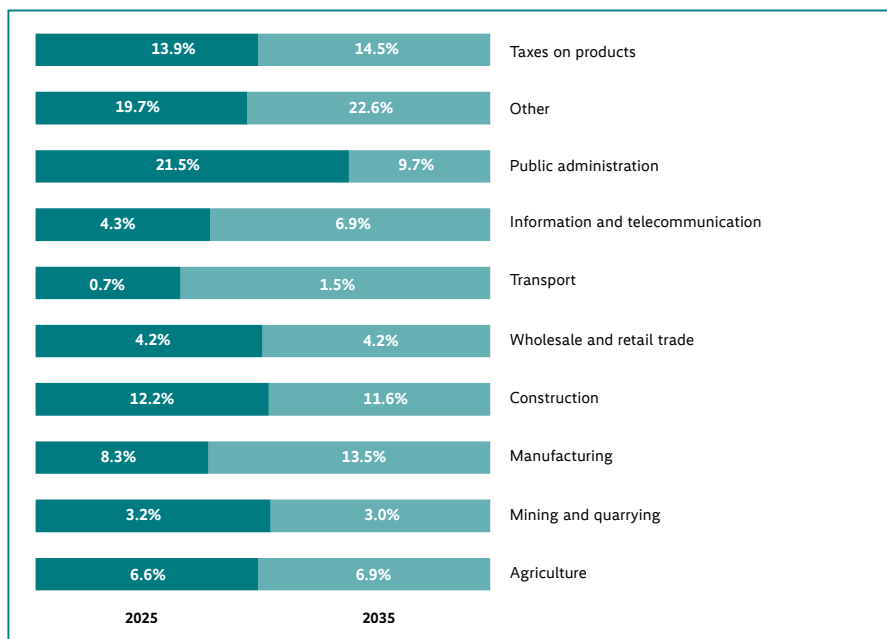
**Table 4.1**

Volumes and structure of Ukraine's GDP by sector through 2035

Sector	2025		CAGR 2025–2035, %	2035	
	GVA, UAH billion	Structure, %		GVA, UAH billion*	Structure, %
Agriculture	592,2	6,6%	5,0%	964,6	6,9%
Extractive industry	282,4	3,2%	4,0%	418,0	3,0%
<b>Manufacturing</b>	<b>738,0</b>	<b>8,3%</b>	<b>9,8%</b>	<b>1879,6</b>	<b>13,5%</b>
Electricity supply	490,5	5,5%	5,0%	799,0	5,7%
Water supply; sewerage, waste management	20,4	0,2%	1,5%	23,7	0,2%
<b>Construction</b>	<b>139,6</b>	<b>1,6%</b>	<b>12,5%</b>	<b>453,3</b>	<b>3,3%</b>
<b>Wholesale and retail trade</b>	<b>1089,0</b>	<b>12,2%</b>	<b>4,0%</b>	<b>1612,0</b>	<b>11,6%</b>
Transport, warehousing, postal and courier activities	371,7	4,2%	4,7%	588,4	4,2%
Accommodation and food service activities	65,8	0,7%	12,0%	204,5	1,5%
<b>Information and telecommunications</b>	<b>387,8</b>	<b>4,3%</b>	<b>9,5%</b>	<b>961,2</b>	<b>6,9%</b>
Financial and insurance activities	205,7	2,3%	8,0%	444,1	3,2%
Real estate activities	478,0	5,3%	5,0%	778,7	5,6%
Professional, scientific and technical activities	189,8	2,1%	7,0%	373,3	2,7%
Administrative and support service activities	86,6	1,0%	3,0%	116,4	0,8%
<b>Public administration</b>	<b>1920,4</b>	<b>21,5%</b>	<b>-3,5%</b>	<b>1344,8</b>	<b>9,7%</b>
Education	304,1	3,4%	4,5%	472,3	3,4%
Human health and social work activities	239,5	2,7%	4,5%	371,9	2,7%
Arts, sports, entertainment and recreation	57,9	0,6%	4,5%	89,9	0,6%
Provision of other services	77,2	0,9%	3,0%	103,8	0,7%
<b>TOTAL GVA</b>	<b>7736,6</b>	<b>86,6%</b>	<b>4,49</b>	<b>11999,5</b>	<b>86,2%</b>
Taxes on products	1238,0	13,9%	5,0%	2016,6	14,5%
Subsidies on products	-39,0	-0,4%	7,4%	-80,0	-0,6%
<b>TOTAL = GDP</b>	<b>8935,7</b>	<b>100%</b>	<b>4,5%</b>	<b>13936,0</b>	<b>100%</b>

\* – at 2025 prices

Source: authors' calculations based on data of the State Statistics Service of Ukraine



Thus, the projected GDP structure for 2035 reflects the strengthening of the role of manufacturing, the IT sector, and construction, that is, sectors with higher value added and higher growth rates.

## 2. Forecast of labor productivity by sectors of the economy through 2035

Table 4.2 presents data on labor productivity measured by GVA in Ukraine by sector: actual values for 2025 and forecasts for 2035 under two scenarios, inertial and investment.

As reference (comparative) data, similar data for Poland for 2024 are also provided to assess the current scale of the gap in labor productivity between Ukraine and an EU country.

The data show that Ukraine currently lags far behind Poland in labor productivity, with gaps of several times in most sectors. The exception is extractive industry, where Ukraine's indicator is somewhat higher than Poland's because of the iron-ore segment.

The inertial scenario assumes moderate growth of labor productivity due to the weak investment process. Such dynamics were observed in Ukraine in the pre-war period of 2012–2019.

The investment scenario assumes significant growth of labor productivity in most sectors of the economy due to the emergence of modern highly productive production facilities. In its development, the dynamics of changes in labor productivity in Poland during 2015–2024 were taken into account.

**Table 4.2**

Labor productivity by GVA in Ukraine in 2025 and 2035, and in Poland in 2024, USD/person

Sector	2025 (actual)	2035 (forecast)*		Poland (2024)
		inertial scenario	investment scenario	
Agriculture	10,6	11,7	14,9	21,0
Extractive industry	68,3	75,2	82,0	56,6
Manufacturing	17,3	19,0	24,2	44,7

14 Source: prepared by the authors based on data of the State Statistics Service of Ukraine

Sector	2025 (actual)	2035 (forecast)*		Poland (2024)
		inertial scenario	investment scenario	
Electricity supply	25,1	27,7	35,2	131,8
Water supply; sewerage, waste management	6,1	6,8	8,6	55,8
Construction	10,5	11,6	14,7	43,9
Wholesale and retail trade	9,9	10,9	13,9	50,4
Transport, warehousing, postal and courier activities	14,8	16,3	20,8	49,2
Accommodation and food service activities	8,3	9,2	13,3	37,2
Information and telecommunications	42,7	47,0	68,4	59,2
Financial and insurance activities	37,1	40,8	52,0	95,3
Real estate activities	61,2	67,4	98,0	318,3
Professional, scientific and technical activities	18,0	19,8	25,2	54,9
Administrative and support service activities	10,3	11,3	14,4	54,6
Public administration	22,7	25,0	25,0	40,1
Education	9,1	10,0	12,8	30,4
Human health and social work activities	7,1	7,8	10,0	38,6
Arts, sports, entertainment and recreation	8,6	9,5	12,1	32,2
Provision of other services	6,2	6,8	8,7	28,2

\* — at 2025 prices

Source: authors' calculations based on data of the State Statistics Service of Ukraine and OECD data

Under the inertial scenario, labor productivity will grow at moderate rates (1–2% per year) in all sectors of the economy and by 2035 will increase by 10–11% compared with 2025. This implies the preservation of the existing development trajectory without significant technological renewal and large-scale investment. Labor-intensive production will continue to dominate in Ukraine, and output growth in these sectors will take place mainly through an increase in the number of workers rather than through greater labor efficiency by means of automation, new technologies, or modernization.

Under the investment scenario, labor productivity in most sectors grows by 4-5% annually and increases by 40-60% by 2035. The largest increases are expected in IT (+60%) and tourism (+60%), sectors that do not require long investment cycles to expand production or services substantially and can scale rapidly thanks to organizational changes, digitalization, and relatively quick investment payback.

In industrial activities, the investment scenario also provides a noticeable acceleration of labor productivity, but the pace varies by sector. The largest increases are expected in manufacturing (+39.9%), electricity supply (+40.2%), and water supply, sewerage, and waste management (+41.0%). This is due to the fact that manufacturing and construction are considered key areas for attracting investment during post-war recovery; the energy sector will be rebuilt at an accelerated pace and on new technological and organizational foundations; and water supply and waste management, given their critical importance, are also reconstruction priorities.

Lower rates of labor productivity growth are projected in the public administration sector (+10.1%) and extractive industry (+20.1%). In the first case, this is due to the end of the war period and the expected lag of wage dynamics in public administration behind the average level in the economy in the post-war period; in the second — to the fact that extractive industry has already formed a relatively high level of labor productivity, and therefore the potential for its further growth is limited.

At the same time, even under the investment scenario, intersectoral productivity gaps remain, reflecting differences in capital intensity, technological level, and organizational efficiency across types of economic activity.

Ukraine also continues to lag behind Poland in labor productivity, since closing this gap would require a longer period.

### 3. Workforce needs (human capital) through 2035

Table 4.3 presents the calculations of Ukraine's workforce needs through 2035 by sectors of the economy for the inertial and investment development scenarios.

The calculations show that the scale of labor demand depends significantly on the dynamics of labor productivity: the higher the productivity, the smaller the additional number of workers needed to ensure the projected volumes of GVA production.

**Table 4.3**

Ukraine's workforce needs through 2035 by sectors of the economy, thousand people

Sector	2025 (actual)	2035 (inertial scenario)		2035 (investment scenario)	
		Employment	Additional need	Employment	Additional need
Agriculture	1 325	1962	637	1541	217
Extractive industry	98	132	34	121	23
Manufacturing	1 017	2355	1338	1850	833
Electricity supply	464	688	223	540	76
Water supply; sewerage, waste management	79	83	4,3	66	-13,5
Construction	316	934	617	734	417
Wholesale and retail trade	2 608	3509	901	2757	150
Transport, warehousing, postal and courier activities	596	858	262	674	78
Accommodation and food service activities	188	532	343	366	177
Information and telecommunications	216	487	271	335	119
Financial and insurance activities	132	259	127	203	72
Real estate activities	186	275	89	189	3,4
Professional, scientific and technical activities	251	448	198	352	102
Administrative and support service activities	200	244	44	192	-8,0
Public administration	2 459	1282	-1177	1282	-1177
Education	793	1120	327	880	87
Human health and social work activities	799	1129	329	887	87
Arts, sports, entertainment and recreation	160	226	66	177	17,5
Provision of other services	298	364	66	286	-11,9
<b>Total</b>	<b>12 186</b>	<b>16887</b>	<b>4701</b>	<b>13433</b>	<b>1247</b>

Source: authors' calculations based on data of the State Statistics Service of Ukraine and OECD data

Under the inertial scenario, total workforce demand is 16.9 million people, or 38.6% higher than employment in 2025 (12.2 million people). Accordingly, the additional labor need is 4.7 million people, with the greatest demand in manufacturing (+1.34 million), trade (+0.9 million), agriculture (+0.64 million), and construction (+0.62 million). Employment in public administration will decline by 1.2 million people due to demobilization after the end of the war.

Under the investment scenario, higher labor productivity reduces total workforce demand in 2035 to 13.4 million people, or 10.2% above the 2025 employment level (12.2 million). Accordingly, additional labor demand is substantially smaller – 1.2 million people, or about four times less than under the inertial scenario (4.7 million). In other words, the investment model of economic development and transformation significantly reduces workforce pressure by increasing the efficiency of labor use.

Under the investment scenario, additional labor demand remains in several sectors, with the greatest need in manufacturing (+833.3 thousand people), construction (+417.3 thousand), and agriculture (+216.6 thousand).

At the same time, some sectors will not need additional workers; first of all this concerns public utilities and the provision of administrative services.

**Thus, total workforce demand through 2035 is estimated at 16.9 million people under the inertial scenario and 13.4 million under the investment scenario. The corresponding additional labor needs are 4.7 million and 1.2 million people. Because of the demobilization of military personnel, employment in public administration will decrease by 0.73 million people. Under the investment scenario, additional demand remains in several sectors, with the greatest needs in manufacturing (+833.3 thousand people), construction (+417.3 thousand), and agriculture (+216.6 thousand).**

The calculations show that labor-productivity growth is the key factor in balancing the labor market through 2035. Without investment-driven acceleration, the economy will face a large-scale staffing gap. Under the investment scenario, the need for additional workers is substantially smaller, although the risk of shortages remains high in industry, construction, and some service sectors.

## 5. Policy Directions for Ensuring Sufficient Human Capital for Ukraine's Economic Development

The analysis shows that, under the target investment-recovery scenario, Ukraine will need 13.4 million workers by 2035. As of the beginning of 2026, employment in the Ukrainian economy is estimated at 12.2 million people. The additional need for workers is therefore 1.2 million people.

The main way to address the workforce challenge is to increase labor productivity by attracting investment in Ukraine's new industrialization, particularly the technological renewal of production. Only this scenario can ensure competitive wages and become a key factor in encouraging Ukrainians abroad to return.

Taking into account demographic dynamics and the current structure of labor potential, the main sources of covering the additional need for 1.2 million workers are considered to be:

- 1) Activation of unused reserves, including internally displaced persons (potential – up to 2.1 million people);**
- 2) Return of forced migrants (refugees) from abroad (potential – up to 2.4 million people);**
- 3) Sectoral redistribution and stimulation of mobility (potential up to 1.1 million people).**

It is important to recognize that covering the calculated need of 1.2 million workers is not an instantaneous process. The effectiveness of workforce redistribution depends directly on the time required to retrain people and launch new capacities. Synchronizing specialist training with actual investment-project schedules would help avoid structural unemployment and provide the economy with workers when they are needed.

Such synchronization requires a strategic-planning instrument for the placement of productive forces at the national and regional levels. This would make it possible to combine the mapping of new production facilities with housing construction and the development of transport and social infrastructure.

When planning, regional smart specialization should also be taken into account, according to the economic profile of macro-regions:

- South and Center: development of deep agro-processing instead of exporting raw materials.
- Industrial core (Dnipro, Zaporizhzhia): modernization of metallurgy and machine-building.
- West and border areas: creation of production integrated into EU supply chains.
- Innovation hubs (Kyiv, Lviv, Kharkiv): focus on R&D and high technologies.

(A consolidated table on the possibilities of regional specialization is given in Appendix 5.)

At the same time, workforce engagement across different population groups depends on several common foundations. Whether the target group is internally displaced persons, veterans, or refugees, the key factors for their participation in the economy are:

- **Competitive remuneration:** technological renewal of production (reindustrialization) would make it possible to ensure wages that are competitive with EU markets. This is the main factor in retaining Ukrainians in the country and encouraging refugees and emigrants to return.
- **“Work – Housing – Social Infrastructure”:** job creation should be synchronized with housing construction (including through preferential mortgages) and the development of social infrastructure (kindergartens, schools, hospitals).
- **Personnel training programs, including retraining, namely:**
  - Development of dual education: specialist training, with up to 50% of time spent in practice, must be closely linked to the launch schedules of new investment projects. This would help avoid a situation in which a plant is built but there is no one to work there.
  - Retraining programs: short-term courses of 3-6 months should be introduced to help people quickly acquire occupations in demand in manufacturing and construction.

Engaging workers from each of the three groups also has its own specific features.

### 1. Activation of unused reserves (internal potential), including internally displaced persons

Activating unused reserves, including internally displaced persons, is the fastest source for replenishing workforce potential.

As of the beginning of 2026, the working-age population had decreased by 16.7% to 18.9 million people, and its qualitative structure had deteriorated because the share of persons with disabilities increased by 18%. At the same time, Ukraine still has significant unused potential – almost 2.1 million people, excluding persons with disabilities and students. Of these, 1.5 million are unemployed and are currently not involved in the productive sectors of the economy (Table 5.1).

**Table 5.1**

Economic engagement of the working-age population, thousand people

Indicator	as of January 1, 2022		as of January 1, 2026	
	thousand people	%	thousand people	%
<b>Working-age population</b>	<b>22 640</b>	<b>100%</b>	<b>18 857</b>	<b>100%</b>
Employed population	15 610	68,9%	12 186	64,6%
Informally employed population	3 000	13,3%	2 800	14,8%

Indicator	as of January 1, 2022		as of January 1, 2026	
	thousand people	%	thousand people	%
<b>Employed total</b>	<b>18 610</b>	<b>82,2%</b>	<b>14 986</b>	<b>79,5%</b>
<b>Unused working-age population</b>	<b>4 030</b>	<b>17,8%</b>	<b>3 871</b>	<b>20,5%</b>
of which:				
persons with disabilities of groups 1 and 2	900	4,0%	1 062	5,6%
students	764	3,4%	747	4,0%
<b>Other unused working-age people</b>	<b>2 366</b>	<b>10,5%</b>	<b>2 062</b>	<b>10,9%</b>
of which:				
unemployed	1 700	7,5%	1 500	8,0%

Source: authors' calculations based on data of the State Statistics Service of Ukraine

To engage these **2.1 million people** (in the category “other unused”), it is necessary to eliminate the structural barriers that prevent these people from entering the labor market. In addition to the above-mentioned general measures, the priorities for this group are:

**1) Targeted work with internally displaced persons and “return” migrants:** currently about 3.4 million people are internally displaced, and a significant part of them has not been able to integrate in the new place. Thus, as of February 2026, almost 1.6<sup>15</sup> million internally displaced persons returned to frontline zones due to financial difficulties and economic insecurity. Therefore, the state should develop and offer targeted “adaptation packages” that will include vacancies in new production clusters and compensation of housing rental costs during retraining in safer regions and/or housing construction programs. This will make it possible to turn “forced return” into productive relocation to centers of economic growth.

To engage the unused reserve of Ukrainians of working age, international experience should also be considered. For example, in Germany<sup>16</sup> the development of a network of full-day kindergartens increased the employment rate of mothers by 11–19%. In Poland, expanding access to nurseries and lowering the school starting age freed places in kindergartens, which stimulated growth in female employment by 4.2%<sup>17</sup>. The introduction of similar steps in Ukraine will make it possible to activate the labor potential of Ukrainian women.

At the same time, the engagement in the economy of persons with disabilities (about 1.1 million people) is not the subject of this study, since this requires separate special programs aimed at finding optimal ways of their adaptation in society and the economy.

## 2) Return of forced migrants (refugees) from abroad

According to the study’s estimates, about 4.8<sup>18</sup> million working-age Ukrainians are abroad. This group is heterogeneous: about 2.8 million were labor migrants before 2022, and the rest are forced migrants and refugees who left because of the war.

The key factors for the return of refugees from abroad are primarily the solution of three issues: (1) security, (2) work with competitive wages, (3) housing with appropriate social infrastructure.

The security issue will likely be resolved after the end of the war. At the same time, the issues of work and housing, together with access to social infrastructure, must be addressed comprehensively. Competitive wages should be supported by housing and infrastructure programs in the regions where new jobs are created.

15 <https://www.pap.pl/ua/ukrainian/news/mayzhe-16-mln-ukrainciv-povernulisya-do-prifrontovikh-regioniv>

16 [https://www.researchgate.net/publication/345662769\\_Does\\_Public\\_Childcare\\_boost\\_Female\\_Labour\\_Force\\_Participation\\_A\\_Macro-Level\\_Approach\\_comparing\\_Fixed\\_Effect\\_and\\_Fixed\\_Effect\\_Individual\\_Slope\\_Models\\_for\\_Germany\\_2007-2017%20](https://www.researchgate.net/publication/345662769_Does_Public_Childcare_boost_Female_Labour_Force_Participation_A_Macro-Level_Approach_comparing_Fixed_Effect_and_Fixed_Effect_Individual_Slope_Models_for_Germany_2007-2017%20)

17 <https://link.springer.com/article/10.1007/s00181-020-01877-5>

18 Excluding persons who left for Russia.

Information policy is also important, namely active communication with Ukrainians abroad regarding the opportunities that are emerging in Ukraine. For example, the development of industrial sectors and construction of new plants, housing availability and housing programs, social aspects, etc.

### **3) Sectoral redistribution and stimulation of mobility**

The overall estimate of this resource is about 1.1 million people. Its basis consists of demobilized military personnel after the end of the war — 700–800 thousand people. Redistribution of workers from low-productivity sectors to high-technology ones is also expected. Reduction of low-efficiency/low-productivity sectors is a necessary condition during Ukraine's recovery.

To realize this potential, it is necessary to ensure:

- Veteran adaptation programs: introduction of psychological support programs and specialized retraining for the rapid integration of former military personnel into priority branches of industry.
- Retraining of unproductive personnel: development of requalification programs for workers from sectors with low value added in accordance with the needs of high technologies and modern production.

It should be emphasized that without the implementation of the target investment scenario, which will ensure growth of labor productivity and, accordingly, competitive wages, Ukraine will face significant challenges after the end of the war. The main one is the threat of the erosion of human capital.

By contrast, the inertial scenario will generate a deficit of workers at the level of 4.7 million people to achieve GDP growth at the level of +4.5% annually. This scenario will require large-scale labor migration into the country and will preserve low labor productivity and low wage levels. Under these conditions, Ukraine will not only fail to return refugees and labor migrants, but will also receive a new wave of emigration. Ukrainians, especially youth, will not agree to a low level of wages and will connect their future with other countries.

# Conclusions

## 1. Ukraine's Human Potential as of January 1, 2026

- The total population of Ukraine during 2022–2025 decreased by 3.6% (-1.48 million people), and as of January 1, 2026, is estimated at approximately 39.5 million people.
- Due to the war, which led to the occupation of territories and mass emigration, the population in the government-controlled territories decreased by 18.5%, from 36.2 to 29.5 million people.
- The working-age population in the government-controlled territory decreased by 20% — from 23.5 million to 18.9 million people (-4.63 million people).
- 10 million Ukrainians are in the temporarily occupied territories and abroad, among them 7.4 million are working-age people.
- The obtained calculation results of the total population of Ukraine demonstrate a high correlation with the data of the Ptukha Institute for Demography and Social Studies (deviation of 0.1 million people).

## 2. Population Employment in Ukraine's Economy in 2021–2025

- Since the beginning of the war, the total number of employed people in Ukraine's economy has decreased by 21.9%, from 15.6 to 12.2 million people as of January 1, 2026.
- Employment growth occurred only in public administration (+1.6 million people), due to the needs of the Defense Forces (mobilization), and in the energy sector (+116 thousand people), due to the increase in the number of repair crews.
- The greatest staff reduction occurred in agriculture (-1.4 million people), trade (-1.0 million people), manufacturing (-550 thousand people), and education (-451 thousand people) due to the reduction in population in the government-controlled territory, the decrease in output in the sectors, and mobilization (especially in agriculture).

## 3. Economic Priorities for the Recovery Period Through 2035

- The need for economic transformation is identified in terms of increasing the share of manufacturing in GDP from the current 8.3% to more than 13%.
- Ukraine's GDP growth rates should reach an average annual level of 4.5% (CAGR) during 2026–2035 under the target scenario.
- Economic growth is considered under two scenarios: inertial and investment. Under the inertial scenario, productivity growth is limited to 1–2% per year; under the investment scenario, labor productivity will grow annually by 4–5%.

## 4. Need for Human Capital through 2035

- Under the inertial scenario, the total need for workers is 16.9 million people, which creates an additional need for workers at the level of +4.7 million people (relative to the 2025 indicator).
- Under the investment scenario, the total need for workers is 13.4 million people, and additional demand — to +1.2 million people. The greatest staffing demand will be formed by manufacturing (+833.3 thousand), construction (+417.3 thousand), and the agricultural sector (+216.6 thousand).

## 5. Strategic Policy Directions for Ensuring Sufficient Human Capital

- Increasing labor productivity is the key condition for balancing the labor market through 2035. Only such productivity growth will make it possible to form competitive wages, which will become the key factor for the return of refugees/emigrants and the retention of workers in Ukraine.

- The investment scenario (GDP CAGR: +4.5%) will form by 2035 an additional need of +1.2 million workers. The following are considered as sources for covering this need:
- Activation of unused reserves, including internally displaced persons (potential — **up to 2.1 million people**);
  - Return of forced migrants (refugees) from abroad (potential — up to 2.4 million people);
  - Sectoral redistribution within the national economy system (potential — up to 1.1 million people).
- Engagement of additional workers implies a number of measures common to the three above-mentioned groups: (1) Competitive wages through increased labor productivity, primarily through investment in technological renewal and construction of new production facilities; (2) Formula “Work — Housing — Social Infrastructure”: job creation must be synchronized with housing construction and the development of social infrastructure; (3) Personnel training programs, including the development of dual education and the introduction of short-term courses (3–6 months) for the rapid acquisition of new in-demand professions.
- It is necessary to introduce an instrument of strategic planning for the placement of productive forces at the national and regional levels, to synchronize the training of specialists and the development of social infrastructure with the actual schedules of investment projects.
- Without the implementation of the target investment scenario, the erosion of human capital in Ukraine will continue even after the end of the war. The inertial scenario will require large-scale labor migration into the country, which will preserve low labor productivity and low wage levels. Under these conditions, Ukraine will not only fail to return refugees and labor migrants, but will also receive a new wave of emigration. Ukrainians, especially youth, will not agree to a low level of wages and will connect their future with other countries.

# Appendices

## Appendix 1

Gross value added (GVA) by type of economic activity in 2021–2025, UAH billion

Industry	2021	2022	2023	2024	2025
Agriculture	593	449	501	545	592
Extractive industry	351	230	284	307	282
Manufacturing	561	398	551	644	738
Electricity supply	181	230	309	359	491
Water supply; sewerage, waste management	19	16	18	19	20
Construction	150	69	104	128	140
Wholesale and retail trade	742	645	866	905	1089
Transport, warehousing, postal and courier activities	295	227	289	353	372
Accommodation and food service activities	49	30	42	52	66
Information and telecommunications	256	207	265	309	388
Financial and insurance activities	162	156	166	232	206
Real estate activities	315	236	319	404	478
Professional, scientific and technical activities	158	99	135	155	190
Administrative and support service activities	68	54	63	73	87
Public administration	336	1137	1420	1565	1920
Education	235	223	218	275	304
Human health and social work activities	135	150	181	205	239
Arts, sports, entertainment and recreation	32	26	40	52	58
Provision of other services	47	43	53	64	77
<b>TOTAL</b>	<b>4685</b>	<b>4626</b>	<b>5823</b>	<b>6644</b>	<b>7737</b>

Source: data of the State Statistics Service of Ukraine; for 2025 – calculated by the authors based on data of the State Statistics Service of Ukraine

## Appendix 2

Number of employees in industry by subsector, thousand people

Subsector	2021	2022	2023	2024
Extractive industry and quarrying	214	169	147	138
Manufacturing	1354	1118	1007	1007
Electricity, gas, steam and air conditioning supply	300	278	286	253
Water supply; sewerage, waste management	130	111	104	104
<b>Total in industry</b>	<b>1999</b>	<b>1676</b>	<b>1544</b>	<b>1502</b>

Source: data of the State Statistics Service of Ukraine

### Appendix 3

Labor productivity by sectors of the economy, thousand UAH per employed person per year

	2021	2022	2023	2024	2025
Agriculture	220	296	351	394	447
Extractive industry	1415	1900	2251	2528	2869
Manufacturing	358	480	569	639	726
Electricity supply	521	699	829	930	1056
Water supply; sewerage, waste management	127	171	203	228	258
Construction	218	292	346	389	441
Wholesale and retail trade	206	276	328	368	418
Transport, warehousing, postal and courier activities	307	413	489	549	623
Accommodation and food service activities	172	232	274	308	350
Information and telecommunications	885	1188	1408	1581	1794
Financial and insurance activities	769	1033	1224	1374	1560
Real estate activities	1268	1703	2018	2267	2572
Professional, scientific and technical activities	373	501	594	667	757
Administrative and support service activities	214	287	340	382	433
Public administration	385	517	613	688	781
Education	189	254	301	338	383
Human health and social work activities	148	198	235	264	300
Arts, sports, entertainment and recreation	179	240	284	319	362
Provision of other services	128	172	204	229	260

Source: authors' calculations based on data of the State Statistics Service of Ukraine

### Appendix 4

Average projected growth rates of gross value added by sectors of the economy

Sector	CAGR 2025–2035
Agriculture	5,0%
Extractive industry	4,0%
Manufacturing	9,8%
Electricity supply	5,0%
Water supply; sewerage, waste management	1,5%
Construction	12,5%
Wholesale and retail trade	4,0%
Transport, warehousing, postal and courier activities	4,7%
Accommodation and food service activities	12,0%
Information and telecommunications	9,5%
Financial and insurance activities	8,0%
Real estate activities	5,0%
Professional, scientific and technical activities	7,0%
Administrative and support service activities	3,0%
Public administration	-3,5%
Education	4,5%
Human health and social work activities	4,5%
Arts, sports, entertainment and recreation	4,5%
Provision of other services	3,0%

Source: authors' calculations

## Appendix 5

Matrix of regional smart specialization and priorities of human capital development

Region	Priority production areas	Key policies / instruments	Expected effect	Link with Section 5
South (Odesa, Mykolaiv regions)	Agro-processing; port logistics	Port modernization; development of elevator infrastructure; harmonization of EU standards	Growth of exports with high GVA; increased logistics speed	Employment in processing; repatriation of logisticians; expansion of the employment radius through ports
Center (Vinnytsia, Poltava, Kirovohrad)	Deep agro-processing; bioenergy	Development of processing clusters; investment in bioenergy	Increase in value added; energy substitution; new technical vacancies	Transition from the primary sector; dual education for bioenergy; logistics hubs
Industrial core (Dnipro, Zaporizhzhia regions)	Machine-building; metallurgy; energy engineering	Technological modernization; support for industrial clusters	Increase in labor productivity; competitive industry	Veteran adaptation; dual training at plants; preservation of the technical elite
Innovation hubs (Kyiv, Lviv, Kharkiv)	IT; R&D; high-tech services	Development of technology parks; support for service exports; STEM education	Income multiplication; growth of service exports	Attraction of students; entrepreneurial repatriation; digitalization of services
West (Lviv, Ivano-Frankivsk regions)	Light industry; woodworking; SMEs	Support for SMEs; development of clusters; adaptation to EU standards	Diversification of employment; integration into EU chains	Inclusiveness (remote work); return of families (housing); sectoral mobility
Interregional dimension	Transport connectivity; mobility	Relocation subsidy programs; high-speed connection of hubs	Reduction of the structural deficit; filling vacancies	Removal of care barriers; overcoming spatial mismatch; saving time

## Authors:

**Vadym Yemets** is a Candidate of Economic Sciences, Head of the NGO Institute for the Development of the National Economy, a macroeconomics expert, researcher, and adviser on economic growth, public policy, and structural reforms.

**Roman Kushnir** is the Head of SPE-Consulting and the author of 21 books on personal growth and business development.

## Consultants:

**Volodymyr Vlasiuk** is a Candidate of Economic Sciences and Director General of Ukrainian Industry Expertise, an analytical and advocacy organization representing the interests of Ukrainian manufacturers. He frequently participates in government advisory councils on industrial production and chairs the Industrial Modernization Committee of the Ukrainian Chamber of Commerce and Industry.

**Serhii Povazhniuk** is Deputy Director of Ukrainian Industry Expertise. Since 1998, his experience has included macroeconomic research and economic modelling, as well as research into industrial markets and sectors, including mineral extraction and beneficiation, mechanical engineering, metallurgy, the chemical industry, and the production of construction materials.





## WORKFORCE DEMAND IN UKRAINE THROUGH 2035

Ukraine's total population decreased by 1.48 million people since 2022. As of January 1, 2026, it is estimated at about 39.5 million people. War has radically changed the spatial distribution: about 29.5 million people live in the government-controlled territory, about 3.0 million in the temporarily occupied territories, and about 7.0 million Ukrainians are abroad. The most critical issue is the decline in the working-age population in the government-controlled territory: it fell by 20% since 2022, from 23.5 million to 18.9 million people.

The war also caused a substantial reduction in employment. The total number of employed people decreased by 21.9%, and stood at 12.2 million in 2025. The sharpest decline occurred in 2022, when the full-scale invasion reduced employment by 4.4 million people. In 2023-2025, employment partially recovered, but it did not return to the pre-war level. Employment increased only in public administration (+1.6 million people), driven by mobilization, and in the energy sector (+116 thousand people). The largest workforce losses occurred in agriculture (-1.4 million people), trade (-1.0 million), and manufacturing (-550 thousand). As a result, the war pulled labor away from the sectors of the real economy toward sectors shaped by martial-law needs.

The study considers two scenarios for labor-productivity growth. The inertial scenario assumes the effective preservation of a labor-intensive development model. The investment scenario assumes large-scale investment in production, transport, and energy infrastructure, technological renewal, and labor-productivity growth of 4-5% per year. Labor-productivity dynamics determine the scale of the future staffing gap. Under the inertial scenario, total workforce demand in 2035 is projected at 16.9 million people, implying an additional need for 4.7 million workers compared with the 2025 employment level. Under the investment scenario, total workforce demand is projected at 13.4 million people, with additional demand of 1.2 million – almost four times lower.

Employment policy should be sectorally targeted and focused on the activities that will form the basis of the new economic structure. The study identifies three main sources for covering the additional need for workers under the investment scenario: activating internal labor reserves, including internally displaced persons, with potential of up to 2.1 million people; encouraging the return of forced migrants and refugees from abroad, with potential of up to 2.4 million people; and sectoral redistribution combined with stronger labor mobility, with potential of up to 1.1 million people.

Further information on this topic can be found here:

➔ [ukraine.fes.de](https://ukraine.fes.de)