Ukraine's reconstruction in the context of EU accession

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ABSTRACT

This paper outlines the impact of the war on Ukraine's economy, sets out the main challenges for reconstruction and EU integration, and provides a set of policy recommendations to "build back better" within the EU accession process. The economic and demographic shock caused by the war has been severe. However, we find that Ukraine can feasibly follow the EU-CEE integration path once the war ends, and that it will bring a great deal to the EU. Ukraine will not create an unmanageable extra strain on the EU budget, but the integration of its competitive agricultural sector must be carefully managed. Policy priorities for Ukraine and the EU include measures to mitigate the demographic shock, rebuild infrastructure in a way that integrates Ukraine more tightly into the EU economy, support the regions most impacted by the war, and use trade and FDI policies to maximize the benefits of EU integration.

KEYWORDS

Ukraine, EU, Reconstruction, Enlargement

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1. Introduction

In June 2022 the European Council granted Ukraine candidate status for accession to the EU, and in December 2023 accession negotiations were opened. Therefore, while the full-scale 2022 Russian invasion of Ukraine has wrought intolerable destruction in terms of human life and infrastructure, it has also catalysed Ukraine's EU integration prospects in a way that would previously have been unimaginable. The existing mechanisms for EU-Ukraine integration such as the Eastern Partnership (EaP), the Association Agreement (AA) and the Deep and Comprehensive Free Trade Agreement (DCFTA) were far from irrelevant, but it is clear that both in terms of the short-term emergency integration measures triggered by the war in areas such as energy and the labour market and with the start of a formal EU accession process, Ukraine's integration into the EU has sped up significantly.

Discussions of Ukraine's reconstruction and EU integration might seem premature in the context of current events on the battlefield. Yet even if Ukraine is unable to take back all of its territory, it seems clear that however the war ends there will be an independent Ukraine (something that was not guaranteed when the invasion started) and that this Ukraine will need to be reconstructed as part of an EU accession process that is already underway.

Ukraine's accession to the EU will be a monumental undertaking with far-reaching economic and financial implications. On the one hand, it will provide positives for the EU in terms of expanding the scope of the single market and integrating an economy with specialization advantages in agricultural production, green energy, the digital economy and the defence industry. Previous accession rounds have benefitted the EU economy as a whole, and this round, potentially also including the Western Balkans, Moldova and maybe even Georgia, is likely to do the same. Neighbouring countries will benefit from significant positive spillovers from Ukraine's EU integration and reconstruction. If successful, it will also powerfully reinforce the EU's role as a driver of positive economic, social and political change in its bordering nations, and underline the continuing appeal of the values that the EU stands for.

On the other hand, never before has the EU admitted a country with such a combination of war destruction, demographic challenges, low level of economic development, large agricultural sector, and major corruption and institutional problems (though major progress has already been made in this regard in the last two years). Ukraine's accession will place new demands on the EU budget and will put a strain on agricultural producers in the EU-27. Although the US has been the key provider of military aid to Ukraine, the EU will play the main external role in financing and directing Ukraine's reconstruction.

This all means that the EU institutions and member states face major policy challenges to ensure that Ukraine's reconstruction is directed in a way that addresses the challenges and maximizes the opportunities afforded by Ukraine's EU integration and accession. A great deal of research has already been done on Ukraine's reconstruction, and our paper will build on some these findings (see e.g. Gorodnichenko et al., 2022; World Bank, 2024). Recently, more

studies have been devoted to Ukraine's EU integration process and what it will entail, both for Ukraine and the EU (Emerson, 2023; Lindner et al., 2023; Darvas et al., 2024). Our aim here is to bring together the findings of a number of papers written recently by the Vienna Institute for International Economic Studies (wiiw), sometimes in cooperation with the Bertelsmann Stiftung, which try to achieve two core goals. First, to understand the interaction between reconstruction and EU integration, given the clear reality that these two processes will have to occur simultaneously. Second, to put Ukraine in the context of EU-CEE countries that have already joined the EU, to understand the extent to which Ukraine really is an outlier, as a way of informing the reconstruction priorities in a way that makes Ukraine most fit for EU accession.

The rest of this paper is structured as follows. First, we set out the starting point for reconstruction and EU accession in the shadow of the war and the destruction it has wrought on Ukraine. Second, we analyse, using the examples of the 2004–2013 joiners, the extent to which Ukraine really is a special case in terms of EU accession. Third, we ask what economic and financial impact Ukraine's integration and accession will have on the EU. Finally, we set out some of the policy priorities, for both Ukraine and the EU, to ensure that reconstruction and accession are dovetailed in a successful way.

2. How has the 2022 invasion impacted the economy?

2.1 Headline macroeconomic impact

The full-scale invasion that was launched by Russia on 24 February 2022 has been causing significant human suffering and economic costs in Ukraine. According to the UN Human Rights Monitoring Mission in Ukraine, as of 22 February 2024, there had been 10,582 confirmed fatalities (including 587 children) among the civil population, and 19,875 civilians had been injured. However, the true scale of fatalities may be drastically higher than these estimates, as there exists practically no statistical evidence on fatalities in the currently occupied territories (currently around 18% of Ukrainian territory).

According to the estimates of the Kyiv School of Economics, the total amount of direct documented damages due to the full-scale invasion by Russia as of January 2024 stands at US$155 billion (at replacement cost), or 78% of 2021 GDP. The third Rapid Damage and Needs Assessment done by the World Bank in cooperation with the Government of Ukraine, the European Union, and the United Nations, estimates the country's total reconstruction and recovery needs at US$486 billion.

As a result of the invasion, Ukraine's GDP declined by 29.2% in 2022. Consumer price inflation had reached 26.6% year-on-year in December 2022, as the National Bank of Ukraine (NBU) had to revert to emission to finance the fiscal needs in the absence of significant foreign aid during the first months of the Russian war of aggression. Initially the economic contraction

was expected to be even deeper but establishing the Black Sea Grain Initiative as a corridor for agricultural exports in July 2022, liberalization of trade by the EU, the return of nearly 4 million migrants during 2022–2023, and the high overall resilience of the economy helped to support economic activity in the second half of the year.

The war has led to structural shifts in the economy. Industrial production and construction have been hit hard by the war and in 2022 contracted by 37% and 65%, respectively (both year-on-year). Among the industrial sectors, it was the chemical industry and metallurgy that were worst affected by the energy shortages and the lack of export possibilities – they lost about two thirds of their output in 2022. Non-durable consumer goods sectors, supported by domestic and external demand, have been able to withstand the wartime conditions somewhat better, and the decline in their production in 2022 was 24% year-on-year.

Exports of goods decreased sharply in 2022 – by 35% year-on-year in US dollar terms, but the decline was not uniform across sectors and resulted in big changes in the export structure. Agri-food exporters were able to benefit from the Grain Initiative, which partly de-blockaded the Black Sea transport corridors, and from better access to the markets of the EU, which adopted a regulation allowing for temporary full trade liberalization and the suspension of trade protection measures, as from June 2022. In 2023, merchandise export experienced a much milder decline at 16% year-on-year in US dollar terms – to a large extent owing to a recovery in Ukraine's exports to the EU of products under the Deep and Comprehensive Free Trade Area's reduction in tariff rate quotas, with a significant increase in exports of poultry, eggs, milk powder, butter, sugar and oil seeds. As a result, the share of agri-food exports increased to 53% in 2022 (9 percentage points (pp) higher than a year before), and the EU's share of the country's merchandise exports increased to 57% (23 pp up on 2021). At the same time, the share of metals in exports dropped to 14% of the total (about two thirds of the previous level), as the sector lost its factories in occupied territories and did not have access to seaports. Services exports did not decline as dramatically as goods exports – by just 12% year-on-year in 2022 (on the back of a strong performance by IT services exports, which increased by 6%), and by 1% in 2023 (on the back of an expansion of exports of other business services).

International aid has been critical for the economy's functioning under wartime conditions, as foreign financing is an important source of budget deficit coverage. In 2022, the total international budgetary assistance amounted to US$27 billion, covering about 56% of the total budget deficit financing needs (US$48 billion), with the shortage of funds from international partners covered by monetary financing by the NBU and domestic borrowing. In 2023, foreign financial aid increased to US$42.5 billion and covered about 71% of total budgetary financing needs (US$59.9 billion).

In 2023, the economy managed to somewhat recover and achieve around 5% real growth compared to 2022. The damage to the country's infrastructure and housing stock caused by Russia's missiles has led to an upsurge in construction activity, as well as in demand for met-

als, machinery and equipment. Ukraine's armed forces have also been generating demand for the production of military equipment, such as drones.

Agricultural performance in 2023 was bolstered by a good harvest. Exports of agricultural and food products have been growing, despite Russia pulling out of the Black Sea Grain Initiative on 17 July 2023, as Ukraine managed to break the sea blockade by developing an alternative Black Sea corridor. Exports of grain have reached pre-2022 levels, and the sea routes started to account for about two-thirds of exports towards the end of the year. Danube ports have become the second largest means of transporting grain: before 2022, they played a marginal role in Ukraine's agricultural exports, but recently they have been accounting for about 20% of total grain exports.

The inflow of foreign financing has supported macro-financial stabilization in the country. With increased inflows of external financial aid, the NBU could accumulate gross international reserves: during 2023, international reserves increased by 42% to over US$40.5 billion (5.4 months of import coverage). The NBU had been easing foreign exchange restrictions for businesses.

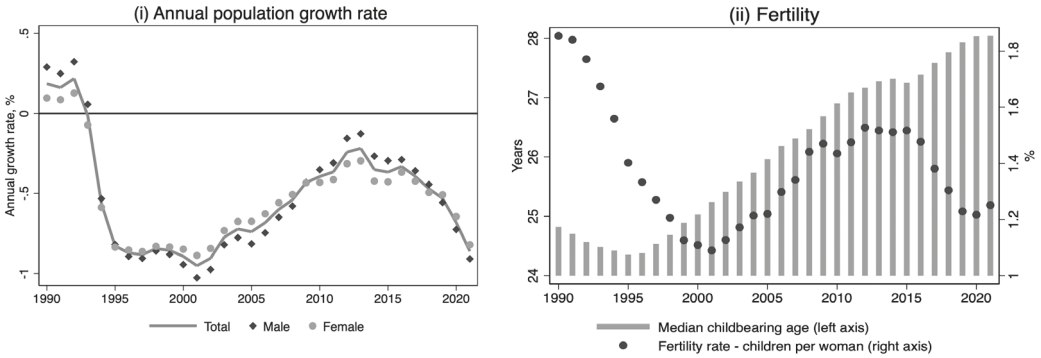
2.2 Demographic decline, assessment of the current situation, scenarios for the future

Ukraine was facing demographic challenges long before the full-scale Russian invasion. A convergence of factors, including low fertility rates, high mortality and persistent outmigration, contributed to a persistently negative population dynamic. Over the past three decades, Ukraine's population has dropped by nearly 20%, declining from approximately 52 million in 1990 to 42 million in 2021. The negative population growth rate began in the early 1990s (graph (i) in figure 1). The post-Soviet era witnessed an anticipated decline in population due to the fall of the Iron Curtain and the shift towards an open economy, which facilitated cross-border movement and permanent emigration. Additionally, economic volatility in the initial years of independence fuelled emigration, with a significant proportion of emigrants having foreign origins (such as German or Polish ancestry); moreover, there was an incentive for regular labour migration given the growing income gaps with neighbouring countries. Although there was a modest improvement in the early 2010s, primarily attributed to reduced emigration and increased fertility (see graph (ii) in figure 1), the population growth rate has once again declined sharply since 2015, following the annexing of Crimea and occupation of parts of Donetsk and Luhansk regions by Russia.

Even prior to the war, the gradual reduction in the working-age population significantly affected the labour market and had a lasting adverse impact on the country's economic progress. The outflow of workers, particularly highly skilled youth, hindered human capital development and constrained economic growth across various promising sectors, including high-tech industries. However, it was not only skill-intensive sectors that faced limitations due to

demographic decline. Labour-intensive fields such as manufacturing, construction and agriculture also struggled to reach their full potential. One contributing factor was the escalating shortage of qualified workforce, particularly in remote rural areas.

Figure 1: Population growth rate and fertility, 1990–2021



Note (graphs i and ii): Mid-year population (as of 1 July). The population growth rate is computed as the difference between the population in the current year and in the previous year, divided by the population in the previous year, and multiplied by 100.
Source: United Nations population statistics, POP/DB/WPP/Rev.2022/GEN/F01/Rev.1

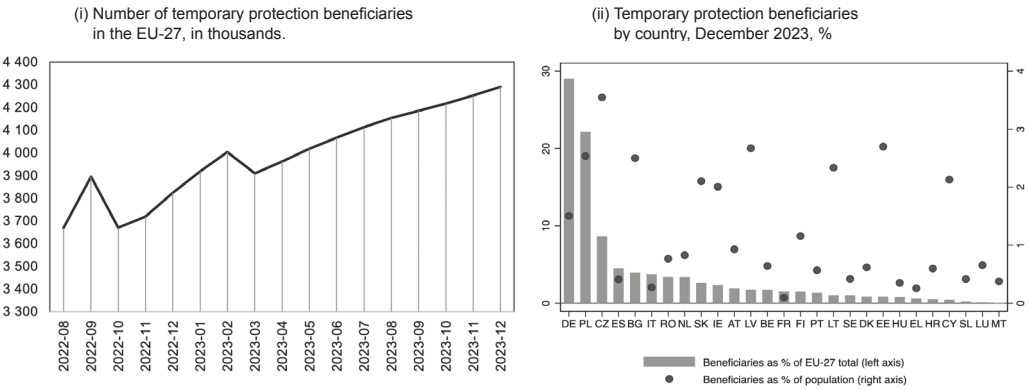
The war has profoundly affected Ukraine's already vulnerable demographic landscape. A substantial outflow of war refugees, predominantly comprising women and children, has irrevocably strained Ukraine's population dynamics. By December 2023, approximately 4.3 million Ukrainian refugees had been officially registered under a temporary protection program within the EU-27 (graph (i) in figure 2), with an additional minimum of 500,000 refugees documented worldwide.[1]

As the war continues, accurately predicting the scale of return mobility remains challenging, as an increasing number of Ukrainians find it difficult to envision an end to their European refuge and are opting to stay longer, if not permanently. While some refugees are returning, this flow remains restricted to individuals with compelling reasons, such as family reunions or ownership of undamaged private property in regions less affected by direct military aggression. A UNHCR survey, conducted among refugees in Czechia, Hungary, Moldova, Poland, Romania and Slovakia during May–June 2022, revealed that only 16% of respondents expressed strong incentives to return to Ukraine (UNHCR, 2022). A subsequent survey in July 2023 indicated that 81% of all refugees intend to eventually return home. However, 24% remain undecided or do not plan to return at all, primarily due to persistent danger and the unpredictable course of the war (UNHCR, 2023). As the return intentions of millions of Ukrainians fluctuate in response to the war's dynamics, it is likely that they will remain in the EU for an indefinite period, despite often facing limited access to basic services, housing and employ-

1 This estimate does not account for persons who were deported or left to Russia or Belarus voluntarily.

ment opportunities in their host countries. Thus, the demographic impact of the war appears irreversible and the vague return dynamic may undermine population growth potential for many decades after the war.

Figure 2: Cumulative number and destination countries of temporary protection beneficiaries in the EU-27



Note: The share of total temporary protection beneficiaries in each country is estimated as a ratio of the number of temporary protection beneficiaries in a respective country as of December 2023 to the total number of temporary protection beneficiaries in the EU-27 in the same period, multiplied by 100. The share of temporary protection beneficiaries as a percentage of the total population in each country is estimated as a ratio of the number of beneficiaries as of December 2023 to the total population in each country in 2022, multiplied by 100.
Source: Eurostat temporary protection statistics (migr_asytpfm).

Several earlier studies have attempted to project post-war demographic developments (Kulu, Christison et al., 2023), however, an analysis relying on a comprehensive demographic model allowing for multiple random parameters is missing. We fill this gap and investigate prospective demographic trends over the next two decades by utilizing a microsimulation technique and executing a series of Monte Carlo (MC) stochastic simulations. The latter is a widely recognized approach for modelling demographic changes and a crucial instrument for analysing structured population models (Van Imhoff and Post, 1998; Mielczarek and Zabawa, 2021).[2] Our simulation exercise includes a stochastic population sub-model that embraces demographic uncertainty.[3] Key parameters such as age- and gender-specific mortality rates, age-specific fertility rates, as well age- and gender-specific propensity to migrate (as refugees fleeing the war) and return are modelled as stochastic processes. Additionally, we consider the time-varying return propensity and the impact of population aging.[4]

2 Microsimulation has a number of major advantages when projecting future demographic developments, as it makes it possible (i) to capture a very broad range of factors, including age- and gender-specific mortality and migration patterns related to military service, moving abroad and subsequent return; (ii) to easily vary the sets of interrelated assumptions; (iii) to incorporate randomness in the crucial demographic indicators, such as fertility, mortality, outflow and return of refugees.

3 Simulation exercise does not account for geographic disparities in the extent of demographic decline and subsequent post-war recovery. Territories occupied by Russia before 22 February 2022 are excluded from the analysis.

4 Further details on the simulation model, assumptions, and procedure are enclosed in the technical appendix.

Table 1: Simulated population size across four scenarios – maximum total and working-age population size achieved in 2022–2040 and population size in 2040

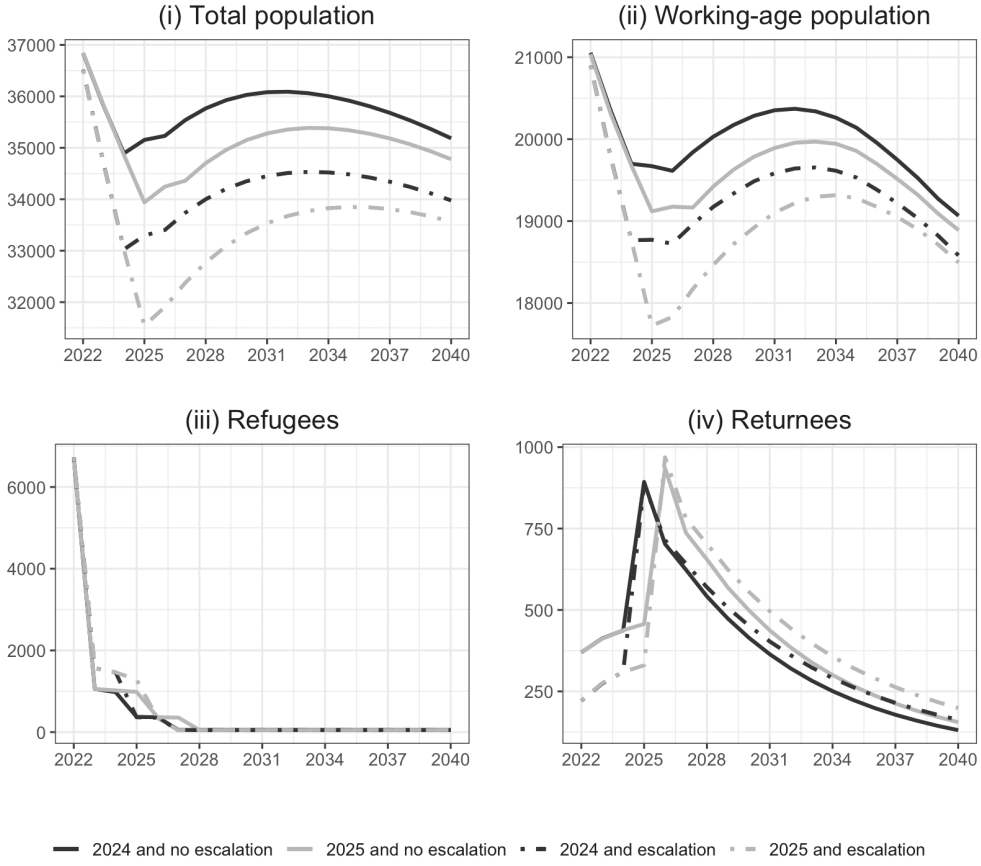
Scenario	Maximum population size achieved			Population in 2040	
	Year	Population, in thousands	Growth rate vs 2021, %	Population, in thousands	Growth rate vs 2021, %
I. Total population					
(i) 2024 and no escalation	2032	36,089.51	-14.5	35,184.17	-16.5
(ii) 2025 and no escalation	2033	35,386.39	-16.0	34,777.76	-17.8
(iii) 2024 and escalation	2033	34,531.09	-18.1	33,976.88	-19.4
(iv) 2025 and escalation	2035	33,849.58	-19.7	33,562.77	-20.4
II. Working-age population (18–59 years)					
(i) 2024 and no escalation	2032	20,370.65	-16.1	19,065.42	-21.5
(ii) 2025 and no escalation	2033	19,969.81	-17.8	18,888.97	-22.2
(iii) 2024 and escalation	2033	19,654.67	-19.1	18,580.39	-23.5
(iv) 2025 and escalation	2034	19,316.06	-20.4	18,494.05	-23.8

Note: The population in each year is estimated as an average of 10,000 MC simulation rounds. The second column refers to the years when the post-war population maximum is achieved.

We generate demographic forecasts across four macro-scenarios, varying the duration of the war (concluding either in 2024 or 2025) and the potential for further military escalation. Our findings suggest that, under any plausible scenario, Ukraine will experience a long-term population decline as a consequence of the war. However, the range of outcomes across our scenarios is broad, indicating that the future trajectory and duration of the war will play a critical role in determining the extent of the demographic shock and its implications for the reconstruction process.

Table 1 presents a summary of the simulated population sizes across the four scenarios. It focuses on the peak population size achieved in the post-war years and the total population at the end of the simulation horizon in 2040. Under the most optimistic scenario, which assumes the war to be over in 2024 without further military escalation, Ukraine's population would begin to rise again in 2025, reaching a post-war peak of 36.1 million by 2032. However, the population will not return to pre-war levels (i.e. the 2021 level) and is projected to be around 35.2 million by 2040, which is 17% lower than the pre-war population. In the most pessimistic scenario, which assumes the war will escalate and continue until 2025, the total population size will drop below 32 million by the end of the war. The post-war population peak of 33.8 million will be reached in 2035, but the population will begin to decline again, settling at 33.6 million by 2040, as no improvements in fertility rate are foreseen. This is 20% below the pre-war level and 1.5 million below the best-case scenario (as shown in graph (i) in figure 3).

Figure 3: Simulated population projections under four macro-scenarios, 2022–2040, in thousands



Note: The panels depict population dynamics as an average of 10,000 MC simulation rounds. The trajectories depict yearly (non-cumulative) simulated projections. The working-age population includes individuals ages 18 to 59 in a current year.

In all scenarios, the working-age population is expected to decrease more significantly than the total population. This trend is largely influenced by the demographic profile of refugees, particularly their age and gender. Although the dynamics of the working-age population show a marked improvement in the years following the war, a steady decline begins towards the end of the projected period. By 2040, the working-age population is estimated to be between 19.1 million in the most optimistic scenario and 18.5 million in the most pessimistic scenario, being respectively 21.5% to 23.8% below the pre-war level. Therefore, the war will have a disproportionate impact on the younger population, with significant consequences for Ukraine's labour market, social security system and post-war economic recovery.

However, it is essential to recognize that population change resulting from mass refugee migration and potential return migration plays a central role in shaping a country's demographic prospects. While analysing the war's impact on the total population provides valuable insights, it is crucial to acknowledge that specific population groups bear a disproportionate burden of the war's consequences. The severity and duration of hostilities determines the number of refugees and dynamic of post-war return. In the most optimistic scenario, the total number of people fleeing the war could reach 8.8 million by the end of 2024. In the worst-case scenario, this number could rise to as high as 11 million by the end of 2025. Therefore, if military tensions escalate in the near future, Ukraine could lose an additional 2 million people. However, a prolonged war and further escalation would also result in fewer people returning after the war. Depending on the scenario, the number of people returning in the first decade after the war ends varies between 5.1 and 5.9 million. Meanwhile, between 3.7 million (in the best-case scenario) and 5.1 million (in the worst-case scenario) refugees may never return to Ukraine.

2.3 Regional differentiation of impact[5]

Ukraine's regions will have dramatically different needs in terms of post-war reconstruction. These will depend on their longer-term strengths and weaknesses (both in the domestic context and regarding their potential integration into the wider European and global context) as well as on how they have been impacted by the war. Since the occupation of parts of the Donbas in 2014, regions have been affected in very different ways that have changed the state of their infrastructure, impacted the dynamic of their economic activity and produced dramatic shifts in their population profile. The ongoing war and subsequent reconstruction process are shrouded in uncertainty, notably about outcomes. This creates tremendous challenges regarding funding ability and institutional capacities. There is a great danger of wide disparities in regional development patterns becoming entrenched in the post-war pattern of economic development.

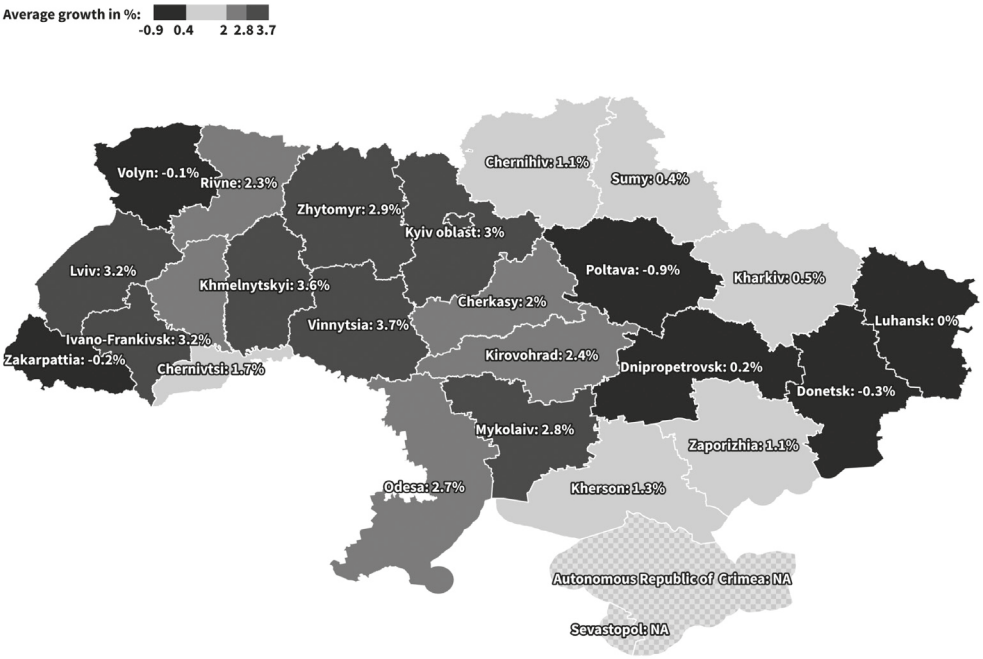
Regional growth rates post-2014 (but pre-2020) already showed strong geographical divergence (figure 4).[6] Regions of the west (with the exception of Volyn and Zakarpattia), the southwest, and Kyiv constitute the "emerging core" with above-average growth. In contrast, regions in the east and south-east have stagnated.

Many regions lack the capacity to manufacture advanced products in many industries. Albeit there are exceptions, a large number of exports were concentrated either at the raw material, less processed or lower value-added end of the product spectrum or in legacy industries such as metals and minerals. This implies that there is a lot of scope for upgrading and foreign

5 This section relies heavily on the report by Kochnev et al. (2023).
6 If at the time of writing regional data were available only until 2020, we trimmed the sample to the 2016–2019 period to avoid the impact of the Covid-19 pandemic.

direct investment, with integration into pan-European production networks being key to such upgrading. Furthermore, there is a tendency towards a strengthening of the services sector which pervades the Ukraine economy as a whole.

Figure 4: GRP (gross regional product) average growth rates 2016–2019, constant prices



Source: Ukrstat (2023), source link: *https://tinyurl.com/4s7uajat*; wiiw calculations. Originally published as part of the following project: *https://www.bertelsmann-stiftung.de/en/publications/publication/did/ukraines-economic-reconstruction*.

Cases of IT and telecom industries, which were growing rapidly from 2014 to 2021 in Kyiv and other big cities such as Lviv and Kharkiv, show that Ukraine does have the capacity for quick product development in certain niches. But a single industry is unlikely to provide the basis for growth in all regions due to differences in endowments.

Although every region of Ukraine has experienced direct strikes by the Russian forces, the extent of the damage inflicted is highly uneven. World Bank estimates from February 2023 indicate that the damage is largely concentrated in the areas of active ground operations. The east and south-east regions are the most affected, followed by the north and Kyiv, which were active theatres of war in spring 2022. In terms of industry, the highest costs associated with war damage are housing, land contamination and transport infrastructure, followed by production facilities in agriculture, commerce, manufacturing and energy.

The type of damage incurred has significant implications for the post-war production structure of Ukraine. From a macroeconomic standpoint, the east and south-east may become stuck in a low-income equilibrium with poor growth prospects. Even when hostilities stop, security concerns in the damaged regions will remain high due to their geographical proximity to the aggressor country, wrecked housing and unexploded ordnance. This implies that the return migration of the most productive population groups is anything but guaranteed, with the demographic structure becoming skewed towards the elderly who are net recipients of fiscal transfers (for more details see Tverdostup 2023).

When it comes to the impact of the war on industry composition, there is both bad and good news: the bad news is that Ukraine's core industries of the eastern region have been severely affected and will require prompt support in the recovery phase to ensure growth. Even in the pre-2014 period, the coal mining and metals industrial core showed signs of declining productivity and deteriorating environmental spoliation, which were exacerbated by the partial occupation of 2014–2022 and ensuing hostilities (Havlik et al., 2020). With the cities and industrial sites severely impaired by the direct and indirect impact of the war, we do not see the potential for the region to recover on its own – meaning that active government intervention in the region is needed to avoid perpetual impoverishment.

The good news is that such a policy intervention is unlikely to face much resistance from the industrial lobby, including oligarchs, inherited from Soviet-era industries (such as coal mining). This in turn creates an opportunity for rapid intervention – at least in the early stages of the reconstruction process – focused on promoting a more advanced industrial mix.

In the following, we proceed to identify the growth potential of Ukrainian regions through the lens of patterns of the most recent pre-war trends in domestic output. We use the concept of revealed specialization as a starting point, according to which competitive industries in a particular region manifest themselves through a greater share of production or export volumes compared to other regions.

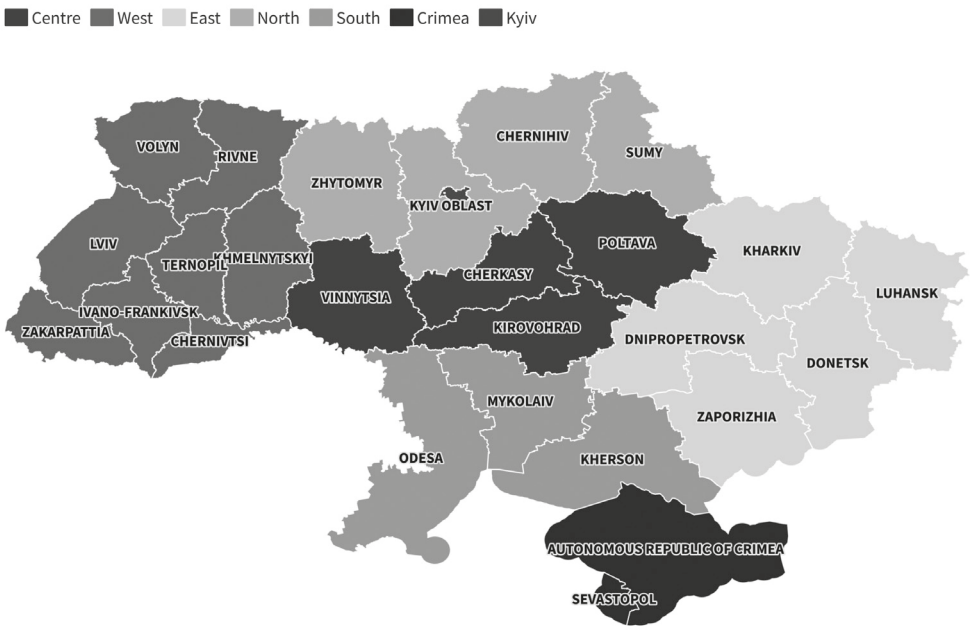
Temporally, we restrict our analysis to the 2016–2019 period (UNHCR, 2022). Albeit comparatively short, we find this sample useful as it approximates most closely to three main features of the post-war environment: fragile macroeconomic stability, regional reorientation of economic activity (linked to the deterioration of productive capacities in some regions) and persistent security risk/threat of hostilities with Russia.

We focus on three dimensions when analysing the patterns of geographical and industrial structures:

- The share of regional production in each industry within the nationwide production of that industry. This metric reveals the region's importance in the nationwide production of that industry. Plus, we look at how this share evolved during the pre-war period.

- An industry's absolute growth rate. An industry located in a particular region might be important from a national point of view, but nonetheless growth may be low – or vice versa.
- The share of a given industry in the regional economy. From a regional economy perspective, it matters little if a region accounts for a relatively large share of the national total and even enjoyed rapid growth when, in the end, it represents only a small slice of that regional economy. Larger industries are more likely to serve as an engine of regional economic growth.

Figure 5: Classification of Ukrainian macro-regions



Source: Ukrstat: *https://tinyurl.com/4s7uajat*; own illustration. Originally published as part of the following project: *https://www.bertelsmann-stiftung.de/en/publications/publication/did/ukraines-economic-reconstruction*.

For the sake of simplicity, we bundle Ukrainian regions into groups called "macro-regions" following the definitions used by the International Organisation for Migration based on Ukrainian law (figure 5).[7] These groupings combine multiple NUTS2 regions (oblasts) based on their similarity in terms of socio-economic characteristics. This classification would corre-

7 The law of Ukraine "On the Principles of State Regional Policy" (article 1, item 2) defines a "macro-region" as a geographical unit comprised of multiple oblasts (regions): *https://zakon.rada.gov.ua/laws/show/156-19#Text*. We are not aware of any formal subdivision, therefore we follow the classification used by the International Organisation of Migration in their regular reports: *https://dtm.iom.int/reports/ukraine-internal-displacement-report-general-population-survey-round-12-16-23-january-2023*.

spond to EU NUTS1 level, which comprises "major socio-economic regions".[8] This reduces complexity at the cost of masking variation at the subregional level. Where this occurs, we discuss these individual subregions separately or provide a more detailed exposition on the graphs.

Figure 6 presents an overview of the main patterns of industrial specialization across Ukrainian macro-regions, encompassing tradable and non-tradable industries. Further details of specialization patterns within manufacturing are provided in table 3 in the appendix.

The **eastern macro-region** historically specialized in mining and manufacturing, especially metals. The war has dramatically changed the position of this region with regard to these industries. Even before the current intensive phase of the war, the share of infrastructure (water supply, waste management, electricity and gas distribution/supply) in GDP declined greatly over the 2016–2019 period. As a mirror development, the share of service industries increased significantly. If there is some pacification of this macro-region, then more services activities are expected to emerge in the reconstruction phase and beyond.

The **southern macro-region** has a specialization profile influenced by its location on the Black Sea and its temperate weather conducive to agricultural production. Two sectors stand out as occupying strong positions within Ukraine's overall economy: agriculture and transport, the latter largely due to its maritime links. The southern macro-region has been significantly affected by the war, becoming a focus of the military conflict, with agricultural production severely affected, grain storage and port facilities having been destroyed and grain exports curtailed. During the reconstruction phase, demining of the land and the reopening of shipping ports will have to be a priority so that agricultural production can quickly return to its pre-war potential.

The **central macro-region** has some strengths in manufacturing. Given that the old industrial heartland in the Donbas has and will be severely affected by the war and occupation, the centre might – together with some of the northern and western regions – take over as a location for manufacturing, albeit with a rather different sectoral profile. The shift towards services is also a feature.

The **northern macro-region** holds a strong position in public administration and defence (18% share of the national total) and in agriculture (16% of national output). Other industries for the most part fall below a 10% share. Many of the services industries, like financial and insurance services, professional services and information and telecommunications, arts, sports and entertainment, displayed high real growth between 2016 and 2021. Their positions in the respective national industrial sectors improved. This shows a tendency to "deagglomeration" from Kyiv City. Within manufacturing, the north enjoys quite a diversified profile covering

8 Nomenclature of Territorial Units for Statistics (NUTS) is a geocode standard for referencing the administrative divisions of countries for statistical purposes. For details of the EU definition, see *https://ec.europa.eu/eurostat/web/nuts/background*.

Figure 6: Shares of regional industries in the national economy (GVA) and growth rates 2016–2019

Note: The size of the circle represents the share of the industry's regional production (gross value added, GVA) in the nationwide industry; the growth rates refer to average annual growth of GVA (at constant prices) over the period 2016–2019.
Source: Ukrstat (2020b), source link: *https://tinyurl.com/bd6xyzfp*; wiiw calculations. Originally published as part of the following project: *https://www.bertelsmann-stiftung.de/en/publications/publication/did/ukraines-economic-reconstruction*.

the paper and paperboard industry, various metal and machinery products, construction materials, wood products and – again – a wide range of food products. Given the loss of manufacturing production capacities in the east, the evidence would suggest a shift into this region and scope for further development.[9]

The **western macro-region** has won and will gain prominence in Ukraine's economy as it has been much less affected by the war. It accounted on average for about 17% of Ukraine's GVA overall, and quite a few of the industries already increased their shares of the national total over the 2016–2019 period. This is true for agriculture, manufacturing, wholesale and retail trade, repair of motor vehicles etc. Growth was also quite high in a range of services activities – public and private. Our projection is that this will further accelerate because of the war and the related internal migration/displacement. Never before the centre of manufacturing activity in Ukraine, the west has been gaining ground in this sector. It benefits from its geographic location far from the conflict zones in the east and south of the country, but also from its proximity to EU countries and the potential this provides for cross-border production networks. The composition of manufacturing industries now covers a wide spectrum, from advanced segments such as electrical and electronic equipment via wood-based products and furniture to clothing and textiles, plus various food products.

As a city with at least 3 million inhabitants, **Kyiv** has a typical capital city profile: it accounts for about 45–70% of national value added in a variety of private-sector and public services (professional services, information and telecommunications, and financial services but also administrative and auxiliary services, as well as arts, sports and entertainment). This compares with Kyiv's share of about 23% of Ukraine's GVA. Due to a degree of "de-agglomeration" of such services provision, Kyiv's share of these industries fell over the period 2016–2019. Furthermore, the so-called "headquarter" effect must be borne in mind, whereby companies declare their revenues at their headquarter (HQ) location (more often than not the capital city) rather than at their production sites. We can observe Kyiv's greater importance in some areas, such as transport services – likely due to the national airport – and in utilities (such as electricity, water, postal services, etc.). Nonetheless, regarding manufacturing, it is worth highlighting pharmaceuticals. Furthermore, HQ functions, including product development and marketing, are key contributions emanating from Kyiv for a range of manufacturing industries (though not captured by our analysis of manufacturing activities in table A.1.3).

9 The Ukrainian government operates a programme supporting the relocation of enterprises under which, by the end of September 2022, 558 businesses had relocated to safer parts of the country (Government Portal, 2022).

3. How does Ukraine compare with other past and current accession countries, and where are the main challenges in terms of EU accession?

3.1 The impact of previous accession rounds on EU-CEE and the EU

Since 2004, 11 countries in Central, Eastern and South-Eastern Europe (CESEE) have joined the EU. There are likely to be changes in the way the accession process will be handled in the case of the Ukraine, given that the security dimension will remain important and one can expect that rather large additional financial flows are likely to be mobilized to support Ukraine's reconstruction process. Nevertheless, despite these differences, the various channels of integration through which accession and prior member countries were affected by EU enlargement will also apply to Ukraine and can provide some guidance as to the path forwards.

Accession, and even before that the prospect of EU accession, intensify trade and foreign direct investment (FDI) links through three channels: (i) a direct effect of the reduction of trade barriers and convergence of standards, (ii) the impact on institutional and governance issues given various conditionality clauses in the accession process and the institutional anchorage in the EU, and (iii) the impact on growth and qualitative upgrading of acceding economies through factors (i) and (ii) as well as the increased participation in EU policy programmes and increased EU budgetary flows.

Despite this overall positive picture, we should not forget *structural adjustment issues* which are often a crucial element in the political perception of whether countries gain or lose from trade and FDI liberalization. In the case of Ukraine, it is well known that agriculture and potentially food products are an important sector of Ukraine's economy, and it does indeed have a significant comparative advantage in these areas. Hence, in this sector Ukraine will become an important supplier to the EU market as a whole, but also an important competitor in terms of both quantity and quality to existing EU producers; this has already led to strong reactions by farmers (and – in response to this – by governments) in neighbouring countries during the war period when tariff quota restrictions were lifted by the EU. Such reactions are likely to increase as Ukraine's accession process unfolds. Furthermore, international investors will play an important role in the qualitative upgrading of the food-producing sector and this will strengthen Ukraine's competitive position. There will also be other areas in which competitive pressure will be exerted by Ukraine on existing member countries; these countries will be differentially affected given their geographic location (gravity factor) and the extent to which their current position of comparative advantage overlaps with that of the Ukraine. Hence, structural adjustment will definitely take place in the incumbent EU member countries as a result of Ukraine's accession to the EU and this will cause a certain amount of political resistance even though with time the overall welfare benefits will become apparent – as they have in previous rounds of enlargement.

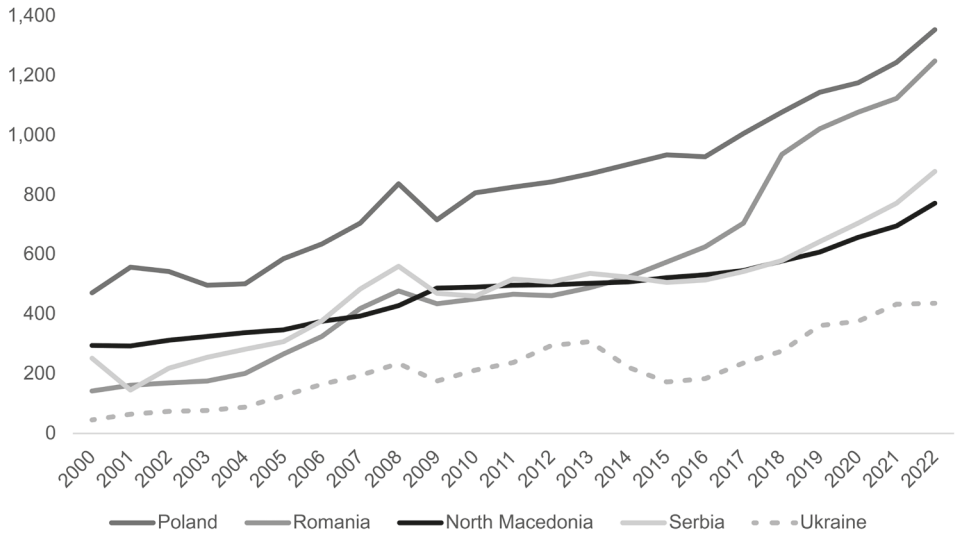
Eastern enlargement has been accompanied by migration flows and labour mobility. The prospects of such flows were an important issue in the political decision-making processes that prepared and accompanied the accession of new members. These also led to rather long transition regulations according to which countries (with sufficient underlying argumentation) could resort to migration and mobility restrictions over a 7-year period. It is likely that such transition periods will also accompany the accession of Ukraine, although in this case, given the massive migration flows that have already happened during the war, the situation will be somewhat different given that a very large stock of (mostly young and female) migrants from Ukraine are already in EU countries.

There is no doubt that wage and productivity convergence has been strongly supported by EU accession. Overall, we have been able to observe that wage and (labour) productivity have gone hand in hand so that competitiveness (as measured by e.g. the development of relative labour unit costs) have not suffered in most new member countries. The driving force behind wage and (real) income growth was indeed productivity catch-up, itself driven by the ease of technology transfer within the single market (mobility of capital and of skilled workers and managers, participation in training and educational programmes, etc.), with foreign companies investing in new member countries and upgrading production processes, organization and product quality playing an important role. Figures 7 and 8 show the rather strong wage and (labour) productivity growth in two of the economies that joined the EU (Poland and Romania) as compared to two Western Balkan economies that remained outside the EU over the period 2000–2022. This trend can be knocked off course for some time by external shocks; for example, wages in Romania flatlined for some time after the global financial crisis, but as figure 7 shows, the difference in performance between EU and non-EU members over the whole period is quite stark. Serbia's productivity performance was actually also quite strong before the crisis, but fell back afterwards and has not really recovered since – in stark contrast to Poland and Romania, implying that EU membership also provided a cushion against permanent scarring from the financial crisis. Hence a successful accession process is likely to boost Ukraine's productivity and wage growth.

When countries became very strongly integrated into the wider European economy, they also became vulnerable in terms of their external accounts position. This is likely to create hazards for Ukraine's economic reconstruction. The large inflow of international financial support which is expected to accompany Ukraine's reconstruction, together with the significant inflow of remittances of the grown diaspora of Ukraine's migrants abroad (many of them young who will have a strong motivation to support those left in the Ukraine), may generate significant pressure on the real exchange rate and thus a type of "Dutch disease".[10] We have also seen such developments in some of the Western Balkan countries that received substantial aid after the Yugoslav Wars and were also beneficiaries of large inflows of remittances. Such pressure on the real exchange rate might cause serious problems for the tradable sector, impinging upon a recovery of the industrial sector and the building up of strong export capacities which would

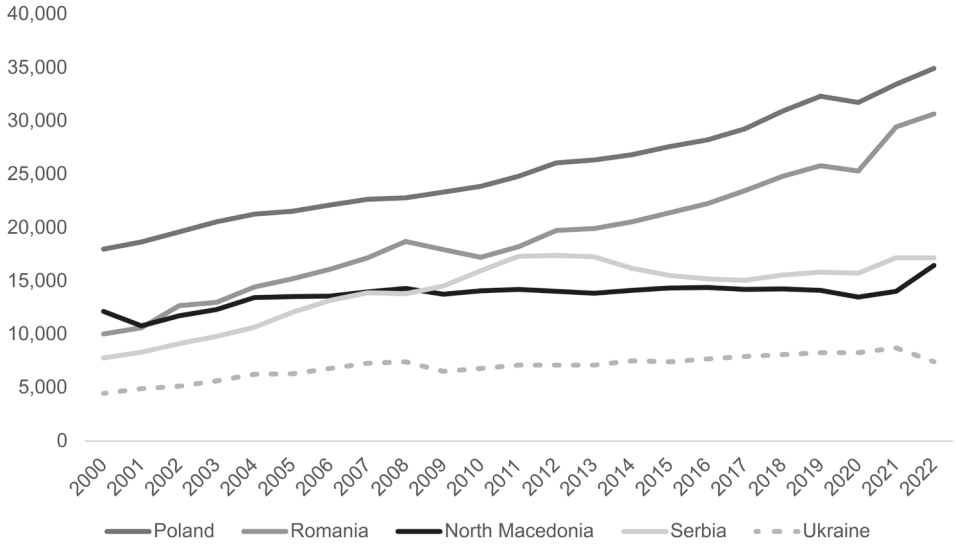
10 For an early reference to the Dutch disease, see Corden (1984).

Figure 7: Average gross monthly wages, total economy, in euros



Sources: Eurostat, national sources, wiiw. Originally published as part of the following project: *https://www.bertelsmann-stiftung.de/en/our-projects/sovereign-europe/project-news/outlier-or-not-the-ukrainian-economys-preparedness-for-eu-accession.*

Figure 8: Labour productivity, in millions of euros. Real GDP based on 2019 prices, divided by LFS employment

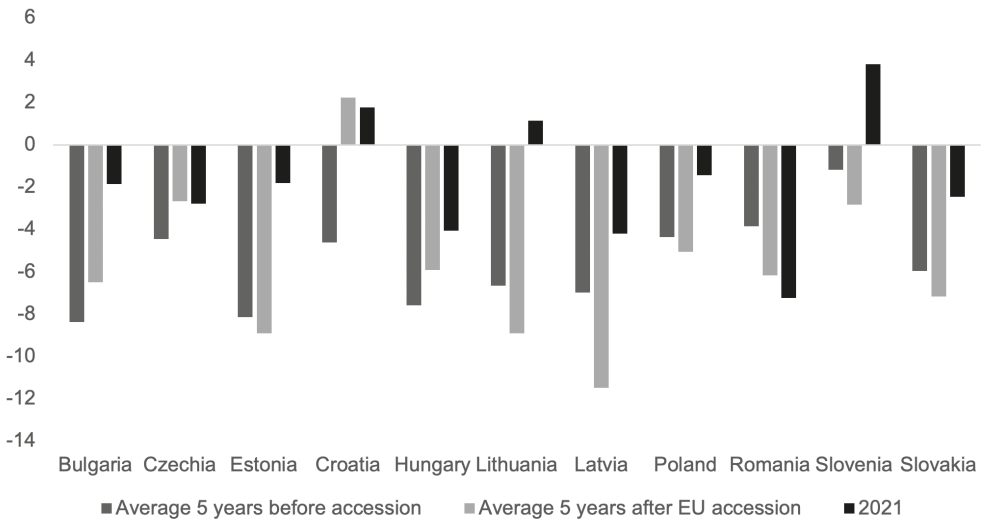


Sources: Eurostat, national sources, wiiw. Originally published as part of the following project: *https://www.bertelsmann-stiftung.de/en/our-projects/sovereign-europe/project-news/outlier-or-not-the-ukrainian-economys-preparedness-for-eu-accession.*

allow Ukraine to avoid balance-of-payments disequilibria in the longer term. This was indeed the case in quite a number of EU-CEE member countries which benefited from the impact of FDI and integration into cross-border production networks as discussed above, and have seen substantial improvements in their current account positions since accession (figure 9).

Here, it is important to recognize the different growth models and reasons for the shifting current account positions; all include the global financial crisis years either for the five years after accession or, in Croatia's case, the five years before. This naturally had a substantial impact on external positions. Moreover, some countries have improved their current account position via integration into manufacturing supply chains (e.g. the Visegrád Group), while others had particularly big deficits before and/or after accession because of large credit inflows (e.g. the Baltic states) which had to be painfully unwound after the global financial crisis. Yet for most, irrespective of time of accession and growth model, the pattern shown in figure 9 is fairly clear and stands in contrast to most Western Balkan countries.

Figure 9: Current account, % of GDP



Sources: Eurostat, national sources, wiiw. Originally published as part of the following project: *https://www.bertelsmann-stiftung.de/en/our-projects/sovereign-europe/project-news/outlier-or-not-the-ukrainian-economys-preparedness-for-eu-accession*.

3.2 To what extent is Ukraine really an outlier?

There are fears within the EU that Ukraine cannot be integrated, or that if it is, it will overwhelm the EU. These fears reflect two main beliefs, which are in some ways contradictory. First, that Ukraine is simply not institutionally capable of managing the process of EU inte-

gration. Second, that a successful Ukrainian EU accession will overwhelm the EU financially, turning all other countries into net contributors to the budget and flooding the EU market with cheap agricultural imports. In the public debate Ukraine is therefore often seen as both too weak and too strong for the EU.

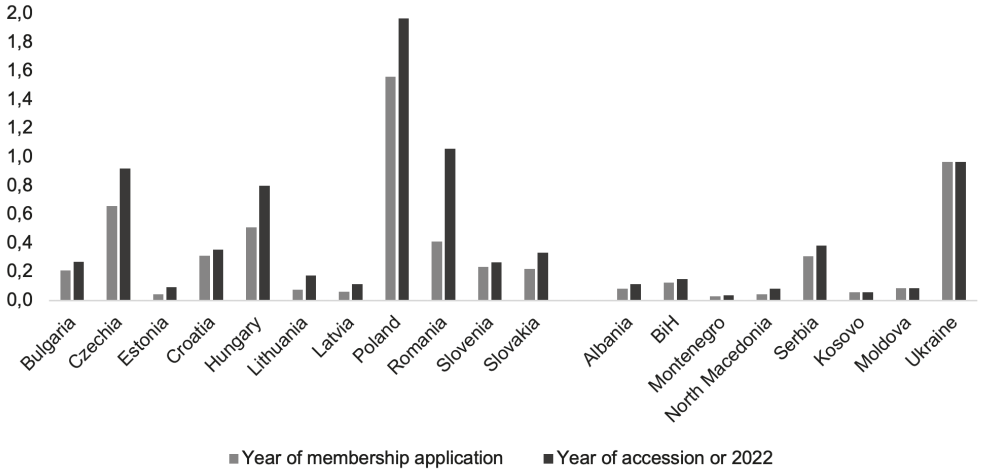
We investigated this issue in a recent study (Grieveson et al., 2023). We took all of the data that are considered in the annual European Commission enlargement reports and which can be quantified and tracked over time, and compared Ukraine to the eleven EU-CEE countries that joined between 2004 and 2013, and also to the Western Balkan countries that were already on their way to becoming EU members. In each case, we looked at Ukraine in relation to the EU, and compared this with previous and other current accession countries in relation to the EU, at the time of their application (where data were available) and their accession.

In terms of its economic size and wealth level, Ukraine is not an outlier in any meaningful sense. Ukraine's GDP relative to that of the EU is similar to that of Hungary, Czechia or Romania at the time that they joined the EU (figure 10). Its per capita GDP in purchasing power parity (PPP) terms, relative to the EU, is comparable with Latvia, Lithuania and Romania at the start of their accession process. If Ukraine joined the EU today, it would increase the EU's population by 9%, very similar to the impact of Poland's accession in 2004 (figure 11).

Institutionally, Ukraine is in a weak position, and here there is a great deal to do on the way to accession. Its institutional quality, as measured by the World Bank Worldwide Governance Indicators, is similar to Romania and Bulgaria at the time of their membership applications in the 1990s. If Ukraine can make the kind of reform progress that these and other EU-CEE countries made during their accession processes, it would take 10 years to reach the level of institutional quality, relative to the EU, that Romania did in 2007. This is so far the weakest institutional level at which any country has acceded to the EU. Considering the quite negative experience with Romanian institutions for some time after accession (the country was monitored under the Cooperation and Verification Mechanism until September 2023; European Commission, 2023) it may be that the EU will demand more of Ukraine than it did of Romania in 2007.

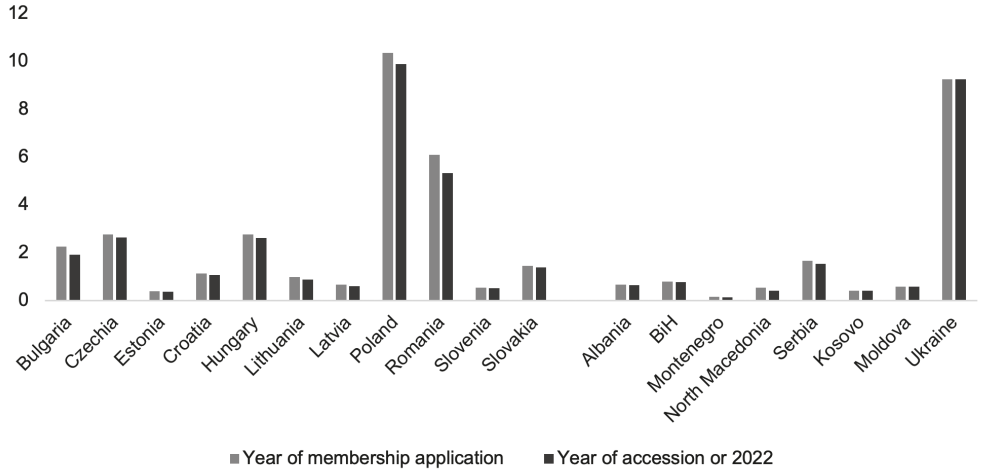
The countries that joined the EU in 2007 and 2013, and the three institutionally weakest 2004 joiners (Latvia, Lithuania and Slovakia) improved their rule of law score in the World Bank Worldwide Governance Indicators by around 0.05 per year in the years before accession. Based on this, Ukraine would reach the Romania 2007 level by around 2032 (Grieveson et al., 2023). The persistent weakness of Ukrainian institutions gives significant reason for caution on whether a sustained reform drive can be achieved, yet in the context of the full-scale invasion and the start of the EU accession process, there are justifiable reasons to expect reform progress to be better now than in the past. Reform progress since 2022 has been strong (as recognized by the Commission), with a clear desire to use the tragic current events as a catalyst to drive positive institutional change. Perhaps more importantly, the reliance on external support (which gives the EU and others significant leverage over Ukrainian policymakers) and the "carrot" of EU membership provide a very powerful incentive to implement the measures asked for by the EU.

Figure 10: GDP as a share of the EU, %



Sources: Eurostat, national sources, wiiw. Originally published as part of the following project: *https://www.bertelsmann-stiftung.de/en/our-projects/sovereign-europe/project-news/outlier-or-not-the-ukrainian-economys-preparedness-for-eu-accession.*

Figure 11: Population as a share of the EU, %



Sources: Eurostat, national sources, wiiw. Originally published as part of the following project: *https://www.bertelsmann-stiftung.de/en/our-projects/sovereign-europe/project-news/outlier-or-not-the-ukrainian-economys-preparedness-for-eu-accession.*

In terms of its ability to cope with the economic demands of EU membership, Ukraine is already quite advanced in some areas. The strong competitive position of the agricultural sector has already been outlined above. The last few years have also seen a sharp increase in demand for Ukrainian IT services from the US, indicating the quality of the Ukrainian offering. Several cities host advanced IT clusters. Apple, Microsoft, Boeing and Siemens have set up R&D activities in Ukraine.

In terms of removing non-tariff barriers to trade, Ukraine has already done a lot in terms of quality controls and has thereby overcome barriers to trade, linked above all to the Association Agreement and the Deep and Comprehensive Free Trade Area (AA/DCFTA). Even before the 2022 invasion, Ukraine had signed the DCFTA with the EU. This is one of the deepest trade agreements that the EU has with any country. In combination with the accelerated integration in areas such as energy and labour driven by the 2022 invasion, this means that Ukraine's integration with the single market is already very advanced for a country just starting on its accession process.

Ukraine's deeper integration with the EU economy over the last decade has already helped to drive serious improvements in the standards of the products it sells, and there are reasons to think that this could go further as EU integration advances. Thanks to the AA and DCFTA with the EU, Ukraine has made a major trade reorientation towards the EU. This has meant greater access to better inputs, and has created additional incentives to produce higher-quality products (Movchan and Pindyuk, forthcoming).

Nevertheless, other indicators show that Ukraine has some way to go to be fully ready for and integrated into the EU single market. Ukraine's share of trade with the EU is low by the standards of previous and current CEE accession countries. While this is partly because of Ukraine's large share of commodity exports, which often go outside the EU, it also reflects the weak competitive position of many industries (excluding those listed above).

The trade complementarity of the Western Balkan countries with the EU is higher than that of Ukraine, suggesting less potential of trade integration for Ukraine. The Trade Complementarity Index (TCI), which measures the extent to which the export and import profiles of the trading partners match with each other, is higher for the Western Balkan countries than for Ukraine, especially on the export side. Ukraine's export profile has become less complementary with the EU import profile over time, despite the existence of the DCFTA and massive trade reorientation away from Russia. Its overall trade complementarity with the EU (exports and imports combined) has also declined. Ukraine's trade deficit was not as high as that of the Western Balkan countries when its free trade agreement with the EU took effect, but it has hardly shown any improvement over time either.

Ukraine has low wage levels relative to the EU average, which is typical for a country starting out on its accession process and should – once the security and demographic situation improves – make the country attractive to foreign investors. Average nominal monthly wages

in Ukraine in 2022 were around 13% of the German level, and only 48% of the level of Bulgaria, the poorest EU member state. If a new FDI arrives and the economy is modernized after the war ends, driving productivity growth, it is feasible that wages will rise quickly, as was the case in EU-CEE countries during their EU integration processes.

Ukraine's level of productivity is low at present. This reflects the weaknesses of education, training, innovation, R&D and infrastructure, all of which are consistent with the country's currently low level of economic development. However, when measured against other CEE countries during their EU accession processes, only in infrastructure does Ukraine seem to be a negative outlier. In both education and digitalization, Ukraine actually compares quite well with some EU-CEE countries. Currently, productivity levels also vary widely across different sectors in Ukraine. In agriculture and ICT, two of the sectors where Ukraine already shows signs of relative strength, productivity levels are significantly higher than in other parts of the economy such as manufacturing and services. Overall labour productivity (measured in real GDP divided by employment) in 2022 was around 9% of the German level. However, taking Romania as a benchmark, while Ukraine's overall labour productivity is only 24% of the Romanian level, it reaches 36% in ICT and 48% in agriculture. Given that wages overall are only about 35% of the Romanian level, this indicates that some sectors in Ukraine are already internationally competitive, and this may explain their strong export performance.

The level of labour market integration between Ukraine and the EU is already very high. Partly, this reflects large-scale Ukrainian migration to the EU even before the 2022 invasion. Large wage differentials and high demand for labour in the EU means that Ukrainians already make up a large share of the workforce in EU countries, including in EU-CEE. However, since the 2022 invasion this labour market integration has intensified further thanks to the EU Temporary Protection Directive, which allows Ukrainians to work and access public services across the bloc.

3.3 What are the major weaknesses and reform challenges?

While Ukraine is therefore not really an outlier on most counts, there are a few areas where it is a special case and these will be key to target in reconstruction to ensure successful EU integration. In this, the successful example of EU-CEE economic development and EU integration should be the goal for Ukraine. While this model has some shortcomings, especially once countries reach a certain level of development (Grieveson et al., 2021), for a country in Ukraine's current position it is a very positive scenario.

First, and most obviously, Ukraine is suffering a brutal invasion and will require major rebuilding once the war is over. In this case Ukraine is not completely unique. Yet the country that is most comparable in this sense, Croatia, started its EU accession process 8 years after the end of the war on its territory, meaning that the need to combine reconstruction and accession was not as acute as in the case of Ukraine. Moreover, as a country of fewer than 4 million peo-

ple, the reconstruction needs of Croatia from an EU perspective were much lower than will be the case for Ukraine. There is therefore no template for the EU to work from in terms of integrating Ukraine during reconstruction.

The second area where Ukraine is an outlier is demographics. While most EU candidate countries face severe demographic challenges, Ukraine's position is unique for the reasons outlined above. With at least 4.8 million refugees living abroad, and as the war seems increasingly likely to continue, the demographic shock for the economy has already been severe. Even our most optimistic scenario suggests that the population will be 16.5% smaller in 2040 than it was in 2021, the last full year before the invasion. On top of this, large internal displacements mean that the areas most affected by the war have been especially depopulated, while a large number of soldiers and civilians have suffered physical and psychological injuries that will prevent them from fully taking part in the labour market even when the war ends. As a result, severe labour shortages are likely to be a major challenge once the recovery and reconstruction start.

The third particular challenge faced by Ukraine is how to attract FDI inflows in the same way that EU-CEE countries did in the past. FDI has been one of the central pillars of EU-CEE convergence, bringing much needed capital, knowledge and integration into global value chains. Ukraine has always struggled to attract FDI on the same scale as the rest of CESEE, reflecting a combination of institutional weaknesses, the lack of a credible EU accession process, and security concerns. The demographic outlook outlined in the previous paragraph will now make this more difficult. Yet there are some reasons for optimism that things could change. The anchor of a realistic EU accession process should ensure more success with institutional reforms than in the past, and indeed there are already signs that this is happening even under the conditions of war. However, without an end to the war and robust security guarantees (either from the US directly or as part of NATO), attracting foreign investors will be difficult for Ukraine relative to the rest of CESEE. One very important difference for Ukraine in relation to previous joiners is the current geopolitical and geo-economic context. The 2004 joiners in particular came into the EU at a time when globalization was still advancing, measured for example by trade as a share of GDP, and therefore had a very supportive environment for FDI attraction. In the current context of geo-economic competition and near- and friend-shoring, the situation is more complicated. This may not be negative for Ukraine; as part of its reconstruction Ukraine could feasibly benefit from friend-shoring as it integrates with Euro-Atlantic institutions and due to its deposits of rare earths and its green energy potential. Yet this is uncertain, and Ukraine will certainly not benefit automatically from the kind of huge waves of FDI that arrived in CESEE in the years before the global financial crisis.

The fourth challenge unique to Ukraine, linked to the weakness in FDI attraction, is its historic institutional deficiencies. The role of the EU itself will be crucial, as was the case for e.g. Bulgaria and Romania, where the Commission provided a lot of direct support. The experience of the 2004–2013 joiners shows that a good way to encourage reforms is to make them a requirement for further integration into the European market, as long as the accession perspective

is credible. Therefore, a credible path to EU membership, free of the foot-dragging and vetoes that have plagued the process for North Macedonia in particular,[11] must be avoided in the case of Ukraine. The EU must also think about how to incentivize reforms in a feasibly much longer accession process, where the true "carrot" of full accession may be many years away. Phased integration,[12] with significantly increased access to the EU budget for structural and cohesion programmes, involvement in EU infrastructure initiatives, and more access to the EU market would all incentivize reform momentum along the road to accession. Integrating Ukraine and other candidate countries more into EU regional and industrial policy schemes, and alignment with the European Green Deal and digital transition, should be part of this. Here there is already visible progress being made to speed up integration, for example in cooperation in the customs and tax spheres and Ukraine's participation in the Digital Europe Programme.

Much of this existing positive reform momentum has been recognized by the EU. The Commission noted as early as 2022 that the AA/DCFTA "already capture an unprecedented amount of the EU acquis".[13] In October 2023 the Commission judged that Ukraine had made sufficient progress on the seven identified areas to recommend the start of accession talks. This was endorsed by the Council in December 2023. Key to achieving sustained reform progress will also be societal buy-in, and the strength of civil society to hold elites to account. Ukrainian society is overwhelmingly committed to the process of EU accession, which creates a much better chance of success in reforms.

Fifth and finally, Ukraine is a negative outlier when it comes to infrastructure, because of historical weaknesses but especially due to the destruction wrought by the invasion. Although other historical examples show that network infrastructure can be rebuilt relatively quickly, the unique challenge faced by Ukraine is having to not only rebuild destroyed infrastructure but also to reorientate connections and modernize the infrastructure to reflect the shift in integration away from Russia and Belarus and towards the rest of Europe.

However, Ukraine already faced deficiencies in road, railway and port infrastructure before the war, reflecting decades of underinvestment and lack of maintenance (Kosse, 2023). Nevertheless, here too there are some signs of progress. The war has clearly catalysed an increase in infrastructure connectivity with the EU. Even before the war, the EU and Ukraine were already integrating their transport systems to boost connectivity, above all via the extension of the Trans-European Transport Network (TEN-T) to Ukraine and other parts of the Eastern Partnership. In July 2022 the European Commission issued a proposal on the exten-

11 The EU must quickly learn the hard lessons of the North Macedonia case. When a country is moving in a positive reform direction with a government that is committed to EU accession and that has a strong mandate, the EU must seize the moment. In the case of North Macedonia, the EU did exactly the wrong thing, allowing a politicization of the process at just the wrong time, with disastrous implications for domestic politics in North Macedonia and setting the accession process back many years.

12 We started to formulate how this could work economically in a 2020 study focused on the Western Balkans (Bertelsmann Stiftung, 2020). The full proposal for a political staged accession model was outlined by CEPS in 2021 (Emerson et al., 2021).

13 *https://ec.europa.eu/commission/presscorner/detail/en/qanda_22_3802*

sion of four European Transport Corridors to Ukraine and Moldova (European Commission, 2022b). The energy sector rapidly switched to synchronization with the European Network of Transmission System Operators for Electricity (ENTSO-E) in the early days of the war (European Commission, 2022a).

4. What impact will Ukraine's accession have on the EU?

4.1 Impact on the EU budget

There is a great deal of concern in the EU about the impact that Ukraine's accession will have on the EU budget, including claims that "many" current net recipients of the EU budget will turn into net payers (Foy 2023). Bastasin (2023) projected that if all current candidate and potential candidate countries except Turkey joined the EU, some EU-CEE countries (Slovenia, Czechia and Estonia) would stop being net recipients of the budget immediately, with others following by 2030. The accession of Ukraine would put new pressure on specific parts of the EU budget, especially in relation to agriculture.

Others, however, have found these estimates to be significantly overstated. Emerson (2023) found that if Ukraine joined the EU today with full access to the budget, only one country, Spain, would flip from a net recipient of funds to a net contributor. We found that if it joined the EU today, Ukraine would increase the bloc's GDP by around 1%, and its population by around 9% (Grieveson et al., 2023). At the time of its accession in 2004, the equivalent figures for Poland were very similar – 2% and 10%. Poland has certainly created some political challenges for the EU, yet its accession in economic terms has been a huge success (from both a Polish and an EU perspective), and it has hardly created an unsustainable strain on the EU budget. Ukraine's GDP level is around the same size as Hungary's, while the whole of the Western Balkans' is roughly the same as Slovakia's, and Moldova's is far smaller than that of any EU-CEE country – around one third of Estonia's. Therefore, even a "big bang" accession of all nine countries would be something like adding Hungary and Slovakia again.

There is simply too much uncertainty to make big pronouncements about Ukraine's impact on the EU budget when it joins. By the time of accession – probably at least 10 years away – the situation will be quite different. A Ukrainian accession to the EU would mean a resolving of the security situation (NATO membership, or equivalent) and major reform progress. If these two conditions are met, Ukraine will be in a much stronger position to attract FDI inflows and will also have seen a strong return of those who left. In this scenario, the country's level of economic development will be much higher than is currently the case, which will significantly reduce the EU funds allocation relative to today. The size of Ukraine's population at the time of accession – also a key determinant of EU budget allocation – is also highly uncertain.

Furthermore, it is highly likely that Ukraine's accession will come about with a reformed EU budget. Officials in the German government have already said, for example, that the common

agricultural policy (CAP) must be reformed for the next funding period starting in 2028 in order to take Ukraine into account (Lorenzen and Wetzels 2023). Ukraine's large farms present a particular challenge for the CAP. There is a capping mechanism for payments to large farms, but this capping is at the discretion of member states. Moreover, in practice large farms have found ways to get around it, by legally subdividing themselves into smaller farms. It is likely that if/when Ukraine joins the EU, there will be major pressure from other member states to strengthen this capping mechanism for large farms (Emerson, 2023). For all countries that have joined since 2004, direct payments under the CAP have been subject to a 10-year transition delay. At the time of accession, new member states only received 25% of the full amount of direct payments, which then increase by 5 or 10 percentage points per year until the 100% level was reached. This means that, realistically, Ukraine would not have 100% eligibility until 2040 at the earliest, 16 years from now. Considering everything that has happened in the EU in the last 16 years (i.e. the time since the onset of the global financial crisis), it is very difficult to make confident pronouncements about how the situation will be in 2040.

Meanwhile, there is already a capping mechanism for Cohesion Funds, with receipts for countries with a GNI (in PPS) less than 55% of the EU average, as is the case for Ukraine, capped at 2.3% of GDP.[14] The Recovery and Resilience Facility (RRF), which ends in 2026 and does not apply to Ukraine, also includes provision for capping to avoid extreme concentration of funds in poorer regions and member states, and this can also provide a clue to EU thinking about the future structure of the budget which would be relevant for Ukraine. While RRF allocations are linked to population and GDP per capita levels, they are limited to 150% of the inverse of the EU's average GDP per capita. This would actually penalize Ukraine, as it makes no distinction beyond this point, thereby in effect favouring the relatively poor at the expense of the very poor (as Ukraine is/would be). As Emerson (2023) concludes, "the present capping rule for Cohesion funding would result in unreasonably low allocations (for Ukraine)", and much less than what Ukraine will get each year from the €50 billion Ukraine Facility. The challenge will therefore be to adjust the rules to increase Ukraine's allocation, rather than to reduce it.

The debate about the costs of Ukraine's EU accession will also take place in an environment where the benefits of Ukraine's membership will also be becoming increasingly clear. As outlined in section 2, all previous accession rounds have benefited the EU as a whole, even if particular industries in particular countries have sometimes been negatively affected. The main immediate benefit that Ukraine currently brings to the EU is via labour supply, with migration and refugee flows from Ukraine to the EU significantly alleviating the latter's ever more obvious labour shortages. However, over time, Ukraine's importance to many of the key industries of the future, and where the EU currently has shortcomings, will become more clear. These include the defence industry, green energy and rare earths. More generally, reconstruction and EU integration will stimulate an investment boom that will benefit EU firms. Ukraine's immediate neighbours are likely to see particularly positive spillovers from this.

14 *https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1060*.

4.2 What will be the impact of Ukraine's competitive agricultural sector on the EU?

The agricultural sector of Ukraine has shown strong potential for development, and its strength has prompted worries in the EU about the impact on the agricultural industries of other member states. Many products are already internationally competitive, including vegetable oils, flour, prepared vegetables, juices, and some dairy products, and the sector's exports have grown steadily. The share of agriculture and food products in Ukraine's exports already rose before the full-scale invasion – from 29% in 2013 to 44% in 2021. That is caused not only by the reduced industrial exports due to the loss of a big chunk of the country's industrial base in the Donbas region, but also to the growing crop yields and new market openings. Ukraine has come close to Poland in wheat yields and surpassed it for corn (maize). The growing yields should be primarily attributed to the changes in Ukraine's sector structure, with the development of the agricultural holdings controlling large land banks and benefiting from extensive economies of scale. The holdings accumulated sufficient resources to invest into new technologies and equipment, boosting the production capacity.

The Association Agreement/Deep and Comprehensive Free Trade Area (AA/DCFTA) has also contributed to the increase in productivity. The agreement envisaged the nullification of import duties for all industrial and most agricultural products within a maximum of 10 years (though the EU had already abolished most duties in April 2014). Tariff rate quotas (TRQs) within zero in-quota import duties were imposed by both the EU and Ukraine for politically sensitive goods (Emerson, Movchan et al., 2021). Moreover, the AA/DCFTA envisaged a gradual reduction of non-tariff measures and stimulated the harmonization of safety standards, the recognition of which has not only improved the market entry into the EU, but also simplified the process of obtaining certificates in other destinations. These measures have allowed Ukraine to gain better access to a larger market and improve access to inputs.

In response to the drastic situation created by Russia's full-scale invasion of Ukraine that began in February 2022, the EU adopted a regulation allowing for temporary full trade liberalization with Ukraine and the suspension of trade defence measures (currently till June 2024 and possibly prolonged till June 2025; Liboreiro, 2024). As a result, in 2022, exports of goods, subject to TRQs, grew by 47% year-on-year, while total merchandise exports to the EU increased by 5% year-on-year (Movchan and Polushkin, 2023).

The expansion of Ukraine's agri-food exports to the EU resulted in political tensions among several EU members starting in the spring of 2023, which could be seen as a preview of the issues Ukraine might face in its EU accession process. With global agricultural prices trending downward since autumn 2022 and farmer protests, Poland unilaterally banned imports and transit of Ukraine's cereals and many other agricultural products on 15 April 2023, justifying the ban by the threat to national security. Hungary, Slovakia and Bulgaria banned imports, although not transit. Romania was considering the ban. The transit through Poland was restored within a week, although with additional control procedures. On 2 May 2023, the

individual bans were replaced by the EC's exceptional and temporary preventive measures on imports of wheat, maize, rapeseed and sunflower seed from Ukraine. These measures were lifted on 15 September 2023 with Ukraine's consent to introduce legal measures to avoid a rapid increase in grain exports to these markets in the future. However, Poland, Slovakia and Hungary have remained unsatisfied with the EC decision and reimposed individual restrictions. In response, Ukraine initiated consultation within the WTO dispute settlement mechanism.

The argument for national security does not stand up to scrutiny as the volume of exports from Ukraine accounted for a relatively low market share in Poland and other neighbouring countries. Moreover, the scope of the import bans – both under the EC regulation and individually imposed by countries – went far beyond grain, even covering products in which duty-free trade access to the EU market has existed for years, such as maize, sunflower seed or rapeseed, etc. As of February 2024, the bans have remained in place despite their non-alignment with the EU–Ukraine Association Agreement or the EU's and WTO's general trade norms.

In the face of growing protests by farmers, on 31 January 2024 the European Commission officially proposed introducing safeguard measures to cap Ukrainian food imports. Between 2022 and 2023, EU imports of "sensitive products" from Ukraine have risen dramatically – by 50% for poultry, 130% for eggs and 1,000% for sugar (Struna, 2024). To protect the domestic producers, the European Commission proposed establishing a threshold for imports on the basis of the average level for 2022–2023, surpassing which would trigger the reintroduction of customs duties.

Even if the EU can solve the issue this time by offering direct financial support to EU-CEE farmers, this is not a long-term solution. This is an important sign of something that will likely become a much bigger political issue as Ukraine comes closer to full accession, and the EU must already start to think about how to adjust policies to help those within the EU who will lose out, without compromising on Ukraine's market access.

Given Ukraine's vast areas of agricultural land and the fact that the average farm in the country is many times larger than in the EU, its EU accession could pose significant budgetary challenges for the EU, which has led to calls to reform the common agricultural policy (CAP) (Stanicek, Przetacznik and Roman, 2023) as well as for greater protection from competition with Ukrainian farmers (Dahm, 2023). The redistribution of CAP funds has historically been a contentious element in enlargement negotiations. This was the case in the 2004 eastern EU enlargement, which included major agricultural producers, such as Poland. A significant reform of the CAP and a 10-year phasing-in of agricultural payments for the new member states was a negotiated solution.

According to internal estimates of the EU's common budget Ukraine's accession to the EU would entitle Kyiv to about €186 billion over 7 years (Foy, 2023). On the other hand, some studies have suggested that a Ukrainian accession modelled on the 2004 enlargement could be "rel-

atively manageable" in budgetary terms. For example, Emmerson (2022) finds that if Ukraine were already a full member state of the EU, it could be benefitting from around €18–19 billion of receipts from the EU budget, net of contributions, which would mean an increase in GNI-based contributions by all member states of around 10% to fund the increase in the overall budget. The EU's €50 billion Ukraine Facility for 2024 to 2027 is already not so far behind this static estimate for full membership. However, any attempt to estimate the final impact of Ukraine's membership on the EU's agricultural budget should factor in the CAP model applicable at the time of the enlargement, and the conditions negotiated in the accession treaty.

For the EU, Ukraine's accession represents an opportunity to reform the CAP as a whole, including opening the EU market to agricultural producers from outside the EU, although the political challenges of such a step are enormous. Yet Ukraine's proven comparative advantage in agriculture owing in particular to its superior soil and bigger farm size, and the scope it has to further raise productivity and expand in many areas of processing and food products mean that the EU cannot ignore this issue. Transitory support schemes for rural areas in the rest of the EU will be necessary to support the adjustment required by Ukraine's full entry into the single market, as well as financial support for functional upgrading to help weaker EU regions to compete. In the long run, this will be to the benefit of EU consumers.

5. Reconstruction priorities in the context of EU accession

The policy challenges facing Ukraine and the EU in the context of reconstruction and EU accession are enormous and cannot be covered extensively in a paper of this length. However, based on the findings of this paper we can make contributions to the policy priorities to make sure reconstruction and EU accession are dovetailed in several areas.

5.1 Demographic policy

The current population dynamics and simulated projections highlight that the shortage of workers will likely be a critical challenge for Ukraine's post-war reconstruction. Policy efforts should concentrate on mitigating the war's devastating impact on Ukraine's population, with a focus not only on bringing as many working-age individuals as possible back to Ukraine after the war but also on attracting those with the right skills. Additionally, the policy needs to aim at the strategic placement of returnees in areas with higher reconstruction demand. Key policy priorities should include:

- Return policies designed to facilitate sizeable voluntary return and swift reintegration to reduce the demographic drain and foster effective reconstruction, including housing provision, assistance with employment, establishing public works programmes and retraining and skill development policies.
- Internal reallocation policies aiming to bring people to the regions that are in the grea-

test need of workers to carry out reconstruction projects and to settle there in the long term. This should include housing reconstruction and temporary housing policy, engaging IDPs and returnees in reconstruction, and providing support for business resumption and start-ups.

- Pro-natal and family-support policies designed to increase fertility in the post-war years, in order to at least partly mitigate the projected sharp drop in the working-age population by 2040. This should include a transparent and progressively scaled childcare support payment system, expanding employment rights for mothers and pro-family employment conditions, providing affordable and accessible childcare, an equal parental leave policy, family allowance benefits, and a pro-family taxation system.

5.2 Infrastructure policy

Housing reconstruction will be crucial to allow for a strong and sustained recovery, especially in the areas most affected by the war. Given financing constraints and in order to align with EU environmental standards, the government should explore innovative approaches to the circular economy in post-war housing reconstruction, including the use of sustainable materials and designs, energy-efficient technologies, and the incorporation of renewable energy sources in the construction process. It is essential to involve local communities and stakeholders in the decision-making process.

As well as the need to rebuild critical infrastructure so that the population can resume something like normal life as soon as possible after the war ends, the success of Ukraine's post-war reconstruction and EU integration will also rest heavily on its ability to rapidly build connections to the EU market to ease trade and stimulate FDI inflows. The Ukrainian government should align its domestic infrastructure policies with EU infrastructure initiatives as much as possible, especially project pipelines, timelines, and funding mechanisms.

5.3 Regional development policy

The Ukrainian economy faces a high risk that wartime damage will lead to a deep and long-lasting division between the eastern/southern regions and the rest. While the east will require significant net fiscal transfers for years to come, the government also needs to actively support investments that will help to rebuild local production capabilities in the drive for long-term economic growth. This should also be seen in the context of the impact that regional unequal development can have as a driving force in political developments (rise of populist parties, attitudes towards EU integration and policies), as has been documented by a range of recent studies (Dijkstra et al, 2019; Rehak et al, 2021; Rodriguez-Pose, 2018; Wishlade, 2019).

The allocation of reconstruction funds needs to take account of both regional economic and social inequalities and demographic disparities, as well as the territorial distribution of war

damage. Ukraine's reconstruction plan(s) should address these aspects by combining overarching national objectives with centralized fund management and regional and municipal-level reconstruction programmes with devolved fund management. The balance between the two depends on the type and extent of the reconstruction needs observed at local and regional level, as well as the capacity of national, regional and local authorities to manage the volume of reconstruction funding. Ukraine's recent decentralization reforms brought its local government structures closer to EU benchmarks. The reconstruction governance model(s) should thus be aligned with (consolidated) decentralization reforms and ensure that local government bodies are empowered, both politically and financially, especially in regions and municipalities hardest hit by the war.

To ensure the efficient absorption of funds from the EU and other key actors, administrative capacity in Ukraine's authorities across all governance levels needs to be boosted, especially at local level where authorities only recently saw their competences considerably increased. At this stage, Ukraine still lacks the administrative capacity and experience to absorb large-scale funds (European Commission, 2023a). To that end, the implementation of Ukraine's reconstruction plan could also lean on the experience of the EU's Instrument for Pre-accession Assistance (IPA), much like Pillar III of the Ukraine Facility (European Commission, 2023b) which addresses the issue of administrative capacity by providing technical assistance and support to Ukraine in a way comparable to the support pre-accession countries are currently receiving from the EU.

We favour an activist regional and industrial policy, which would be critical when major changes in economic structure and in regional development are necessary within a longer-term time frame. This requires front-loaded and regionally differentiated public investment in infrastructure, in training facilities and labour market institutions which support return migration, internal mobility and labour market matching. In addition, special attention should be paid to supporting start-ups (also as a tool to encourage return migration) and competition policy should be given a strong role to control the market power of dominating enterprises which can stifle the sustained growth of the SME sector. Encouragement of FDI and the stimulus it can give to local firms will be essential (Movchan and Pindyuk, 2024). The effectiveness of schemes in this area will have different time horizons in different regions because of the highly uneven regional impact of the war.

As budget constraints are likely to be severe, it is especially important to consider regional development policies that will only require limited financial support from the state. These include differentiated interest rates for high-performing industries (building on the "5-7-9" scheme; Kornyliuk and Kornyliuk, 2024), risk insurance schemes, a strengthening of investment promotion agencies, and the establishment of Special Economic Zones (SEZs).

Administrative reforms in Ukraine have strengthened the competences and duties of municipalities, as we observed above. However, regions and municipalities particularly impacted by the war face a twofold challenge: greater damage to infrastructure and a stronger decline in

economic activity, reducing municipal revenue bases. The administrative reforms entailed a change in Ukrainian tax codes and a reallocation of personal income tax (PIT), which made up approximately 30% of local government's own resources before the war (but after the PIT tax reform) (Hirchak, 2021). The drop in municipal revenues could constrain fiscal capacities for planning and pre-financing reconstruction projects in the most heavily hit local authorities.

5.4 Trade and FDI policy

Ukraine already has a liberal trade regime, with free trade agreements covering over half of its trade and with low import tariffs and steadily decreasing non-tariff barriers to trade, particularly TBT/SPS and, more recently, customs procedures. The country's economic integration with the EU has been growing in many areas since the conclusion of the Association Agreement, including a Deep and Comprehensive Free Trade Area (DCFTA) in June 2014. In the EU enlargement report, Ukraine was judged to have attained a "good level of preparations" (4 out of 5) for the customs union that covers customs procedures and a "moderate level of preparations" (3 out of 5) for the free movement of goods and food safety, veterinary and phytosanitary policy.

Ukraine still has a high level of economic complexity in some sectors and is competitive in technologically advanced products, ranging from turbines and railway equipment to yachts (Movchan and Pindyuk, forthcoming). However, the Ukrainian economy remains relatively little integrated into global value chains compared to its regional peers. That points to a potential for the closer integration of Ukraine into global production chains in the post-war period, especially given the recent friend- and near-shoring trends, as well as Ukraine's largely untapped potential in green energy and critical minerals resources.

Ukraine has significant potential for generating energy using entirely renewable technologies. The International Renewable Energy Agency estimated in 2015 that Ukraine should be able to increase its renewable energy use 10 times by 2030, with nearly 80% of the final renewable energy potential accounted for by biomass technologies owing to the country's extensive agricultural and forestry waste, which is an essential resource for this type of energy (IRENA, 2015). Onshore and offshore wind power generation and onshore solar power generation could additionally generate more than 700 GW (World Bank, 2020; Energy Monitor, 2024). Another promising niche for Ukraine, which has the most significant growth opportunities in natural gas production across Europe, is blue hydrogen, which uses natural gas and can reduce emissions by up to 85% compared to normal natural gas consumption. Expanding renewable energy will require investment in power generation infrastructure and in integrating Ukraine's power grid in that of the EU.

Although Ukraine is currently not one of the world's largest producers of rare minerals, its resources of rare minerals are unique and the largest in Europe. Across more than 8,700

surveyed deposits, there are 117 of the 120 most-used industrial minerals, including titanium, neon, nickel, lithium and beryllium, the market value of which is estimated to amount to €7.1 trillion (Muggah and Dryganov, 2022). Ukraine has the potential to set up sustainable raw-materials and battery projects in mining, refining and creating end-user products.

We assume that the post-war reconstruction of Ukraine's economy will not simply aim to replace what has been lost to Russian destruction but be based on the principle of "build back better" and a green transition, allowing Ukraine to "leapfrog" other countries and develop more technologically advanced sectors with higher value added. This will allow for the economy to become globally competitive and technologically advanced, integrated into global value chains (GVCs) and able to withstand the pressures of the EU single market. Moreover, the reconstruction will occur in the framework of a broad-based legal alignment with the EU and advancing fundamental political reforms (particularly anti-corruption and legal and judicial reforms) that will further reduce barriers to trade.

To be ready to accede to the EU, many important regulatory changes are still needed. In 2023, the government of Ukraine conducted self-screening of the country's alignment with the EU acquis. About 1,400 legal acts were defined as already implemented and about 3,000 as requiring full or partial implementation (and over 22,000 were classified as not requiring implementation at the current stage; these include protocols, recommendations, reports, conclusions, decisions etc., as well as the EU's international agreements). For comparison, the entire AA/DCFTA embedded less than 1,000 acts of the EU acquis. Still, despite being of lesser scope, the AA contained the most fundamental elements of the EU acquis[15] and provided valuable experience for the Ukrainian government, thus paving the way for a smoother and faster accession-driven regulatory alignment in the future.

To withstand the competitive pressures and successfully become integrated in the EU market, Ukraine must focus on strengthening and expanding its competitive advantage in technologically advanced industries. Ukraine has a strong comparative advantage in ICT-related sectors, which can be further developed in the post-war period. However, the digitalization of the economy is not uniform, and there are many areas where there is a need for technological modernization. Ukraine appears to have enormous potential for catching up with the countries in the West concerning ICT infrastructure development and the prevalence of Internet use, which could provide a productivity boost in the post-war period. The progress is expected to be fostered by Ukraine's integration into the EU's digital single market, a goal both parties have already recognized.

Besides, the European Commission considers Ukraine a potential supplier to the EU of more than 20 elements from the list of critical raw materials and has planned several measures in the field of trade and investments in the mining and processing industries of Ukraine that

15 Aligned safety regulations, competition and state aid policy, public procurement, company law, financial services, consumer protection, energy and transport policies, digital transformation, etc.

work with rare earth elements. That is an opportunity for the integration of Ukraine into EU supply chains to support the EU's digital and energy transition, particularly in the automotive and electronics sectors.

Though Ukraine has significantly liberalized its foreign investment policy regime, in 2020 it remained less liberal than many of its regional peers. However, the significant backlog of the FDI attraction is not sectoral regulations but the protection of property rights and the rules of law protection. The EU accession process is expected to assist Ukraine in addressing these fundamental challenges, which are crucial for all aspects of the country's development.

To strengthen Ukraine's international competitiveness, we consider the following trade policy changes to be a priority for Ukraine:

- Fix "fundamentals", i.e., ensure effective judicial reform that provides enhanced property rights protection. That is a long-term condition for investment attractiveness.
- With international support, introduce the insurance guarantee scheme for war and political risks for investors. The scheme should be time-specific to foster its current use.
- Strengthen the protection of intellectual property rights by advancing reforms within the AA/DCFTA and the EU accession process framework. The European Commission assessed the current level of Ukraine's preparedness regarding IPR protection as being in an "early stage". Modernization will be impossible without innovations, while poor IPR protection undermines incentives to innovate and produce innovative products in Ukraine.
- Continue reducing technical barriers to trade by aiming for mutual recognition for product safety, namely the ACAA for industrial products and recognition of equivalence for food products. The aim should be mutual recognition before joining the EU, a fundamental functioning principle. For that, Ukraine needs to continue developing quality infrastructure, including the further capacity building of institutions and equipping laboratories, including reconstructing them if damaged as a result of fighting or shelling.
- Aim to transform temporary improvements in the EU market (TRQs, cargo transport permits, etc.) into permanent ones, thereby providing businesses with clarity regarding their access to the EU market and stimulating them to strengthen economic ties with the EU.
- Aim to conclude free trade agreements with countries or trading blocks with which the EU has FTAs or negotiating agreements. That would allow for improving the use of preferential rules of origin, improving the efficiency of preferential market access and stimulating value chain development.

6. Conclusion

This paper has outlined the impact of the war on Ukraine's economy, presented the main challenges in terms of combining EU integration and reconstruction, outlined the impact that Ukraine's accession will have on the EU, and provided a set of policy priorities in order to direct reconstruction in a way that will "build back better" and maximize the upside of EU integration and eventual accession for Ukraine.

We find that the challenges facing Ukraine are enormous. The loss of human life, destruction of infrastructure and demographic shock wrought by the Russian invasion have been severe. Even under the most optimistic scenario, the population will not return to pre-war levels and is projected to be around 35.2 million by 2040, which is 17% lower than the pre-war population. Despite returning to growth, Ukraine's economy will also not go back to its pre-invasion level for several years. Meanwhile the regional differentiation of impact has been significant, which creates a serious danger of wide disparities in regional development patterns during the recovery and reconstruction phase.

Despite these monumental challenges, we find that Ukraine can feasibly follow the now well-trodden and often successful EU-CEE EU integration and convergence path once the war ends. FDI inflows and greater trade integration with the EU will drive productivity and wage increases. On most counts, Ukraine is not an outlier in the broader story of European integration. Ukraine's GDP relative to that of the EU is similar to that of Hungary, Czechia or Romania at the time that they joined the EU. Its per capita GDP in PPP terms, relative to the EU, is comparable with Latvia, Lithuania and Romania at the start of their accession processes. If Ukraine joined the EU today, it would increase the EU's population by 9%, very similar to the impact of Poland's accession in 2004. Ukraine will also not create an unmanageable extra strain on the EU budget.

However, there are areas where Ukraine is a special case, and here the EU integration process and reconstruction must work hand in hand to overcome significant obstacles. The integration of Ukraine's competitive agricultural sector into the EU must be carefully managed, given its already evident difficult political implications. Meanwhile the scale of reconstruction needs and the demographic shock make Ukraine different to previous CEE EU joiners. Ukraine must also continue to work to upgrade its institutions, although here there has been a lot of positive progress since the 2022 invasion.

Policy priorities for Ukraine and the EU include measures to mitigate the demographic shock, rebuild infrastructure in a way that integrates Ukraine more tightly into the EU economy, support the regions most impacted by the war, and use trade and FDI policies to maximize the benefits of EU integration. In all cases, reconstruction efforts must be designed and coordinated in a way that ties in fully to the EU accession process.

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REFERENCES

Bastasin, C. (2023) "Want Ukraine in the EU? You'll have to reform the EU, too", Brookings. Available at: *https://www.brookings.edu/articles/want-ukraine-in-the-eu-youll-have-to-reform-the-eu-too/* (accessed: 8 April 2024) (accessed 23 July 2024).

Bertelsmann Stiftung (2020) Pushing on a String? An evaluation of regional economic cooperation in the Western Balkans, Bertelsmann Stiftung and wiiw. Available at: *https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/pushing-on-a-string-en* (accessed: 15 July 2024).

Bykova, A., Grieveson, R., Hanzl-Weiss, D., Hunya, G., Korpar, N., Podkaminer, L., Stehrer, R. and Stöllinger, R. (2021) Avoiding a Trap and Embracing the Megatrends: Proposals for a New Growth Model in EU-CEE, Friedrich Ebert Stiftung, Berlin. Available at: *https://polska.fes.de/a-new-growth-model-for-central-eastern-europe* (accessed 23 July 2024).

Corden, W.M. (1984) Booming Sector and Dutch Disease Economics: Survey and Consolidation; Oxford Economic Papers, vol. 36, issue 3, pp. 359-80.

Dahm, J. (2023) "German farmers: Ukraine membership would spell end of EU farming system", Euractiv, 17 November. Available at: *https://www.euractiv.com/section/agriculture-food/news/german-farmers-union-warns-against-eu-accession-for-ukraine/* (accessed: 15 July 2024).

Darvas, Z., Dabrowski, M., Grabbe, H., Léry Moffat, L., Sapir, A. and Zachmann, G. (2024) "Ukraine's path to European Union membership and its long-term implications", Bruegel Policy Brief 05/2024. Available at: *https://www.bruegel.org/policy-brief/ukraines-path-european-union-membership-and-its-long-term-implications* (accessed 23 July 2024).

Dijkstra, L., Poelman, H. and Rodrguez-Pose, A. (2019) "The geography of EU discontent", Regional Studies, 54, pp. 737–753.

Emerson, M. (2023) The Potential Impact of Ukrainian Accession on the EU's Budget – and the Importance of Control Valves, CEPS Policy Paper. Available at: *https://www.ceps.eu/ceps-publications/the-potential-impact-of-ukrainian-accession-on-the-eus-budget/* (accessed: 15 July 2024).

Emerson, M., Lazarević, M., Blockmans, S. and Subotić, S. (2021) "A Template for Staged Accession to the EU", CEPS. Available at: *https://www.ceps.eu/ceps-publications/a-template-for-staged-accession-to-the-eu/* (accessed: 15 July 2024).

Emerson, M. and Movchan, V. (eds.) (2021) Deepening EU-Ukrainian Relations: Updating and upgrading in the shadow of Covid-19, 3rd ed., CEPS, Lanham, MD: Rowman & Littlefield. Available at: *https://3dcftas.eu/publications/deepening-eu-ukrainian-relations-updating-and-upgrading-in-the-shadow-of-covid-19.-third-edition* (accessed 23 July 2024).

Energy Monitor (2024) "How Ukraine could be key to EU clean energy ambitions". Available at: *https://www.energymonitor.ai/market-design/how-ukraine-could-be-key-to-eu-clean-energy-ambitions/* (accessed: 29 July 2024).

European Commission (2022a) "Statement by the Commissioner for Energy Kadri Simson on Synchronisation of the Continental European Electricity Grid with Ukraine and Moldova", Statement. Available at: *https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_1789* (accessed: 15 July 2024).

European Commission (2022b) "Commission amends TEN-T proposal to reflect impacts on infrastructure of Russia's war of aggression against Ukraine", News Article. Available at: *https://transport.ec.europa.eu/news-events/news/commission-amends-ten-t-proposal-reflect-impacts-infrastructure-russias-war-aggression-against-2022-07-27_en* (accessed: 15 July 2024).

European Commission (2023) "Rule of law: Commission Formally Closes the Cooperation and Verification Mechanism for Bulgaria and Romania", Press Release. Available at: *https://ec.europa.eu/commission/presscorner/detail/en/ip_23_4456* (accessed: 15 July 2024).

Foy, H. (2023) "EU estimates Ukraine entitled to €186bn after accession", Financial Times, 3 October. Available at: *https://www.ft.com/content/a8834254-b8f9-4385-b043-04c2a7cd54c8* (accessed: 23 July 2024).

Gorodnichenko, Y., Sologoub, I. and Weder Di Mauro, B. (eds.) (2022) Rebuilding Ukraine: Principles and policies, Paris/London: CEPR Press. Available online: *https://cepr.org/publications/books-and-reports/rebuilding-ukraine-principles-and-policies* (accessed 23 July 2024).

Government Portal (2022) Ministry of Economy: 558 relocated enterprises have resumed work in safe regions of the country. Available at: *https://www.kmu.gov.ua/en/news/minekonomiky-558-relokovanykh-pidpryiemstv-vzhe-vidnovyly-robotu-u-bezpechnykh-rehionakh-krainy* (accessed: 7 June 2023).

Grieveson, R., Jovanović, B., Kosmehl, M., Landesmann, M., Pindyuk, O., Sabouniha, A., Tverdostup M. and Weiss, S. (2023) Outlier or not? The Ukrainian economy's preparedness for EU accession, Bertelsmann Stiftung. Available online: *https://www.bertelsmann-stiftung.de/en/publications/publication/did/outlier-or-not-the-ukrainian-economys-preparedness-for-eu-accession* (accessed 23 July 2024).

Havlik, P., Kochnev, A. and Pindyuk, O. (2020) Economic Challenges and Costs of Reintegrating the Donbas Region in Ukraine. The Vienna Institute for International Economic Studies (wiiw) Research Report no. 447. Available at: *https://wiiw.ac.at/economic-challenges-and-costs-of-reintegrating-the-donbas-region-in-ukraine-p-5351.html* (accessed 23 July 2024).

International Renewable Energy Agency (IRENA) (2015) REmap 2030 Renewable Energy Prospects for Ukraine. Abu Dhabi: IRENA. Available at: *https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2015/Apr/IRENA_REmap_Ukraine_paper_2015.pdf* (accessed: 15 July 2024).

Kochnev. A., Landesmann, M., Maucorps, A. and Moshammer, B. (2023) Ukraine's economic reconstruction: addressing territorial inequalities, consolidating regional policy and reaping the benefits of EU integration, Bertelsmann Stiftung. Available at: *https://www.bertelsmann-stiftung.de/en/publications/publication/did/ukraines-economic-reconstruction* (accessed 23 July 2024).

Kornyliuk, A. and Kornyliuk, R. (2024) "Government Business Support Program 'Affordable Loans 5-7-9%': Looking for an Optimal Design", Vox Ukraine, 1 March. Available at: *https://voxukraine.org/en/government-business-support-program-affordable-loans-5-7-9-looking-for-an-optimal-design* (accessed: 15 July 2024).

Kosse, I. (2023) Rebuilding Ukraine's Infrastructure after the War, wiiw Policy Note/Policy Report no. 72. Available at: *https://wiiw.ac.at/rebuilding-ukraine-s-infrastructure-after-the-war-p-6621.html* (accessed 23 July 2024).

Kulu, H., Christison, S., Liu, C. and Mikolai, J. (2023) "The war, refugees, and the future of Ukraine's population", Population, Space and Place, 29(4). *https://doi.org/10.1002/psp.2656* (accessed 23 July 2024).

Landesmann, M. and Stoellinger, R. (2019) "Structural Change, Trade and Production Networks: An 'Appropriate Industrial Policy' for Peripheral and Catching-up Economies", Structural Change and Economic Dynamics, 48, March, pp. 7–23. *https://doi.org/10.1016/j.strueco.2018.04.001* (accessed 23 July 2024).

Lorenzen, H. and Wetzels, H. (2023) "Ukraine Joining the EU – An Elephant in the Room", Agriculture and Rural Convention, 3 April. Available at: *https://www.arc2020.eu/ukraine-joining-the-eu-an-elephant-in-the-room/* (accessed: 23 July 2024).

Liboreiro, J. (2024) "Brussels proposes to extend EU-Ukraine free trade. But restrictions on grain will be eaiser to slap", Euronews, 31 January. Available at: *https://www.euronews.com/my-europe/2024/01/31/brussels-proposes-to-extend-eu-ukraine-free-trade-but-restrictions-on-grain-will-be-easier* (accessed: 15 July 2024).

Lindner, J., Nguyen, T. and Hansum, R. (2023) What does it cost? Financial implications of the next enlargement, Policy Paper, Jacyue Delors Centre. Available at: *https://www.delorscentre.eu/en/publications/financial-implications-of-the-next-enlargement* (accessed 23 July 2024).

Mielczarek, B. and Zabawa, J. (2021) "Modelling demographic changes using simulation: Supportive analyses for socioeconomic studies", Socio-Economic Planning Sciences, 74, p. 100938.

Movchan, V. and Pindyuk, O. (forthcoming) Ukraine's future competitiveness – Directions for structural shifts in foreign trade and investment, Bertelsmann Stiftung.

Movchan V. and Polushkin G. (2023) Changes in Ukraine's trade structure since the beginning of the full-scale war. GET Ukraine Policy Briefing PB/01/2023. Available at: *https://www.german-economic-team.com/wp-content/uploads/2023/04/GET_UKR_PB_01_2023.pdf* (accessed 23 July 2024).

Muggah, R. and Dryganov, V. (2022) "Russia's Resource Grab in Ukraine", Foreign Policy, 28 April. Available at: *https://foreignpolicy.com/2022/04/28/ukraine-war-russia-resources-energy-oil-gas-commodities-agriculture/* (accessed: 15 July 2024).

Rehak, S., Rafay, O. and Cernenko, T. (2021) "EU integration, regional development problems and the rise of the new radical right in Slovakia", Regional Science Policy and Practice, 13(2), pp. 303–322. *https://doi.org/10.1111/rsp3.12385* (accessed 23 July 2024).

Rodriguez-Pose, A. (2018) "The revenge of places that don't matter (and what to do about it)", Cambridge Journal of Regions, Economy and Society, 11(1), pp. 189–209. *https://doi.org/10.1093/cjres/rsx024* (accessed 23 July 2024).

Stanicek, B., Przetacznik, J. and Roman, A. A. (2023) Enlargement policy: Reforms and challenges ahead, Briefing, European Parliamentary Research Service, PE 757.575. Available at: *https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/757575/EPRS_BRI(2023)757575_EN.pdf* (accessed: 15 July 2024).

Stehrer, R. and Stoellinger, R. (2014/15) The Central European Manufacturing Core: What is Driving Regional Production Sharing?, FIW Studien, No. 2. Available at: *https://www.fiw.ac.at/wp-content/uploads/2023/02/02_Stoellinger_FIW-Research-Report_The_Central_European_Manufacturing_Core_What_is_Driving_Regional_Production_Sharing.pdf* (accessed: 15 July 2024).

Stoellinger, R., Kordalska, A. Olczyk, M. and Zavarská, Z. (2022) Functional Specialisation in EU Value Chains: Methods for Identifying EU Countries' Roles in International Production Networks, wiiw Research Report, no. 461.

Struna, H. (2024) "EU Commission proposes package to defuse farmers' anger", Euractiv, 31 January. Available at: *https://www.euractiv.com/section/agriculture-food/news/eu-commission-proposes-package-to-defuse-farmers-anger/* (accessed: 15 July 2024).

Tverdostup, M. (2023) The Demographic Challenges to Ukraine's Economic Reconstruction, wiiw wiiw Policy Note/Policy Report, no. 71.

UNHCR (2022) Lives on Hold: Profiles and Intentions of Refugees from Ukraine #1, UNHCR Regional Bureau for Europe. Available at: *https://data.unhcr.org/en/documents/details/94176* (accessed: 15 July 2024).

UNHCR (2023) Lives on Hold: Intentions and Perspectives of Refugees and IDPS from Ukraine #4, UNHCR Regional Bureau for Europe. Available at: *https://data.unhcr.org/en/documents/details/101747* (accessed: 15 July 2024).

Van Imhoff, E. and Post, W. (1998) "Microsimulation methods for population projection", Population: An English Selection, 10(1), pp. 97–138.

Wishlade, F. (2019) The rise of populism, regional disparities and the regional policy response, European Policy Research Paper no. 109, University of Strathclide.

World Bank (2020) Going Global: Expanding Offshore Wind to Emerging Markets (Vol. 16): Technical Potential for Offshore Wind in Black Sea – Map (English), Washington, D. C.: World Bank Group. Available online: *https://documents.worldbank.org/en/publication/documents-reports/documentdetail/718341586846771829* (accessed: 15 July 2024).

World Bank (2024) Third Rapid Damage and Needs Assessment (RDNA3): February 2022 – December 2023 (English), Washington, D.C.: World Bank Group. Available at: *http://documents.worldbank.org/curated/en/099021324115085807/P1801741bea12c012189ca16d95d8c2556a* (accessed: 15 July 2024).

Appendix

Table A.1: Dominant industries in regional manufacturing (industries with highest shares in regional value added)

NACE2 code	Industry description	Share in region's manufacturing: 2019, %	Spec. Index: 2019	Growth: 2016–2019
Centre				
10.41	Manufacture of oils and fats	17.71	6.46	0.97
10.51	Operation of dairies and cheesemaking	14.50	9.01	1.66
10.82	Manufacture of cocoa, chocolate and sugar confectionery	6.50	5.58	1.01
28.30	Manufacture of agricultural and forestry machinery	4.72	3.32	1.02
23.61	Manufacture of concrete products for construction purposes	4.62	1.11	2.83
10.39	Other processing and preserving of fruit and vegetables	3.74	4.10	Inf
East				
24.10	Manufacture of basic iron and steel and of ferro-alloys	20.81	2.86	0.43
33.12	Repair of machinery	9.57	1.75	2.90
24.20	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel	3.04	2.86	0.93
22.22	Manufacture of plastic packing goods	2.65	1.38	1.03
10.13	Production of meat and poultry products	2.65	1.38	1.64
21.20	Manufacture of pharmaceutical preparations	2.56	0.43	1.27
Kyiv				
21.20	Manufacture of pharmaceutical preparations	17.48	2.92	1.48
23.61	Manufacture of concrete products for construction purposes	5.78	1.39	1.44
18.12	Other printing	4.73	2.06	1.02
33.20	Installation of industrial machinery and equipment	4.70	2.36	4.07
10.71	Manufacture of bread; manufacture of fresh pastry goods and cakes	4.16	1.29	1.60
33.12	Repair of machinery	3.81	0.70	2.62
North				
17.21	Manufacture of corrugated paper and paperboard and of containers made of paper and paperboard	9.79	4.43	1.55
23.61	Manufacture of concrete products for construction purposes	7.64	1.84	1.70
10.13	Production of meat and poultry products	6.00	3.13	5.52
28.13	Manufacture of other pumps and compressors	5.69	7.08	0.96
16.10	Sawmilling and planing of wood	4.80	2.12	2.22
10.71	Manufacture of bread; manufacture of fresh pastry goods and cakes	3.52	1.09	0.83

South				
10.41	Manufacture of oils and fats	20.17	7.36	0.35
33.15	Repair and maintenance of ships and boats	9.52	23.98	1.01
11.02	Manufacture of wine from grapes	6.00	23.98	0.50
10.61	Manufacture of grain mill products	5.28	6.44	2.62
33.12	Repair of machinery	4.72	0.86	1.08
25.11	Manufacture of metal structures and parts of structures	3.35	1.44	0.89
West				
29.31	Manufacture of electrical and electronic equipment for motor vehicles	11.90	7.25	1.88
16.21	Manufacture of veneer sheets and wood-based panels	8.16	5.27	0.84
16.10	Sawmilling and planing of wood	6.52	2.88	1.88
31.09	Manufacture of other furniture	6.44	3.92	1.75
23.61	Manufacture of concrete products for construction purposes	4.83	1.16	1.46
10.71	Manufacture of bread; manufacture of fresh pastry goods and cakes	3.83	1.19	0.96

Note: inf stands for infinity: reported for industries with no production in 2016.
Source: Ukrstat (2023), source of data: *https://tinyurl.com/bd6xyzfp* (accessed: 24 June 2024); calculations by wiiw. Growth is nominal. Only the top six largest industries (in terms of value-added shares) are reported plus a specialization indicator (i.e. comparison with shares of these industries in the national economy), as well as average (nominal) annual growth rates over the period 2016–2019.